



Contents lists available at ScienceDirect

Quaternary International

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

Tool production processes in lithic quarries from the Central Plateau of Santa Cruz, Argentina



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ARTICLE INFO

Article history:

Available online 16 August 2014

Keywords:

Raw material sources
In situ classification
Procurement strategies
Tool production
Argentine Patagonia

ABSTRACT

Lithic resources at the Central Plateau of Santa Cruz (Argentina) are abundant, ubiquitous and of very good quality for knapping. They have been exploited by hunter–gatherer societies since the latest Pleistocene until the Late Holocene. The study of their distribution, availability, and ways of exploitation at the quarries, together with the information stemming from the archaeological sites, enable the understanding of the first stages of tool production and consumption.

In this paper, two quarries from La María Archaeological Locality (Cantera de Sílex de CDM and Cantera Bosque Petrificado) are studied and compared. Their geomorphologic location is described. The lithological characteristics of the outcrops, the size of the stones, and the variability of raw materials available at them are also addressed. The accessibility and visibility of the quarries are analyzed. The way raw materials were exploited at the sources is evaluated taking into consideration their relationship with the local and regional structure of lithic resources. The information generated for the quarries is complemented and compared with the local trends identified for the habitation sites. This enabled the formulation of a general model about the first stages of production.

Although the quarries have different types of raw materials (flint and silicified wood), results show that similar technological strategies were implemented in them. These are in agreement with the general trend at the local and regional levels. Both sources are easily accessible from the surrounding landscape. They are visible from nearby areas. Probably, they were exploited mainly from nearby sites. At the quarries, the first stages of tool production were performed: core decortication and preparation and the production of blanks. The acquisition of raw material involved the selection of good quality nodules and boulders and the production of polyhedral cores knapped in multiple directions. These cores could be transported to the habitation sites or could be discarded in situ while still presenting active platforms. On the other hand, differences in some procurement practices might be related to decisions and variations linked to the particular characteristics of the resources in both outcrops.

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1. Introduction

In the last decades, the study of the lithic archaeological assemblages in Argentina has shifted from being exclusively focused on tools, to incorporating the analysis of raw materials and debitage. This has enabled the discussion about diverse aspects of the production and use of the artifacts. In this context, researchers have paid special attention to the regional availability of lithic resources and the lithological attributes of the raw materials. The analysis of the assemblages found at the workshops where tool production was finished is also regularly performed. In contrast, the

technomorphological study of lithic sources, focused on the understanding of the first stages of tool production, is underrepresented in the specialized literature.

Tool production involves several steps. The selection and procurement of raw material is the first stage of this process (Ericson, 1984; Collins, 1989–90; Nelson, 1991; Aschero et al., 1995; Andrefsky, 2005). Many different factors intervene in this stage. From a functional point of view, tools require certain morphologies, types of edges, and attributes of the raw material in order to achieve a desired function. These characteristics influence the way rocks are selected (Bamforth, 1986). At the same time, the regional lithic resource base (sensu Ericson, 1984) conditions the decisions regarding the selection of raw materials, the amount of energy invested in their curation and the transport strategies implemented (Mansur, 1999; Risch, 2002; Andrefsky, 2005). In this sense, many characteristics are considered relevant: the distribution, availability

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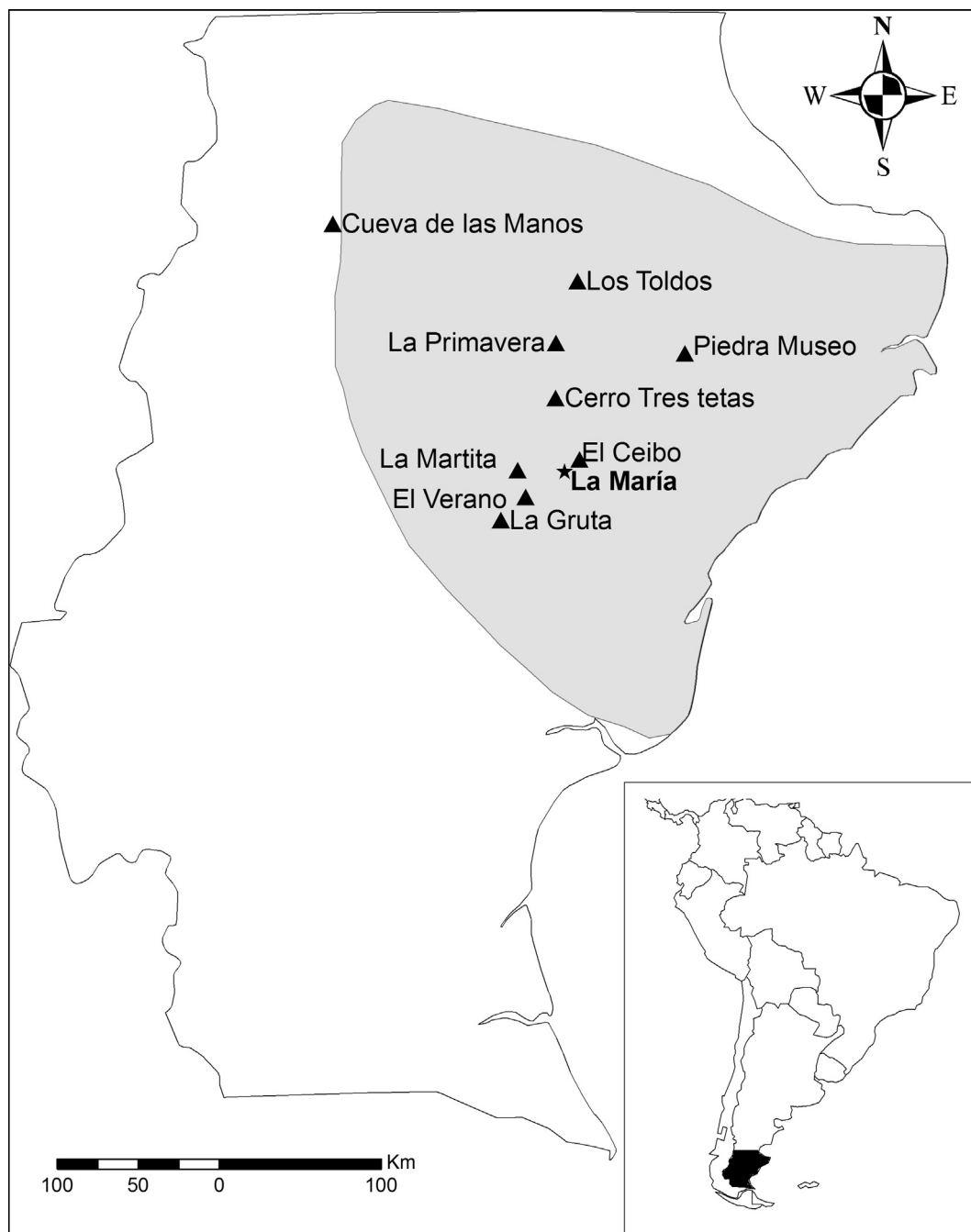


Fig. 1. Map of the Central Plateau of Santa Cruz with the main archaeological localities.

and quality of the raw materials (both for knapping and for fulfilling determinate tasks), the lithological diversity of a region and the attributes of the outcrops, as well as the visibility and accessibility of the sources (Ericson, 1984; Gould and Saggars, 1985; Bamforth, 1986; Beck and Jones, 1990; Andrefsky, 1994; Franco and Borrero, 1999; Escola, 2002; Andrefsky, 2009; Hermo, 2009).

Hence, lithic sources are the first context in which the technological strategies are applied (Ericson, 1984; Collins, 1989-90). These strategies are linked to the regional structure of lithic resources (availability, quality and characteristics of the raw materials), the needs related to the functionality of the tools, the specific activities in which these tools are going to be used as well as to different socio-economic and environmental variables (Cueto, 2013; Cueto et al., 2013). Therefore, in order to understand the

way in which the craftsmen managed the transformation of the rocks into tools, it is very important to carry out specific analyses of the procurement sources (Ericson, 1984).

This paper seeks to contribute to the understanding of the different ways of tool production and consumption that were developed in the past in the Central Plateau of Santa Cruz (Argentine Patagonia), an area which was inhabited by indigenous populations from the final Pleistocene until the late Holocene. For this, it is important to analyze the practices that the human groups implemented during the exploitation of the sources of lithic raw materials. This information is different and complementary to that obtained throughout many years of lithic research in the stratigraphic contexts of the region (Paunero, 2009a; Frank, 2011; Skarbun, 2011; Cueto et al., 2012).

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