

NEW APPROACHES TO THE STUDY OF HUNTER-GATHERERS OF THE NORTH COAST OF SANTA CRUZ (ARGENTINA)

THE USE OF ROCKSHELTERS

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The Patagonian region is the southernmost continental portion of the world and was colonized by modern humans approximately 12,000–13,000 years ago, only a few thousands of years after the initial peopling of North America (Borrero 2001). The first evidence of human presence in Patagonia was registered during Final Pleistocene to Early Holocene times on the river valleys crossing the Santa Cruz plateau and in the central Deseado Massif. In the Early Holocene, there is direct evidence of human presence on the sea coast by hunter-gatherer groups that exploited marine resources like mollusks and pinnipeds. In the Late Holocene, there was significant population growth in Patagonia, with the development of widespread exchange networks and a diversification in the tool kits of these populations. Examples include the introduction of pottery and specialized technologies for specific resources, including harpoon heads and grinding tools (Borrero 2001).

Throughout the millennia, Patagonian hunter-gatherers sought guanaco (*Lama guanicoe*), and supplemented their diet with other animal species (including mollusks) and vegetables. These human groups had a varied lithic technology, making use of high-quality raw materials available in the territory. This occupation process ended in the late nineteenth century with an abrupt population decline of the native Patagonian inhabitants (Borrero 2001).

The north coast of Santa Cruz (NCSC, Figure 1a) comprises the territory adjacent to the Atlantic coast of Argentinean Patagonia, located between the border of the provinces of Chubut and Santa Cruz to Laura Bay. To the west, it encompasses the intermediate zone between the coastline and the central Deseado Massif (Figure 1b). The archaeological

record is presented mostly on the surface as isolated finds or as large concentrations of lithic artifacts. In the coastal zone, the most common site type is shell middens, which are located on coastal dunes (upper Figure 2); these sites have stratified deposits that include materials such as bones and malacological remains. They also include lithic artifacts of local raw material such as red chert and non-local black obsidian (Ambrústolo 2011). Studies of the distribution of these sites suggest a use of space associated with the high availability of shellfish beds in certain sectors (Castro et al. 2003; Zubimendi 2010). The shell middens reflect an intensive use of marine resources on coastal sites, also indicating high rates of reoccupation from the Middle Holocene and mainly during the Late Holocene (Ambrústolo 2011; Castro et al. 2011; Zubimendi 2012; Zubimendi et al. 2005). Also, different types of human burials are recorded with radiocarbon dates between ca. 3000 and ca. 300 B.P.

The zone of territory characterized as intermediate (Figure 1b) shows a low archaeological density. These are mostly lithic surface concentrations of varying extent and density, recorded mainly in canyons and lagoons, which are interpreted as the product of short occupations (Castro et al. 2003; Zubimendi 2010).

In recent years, we have focused our research on this intermediate zone with the aim of evaluating whether the rocky outcrops were used as shelters or habitation sites in the past. We explore whether they have been part of the home ranges of the coastal hunter-gatherer populations of NCSC, and how they were used. The intermediate zone was likely used to obtain resources that are not available on the coast, such as very good quality lithic raw material.

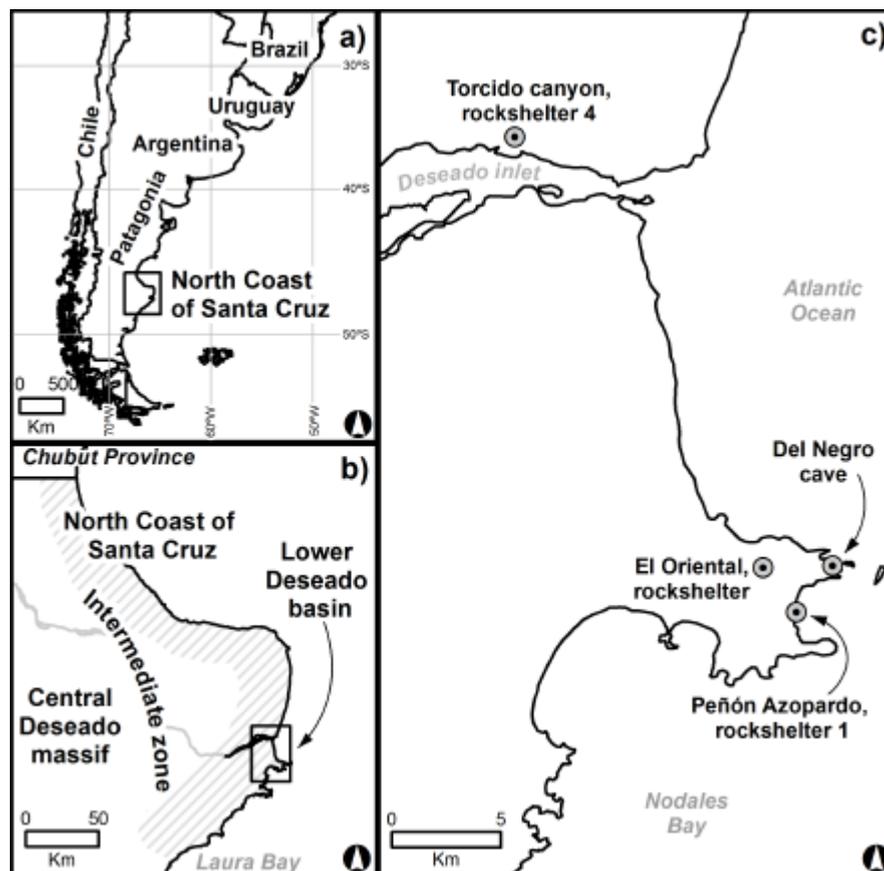


Figure 1. (a) Location of the north coast of the Santa Cruz archaeological area; (b) different zones mentioned in the text; (c) location of archaeological sites mentioned in the text.

We believe that studying the use of the coast and the intermediate zone could advance our knowledge of how hunter-gatherer populations exploited resources heterogeneously distributed in space. At this point in our research we begin with a simple model, but we believe that it is analytically useful for other regions in the world, where we can see clear differences in the distribution of resources. In this sense, it should be mentioned that the shellfish and pinnipeds are only found on the coast, while in the intermediate zone it is possible to find raw materials of very good quality for knapping and higher densities of guanaco. Undoubtedly, the hunter-gatherer populations employed strategies that implied different home ranges to procure resources either through direct procurement or through exchange networks. In this way, we believe that the study of the archaeological record of the rockshelters located in the intermediate zone (where the existence of other stratigraphic archaeological

sites is virtually null; see Zubimendi 2010) is a valid pathway of analysis to assess the extent of the home ranges of these and other coastal groups.

The Study of Rockshelters in the NCSC

We have identified several rockshelters in the lower Deseado basin and its surroundings (Figure 1c) that have provided evidence of human settlements in the past (Ambrústolo 2011; Ambrústolo et al. 2011). We began systematic studies to evaluate the role of rockshelters within the settlement and subsistence system of the human groups that occupied the NCSC during the Holocene. We believe that these studies will complement the information generated so far in the excavation of stratified shell middens on the coast and the distribution of lithic artifacts in the intermediate zone. Also, this information will allow us to deepen discussions related



Table 1. Location and Radiocarbon Dates from Rockshelters of the NCSC.

Location	Site	Chronology, b.P. (Lab Code)	References	
Coast	Cueva del Negro	1170 ± 110 (LP-2290)	Zubimendi et al. 2011	
		1220 ± 80 (LP-2047)		
		1290 ± 50 (LP-2279)		
		1340 ± 60 (LP-2065)		
		1390 ± 70 (LP-2320)		
	1730 ± 80 (LP-2071)			
	Peñón Azopardo, rockshelter 1	1690 ± 60 (LP-2560)	Ambrústolo 2011	
Intermediate zone	Alero El Oriental	1530 ± 60 (LP-2267)	Ambrústolo et al. 2011	
		15150 ± 80 (LP-2311)		
		5810 ± 110 (LP-2218)		
		5860 ± 90 (LP-2310)		
		Torcido canyon, rockshelter 4	6930 ± 100 (LP-2318)	This paper
			1690 ± 90 (LP-2908)	
		2760 ± 70 (LP-2762)		

to the mobility ranges of these hunter-gatherer populations in the context of effective use of space, considering the coastal and the intermediate zone. Both on the coast and in the intermediate zone, we found rockshelters with evidence of human occupation and radiocarbon dates from the Middle and Late Holocene (Table 1).

Studies of the stratigraphic sequences of rockshelters from this area revealed the earliest evidence of occupation of the NCSC (Table 1). These were found at the site Alero El Oriental, an overhang located in a small canyon (called *cañadones* in Patagonia) 1.5 km off the coast (Figures 1c and lower 2). At this site, there is also evidence of the use of marine resources since ca. 7000 B.P., mainly some bones with cut-marks and thermal alterations of Otariidae (*Arctophoca australis* and *Otaria flavescens*), several species of sea birds, and several malacological remains with thermal alterations, these last directly associated with hearths (Ambrústolo et al. 2011). Non-local obsidian flakes have been found in these early occupations, which would have come from Pampa del Asador (near the Andean cordillera), at least ca. 380 km to the west (Ambrústolo et al. 2012). This suggests the existence of some kind of relationship, probably via exchange networks, since at least ca. 7000 B.P.

In general, the archaeological record in rockshelters can be characterized by the succession of several small and discrete

hearths with low frequencies of bone and malacological remains and also medium frequencies of lithic artifacts. These characteristics suggest that the occupational events might have been of relative low intensity, and in most cases the faunal record shows that the terrestrial resources have been used with higher intensity than marine ones. However, it should be mentioned that in most rockshelters marine resources are recorded in lower densities, during both the Middle and the Late Holocene. Evidence suggests that the rockshelters were used as refuges of medium or short duration and were part of the home ranges for hunter-gatherer groups who occupied the coast for longer periods of time. It is likely that the location of rockshelters, usually within small rocky canyons, favored a greater variability in resource exploitation, given that in their vicinity there is usually a higher availability of lithic raw materials of good quality. The small canyons also provide an advantage for hunting by interception of guanacos (*Lama guanicoe*) (Ambrústolo 2011; Ambrústolo et al. 2011). The rockshelters near the coast also have access to marine fauna, especially mollusks, which may be transported several kilometers inland. The Cueva del Negro site should also be mentioned. The occupations in this cave located in the coast itself are dated between ca. 1600 and 1200 B.P. and correspond to a dense shell midden that occupies almost the entire volume of the cave. Like the shell middens on coastal dunes, it has a very dense archaeological record with evidence of intensive exploitation of marine resources, primarily mollusks and otariidae, and a high density of lithic artifacts and other types of instruments, like lithic knives, bone harpoon heads, and spear-thrower hooks (Zubimendi et al. 2011).

Figure 2 (opposite). (upper) A shell midden in the coastal zone and (lower) Alero El Oriental rockshelter.

Final Considerations

Previous studies in NCSC have been focused almost exclusively on coastal shell middens, which reflect an intensive exploitation of marine resources, especially during the Late Holocene (Ambrústolo 2011; Castro et al. 2011; Zubimendi 2012; Zubimendi et al. 2005, 2010).

New preliminary studies currently concentrated on rockshelters suggest that, by the Middle and Late Holocene, the coastal hunter gatherers who occupied the lower Deseado basin used different habitation contexts (sand dunes and rockshelters) in a complementary manner. These variations were likely related to the distance of the resources (lithic raw material and food, like mollusks and pinnipeds), their predictability, their availability, and the scope of the home ranges of human groups. We believe that the choice of settlement sites in the NCSC was mainly related to the availability and accessibility of various marine resources. The evidence registered in these new studies of rockshelters suggests, as has been said previously (Castro et al. 2003; Zubimendi 2010), that the intermediate zone would have been used with less intensity.

The contexts of occupations recorded in shell middens would be related to residential use. The evidence identified in the rockshelters suggests a more general use, linked with activities undertaken in relatively short periods, perhaps related, for example, to the supply of siliceous raw materials suitable in size, which are not common on the coast. By the same token, these contexts may have been used for the exploitation of food resources not available on the coast, mainly guanacos.

Advances in the analysis of rockshelters and the territory near the coast will let us expand our understanding of the dynamics of the use of the coast, the intermediate zone, and also the Patagonian interior. Existing data for the NCSC can be complemented and integrated with information from rockshelters, allowing discussions on a more regional and temporal-spatial scale. Also, these studies will allow us to further evaluate the relationship between mobility and strategies of use of space carried on by human populations that inhabited the coast and the interior of Patagonia in the past.

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