

Chapter 10

Changes and Continuities of Hunting Practices from the Late Pleistocene to the Late Holocene Among Nomadic Societies of the Patagonian Plateaus



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Abstract The research developed from different lines of evidence in the central plateau of Santa Cruz and the Somuncurá plateau of Río Negro, provides information for approaching the hunting strategies carried out by hunter-gatherer societies who inhabited these massifs in the past. The information about both regions results from the analysis of archaeofauna, lithic technology, rock art, stone structures, special topographies and archaeological landscapes. In this work we introduce a summary of the progress achieved so far, from which we have managed to define patterns related to the hunting strategies developed in these Patagonian plateaus, and their variations along time. The results we discuss show changes in hunting strategies, linked to the incorporation of new technologies. While a close encounter strategy is proposed for the Pleistocene-Holocene transition and early Holocene, distance hunting strategies seem to become more relevant towards the mid and late Holocene. This change suggests that the tactics deployed over time tended to incorporate more social actors cooperating in hunting events.

Keywords Pleistocene/Holocene · Patagonian plateaus · Weapons · Hunting blinds · Rock art

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The first painters were hunters whose lives, as everybody else's in the tribe, depended on their close knowledge of animals. Yet the act of painting was not the same as the act of hunting: the relation between the two was magical...we do know that painting was used to confirm a magical "companionship" between prey and hunter or, to put it more abstractly, between the existent and human ingenuity.

John Berger 2001: 21¹

10.1 Introduction

From the early colonization of the Patagonian plateaus until well into the twentieth century, the hunter-gatherer peoples hunted guanacos to a very great extent, and complemented their consumption with other animals, such as birds, armadillos and sea fauna. The hunting practices of the Tehuelche Indians are well represented in chronicles and ethnographic works; however, these descriptions generally refer to collective hunts on horseback. Chronicles describing the hunting activities of pedestrian hunters from the Patagonian continental sector are very scarce, and they mainly refer to individual hunting (Pigafetta [1519–1522] 1986). Thus, the ethnographic and ethnohistorical perspective presents only a late stage of these societies. Even at this stage, the archaeological materiality is elusive. From the seventeenth century up to the present, there is no archaeological evidence supporting guanaco appropriation by the collective action of hunters on horseback. The closest data, so far, come from late Holocene sites in northern Tierra del Fuego (Borrero 2013; Legoupil 2011; Santiago and Salemme 2010, 2016), where the collective hunts took place among pedestrian societies (Bridges 1978; Gallardo 1910; Furlong 1912; among many others). However, Borrero et al. (1985) arrived at a different conclusion from their research in Bloque Errático 1 site, north Tierra del Fuego. In this small rockshelter, they found scarce archaeological evidence of hunting and butchering events of no more than two guanacos. The authors interpreted this record as the result of solitary hunts from 785 ± 120 RYBP (GR8846G). When comparing with other archaeofaunal contexts of continental Patagonia, they stated ...*"In our opinion, this gap [the absence of archaeological evidence of kill and butchering sites in Patagonia] is because the ancient Patagonians lacked collective hunting techniques"* (Borrero et al. 1985: 273). However, more archaeological information is currently available for testing the hypothesis of highly sophisticated collective hunting strategies throughout the hunter-gatherer occupation of Patagonia (Dellepiane 2019; Dellepiane and Cassiodoro 2019; Flores Coni 2019; Goñi 2010; Santiago and Salemme 2010, 2016).

This work arose from the attempt to expand our ideas about the strategies and tactics developed in the Patagonian plateaus for hunting herd animals as guanacos (*Lama guanicoe*). These were the main prey throughout the human settlement in those regions. Their meat, fat and marrow constituted an important source of nourishment for human subsistence, and their hide, tendons and bones were used to make tools, clothes and dwellings. Beyond these economic aspects, guanaco hunting in the past

¹berger, john. 2004. *The Shape of a Pocket*. Vintage, New York

had a symbolic dimension, which was strongly expressed in rock art (Aschero 1996, 2018; Aschero and Isasmendi 2018; Carden 2008; Casamiquela 1981; Miotti and Carden 2007; Paunero et al. 2005; Podestá et al. 1995; Re 2016, 2017; Schobinger and Gradin 1985; among others). For 12,000 years, the lifestyle of the people from extra-Andean Patagonia was based on hunting and gathering. Without doubt, guanaco was the favourite prey for human consumption, and the most represented one in the archaeological contexts. However, many aspects related to the procurement of these camelids, i.e. their complementary preys, the ways of structuring domestic spaces and logistic activities, as well as the weapons that were used, changed throughout time (Belardi et al. 2018; Borrero 2001; Goñi 2010; Mengoni-Goñalons 1999; Miotti and Salemme 1999; among others). In that sense, the general purpose of this work is to present archaeological, contextual and landscape information for arguing the dynamics of change in hunting strategies, both temporally and spatially.

We understand a hunting strategy as a set of actions, resources and techniques applied to develop a previously established plan of catching animals for numerous social uses. In these terms, and limiting the objective to the supply of gregarious animals as guanacos, it is expected that a strategy should change in a society according to the needs of the group at different times of the year, the animal condition, the number of hunters and the land characteristics (Borrero 2013; Kelly 1995). On the other hand, we consider tactics as the methods and ways of carrying out the plan; in this case, stalking and ambushing guanacos in the collective hunting strategies developed in special places of the Patagonian plateaus. Tactics are closely connected to changes introduced in the four main factors of a strategy: hunters, prey, weapons and landscapes. On this basis, the specific objectives of our work are: (1) to summarize our progress in the study of hunting strategies from different lines of evidence and (2) to discuss the variability of strategies and tactics developed throughout the Holocene for seeking prey in the Patagonian plateaus. Within the local and regional scales (Delcourt and Delcourt 1988), some of the questions we aim to approach are: Why are we finding design variation in lithic projectile points when hunting is specialized on a main resource? What archaeological markers are useful for recognizing hunting fields? How do we recognize archaeological markers that reflect changes in hunting strategies and/or tactics? We consider that these questions can provide us with elements for defining hunting strategies more clearly and exploring their continuity or discontinuity throughout time and space.

10.2 Archaeological and Ethnographic Models of Large Ungulate Hunting

The tactics developed in a hunting strategy vary according to its factors: humans, prey, weapons and organized landscape. In this work, we will refer to the collective hunting strategy for catching guanacos and other large animals in the interior aquatic environments of Patagonia (Miotti 2010a, b). Based on the archaeological

expectation that collective hunts should leave more evidence than individual hunts (Kelly 1995; Legoupil 2011), we review the ethnographic information about these kind of practices in order to test it against the material record of the analyzed sites. In collective/co-operative hunts, the weapon system employed may be the same as the individual hunting weapon systems (spear, bow and arrow or bola stones, known as “boleadoras”), but their archaeological expectation is different. Whereas the material record in the latter is expected to be elusive (Borrero et al. 1985), collective hunts imply a larger archaeological signal, with concentrated archaeofaunal abundance resulting from communal human action (Churchill 1993).

Some models developed in Argentina provide information about different strategies for capturing large gregarious animals and define the archaeological markers for identifying them (Aschero and Martínez 2001; Belardi et al. 2017; Legoupil 2011). Two of these works, related to the late Holocene, propose hunting practices involving the construction of stone structures as hunting blinds. Aschero and Martínez (2001) offer great detail about the different “strategies” that could be inferred from the archaeological record of dry puna landscapes with scarce vegetation and wide fauna visibility. On the other hand, Belardi et al. (2017) model different hunting tactics by stalking through hunting blinds, in which variability would be expressed by the arrangement of these structures in the vast plateaus. A third model was proposed by Legoupil (2011) on the basis of chronicles about the collective hunting practices of the Selk’nam people (Furlong 1912; Gallardo 1910; among many others). It describes the tactics of enclosing guanaco herds using topographic and vegetation features, through which the beaters led the prey to a “shooting” place where hidden archers waited. This information only agrees in certain points with the archaeological record (Borrero 2013; Santiago and Salemmé 2010, 2016), but it is persuasive as regards human cooperation and the use of landforms and special vegetation formations for capturing guanaco herds. It is noteworthy that the archaeological and ethnographic cases that the author considered correspond to pedestrian hunter-gatherers from Tierra del Fuego (Legoupil 2011). This example reinforces the idea of systematizing the study of the landscape is key to interpret the archaeological evidence of weapons and archaeofaunas in specific loci. Other models of tactics involved in collective/cooperative hunts, including stalking, guidance, enclosing and ambush of large ungulates, were also proposed for other contexts from archaeology and ethno-archaeology; and a chronological span from Pleistocene to modern times (Binford 1991; Bonomo 2005; Brink 2008; Frison and Todd 1987; Meltzer et al. 2002; Speth 1983). Most of them suggest the use of special landforms, i.e. ravines, gullies, parabolic dunes and confluences of streams, as “traps”, driving lanes and natural corrals for enclosing bison (Carlson and Bement 2013; Churchill 1993; Davis 1987; Frison 1982; Frison and Todd 1987; Speth 1983; among many others). These collective hunting strategies have also been widely documented in the rocky deserts of the Near East, where driving lanes and corrals were built by stacking stones. The use of some of those *kites* dates back to 7000 years b.c. (Holzer et al. 2010). However, in Patagonia, the archaeological information on driving lanes and enclosing structures is elusive. The study of these collective tactics requires scanning landscapes in search of diagnostic evidence of slaughter and butchering events, which allow inferring

cooperation, planning, stalking and ambush. Geological and vegetational features (Bonomo 2005; Furlong 1912; Santiago and Salemmé 2016), as well as rock art, are other relevant indicators for analyzing the relationships between hunters, prey and places (Aschero and Isasmendi 2018; Carden 2008; Miotti et al. 1999, 2004, 2010; Re 2016, 2017).

10.3 Factors Approached in the Studied Cases

The different factors of a hunt strategy can be approached from a relational framework that considers materialities and attitudes. In this work we include:

1. Hunters. The appropriation of gregarious animals is very different from hunting animals of solitary habits. Although cooperation of hunting parties through the assistance of two or more hunters is necessary for both sorts of prey, human decision will depend on several reasons, such as skill, availability of prey in different seasons, social fusion and social fission of hunters (Kelly 1995). Indicators of these decisions may be found in rock art's subject matter, in the spatial arrangement of artificial and natural stone structures (i.e. hunting blinds, grand isolate blocks and parabolic dunes) and in the archaeological assemblages, especially on weapons. Furthermore, it is important to consider the location of these evidences, which may seem random at first glance.
2. The ethological characteristics of prey. Guanacos (*Lama guanicoe*) are camelids present in all the archaeological cases analyzed. This gregarious and territorial species is sympatric with other camelids and mutualist with rheids, which are flightless and gregarious birds. They have been available in the extra-Andean Patagonian ecosystem since the late Pleistocene.
3. Weapons. The lithic projectile points were designed for a specific weapon system—hand weapon, throwing distance weapon, with or without atlatl-. These systems imply tactics that range from capture by approach, where the hunter-prey are a few centimetres distant, as in the use of hand weapons, to distance capture, where the hunter-prey are separated by distances of several metres, as in the use of throwing weapons (Churchill 1993).
4. The topography. In the hunting landscape, water and shelter are prey attractors, and basins are topographic traps for driving fauna. Furthermore, stone structures (natural and artificial), as well as the distances and intervisibility between structures and animal trails, conform this hunting landscape.

In this work, these factors are evaluated and compared on the basis of the available archaeological information of the Deseado Massif and the Somuncurá plateau. The evidence from the former comes from Piedra Museo and La Primavera localities (Fig. 10.1g), while the data from the latter corresponds to Laguna Azul locality and the Yamnago complex, which includes Los Dos Amigos (LDA), Tromen Niyeu and Toco Luan (Fig. 10.1e). These sites are situated in relation to the lagoons of the

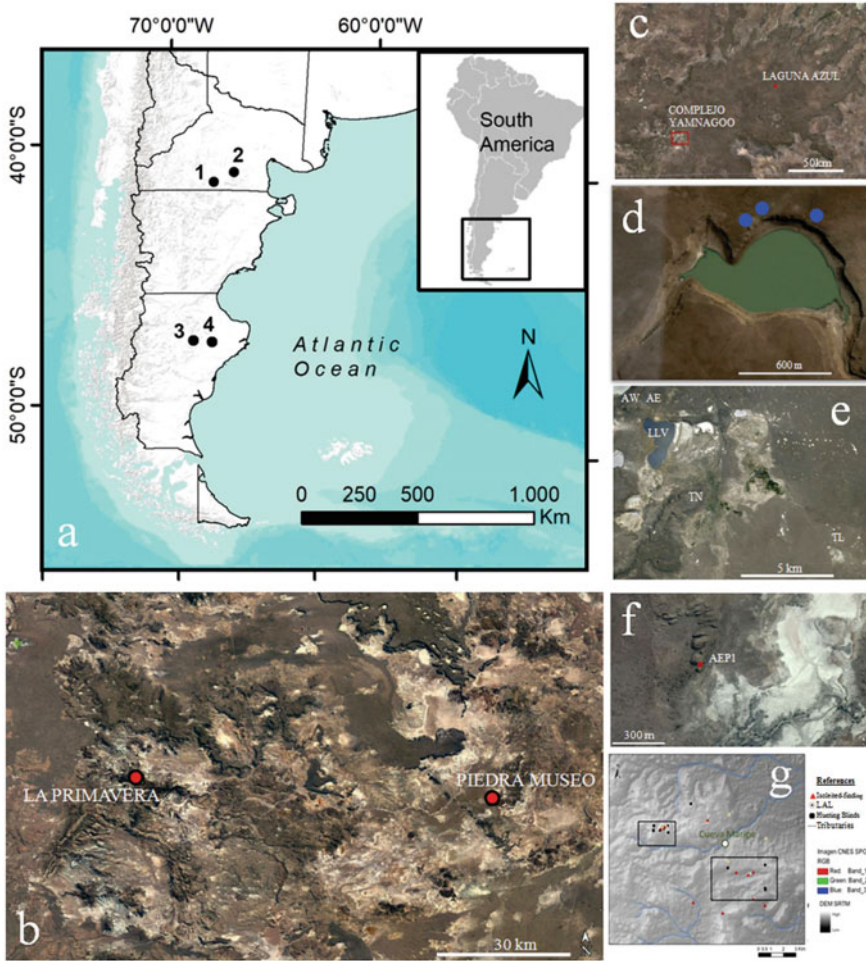


Fig. 10.1 **a** Geographic location of the studied localities in the two plateau sectors: Yamnago complex (1) and Laguna Azul (2) in Somuncurá; La Primavera (3) and Piedra Museo (4) in the Deseado Massif; **b** Detail of the archaeological localities in the Deseado Massif; **c** Detail of the archaeological localities in Somuncurá plateau; **d** Sectors with hunting blinds at Laguna Azul (blue dots); **e** Sites at the Yamnago complex; **f** Rocky outcrops and palaeolake at AEP-1; **g** Cueva Mariposa site and Alta Primavera

nineteenth-century hunt complex known as Yamnago (Claraz 1988). The archaeological evidence from both sectors spans from the Pleistocene/Holocene transition to the late Holocene (Table 10.1).

Table 10.1 Summary of the archaeological evidence

Chronological periods	Locality	Site/archaeological component	Weapons	Prey	Rock Art	Stone structures	Topography
Pleistocene /Holocene transition c. 12-10 ky BP to Early Holocene c. 9.9-8 ky BP	Piedra Museo	AEP-1 SU 6 (c. 11-10.5 ky BP)	—	<i>Lama guanicoe</i> <i>Lama gracilis</i> <i>Hippidion</i> <i>saldiasi</i> <i>Myiodon</i> sp. Rhea sp.	Hand stencils?	—	Outcrop at border of paleolagoon. Several large boulders and rockshelters
		AEP-1 SU 4/5 (c. 10.5-9.2 ky BP)	2 fragments of FTP Spear/Pike	<i>Lama guanicoe</i> <i>Lama gracilis</i> Rhea sp.	Hand stencils?	—	
Middle Holocene c. 7.9-3.5 ky BP	Los Dos Amigos	Amigo Oeste On surface	131 FTP (complete and broken)	—	—	—	Butte opposite lagoon
	La Primavera	Cueva Maripe Component 1 (c. 9.5-8 ky BP)	2 unstemmed points	<i>Lama guanicoe</i>	Hand stencils	—	Cave in bottom of canyon (wetland)
	Piedra Museo	AEP-1 SU 2 (c. 7.7-7.4 ky BP)	8 triangular unstemmed points, 1 rhomboidal point (darts)	<i>Lama guanicoe</i> Rhea sp.	Hand stencils, dotted alignments	—	Outcrop at border of paleolagoon Several large boulders and rockshelters
	La Primavera	Cueva Maripe Component 2 (c. 7.7-4.1 ky BP)	4 unstemmed points (dart) 3 bola stones	<i>Lama guanicoe</i> Rhea sp.	Hand stencils	—	Cave in bottom of canyon (wetland)

(continued)

Table 10.1 (continued)

Chronological periods	Locality	Site/archaeological component	Weapons	Prey	Rock Art	Stone structures	Topography
Late Holocene c. 3.6-0.13 ky BP	La Primavera	Cueva Maripe Component 3 (c. 3.6 -1 ky BP)	2 stemmed points (bow and arrow)	<i>Lama guanicoe</i>	Hand stencils, dotted alignments completing previous scenes (zoomorphic figures and circles)	—	
	La Primavera	Cueva Mora (c. 3.6 ky BP)	—	<i>Lama guanicoe</i>	Circles, lines and dots	—	Rockshelter in creek slope
Late Holocene c. 3.6-0.13 ky BP	La Primavera	Alta Primavera/Las Mercedes. On surface	7 bolas 16 stemmed/unstemmed (bow and arrow) 1 unstemmed (dart)	—	—	15 hunting blinds	Upper slope at high pampa
	Laguna Azul	Laguna Azul Hunting blind 3 (c. 1.9-1.7 ky BP)	19 leaf points (dart/spear) 6 stemmed (bow and arrow), 1 unstemmed point	<i>Lama guanicoe</i>	Rectilinear geometric figures, axes	91 stone structures in two sectors at lagoon border	High pampa lagoon border
	Yamango complex	Toco Luan Hunting blind 5 On surface	1 unstemmed point	<i>Lama guanicoe</i>	—	5 hunting blinds	Lagoon border in floodplain of temporary arroyo
		Los Cuatro Aleros (c. 1 ky BP)	2 points	<i>Zaedyus pichiy</i> <i>Rhea sp.</i>	—	—	Rockshelters at lagoon border

(continued)

Table 10.1 (continued)

Chronological periods	Locality	Site/archaeological component	Weapons	Prey	Rock Art	Stone structures	Topography
		El Pantano (c. 0.2 ky BP)	3 points	<i>Lama guanicoe</i> <i>Equus</i> <i>Ovis aries</i> <i>Zaedyus pichiy</i> <i>Rhea sp.</i>	—	—	Open air site at lagoon border
		El Manantial Tapera Isidoro (c. 0.13 ky BP)	7 points	<i>Lama guanicoe</i> <i>Rhea sp.</i>	—	—	Lagoon border in floodplain of temporary arroyo
		Tromen Niyeu Plateau	—	—	—	6 hunting blinds	Plateau Edge

10.4 Patagonian Landscapes and The Studied Localities

Extra-Andean Patagonia, apparently homogeneous, actually presents a wide range of environments and resources. It is assumed that, as nowadays, there were also significant regional ecological differences in the past. At least two major ecological regions are recognized, the steppe and the forest; each with its own subset of topographic and climatic conditions, soil types, precipitations and wind regimes, grass species associations and faunal communities that create a mosaic steppe with forest islands.

Within the steppe, the Deseado Massif of Santa Cruz province is a volcanic plate, which is an independent geologic block with a specific environment (De Giusto et al. 1980). Towards the west, the basaltic plateau is crosscut by deep ravines, which transform into temporary and shallow creeks to the east. Interior drainage basins (“bajos”) and shallow lagoons are very frequent; volcanic cones and tuff formations produce a hilly landscape that interrupts the monotonous plateau of Patagonian steppe.

The Somuncurá plateau is a volcanic massif that reaches 1000 m a.s.l. in the middle of Río Negro province (Fig. 10.1). The landscape is characterized by plateaus cross cut by erosive processes of the Pliocene-Quaternary (Guarido 1998; Remesal et al. 2001), with their base levels in the local endorheic basins. This topography, together with the availability of groundwater emerging as spring water, configures small ponds and/or salinizing lagoons. In these water reserves, which are limited by high plateaus and surrounding hills, the humidity and grass concentration is greater than in the extra basin zones, which are usually higher on the basaltic plateau, and lack shelter from the strong and permanent winds of the region.

10.5 The Evidence in the Deseado Massif

10.5.1 Piedra Museo Locality

Piedra Museo (PM) is located in the northeast of the Deseado Massif, Santa Cruz province (Fig. 10.1b and f). It corresponds to the lower endorheic basin of the Elhornia Creek. Several open air sites and rockshelters have been found in this locality across the creek that flows to Laguna Grande. AEP-1 site is a rock shelter situated about 50 metres from the margin of a currently dry “bajo” (paleo-shallow lake), which is an enclosed basin and a real attractor of animals and human beings (Fig. 10.2a). At present, the rural workers “puesteros” hunt guanacos and ñandúes (*Rhea pennata*) in an area of the paleo-shallow lake bank, near the spring waters.

Two broad occupational moments have been inferred for AEP-1; the first one towards the Pleistocene/Holocene transition (ca. 11,000 RYBP) and the second towards the middle Holocene (ca. 7500 RYBP). Within the oldest component, the stratigraphic unit (SU 6) presents evidence that suggests the use of this place for hunting and butchering megafauna and camelids, as well as the modern fauna of guanacos and rheids (Marchionni 2013; Marchionni and Vázquez 2012; Miotti 1996;

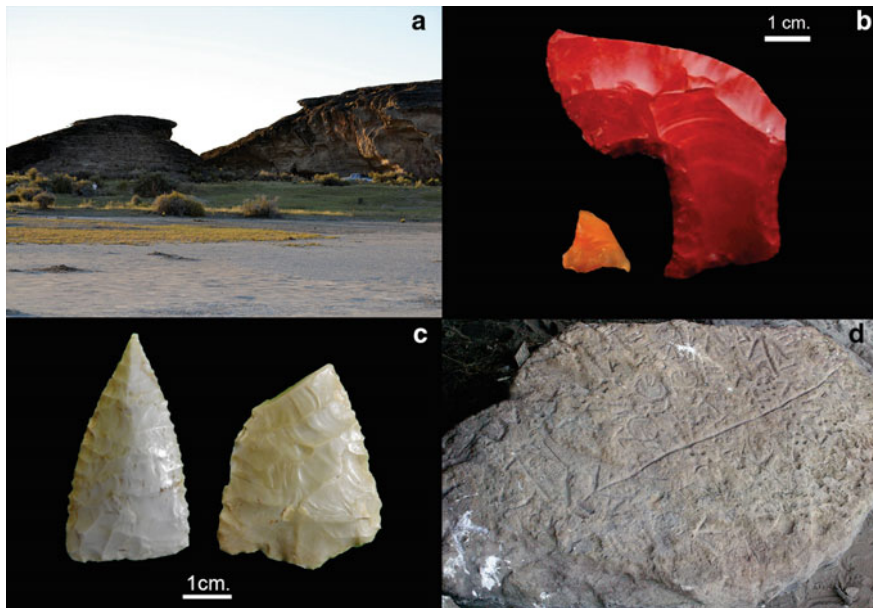


Fig. 10.2 a AEP-1 site at Piedra Museo locality; b Fish tail point (FTP) fragments from SU4/5; c Projectile points from SU2; d Engraved boulder from AEP-1

Miotti et al. 1999; Salemme and Miotti 1998). The second occupational pulse is registered in SU 4/5, dated back to the period between 10,500–9290 RYBP. This assemblage provides evidence of hunting events (bone piles) and butchering, mainly of guanaco, with a low record of Pleistocene species (Marchionni 2013; Miotti et al. 1999; Miotti and Salemme 2004). Although the technological assemblages of both units (SU6 and SU4/5) resemble in the prevalence of unifacial artifacts, bifacial objects are present in the second occupation (SU4/5), including two fragments of fishtail projectile points (FTP) (Fig. 10.2b; Cattáneo 2002; Lynch 2016; Miotti 1995). The mid-Holocene occupations (ca. 7700–7400 RYBP) were recorded in the upper component of the site (SU2). During this period, numerous activities were carried out in residential occupations, where the guanaco was the main faunal resource (Marchionni 2013; Marchionni et al. 2010; Miotti and Marchionni 2011). The mid-Holocene lithic assemblages present greater artifact variability than the previous occupations. In these assemblages, artifacts show an increase of bifaciality (Cattáneo 2002; Hermo 2016) and the designs of the projectile points are more diverse than in the earlier components (Hermo et al. 2017; Fig. 10.2c). In Piedra Museo, rocky structures used as hunting blinds have not been recorded, so far. However, the spatial distribution of the outcrops and the grand isolated blocks on the lagoon banks could have been suitable for hiding.

In correspondence with the occupational redundancy inferred in AEP-1, there is a recurrent signalling of the place by means of rock art. The most common painted

motifs are the hand stencils on the walls and ceilings of AEP-1 and Cueva Grande (CG), located less than 100 m from the former site. The presence of pigments and a painted slab in the oldest layers of AEP-1, suggests that the painting activities could have started in the Pleistocene/Holocene transition, when the place was used for hunting and butchering animals. Nevertheless, the chronological relationship of the painting events with the archaeological components needs to be more accurately defined (Carden 2020). Another kind of rock art expression, petroglyphs, have been registered on the horizontal surfaces of large boulders, which are the remains of ancient roof fall events in the interior of both rockshelters. The engraved repertoire consists of lines, circles and complex curvilinear labyrinths, as well as bird, guanaco, feline and horse footprints, sometimes arranged in trails. Human handprints and footprints are also present in Cueva Grande (Carden 2008; Fig. 10.2d). The position of the engraved boulder of AEP-1 above the top layer suggests that it collapsed from the ceiling after the middle Holocene human occupation, dated between ca. 7700 and 7400 years BP and interpreted as a locus of multiple activities. Therefore, the production of petroglyphs may correspond to the end of the middle Holocene or, most likely according to the regional background, to the late Holocene (Miotti and Carden 2007). Considering the scarce late Holocene evidence in AEP-1 in comparison to the middle Holocene and Pleistocene/Holocene transition occupations, it is possible that both rockshelters were specially used for ritual activities linked to the production of petroglyphs, while other activities (i.e. residential, cinegetic) were carried out nearby (Carden 2008). The large concentration of animal footprints and trails in the engraved boulders is relevant if it is considered that this place was used from early moments for ambushing, driving and capturing prey.

10.5.2 *La Primavera Locality*

La Primavera is 80 km west of Piedra Museo, in the Deseado Massif (Fig. 10.1b and g). Its topography is characterized by extensive plains with a gentle east regional slope and terrain elevations ranging between 400 and 900 m. a. s. l, cross cut by numerous temporary streams and canyons.

Cueva Maripe is the main site of the locality. It is a large cave where domestic activities have been recorded throughout the entire archaeological sequence (Miotti et al. 2007; Fig. 10.3a). Three occupational components were defined through radiocarbon dating (Miotti et al. 2014a). Component 1 corresponds to the Pleistocene-Holocene transition and the early Holocene (between ca. 9500 and 7000 RYBP). In these assemblages, there is no record of extinct species, and guanacos correspond to the main utilized resource, with a greater emphasis on the selection of appendicular portions (Marchionni 2013). The technological context of this component consists of unifacial artifacts associated to triangular non-stemmed projectile points (Fig. 10.3b and c) (Hermo 2008; Hermo and Lynch 2017; Lynch 2016). Component 2 corresponds to the mid-Holocene (between 7700 and 4100 RYBP). Guanaco is



Fig. 10.3 La Primavera: **a** Cueva Maripe site and environmental context; **b** and **c** Unstemmed triangular projectile points from Component 1; **d** Bola stones from Component 2; **e** Stone structures from Alta Primavera

still the main resource in that period, although there is a trend towards more intensive processing (García Añino 2018). This situation, together with the presence of rheid eggshells, is probably related to the seasonal occupation of the site and a more intense hunting of guanaco herds in times of environmental stress (García Añino and Mosquera 2014; Marchionni 2013, 2016; Miotti 2012). Regarding lithic technology, four projectile points were recorded among the mid-Holocene lithic artifacts (Fig. 10.3b, c and d). Bola stones ($n = 3$) are incorporated as new weapons for the development of new strategies for obtaining resources (Hermo 2008; Hermo and Lynch 2017). Radiocarbon dating places the occupations of Component 3 in the late Holocene (ca. 3600-1000 RYBP). The lithic assemblages show that blades were the basic blanks for manufacturing different typological groups (Hermo 2008; Hermo and Lynch 2017; Lynch 2016). There is a trend towards the design of artifacts smaller than those of the previous periods (Hermo 2008). Two projectile points were recovered from this component; the presence of bone retouchers could be linked to the technological change observed in the lithic assemblage and to the development of specific activities in particular sectors of the site (Marchionni 2013; Miotti and Marchionni 2013, 2014). For this moment, guanacos are still the main hunted prey. The trend towards intensification on guanaco hunting and a grater processing of this resource observed for the mid-Holocene, increases in this period (García Añino 2018; Marchionni 2013; Miotti 2012).

The archaeological record of other sectors of La Primavera locality complements the evidence from Cueva Maripe. Together, they suggest an occupational redundancy of different microenvironments (i.e. canyon, slopes and high pampas) throughout the Holocene for developing hunting practices. At Alta Primavera and Las Mercedes localities (Table 10.1; Fig. 10.1g), stone structures assignable to hunting blinds are present (Magnin 2010; Magnin et al. 2015). Fifteen structures of this kind have been registered; generally oriented towards the wind direction. They present semi-circular or straight morphologies, and some of them are intervisible (Figs. 10.3e, 10.4a and b). In the surface, artifacts associated to these structures, large and small stemmed projectile points, non-stemmed projectile points and bola stones outstand (Magnin et al. 2015). Based on the techno-morphological analysis of the projectiles recorded in La Primavera, at least three weapon systems were determined: bola stones (boleadoras), bow and arrow and dart/spear.² While the dart/spear system may have been used during the early and mid-Holocene (Hermo 2016), the bolas are present in contexts from the mid and late Holocene, and the emergence of the bow and arrow is recorded from the late Holocene. The presence of relatively large projectile points, associated with spear systems, has been recorded only on the surface; therefore, it has not been able to determine the chronology of the use of these weapons.

The presence of pigments in the stratigraphic contexts of Cueva Maripe suggests that the cave was painted since the beginning of the site's occupation. Among the rock art motifs recorded in this site, hand stencils are predominant. Two panels depict possible hunting scenes with quadruped zoomorphic figures related to circles and

²Given that in many archaeological cases it is not possible to distinguish dart points from spear points, we prefer to use the term "dart/spear".

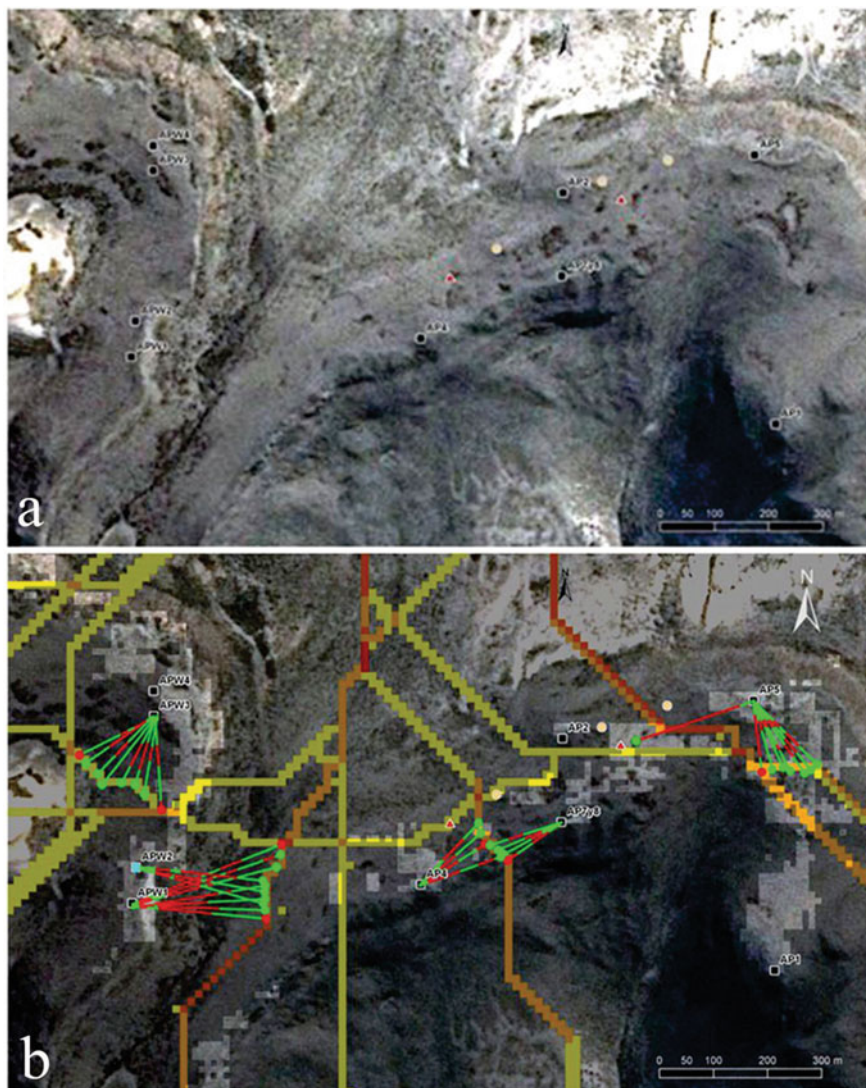


Fig. 10.4 a Distribution of structures in Alta Primavera; b Intervisibility analysis between structures and between structures and paths

dotted alignments (Carden 2008). Circles may represent water springs or lagoons frequented by animals, while the lines of dots could be figuring the animals' trails or their enclosing by people (Fig. 10.5a–c). The superimpositions and the different preservation of motifs show that the dotted alignments were added later to the circles and animals, completing and modifying the previous scene. The association between quadrupeds and circles is repeated in Los Ventisqueros locality, near La Primavera.

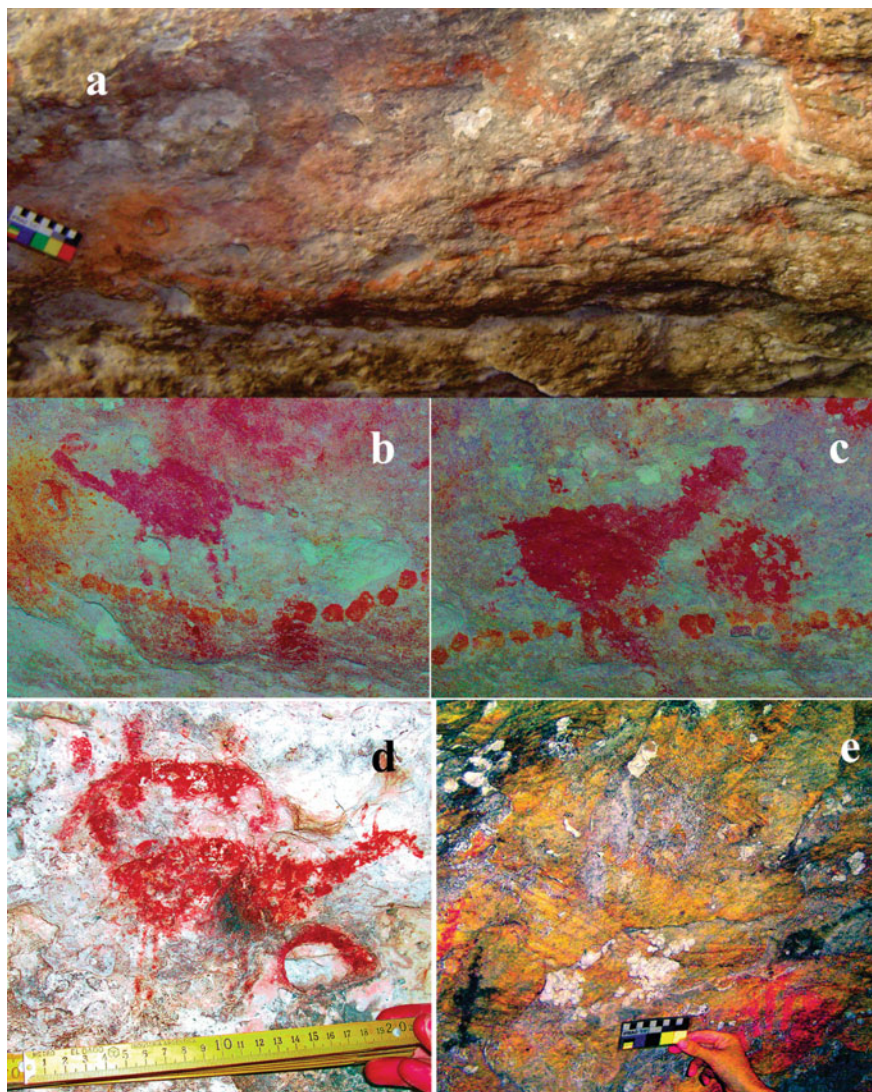


Fig. 10.5 a Rock art panel n° 7, Cueva Maripe; b and c Details of Panel 7, Cueva Maripe: zoomorphic figures (interpreted as guanacos) related to circles and dotted alignments. D Stretch lre scale 15; d Los Ventisqueros: zoomorphic figure (guanaco) related to painted hole and a dragged finger motif. D Stretch lrd scale 15; e Cueva 1, Cañadón de la Vfibora: individual hunting scene. D Stretch lbk scale 15

In this case, the circular figures (shallow lakes?) were achieved by painting the borders and interior of natural hollows within a rockshelter (Fig. 10.5d). The only representation of a hunting scene including humans was recorded in Cueva 1 of Cañadón de la Víbora; it depicts an individual pursuing a guanaco (Fig. 10.5e). Although we have no contextual elements for assessing the chronology of these images, the better preservation of the dotted alignments from panel 7 of Cueva Maripe compared to the underlying motifs', suggests that they are relatively recent, from which we assign them to the late Holocene (Table 10.1). However, the age of the previous zoomorphic figures remains unknown. If the dotted lines represent the enclosing of guanacos or guanaco trails, it would be reasonable and congruent with the hunting tactics inferred for this period.

10.6 Evidence in the Somuncura Plateau

10.6.1 *Yamnago Complex*

This environment of flooding plains, located in the low basin of the Talagapa stream, varies according to the rainy or dry periods, which have an impact in the extent of Laguna de Las Vacas and the wetland sectors around Cerro Los Dos Amigos (LDA) (Fig. 10.1c and e). This sector is referred to as the “Yamnago Hunting Complex” by the chroniclers of the Nineteenth century (Claraz 1988). It consists of three different archaeological localities, the oldest of which is Los Dos Amigos (Fig. 10.1e). The evidence of the archaeological site Amigo Oeste (AW) has been interpreted as a locus for replacing weapon lithic heads, where more than 100 fragments of fishtail projectile points were probably deposited during the Pleistocene/Holocene transition (Miotti and Terranova 2015; Miotti et al. 2010; Terranova 2013). South East from LDA, the small Toco Luan lagoon (Fig. 10.1e) was identified in historic times as a guanaco collective hunting place (Boschín and Del Castillo Bernal 2005; Claraz 1988; Miotti and Terranova 2015; Miotti et al. 2004b; Terranova 2013). Five semi-circular stone structures were recorded in this locality, near the NNE bank of the dry lake (Fig. 10.6a–c). Numerous faunal remains in an advanced stage of weathering were recorded in these stone structures. Among them, it was possible to identify the presence of guanaco's long bones and a fragment of a projectile point.

The Tromen Niyeu plateau stands out in the Yamnago hunting complex; six stone structures (of annular shapes and simple piles) were found in its northern end (Fig. 10.5d; Miotti et al. 2004). This plateau offers a wide panoramic view of the entire Yamnago complex, since the wetland can be seen to the East, including localities Toco Luan to the SE and Los Dos Amigos to the NW (Fig. 10.6d). At the foothills of the Tromen Niyeu plateau, towards Laguna de las Vacas, there are archaeological concentrations and sites (i.e. Los Cuatro Aleros, El Pantano and El Manantial/Tapera de Isidoro, Table 10.1) evidencing hunting activities during the late Holocene.

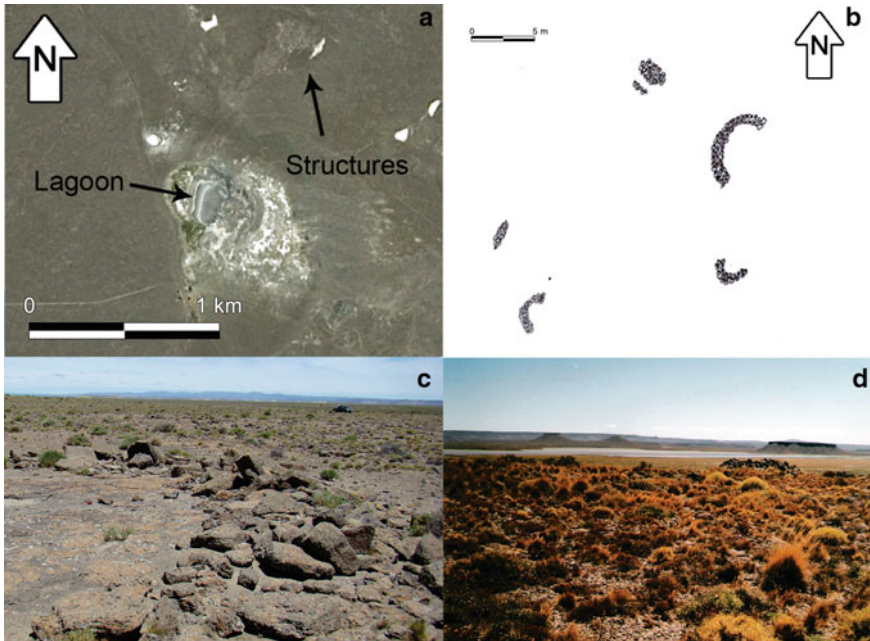


Fig. 10.6 Yamnago Complex: **a** Toco Luan locality; **b** Stone structure from Toco Luan; **c** Stone structure from Tromen Niyeu plateau; **d** Panoramic view of “bajo” from Tromen Niyeu plateau

10.6.2 *Los Dos Amigos: The Gate of the Yamnago Complex*

The most conspicuous feature in the Yamnago complex is Los Dos Amigos hill. It is a volcanic landform reworked into two hills by aeolic action, located on the northern bank of Laguna de Las Vacas, the baseline level of the Talagapa basin. Both relictual elevations were called Amigo Oeste (AW) and Amigo Este (AE) according to their geographic orientation. Thus, Los Dos Amigos (LDA) locality comprises Los Dos Amigos hill, the Talagapa basin and its adjacent plain (Hermo and Terranova 2012; Miotti 2010c; Miotti et al. 2009) (Figs. 10.1e and 10.7a).

These landforms are particularly visible from several kilometres away; on the other hand, the landscape can be widely observed in all directions from their summits. Due to their position in front of Laguna de Las Vacas and the vast adjacent grassland plain, they constitute a strategic place for controlling faunal resources and human movements. The lithic assemblage was assigned to the Pleistocene-Holocene transition; it includes numerous fishtail projectile points (FPT), most of which are fractured, as well as bifacial and discoidal stones (Fig. 10.7b). All the lithic materials were recovered on surface in Amigo Oeste (AW) site; there is no record of faunal remains (Hermo and Terranova 2012; Hermo et al. 2013; Lynch et al. 2017; Miotti and Terranova 2015; Terranova 2013; Terranova and Lynch 2017).

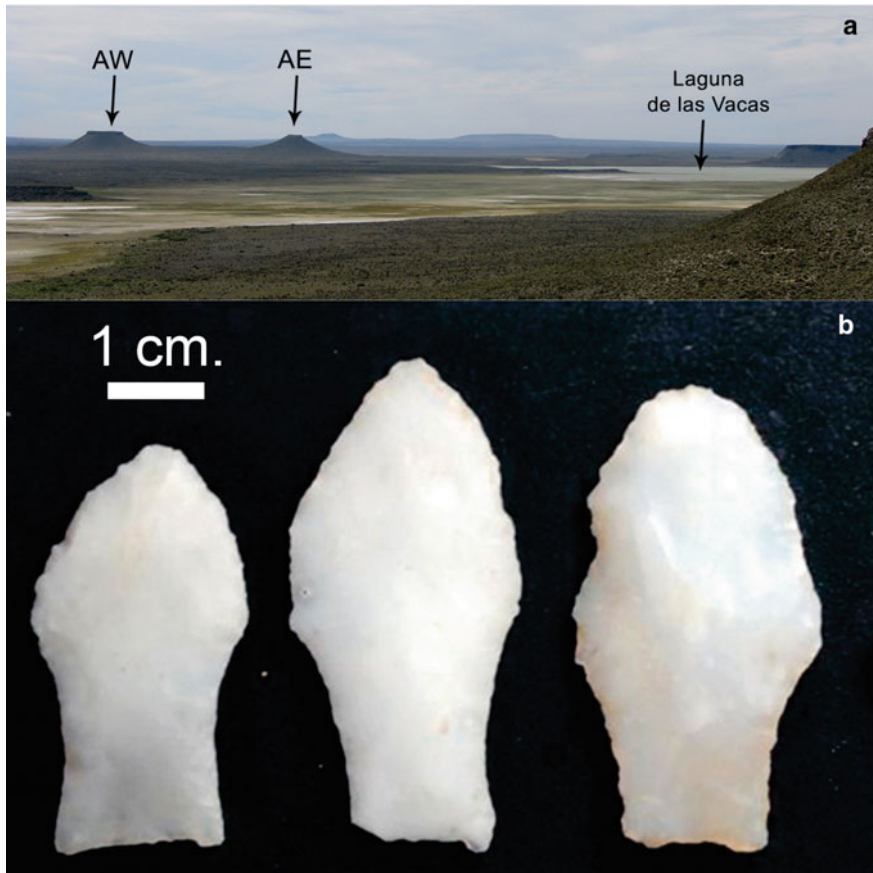


Fig. 10.7 Los Dos Amigos: **a** View of the locality including the two buttes and the lagoon; **b** Fishtail projectile points

10.6.3 *Laguna Azul Locality*

Laguna Azul (LA) is one among several shallow lakes of the eastern sector of the Somuncurá plateau (Fig. 10.1c and d). The archaeological evidence was found in different points of this lacustrine basin, located in an endorheic “bajo” (shallow depression) on the basaltic plateau. Due to the presence of water in the temporary shallow lake of this wetland “bajo” environment, birds and mammals are abundant and varied (Fig. 10.8a). The most outstanding anthropic modification of this landscape is constituted by different stone structures built from basaltic rocks. They were interpreted as hunting blinds and dwellings (Fig. 10.8b) (Miotti et al. 2014b, 2016). Together with other lakes of the area, LA evidences the circulation of people and goods in the Somuncurá massif during the Late Holocene (Gradin 1971; Lynch and



Fig. 10.8 Laguna Azul: **a** Landscape; **b** Stone structures; **c** Lanceolate points; **d** Stemmed points

Terranova 2019; Lynch et al. 2018; Miotti 2010c; Miotti et al. 2014b, 2016, Vargas Gariglio et al. 2019).

The stone structures, particularly those of semicircular morphology ($n = 24/91$), are located in different sectors close to the plateau edge. So far, some of them have been interpreted as residential bases, whereas those distant from the dwelling sector and closer to the basaltic walls may be related to hunting activities: stalking and hunting, shelter and control (Lynch and Terranova 2019; Lynch et al. 2018; Miotti et al. 2014b, 2016; Vargas Gariglio et al. 2019). Their temporal assignment corresponds to the late Holocene, since c. 2000 RYBP (Miotti et al. 2014b, 2016), a moment for which an increase of human frequency and density in the area is inferred (Barrientos and Pérez 2004).

In the domestic sector there is a high frequency of lithic artifacts, including grinding tools (hands and mortars on surface and stratigraphy), archaeofaunal remains and pottery (Lynch and Terranova 2017, 2019; Lynch et al. 2018; Miotti et al. 2014b, 2016; Vargas Gariglio et al. 2019). The weapons recorded in the dwelling sector are 19 lanceolate projectile points assigned to dart/spear projectiles (Fig. 10.8c), six stemmed projectile points related to the bow and arrow (Fig. 10.8d),

and a triangular non-stemmed projectile point that could not be linked to any specific weapon system yet (Lynch et al. 2019).

The faunal remains analyzed so far come from one of the excavated hunting blinds (LA-P3) and correspond to 25 bone specimens, 15 were assigned to *Lama guanicoe*. The remaining bones were referred to mammals because of their high fragmentation. The rock art recorded in the dry shallow lake gullies includes rectilinear geometric figures painted in red, among which axes are outstanding. Geometric motifs are also represented in the portable art (blocks and lithic plaquettes) (Blanco 2015, Blanco et al. 2013; Lynch et al. 2018; Vargas Gariglio et al. 2019). Table 10.1 summarizes the selected factors and characteristics for outlining the hunting strategies developed throughout time in the different localities of both plateau sectors.

10.7 Hunting Strategies in the Archaeological Sites

In this section, the results obtained from the different analytical lines are compared in order to evaluate the hunting techniques developed in the different studied contexts. The archaeological cases correspond to different chronologies and places. The differences are consistent with the variability of the archaeological record and topographic setting. The archaeofaunal information confirms that guanacos were the main resource throughout all the hunter-gatherer occupation. Therefore, the analytical approaches applied provide a general idea of the different hunting tactics that could have been at stake according to changes that occurred in any of the four factors mentioned above: hunters, prey, weapons and landscapes. Hereafter, we introduce our interpretation of the hunting strategies developed during the different occupational moments:

1. Pleistocene-Holocene transition/early Holocene

The rocky outcrop of Piedra Museo could have contributed to the tactic of driving animals towards the lagoon, where hunters could stalk hidden between the “outcrops and boulders” at its bank. They may have waited for guanacos while they drank water until being full, knowing that these animals drink only once a day (Cajal 1989). These animals’ behaviour was surely widely known by hunter-gatherers, who would have quietly waited until the animals left the water source feeling heavy because of the liquid volume consumed, which made running difficult. In this situation, hunters would have approached the shallow lake bank with darts/spears, thrusting their projectiles to the swamped animals. During the period represented in the Lower Component of AEP-1 site, the favourite prey were gregarious animals (i.e. camelids, American horses), though they also killed xenarthrans, as *Myodon*. However, we lack information about the behaviour of these big edentates in relation to water. Certainly, they were slow animals of several tons, so it is safe to infer the use of spears for hunting these animals, probably making them swamp in the nearby paleolake. Yet, there is no clear archaeological signal in AEP-1 indicating the slaughter

and processing of these animals at the paleolake banks. The only inference that can be drawn is that some animal parts could have been butchered at the site, which implies an occasional use of this site. Nevertheless, for Piedra Museo, as well as for the Yamnago dry lakes, it is expected that the swamping of guanacos, extinct camelids, horses and ñandúes could have been an important tactic, regarding the sympatric and mutualist behaviours of these animals and the hand weapons and darts (FTP) used at this early period. Therefore, it is highly likely that the hunting strategy involved the bogging down and close approach (Table 10.2).

The swamping tactic is described in detail for guanaco collective hunts of the nineteenth century in the Yamnago complex (Claraz 1988). In this sense, and even though we lack zooarchaeological evidence of the different preys, such as we have for AEP-1, we can assume that the same tactic was used in Los Dos Amigos locality. The link between AEP-1 and AW is given by the use of the same sort of weapons: FTPs. Variability has been observed in the sizes of the FTPs from AEP-1 and AW (Flegenheimer and Weitzel 2017), which could be related to different weapon systems (Hermo et al. 2017, 2018). However, the landscape settings, ontologies (Laguens and Alberti 2019) and material culture are akin; consequently, the links with animals could have been very similar. Thus, AW site is understood as a key place for sighting animals and people from the top of the hill. The hunting plan would have been carried out by hunters hidden on the shallow lake bank for ambushing guanacos after they drank water. The massive disposal of fragmented FPTs in AW does not only suggest that the summit was a sighting and projectile replacement place, but also that it could have been a votive place where the broken FPTs were ritually “offered” to the hill through routinized practices related to the accomplished hunts (Miotti and Terranova 2015 and references quoted therein). We need further research in order to find an archaeological context near the shallow lake, with evidence of animal hunting and processing.

Finally, no hunting blind structures have been recorded in the mentioned localities, and this strengthens the idea of the landscape as a favourable scenario for prey stalking and hunting. In the case of Cueva Maripe, the archaeological evidence is different from the previous cases because, it is interpreted, from the beginning of the occupation, as a site of multiple activities (domestic space) to which preys were brought from hunting places. Since the preys were transported quite complete, a short distance to the hunt stations is inferred (Marchionni 2013). For this reason, we consider that the topography near Cueva Maripe (Table 10.1), unlike Piedra Museo and Los Dos Amigos, does not suggest favourable scenarios for hunting planning. However, the archaeological evidence supports hunting techniques from throwing weapon systems as darts (Table 10.1; Fig. 10.3b and c). The cave’s rock art reinforces the idea of guanaco hunting through the representation of animals enclosed in dotted lines, which may have represented human hunting fences (Carden 2020; Fig. 10.5a).

When comparing the available information concerning the early moments of the human occupation in both plateaus (Deseado Massif and Somuncura), it allows inferring a hunting strategy characterized by close approach, driving and swamping of

Table 10.2 Interpretations about hunting strategies

Chronology	Sector/Locality	Landscape/topography	Stone structures	Weapon Systems	Fauna	Rock Art	Hunt tactics	Strategies
Pleistocene/Holocene Transition to Early Holocene 8 ky BP	Los Dos Amigos	plains around lagoon, butte with panoramic view	no	atlatl	no data	no	bogging and close approach	individual and collective
	Piedra Museo, Lower Component, Cueva Maripe, Component 1	low hills around lagoon, corridor between outcrops connecting plateau and bajo	no	spear, dart/atlatl and pike	generalized hunting focused on guanaco, complemented by megafauna	yes	driving /ambush, bogging and close approach	individual and collective
Middle Holocene 3.5 ky BP	Piedra Museo, Upper Component	low hills around lagoon, corridor between outcrops connecting plateau and bajo	no	spear, dart/atlatl	focused on guanaco	yes	driving, ambush and cornering	collective
	Cueva Maripe, Component 2	high pampas and canyons	yes	bola stones, spear, dart/atlatl,	focused on guanaco	yes	driving, ambush and cornering	individual and collective
Late Holocene	Laguna Azul, Toco Luan, Cueva Maripe Component 3, Alta Primavera/Las Mercedes	high pampas, canyon edge and lagoon border	yes	bola stones, spear, dart/atlatl, bow and arrow	focused on guanaco	yes	driving, ambush and cornering	individual and collective

gregarious animals (Table 10.2). This involves a deep knowledge of both, the “attractor” places and prey behaviour. It also implies the logistical use of special topographies as natural traps. This idea is related to the hunting models developed for large ungulate hunting since the end of Pleistocene in various places of North America and the Near East, where the topography played a main role in planning the driving and capture of animals (Frison and Todd 1987; Haynes 1993; Hershkovitz et al. 1987; Holzer et al. 2010).

2. Middle Holocene

The only two sites with chronologies for this period are AEP-1 of Piedra Museo and Cueva Maripe of La Primavera, both in the Deseado plateau, Santa Cruz. These contexts evidence multiple activities; however, they provide valuable clues for discussing aspects of the hunting strategies used (Marchionni 2013; Marchionni et al. 2019).

For Piedra Museo, strategies similar to those of the Pleistocene/Holocene transition could have continued in this period, with an important role of the landscape in the driving and stalking of hunt animals. The great difference for these middle Holocene occupations is that guanacos and ñandús were the main prey. They continue grazing in the paleolake basin and its spring waters at present. This suggests that the paleolake was a place of natural animal circulation, where hunters stalked hidden on the banks and carried out the killing using darts with non-stemmed triangular projectile points (Fig. 10.2c). The increase of ñandú remains in the mid-Holocene component of AEP-1 implies that they were hunted together with guanacos, using the same weapon systems. It is worth remembering that guanacos and ñandús share the same niche and it is usual to see both herds together. In reference to lithic technology, the presence of non-stemmed triangular projectile points marks a change in hunting technologies with respect to the occupations with FTPs. This change is an argument in favour of the specialization on guanaco and ñandú once the large Pleistocene mammals were no longer available. Finally, we conclude that the topographic trap with the outcrops and the lagoon as component parts was a tactic tool used since the oldest occupations. The animal footprints and trails (i.e. guanacos and birds) represented in the petroglyphs of Piedra Museo support its continued use as a hunting field during the late Holocene (see Fig. 10.2d). They also imply that, beyond the importance that Piedra Museo had in the long term for hunter-gatherer subsistence, it was a key place in the construction of a shared memory through daily, ritual and symbolic motivations.

Unlike Piedra Museo, in Cueva Maripe the capture with bolas is inferred in addition to the projectile hunt (Table 10.1; Fig. 10.3d). This suggests a more deliberate use of the first mentioned weapon in open and flat sectors as the close high pampas on the top of La Primavera canyon. In addition, even though bolas represent a technological innovation for trapping running prey, this does not imply the abandonment of other weapon systems that could also have been used for killing animals (i.e. pikes, darts). For this period in Cueva Maripe, the main prey is still the guanaco; however, the presence of ñandú bones and eggshells in these assemblages positions this species as a potential complementary prey (Table 10.1).

3. Late Holocene

For moments later than 3000 years BP, we find abundant evidence of hunting tactics in both plateau sectors. Whereas the Deseado Massif record comes exclusively from La Primavera locality, in Somuncurá it comes from the Yamnago complex and Laguna Azul locality (Table 10.1).

In the sector of Alta Primavera, in addition to the bola stones that are dated to the mid-Holocene in Cueva Maripe, small projectile points indicates the incorporation of a new weapon technology: the bow and arrow. Nevertheless, in this sector, non-stemmed triangular projectile points corresponding to darts were also found. They are similar to those from components 1 and 2 of Cueva Maripe and from the stratigraphic survey of Cueva Mora. The main prey, which is still guanaco, is registered in both stratified sites, and are assigned to late chronologies (Table 10.1).

Another relevant aspect of the latest moments in the locality is the construction of hunting blinds in strategic parts of the animal trails, as was recorded in association to Alta Primavera (Figs. 10.3e and 10.4a). According to the models proposed by Aschero and Martínez (2001) and Belardi et al. (2017), these hunting blinds organized the hunting strategy in key spots of the landscape, where it was possible to intercept the movements of guanacos from and towards the low areas of the canyon. The intervisibility between the Alta Primavera structures (Fig. 10.4b) is a clear signal of hunting by stalking between two or more hunters.

The studies carried out in La Primavera allow assuming three possible hunting tactics (Magnin et al. 2015): (1) the use of natural animal circulation paths from an individual position of observation and wait; (2) a similar tactic using more than one waiting position and (3) collective hunting in open spaces or high pampas with bola stones or with bow and arrow (Table 10.2).

In Somuncurá, the use of *bajos* and the construction of hunting blinds on the plateau edges were frequent during the late Holocene. This pattern is found both in landscapes of the high pampas, as Laguna Azul, and in the Yamnago complex. While in the former the hunting blinds are associated with shallow lake banks, in Yamnago they are on hillocks and plateaus related to the wetland of the Talagapa basin (Tables 10.1 and 10.2). In both cases, these structures are associated with special topographies that enhance the conditions for hunting by stalk. As in the Deseado plateau, the intervisibility of the hunting blinds and their location were strategic for the development of cooperative hunting.

For the late Holocene, in the analyzed localities (Table 10.1), as in other Patagonian plateaus (Dellepiane 2019; Dellepiane and Cassiodoro 2019; Flores Coni 2019; Gofñi 2010), the presence of these kinds of structures is standardized for the collective hunts of gregarious animals. The zooarchaeological information from Laguna Azul and Toco Luan evidences that guanacos were the favourite prey in the Somuncurá plateau, complemented by rheids and other smaller species (Table 10.1). As regards weapons, in all the studied sites projectile points corresponding to dart/spear and bow and arrow systems were recovered. These technologies are associated to bolas and,

as in the Deseado Massif, they support the coexistence of different weapon systems that, could be oriented to the capture of the same resource.

On the basis of these results, the layout of hunting blinds on shallow lake borders and its correlation with the use of throwing weapons, suggest a strategy of collective hunting by driving animals from the *bajo* to the high pampa, so that hunters stalking in hunting blinds could intercept them. In this strategy, it is also necessary to consider the cooperation of “beaters”, who drove the animals from the bottom of the lakes towards the plateau edges. The summary of our interpretations for the different moments of the hunter-gatherer occupation in both study areas is shown in Table 10.2.

10.8 Discussion and Conclusions

If we consider the four main factors for hunting gregarious animals in the Patagonian plateaus, it appears that the positive topographies from the interior aquatic environments (i.e. bajos with shallow lakes and canyons) must have been essential for planning hunts. Hunting blinds were built as hiding structures for the development of collective hunts in open pampas without natural outcrops. Although these stone structures are a recurrent architectural features during the late Holocene, other kinds of hiding structures made with perishable materials as camouflage (i.e. branches, leather, etc.) should not be disregarded. Bushes are scarce in the rocky pampas of the Deseado and Somuncurá plateaus, so the construction of such structures must have required the use of materials brought from the lowlands.

The main technological changes occurred in the mid-Holocene, when bola stones were first used, and in the late Holocene, with the introduction of the bow and arrow (Matarrese 2015). However, neither of these weapon systems excluded the use of the dart/spear for approach hunting. Even though it implied a greater risk, it complemented the other systems by providing the “final stroke” to the already wounded prey.

Some of the natural features of the plateau landscapes, as well as rock art, had a significant hunting agency, since they marked the beginning of the strategy with favourable routines, and closed the strategy through gratitude routines (Andrew and Owoc 2010; Boivin and Owoc 2004). The petroglyphs of Piedra Museo, the paintings of La Primavera and the FTPs on the summit of AW, are the material correlates of these kinds of practices in the landscape. Hills, water sources, mineral outcrops and rock art were immersed in social networks and symbolically active (Taçon 2004). The process of the hunter-gatherer landscape construction began with the first human occupations of Patagonia and increased during the late Holocene, in conjunction with a demographic growth and a more frequent rock art production. This change is linked to more intense social relationships among hunter-gatherers, implying long distance mobility circuits and exchanges (Carden et al. 2018; Miotti 2008). Through their recurrent location on basaltic walls surrounding water sources, petroglyphs marked

places in hunter-gatherer territories. The intervisibility of rock art sites through hills suggests that these positive features signalled the paths that connected them (Carden 2008; Miotti et al. 1999).

The studies carried out so far in the two plateau sectors from different lines of evidence, allowed us proposing changes in the collective hunting strategies developed throughout different moments of the hunter-gatherer occupation. The incorporation of new weapon systems and hunting blinds towards the late Holocene marks the most significant change in terms of the productivity of the collective hunts. The bow and arrow, aided by stone structures from which hunters could control herds without being seen, allowed thrusting projectiles through longer distances than by bogging with spear/darts, in which the hunter-prey distances had to be short (Churchill 1993). This suggests that there was a deliberate intention to create artificial scenarios that improved the driving of prey towards infallible ambushes. At the same time, we understand that the existence of artificially built hunting landscapes before the late Holocene could have involved perishable materials. Beyond this possibility, we recognize a series of concrete changes in human decisions as regards how to materialize and mark these places.

To summarize the variations in hunting strategies from the Pleistocene-Holocene transition to the late Holocene, we propose the following conclusions to be tested against future evidence:

1. At the Pleistocene-Holocene transition, from c. 11,000 years BP, spears or hand pikes were meant for a close approach hunt, while spears, pike points or darts with atlatl were used for hunting at short distance.
2. At the mid-Holocene, from c. 7000 years BP, other throwing projectiles, as bola stones, were incorporated; however, the use of spears and darts continued.
3. Towards the late Holocene, c. 2000 years BP, a new system, bow and arrow, appeared, which allowed hunting at longer distances (dozens of metres). Nonetheless, the use of the two previous systems remained in use.

In short, the technological innovations did not exclude the use of previous weapons. This tendency may be explained by the structure of the landscapes and the relevance of certain topographies in the organization of hunting strategies. Furthermore, the creation of artificial landscapes with stone structures and the spatial distribution of hunting parties, improved prey observation, driving and capture, and prevented hunters from being seen. Hunting blinds are more abundant in wide plains with high visibility (i.e. Laguna Azul, Yamnago complex and Alta Primavera). However, it is also possible that animals could have been driven towards archers with the aid of topography, considering that these stone structures are usually on the plateau edges where guanacos' ascend and descend trails are found.

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