RESEARCH REPORT

Landscape and Rocks in the East-Central Portion of the Tandilia Range (Buenos Aires Province, Argentina)

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The east-central Tandilia Range (Pampean region, Argentina) witnessed recurrent human occupations during the final Pleistocene and early Holocene. Here we introduce an updated synthesis about material culture and landscape studies based on eight archaeological sites. The lithic technology of the early groups that inhabited the micro-region includes a highly selective acquisition of rocks and their transport from different sources, sometimes from very long distances. There is significant inter-assemblage variability among sites; within this diverse context, the assemblage at Cerro El Sombrero is exceptional, including infrequent artifacts and a large number of Fishtail projectile points. Our findings indicate people with a deep knowledge of their environment, their stones, and geographic features, some of which had distinctive uses and meanings. We consider that this network of ideas, places, and objects suggests that people in the micro-region were deeply engaged with their surroundings by the Pleistocene–Holocene transition.

Keywords landscape studies, lithic technology, Fishtail projectile points, Pampean Region

1. Introduction

The Pampean region was inhabited by hunter-gatherer groups at least since the late Pleistocene. Currently, 28 archaeological sites attributed to the Pleistocene–Holocene transition and to the early Holocene bear witness to these early occupations (Tables 1, 2, 3). In this paper, we summarize new and updated information, based on eight of these archaeological sites located in the east-central portion of the Tandilia Range (Table 1), a micro-region that was the setting of recurrent human occupations since late Pleistocene and early Holocene times and throughout the Holocene (Mazzia 2011a, 2011b; Mazzia and Flegenheimer 2007) (Figure 1).

The east-central Tandilia area has been systematically studied with a micro-regional approach since the late 1980s (Flegenheimer 1980, 1991, 2003, 2004). In the last six years, new topics of research were added (Colombo 2013; Mazzia 2010/2011; Weitzel 2010), resulting in detailed analyses of lithic assemblages, discoveries of new early sites, and the extension of previously known quarry areas. In this paper, we combine information from recent and previous studies to assess the relationship early people established with these places and the area in general.

The analysis is conducted from a perspective based on material culture and landscape studies. Objects are considered as part of a social network, both embodying and shaping social identities of their makers and users (e.g., Appadurai 1986; Chilton 1999; Meskell 2005; Miller 1987, 2005; Pels et al. 2002; Shanks and Tilley 1987). Seen from this perspective, artifacts, as material expressions of relationships, play an important role in the communication of practical knowledge as well as aesthetic and symbolic values.

The material aspect of human life, however, involves not only objects but also space (e.g., Acuto 1999; Bender 2002; Gamble 2001; Ingold 2000; Low 2003; Thomas 2001, 2008; Tilley 1994, 2010; Tuan 2008 [1977]). In this sense, places are not a simple background but an integral part of daily social practices. As such, places represent the context of collective experiences, and they are both physical entities and symbolic creations (Potter 2004; Rose 1995; Tilley 1994; Tuan 2008 [1977]). Therefore, taking into account material and spatial relationships in a particular time allows considering a network of interconnected places: past social landscapes (Mazzia 2013b; Thomas 2001; Tilley 1994; Tuan 2008 [1977]).

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Table 1
Archaeological sites from the east-central Tandilia Range micro-region

Site	Lab sample (charcoal)	^{14}C yr BP	Calibrated yr BP	References
Cerro La China S1	AA-8953	10,804 ± 75	12,780–12,600	Flegenheimer (1980)
	AA-1327	10,790 ± 120	12,810–12,550	
	AA-8952	10,745 ± 75	12,730–12,540	
	I-12741	10,730 ± 150	12,510–12,280	
	AA-8954	10,525 ± 75	12,780–12,450	
Cerro La China S2	AA-8955	11,150 ± 135	13,160–12,880	Zárate and Flegenheimer (1991)
	AA-8956	10,560 ± 75	12,550–12,330	
Cerro La China S3	AA-1328	10,610 ± 180	12,690–12,270	Flegenheimer (1986/1987)
Cerro El Sombrero A1	AA-4765	10,725 ± 90	12,720–12,500	Flegenheimer and Zárate (1997)
	AA-4767	10,675 ± 110	12,690–12,430	
	AA-5220	10,480 ± 70	12,460–12,220	
	AA-4766	10,270 ± 85	12,210–11,765	
	AA-5221	8060 ± 140	9140–8580	
Cerro El Sombrero Cima	–	–	–	Flegenheimer (2003)
Cueva Zoro	AA82707	10,153 ± 61	11,978–11,710	Mazzia (2013a)
	AA82706	10,094 ± 62	11,948–11,409	
	AA85687	8859 ± 64	10,208–9,655	
Los Helechos	Be-137747	9640 ± 40	11,170–11,055	Flegenheimer and Bayón (2000)
El Ajarafe	AA84039	8787 ± 41	9939–9606	Mazzia (2011a)
	AA84037	8574 ± 42	9600–9508	

2. Environmental setting

The extensive grasslands of the Pampean region are interrupted by two mountain ranges: Tandilia, located in the central and eastern Buenos Aires province, and Ventania, located in the southwest. Tandilia, where our study area is situated, is characterized by low, discontinuous hills with a northwest–southeast orientation traversing the eastern plains for 350 km (Demoulin et al. 2005; Zárate and Rabassa 2005). Bedrock is composed of an igneous and metamorphic Precambrian basement, which is unconformably overlain by Paleozoic quartzites and late Precambrian sedimentary rocks. In the east-central region, the hills are characterized by flat summits, and hilltops and hillsides are both covered by loess deposits and quartzite fragments with grass and shrub vegetation (Flegenheimer et al. 2013a; Zárate et al. 1993) (Figure 2). Loess sediments have been affected by intense pedogenesis and reworked by biological activity and aqueous transport (Flegenheimer

Table 2
Pleistocene/Holocene transition archaeological sites, Pampean region

Site	Location	Max ^{14}C yr BP	Min ^{14}C yr BP	References
Abrigo Los Pinos	Sierra La Vigilancia, Eastern Tandilia Range, SE Buenos Aires	10,465 ± 65	9570 ± 150	Mazzanti et al. (2012)
Amalia S2	Sierra La Vigilancia, Eastern Tandilia Range, SE Buenos Aires	10,425 ± 75		Mazzanti et al. (2012)
Cueva Tixi	Sierra La Vigilancia, Eastern Tandilia Range, SE Buenos Aires	10,375 ± 90	10,045 ± 95	Mazzanti (2003)
Cueva Burucuyá	Sierra La Vigilancia, Eastern Tandilia Range, SE Buenos Aires	10,672 ± 56	10,000 ± 120	Mazzanti et al. (2012)
Abrigo La Grieta	Sierra La Vigilancia, Eastern Tandilia Range, SE Buenos Aires	–		Mazzanti et al. (2013)
Cueva El Abra	Sierra La Vigilancia, Eastern Tandilia Range, SE Buenos Aires	10,270 ± 20	9834 ± 65	Mazzanti et al. (2012)
Cueva La Brava	Sierra La Vigilancia, Eastern Tandilia Range, SE Buenos Aires	10,178 ± 54	9670 ± 120	Mazzanti et al. (2012)
Lobería 1	Sierra Larga, Eastern Tandilia Range, SE Buenos Aires	9787 ± 81		Mazzanti et al. (2010)
Paso Otero 5	Middle basin Quequén Grande River, Interserrana area, SE Buenos Aires	10,440 ± 100	9560 ± 50	Martínez and Gutiérrez (2011)
Arroyo Seco 2	Plains, Interserrana area, SE Buenos Aires	12,240 ± 110	11,000 ± 100	Politis et al. (2014)
El Guanaco 1	Plains, Interserrana area, SE Buenos Aires	9250 ± 40		Flegenheimer et al. (2010)
El Guanaco 2	Plains, Interserrana area, SE Buenos Aires	9140 ± 120	9048 ± 69	Flegenheimer et al. (2010)
Arroyo de Frías	Northern Buenos Aires	10,300 ± 60	9520 ± 75	Politis and Bonomo (2011)
Pehuén-Có paleoichnological site	SW Pampean region, Atlantic coast	–		Bayón et al. (2011)

Table 3
Early Holocene archaeological sites of the Pampean region

Site	Location	Max ^{14}C yr BP	Min ^{14}C yr BP	References
El Mirador	Sierra La Vigilancia, Eastern Tandilia Range, SE Buenos Aires	8920 ± 37		Mazzanti et al. (2013)
Paso Otero 4	Middle basin Quequén Grande River, Interserrana area, SE Buenos Aires	8913 ± 49		Gutiérrez et al. (2011)
Arroyo Seco 2	Plains, Interserrana area, SE Buenos Aires	8980 ± 100	8390 ± 410	Politis et al. (2014)
Campo Laborde	Tapalqué stream, NW Tandilia Range, central Buenos Aires	8720 ± 190	8080 ± 200	Politis and Messineo (2008)
La Moderna	Azul stream source, NW Tandilia Range, central Buenos Aires	8356 ± 65		Politis et al. (2004)
Laguna de los Pampas	NW Buenos Aires, N Pampean region	8971 ± 77	8835 ± 83	Politis et al. (2012)
Laguna El Doce	SW Santa Fe, N Pampean region	8274 ± 68		Ávila (2011)

and Zárate 1993; Zárate 2003). Rockshelters and small caves, produced by weathering and erosion, where Lower Paleozoic orthoquartzites of the Balcarce Formation (BFO) are exposed, are scattered along the upper part of the hillsides.

Present-day climate is humid and temperate, with increasing continentality toward the northwest (Prado et al. 2001). Water can be found mainly in streams and springs and, to a lesser extent, in seasonal lagoons. The common plant communities that spread

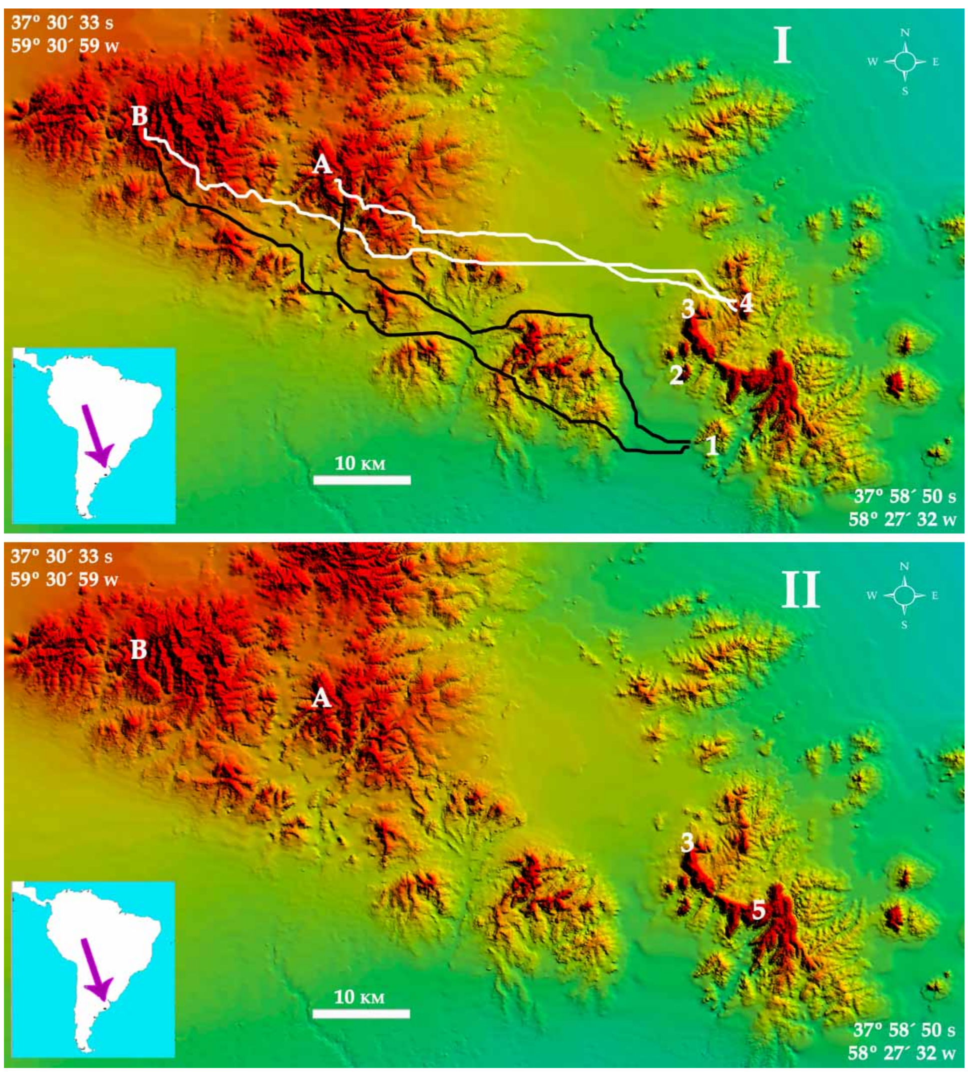

Figure 1 Locations of sites in the east-central portion of the Tandilia Range: (I) Pleistocene–Holocene transition and (II) early Holocene ((1) Cerro La China 1, 2, and 3; (2) Los Helechos; (3) Cueva Zoro; (4) Cerro El Sombrero Cima and Abrigo; (5) El Ajarafe; (A) La Numancia; (B) Barker (quarry areas)).

Figure 2 Characteristic mesa hills and plains in the east-central portion of the Tandilia Range.

along both the hillsides and hilltops include several species of grasses and ferns along with mosses and lichens, as well as some scarce autochthonous bushes of limited distribution (Mazzia 2010/2011). Paleontological evidence suggests that, since the Middle Pleistocene and through part of the Holocene, cold and arid climatic conditions prevailed in the region, alternating with more humid periods (Tonni et al. 1985). Paleoenvironmental studies (Gutiérrez et al. 2011 and references cited therein) support this interpretation, but other sedimentological, isotopic, and pollen analyses report subhumid to humid conditions during the Pleistocene–Holocene transition and a return to more arid conditions at local scales in different parts of the Tandilia Range in the middle Holocene (Paez and Prieto 1993; Zárate 2003; Zárate et al. 2000).

2.1 *Lithic resources*

Lithic resources in the Pampean region are abundant but highly localized in the landscape. Four main areas have been recognized as potential sources of toolstone: the two mountain ranges, the Atlantic coast, and minor isolated outcrops in the plains (Bayón et al. 2006). Metaquartzite and rhyolite are registered in primary sources in the Ventania Range; metaquartzite and orthoquartzite are also found as nodules in secondary sources (Catella et al. 2013; Oliva and Barrientos 1988; Oliva and Moirano 1997). In the Atlantic coast, secondary deposits of Patagonian pebbles of varied lithological composition (mainly basalt, andesite, and rhyolite) are found (Bonomo 2005, 2011). Secondary deposits of fluvial cobbles (metaquartzite, quartz, and subarkose cobbles) are scattered along the Sauce Grande river valley in the southwest of Buenos Aires (Bayón and Zavala 1997). Finally, in the Tandilia Range, several rock types used as flaking raw material have been identified so far: orthoquartzites (from the Sierras Bayas Group (SBGO) and the BFO), phtanite (chert), silicified dolomite, and quartz (Barros and Messineo 2004, 2006; Bayón et al. 2006; Colombo 2011, 2013).

Besides these highly localized and abundant sources, no rocks are available for hundreds of kilometers in the extensive Pampean plains; therefore, people had to transport rocks over varied distances. Toolstones within a 10-km radius from archaeological sites are considered immediately or readily available; those located 10–60 km away are local; those from 60–100 km are of a medium distance; and those originating more than 100 km away are considered long-distance raw materials (Bayón et al. 2006).

Most of the sources of rocks used as toolstone at the early sites in the micro-region have been identified. The toolstone most frequently used is the SBGO, the highest-quality stone available for flaking within the region and a local raw material in most of the sites of the micro-region (Bayón et al. 2006). This rock outcrops in the central portion of Tandilia. A program of systematic surveys was developed to establish provenience and characteristics of this toolstone; a total area of about 200 km^2 with quarries was mapped. Two main areas with high-quality toolstone at La Numancia and Barker have been identified

(Figure 1A, B), including 56 quarry sites of different complexities, some with systems of pits and associated piles of flaked material (Colombo 2011, 2013). Fifty-one quarries exhibit white orthoquartzite and five are mainly yellow, pink, orange, red, or brown (Munsell (1994) hues 10R, 10YR, and 5YR). Both colored and white varieties correspond to the same geological formation; they have the same flaking and functional qualities and are available both as clasts and large outcrops. In both white and colored varieties, only the rock with the best flaking quality was acquired. The earliest radiocarbon dates for activity at the quarries correspond to the middle Holocene; the earliest acquisition has not been dated yet but is inferred from raw-material characteristics of the assemblages at the sites and the presence of a Fishtail point at a quarry (Colombo and Flegenheimer 2013; Flegenheimer et al. 1999).

At several sites, a secondarily used rock of poor flaking quality was BFO, which is immediately available since it outcrops in most of the hillsides and hilltops of the micro-region and is the bedrock at the archaeological sites. This rock, which does not exhibit important color variation, is mainly white or gray and presents characteristic tourmaline crystals useful for macroscopic identification.

Phtanite (chert) and quartz are also present in the assemblages at some sites, but in minor proportions. Some varieties of poor flaking-quality quartz are also immediately available (Flegenheimer 2003); others are local, with quartz crystals and better-quality quartz outcropping at specific locations within the same area occupied by orthoquartzite quarries. Phtanite also outcrops near the SBGO sources mentioned above, but its main sources are located in the northwest portion of the Tandilia Range, 180 km away from the sites (Barros and Messineo 2004, 2006; Flegenheimer et al. 1996). Silicified dolomite, also registered in small proportions at the sites, is available near the orthoquartzite sources. Finally, infrequently used long-distance rocks have been identified such as silicified limestone, metaquartzite, and silex (Flegenheimer et al. 2003; Mazzia 2013a). Silicified limestone has been traced through petrographic thin-section analysis to sources outcropping about 400–500 km to the northeast (Flegenheimer et al. 2003). This rock was frequently used as a toolstone since the Pleistocene–Holocene transition in current Uruguayan territory (Flegenheimer et al. 2003). Metaquartzite outcrops in the Ventania ranges 300 km to the south (Catella et al. 2010), and outcrops of silex with similarities to the archaeological sample are known from northern Patagonia, 800 km to the south (Hermo et al. 2013).

Finally, clays and ochers also found at the sites are local and immediately available in outcrops of the BFO. Other rocks such as dacite, igneous rocks, and abrasive clasts are also present, yet sources are still unknown (Flegenheimer and Bayón 1999; Mazzia et al. 2005).

3. Materials and methods

3.1 Methods

The archaeological sites are located in different environmental settings of the Tandilia Range (Table 4). Cerro El Sombrero Cima (CoSC) has been known to local avocational archaeologists since the late 1960s as it exhibits surface remains (Madrazo 1972); the other sites were found during archaeological surveys where special attention was paid to rockshelters, hilltops, and streams at the bases of the hills. As yet, no early sites have been identified in the streams or plains in the micro-region close to the ranges, possibly due to difficult visibility conditions. Stratigraphy also presents peculiarities at these places in relation to local conditions and topographic settings. Geoarchaeological work has led to the identification at most sites of a paleosol that includes occupations dating to the Pleistocene–Holocene transition (Mazzia 2013a; Zárate and Flegenheimer 1991), yet this paleosol has not developed in the hilltops at higher topographic locations (e.g., CoSC and El Ajarafe) (Mazzia 2011a; Zárate et al. 2000/2002).

Radiocarbon dates were obtained on charcoal, which is generally found as small scattered fragments (Table 1). Samples were dated by accelerator mass spectrometry and correspond to concentrations of fragments found within areas of less than 3 cm. The only exception is sample I-12741 from Cerro La China Site 1, which corresponds to a larger charcoal sample conventionally radiocarbon dated.

In most sites, material contexts are predominantly lithic (Table 4). Lithic studies, besides those focused on the regional lithic-resource base, include typological analysis (following Aschero 1975, 1983), flake analysis (Ingbar et al. 1989), and fatty-acid studies (Evershed 2008); results have been published through the years (Flegenheimer 1986/1987, 1991; Flegenheimer and Cattaneo 2013; Mazzia and Flegenheimer in press). Also, analysis of tool breakage was carried out on several of the sites' assemblages, supported by experimental research (Weitzel 2010; Weitzel and Flegenheimer 2011). Faunal remains are very scarce due to poor preservation conditions, and they are restricted to Cerro La China Site 1. Pollen sequences have been obtained at two of the sites, yielding paleoenvironmental information (Flegenheimer and Zárate 1993). Thus, our main discussion of the micro-region is based on the analysis of lithic remains and site settings. The sites have been correlated through chronology, stratigraphy, use of lithic raw materials (Table 5), and typology, with CoSC only correlated by the last two characteristics.

Table 4
Main features and lithic assemblages of east-central Tandilia micro-region archaeological sites

	Site							
	LCH1	**LCH2**	**LCH3**	**CSA1**	**CoSC stratigraphic collection**	**Cueva Zoro**	**Los Helechos**	**El Ajarafe**
Height (masl)	158	165	178	398	428	404	–	350
Environment	Rockshelter	Open-air protected	Open-air protected	Rockshelter	Open-air unprotected	Rockshelter	Rockshelter	Rockshelter
Excavated area	18 m^2	9.5 m^2	11 m^2	12 m^2	37 m^2	4 m^2	4.5 m^2	2 m^2
Tool types								
Fishtail point and preform	1	2	–	2	30 (+60 surface)	–	–	–
Side scraper	14	1	17	8	97	2	1	1
Transverse or oblique scraper	5	–	3	–	–	–	–	–
End scraper	2	–	3	1	15	–	–	–
Graver	4	1	7	–	6	–	–	–
Notched tool	3	–	2	–	4	–	–	–
Burin	–	–	1	–	1	–	–	–
Knife	2	–	2	3	12	–	–	–
Denticulate	–	–	4	1	2	–	–	–
Biface	3	–	–	1	24	–	–	–
Scraper plane	2	–	2	1	–	–	–	–
Flake with marginal retouch	10	2	13	2	63	2	–	3
Undetermined and fragments	15	4	38	7	385	1	–	–
Multiple tools per cent	19.6	10	28	15.4	1.25	20	–	–
Bifacial tools per cent	12.5	50	4.5	15.3	42	0	0	25
Tool breakage per cent	35	78	39	37	90	20	–	0
Splintered pieces (bipolars)	13 (5 retouched)	–	20 (3 retouched)	2	–	–	–	–
Cores and core fragments	9	1	23	6	–	–	–	–
Ground artifacts	–	–	–	–	4 (+7 surface)	–	–	–
Flakes	561	73	979	392	5810	42	>9	22

For the spatial dimension of our analysis, we used geographic information systems (GIS) tools. A digital elevation model with a 5-m resolution was created. Using the *measure distance* tool of ArcMap 9.2 and the MapInfo Professional 8.5 SCP software on this spatial database, we estimated distances between archaeological places (for example, sites and quarries), considering key points to traverse the space such as water courses and hill passes (Mazzia and Gómez 2013). Paths, as possible communication routes between two locations, were considered according to ground's permeability criteria (Criado Boado 1999). Also, a viewshed analysis was performed on each site with ArcMap 9.2 (Mazzia and Gómez 2013), based on Criado Boado's definitions (Criado Boado 1993) of visibility as the panoramic view from a place, visibilization as the way in which a place is seen, and intervisibility as the visual relationship that can be defined between two places. Viewshed graphics were complemented with the visual perceptions of people registered during fieldwork (Figure 3).

3.2 *Materials: The sites*

3.2.1 Cerro La China Sites

Systematic studies in the area began with works on a low hill known as Cerro La China (Flegenheimer 1980, 1986/1987; Zárate and Flegenheimer 1991). Three sites (Figure 1I-1) were excavated on the southeast slope, which presents a quartzitic outcrop forming a wall of variable height. These sites command a good view of the plains toward the south and east with a visibility of 7–15 km (Mazzia 2010/2011).

Cerro La China Site 1 (LCH1), with the highest outcrop, exhibits a medium-sized shelter at its base. This shelter is situated at 158 masl and presents an opening of 9 m wide, 2 m deep, and 2 m high from the current ground to the roof. Shelter from rain and wind is restricted to the deepest sections near the outcrop. A large slab of roof fall, which occurred after the early occupation of the site, covers half of the inner space. Sediments outside the shelter form a gentle slope that connects it with the neighboring plains. Excavations inside the shelter and its

Table 5
Tool raw-material percentages for each site and distances from lithic sources

Raw material	LCH1	LCH2	LCH3	CS A1	CoSC	Cueva Zoro	El Ajarafe
Colored SBGO	49% (60–75 km)*	44.4% (60–75 km)*	44% (60–75 km)*	50% (49–72 km)*	64% (49–72 km)*	20% (44,5–67 km)*	25% (ca. 30–60 km)
White SBGO	25.5% (60–75 km)*	22% (60–75 km)*	42% (60–75 km)*	14.7% (49–72 km)*	27.8% (49–72 km)*	40% (44,5–67 km)*	75% (ca. 30–60 km)
BFO	18.6% (0 km)	11% (0 km)	8.4% (0 km)	5.8% (0 km)	–	–	25% (0 km)
Phtanite	–	11% (ca. 65–180 km)	–	–	1.9% (ca. 60–180 km)		–
Coarse quartz	–	11% (ca. 10 km)	0.9% (ca. 10 km)	17.6% (0 km)	–	–	–
Fine-grained and crystal quartz					4.5% (ca. 60–75 km)	–	
Silicified limestone	5% (400–500 km)	–	2.8% (400–500 km)	3% (400–500 km)	1.2% (400–500 km)	–	–
Silex	–	–	–	–	–	20% (>800 km)	–
Others	1.7%	–	1.8%	8.8%	0.2%	20%	–

*Distances estimated using the measure distance tool of ArcMap 9.2 and the MapInfo Professional 8.5 SCP software.

surroundings covered a total of 18 m^2 and exhibited two stratigraphic units bearing archaeological remains up to 30 or 75 cm deep. The lower of these, Unit 3, corresponds to a B paleosol horizon and has been dated between 12,620 and 12,400 cal yr BP (Table 1).

The assemblage recovered from Unit 3 includes several lithic tool types, cores, flakes, and a Fishtail point preform (Table 4), along with 15 g of ocher, 86 g of white clay, and 50 g of abrasive basaltic rocks. SBGO, mostly colored, is the most frequent raw material used for tool manufacture, followed by the use of BFO. Long-distance silicified limestone, phtanite, dacite, and other rocks are present in low frequencies (Table 5).

SBGO cores ($n = 4$), on the one hand, are frequently small (up to 70 g), with minimal or no cortex (Figure 4), mostly colored, and discarded exhausted. On the other hand, BFO cores ($n = 4$) are medium sized with weights up to 500 g, exhibit variable amounts of cortex (Figure 4), and discarded before depletion. Bipolar splintered pieces (*sensu* Shott 1999) and bipolar flakes made from SBGO were also recovered.

Remains of *Eutatus seguini*, *Lagostomus maximus*, and some bone splinters were also recovered. LCH1 is considered a domestic setting where several activities were carried out (Flegenheimer 2004).

Site 2 (LCH2) is an open-air site situated at 165 masl, by the quartzite outcrop. In this section, the hilltop is surrounded by large boulders that create a narrow passageway, where excavations were carried out over 9.5 m^2. On the same hill slope, 30 m to the west-northwest, there is a spring surrounded by quartzite outcrops. At LCH2, four stratigraphic units have been identified in the loessic sequence (Zárate and Flegenheimer 1991), with early occupations in Unit 3, a Bt paleosol horizon with a maximum depth of 75 cm, radiocarbon dated to 13,020–12,440 cal yr BP (Table 1) (Flegenheimer 2004). This site yielded a few artifacts including two Fishtail points, one core, and some flakes (Table 4), as well as 1 g of ocher, 0.5 g of abrasive rocks, and 1 g of white clay. Lithic raw materials include SBGO as the most-frequent toolstone, with smaller frequencies of BFO, phtanite, poor-quality quartz, pegmatite, silicified limestone, and silicified dolomite (Table 5). Although no associated faunal remains were recovered, the occupation has been ascribed to hunting activities based on typological grounds and site setting.

LCH3 is an open-air site where people took advantage of a small protected area next to the quartzitic hilltop; there is currently a spring adjacent to the site. A third of the total estimated occupation area was excavated (Table 4) (Flegenheimer 1986/1987). The stratigraphic sequence has been studied in detail

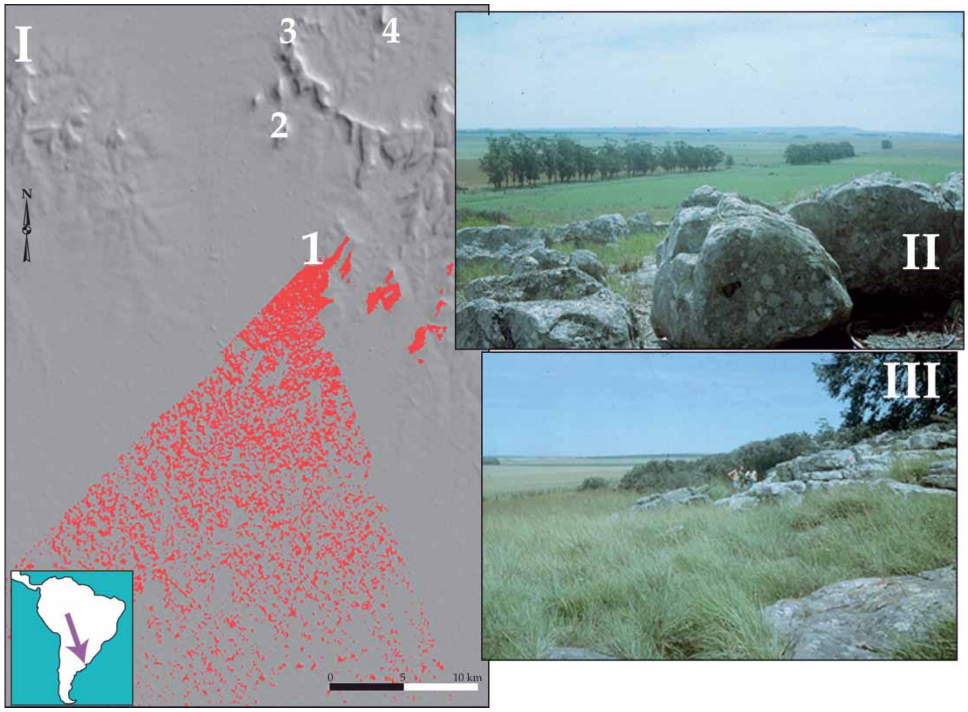

Figure 3 Example of a viewshed analysis: (I) viewshed graphic from Cerro La China; (II) visibility from LCH3 to the southeast; and (III) visibility from LCH2 toward LCH1.

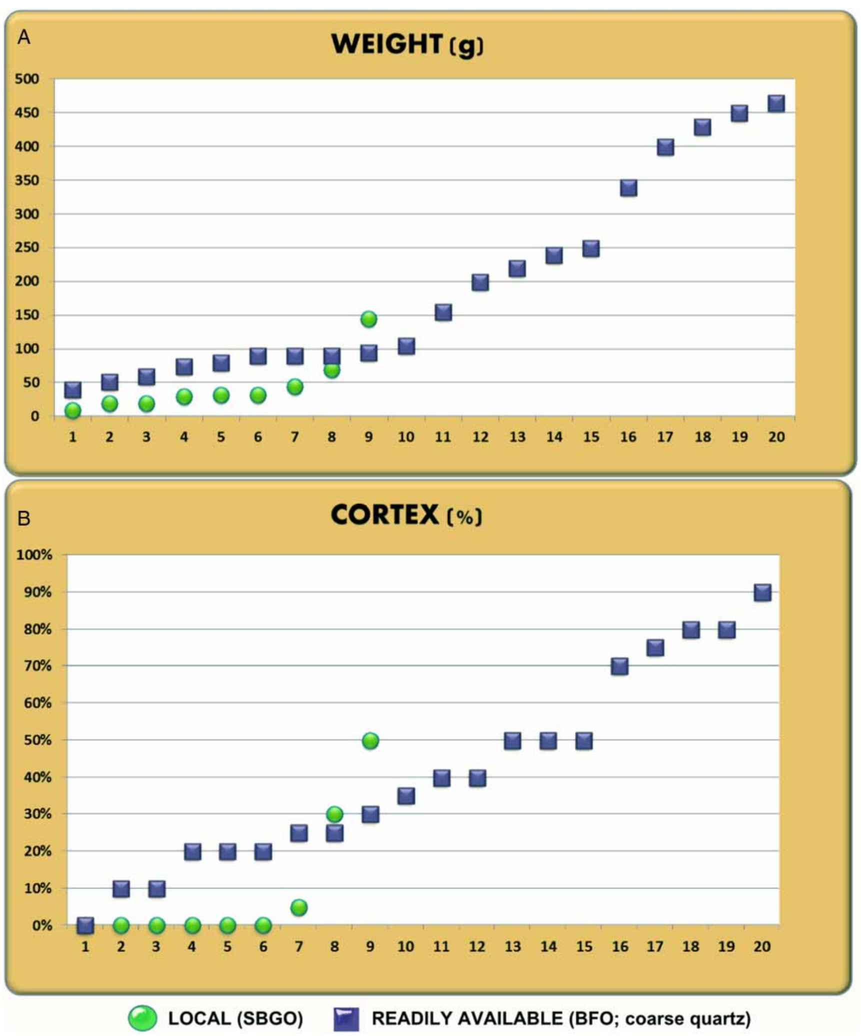

Figure 4 Cores of local and readily available raw materials found at the sites ((A) weight and (B) cortex percentage). (Horizontal axes represent nine and 20 cores made on local and readily available tool stones, respectively, from the study sites).

(Zárate 1986/1987; Zárate and Flegenheimer 1991), and pollen analyses were carried out revealing high-effective local moisture during early times (Paez and Prieto 1993). The three upper units contain archaeological material and reach a variable depth of about 80–120 cm. Unit 3 corresponds to a Bw and Bt paleosol horizon; the main artifact concentration was recovered within the Bt portion, which is dated to 12,690–12,270 cal yr BP (Table 1). The assemblage presents a variety of tool types (Table 4), cores, and flakes, along with 110 g of ocher, 98 g of abrasive rocks, and more than 5 g of white clay. Raw materials in order of abundance recorded in tools (Table 5) and flakes are: SBGO, BFO, silicified limestone, quartz, silicified dolomite, chert or phtanite, metamorphic rocks, and unidentified rocks. Most of the cores were made from a fine-grained BFO and exhibit medium sizes and cortex remnants (Figure 4). SBGO cores ($n = 3$) are small and without cortex (Figure 4). Splintered pieces ($n = 20$) and bipolar flakes are also present. According to the varied assemblage and site setting, LCH3 has been considered a multipurpose site where several domestic activities were carried out (Flegenheimer 1986/1987, 2004).

3.2.2 Cerro El Sombrero Sites

Another mesa nearby, first reported in the 1970s (Madrazo 1972), is about 15 km north of Cerro La China (Figure 1I-4). It is mainly known by the open-air site at its top, CoSC, the most extensive site in the area, of about 25,000 m^2 (Flegenheimer 2003). Archaeological materials attributed to early occupations are abundant and scattered throughout this entire mesa surface, both in the eolian sediments partially covering the outcrop and on the rocky outcrop itself (Zárate et al. 2000/2002). It is situated at 428 masl. Current excavations occupy 37 m^2, less than 1 per cent of the summit; they correspond to a main excavation area and a longitudinal and transverse sampling across the site. This sampling showed that the characteristics of the lithic assemblage are homogeneous throughout the summit. A large number of surface artifacts have also been recovered from the quartzitic outcrops exposed at this site, some of which are part of private and museum collections (Flegenheimer 2003; Flegenheimer and Mazzia 2013). The mesa-top offers no shelter, and wind is generally stronger than in the plains. The view from the site is panoramic, especially toward the north and east; toward the south and west, it is interrupted by nearby ranges. Only the edges of the site itself are visible from the plains, which can be better seen from some sections of a hill nearby, Sierra Larga (Mazzia 2010/2011).

Excavations at CoSC revealed that artifacts are mainly included in an A soil horizon at depths varying from a few cm to 50 cm (Flegenheimer 2003). This site yielded the largest Fishtail projectile-point collection of the region as well as an extraordinary lithic assemblage (Table 4). Surface and excavated findings include tools ($n = 1411$) of several types, 90 Fishtail projectile points, 11 ground artifacts (one of them a discoidal stone decorated by engraving, Figure 5) and more than 9000 flakes. The other known surface collections add 38 Fishtail projectile points and preforms to this list. Fishtail projectile points are found mainly as stems, yet some complete points of different sizes are also present (Figure 6). Raw materials in order of frequency are represented by SBGO, quartz (fine-grained, crystal, and coarse), phtanite, silicified limestone, dacite, and other less-frequent rocks. Excavations also yielded 137 g of abrasive rocks and 3 g of ocher.

Besides including some distinctive artifacts, other traits of the CoSC assemblage differ from the other sites: bipolar technique is completely absent either as splintered pieces or flakes; there is no evidence of the use of BFO; and it is the only site with the presence of crystal quartz, strongly associated with Fishtail point manufacture. Most of the tools at this site are broken; the tool breakage ratio (90 per cent) is the highest reported so far in the micro-region. Recent studies focused on these broken tools revealed that in most cases, fractures were caused by unidentified accidental processes; however, in some cases, their origin was identified as knapping errors (14, 6 per cent), impact fractures on projectile points (3 per cent), intentional breakage (8 per cent), and trampling (5 per cent) (Weitzel 2012; Weitzel et al. 2014).

Debitage is mostly small, and flakes do not bear cortex. Minimum nodular analysis (Larson and Kornfeld 1997) and non-typological analysis (Ingbar et al. 1989) have shown that manufacturing events that took place at this site correspond to late moments of the manufacturing sequence. This fact, together with the presence of projectile-point preforms, indicates that the last stages of point manufacture were carried out at this place (Flegenheimer and Cattáneo 2013). In addition, the high number of point stems has been explained as resulting from toolkit repairing activities.

In sum, activities at the mesa-top were restricted and included toolkit re-equipment (mainly weapon refurbishing and discard of broken artifacts) and most probably control of the surroundings, inferred from visibility conditions. Due to high artifact density, it has been proposed that CoSC probably was repeatedly visited (Flegenheimer 2003).

The quartzitic outcrop surrounding the mesa-top exhibits several rockshelters, one of which, Cerro El Sombrero Abrigo 1 (A1), has been excavated. It is at

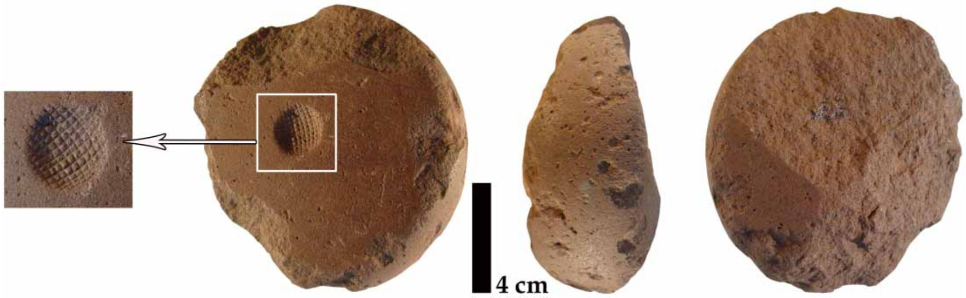

Figure 5 Discoidal stone from CoSC.

398 masl on the western slope, 4 m wide and 3 m deep, although in the past, its opening was twice as wide and is now covered by large slabs of rockfall. Its total height after excavation is 1.5 m. The interior offers very good protection from wind and has a dry area where most of the excavated artifacts were recovered. The shelter can be seen from the plains, and once inside, visibility is very good toward the north and restricted by nearby Sierra Larga toward the west (Mazzia 2010/2011).

Excavations revealed eolian sediments up to 60 cm thick. Two units were identified: Unit 1, overlying the bedrock, has an early occupation dated to 12,620–12,349 cal yr BP (Table 1); a date of 8060 cal yr BP is considered anomalous. Artifacts associated with these dates include various tools, two Fishtail points, cores, and flakes (Table 4). Ocher pieces (132 g) were found arranged in a way to suggest that they were cached, indicating an intention to revisit the site (Flegenheimer 2003, 2004). Artifacts are mainly made from SBGO (Table 5), but a high proportion of quartz, which outcrops on the hill slope, is also registered on cores (Figure 4) and flakes. Other raw materials include BFO, phtanite, silicified limestone, and dacite. Readily available quartz cores ($n = 4$) are medium sized with cortex remnants (one of them preserves 90 per cent cortex); on the contrary, SBGO cores are small (up to 20 g) and have no cortex (Figure 4). A few splintered pieces and bipolar flakes were also recovered. Microscopic use-wear analysis of these artifacts revealed that several activities were carried out with fresh hide processing being the most frequent one (Flegenheimer and Leipus 2007). According to these analyses, specific tasks were undertaken in this sheltered space.

3.2.3 Los Helechos

Another archaeological site in a rockshelter is Los Helechos, on the west side of Cerro Chato, next to the hilltop, at about 350 masl (Figure 1I-2). The rock-shelter entrance opens 8.5 m westward; there are 4 m from this opening to the back wall (Flegenheimer

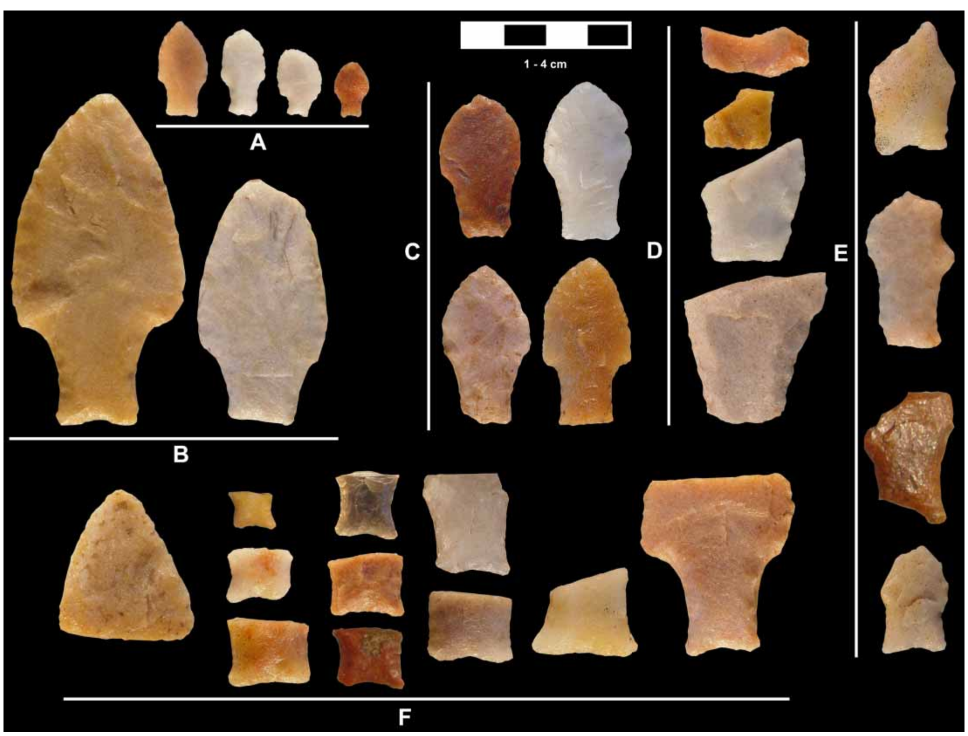

Figure 6 Fishtail projectile points from Cerro El Sombrero and Cerro La China localities: (A) miniature points; (B) large points; (C) medium complete points; (D) preforms; (E) recycled and maintained points; and (F) point fragments.

and Bayón 2000). The path from the base of the hill to the rockshelter consists of an easy-to-climb moderate slope without large outcrops. The site can be seen from the west hillside and the surrounding plains. In addition, good visibility conditions were defined from the shelter toward the plain and the closest hills (Mazzia 2010/2011). Although the site was only partially excavated, a well-preserved stratigraphy with a total sediment thickness of about 1.3 m overlying quartzite bedrock has been described. The occupation is included in reddish clayey silt corresponding to the B paleosol horizon also observed at other sites. Few lithic objects were found along with a charcoal fragment dated to 11,170–11,055 cal yr BP (Table 1). The lithic assemblage includes a side scraper and at least nine flakes (Table 4); the main raw material is SBGO, and one flake has been identified as an igneous rock possibly from Ventania (Flegenheimer and Bayón 2000). An early ephemeral human occupation of this shelter was inferred based on the scarce remains.

3.2.4 Recently Excavated Sites

Cueva Zoro is an archaeological site in a rockshelter in the north end of Sierra Larga (Mazzia 2013a). It is next to the hilltop, at 404 masl (Figure 1I-3). The shelter is medium sized, with a front opening of 11 m wide and 3.5 m long from the entrance to the back wall. The maximum height was about 1.5 m in the central portion, once the excavation was finished. The inner space is fresh, dry, and wind-sheltered. Several large boulders just outside the shelter hide it from external view, allowing very restricted visibility from its inside but good visibility from the entrance itself toward the plain.

The excavated area at Cueva Zoro consists of 4 m^2, occupying the back and central portion of the shelter, where the roof is higher. The stratigraphy is well preserved, with the total thickness of sediments being about 90 cm overlying quartzite bedrock.

Two different periods of human occupation were inferred. The first one corresponds to brief visits to the shelter by early settlers of the area, dated between 11,978 and 11,409 cal yr BP (Table 1) (Mazzia 2013a). A few tools and flakes, recovered from a paleosol, were associated with these radiocarbon dates (Table 4). Different lithic raw materials are represented in this assemblage. Aside from orthoquartzites (Table 5), another four raw materials were identified: translucent quartz, metaquartzite, silex, and an undetermined rock with iron oxide. Afterwards, the shelter was occasionally visited, because only six flakes were found in an A soil horizon dated to ca. 10,000 cal yr BP (Table 1) (Mazzia 2013a). Therefore, considering the few lithic remains found, both episodes of early occupation are considered ephemeral.

El Ajarafe is an archaeological site located at the entrance of a rockshelter in the hilltop of the south section of Sierra Larga, at 305 masl (Mazzia 2011a) (Figure 1II-5). The inner space of the shelter is small with a height between 1 and 1.5 m and a rocky ground without sediments. The roof of this shelter is a wide platform of 52 m^2 with a moderate slope that can be easily reached from the back and the sides. This platform represents a viewpoint, considering that it allows good visibility toward all directions. There is an open space protected by a U-shaped quartzite outcrop at the front where 2 m^2 were excavated. Overlying the quartzitic bedrock, there is an eolian deposit up to 60 cm deep, upon which an A soil horizon has developed. Different ephemeral human occupations were defined according to the vertical distribution of the remains. The first one occurred during early Holocene times, dated between 9939 and 9508 cal yr BP (Table 1) (Mazzia 2011a). The small lithic assemblage found includes some tools, a few flakes, and an abrasive stone (Table 4). An important proportion of this assemblage was manufactured on SBGO and BFO (Table 5); however, other rocks scarcely represented among flakes are dacite and silicified dolomite. According to the scarcity of remains, this place was probably occasionally visited (Mazzia 2011a).

4. Discussion

This section is based mainly on archaeological evidence from the Pleistocene/Holocene transition, as later occupations are restricted to just two ephemeral events.

4.1 Rocks

Seven different places inhabited or visited by early hunter-gatherers during the Pleistocene–Holocene transition have been described for the east-central portion of the Tandilia Range.

As mentioned above, lithic studies are crucial when discussing correlations among the sites. As observed in Table 4, side scrapers are the main tool type and exhibit different varieties (double-straight, double-convergent, and single); instead end scrapers are infrequent and atypical. Small gravers are represented at most sites; these tools and notches usually are parts of multiple tools, a common trait in the assemblages. Tools classified as bifaces include both small artifacts and fragments of medium-sized specimens that possibly are blanks of projectile points (Figure 7B).

Some of the tool types are diagnostic of these early sites. Fishtail points (Figure 6) are found in several assemblages (CoSC, A1, LCH2, and LCH1); since their first comparison at a continental scale by Bird (1969), they have been repeatedly considered as diagnostic of early occupations. Also, thin double-straight

Figure 7 Stone tools from Cerro El Sombrero and Cerro La China localities and Cueva Zoro site: (A) alternate retouch artifacts; (B) bifacial artifacts; (C) unifacial artifacts on immediately available rocks; (D) exhausted cores; (E) unifacial artifacts; and (F) splintered bipolars pieces.

side scrapers are distinctive at these sites and were recovered at Cerro El Sombrero and Cerro La China (CoSC and LCH3). Other objects are distinctive because apart from exhibiting a recurrent morphology and size, they are flaked on an infrequent raw material; as they are distributed in different sites, they are a useful indicator for correlation between them. Such is the case of large side scrapers with cortex on dacite (CoSC, A1, and LCH1) and scrapers on large flakes on a coarse-grained brown orthoquartzite (LCH1 and LCH3). Similarly, abrasive clasts of weathered black basalt have been discarded in several of these contexts (CoSC, LCH1, 2, and 3).

Most of the tools are flake blanks modified by unifacial marginal retouch (Figure 7E), yet more elaborate extensive unifacial thinning, bifacial thinning (Figure 7B), and bipolar flaking (Figure 7F) were part of the tool manufacturing repertoire. These manufacturing techniques are unevenly represented among the sites. For example, bifacial artifacts and bifacial thinning flakes are very frequent at CoSC (more than 40 per cent of the tools are bifacial and at least 20 per cent of the flakes correspond to bifacial thinning), but bipolar products are absent at the site. At LCH3, however, there are scarce bifacial tools (4.5 per cent) and a high number of bipolar products (20 splintered pieces). Although some general tendencies are frequent in all the assemblages (e.g., production of wide flakes, presence of prepared platforms), and, as mentioned, some tool types are repeatedly identified, the disparity in the frequencies of both techniques and tool types in the different sites resulted in lithic assemblages with different overall appearances.

According to characteristics of the lithic assemblages and to flake analysis, flintknapping tasks carried out at the sites were different. CoSC presents the narrowest range of flaking activities: flakes correspond to the last moments of the manufacturing sequence, and as mentioned, many resulted from bifacial reduction, possibly mostly related to projectile-point production and repair. At the other end of the scale, at LCH 1, cores on immediately available raw materials and exhausted cores on local rocks have been discarded, and flakes correspond to initial and middle moments of manufacture and to short flaking sequences (Flegenheimer and Cattáneo 2013), i.e., different places were used for specific flaking activities.

Also, as expected, immediately available raw materials (quartz and BFO) are used more expediently than local or long-distance rocks, with tools, flakes, and cores being larger and with more remnant cortex (Figures 4, 7). In addition, initial moments of manufacture are better represented for immediately available rocks (Bayón et al. 2006; Flegenheimer and Cattáneo 2013). On the contrary, local rocks (mainly SBGO) are represented by small exhausted cores (Figure 4), tools, and medium/small flakes with little cortex. Initial manufacturing is scarcely represented and occurs only at some sites (LCH 1 and LCH3). These local raw materials must have been mainly transported as tools, blanks, and prepared cores. Long-distance raw materials are found as tools and small flakes of silicified limestone, a tool of silex, and small flakes of metaquartzite; no cores were recovered. That is, they were probably transported as tools, and these are mainly bifacial, recycled, and maintained (Flegenheimer et al. 2003; Mazzia 2013a).

An assessment of fracture types and breakage causes, based on experimental research of the tools in several of these sites (CoSC, LCH1, LCH2, and LCH3), shows that accidental breakage with undetermined origin is the most frequent cause at all the sites. Knapping errors are also frequent, and they are strongly related to the final moments of bifacial thinning (perverse fractures) and to Fishtail projectile-point preforms at CoSC. A low percentage of intentional fractures were also identified both on thick (LCH1 and LCH3) and thin artifacts (CoSC). Finally, at LCH2 and CoSC, impact fractures are the most frequent cause of discard of Fishtail projectile points. The main difference is exhibited between CoSC and all the other sites, and is related to breakage ratio, which is extremely high at CoSC. Only three of the fractured artifacts at this site could be partially refitted, suggesting that probably the assemblage tools were not broken at the site (Weitzel 2010; Weitzel and Flegenheimer 2011; Weitzel et al. 2014).

Some objects exhibiting a particular manufacturing technique were only recovered in one of the assemblages (CoSC). These are 11 artifacts made by pecking and abrasion, including a broken discoidal stone artifact with a central engraved decoration (Figure 5), a discoidal fragment, and three small fractured spheres. Their uses remain unknown; specific analyses of fatty acids and microfossils suggest that the function of the decorated discoidal stone cannot be ascribed to practices of processing organic resources, and that the small spheres, instead, were in contact with a variety of resources such as seeds and terrestrial animals (Flegenheimer et al. 2013b; Mazzia and Flegenheimer in press). Other exceptional objects recovered from the same mesa-top are large Fishtail points (Figure 6B) with bifacial thinning and fluting, which represent the most elaborately flaked tools of these assemblages. A set of miniatures with Fishtail morphology are also only found at this site (Figure 6A). Miniature points in other contexts have been explained as toys, practice pieces, or ceremonial objects (Ellis 1994; Gillespie 2007; Hamilton et al. 2013; Politis 1998; Storck 1991). In the CoSC case, simply manufactured miniature points were the only artifact type probably made, used, and discarded at this place. They exhibit a silhouette similar to full-sized points, possibly reflecting the significant role played by point design in these societies (Flegenheimer et al. 2015).

The study of the regional lithic-resource base has been useful to identify a specific feature in toolstone selection, the preference for colored SBGO. Only the best-quality toolstones were used for flaking, and, within these, colored rocks were preferred. Although this selection is unevenly represented at the different sites, it pervades different tool types and is significant in all the assemblages (Table 4). When taking into account the total number of tools considered here, frequencies of 67.25 per cent colored and 32.75 per cent white SBGO are represented. This proportion is opposite to that observed at the quarries (5 colored out of 56) and at later surface sites, where lithics have even been referred to as the "white industry" (Holmes 1912). This preference for colored rocks is considered to be related to symbolic or aesthetic values (Flegenheimer and Bayón 1999). Recent research in the quarries at Barker and La Numancia (Figure 1A, B) has revealed that colored outcrops are highly localized within the area. That is to say, people living at these early sites must have regarded colored outcrops as preferential places for toolstone procurement. The nearest colored orthoquartzite quarry identified, El Picadero, has yielded a recycled preform of a Fishtail point; in addition, this place is visually linked to Cerro El Sombrero, 40 km to the southeast (Colombo and Flegenheimer 2013).

4.2 Landscape

Among the seven archaeological places assigned to the Pleistocene/Holocene transition, an important set of patterns was recognized. Two nearby sites have been interpreted as domestic settings (LCH1 and LCH3), exhibiting great typological variety and intense use with a high artifact density. Two rockshelters reveal ephemeral occupations (Cueva Zoro and Los Helechos), an open-air site was related to hunting activities (LCH2), and another rockshelter (A1) was a place used for special purposes and is very close to CoSC. This last space was intensely used, although for specific tasks, and it exhibits a very particular context.

Other places, mentioned above, that were necessarily linked to the lives of these people were the raw-material sources they visited for toolstone procurement. Also, two places corresponding to ephemeral visits during the early Holocene have been identified, El Ajarafe and Cueva Zoro.

The following setting is proposed only as a starting point and refers to the earliest sites. This picture will be better understood as other sites are identified through new research projects currently underway mainly aimed at surveying the surrounding plains.

A distinctive aspect of human occupation during the Pleistocene /Holocene transition in the micro-region results from spatial and material analysis. Some places were only ephemerally occupied: LCH2, Los Helechos, and Cueva Zoro. In addition, Lobería1 is another rockshelter located in the surrounding plains only 12 km from Cerro La China, and it was also only briefly occupied (Mazzanti et al. 2010). We therefore propose that ephemerally visited places represent brief pauses (following Tuan 2008 [1977]) in the early inhabitants' different paths through the micro-region (Mazzia 2011a).

These places were spatially and materially related to the other sites mentioned above that were intensely inhabited or repeatedly visited either as domestic environments or as particular and specific task places. Also, a similar pattern with larger and more ephemeral sites has been registered in a nearby micro-region toward the east (Mazzanti et al. 2012). Based on archaeological information, Mazzanti (2003) has proposed that easily accessible shelters at lower elevations were preferred as domestic settings, while those at higher elevations were occupied sporadically or for special purposes. Although this proposal is in part compatible with the current record (Mazzia and Flegenheimer 2007), recent anthropological research and landscape archaeological studies show that most locations on the hills are easily accessible; therefore, we conclude that social practices were not necessarily related to altitude (Mazzia and Flegenheimer 2012). Yet clearly some settings were chosen to carry out a variety of activities and were probably occupied by domestic social units; the other special-purpose sites were probably visited by smaller task-specific groups. If larger campsites existed, these should be located on the plains where space is not limited as in the ranges.

Lithic raw-material acquisition strategies are also relevant in the discussion about paths of early hunter-gatherers. As the potential quarries of SBGO are highly localized, it was proposed that these societies must have visited the area with these quarries, possibly including visits to El Picadero (Colombo and Flegenheimer 2013). As persistent places (*sensu* Schlanger 1992) incorporated in past paths, quarries represent nodes in spatial and social itineraries (Mazzia 2010/2011).

Mobility can take a great variety of forms based on frequencies and distances involved, and people's possibilities and preferences (Kelly 1995; Politis 1996). In the following discussion, distances were estimated using above-mentioned GIS tools (Figure 1). It takes about 60–80 km to get (Figure 1A, B) from domestic places at Cerro La China (Figure 1I-1) to the quarry areas. According to Kelly (1995), hunter-gatherers can walk about 20 or 30 km per day in different settings; that is, the quarries were a few days' walk from the domestic sites. Since SBGO outcrops are highly localized, its procurement probably entailed specific-purpose travels to quarry areas (Flegenheimer et al. 1996; Franco 1994). Therefore, toolstone acquisition and transport could have involved logistical parties (*sensu* Binford 1980; Kelly 1995; Politis 2006) specifically planned for this purpose. As discussed, procurement required careful selection, according to economic and aesthetic/symbolic criteria in the case of SBGO, and was followed by a careful managing of these rocks, indicated by bipolar flaking and small exhausted cores (Bayón et al. 2006).

Another feature at some of these early sites is the presence of lithic objects made on raw materials that were not available in the Tandilia Range or the Pampean plains. Artifacts flaked on reddish silicified limestone (Cerro La China and Cerro El Sombrero) have their potential sources in Uruguay and Entre Ríos, at a distance of 400–500 km northeast of the sites (Flegenheimer et al. 2003). The same raw material was also used for a Fishtail point reported from the Paso Otero 5 site about 40 km farther south (Martínez and Gutiérrez 2011). Small flakes on greenish gray metaquartzite and an igneous rock were also found (at Cueva Zoro and Los Helechos); these raw materials come from the Ventania Range, located 300 km to the southwest. Metaquartzite was also identified in early nearby sites Cueva Tixi and Abrigo los Pinos (Valverde 2002). Finally, a singular artifact was flaked on a yellow and red silex (at Cueva Zoro). Although its origin is yet unknown, it was possibly transported to the micro-region from the Somuncurá massif in the north of the Patagonian region, at a distance of 800 km southwest (Flegenheimer et al. 2013a, Mazzia 2013a). These long-distance rocks therefore outline paths in different directions; in the case of the silicified limestone, it has been proposed that the transport of these artifacts was part of a social-interaction network (Flegenheimer et al. 2003).

Another path could be outlined using the information obtained through fatty-acid analysis of lithic artifacts. The identification of marine resources in samples from CoSC and LCH3 provides support for the idea that early settlers in the Pampean region were familiar with the Atlantic coast environment (Mazzia 2010/2011; Mazzia and Flegenheimer in press). Because the coastline must have been about 50 km east of its current position, that is ca. 120 km from the micro-region at the time of the early occupations (Ponce et al. 2011), we consider that this path falls within the range of distances covered by early people in a yearly round or even during logistical parties (Kelly 1995).

Besides these spatial relationships outlined through paths, other connections can be made between places in the micro-region (Mazzia 2010/2011). According to visibility analyses, visual communication is only possible among people standing at any of the three sites in Cerro La China (Figure 3). In addition, these three places can be communicated by an audible signal, as registered during anthropological fieldwork, contributing to a subjective view of the spatial analysis (Mazzia 2010/2011). From different locations on Cerro La China, a general view of the Lobería 1 site (Mazzanti et al. 2010), situated 12 km to the southeast, is possible. CoSC is the highest point in the micro-region; therefore, from its summit, it is possible to command a wide perspective through the open plains and the neighboring hills. However, the visual relationship between this place and the nearest sites also attributed to early hunter-gatherers is not direct; it is interrupted by Sierra Larga. Yet people from all of these places could easily communicate, for example, by smoke signals.

5. Conclusions

The area under study exhibits a network of related sites where people inhabited or visited for shorter or longer periods during the final Pleistocene–early Holocene; these must have been communicated by paths, which integrated the ranges and passed through the surrounding plains. The simple network outlined here must have been in practice more complex, integrating most of the other early sites known in the area (Table 2). Different activities and practices were carried out at each of these places including CoSC, which exhibits a very dense and exceptional assemblage interpreted as resulting from a restricted range of social practices. We consider this social landscape as one that is compatible with societies that attribute special significance to places. The ascription of symbolic or aesthetic value to certain local rocks and the establishment of long-distance social networks have also been described in previous works. All these aspects help to build an image of people with a deep knowledge of their environment, their rocks, and geographic features, some of which were chosen to hold a special place in their lives. We consider that this network of ideas, places, and objects suggests that people were deeply engaged with their surroundings in the micro-region by the Pleistocene–Holocene transition.

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