
Distribution and procurement strategies of black obsidian during Late Holocene in central-western Santa Cruz province (Patagonia, Argentina)

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Abstract:

In southern Patagonia, research proposals regarding the procurement strategies of black obsidian are still open. In broad spatial and temporal terms, Pampa del Asador has been proposed as the main source of this lithic resource. On a macro-regional scale, direct and indirect mechanisms of obsidian procurement from Pampa del Asador source were suggested. At the same time, variability in transport and exploitation strategies was recorded through the regional study of obsidian cores. Such variability indicates that the distance to the source does not unequivocally explain all the observed patterns.

In this opportunity, we seek to deepen this proposal to discuss the different factors involved in the mechanisms for obtaining this lithic resource by hunter-gatherer societies that inhabited the region after 2000 years B.P. We work on a broad regional scale, relevant to discuss aspects of mobility and social interaction. Thus, the sample includes 147 archaeological sites located in different environmental sectors: basaltic plateaus (Cerro Pampa, Guitarra and Strobel plateaus) and lake basins (Cardiel and Salitroso). A macroscopic analysis was carried out to integrate the information of cores with that of tools and debitage.

Results highlight the variability of strategies initially suggested. It is emphasized that the particularities of land use and availability of other lithic resources are relevant for understanding the patterns observed in the archaeological record.

Keywords: tools; debitage; distance; land use, hunter-gatherers

1. Introduction and background

There are many archaeological studies that address how hunter-gatherers acquired and used lithic resources (Andrefsky 1994; 2009; Binford 1979; Binford & Stone 1985; Clarkson 2007: 46-49; Kuhn 1995: 124-129; among others). From a technological organization



perspective (*sensu* Nelson 1991), these studies generate multiple archaeological expectations about procurement and use strategies. Knowledge of the location of the raw material source is key to establish such expectations (Andrefsky 1994; 2009; Ericson 1984; Kuhn 1995: 124-129).

It is important to consider that multiple factors may be involved in hunter-gatherer's lithic procurement and use strategies: distance to the source of procurement, land use (residential *versus* logistical), availability of other lithic resources, etc. The relevance of these factors can only be considered on a broad spatial scale.

In southern Patagonia, in broad spatial and temporal terms, Pampa del Asador has been proposed as the main source of procurement of black obsidian (Stern 2018). Based on this information, on a macro-regional scale (*sensu* Dincauze 2000: 25), direct and indirect mechanisms of obsidian procurement from Pampa del Asador source have been suggested (Ambrústolo *et al.* 2012; Belardi *et al.* 2009; Charlin 2009; Cueto *et al.* 2016; Méndez *et al.* 2012). However, research proposals regarding procurement and use strategies of black obsidian are still open.

For central-western Santa Cruz province (Figure 1), the study of obsidian transport and exploitation strategies has been carried out by the distribution and characterization of obsidian cores on a regional scale (Cassiodoro *et al.* 2020). In this exploratory analysis, the observed variability cannot be explained in all its dimensions by the distance to the obsidian source (Pampa del Asador). In this opportunity, we seek to deepen this proposal to discuss the different factors involved in the mechanisms of obtaining and using this lithic resource.

A comparative analysis of debitage and tools from areas located at different distances to Pampa del Asador, with different environmental characteristics and functions is made. We address research from a broad regional scale of analysis, relevant to discuss aspects of mobility and social interaction. The aim of this research is to account for the variability of strategies developed for the procurement and use of obsidian by hunter-gatherer societies that inhabited the region after 2000 years B.P.

1.1. Study region

The study region is in the central-western region of Santa Cruz province (Argentine Patagonia) covering a wide area from Lake Salitroso in the north to Lake Cardiel in the south (Figure 1), with an approximate surface of 25,000 km². Climate is classified as “Arid Cold Plateau Type” (Oliva *et al.* 2001), with annual rainfall being less than 200 mm and strong seasonality, with cold winters and frequent snowfalls. The local vegetation consists of an herbaceous and low shrubby steppe (Oliva *et al.* 2001). The existence of higher rainfall closer to the Andean Range, results in the development of *Nothofagus* forest. The available animal species are mainly guanaco (*Lama guanicoe*) and ñandú (*Rhea pennata*).

Within the study region there are two ecologically well-defined altitudinal sectors (Table 1). On the one hand, the highlands are located above 700 metres above sea level (m a.s.l.) and have a significant winter snow cover. These markedly seasonal environments include basaltic plateaus such as the Strobel and Guitarra plateaus. Pampa del Asador is also included in these environments. In this case, the basaltic formation is overlain by glaciuvial deposits, whose matrix contains black obsidian pebbles (Espinosa & Goñi 1999). A highlighted feature known as Cerro Pampa exists in this plain.

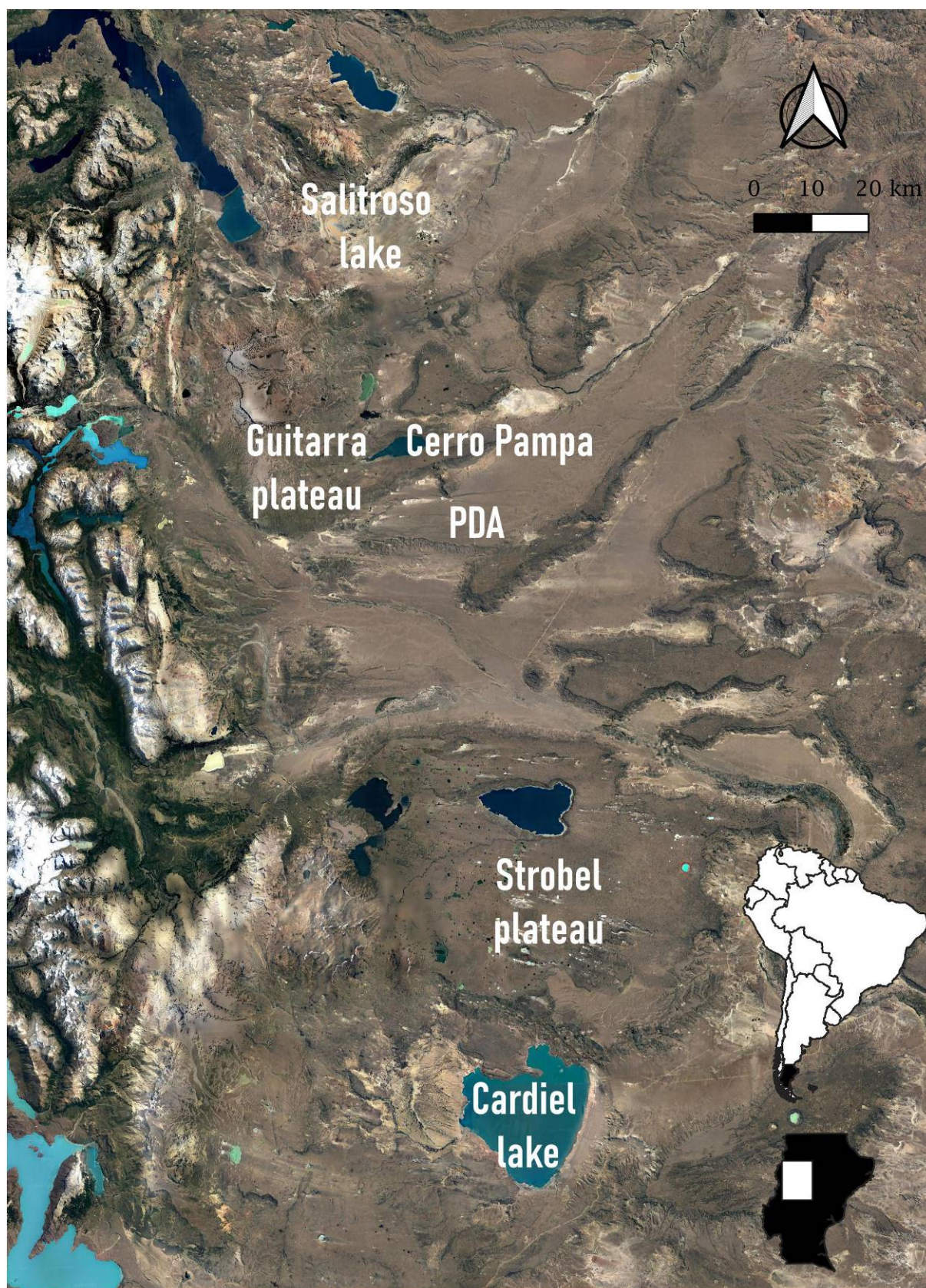


Figure 1. Study región. Referencas: PDA: Pampa del Asador.
Figura 1. Región de estudio. Referencias: PDA: Pampa del Asador.

Table 1. Characteristics of the areas considered. References: PDA: Pampa del Asador.
 Tabla 1. Características de las áreas consideradas. Referencias: PDA: Pampa del Asador.

	Cardiel	Strobel	Cerro Pampa	Guitarra	Salitroso
Distance to PDA (km)	100	70	0	10	50
m a.s.l.	200-300	>700	900	>900	100-300
Landform	lake basin	plateau	Plateau	plateau	lake basin
Lithic resource availability	high	low	very high	low	medium
Functionality	residential	logistic	Logistic	logistic	residential
Seasonality	annual	spring-summer	spring-summer	spring-summer	annual

On the other hand, there are lowlands, located between 100 and 400 metres above sea level. These sectors have a low winter snow load. In this case, the areas under study are the Cardiel and Salitroso basins.

In the study region, a peopling model has been proposed for the Late Holocene (Goñi 2000; Goñi *et al.* 2019). This model suggests that highlands were used for logistical and seasonal purposes, while lowlands were used mainly for residential purposes. Both sectors would have been complementary. It is worth mentioning that the topography of the terrain does not offer great limitations to pedestrian mobility. In addition, the drying of large bodies of water during the Late Holocene would also favor the circulation of hunter-gatherer groups (Goñi *et al.* 2014).

The region has a high diversity and availability of lithic resources (Cassiodoro *et al.* 2015). Cardiel basin has different varieties of siliceous rocks and basalts, as well as siltstone (Agnolin *et al.* 2018; Belardi *et al.* 2015). Salitroso basin has few siliceous rocks but is located only 20 km from basalt deposits (Cassiodoro 2011: 46-48). In contrast, Strobel and Guitarra plateaus have a lower availability of lithic resources. Strobel has limited deposits of intermediate to acid composition tuff (Flores Coni 2019) and Guitarra of siltstone (Cassiodoro 2016). At a regional and macro-regional level, Pampa del Asador stands out for its availability not only of obsidian, but also basalts, siliceous rocks, and tuffs (Cassiodoro *et al.* 2024; Espinosa & Goñi 1999).

1.2. Black obsidian from Pampa del Asador

Pampa del Asador is a 1200 km² Plio-Pleistocene fluvial-glacial sedimentary deposit sloping down from west to east (Espinosa & Goñi 1999). It is comprised of a plain field dissected by several temporal water courses and a series of lagoons. It also contains a landmark feature for the region, Cerro Pampa, with an elevation of 1351 m a.s.l. A broad and continuous distribution of obsidian pebbles and cobbles in different sectors of Pampa del Asador was verified. However, areas closer to Cerro Pampa are considered the most densely packed (Cassiodoro *et al.* 2023; Espinosa & Goñi 1999). Near Cerro Pampa there are also different archaeological sites (Cassiodoro 2011: 110-112). The primary source of the obsidian pebbles and cobbles is still unknown but may be located towards the west, near the Andes (Stern 1999; 2018).

The most frequent pebble size ranges from 40 to 59.9 mm, though some cobbles over 100 mm were also recorded. These dimensions make them easily transportable (Figure 2).

Geochemical analyses have determined its use from Magellan's Strait to Chubut province. This implies a distribution of over 800 km to the northeast and 650 km to the southeast (Stern 2000; Stern *et al.* 1995; 2000; among others).

Moreover, its use has a broad temporal distribution. Pampa del Asador's obsidian artefacts are found in early occupation contexts of the region. Towards the north, east and south black obsidian occurs in levels close to 10000 years B.P. (Civalero & Aschero 2003; Cueto *et al.* 2016; Franco *et al.* 2010 Méndez *et al.* 2012; Mena *et al.* 2000; Paunero 2000).

Most of the findings correspond to a small amount of debitage (Civalero & Franco 2003; Cueto *et al.* 2016; Franco *et al.* 2010).



Figure 2. Obsidian pebbles and cobbles from Pampa del Asador.
Figura 2. Guijarros de obsidiana de Pampa del Asador.

The characteristics of this raw material and its widespread use in the region make it an interesting case to evaluate the procurement and use strategies employed by hunter-gatherer groups. A previous paper examined this issue by studying obsidian cores on a regional scale considering different areas: Salitroso Lake, Guitarra Plateau, Cerro Pampa, Strobel Plateau and Cardiel Lake (Cassiodoro *et al.* 2020). This first approach established the existence of variability in the strategies involved in the transport and exploitation of obsidian cores. Non-fractured and partially flaked pebbles were transported to the Cardiel Lake basin, the most distant basin from Pampa del Asador in this analysis. Obsidian cores were partially reduced in this basin. Few cores, with scarce cortex, have been transported to the Strobel Plateau. In this plateau there is a discard of exhausted cores. In Cerro Pampa where assemblages are close to the source, there is a wide diversity of core types and *in situ* decortication. There is also variability in the degree of core reduction. In the Guitarra Plateau, the pattern is similar to Cerro Pampa, but cores have been less reduced. Partially decorticated cores have been transported to the Salitroso basin. Here the cores show a high degree of reduction. Based on these data, it has been proposed that distance to Pampa del Asador does not unequivocally explain all observed patterns. Distance to the source may be affecting the flow of obsidian to the different areas, but it does not necessarily influence the type of exploitation given to this lithic resource. To further discuss the procurement and use of obsidian in the region in this paper we include information from obsidian tools and debitage recovered in each of the areas under study (Table 1).

2. Methods

To discuss the strategies involved in the transport and exploitation of obsidian in the study region, the variable that initially guides the problem is the distance to procurement source (Table 1). Therefore, the sample under study consists of artefacts recovered at different distances and orientations from Pampa del Asador. Distances are considered in linear terms from one of the spots where the highest density of obsidian pebbles is recorded, Cerro Pampa (Cassiodoro *et al.* 2023) (Figure 1). The artefacts come from archaeological sites located in the proximity of Cerro Pampa and from areas located to the north and south of it. The areas

considered to the north are the Guitarra Plateau and the Salitroso Lake, and to the south the Strobel Plateau and the Cardiel Lake (Figure 1). In all cases, the selected assemblages are those that can be assigned to the Late Holocene (from 2000 years B.P. onwards) and which present obsidian artefacts (Table 2).

Table 2. Sample size considered in obsidian. *Value that corresponds to the 30% sampled for detailed analysis.
Tabla 2. Tamaño de la muestra de obsidiana. * Valor que corresponde al 30% muestreado para análisis detallados.

area	sites	n cores	n debitage	n tools
Cardiel	28	21	679	226
Strobel	53	24	6678	675
Cerro Pampa	3	136	6560 (1968*)	400
Guitarra	6	41	1989	268
Salitroso	19	67	1292	381

A macroscopic analysis was carried out following Aschero's guidelines (1975: 6-72; 1983: 3-9). The artefact classes represented in each of the areas were assessed. Undifferentiated fractured pieces were not considered. To evaluate the selection of obsidian in each class, only the most represented were included. To avoid overestimating the size of the debitage sample, distal flakes missing the platform were not measured (Aschero *et al.* 1994). In addition, a series of variables that previous studies have used to discuss lithic resource procurement and exploitation were employed (Clarkson 2007: 27-39; Clarkson & O'Connor 2006; Marwick 2008; Shott 2007). In this way, the presence of cortex, fractures, and dimensions, as well as the number of edges per artefact have been measured. In all cases, non-fractured artefacts were analysed. The size modules of Bagolini (1968) were used. To assess the presence of cortex and number of edges, projectile points and preforms were not taken into account.

3. Results

3.1. General representation

Firstly, the representation of obsidian artefacts in the total lithic assemblage of each of the areas was considered (Table 3). As expected, the assemblages near Pampa del Asador, Cerro Pampa and Guitarra, have a higher frequency of obsidian cores, debitage and tools. In these areas obsidian represents more than 60% of the total lithic production. On the other hand, Cardiel basin has the lowest values. Based on these differences, it can be suggested that distance to Pampa del Asador may be affecting the frequency of obsidian in each of the areas. However, when non-extreme distances are considered, this pattern is not so clear. For example, the percentages of debitage and tools are higher in Strobel than in Salitroso.

Table 3. Representation of obsidian artefacts. Percentages based on totals of each artefact class in the total lithic production of each area.

Tabla 3. Representación de artefactos de obsidiana. Porcentajes calculados sobre el total de artefactos de cada clase de la producción lítica de cada área.

area	debitage		tools		cores	
	% obsidian	N debitage	% obsidian	N tools	% obsidian	N cores
Cardiel	22,06	3078	15,18	1489	11,17	188
Strobel	61,66	10831	40,15	1681	31,58	76
Cerro Pampa	81,85	8015	71,05	563	73,91	184
Guitarra	78,09	2547	62,47	429	61,19	67
Salitroso	48,88	2643	36,85	1034	38,29	175

3.2. Debitage

The characteristics of the obsidiandebitage are different in each area. Firstly, considering the total amount ofdebitage (Figure 3), the Strobel Plateau has the highest amount of fractured pieces (79.4%). In contrast, the Salitroso basin has the highest percentage of complete pieces (49%).

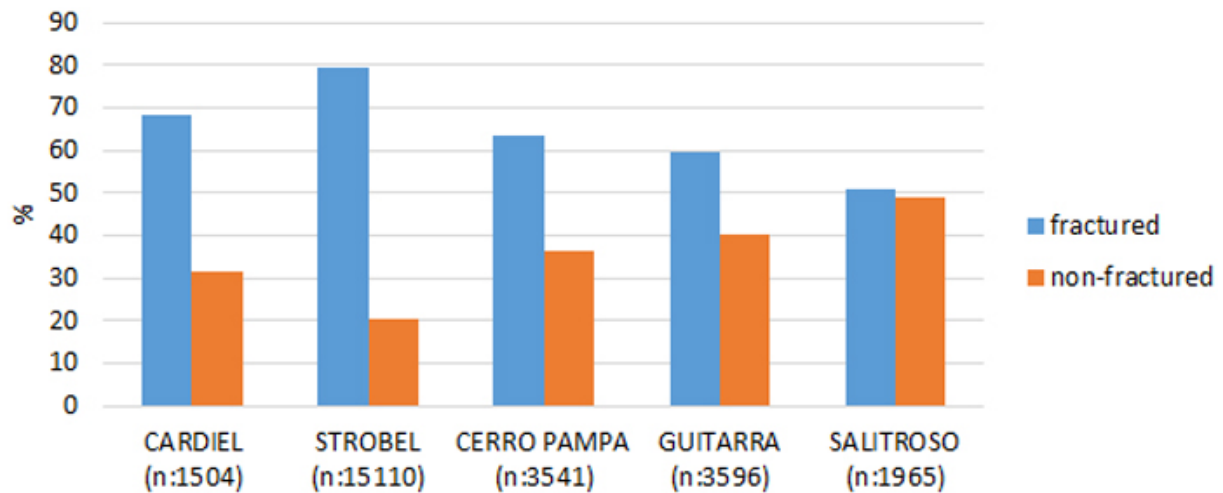


Figure 3. Percentage of fractured and non-fractureddebitage.

Figura 3. Porcentaje de desechos enteros y fracturados.

Cerro Pampa has the highest amount of non-fractureddebitage (Table 4) with cortex (33.3%). This pattern is consistent with the distance to the source as a factor conditioning the presence of cortex. However, the lowest proportions of cortex are not in the most distant areas. These low values are in Strobel (4.67%) and Guitarra (12.14%). In the lower basins, the percentages ofdebitage with cortex are over 18%. This suggests that in Cardiel and Salitroso, cortex removal may have been carried out. Both have been characterized as residential use areas and are the most distant to Pampa del Asador. Therefore, cores were probably transported and discarded at the production sites, either at the source itself or in the lower basins.

Table 4. Percentages of sizes and presence of cortex in non-fractureddebitage.

Tabla 4. Porcentajes de tamaños y presencia de corteza en desechos enteros.

	Cardiel		Strobel		Cerro Pampa		Guitarra		Salitroso	
	cortex	no cortex	cortex	no cortex	cortex	no cortex	cortex	no cortex	cortex	no cortex
Very small	9,89	54,45	42,07	80,30	15,78	36,89	27,42	68,18	12,59	43,61
Small	61,54	36,91	42,76	18,14	53,13	49,88	39,79	24,09	44,27	41,47
Medium small	24,18	8,12	13,10	1,45	19,03	10,67	24,73	6,69	34,73	12,64
Medium large	4,39	0,52	2,07	0,10	9,97	1,86	8,06	1,04	7,63	2,27
Large	-	-	-	-	2,09	0,46	-	-	0,76	-
Very large	-	-	-	-	-	0,23	-	-	-	-
Total	100	100	100	100	100	100	100	100	100	100
	(n:91)	(n:382)	(n:145)	(n:2955)	(n:431)	(n:862)	(n:186)	(n:1345)	(n:262)	(n:704)

Finally, in relation to non-fractureddebitage sizes, the Strobel Plateau has the highest percentages of very small sizes, mainly without cortex (Table 4). This can be attributed to

edge maintenance and edge shaping tasks. The rest of the areas have greater variability in size. Cerro Pampa assemblages stand out as they have large or very large pieces, even with cortex. This is consistent with the occurrence of the first stages of lithic reduction. In Salitroso, these activities also seem to be taking place, but in lower frequencies.

3.3. Tools

There are clear differences between areas in the type of obsidian artefacts being used (Table 5; Figure 4). In the lower basins and distant from the source (Cardiel and Salitroso), endscrapers are the most frequent obsidian pieces, followed by projectile points. In both cases with very similar proportions. In highlands, closer to the source (Cerro Pampa and Guitarra), retouched flakes stand out. They are followed by utilized flakes and endscrapers. Projectile points are mostly represented in the Strobel Plateau. If different bifacial pieces (projectile points, preforms of projectile points, drills and undifferentiated bifacial artefacts) are considered together (Table 5), this area stands out with 56.4% (n: 318) of bifaciality. The areas close to Pampa del Asador, Cerro Pampa (14.5%; n: 52) and Guitarra (10.3%; 25), show the lowest bifaciality values. Again, the lower basins of Cardiel (35.9%; n: 68) and Salitroso (37.7%; n: 131) are similar.

The representation of obsidian in each artefact class was analyzed (Table 6). A clear selection of this raw material to produce projectile points is observed in all areas. However, percentages are lower in Cerro Pampa. This area has the lowest representation of finished obsidian projectile points, although bifacial pieces and preforms are produced. Furthermore, the Cardiel basin has low percentages of obsidian in most of the artefactual classes. Therefore, the influence of other alternative raw materials in this assemblage is suggested.

Finally, the presence of cortex and the number of active cutting edges per piece were also considered to assess the degree of investment in manufacturing and using tools. The proportion of unifacial artefacts with cortex is similar in all areas (Figure 5). However, the Strobel Plateau stands out for the higher frequency of artefacts without cortex. This reinforces the evidence for the transport of already decorticated pieces to this area. Likewise, the Cardiel basin is the area with more obsidian tools with two or more cutting edges (Figure 6). The Salitroso basin follows this pattern. Thus, both lower lake basins evidence a more intensive use of obsidian tools.

Table 5. Tool classes. References: U: undifferentiated, pp: projectile points.

Tabla 5. Clases artefactuales. Referencias: U: indiferenciados, pp: puntas de proyectil.

Classes	Cardiel	Strobel	Cerro Pampa	Guitarra	Salitroso
Retouched flakes	10,05	10,02	41,90	26,56	15,56
Utilized flake	13,23	3,87	18,99	19,50	9,22
Knives	2,12	1,93	2,51	4,15	2,59
Sidescrapers	6,35	3,87	2,79	14,52	2,31
Endscrapers	32,28	23,55	18,99	24,90	32,56
Scraper planes	-	-	0,28	-	-
Preforms pp	2,65	1,41	0,28	0,41	0,86
Drills	0,53	0,35	-	-	0,29
U. bifacial artefacts	1,06	14,23	8,94	4,56	6,92
Projectile points	31,75	40,77	5,31	5,39	29,68
Total	100 (n:189)	100 (n:564)	100 (n:358)	100 (n:241)	100 (n:347)

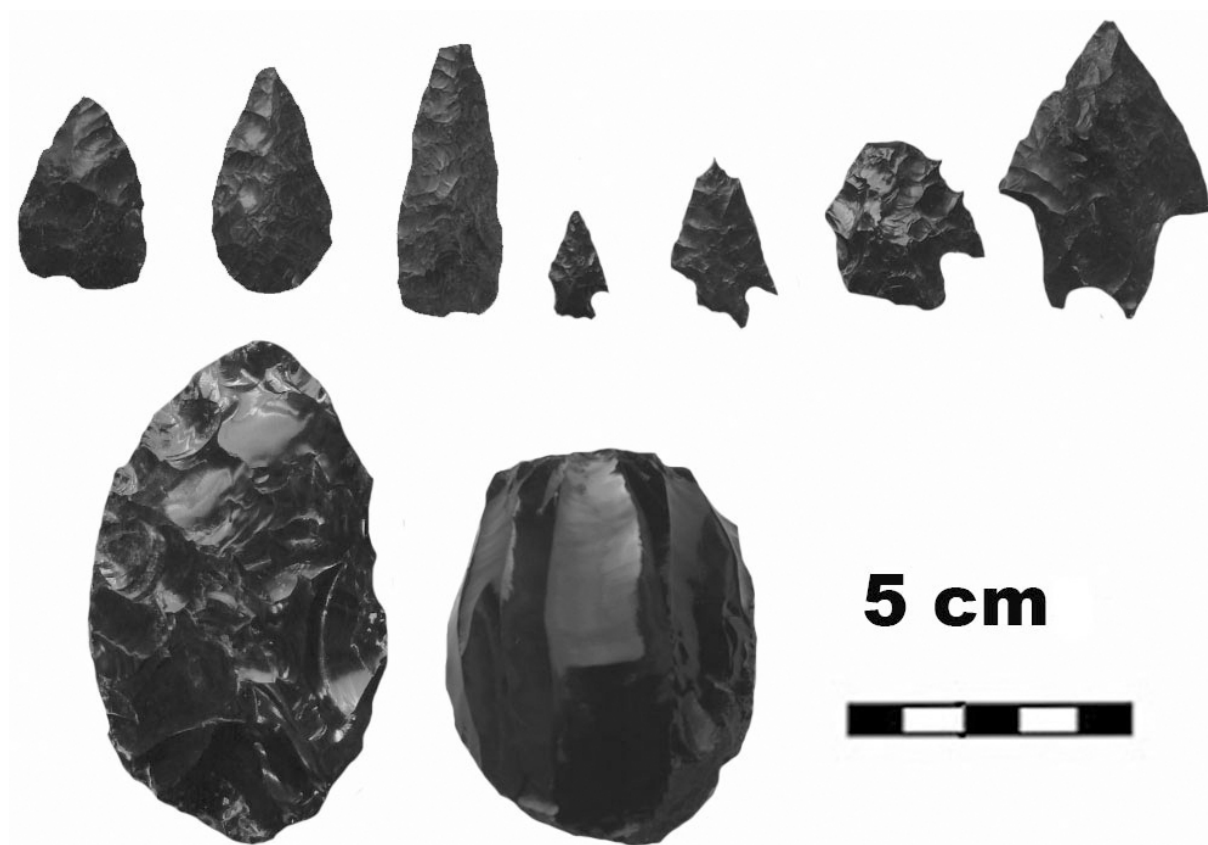


Figure 4. Obsidian tools.

Figura 4. Instrumentos en obsidiana.

Table 6. Obsidian representation in relation to other raw materials in more frequent classes. References: pp: projectile point, rm: raw materials, ob: obsidian, U: undifferentiated.

Tabla 6. Representación de obsidiana en relación con el total de materias primas en las clases artefactuales más representadas. Referencias: pp: punta de proyectil, rm: materia prima, ob: obsidiana, U: indiferenciados.

	Cardiel		Strobel		Cerro Pampa		Guitarra		Salitroso	
Classes	% ob	n total rm	% ob	n total rm	% ob	n total rm	% ob	n total rm	% ob	n total rm
Retouched flakes	9,95	197	40,42	141	81,97	183	76,19	84	36,99	146
Knives	9,09	44	30,55	36	69,23	13	55,56	18	21,43	42
Sidescrapers	5,91	203	17,32	127	30,30	33	55,56	63	6,35	126
Endscrapers	19,49	313	37,2	362	66,02	103	59,41	101	39,93	283
U. bifacial artefacts	5	40	50	101	82,05	39	68,75	16	38,10	63
Preform pp	55,56	9	86,89	12	100	1	100	1	42,86	7
pp	71,43	84	77,14	262	57,58	33	81,25	16	83,74	123

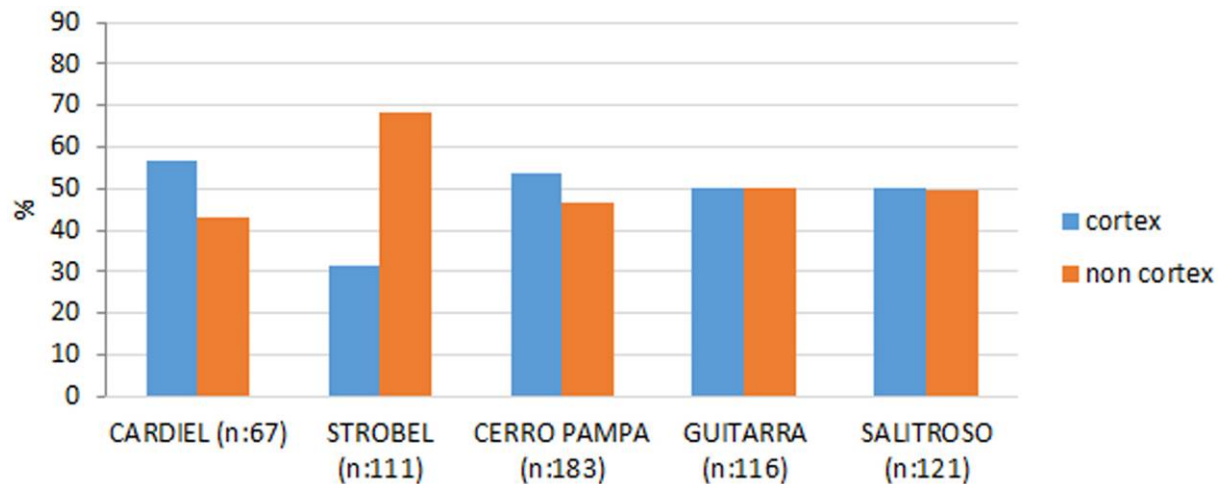


Figure 5. Presence of cortex on unifacial tools.

Figura 5. Presencia de corteza en artefactos formatizados unifaciales.

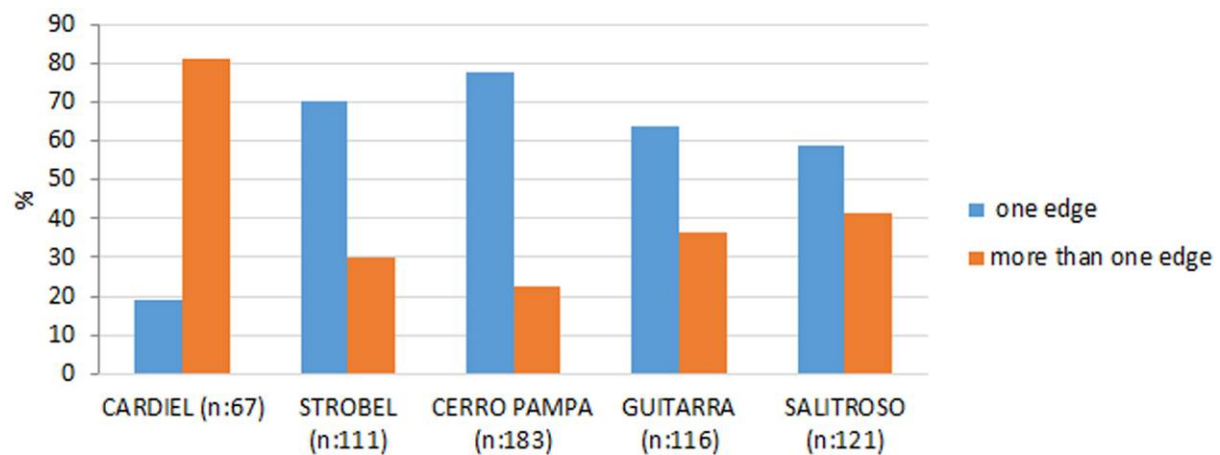


Figure 6. Number of cutting edges per piece.

Figura 6. Cantidad de filos formatizados por pieza.

In sum, in Strobel there is an emphasis on the production and use of bifaces and pieces without cortex. Cardiel has a higher amount of obsidian pieces with more than one retouched edge and a greater incidence of other raw materials in the artefactual assemblage. Cerro Pampa and Guitarra are both characterized by low investment in manufacturing effort. Salitroso assemblages are more variable. There are also similarities between all areas: presence of cortex in non-fractured unifacial tools and selection to produce projectile points and bifaces. The selection of obsidian to make projectile points is consistent with its excellent prey tissue penetration qualities (Ellis 1997).

4. Discussion

The properties, location, and widespread use of black obsidian in the region make it an interesting case for assessing the procurement and use strategies developed by hunter-gatherer groups. To discuss these strategies on a regional scale, lithic assemblages from different distances to the source were analyzed. The assemblages considered not only differ in distance but are also associated with different ecological environments and areas that played different roles in the settlement system during Late Holocene.

The patterns observed on a regional scale are variable. The use and discard of obsidian does not have the same characteristics in all areas. Based on the presented information, we propose the following obsidian's procurement and use strategies in each area.

The pattern observed in Cerro Pampa assemblages is consistent with that expected in a lithic supply source (Bamforth 1991; Ericson 1984, among others). In this area pebbles and cores are processed, and tools are manufactured. These are mainly informal (*sensu* Andrefsky 1994).

The Strobel Plateau has a very clear pattern in terms of its proposed logistical use (Belardi & Goñi 2006). This area is only available in spring and summer times and was used for faunal acquisition and information exchange (Dellepiane 2019: 351-363; Flores Coni 2018: 507-514; Re 2010: 341-344). Strobel shows evidence of transport of blanks, processed cores and tools to a logistical place where there is a time stress (*sensu* Torrence 1989). The use of obsidian for bifacial pieces stands out. The selection of an optimum raw material for the manufacture of weapons (Ellis 1997) is consistent with the use of this plateau for hunting. Therefore, there is a very planned use of obsidian in Strobel. Hunters arrived at this plateau with already processed high quality raw material. Here obsidian would have been fully and intensively used.

Guitarra and Strobel should have similar patterns considering the same proposed logistical use and the low availability of other lithic resources. However, this is not the case. The proximity of Guitarra to Pampa del Asador is making a difference. Therefore, logistical functionality does not unequivocally explain the assemblages either. At the Guitarra Plateau, a transport of pebbles and cores for a wide variety of uses, but mainly scarcely retouched tools, is observed. This generates an obsidian-equipped landscape with potential future use.

The lower lake basins (Salitroso and Cardiel) behave very similarly in several ways. Although they are the areas furthest away from the source, the patterns observed do not necessarily match expectations regarding distance. In these basins the strategy is to transport obsidian cores, nodules and blanks that are processed in residential camps to manufacture a variety of tools. The obsidian nodules' dimensions would facilitate transport. The differences between the two areas are in terms of the frequencies and potential utilization of discarded cores. In this regard, it should be recalled that other lithic resources are highly available at Cardiel (Agnolin *et al.* 2018).

During the Late Holocene, the region does not offer significant constraints to mobility in terms of either orography or hydrology. As seen in this and a previous study (Cassiodoro *et al.* 2020), distance to the source can explain some, but not all patterns. Therefore, it can be argued that linear distance does not unequivocally reflect accessibility to the supply area. Together with distance, we consider that some of the observed patterns can be associated with the particularities of land use. Each of the areas considered had differentiated and complementary uses within a mobility system (Goñi 2000). Differential demands for tools in each area could lead to the adoption of different transport and use strategies. Therefore, we consider this is a case study in which multiple factors are conditioning the strategies developed by hunter-gatherer to process and use obsidian. The impact of tool demand contingencies on the development of different strategies has been proposed by Binford & O'Connell (1984) in their ethnoarchaeological studies in Australia.

Indirect access expectations do not unequivocally apply to any of the areas. The obsidian artefact frequencies and their general characteristics do not suggest indirect access. Therefore, direct access to Pampa del Asador by the populations that inhabited the region is proposed. Direct access is also considered for more distant areas such as San Martín-Tar basin (Belardi *et al.* 2009), located south of the study region.

As a result of this work, it also became evident that there are mobility circuits to Pampa del Asador that have different frequencies of occurrence. That is, the obsidian flow is more frequent towards the north, the Salitroso basin. This pattern is consistent with the Guitarra Plateau functioning as a transit or corridor zone between Salitroso and Pampa del Asador (Goñi *et al.* 2010). Differences in the north to south circulation of obsidian have also been

recorded in other raw materials, such as basalt (Espinosa *et al.* 2019) and siltstone (Belardi *et al.* 2015).

It is worth mentioning that the situation is different for sectors located east of the study region (Cueto *et al.* 2016; Hermo *et al.* 2019). To the east of Pampa del Asador, the decrease in obsidian use is more pronounced (Civalero 1999; Goñi *et al.* 2019; Molinari & Espinosa 1999; Re *et al.* 2024). Therefore, on a macro-regional scale, there may have been different procurement strategies and scenarios related to the circulation of black obsidian during the Late Holocene (Pallo & Borrero 2015; Re *et al.* 2024).

5. Concluding remarks

The strategies of use and transport of black obsidian in central-western Santa Cruz during the Late Holocene would have been variable. A broad spatial scale approach allowed us to evaluate the incidence of multiple factors in the development of strategies for provisioning and use of this lithic resource.

Further research is needed to assess whether the patterns observed here persist over a longer time scale. New questions have also emerged. The differences in the flow of some lithic raw materials in the north and south axis of the study region need to be further explored, as well as the differences in the west and east axis at the macro-regional level. Can these differences be related to biogeographical issues or are other social dynamics involved? To further evaluate lithic resource use and transport strategies at different spatial scales, new variables can be included.

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Data accessibility statement

The information used for this paper is available in the authors' doctoral theses cited.

References

- Ambrústolo, P., Zubimendi, M. & Stern, C. 2012, Explotación de obsidiana negra en la costa norte de Santa Cruz (Patagonia, Argentina). *Cazadores Recolectores del Cono Sur*, 6: 77-86. (in Spanish) ("Explotation of black obsidian on the north coast of Santa Cruz (Argentine Patagonia)")
- Andrefsky, W. 1994, Raw material availability and the organization of technology. *American Antiquity*, 59(1): 21-34. DOI: <https://doi.org/10.2307/3085499>
- Andrefsky W. 2009, The analysis of stone tool procurement, production, and maintenance. *Journal of Archaeological Research*, 17: 65-103. DOI: <https://doi.org/10.1007/s10814-008-9026-2>
- Agnolin, A., Cassiodoro, G. & Espinosa, S. 2018, Recursos líticos de la cuenta del lago Cardiel (Santa Cruz): nuevas prospecciones e implicancias para la arqueología regional. *Relaciones de la Sociedad Argentina de Antropología*, 43(1): 135-150. ("Lithic resources from Cardiel lake basin (Santa Cruz): new surveys and implications for regional archeology") DOI: <https://doi.org/10.24215/18521479e010>

- Aschero, C. 1975, *Ensayo para una clasificación morfológica de los artefactos líticos aplicada a estudios tipológicos comparativos. Informe de Investigación al CONICET*-Manuscript, Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Buenos Aires, 162 p. (in Spanish) ("Morphological classification of lithic artefacts essay, applied to comparative typological studies")
- Aschero, C. 1983, *Revisión del ensayo para una clasificación morfológica de los artefactos líticos aplicada a estudios tipológicos comparativos*. Manuscrito de Cátedra, Universidad de Buenos Aires, Buenos Aires, 80 p. (in Spanish) ("Revision of the essay of a morphological classification of lithic artefacts, applied to comparative typological studies")
- Aschero, C., Manzi, L. & Gómez, A. 1994, Producción lítica y uso del espacio en el nivel 2b4 de Quebrada Seca 3. *Relaciones de la Sociedad Argentina de Antropología*, 19(1993-1994): 191-214. (in Spanish) ("Lithic production and land use at Quebrada Seca 3, level 2b4")
- Bagolini, B. 1968, Ricerche sulle dimensioni dei manufatti litici preistorici non ritoccati, Università degli studi. *Annali dell'Università di Ferrara*, 15: 195-219. (in Italian) ("Research into the dimensions of unretouched prehistoric lithic artefacts, University of Studies")
- Bamforth, D. 1991, Technological organization and hunter-gatherer land use. *American Antiquity*, 56: 216-235. DOI: <https://doi.org/10.2307/281416>
- Belardi, J., Carballo Marina, F., Bourlot, T. & Re, A. 2009, Paisajes arqueológicos, circulación e interacción en diferentes escalas: una perspectiva desde el lago Tar (provincia de Santa Cruz). In: *Arqueología de Patagonia: una mirada desde el último confín* (Salemme, M., Santiago, F., Álvarez, M., Piana, E., Vázquez, M. & Mansur, E., Eds.), Editorial Utopías, Ushuaia: p. 219-231. (in Spanish) ("Archaeological landscapes, circulation and interaction at different scales: a perspective from Tar Lake (Santa Cruz province)")
- Belardi, J., Cassiodoro, G., Goñi, R., Glascock, M. & Súnico, A. 2015, Limolites from southern Patagonia (Argentina): their source and archaeological artifact distributions. *Geoarchaeology: An International Journal*, 30: 223-237. DOI: <https://doi.org/10.1002/gea.21508>
- Belardi, J. & Goñi, R. 2006. Representaciones rupestres y convergencia poblacional durante momentos tardíos en Santa Cruz (Patagonia argentina). El caso de la meseta del Strobel. In *Tramas en la Piedra. Producción y usos del arte rupestre* (Fiore, D. & Podestá, M., Eds.), World Archaeological Congress, Sociedad Argentina de Antropología, Instituto Nacional de Antropología y Pensamiento Latinoamericano, Buenos Aires: p. 85-94. (in Spanish) ("Rock art and population convergence during late times in Santa Cruz (Argentinean Patagonia). The case of the Strobel plateau") URL: <https://www.saanropologia.com.ar/>
- Binford, L. 1979, Organization and formation processes: looking at curated technology. *Journal of Anthropological Research*, 35(3):255-273. DOI: <https://doi.org/10.1086/jar.35.3.3629902>
- Binford, L. & O'Connell, J. 1984, An Alyawara day: the stone quarry. *Journal of Anthropological Research*, 40(3): 406-432. DOI: <https://doi.org/10.1086/jar.40.3.3629763>

- Binford, L., & Stone, N. 1985, 'Righteous rocks' and Richard Gould: Some observations on misguided "debate." *American Antiquity*, 50: 151-153.
DOI: <https://doi.org/10.2307/280641>
- Cassiodoro, G. 2011, *Movilidad y uso del espacio de cazadores-recolectores del Holoceno tardío. Estudio de la variabilidad del registro tecnológico en distintos ambientes del noroeste de la provincia de Santa Cruz (Argentina)*. British Archaeological Reports International Series Vol. 2259, Archaeopress, Oxford, 217 p. (in Spanish) ("Mobility and land use by Late Holocene hunter-gatherers. A study of the variability of the technological record in different environments in the northwest of Santa Cruz province (Argentina)") DOI: <https://doi.org/10.30861/9781407308302>
- Cassiodoro, G. 2016, Paisajes mesetarios en Patagonia meridional argentina: tecnología de Pampa del Asador- lago Guitarra. *Cuadernos del Instituto Nacional de Antropología y Pensamiento Latinoamericano*, 25(2): 119-140. (in Spanish) ("Plateau landscapes in southern Argentinean Patagonia: technology of Pampa del Asador- Lago Guitarra") URL: <https://revistas.inapl.gob.ar/index.php/cuadernos/article/view/946>
- Cassiodoro G., Goñi R., Espinosa S., Agnolin A. & Flores Coni J. 2023, Black obsidian from Pampa del Asador (Santa Cruz, Patagonia Argentina): a regional source. In: *Sourcing Archaeological Lithic Assemblages. New Perspectives and Integrated Approaches*. (Speer, C., Parrish, R. & Barrientos, G., Eds.), University of Utah Press, Salt Lake City: p. 132-145.
- Cassiodoro, G., Agnolin, A. & Flores Coni, J. 2020, Análisis de núcleos de obsidiana del Holoceno tardío en el centro-oeste de la provincia de Santa Cruz. *Revista del Museo de Antropología*, 13(1): 249-254. (in Spanish) ("Analysis of obsidian cores from the late Holocene in central-western Santa Cruz province") DOI: <https://doi.org/10.31048/1852.4826.v13.n1.23807>
- Cassiodoro, G., Espinosa, S., Flores Coni, J., & Goñi, R. 2015, Disponibilidad de recursos líticos y movilidad durante el Holoceno tardío en el centro-oeste de la provincia de Santa Cruz. *Intersecciones en Antropología*, Special Volume 2: 75-86. (in Spanish) ("Availability of lithic resources and mobility during the late Holocene in central-western Santa Cruz province")
- Cassiodoro, G., Espinosa, S., Flores Coni, J., Agnolin, A. & Goñi, R. 2024. Más allá de la obsidiana: disponibilidad de otras materias primas líticas en Pampa del Asador (Santa Cruz). *Cuadernos del INAPL series especiales*. 11(1): 115-129. (in Spanish) ("Beyond obsidian: availability of other lithic raw materials in Pampa del Asador (Santa Cruz)") DOI: <https://doi.org/10.5281/zenodo.10864421>
- Charlin, J. 2009, Aprovisionamiento, explotación y circulación de obsidianas durante el Holoceno tardío en Pali Aike (Provincia de Santa Cruz). *Relaciones de la Sociedad Argentina de Antropología*, 34: 53-73. (in Spanish) ("Procurement, exploitation and circulation of obsidian during the late Holocene at Pali Aike (Santa Cruz Province)")
- Civalero, M. T. 1999, Obsidiana en Santa Cruz, una problemática a resolver. In: *Soplando en el viento: Actas de las Terceras Jornadas de Arqueología de la Patagonia* (Belardi, J., Fernández, P., Goñi, R., Guraieb, G. & de Nigris, M.E., Eds.), Universidad Nacional del Comahue e Instituto Nacional de Antropología y Pensamiento Latinoamericano, Buenos Aires & Neuquén: p. 155-164. (in Spanish) ("Obsidian in Santa Cruz, a problem to be solved")

- Civalero, T. & Aschero, C. 2003, Early Occupations at Cerro Casa de Piedra 7, Santa Cruz Province, Patagonia Argentina. In: *Where the South Winds Blow: Ancient Evidences for Paleo South American* (Miotti, L., Salemme, M. & Flegenheimer, N., Eds.). Center for the Studies of the First Americans and Texas A&M University Press, Texas: p. 141-147
- Clarkson, C. 2007, *Lithics in the Land of the Lightning Brothers: The Archaeology of Wardaman Country, Northern Territory*. Terra Australis Vol. 25. ANU E Press, Canberra, 221 p. DOI: <https://doi.org/10.22459/TA25.2007>
- Clarkson, C. & O'Connor, S. 2006, An introduction to stone artifact analysis. In: *Archaeology in Practice: A Student Guide to Archaeological Analyses* (Balme, J. & Paterson, A., Eds), Blackwell Publishing, Malden: p.159-206
- Cueto M., Frank, A. & Skarbun, F. 2016, The exploitation of obsidian in the Central Plateau of Santa Cruz, Argentina: Results from La María and Cerro Tres Tetras and a regional perspective. *Journal of Lithic Studies*, 3(2): 209-230. DOI: <https://doi.org/10.2218/jls.v3i2.1402>
- Dellepiane, J. 2019, Poblamiento y uso del espacio de sectores mesetarios del centro-oeste de Santa Cruz durante el Holoceno tardío. Una aproximación zooarqueológica. Ph.D. thesis. Facultad de Filosofía y Letras, Universidad de Buenos Aires, Buenos Aires, 582 p. (in Spanish) ("Settlement and land use in plateau sectors of central-western Santa Cruz during the Late Holocene. A zooarchaeological approach")
- Dincauze, D. 2000, *Environmental archaeology: principles and practice*. Cambridge University Press, Cambridge, 587.
- Ericson, J. 1984, Toward the analysis of lithic production systems. In: *Prehistoric Quarries and Lithic Production* (Ericson, J. & Purdy, B., Eds.), Cambridge University Press, Cambridge: p. 1-19. DOI: <https://doi.org/10.1017/cbo9780511753244.002>
- Ellis, C. 1997, Factors influencing the use of stone projectile tips. An ethnographic perspective. In: *Projectile Technology* (Knecht, H. Ed.). Plenum Press, New York & London: p. 37-74. DOI: https://doi.org/10.1007/978-1-4899-1851-2_2
- Espinosa, S. & Goñi, R. 1999, Viven! Una fuente de obsidiana en la Provincia de Santa Cruz. In: *Soplando en el viento: Actas de las Terceras Jornadas de Arqueología de la Patagonia* (Belardi, J., Fernández, P., Goñi, R., Guraieb, G. & de Nigris, M.E., Eds.), Universidad Nacional del Comahue e Instituto Nacional de Antropología y Pensamiento Latinoamericano, Buenos Aires & Neuquén: p. 177-188. (in Spanish) ("Alive! A source of obsidian in Santa Cruz province")
- Espinosa, S., Tiberi, P., Stern, Ch., Cassiodoro, G., Flores Coni, J. & Agnolin, A. 2019, Elementos traza en basaltos de la cordillera y precordillera de Santa Cruz (Argentina). Su aplicación en localización de canteras arqueológicas. In: *Arqueología de Patagonia. El pasado en las arenas* (J. Gómez Otero, J., Svodoba, A. & Banegas, A., Eds.), Instituto de Diversidad y Evolución Austral, Puerto Madryn: p 609-622. (in Spanish) ("Trace elements in basalts from the Cordillera and Precordillera of Santa Cruz (Argentina). Its application in the identification of archaeological quarries")
- Franco, N., Ambrústolo, P., Martucci, M., Brook, G., Mancini, V. & Cirigliano, N. 2010, Early human occupation in the Southern part of the Deseado Massif (Patagonia, Argentina). *Current Research in the Pleistocene*, 27: 13-16.

- Flores Coni J. 2018, Poblamiento humano y uso del espacio en la meseta del Strobel (provincia de Santa Cruz). Un análisis sobre la variabilidad tecnológica durante el Holoceno Ph.D. thesis. Facultad de Filosofía y Letras, Universidad de Buenos Aires, Buenos Aires, 658 p. (in Spanish) ("Human settlement and land use in Strobel plateau (Santa Cruz province). An analysis of technological variability during the Holocene") URL: <http://hdl.handle.net/11336/82893>
- Flores Coni, J. 2019, Population convergence in the Strobel Plateau: A discussion based on the study of lithic raw materials variability. *Journal of Archaeological Science: Reports*, 24: 473-485. DOI: <https://doi.org/10.1016/j.jasrep.2019.01.031>
- Goñi, R. 2000, Arqueología de momentos históricos fuera de los centros de conquista y colonización: Un análisis de caso en el sur de la Patagonia. In: *Desde el País de los Gigantes. Perspectivas Arqueológicas en Patagonia* (Espinosa, S., Ed.), Universidad Nacional de la Patagonia Austral (UNPA), Río Gallegos: p. 283-296. (in Spanish) ("Archaeology of historical moments outside the centres of conquest and colonization: A case analysis in southern Patagonia")
- Goñi, R., Cassiodoro, G., Re, A., Guichón, F., Flores Coni, J., & Dellepiane, J. 2010, Arqueología de la meseta del Lago Guitarra (Santa Cruz). In *Arqueología Argentina en el Bicentenario de la Revolución de Mayo, XVII Congreso Nacional de Arqueología Argentina* (Bárcena, R. & Chiavazza, H., Eds.), Universidad Nacional de Cuyo-CONICET, Mendoza: p. 1923-1928. (in Spanish) ("Archaeology of Lago Guitarra Lake Plateau (Santa Cruz)")
- Goñi, R., Belardi, J. Cassiodoro, G., Rindel, D., García Guraieb, S. & Bourlot, T. 2014, Registro arqueológico y cronología de las ocupaciones cazadoras recolectoras en la cuenca del lago Cardiel. In *Arqueología de las Cuencas de los Lagos Cardiel y Strobel. Poblamiento Humano y Paleoambientes en Patagonia* (Goñi, R., Belardi, J., Cassiodoro, G. & Re, A., Eds.), Aspha Ediciones. Buenos Aires: p. 41-66. (in Spanish) ("Archaeological record and chronology of hunter-gatherer occupations in the Lake Cardiel Basin")
- Goñi, R., Re, A., García Guraieb, S., Cassiodoro, G., Tessone, A., Rindel, D., Dellepiane, J., Flores Coni, J., Guichón, F., & Agnolin, A. 2019, Climate changes, human peopling and regional differentiation during Late Holocene in Patagonia. *Quaternary International*, 505: 4-20. DOI: <https://doi.org/10.1016/j.quaint.2018.03.007>
- Hermo, D., Marchionni, L., & Mosquera, B. 2019, Prospecciones arqueológicas en la cuenca del Zanjón del Pescado (Macizo del Deseado, Santa Cruz): los casos de Los Toldos, la Huella y Laguna Sierras Blancas. In: *Arqueología de Patagonia. El pasado en las arenas* (J. Gómez Otero, J., Svodoba, A. & Banegas, A., Eds.), Instituto de Diversidad y Evolución Austral, Puerto Madryn: p 293-304. (in Spanish) ("Archaeological surveys in the Zanjón del Pescado basin (Deseado Massif, Santa Cruz): the cases of Los Toldos, La Huella and Laguna Sierras Blancas")
- Kuhn, S. 1995, *Mousterian Lithic Technology*. Princeton University Press, Princeton, 224.
- Marwick, B. 2008, What attributes are important for the measurement of assemblage reduction intensity? Results from an experimental stone artefact assemblage with relevance to the Hoabinhian of mainland Southeast Asia. *Journal of Archaeological Science*, 35: 1189-200. DOI: <https://doi.org/10.1016/j.jas.2007.08.007>

- Méndez, C.A., Stern, C.R., Reyes, O.R. & Mena, F. 2012, Early Holocene long-distance obsidian transport in central-south Patagonia. *Chungará*, 44(3): 363-375. DOI: <https://doi.org/10.4067/s0717-73562012000300001>
- Molinari, R. & Espinosa, S. 1999, Brilla tú, diamante "loco". In: *Soplando en el viento: Actas de las Terceras Jornadas de Arqueología de la Patagonia* (Belardi, J., Fernández, P., Goñi, R., Guraieb, G. & de Nigris, M.E., Eds.), Universidad Nacional del Comahue e Instituto Nacional de Antropología y Pensamiento Latinoamericano, Buenos Aires & Neuquén: p. 189-198. (in Spanish) ("Shine on, you "crazy" diamond")
- Mena, F., Lucero, V., Reyes, O., Trejo, V. & Velásquez, H. 2000, Cazadores tempranos y tardíos en la cueva Baño Nuevo-1, margen occidental de la estepa centro patagónica (XI Región de Aisén, Chile). *Anales del Instituto de la Patagonia*, 28: 173-195. (in Spanish) ("Early and late hunters in the Baño Nuevo-1 cave, western margin of the central Patagonian steppe (11th Region of Aisén, Chile)")
- Nelson, M. 1991, The study of technological organization. *Archaeological Method and Theory*, 3:57-100. URL: <https://www.jstor.org/stable/20170213>
- Oliva, G, González, L., Rial, P. & Livraghi, E. 2001. El ambiente en la Patagonia Austral. In: *Ganadería ovina sustentable en la Patagonia Austral. Tecnologías de manejo extensivo* (Borrelli, P. & Oliva, G., Eds.), Ediciones INTA, Buenos Aires: p 19-82 (in Spanish) ("Environment in Southern Patagonia")
- Pallo, C., & Borrero, L. 2015, ¿Intercambio o Movilidad? Una Evaluación Sobre el Uso de Escalas de Análisis Espaciales y Curvas de Declinación en Patagonia Centro-Meridional (Argentina). *Latin American Antiquity*, 26(3): 287-303. (in Spanish) ("Exchange or mobility? an evaluation of the use of spatial scales of analysis and decline curves in Central-Southern Patagonia (Argentina)") DOI: <https://doi.org/10.7183/1045-6635.26.3.287>
- Paunero, R. 2000, Localidad arqueológica Cerro Tres Tetras. In: *Guía de campo de la visita a las Localidades Arqueológicas: la Colonización del Sur de América Durante la Transición Pleistoceno/Holoceno* (Miotti, L., Paunero, R., Salemme, M. & Cattáneo, R., Eds.), Edición Nacional, La Plata: p. 89-100 (in Spanish) ("Cerro Tres Tetras Archaeological Site")
- Re, A. 2010, Representaciones rupestres en mesetas altas de la provincia de Santa Cruz. Circulación de información en espacios de uso estacional. Ph.D. thesis. Facultad de Filosofía y Letras, Universidad de Buenos Aires, Buenos Aires, 445 p. (in Spanish) ("Rock art in plateaus of Santa Cruz province. Circulation of information in places of seasonal use") URL: <http://repositorio.filo.uba.ar/handle/filodigital/1853>
- Re, A., Cassiodoro, G., Flores Coni, J. & Guichón, F. 2024, Circulation of goods and information in southern Patagonia during the late Holocene: an integrated analysis of engravings and black obsidian artefacts. *Journal of World Prehistory*, 37: 171-219 DOI: <https://doi.org/10.1007/s10963-024-09185-x>
- Shott, M. 2007, The Role of Reduction Analysis in Lithic Studies. *Lithic Technology*, 32:1, 131-141. DOI: <https://doi.org/10.1080/01977261.2007.11721048>

- Stern, C. 1999, Black obsidian from central-south Patagonia, chemical characteristics, sources and regional distribution of artefacts. In: *Soplando en el viento. Actas de las III Jornadas de Arqueología de la Patagonia* (Civalero, M.T., Fernández, P.M. & Guraieb, G., Eds.), Instituto Nacional de Antropología y pensamiento Latinoamericano y Universidad Nacional del Comahue, Buenos Aires & Neuquen: p. 221-234.
- Stern, C. 2000, Sources of obsidian artifacts from the Pali-Aike, Fell's Cave and Cañadón la Leona archaeological sites in southernmost Patagonia. In *Desde el país de los gigantes. Perspectivas arqueológicas en Patagonia* (Belardi, J., Carballo Marina, F. & Espinosa, S.), Universidad Nacional de la Patagonia Austral, Río Gallegos: p. 43-55.
- Stern, C. 2018, Obsidian sources and distribution in Patagonia, southernmost South America. *Quaternary International*, 468: 190-205.
DOI: <https://doi.org/10.1016/j.quaint.2017.07.030>
- Stern, C., Prieto, A., & Franco, N. 1995, Obsidiana negra en sitios arqueológicos de cazadores-recolectores terrestres en Patagonia austral. *Anales del Instituto de la Patagonia*, 23: 105-109. (in Spanish) ("Black obsidian in archaeological sites of terrestrial hunter-gatherers in southern Patagonia")
- Stern, C., Gómez Otero, J. & Belardi, J. 2000, Características químicas, fuentes potenciales y distribución de diferentes tipos de obsidianas en el norte de la provincia de Chubut, Patagonia Argentina. *Anales del Instituto de la Patagonia*, 30: 167-174. (in Spanish) ("Chemical characteristics, potential sources and distribution of different types of obsidian in the north of Chubut province, Patagonia Argentina")
- Torrence, R. 1989, Tools as optimal solutions. In: *Time, Space and Stone Tools* (Torrence, R., Ed.). Cambridge University Press. Cambridge: p. 1-6.

Distribución y estrategias de aprovisionamiento de obsidiana negra durante el Holoceno tardío en el centro-oeste de la provincia de Santa Cruz (Patagonia, Argentina)

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Resumen:

En Patagonia meridional las propuestas referidas al aprovisionamiento de obsidiana negra aún están abiertas. En términos temporal y espaciales amplios, Pampa del Asador es la fuente regional de obsidiana negra. Su distribución alcanza unos 800 km y se ha evidenciado su uso desde los 10000 años A.P. En una escala macrorregional, se han planteado mecanismos directos e indirectos de obtención de obsidiana de la fuente de Pampa del Asador. Al mismo tiempo, mediante el análisis de núcleos de esta materia prima, se ha observado variabilidad en las estrategias involucradas en el transporte y explotación de la obsidiana en una escala espacial regional. De este estudio se ha propuesto que la distancia a la fuente de aprovisionamiento no explica inequívocamente todos los patrones observados.

En esta oportunidad, buscamos seguir ahondando en la discusión sobre los mecanismos involucrados en la obtención y uso de este recurso por parte de las sociedades cazadoras-recolectores que habitaron la región en momentos posteriores a los 2000 años A.P. La variable que guía inicialmente el problema en este trabajo es la distancia a la fuente de abastecimiento. Por lo tanto, la muestra abordada está constituida por artefactos recuperados en un total de 147 sitios arqueológicos localizados a diferentes distancias y orientaciones de Pampa del Asador. Los materiales provienen de sitios localizados en las inmediaciones de la fuente (Cerro Pampa), de sectores localizados al norte de esta, como la meseta del Guitarra y la cuenca del lago Salitroso y otros localizados hacia el sur como la meseta del Strobel y la cuenca del lago Cardiel. Estas áreas no solo difieren en distancias a la fuente, sino también en características ambientales (mesetas basálticas altas y cuencas lacustres bajas) y funcionalidades propuestas en el sistema de asentamiento cazador-recolector del Holoceno tardío (logístico y residencial). Se efectúa un análisis macroscópico de artefactos formatizados y desechos de talla que complementa el ya realizado sobre núcleos. Se presenta información sobre clases artefactuales, presencia de corteza, fractura, dimensiones y cantidad de filos activos.

Los resultados ponen de manifiesto variabilidad de las estrategias en las distintas áreas consideradas. Dado que no todas se corresponden inequívocamente con expectativas vinculadas con la distancia a la fuente, se propone que, junto con ésta, el tipo de uso dado a cada una de las áreas está incidiendo en las estrategias desarrolladas. Asimismo, la disponibilidad de otros recursos líticos también es relevante para comprender algunos de los patrones observados en el registro arqueológico. Por lo tanto, se considera que se trata de un caso de estudio en el que múltiples factores están condicionando las estrategias desarrolladas por los cazadores-recolectores para procesar y utilizar la obsidiana negra.

Palabras clave: artefactos formatizados; desechos de talla; distancia; uso del espacio, cazadores-recolectores