CHAPTER 1

INTRODUCTION

This book summarizes the current archaeological and ethnographic knowledge regarding the indigenous people who inhabited the South American Southern Cone since the end of the Pleistocene (Figure 1.1). This land, roughly between 32° and 56° S latitude, comprises the Pampas and Patagonia. Since the beginning of the European conquest in the sixteenth century, both regions have attracted the attention of conquerors and explorers even though there were no precious rocks or metals within them, nor were they inhabited by indigenous populations who could be easily exploited or subjugated to slavery or *encomiendas*. This is not to say that there were no fabulations – notably, the legend of the Ciudad de Los Césares, or Trapalanda, where supposedly fabulous riches could be found. This legend originated around the sixteenth century when stories after the inland trip by Francisco César, a captain from the Sebastian Gaboto expedition, began to circulate. Also, the castaways from the shipwreck of one of Francisco Camargo's expeditions fueled these legends. The sad reality was that no evidence existed about the fate of those castaways.

Except for the societies living in the Lower Paraná and Uruguay Rivers (Guaraní, Chaná, Timbú, etc.), all the others were nomadic foragers who hunted terrestrial mammals such as guanacos and Pampas deer and fished and collected mollusks on the Patagonian coast. Societies in Tierra del Fuego and the southern archipelagos hunted sea mammals, fished, and collected mollusks. Conversely, the Pampas and Patagonia have been a fascinating location not only for the study of past hunter-gatherers but also for theoretical reflection on the evolutionary scheme that anthropology and archaeology have used to define them. The Selk'nam and Yámana of Tierra del Fuego, considered to be "archetypically" "primitive" hunter-gatherers (Gamble 1992; Martinic 1995; Steward 1955; Vidal 1999), were seen in the dawn of anthropology as the prototype of primitive society.

Needless to say, nomadic foragers held little appeal for the economic ambition of European conquerors first and Hispanic-criollo people later.

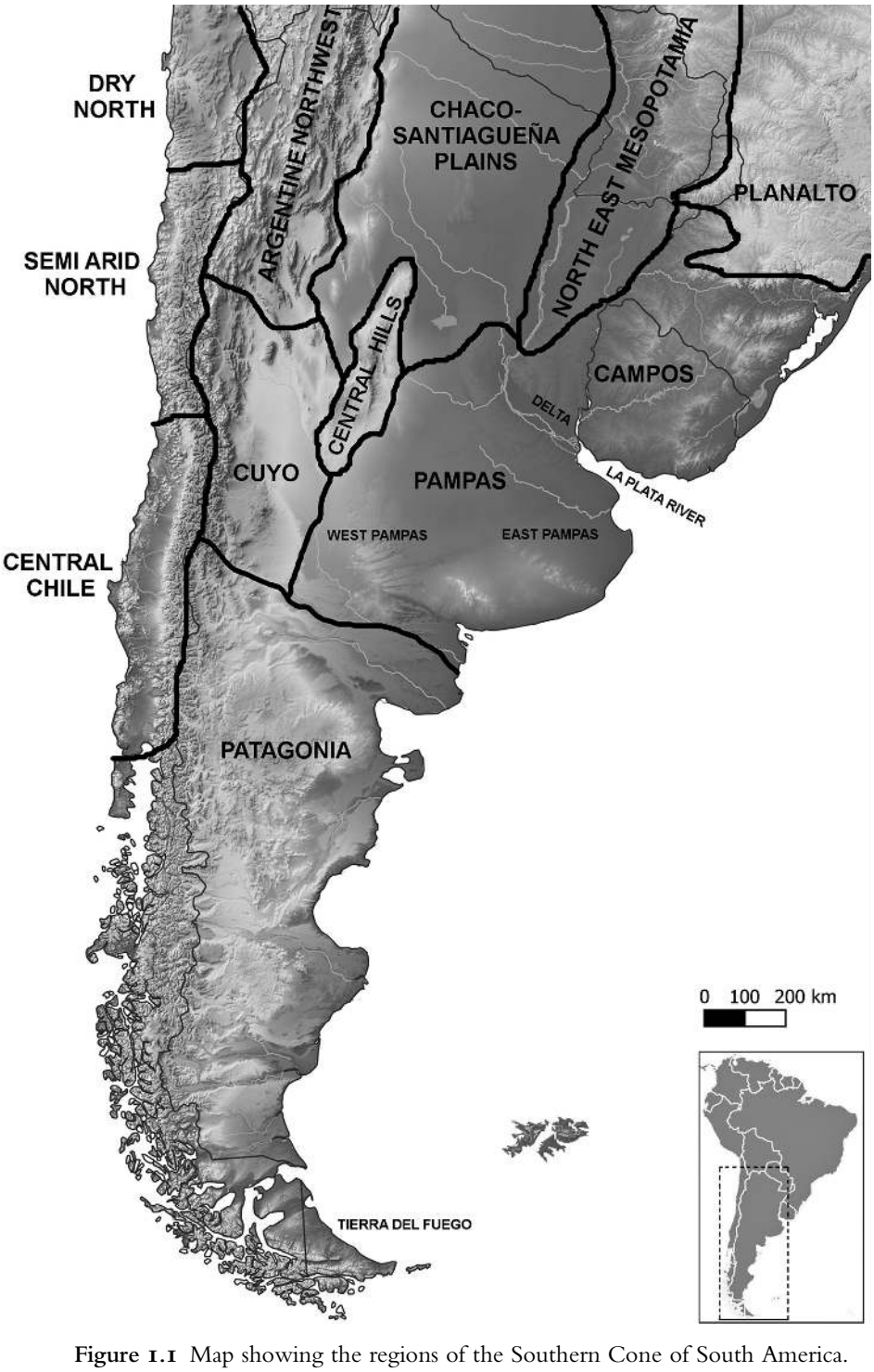

Figure 1.1 Map showing the regions of the Southern Cone of South America.

Only in the nineteenth century, with the industrial expansion of Europe and the subsequent need for raw material and new lands, were these vast territories effectively annexed to the national political control and introduced into the global market. The indigenous people who lived in these territories had a fascinating history of 14,000 years, which archaeology has uncovered mainly during the last decades. How did these people live? How did they explore and occupy new environments? What was the temporal and spatial variability of their basic foraging life throughout the millennia? How did some of these groups incorporate horticulture, and how did some adapt to live in the very harsh environment of the southern channels? How did they significantly change their mode of life since the Late Pleistocene times? This book aims to answer these questions.

The Pampas and Patagonia are among the main regions in South America. The former is an extensive grassland plain located in the eastern part of the South American Southern Cone, roughly between 32° and 39° S, comprising over 700,000 km^2 (Figure 1.1). Although several limits have been proposed based on different criteria, in this book we will consider the Pampas as the extended plains that border the Atlantic coast and the La Plata and Uruguay Rivers to the east; the Basaltic Plateau, the Salado-Desaguadero Rivers, and the foothills of the Central Hills to the west; and the Colorado River (including its paleo delta) to the south; and that has a diffuse border with the Chaco-Santiagueña Plains, marked by the xerophytic forest (the Spinal phytogeographic province, sensu Cabrera 1971) to the north. In Uruguay and southeastern Brazil, these prairies are called Campos or Uruguayan Pampas; to the north, they border the Brazilian Planalto at approximately 28° S.

The Pampas, a Quechua word that means plains or flatness, is a gentle, widespread prairie developed on loess deposits. Forests were limited, and the great majority of the land was treeless. However, nowadays, patches of foreign trees can be seen here and there. The climate varies from dry-tempered to subhumid, with warm summers and rainfall distributed throughout the year. This vast prairie is interrupted, in the southern sector, by two major hill systems, Tandilia and Ventania, and smaller hilly ranges (Choique Mahuida, Lihué Calel, Calencó), as well as by several isolated hills, low rocky plateaus (e.g., El Fresco Plateau), and ridges with scattered rugged rock outcrops (especially in the southwest). The Pampas have traditionally been divided into two subregions, based on the 600 isohyets (although it has been moved to the west in the last decades): Humid Pampa to the east (with average rainfalls that reach 1,200 mm in the northeast) and Dry Pampa to the west (with a rainfall average of 400 mm in the southwest). To the south, the Pampas border the Colorado River, beyond which extends semi-arid Northeast Patagonia.

Patagonia's name originates with the identification of the Aónikenk with the giant Patagon from Spanish chivalry tales (Duviols 1997; Vidal de Battini 1975). Patagonia and Tierra del Fuego extend over more than 1 million square

kilometers in Chile and Argentina in the southern extreme of South America. This large territory comprises a variety of environments that go from the foot of the Andes through dissected basaltic plateaus to the coasts of the Atlantic. As we will see, there are many ways of dividing this area, none of which is perfect.

Despite the long tradition of archaeological research in these regions, the knowledge of its prehistoric past is still uneven, providing an incomplete perspective on the indigenous historical trajectories. Therefore, the coverage of this book, in some ways, reflects this unevenness. Although it is focused on the Argentine Pampas and the whole of Patagonia, including Argentina and Chile, there are some references to the Campos of Uruguay, which integrates the same macro-region. Some cultural processes (the Late Pleistocene occupation, the *cerritos* phenomenon, the expansion of the Guaraní Indians, etc.) were shared by both regions.

In order to follow the international consensus, we set the subdivision of the Holocene defined based on physical and chemical markers (Walker et al. 2018). These reflect abrupt climatic events at the onset of the Holocene at ~ 11.7 cal BP, and later at ~ 8.2 cal BP and ~ 4.2 cal BP. Therefore, we will use these dates for the limits between the Late Pleistocene and Early Holocene, as well as for the boundaries between the Early and Middle Holocene, and the Middle and Late Holocene. We will also use BP for uncalibrated radiocarbon years before present, cal. BP for calibrated radiocarbon years before present, and kyr for thousands of years. All radiocarbon dates in the text will be cited without the statistical error, laboratory code, and type of sample dated. This information is detailed in the Supplementary Tables 1–6, found online (www.cambridge.org/politisborrero_tables1-6).

PRESENT AND PAST ENVIRONMENTS

The primary environment of the Pampas grasslands is a plain with a temperate climate, without a marked dry season, and covered the entire year by a gramineous carpet (Daus 1968). This plain has a gentle slope toward the east-southeast, and its horizontality is interrupted only by the reliefs of the Ventania and Tandilia systems in the eastern Pampa, and the Mahuidas hills and El Fresco Plateau in the western Pampa. The palynological record indicates that grasslands and xerophytic shrubs have been the typical vegetation of the region since at least the Late Pleistocene and all along the Holocene (Mancini et al. 2005; Messineo et al. 2019; Tonello and Prieto 2010; Vilanova et al. 2006).

The Lower Paraná Delta constitutes a specific environment within the Pampean. This delta presents a high environmental heterogeneity represented by rich and abundant biota of both subtropical and temperate origin (Blanco and Méndez 2010; Bó and Malvárez 1999; Malvárez 1999). Its landscape is mainly characterized by islands produced by the accumulation of sediments

Figure 1.2 View of the gallery forest in the Paraná River Delta.

supplied by major Paraná River tributaries (e.g., Bermejo, Paraguay, Pilcomayo). The lower Uruguay River contributes to the delta but has a more narrow alluvial plain and much fewer islands. The vegetation in the lower Paraná and Uruguay Rivers has been characterized as an "azonal" ecoregion. Biogeographically, it is an extension of the subtropical gallery forest (Figure 1.2), which penetrates within a template zone of the Pampean grasslands as a moderator effect of the climate produced by the rivers.

Toward the southern Pampa, there is an ecotonal environment (Abraham de Vázquez et al. 2000; Morello 1958) dominated by the so-called Arid Diagonal, characterized by warm and dry steppe arid climate, with a mean annual rainfall of 466 mm (Sánchez et al. 1998). The dominant vegetation belongs to the Caldén District, although vegetal communities of the Monte phytogeographic province can also be observed in the area (Morello 1958). Thus, this arid to semi-arid sandy area presents a shrub-steppe, an open vegetal formation composed of short xeric trees mixed with hardy and scarce herbaceous grasses (Martínez et al. 2009; Villamil and Scoffield 2003).

In Patagonia, the climate is influenced by the seasonally shifting Pacific westerlies, which produce strong summer winds in South Patagonia. Continental climates are characteristic of most of Patagonia, while in Tierra del Fuego and the western archipelagos, climates are moderated by the ocean masses (Tonello et al. 2009). Temperatures fluctuate between −10°C and

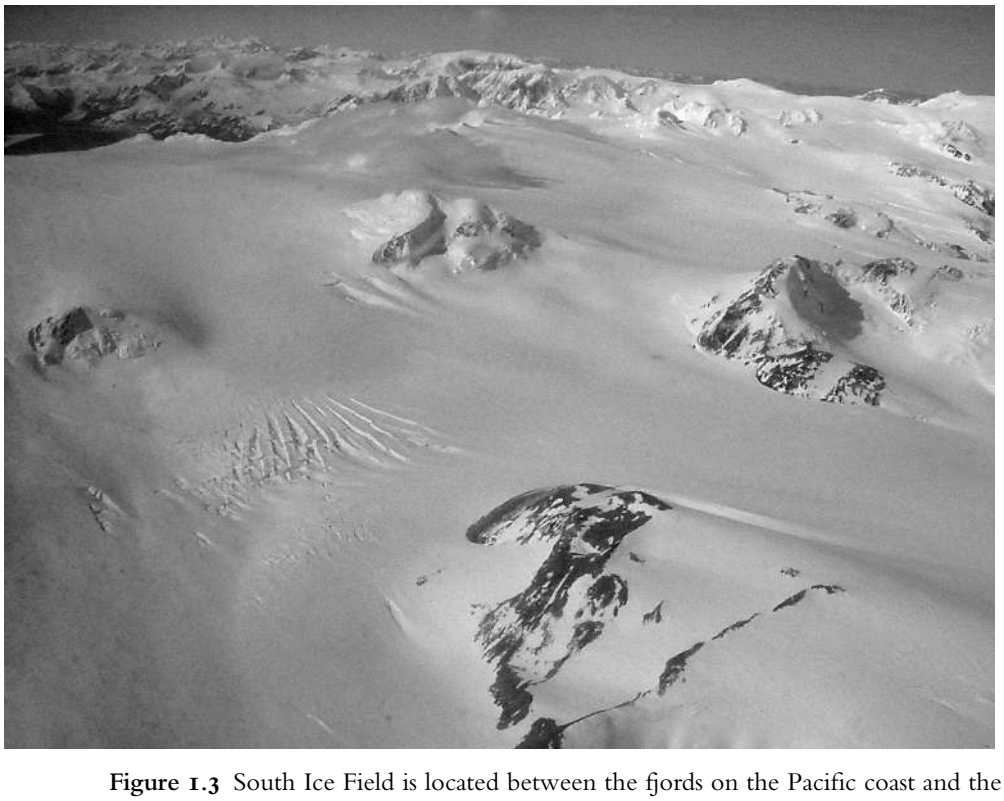

Figure 1.3 South Ice Field is located between the fjords on the Pacific coast and the eastern Patagonian steppes.

32°C in the north, with very cold winters and hot summers. In the south, temperatures can reach −20°C or lower in winter, and summers are also cold, particularly because of the chilling effect of the wind (Papadakis 1974). The Andean range and two large continental ice fields constitute an effective barrier between the eastern steppes and the Pacific between 46° and 52° S (Figure 1.3). The result is a dramatic contrast between both sides of the Andes. An intricate maze of archipelagos with very high precipitation that reaches above 4,000 mm/year characterizes the west side. On the eastern steppes, precipitation diminishes to around 200 mm/year. As a result of the rainshadow effect produced by the Andes intercepting the humid air masses transported by the westerlies, a narrow belt of forests can be found at the foot of the eastern side of the mountains. In contrast, the western side, particularly the islands, was fully covered by forest during the Holocene (Figure 1.4). In the fjords, these forests are usually dominated by *Nothofagus*, *Weinmannia*, and conifers (Villagrán 1988). Extensive peat bogs cover many of the islands, particularly near Cape Horn. Some sectors were described as Magellanic tundra, a habitat with a very cold and humid climate that was not particularly attractive to humans. *Sphagnum magellanicum* dominates bogs, and sometimes they have attached patches of *Pilgerodendron uviferus* (Pisano 1973). South of

Figure 1.4 View of Yalac Island, Refugio Channel, Chonos Archipelago, Chile. Photo courtesy Omar Reyes.

45° S coastal peatlands of *Donatia* and *Oreobolus* predominate (Luebert and Pliscoff 2006). Precipitation of up to 5,000 mm/year or more is recorded at some islands, which even present ice fields (Schimpf et al. 2011).

There is a long history of glacial advances and retreats in Patagonia that starts with the Greatest Patagonian Glaciation about 1 million years ago or before. This was the only glaciation that reached the coasts of the Atlantic Ocean, near the mouth of the Gallegos River (Coronato and Rabassa 2011). The succession of advances and retreats of the ice was studied in detail at several localities, particularly in the Chilean Lakes Region at ca. 41° S (Denton et al. 1999) and the Strait of Magellan at ca. 52° S (Sugden et al. 2005). Even when differences in timing were noted, the movement of ice masses was more or less in sync. At any rate, it was suggested that only in the southern extreme was there an influence from the Antarctic (McCulloch et al. 2005).

The Last Glacial Maximum (LGM) occurred sometime around 24,000–20,000 BP, during which the ice extended beyond the Andes. The retreat of the Pleistocene glaciers, which started sometime before 15,000 BP, was not a linear process, but punctuated with short, cold pulses around 11,000 BP in North Patagonia, perhaps correlated with the Younger Dryas (Ariztegui et al. 1997), and around 12,300 BP or before in South Patagonia and Tierra del Fuego in

synchrony with the Antarctic Cold Reversal (Jouzel et al. 2001; McCulloch et al. 2005). It must be recalled that the human exploration and colonization of Fuego-Patagonia at large began sometime before 12,000 BP (Borrero and Franco 1997; Miotti 1996). What this means is that the process of initial human dispersal into Patagonia basically occurred under cold conditions. Nevertheless, the process of deglaciation was marked by a warmer trend, during which floral and faunal communities expanded from unknown Pleistocene refugia into locations near the Cordillera. As a result of all these recent changes, it was indicated that most near Andean environments are still unstable (Pisano 1975).

Palynological studies have a long tradition in Patagonia, starting with the work of Vaino Auer in the 1930s (Auer 1974). Several pollen columns were analyzed that cover the Holocene and the end of the Pleistocene (Heusser 2003; Mancini et al. 2012; Markgraf 1993; McCulloch et al. 2005; Villa-Martinez and Moreno 2007). Most of this research took place near the Andean range, where the most extensive peat bogs are located. A few localities away from the Andes were intensively interrogated. Among them, the Cardiel Lake (Ariztegui et al. 2009; Stine and Stine 1990) and the Potrok Aike Lake (Zolitschka et al. 2013) must be mentioned. The variation observed between both extra-Andean records is notable, and one conclusion is that local sequences are needed to assess the interaction between humans and climate.

The extent of glaciation during these later times was limited, with calving glaciers reaching the Pacific coast on the west, but is mostly confined to Andean valleys on the east. The latter formed proglacial lakes dammed by ice walls. Several of these lakes had high stands at the end of the Pleistocene, which was the time when humans were dispersing into Patagonia. However, there is also a variation, with some lakes showing high stands during the Holocene (Horta et al. 2011). Well-studied examples of proglacial lakes are those of the Consuelo or Tehuelche paleolake in Última Esperanza (García et al. 2014; Stern et al. 2011) or the Strait of Magellan west of the first narrow (McCulloch et al. 2005). Their importance to understanding the process of human colonization of South Patagonia rests on the fact that these paleolakes concentrated megafauna and large mammals that are well represented in the nearest paleontological sequences (Martin et al. 2013; Stern et al. 2011).

The postglacial warming period favored the expansion of prairies and forests in the west and steppes in the east. There was not much floristic variation during the Holocene (Mancini 1998), except during minor climatic punctuations, like the Medieval Climatic Anomaly (Stine and Stine 1990) or the Little Ice Age (Masiokas et al. 2008). However, at each of these events, there were fluctuations in the character and eastern limit of the forest. Environmental conditions in extra-Andean Fuego-Patagonia near the end of the Pleistocene were unstable, and foraging resources were not necessarily abundant (Clapperton 1993; Markgraf 1988; Pisano 1975). The environmental conditions were cold but not extreme, but probably adequate for human dispersal during transition times from their low

Figure 1.5 View of Perito Moreno Glacier, Argentina.

demography enclaves. During the Early Holocene, not only were more habitats available, but the flux of people from the north probably increased.

Tierra del Fuego is today separated from continental Patagonia by the Strait of Magellan, but in Late Pleistocene times, it was still part of the continent. After the successive late-glacial advances documented at the Strait of Magellan began, a large proglacial lake dammed by the ice was formed west of Primera Angostura. Land bridges existed around 13,100 BP and between 10,300 and 8300–7500 BP (McCulloch and Morello 2009). Ice and water barriers occurred before and after that time, respectively, constituting important obstacles for the dispersal of humans and animals. The Strait of Magellan opened only in the Early Holocene, around 9000–8000 BP, after the deglaciation and discharge of the west paleolake (McCulloch et al. 2005). In sum, at the end of the Pleistocene, the connection with Tierra del Fuego was interrupted several times, but circulation was intermittently possible (Coronato et al. 1999; McCulloch et al. 1997). The available early subsistence and technological evidence for Tierra del Fuego indicates a terrestrial crossing into the island.

The Holocene environment was characterized by the opening of the connection between the Pacific and the Atlantic through the Strait of Magellan, as well as its connection with the Otway and Skyring interior seas. As mentioned, at the beginning of the Holocene warmer conditions returned that prompted an expansion of the forests from the Andes (Moreno et al. 2012) (Figure 1.5). The sea level was rising up until ca. 6000 BP, and later

progressively retreated, shaping the actual coastal landforms (Isla and Bujalesky 2008). The mentioned Holocene warm trend was shortly interrupted by Neoglacial advances that were confined to the Andes.

THE PAMPAS AND PATAGONIA AS GEOGRAPHICAL UNITS FOR ARCHAEOLOGICAL ANALYSIS

The Pampas

Until the beginning of the twentieth century, the discussion about the archaeological remains of the Pampas and Patagonia was centered, one way or another, on the topic of the antiquity of humans in both regions (Podgorny 1999a). For the most part, this debate in the Pampas region originated with Florentino Ameghino (1880–1881), with his postulation of the Pampean-Patagonian origin of humanity (see Chapter 2). At that time, Ameghino referred to a vaguely defined region he dubbed "El Plata" (hence the title of his famous book, *La antigüedad del hombre en el Plata*), which included the Pampas of Argentina and Uruguay. However, from the beginning of the twentieth century, an alternative was developed for the organization of past and present indigenous peoples: the combination of temporal and geographical division (Podgorny 1999a). Outes and Bruch (1910) introduced a new concept in the definition of the spatial units since they organized the archaeological material based on the European units: Paleolithic, Neolithic, and Bronze Age. However, the historical indigenous peoples were grouped within "geo-ethnical provinces" and thus described through various associated features. This new concept was later utilized by Torres (1917), who grouped cultural series for each physical region of the country (Podgorny 1999a). In a new edition and enhancement of the original work, Torres (1935) modified the 1917 map and defined the "four natural regions of the Argentine territory," including what we today define as the Pampas region and another as Patagonia.

During this period, the Pampas, along with the indigenous people who had lived within it, were considered to be an ecological and cultural unity with little internal variation. However, there are various precedents for the identification of differences within the region. One was set by Lothrop (1932), who proposed three different cultures in the delta of the Paraná River. Another was Howard and Willey (1948), who proposed several areas within this region, although they included some which at the time and now are considered to be beyond the Pampas region. A significant contribution was that of Madrazo (1973, 1979), who identified physiographic – and to him, cultural, too – differences within the region and proposed the existence of "aspects" and "foci." Although these two categories were imperfectly defined and were not very operational, they captured to some extent the intra-regional variation, which up until that point had barely been taken into consideration.