

SOUTHBOUND

Late Pleistocene Peopling of Latin America

 **SPECIAL EDITION**
Current Research in the Pleistocene

SOUTHBOUND

Late Pleistocene Peopling of Latin America

Editors

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A Peopling of the Americas Publication
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of the First Americans**
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SOUTHBOUND: LATE PLEISTOCENE PEOPLING OF LATIN AMERICA

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Design and typesetting by C&C Wordsmiths, Lenoir, North Carolina.
Printed in the United States of America by Tops Printing, Inc., Bryan, Texas

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Part 3
Paleoenvironments of Latin America

Late Quaternary Ecosystems and Humans in Northern Patagonia: New Results from Cueva Huenul 1 (Neuquén, Argentina)

María de la Paz Pompei¹, Ramiro Barberena², M. Eugenia de Porras³, Karen Borrazzo⁴, Agustina A. Rughini⁵, and Adolfo F. Gil⁶

► **Keywords:** Human ecology, northern Patagonia, late Quaternary

The Cueva Huenul 1 (CH1) archaeological site has one of the first sequences of stratified sediments dating to the late-Pleistocene/early-Holocene transition in the northern end of Patagonia (Figure 1). Preliminary stratigraphic and chronological data previously reported define two sets of layers separated by an erosive unconformity. The late-Pleistocene layers (units VIII–V), mainly composed of fossil dung, are bracketed between dates of $13,844 \pm 75$ and $11,841 \pm 56$ RCYBP; the Holocene layers (units IV–I), composed of aeolian sediment, are bracketed between dates of 9531 ± 39 and 1416 ± 37 RCYBP (Barberena et al. 2010). The 9531 ± 39 date comes from a hearth directly on top of the unconformity and therefore is evidence for the earliest human presence at CH1. In this paper we report the results of a preliminary palynological and archaeological study of the stratigraphic units spanning the Pleistocene-Holocene transition

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(units VIII–IV, Quadrat A1, 2 x 1 m). The excavation was done using 10-cm extraction levels (the stratigraphic units discussed here correspond to extraction levels 8–5).

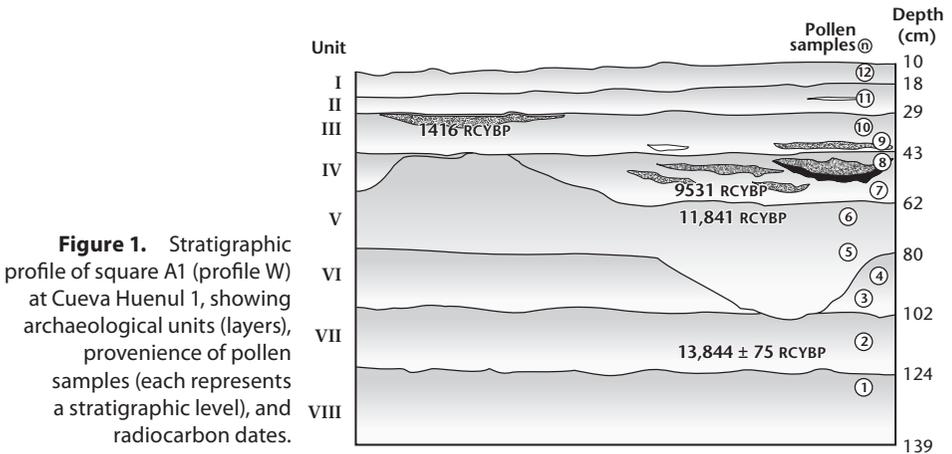


Figure 1. Stratigraphic profile of square A1 (profile W) at Cueva Huenul 1, showing archaeological units (layers), provenience of pollen samples (each represents a stratigraphic level), and radiocarbon dates.

Ecosystems: The Contribution of Palynology

CH1 is located near the Patagonia-Monte ecotone dominated by transition shrub steppes mainly composed of Verbenaceae, Asteraceae subf. Asteroideae, *Larrea*, *Prosopis* and *Prosopidastrum*. The fossil pollen record of CH1 was interpreted assuming that the Patagonia-Monte ecotone migrated in the past in response to climatic changes (in temperature and precipitation). Therefore the predominance of Patagonian-like vegetation implies colder and wetter conditions, whereas Monte-like vegetation is just the opposite.

Preliminary pollen analysis of CH1 suggests that shrub and grass-shrub communities were present around the cave since 13,800 RCYBP. Even though the pollen assemblages show no major plant community changes since then, some differences in composition are evident. Between ca. 13,800 and 9500 RCYBP, the pollen assemblages indicate the presence of a Patagonian grass-shrub steppe integrated with shrubs (*Schinus*, *Lycium*), dwarf shrubs (*Nassauvia*, *Ephedra*), and grasses, which at present lie between 2000 and 2200 masl, suggesting colder local conditions than present. During the last 1500 years, however, the pollen record indicates the presence of a Monte-Patagonian transition shrub steppe dominated by *Schinus*, *Lycium*, Asteraceae subf. Asteroideae, Verbenaceae, and dwarf shrubs and grasses in minor proportions similar to the modern vegetation, suggesting that present environmental and climatic conditions prevailed.

The Archaeological Record

Table 1 lists the proportions of lithic and faunal materials. Figure 2 graphically displays their relative presence throughout the CH1 sequence (including the late-Holocene layers). We introduce the presence of small carnivore scats measured by weight as a proxy to evaluate the intensity of human occupation of the site. Units VIII and VII did not yield any lithic artifacts or bone remains.

The lithic assemblage of the units VI–IV (extraction levels 8–5) includes 119 artifacts, of

Table 1. Lithic assemblages from the Pleistocene-Holocene transition levels in CH1.

Artificial level	Level 5 (50–60 cm)	Level 6 (60–70 cm)	Level 7 (70–80 cm)	Level 8 (80–90 cm)	Level 9 (90–100 cm)	Total
Stratigraphic unit	Unit IV	Unit V	Unit VI	Unit VI	Unit VI	
Lithic artifacts	100 (84%)	7 (5.9%)	10 (8.4%)	2 (1.7%)	0	119 (100%)
Faunal remains	108 (65.9%)	32 (19.5%)	17 (10.4%)	5 (3%)	2 (1.2%)	164 (100%)
Carnivore coprolites	315 gr.	562 gr.	428 gr.	123 gr.	20 gr.	1428 gr.

which 87% (N = 104) are made of obsidian; XRF analysis of a sample of lithic artifacts recovered from the site verifies that the chemical composition matches local Huenul obsidian (Barberena et al. 2011). Basalt (N = 8), chert (N = 6), and chalcedony (N = 1) toolstones are also present.

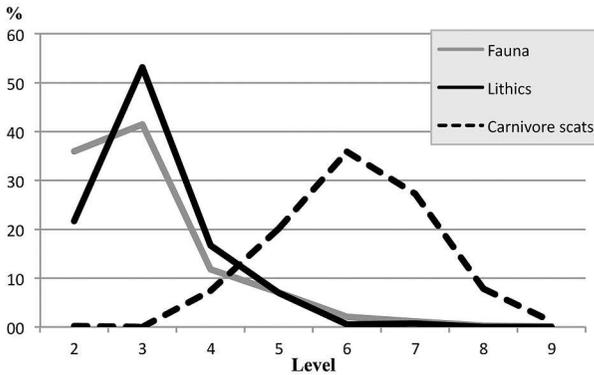


Figure 2. Incidence of bones, lithics, and carnivore scats (scats measured by weight) at Cueva Huenul 1.

Most artifacts of the assemblage (N = 100) come from early-Holocene level 5. Late-Pleistocene levels 8–6 yielded 19 artifacts in a different sedimentary context.

Flakes and debris constitute the largest part of the assemblage (98.3%, N = 117), complemented by the presence of two obsidian cores. No tools were recorded. Of all the artifacts, 93% (N = 111) are smaller than 15 mm and 80% (N = 95) of the assemblage do not show cortex, which suggests the predominant activity was late stages of lithic reduction (i.e., tools were sharpened or resharpened here and discarded elsewhere).

A large part of the faunal assemblage, like the artifact assemblage, comes from level 5. Of the total faunal assemblage, 66.5% (N = 109) consist of undetermined bone fragments; ca. 20% of the assemblage are guanaco bones with helical fractures, indicative of human processing (confirmed by the presence of six bone flakes). Most of these guanaco bones come from early-Holocene level 5 (unit IV). Finally, 13% of the bones are those of small mammals, including plates of *Dasypodidae*.

Conclusions

The preliminary palynological analysis shows no major changes in plant communities. Grass-shrub communities have been present since 13,800 RCYBP. Between ca. 13,800 and 9500 RCYBP the pollen assemblages indicate a Patagonian grass-shrub steppe, which suggests colder conditions. This is consistent with the results of the analysis of the small-mammal as-



semblage from CH1, revealing relative taxonomic stability during the Pleistocene-Holocene transition (Fernández et al. 2011). We suggest this testifies to the high ecological resilience of the Monte ecosystem.

Archaeological evidence indicates very brief human occupation of the cave during the early Holocene: The negative correlation between the incidence of archaeological materials and carnivore scats confirms the low intensity of human presence. The lithic assemblages suggest that the site served as a workshop and that tools were discarded elsewhere. The evidence is consistent with a strategy of provisioning individuals.

The earliest date for human presence in CH1 is consistent with data available for northern Patagonia, which cluster after 10,000 RCYBP. The macro-regional dataset shows a brief temporal pulse when human occupations are first recorded at a number of distant places. This may suggest human settlement radiated to ecologically marginal regions from areas colonized earlier.

This research is part of the Project PICT 2010-1856.

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