

## A Gap Between Extinct Pleistocene Megafaunal Remains and Holocene Burial Contexts at Archaeological Sites in the Southern Argentinian Puna

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Recent investigations carried out in the southern Puna of northwest Argentina confirmed the presence of giant ground sloth (*Megatheriinae*) and Pleistocene horse (*Hippidion* sp.), which were dated to the late Pleistocene, between 13,350 and 12,510 RCYBP (three uncalibrated dates) (Martínez et al. 2004). These megafauna taxa, not previously reported above 3400 m a.s.l., were found in two high-altitude archaeological sites under study, Peñas de las Trampas 1.1 (PT1.1; 3582 m a.s.l.) and Cueva Cacao 1A (CC1A; 3730 m a.s.l.), both located in Antofagasta de la Sierra, Catamarca, Argentina. The  $^{14}\text{C}$  dates were obtained on stratified megaherbivore dung samples very well preserved because of the extreme aridity of this ecoregion (precipitation less than 50 mm/year). The samples come from two rockshelters, which also show evidence of Holocene human utilization after 10,000 RCYBP.

The dung dates mark the final stage in the presence of these large mammals in this part of the Puna. Hence, the interpreted paleoecological and paleoenvironmental conditions for the late Pleistocene need to be restated for this area. The record of these taxa indicates that until 13,350–12,510 RCYBP there was a relatively high degree of effective humidity and high plant and biomass density capable of meeting the food requirements of these megaherbivores.

A recent  $^{14}\text{C}$  analysis of dung corresponding to layer 4 of excavation unit 2E of site PT1.1 yielded a date of  $19,610 \pm 290$  RCYBP (LP-1546). This layer, the earliest stratigraphic unit with dung, is found on a sandy fine sediment of eolian origin. Hence identification of the megafauna extends its presence in the area back to ca. 20,000 RCYBP, within the Last Glacial Maximum, and may provide an impor-

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tant beginning date for deglaciation at this elevation, which is according to paleoclimatic models designed for the Andean tropical zone (Paduano et al. 2003). In the study area, High-andean steppe is now found at 4200–4800 m a.s.l., but under these conditions, plant biomass likely increased locally with reference to dominant conditions of the glacial maximum.

The archaeological context of occupations in both high-altitude rockshelter sites is linked to mortuary activities within the Holocene period. Although no evident hiatus is observed in CC1A, there is a large interval of undated deposits between a date of  $13,350 \pm 300$  RCYBP (UGA-9075), corresponding to the megafauna, and material evidence of a burial offering ca. 3000 RCYBP (Olivera et al. 2003). There is no evidence of a sediment hiatus in PT1.1 either, but the interval between  $^{14}\text{C}$ -dated events is shorter. Radiocarbon dates corresponding to the upper layer of megafauna dung [ $12,920 \pm 190$  RCYBP (UGA-9074) and  $12,510 \pm 240$  RCYBP (UGA-9258)] are followed by a date of  $8440 \pm 40$  RCYBP (UGA-9073) on a pit feature excavated into the dated upper stratum containing the Pleistocene megafauna dung.

A large number of cultural elements found inside the oval feature in site PT1.1 gives evidence of an intentional deposit. The edge of the feature, which measures 95 by 65 cm, was lined with bundles of graminaceous plants that provided the sample yielding the 8440 RCYBP date. We assume that the archaeological remains inside correspond to this date. There were human bone fragments belonging to a minimum of three individuals in a multiple secondary burial. Their ages are estimated to vary from a newborn to a 7-year-old child (M.G. Colaneri, pers. comm. 2006). The recovery of these human remains, among the oldest in northwest Argentina, is a valuable contribution to the analysis of paleobiological aspects of these individuals through the study of isotopic analysis (paleodiets), DNA, paleopathologies, etc., as well as a means to explore ancient mortuary practices in which certain anatomical parts of deceased persons frequently may have been transported.

These human bones were found in association with garment pieces and other organic remains that were highly fragmented in spite of their excellent preservation. The set of handicrafts represented shows a remarkable variety of raw material utilization as well as important complex artistry. Among the findings there were chamois-like pieces of leather painted red and sewn together; numerous necklace beads made from non-local plant seeds; red dyed mesh or net fragments painted in black, probably made from foreign plant fibers as well; and a probable headband or *vincha* of intertwined feathers and thin strings of plant fiber. It was determined that the fiber is of *Acrocomia chunta*, a kind of palm tree whose area of origin would have been more than 600 km away (Rodríguez and Aschero 2007).

The presence of exotic elements in this and other Puna sites, whether as ritual or utilitarian goods (according to their context), clearly shows the existence of mechanisms of social interaction among human groups that occupied different and distant environments synchronously during early Holocene. This interaction should be thought of not only in terms of exchanging goods, but also in terms of genetic and information exchange as part of a web of social relations that would have sustained the flow of these elements over

time. Explaining the absence of early-Holocene evidence synchronic with PT1.1 outside the Puna region is still a pending issue in the archaeology of northwest Argentina. Discovery will reveal and explain complex social and technological aspects of these early connections between Puna hunter-gatherers and the inhabitants of remote ecozones.

### References Cited

- Martínez, J. G., C. A. Aschero, J. E. Powell, and M. F. Rodríguez 2004 First Evidence of Extinct Megafauna in the Southern Argentinian Puna. *Current Research in the Pleistocene* 21:104–07.
- Olivera, D., A. Vidal, and L. Grana 2003 El Sitio Cueva Cacao 1A: Hallazgos, Espacio y Proceso de Complejidad en la Puna Meridional (ca. 3000 años AP). *Relaciones* XXVIII:257–70. SAA, Buenos Aires.
- Paduano, G.M., M. Bush, P. A. Baker, S. C. Fritz, and G. O. Seltzer 2003 A Vegetation and Fire History of Lake Titicaca since the Last Glacial Maximum. *Palaeogeography, Palaeoclimatology, and Palaeoecology* 194:259–79.
- Rodríguez, M. F. and C. A. Aschero 2007 Confeción de Cordeles en la Puna Septentrional y Meridional Argentina. Movilidad e Interacciones Socioeconómicas. In *Paleoetnobotánica del Cono Sur: Estudios de Casos y Propuestas Metodológicas*:11–24, edited by B. Marconetto, N. Oliszewski, and P. Babot. Centro Editorial de la Facultad de Filosofía y Humanidades. Universidad Nacional de Córdoba.