

## First Data on Late-Pleistocene Rodents from Central Arid Patagonia as Paleoenvironmental Indicators

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Late-Pleistocene rodent faunas from Patagonia are poorly known. Pardiñas and Teta (2008) studied seven micromammal fossil assemblages with chronologies between 13,000 and 7000 RCYBP mostly from western Andean areas or near the Atlantic coast. For the remainder of the vast Patagonian territory (> 700,000 km<sup>2</sup>) no late-Pleistocene/early-Holocene fossil micromammal assemblages have been reported (Pardiñas 1999). Here we briefly discuss the environmental significance of the paleontological site Torito Fissure (TF) (43° 16' 46" S, 69° 08' 40" W; 340 m a.s.l.), a rock crevice filled with organic material (feces, vegetation debris) and bones, found in the middle valley of the Chubut River (Figure 1). A <sup>14</sup>C age of 12,010 ± 160 RCYBP (LP-1995) was obtained from a fragment of the organic matrix. The scarcity of other traditional paleoclimatic archives in dryland areas of Patagonia (> 80 percent of its territory) enhances the importance of this sample, the first coming from north-central Patagonia.

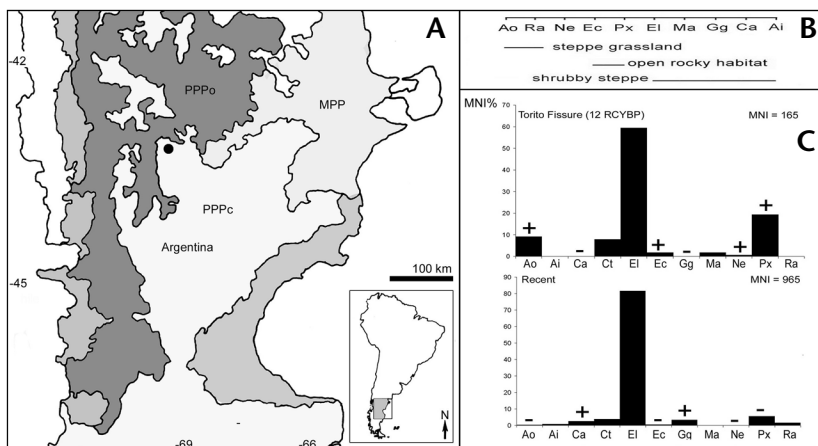
Much of the study area is located in an ecotone between the dwarf shrub steppes of *Nassauvia* spp. and *Chuquiraga aurea* (locally known as *eriales*) and the shrubby steppes of *Junellia tridens* of the Central District of the Patagonian Phytogeographic Province (León et al. 1998). Paleoenvironmental reconstruction was based on comparisons between the fossil sample and two (pooled) modern micromammal assemblages (produced by owl predation) collected in the vicinity (< 10 km) of TF.

The fossil assemblage was exclusively composed of sigmodontine and caviomorph rodents. The dominance of sigmodontines that typically inhabit

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**Figure 1.** A, Central Patagonia, showing the location of Torito Fissure (black circle); B, approximated habitat requirements of rodent species reported in the studied samples (taken from Pearson, 1995); C, pair-comparisons between the fossil assemblage of Torito Fissure and recent samples (+ and - symbols on histogram columns highlight the main paired differences). Abbreviations: *Abrothrix olivaceus* (Ao); coney rat, *Reithrodon auritus* (Ra); *Notiomys edwardsii* (Ne); *Euneomys chinchilloides* (Ec); *Phyllotis xanthopygus* (Px); *Eligmodontia* spp. (El); southern mountain cavy, *Microcavia australis* (Ma); *Graomys griseoflavus* (Gg); *Calomys musculinus* (Ca); *Akodon iniscatus* (Ai); tuco-tuco, *Ctenomys* sp. (Ct); Monte Phytozoogeographic Province (MPP); Central District of the Patagonian Phytozoogeographic Province (PPPo); Oriental District of the Patagonian Phytozoogeographic Province (PPPo).

open shrubby and grassy areas such as the silky desert mice *Eligmodontia* spp. and the olive grass mouse *Abrothrix olivaceus* and a dweller of rocky outcrops such as the yellow-rumped leaf-eared mouse *Phyllotis xanthopygus* (see Pearson 1995) are indicators of a local landscape dominated by sparse shrubby vegetation mixed with bunchgrass patches and large rocky exposures. In addition, both the chinchilla mouse *Euneomys chinchilloides* and the Edwards's long-clawed mouse *Notiomys edwardsii*, two species numerically dominant in recent samples from the central basaltic plateaus of northern Patagonia (e.g., Somuncurá), suggest well-developed open, bare, windswept, rocky scree areas. The presence in modern samples of sigmodontines typically adapted to the Monte Desert, such as the grass mouse *Akodon iniscatus*, the vesper mouse *Calomys musculinus*, or the gray leaf-eared mouse *Graomys griseoflavus*, is partially linked with recent human activities, such as overgrazing and the expansion of cultivated areas along the Chubut River (see Udrizar Sauthier 2009). Thus, the absence of these species in TF indicates that by the late Pleistocene the boundary between the Monte and Patagonia phytogeographic units was located further eastward.

Inhospitable and cooler conditions, with scarce vegetal cover and extensive open bare areas (like those suggested by TF), may have been widespread across Patagonia during the late Pleistocene (see Pardiñas and Teta 2008). The first humans arrived at this time, and this regional landscape confronted them.

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