

A NEW NORTHERN DISTRIBUTION LIMIT OF *Abrocoma bennettii* (RODENTIA, ABROCOMIDAE) IN THE COASTAL ATACAMA DESERT, PAPOSO, NORTH OF CHILE

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ABSTRACT: *Abrocoma bennettii* is a relatively robust abrocomid rodent endemic to Chile. It is distributed from approximately 27°18'S – 70°25'W in the north (Atacama) to 36°00'S – 73°7'W in the south (BíoBío). We report the finding of a cranium in excellent conditions, which is the first record of this species in the coastal shrubby Mediterranean desert of the Antofagasta Region. The record of *A. bennettii* in the locality of Paposo (25°00'S - 70°27'W; 648 m) represents an extension of about 280 km to the northeast of its previously known distribution in the Atacama Region of Chile.

RESUMEN: Nuevo límite distribucional norte de *Abrocoma bennettii* (Rodentia, Abrocomidae) en el desierto costero de Atacama, Paposo, norte de Chile. *Abrocoma bennettii* (Abrocomidae) es un roedor relativamente robusto y endémico de Chile. Se distribuye aproximadamente entre los 27°18'S – 70°25'W por el norte (Atacama), a los 36°00'S – 73°7'W por el sur (Bio Bio). A través de un cráneo hallado en excelentes condiciones, se informa por primera vez a la especie en el desierto arbustivo mediterráneo costero de la Región de Antofagasta. El registro de *A. bennettii* en la localidad de Paposo (25°00'S - 70°27'W; 648 m), representa una extensión cercana a 280 km al noroeste de la distribución previamente conocida en Chile.

Key words. *Abrocoma bennettii*. Coastal desert. Distribution. Paposo.

Palabras clave. *Abrocoma bennettii*. Desierto costero. Distribución. Paposo.

The South American endemic genus *Abrocoma* (family Abrocomidae) is distributed from Peru, Bolivia and north of Chile to Mendoza Province in central-west Argentina (Braun and Mares, 2002; Musser and Carleton, 2005). In Chile, *Abrocoma* comprises two currently recognized living species: *A. cinerea* from the Altiplano highlands of Arica-Parinacota and Antofagasta Regions; and *A. bennettii* from Copiapó to almost the BioBio River in southern Chile. *A. bennettii* is a relative big abrocomidae rodent

(>80 g) being eaten in central Chile by raptorial birds such as *Athene cunicularia* and carnivores such as *Lycalopex culpaeus* (Meserve et al., 1987). Special traits of this species are the prominent ears and a soft, silky, and brandish pelage of general brownish gray color with the underparts being mainly brownish (Osgood, 1943). Under the protection of large rocks, the species constructs large superficial galleries, where it lives in colonies of 2 to 10 individuals (Mann, 1978). It is a nocturnal and mostly

herbivorous species which eats the foliage and seeds of a narrow range of species compared to other caviomorphs such as *Octodon degus* (Meserve, 1981; Meserve et al., 1983). The *A. bennettii* species complex comprises two currently recognized forms: *A. bennettii bennettii* in central Chile from the Province of Elqui to the Province of Concepción (Coquimbo to Bío-Bío Regions, respectively); and *A. bennettii murrayi* in the Provinces of Huasco (Atacama Region) and Elqui (Osgood, 1943; Tamayo and Frassinetti, 1980). Both subspecies are distinguishable on the basis of its quality and differences in pelage coloration. The septentrional form is paler and more grayish with its pelage softer and having longer hairs, meanwhile, *A. bennettii bennettii* is more brownish gray with its underparts mainly brownish rather than whitish gray (Wolffsohn, 1927; Osgood, 1943). *A. bennettii murrayi* was described by Wolffsohn (1916) from Vallenar (Huasco Province, Coquimbo Region) on the basis of a living male adult specimen sent by Sir John Murray, and that Wolffsohn named in his honour. In two studies of 1921 and 1923, Wolffsohn listed more specimens and measurements of *Abrocoma bennettii murrayi* from Vallenar. Osgood (1943) studied two fragmentary skulls from an owl stomach taken at Ramadilla (west of Copiapó). This finding represents further evidence of the northward extension of the *murrayi* race. Additionally, Osgood (op. cit.) reported 18 specimens from four localities near of Vallenar (Vallenar and Domeyko) and Coquimbo (Paiguano and Romero) in central Chile. This distribution is confirmed by three specimens taken by Donoso-Barros in 1972 and determined by Reise from a chañar forest in Los Loros, Copiapó, which are deposited in the Zoology Museum of the Concepción University in Chile (MZUC 5130, MZUC 5131, MZUC 5132). During the last three decades no new localities have been informed from the north of Atacama Region, neither in reviews (e.g. Mann, 1978; Muñoz-Pedreros and Yáñez, 2000; Muñoz-Pedreros et al., 2004; Iriarte, 2008) nor in publications concerning the feeding ecology of carnivores and birds of prey (Simonetti et al., 1984; Marquet et al., 1993; Jaksic et

al., 1999; Carmona and Rivadeneira, 2006; Guzmán et al., 2007).

Here, on the basis of a well preserved skull (JG – 311; **Fig 1**) found in August 1999 near Paposo (25°00'25,88"S / 70°27'04,9"W; altitude 648 m) (Antofagasta Region) and determined as *A. bennettii murrayi*, we extend the distribution for this form northwards for at least 280 km until the Province of Antofagasta (**Fig 2**). Thus the Paposo skull represents a new septentrional distribution for this abrocomid species. Skull, mandible, and the characteristic upper and lower molars

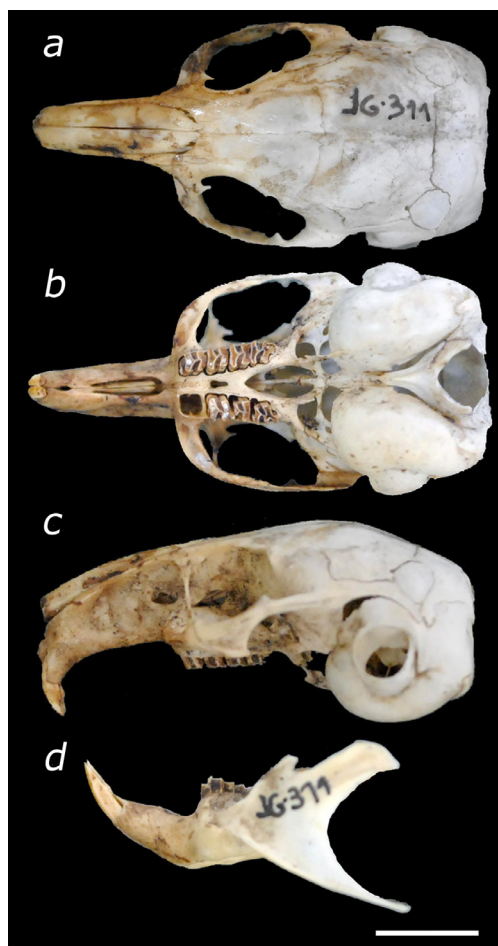


Fig. 1. Skull of *Abrocoma bennettii murrayi* (collected by Walter Sielfeld) from Paposo, Región de Antofagasta: (A) dorsal view; (B) ventral view; (C) lateral view; (D) lateral view of left lower jaw. The scale-bar represents 10 mm.

coincide with specimens deposited in MZUC - UCCC and with published descriptions and figures (Wolffsohn, 1916; Osgood, 1943 figure 11; Mann, 1978, figure 249). Measurements were taken with a digital micrometer and are (in mm): condylobasal length=4.4; breadth across the zygomatic arches= 22.3; length of palate= 25.8; interorbital breadth= 8.5; length of mandible to the condyloid process= 27.9; length of mandible to angular process=30.8; interorbital height= 11.5; length of the maxillary diastema= 13.7; length of the mandibular diastema= 8.4; length of maxillary tooththrow= 10.2; length of mandibular tooththrow= 9.3.

The Bennett's chinchilla rat inhabits rocky matorral and shrublands from the sea level and

coastal canyons to 2000 meters in the Andes (Mann, 1978). The study site, Paposo (50 km N of Taltal), has a shrub cover dominated mostly by cacti (*Copiapoia cinerea* [Phil.] Britton et Rose, *Eulychnia iquiquensis* [Schumann] Britton et Rose, *Echinopsis deserticola* [Werdern] Friedrich et G.D. Rowley and *Trichocereus coquimbanus* [Mol.] Britton et Rose) and *Euphorbia lactiflua* Phil., a large succulent shrub. Also there is *Puya boliviensis* Baker (Bromeliaceae) under which we collected the skull here described. This is the typical vegetation of coastal desert zones in northern Chile, that are influenced by fog whereas yearly precipitation averages 15 mm, being evenly distributed throughout the year (Jaksic et al., 1999). This zone is referred as the "region of matorral" described by Mann (1960) and also named as "Mediterranean coastal desert of *Euphorbia lactiflua* and *Eulychnia iquiquensis*" by Luebert and Pliskoff (2006), where Paposo is historically considered the northern limit, while the southern limit is 30°S, coinciding with the limits of *A. bennettii murrayi* that is replaced by *A. bennettii bennettii*. However, it has been recently shown by Sielfeld et al. (1995), Muñoz et al. (2001), Pinto (2009) and Pinto and Luebert (2009) that this mediterranean coastal shrub desert extends much far north to Cerro Camaraca (south of Arica), in a discontinuous way, restricted to "camanchaca" fog dominated places of the coastal hills.

Other rodent species inhabiting the Paposo area are *Thylamys elegans*, *Abrothrix olivaceus* and *Phyllotis darwini*, all typically central Chile species (Meserve and Glanz, 1978; Spotorno et al., 1998).

Our finding shows once more the urgent necessity to intensify the faunistic research of northern Chile's coastal desert.

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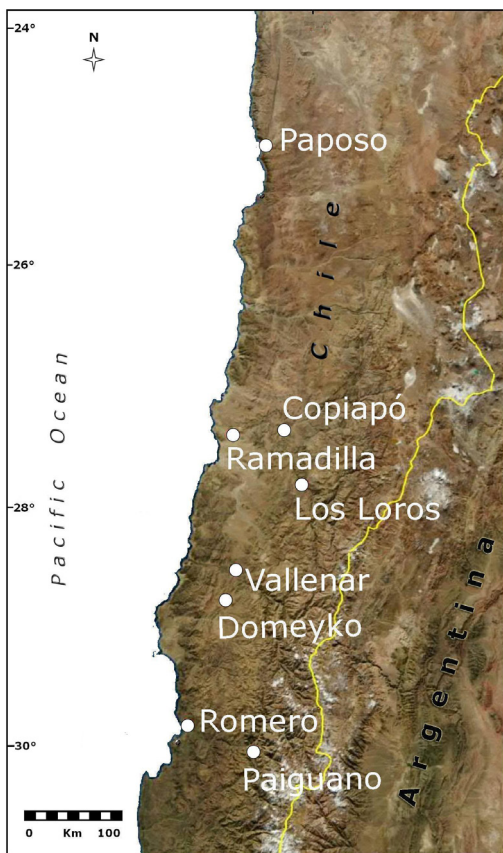


Fig. 2. Localities of record and new locality for *Abrocoma bennettii murrayi* in Paposo, coastal desert in the north of Chile.

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