Mastozoología Neotropical, 18(1):143-146, Mendoza, 2011

ISSN 0327-9383
Versión on-line ISSN 1666-0536
http://www.sarem.org.ar

FIRST RECORD OF *Punomys* (RODENTIA: SIGMODONTINAE) IN BOLIVIA

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ABSTRACT: We report the first known specimen of the cricetid genus *Punomys* for Bolivia based on an adult female captured in 1987. The specific affinities of this individual are currently unknown as it shares qualitative and quantitative characters with *Punomys kofordi* and *P. lemminus*, but also differs substantially from both species; we submit that new specimens are required to arrive to a definitive conclusion as to what species this specimen represents.

RESUMEN: Primer registro de *Punomys* (Rodentia: Sigmodontinae) en Bolivia. En este artículo presentamos el primer registro para Bolivia del roedor cricétido *Punomys*, basándonos en un espécimen atrapado en 1987 en las afueras de la ciudad de La Paz. Debido a que nuestro espécimen comparte caracteres métricos y cualitativos con las dos especies conocidas del género (*Punomys kofordi* y *P. lemminus*) pero al mismo tiempo presenta rasgos únicos, es imposible, en este momento, dilucidar a qué especie pertenece. Sólo se podrá avanzar una hipótesis más definitiva con una muestra un poco más grande.

Key words. Andes. Bolivia. La Paz. *Punomys*.

Palabras clave. Andes. Bolivia. La Paz. *Punomys*.

Some 380 species of mammals are known to occur in Bolivia (Salazar-Bravo et al., 2003; Aguirre, 2007; Wallace et al., 2010), but the country is so diverse that new species for science or records for the country are routinely reported (e.g.,Villalpando et al., 2006; Salazar-Bravo and Yates, 2007; Carleton et al., 2009). In this contribution, we report the presence of a new rodent genus for Bolivia, found while re-curating the holdings of the mammal collection of the Colección Boliviana de Fauna in La Paz. The specimen in question was misidentified when catalogued in 1987 as *Auliscomys boliviensis* (see Mercado and Miralles, 1991), but examination of the skin, skull, and in particular, the upper and lower molars, allowed us to identify the specimen as a new genus for the fauna of the country. Measurements of the animal follow Pacheco and Patton (1995).

Order Rodentia Bowdich, 1821
Family Cricetidae Fischer, 1817
Punomys Osgood, 1943

The Bolivian record of this unique taxon is based on a single specimen obtained on January 10th of 1987 at Departamento La Paz: cumbre del camino a Yungas (approx. 16.33°S, 68.02°W), 4770 m (**Fig. 1**). The specimen is an adult female collected by JMS (field number 72) with a Victor snap trap and prepared as

Recibido 3 noviembre 2010. Aceptado 3 marzo 2011. Editor asociado: UFJ Pardiñas

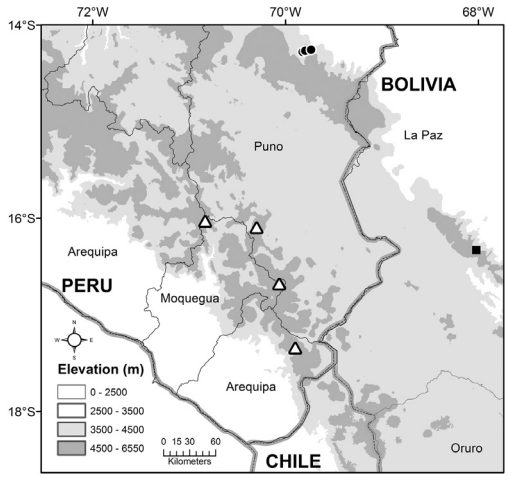

Fig 1. Map of the distribution of *Punomys* in southern Peru and western Bolivia. Locality distribution for *P. lemminus* (white triangles) and *P. kofordi* (black circles) from Pacheco and Patton (1995). Black square = Bolivian locality reported herein. Darker shades of gray represent elevations above 4500m.

a standard Museum study skin; the skin is in good condition, although some missing patches of fur on the upper left side of the body and portions of the tail are evident. The skull is broken in half, most of the basicranium and right side of the braincase are missing, the left tympanic bulla is loose and both zygomatic arches are broken. In addition, what is left of the skull and mandible are covered with white crystals of what we think is calcium carbonate deposited as a result of the cleaning process. The specimen was originally registered at the Mammal Collection of the Institute of Ecology with catalogue number IE00281 and when transferred to the Colección Boliviana de Fauna it received catalogue number CBF858. The catalog number of the IE is still visible on the skull and mandible of the specimen.

CBF858 is a robust mouse with body proportions similar to those of its congeners (**Table 1**). The tail is intact and short, pelage long and soft with a grayish coloration streaked with some buffy-brown on the back and sides and reddish tints on the rump; upper parts not sharply distinct from under parts; both hind and fore feet with dorsal and plantar surfaces black. Skull robust; dorsal outline slightly arched; braincase somewhat squared behind; palate complex with two long and deep sulci running on each side and divergently posteriorly. Upper incisors orthodont, without grooves or striae; maxillary teeth hypsodont; molar toothrow posteriorly divergent, procingulum of M1 slightly divergent anteriorly. Occlusal surface of molars complex with labial and lingual styles; well-developed parastyle and mesostyle, and protostyle and enterostyle (**Fig. 2**); this combination of characters is diagnostic for the genus *Punomys* (Osgood 1943).

Two species of *Punomys* are currently recognized (*P. kofordi* and *P. lemminus*), their diagnoses based on a number of morphological and morphometric characters (Pacheco and Patton, 1995). Because the skull of the Bolivian specimen is damaged, many characters are lost and a detailed comparison of this animal with representatives of the two known species must therefore await new specimens. The measurements of CBF858 are closer to those of *P. kofordi* (**Table 1**); in particular the following measurements fell within the range of variation of *P. kofordi* to the exclusion of *P. lemminus*: rostral breadth, palatal bridge width, and zygomatic plate breadth (**Table 1**). The latter was one of eight measurements that Pacheco and Patton (1995) showed to be statistically different between *P. lemminus* and *P. kofordi*. Conversely, the tail length and the hind foot of CB858 are intermediate between *P. lemminus* and *P. kofordi*, but the ear length is shorter than in any of the two species. In addition to the morphometric differences, some qualitative traits are also unique in this specimen when compared to *P. lemminus* and *P. kofordi*. For example, like in the latter, the posterior margins of the incisive foramina conspicuously projects between the first molars; however, like in *P. lemminus*, the mesopterygoid fossa extends anteriorly between the maxillary bones but not between the alveoli of the M3s (**Fig. 2**).

Only the information on the skin tag is available with regards to the collection site of the specimen. CBF858 was trapped at the entrance of small, natural, shallow cave with a few ortigas (*Cajophora horrida*) by the entrance. Previous collectors in the area (Yoneda, 1984, Anderson, 1997) failed to secure other

Table 1

External and cranial measurements for *Punomys lemminus*, *Punomys kofordi* and CBF 858. P&P'95 = data from Pacheco and Patton (1995), MUSA = data for three adult specimens at the Colección de Mamíferos, Museo de la Universidad de San Agustin, Arequipa, Peru. The MUSA specimens (MUSA 4333, MUSA 4677 and MUSA 4692) were trapped by Horacio Zeballos and measured by one of us (JSB). Measurements are in millimeters and indicate mean and range within parentheses. N/A = no measurement taken.

	P. lemminus (P&P'95)	***P. kofordi*** (P&P'95)	***P. kofordi*** (MUSA)	CBF 858
Total length	194.7 (185-203)	203.3 (191-215)	230 (222-244)	218
Tail length	53.0 (46-61)	69.2 (65-77)	78.7 (74-81)	63
TL% total	27.2%	34.04%	34.12%	28.9%
Hind foot length	28.7 (28-29)	27.2 (26-28)	27.4 (27.1-27.7)	28
Ear height	24.0 (23-25)	24.7 (23-27)	26.3 (24-27.6)	21
Greatest length of skull	33.3 (32.5-34.1)	32.9 (31.4-33.9)	35.2 (35.1-35.4)	N/A
Condylo incisive length	31.8 (31.0-32.2)	30.9 (28.8-31.9)	33.7 (33.3-34.3)	N/A
Zygomatic breadth	18.9 (18.6-19.3)	17.6 (16.2-18.8)	18.4 (18.4-18.4)	N/A
Braincase breadth	15.2 (14.7-15.5)	14.7 (14.5-15.2)	13.8 (13.1-14.6)	13.6
Interorbital breadth	4.2 (4.0-4.3)	4.4 (4.3-4.5)	4.5 (4.4-4.7)	N/A
Diastema length	8.3 (8.0-8.7)	8.0 (7.4-8.4)	9.0 (8.7-9.3)	8.5
Maxillary tooth row length	7.0 (6.5-7.5)	6.9 (6.7-7.2)	6.7 (6.6-6.9)	6.7
Incisive foramen length	6.8 (6.7-6.9)	7.0 (6.9-7.2)	8.1 (7.8-8.5)	7.5
Palatal bridge length	7.4 (6.5-8.0)	6.6 (6.4-6.8)	N/A	N/A
Rostral breadth	7.2 (7.0-7.6)	6.9 (6.4-7.3)	6.6 (6.5-6.7)	6.6
Palatal bridge width	2.2 (2.1-2.3)	2.3 (1.8-2.9)	2.5 (2.48-2.58)	1.9
First upper molar breadth	2.1 (2.0-2.2)	2.1 (2.0-2.2)	N/A	N/A
Zygomatic plate breadth	3.6 (3.5-3.6)	3.2 (2.8-3.4)	3.6 (3.5-3.7)	2.9

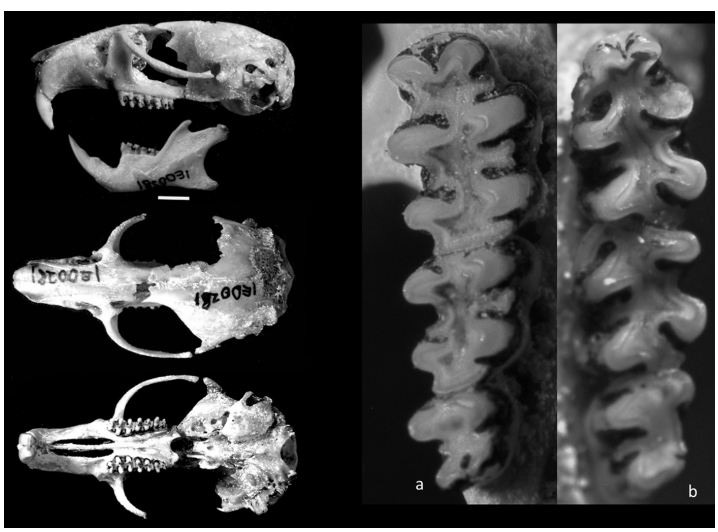

Fig 2. Skull of *Punomys* sp. from Bolivia (CBF858=IE00281); skull and mandible in lateral (top left), skull in dorsal (center left) and ventral (bottom left) views; scale = 5 mm. Note the length of the incisive foramina (its dorsal end reaching in between protocones of M1) and the length of the palate (dorsal edge of the mesopterygoid fossa does not reach the alveoli of M3). Right panes, show the upper (a) and lower (b) molar series. The length of the maxillary tooth row length in (a) is 6.7mm.

specimens of this genus. For example, in 1926 G.H.H. Tate collected over 1550 specimens in La Paz for the American Museum of Natural History, the starting collecting point was less than one kilometer west of the locality where CBF858 was trapped. The Bolivian locality extends the range for the genus over 240 km SE from the nearest known locality of *Punomys* in

Peru. The disjunct nature of the distribution of the Bolivian *Punomys* relative to those of its congeners in Peru, coupled with the mensural and morphological differences identified on this unique specimen are suggestive of species-level distinction given the same magnitude of difference among characters between *P. lemminus* and *P. kofordi*. However, we think it is premature at this point to suggest this level of differentiation for two principal reasons: (i) the levels of intraspecific variation within the recognized species of *Punomys* need to be evaluated critically and (ii) the unique Bolivian specimen is damaged badly enough to hinder the comparison of many taxonomically important characters. Further work in the field as well as in curation of collections is bound to uncover more heretofore unknown Neotropical species and fill distributional gaps for this and other Bolivian mammal species.

Acknowledgements. The specimen reported herein was collected as part of fieldwork for the project "Historia Natural de un valle en los Andes: La Paz". We thank Mario Baudoin and Eduardo Forno (then at the Instituto de Ecologia, Universidad Mayor de San Andres) for having initiated the project and edited the resulting volume. Funds from the American Philosophical Society and NSF (DEB 0616305) partially supported JSB and his visit to the Colección Boliviana de Fauna. ARC acknowledges the financial support from the Czech Ministry of Education (LC06073). We thank Dr. Horacio Zeballos and Dr. Evaristo López Tejeda for allowing access to specimens of *Punomys* in the Colección de mamíferos de la Universidad Autónoma de San Agustin (MUSA). Likewise, we thank Dr. Alvaro Garitano (Instituto de Ecología, Universidad Mayor de San Andrés) who allowed the use of his camera to obtain the pictures of the molar series of CBF858 in Fig. 2, and Mariano S. Sanchez (Programa de Investigaciones de Biodiversidad Argentina - PIDBA y Cátedra de Vertebrados, Facultad de Ciencias Naturales e Instituto Miguel Lillo, Univ. Nacional de Tucumán, Argentina) for photographing the skull and mandibles of the specimen reported herein. Lastly, we thank the critical reviews of earlier versions of this manuscript by Luis Ruedas, Horacio Zeballos, Ulyses Pardiñas and two anonymous reviewers.

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