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First record of *Pseudoryzomys simplex* (Cricetidae, Sigmodontinae) in a flooded area of the Pantanal, Brazil

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Abstract

Pseudoryzomys simplex is a small to medium sized terrestrial rodent confined to lowland open areas with strong seasonal rainfall throughout the Chaco, Cerrado and Caatinga. Despite its extensive range, the species is difficult to trap. In this report we provide the first record of *P. simplex* in the Pantanal, where three specimens were collected in a pasture of exotic grass. The specimens are morpometrically similar to the population from Paraguay (Chaco). In this sense, our report shows how interesting a taxonomic review of the species would be to better understand the real significance of the geographic variation herein observed.

Keywords: false Oryzomys, geographic distribution, Pantanal wetland.

Primeiro registro de *Pseudoryzomys simplex* (Cricetidae, Sigmodontinae) em área alagada do Pantanal, Brasil

Resumo

Pseudoryzomys simplex é um roedor terrestre de pequeno a médio porte que ocorre em áreas abertas de planícies com fortes precipitações sazonais ao longo dos Chaco, Cerrado e Caatinga. Apesar de sua extensa distribuição, a espécie é difícil de ser capturada. No presente estudo, fornecemos o primeiro registro de *P. simplex* no Pantanal, onde três espécimes foram coletados em uma pastagem de capim exótico. Os espécimes são morfometricamente semelhantes à da população do Paraguai (Chaco). Neste sentido, o nosso relatório mostra quão interessante seria uma revisão taxonômica das espécies para melhor compreender o significado real da variação geográfica aqui observada.

Palavras-chave: falso Oryzomys, distribuição geográfica, Pantanal.

The false Oryzomys *Pseudoryzomys simplex* (Winge, 1887) is a small to medium sized terrestrial sigmodontine rodent with head-and-body length between 94 and 140 mm, tail length shorter or similar to the head-and-body length, varying from 105 to 140 mm (Voss and Myers, 1991), and weight between 45 and 55 g (Bonvicino et al., 2008). It exhibits long and soft pelage, which is grizzled-brownish or grayish dorsally and straw-colored or buffy ventrally, with gray-based hairs on the venter (Voss and Myers, 1991).

Available collecting localities are from northeastern Argentina, western Paraguay to eastern Bolivia, and from there eastward through Brazil and far in the northeastern portion of this latter country. This rodent is confined to lowland areas with strong seasonal rainfall, like grasslands and wetlands, found throughout the Chaco, Cerrado and Caatinga (Figure 1; Anderson, 1997; D'Elia et al., 2008; Pardiñas et al., 2004; Prado and Percequillo, 2013; Voss and Myers, 1991). Despite its extensive range, *P. simplex* was classified as rare (difficult to collect) and not abundant by Bonvicino et al. (2002). In fact, specimens of this rodent are more easily recorded through the analyses of Barn Owl (*Tyto alba* (Scopoli, 1769)) pellets (e.g. Pardiñas et al., 2004; Teta et al., 2009).

The Pantanal is the largest wetland in the world. The region is seasonally flooded and has a complex mosaic of habitats such as patches of forests, seasonally flooded grasslands and permanent or temporary lagoons (Nunes da Cunha and Junk, 2009). Although this region has the basic

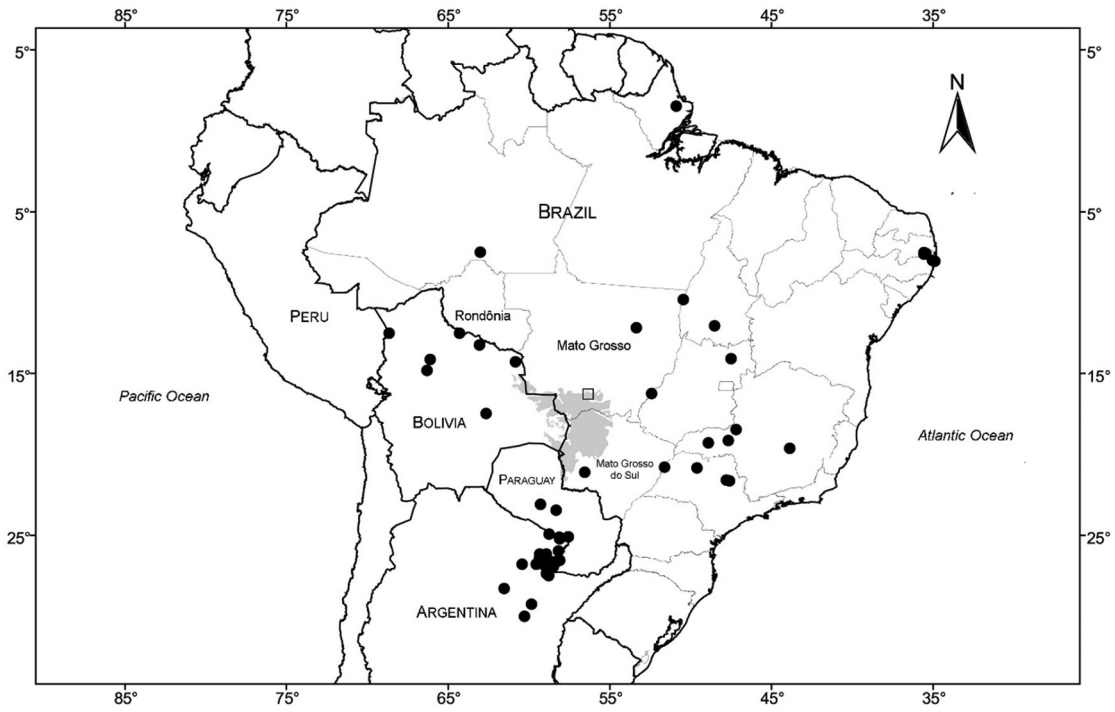

Figure 1. Collecting localities of *Pseudoryzomys simplex* (solid circles) based on Prado and Percequillo (2013) and the first collecting locality of the species (open square) in the Pantanal (gray area, based on Olson et al., 2001).

ecological features required by the false Oryzomys to exist, the species has never been recorded in it. Aragona (2008) provided a review of the small non-volant mammal species recorded in the Pantanal floodplain and the adjacent areas in the plateau, and none of the studies mentioned by her reports *P. simplex* in this region. As far as is known, the closest collecting localities of the species to the Pantanal limits are Parque Nacional de Noel Kempff Mercado, Santa Cruz, Bolivia (14°16'S, 60°52'W) and Gruta São Miguel, Mato Grosso do Sul, Brazil (21°06'S, 56°34'W) according to Prado and Percequillo (2013: figure 37). These localities are ca. 85 km and 70 km away from the Pantanal, respectively.

In this report we provide the first record of *P. simplex* for the Pantanal. Three specimens were collected in the county of Pirizal, municipality of Poconé, state of Mato Grosso, Brazil (16º16'10.3S", 56º21'12.1"W; Figure 1), two of which during the dry season on 04 October 2013, and one in wet season on 13 February 2014. The specimens were captured by wire cage traps set on the ground in a landscape that occasionally gets flooded during the wet season, covered with exotic pasture (*Brachiaria humidicula* (Rendle) Schweick.) and some sparse native shrubs and termite mounds (Figure 2). Traps were baited with a piece of pineapple and a paste made of peanut butter, corn flower, and sardine. An effort of 800 night-traps was employed in the study site.

The specimens collected by us are unequivocally identified as *P. simplex* by their long and soft grizzled-brownish

Figure 2. Landscape of exotic (*Brachiaria humidicula*) pasture and sparse native shrubs and termite mounds in the Pantanal where specimens of *Pseudoryzomys simplex* were collected. The place gets occasionally flooded in the wet season.

dorsal pelage; gray-based buffy ventral pelage; hind feet long and narrow with digits II-IV much longer than I and V; and bicolored tail about as long as head-and-body, with no terminal tuft. Craniodentally, they exhibit deep zygomatic notches; narrow interorbital region; supraorbital margins sharply edged; incisive foramina long, narrow, and parallel-sided; bony roof of mesopterygoid fossa perforated by large sphenopalatine vacuities; stapedial foramen minute or absent (Figure 3); and mesoloph small in M1 and M2

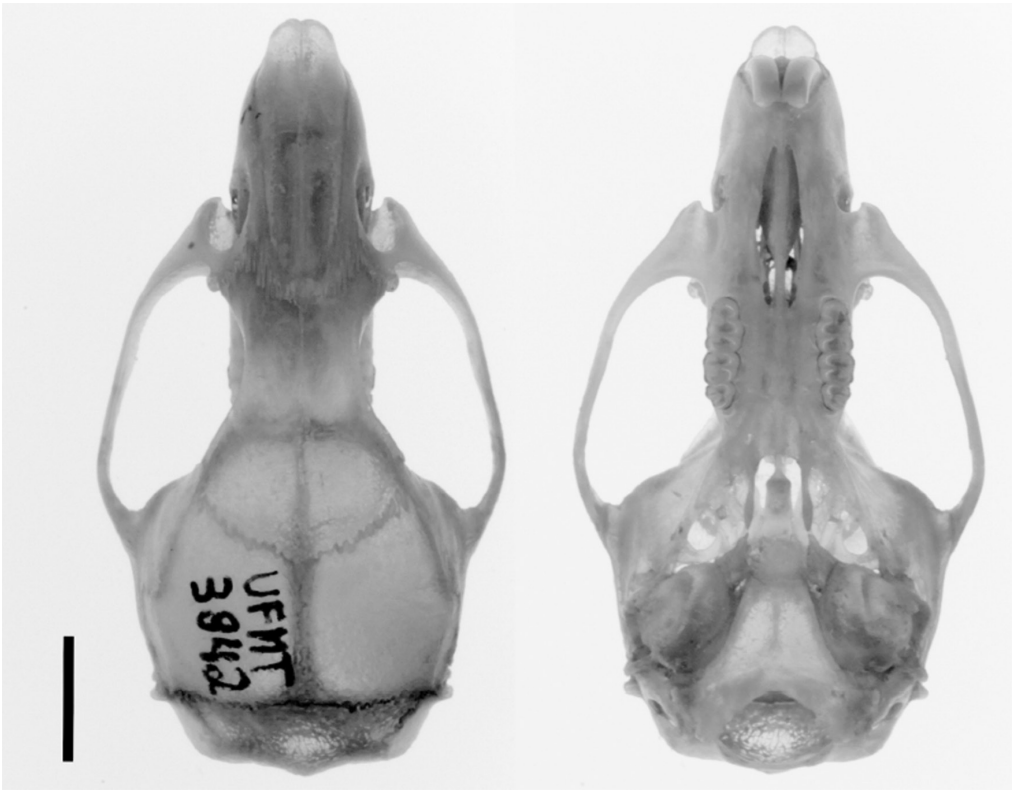

Figure 3. Dorsal and ventral views of the skull of *Pseudoryzomys simplex* collected in the Pantanal (UFMT 3842). Scale bar, 5 mm.

and absent in M3, among other characteristics listed by Voss and Myers (1991) and Weksler and Percequillo (2011).

Measurements of our specimens (Table 1) average smaller than those from Bolivia and the state of Minas Gerais in Brazil reported by Voss and Myers (1991: tables 1-2), but conform to the population from Paraguay (Chaco) studied by the same authors, who highlighted this geographic variation in the size of the populations examined by them. Specimens from the Chaco, for example, average 26.05 mm in condylo-incisive length (CIL), 4.70 mm in length of molars (LM), and 4.35 mm in breadth of rostrum (BR), which are quite similar to the corresponding mean values 25.88 mm, 4.56 mm, and 4.22 mm of our specimens (Table 1). In contrast, specimens from Bolivia average 28.70 mm in CIL, 4.85 mm in LM, and 4.70 mm in BR (Voss and Myers 1991).

Two previous studies were carried out in the same locality in order to sample small non-volant mammals. Aragona (2008) performed a huge capture effort (41,137 trap-nights) throughout two seasonal cycles of flooding, run-off and dry, but were focused in forest habitats. At the same time, Chupel (2008) performed 15,300 trap-nights of capture effort and sampled many types of seasonally flooded savanna parklands, using the RAPELD sampling system in a permanent grid proposed by Magnusson et al. (2005); for a description of the seasonally flooded open habitats in the Pantanal refer to Nunes da Cunha and Junk (2009). Together, these studies yielded six marsupial and nine

Table 1. Sex, measurements (in millimeters) and weight (in grams) of three adult specimens of *Pseudoryzomys simplex* collected in the Pantanal, precisely in the county of Pirizal, municipality of Poconé, state of Mato Grosso, Brazil.

Sex	UFMT 3842	UFMT 3843	UFMT 3844	Mean ± SD
	Male	Female	Male	
HBL	120	109	110	113.0 ± 6.1
LT	115	111	121	115.7 ± 5.0
Weight	34	30	38	34.0 ± 4.0
CIL	26.33	25.81	25.49	25.88 ± 0.42
LD	7.69	7.48	7.03	7.4 ± 0.34
LM	4.38	4.63	4.66	4.56 ± 0.15
BM1	1.39	1.52	1.47	1.46 ± 0.07
LIF	6.1	5.58	6.05	5.91 ± 0.29
BR	4.18	4.09	4.39	4.22 ± 0.15
BPB	2.67	2.52	2.03	2.41 ± 0.33
BZP	2.69	2.98	2.57	2.75 ± 0.21
LIB	4.31	4.01	4.06	4.13 ± 0.16
BB	12.15	12.26	11.93	12.11 ± 0.17
DI	1.61	1.6	1.36	1.52 ± 0.14
LOF	10.57	10.39	10.36	10.44 ± 0.11

External measurements are: HBL – Head-and-body length; LT – Length of tail; . Craniodental measurements are: CIL – Condylo-incisive length; LD – Length of diastema; LM – Length of molars; BM1 – Breadth of M1; LIF – Length of the incisive foramina; BR – Breadth of the rostrum; BPB – Breadth of the palatal bridge; BZP – Breadth of the zygomatic plate; LIB – east interorbital breadth; BB – Breadth of braincase; DI – Depth of the incisor; LOF – Length of the orbital fossa. For measurements explanation, refer to Voss and Myers (1991).

rodent species, but none specimen of *P. simplex* was recorded (Chupel and Aragona, 2010).

As far as we know, this is the first time the species is collected in a landscape covered with exotic pasture. In this sense, our report of a population of *P. simplex* in the Brazilian Pantanal, which is morphometrically similar to a population in the Paraguayan Chaco, provides new geographical and ecological information on this poorly known sigmodontine rodent and also shows how interesting a taxonomic review of the species would be to better understand the real significance of the geographic variation herein observed.

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