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**The amazon bamboo rat *Dactylomys dactylinus*  
(Rodentia: Echimyidae: Dactylomyinae) in the cerrado of central Brazil**

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#### **Abstract**

Bezerra, A.M.R., da Silva Jr, N.J. & Marinho-Filho, J. **The amazon bamboo rat *Dactylomys dactylinus* (Rodentia: Echimyidae: Dactylomyinae) in the cerrado of central Brazil.** *Biota Neotrop.* Jan/Apr 2007 vol. 7, no. 1 <http://www.biotaneotropica.org.br/v7n1/pt/abstract?short-communication+bn03507012007> ISSN 1676-0603.

Until recently, the distribution of *Dactylomys dactylinus* was considered to be restricted to forest habitats from the western Amazon to the east of the Xingu River in Brazil. Individuals of *D. dactylinus* were rescued in January 1997 from the rising waters of the hydroelectric dam of Serra da Mesa, in Central Brazil. This record extends the southern limit of the distribution of *D. dactylinus*, and represents also the first occurrence of this species in the Cerrado biome. The specimens were collected in patches of gallery forest of the Tocantins River and its tributaries. The Tocantins is the main river of the Araguaia-Tocantins basin. Its headwaters are located in the Cerrado biome and it is a tributary of the delta of the Amazonas River. The presence of *D. dactylinus*, a characteristic Amazonian lowland forest species, in the core area of the Cerrado is an evidence of the role of forested environments as mesic corridors that have been contributing to the increase of mammalian diversity in this biome.

**Keywords:** biogeography, distribution, gallery forests.

#### **Resumo**

Bezerra, A.M.R., da Silva Jr, N.J. & Marinho-Filho, J. **O rato-de-bambu *Dactylomys dactylinus* (Rodentia: Echimyidae: Dactylomyinae) no cerrado do Brasil central.** *Biota Neotrop.* Jan/Apr 2007 vol. 7, no. 1 <http://www.biotaneotropica.org.br/v7n1/pt/abstract?short-communication+bn03507012007> ISSN 1676-0603.

Até recentemente, a distribuição de *Dactylomys dactylinus* foi considerada restrita a habitats florestais da Amazônia ocidental até o leste do rio Xingu no Brasil. Indivíduos de *D. dactylinus* foram resgatados em janeiro de 1997 durante o enchimento da represa hidroelétrica de Serra da Mesa, no Brasil central. Este registro estende o limite sul de distribuição de *D. dactylinus* e é também a primeira ocorrência da espécie no bioma Cerrado. Os espécimes foram coletados em manchas de mata de galeria do rio Tocantins e seus tributários. O Tocantins é o principal rio da bacia do Araguaia-Tocantins. Suas cabeceiras estão localizadas no domínio do Cerrado e é um afluente do delta do rio Amazonas. A presença de *D. dactylinus*, uma espécie típica da floresta amazônica, na área 'core' do Cerrado representa uma evidência do papel dos ambientes florestais como corredores méxicos que têm contribuído para o aumento da diversidade de mamíferos neste bioma.

**Palavras-chave:** biogeografia, distribuição, matas de galeria.

## Introduction

The Amazon bamboo rat, *Dactylomys dactylinus* (Desmarest 1817), is a nocturnal and arboreal rodent (Nowak 1999) and its ecology and natural history are poorly known (Silva Júnior & Nunes 2000). This rodent has conspicuous vocalizations and lives in environments of dense vegetation near watercourses, generally associated with the presence of bamboo patches, where they are cryptic (Emmons & Feer 1997, Nowak 1999). Due to these particularities the species is difficult to capture and poorly represented in scientific collections.

Three *Dactylomys* species are currently recognized: *D. boliviensis* (Anthony 1920), *D. dactylinus* and *D. peruanus* (Allen 1900) (Woods & Kilpatrick 2005). The former is distributed throughout central Bolivia and southeastern Peru, and extends at least into extreme north-western Brazil, at Acre State (Patton et al. 2000; Dunnum & Salazar-Bravo 2004). *Dactylomys peruanus* is known only from the cloud forests of southeastern Peru and one locality in the Department of La Paz, Bolivia, between 1,000 and 3,000 m (Salazar-Bravo et al. 2003, Woods & Kilpatrick 2005). Until recently, the known distribution of *D. dactylinus* was restricted to forested habitats from the western Amazon of Brazil, Peru, Ecuador, Colombia, and Bolivia, extending to the east of the Xingu River in Brazil (Anderson 1997, Emmons & Feer 1997, Eisenberg & Redford 1999, Patton et al. 2000, Woods & Kilpatrick 2005). New data expanded its known distribution to the limits of eastern Amazon (Silva Júnior & Nunes 2000). Additionally, Moraes-Santos et al. (1999) found one molar tooth of *D. dactylinus* in zooarchaeological remains in a cave in Serra de Carajás, Pará State, Brazil, but did not observe or collect any live specimens.

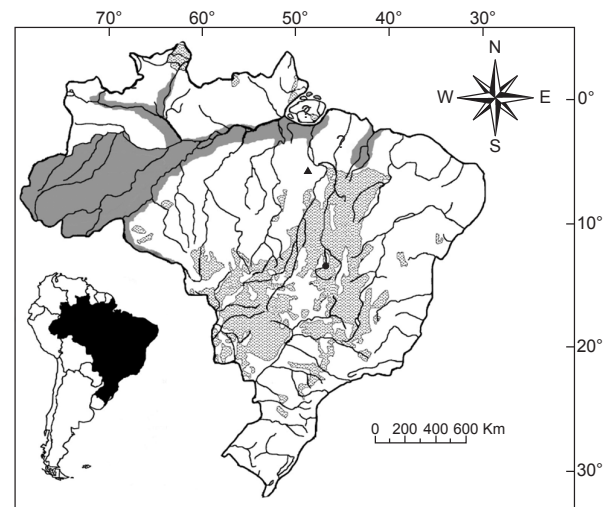
Herein, we report a new record of *D. dactylinus*, which further expands its current geographical distribution southwards to the Cerrado domain. We also comment on the use of gallery forests as probable dispersion corridors between biomes.

## Material and Methods

Three males and two females of *D. dactylinus* were collected in January 1997 during the rising waters of the hydroelectric dam of Serra da Mesa (13° 45' 14" 35' S and 47° 50' 49" 15' W), in the Municipality of Minaçu, Goiás State, Brazil (Figure 1). They were captured with hand nets in a patch of bamboo (*Guadua* sp.) within the gallery forests near the mouth of the Bagagem River, a tributary of the Tocantins River, which became submerged. The voucher specimens were deposited in the Coleção de Mamíferos do Departamento de Zoologia, Universidade de Brasília, Distrito Federal, Brazil, as numbers UNB 2067 (female), UNB 2068 (male), UNB 2069 (male), UNB 2070 (male), and UNB 2071 (female). We identified specimens using descriptions in the current literature (Emmons & Feer 1997, Dunnum & Salazar-Bravo 2004) and by direct comparison with *D. dactylinus* specimens from Pará State housed at the Museu Nacional - Universidade Federal do Rio de Janeiro (MN 11921 and MN 31573) and from Beni, Bolivia, housed at the Museo de Historia Natural Noel Kempff (MNK 2738).

## Results and Discussion

*Dactylomys dactylinus* can be distinguished from *D. peruanus* by its larger body size (total length more than 600 mm), grizzled yellow-olivaceous dorsal color pattern streaked with black, and the predominantly naked tail covered by short hairs at the proximal portion (20% of tail length), while the latter is smaller (total length less than 240 mm), presents dorsal color pattern yellowish-brown with black tipped hairs and the tail entirely hirsute. The absence of a distinct dark mid-dorsal stripe and the presence of longer mystacial vibrissae are typical features of *D. dactylinus* compared to *D. boliviensis*,



**Figure 1.** Distribution of *Dactylomys dactylinus* in Brazil. Gray area indicates previous distribution, shaded area represents the Cerrado domain, solid circle the new record, and solid triangle the zooarchaeological remains. Map modified from Emmons & Feer (1997) and Silva Júnior & Nunes (2000).

**Figura 1.** Distribuição de *Dactylomys dactylinus* no Brasil. A área cinza indica a prévia distribuição, a área sombreada representa o domínio do Cerrado, o círculo sólido o novo registro e o triângulo sólido os remanescentes zooarqueológicos. Mapa modificado a partir de Emmons & Feer (1997) e Silva Júnior & Nunes (2000).

which presents a distinct mid-dorsal stripe and shorter vibrissae (for *Dactylomys* species identification key see Dunnum & Salazar-Bravo 2004; see also Patton et al. 2000).

The Tocantins River is the principal river of the Araguaia-Tocantins basin that has its headwaters in the Cerrado domain and its mouth in the Mangá River, a tributary of the Amazonas River delta. The Cerrado, the largest and species-richest tropical savanna, covers approximately 2 million km<sup>2</sup> in the central Brazilian Plateau at altitudes from 600 to 1,400 m, and harbors a great variety of habitat types, ranging from open grasslands to semideciduous forests and evergreen gallery forests (Eiten 1972, Ribeiro & Walter 1998). The present record for *D. dactylinus* extends by ca. 1,000 km the southern limit of its distribution and also represents the first record of this species in the Cerrado biome.

The gallery forests and dry forest patches (deciduous and semi-deciduous forests) of central Brazil have been identified as mesic forested corridors that allow rainforest small mammals from the Amazon and Atlantic Forest to penetrate into savanna landscapes and other open formations associated with dryer climates in central and northeastern Brazil (e.g., Redford & Fonseca 1986, Bonvicino et al. 1996, Marinho-Filho & Veríssimo 1997, Costa 2003, Bezerra et al. 2005, Carmignotto 2005). Although gallery forests correspond to no more than 5% of the total area of the Cerrado biome, about 29% of the 194 mammal species known to occur in the Cerrado are exclusively found in these forests and 54% occupy forest environments as well as open areas (Marinho-Filho et al. 2002). The mammalian fauna of the Cerrado appears to be derived primarily from a set of forest species (Redford & Fonseca 1986, Marinho-Filho & Sazima 1998).

Gallery forests have seemingly played an important role as mesic corridors that allowed the establishment of species not adapted to the conditions found in dry, open Cerrado habitats and Caatinga areas

even during glacial dry periods in the past (Mares et al. 1985, Redford & Fonseca 1986). During interglacial periods, on the other hand, the distribution of these species might have accompanied the expansion of these mesic corridors within the Cerrado Domain.

Costa (2003) states that the central Brazilian forests are part of the evolutionary scenario of lowland Amazonian and Atlantic Forest small mammal fauna. Among non-volant small mammal species that inhabit the forest areas of the Cerrado, about 69% are shared with the Amazon domain, while only six species are shared both with the Atlantic Rainforest and Amazon domains, suggesting that most of the extant species would utilize the gallery forests of Cerrado domain as extension of adjacent forest domains (Carmignotto 2005). The record of *Dactylomys dactylinus*, an Amazonian lowland forest species, in the core area of the Cerrado biome is an important biogeographic finding that supports this idea and highlights the role of forest habitats within the Cerrado domain for the evolution and conservation of the diversity of Brazilian mammalian fauna.

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