



Small mammals of the mid-Araguaia River in central Brazil, with the description of a new species of climbing rat

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Abstract

The mid-Araguaia River basin in central Brazil is considered a priority area for biodiversity conservation, and Parque Estadual do Cantão (PEC) is one of the most important protected areas in this ecotone between Cerrado and Amazonia. This area suffers an intensive human pressure with high rates of deforestation, and still remains poorly studied in terms of biodiversity. From June 2007 to November 2008 we sampled small mammals from both banks of the mid-Araguaia River, in the states of Tocantins and Pará. Data are given about morphological traits, geographic distribution and natural history of 22 species of small non-volant mammals (eight marsupials and 14 rodents) surveyed at PEC and its surroundings. We also present mitochondrial phylogenetic analyses that allow species identification within the genera: *Oecomys*, *Oligoryzomys* and *Rhipidomys*, and delineate an undescribed species of *Thrichomys*. Based on morphologic and molecular data, we describe a new species of *Rhipidomys* previously assigned to *R. nitela*, which is apparently endemic to the Araguaia-Tocantins basin in the Cerrado. Additionally, our phylogenetic analyses provide support for the role played by the Araguaia River as an important geographic barrier for two sister species of *Rhipidomys*.

Key words: Amazonia, Cerrado, ecotone, inventory, marsupials, rodents

Resumo

A bacia do Médio Araguaia no Brasil Central é considerada uma área prioritária para a conservação da biodiversidade e o Parque Estadual do Cantão (PEC) é uma das mais importantes áreas protegidas neste ecótono entre o Cerrado e a Amazônia. Esta área encontra-se sob uma forte pressão humana, com altas taxas de desmatamento, e continua muito pouco estudada em termos de biodiversidade. De Junho de 2007 a Novembro de 2008, amostrámos pequenos mamíferos das duas margens do Rio Araguaia, nos estados do Tocantins e Pará. Neste trabalho, apresentamos dados sobre características morfológicas, distribuição geográfica e história natural de 22 espécies de pequenos mamíferos não-voadores (oito marsupiais e 14 roedores) amostrados no PEC e seu entorno. Apresentamos, também, análises filogenéticas que permitem a identificação de espécies dentro dos gêneros: *Oecomys*, *Oligoryzomys* e *Rhipidomys*, e a delimitação de uma espécie não descrita de *Thrichomys*. Com base em dados morfológicos e moleculares, descrevemos uma espécie nova de *Rhipidomys*, previamente alocada a *R. nitela*, e aparentemente endêmica da bacia do Araguaia-Tocantins no Cerrado. Adicionalmente, as nossas análises filogenéticas suportam o papel desempenhado pelo Rio Araguaia como uma importante barreira geográfica para duas espécies irmãs de *Rhipidomys*.

Introduction

The Cerrado (1.8 million km²) and Amazonia (7 million km²) are the two largest biomes in South America. The former is one of the 25 biodiversity hotspots, while the second is a major wilderness area (Myers *et al.* 2000, Silva & Bates 2002). The Cerrado is a savanna-like ecosystem that occupies the central Brazilian plateau, extending from the northeast to the southern borders of Amazonian Rainforest, where these two biomes contact in a complex vegetation mosaic (Ackerly *et al.* 1989, Oliveira-Filho & Ratter 2002). Parque Estadual do Cantão (PEC) is one of the most important protected areas in this ecotone (Pinheiro & Dornas 2009) and is situated in the mid-Araguaia River system in the western region of the state of Tocantins. This transition area between Cerrado and Amazonia is mainly characterized by the presence of alluvial forests and floodplain grasslands that are strongly influenced by the seasonal river-flooding regime (Oliveira-Filho & Ratter 2002). The region where PEC lies, as well as most of the Araguaia drainage, has a highly diverse flora and is a priority area for conservation (Ratter *et al.* 1997, Cavalcanti & Joly 2002, Ratter *et al.* 2003).

Very few studies focusing on small mammals have been conducted in transitional areas between Cerrado and Amazonian Rainforest (e.g. Bonvicino *et al.* 1996, Lacher & Alho 2001, Lambert *et al.* 2006, Bezerra *et al.* 2009), despite the large size and biological relevance of these areas. The only study that presents data on taxonomy and geographic distribution of species (Bezerra *et al.* 2009) was based on a 15-day field survey, and therefore contains a brief preliminary species list.

Only recently we have begun to appreciate the diversity of small mammals in the Neotropics, and to understand species boundaries, geographic distributions, and phylogenetic relationships (Patton *et al.* 2000). Patterson (2000) estimated an annual increase of eight new mammal species in this region, mostly small mammals. Two new species of small mammals endemic to the Cerrado have been recently recognized based on morphological, molec-