



The taxonomic status of the Castelo dos Sonhos Hantavirus reservoir, *Oligoryzomys utiaritensis* Allen 1916 (Rodentia: Cricetidae: Sigmodontinae)

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Abstract

Species of the genus *Oligoryzomys* are commonly found across Latin America, and several of them play important roles as natural reservoirs of Hantaviruses. Here we demonstrate that *O. utiaritensis*, the natural reservoir of hantavirus Castelo dos Sonhos in northwestern Brazil and previously considered a junior synonym of *O. nigripes* or *O. eliurus*, is a valid species. Morphology, morphometry, karyotyping, and phylogenetic reconstructions based on nuclear (intron 7 of the beta-fibrinogen gene) and mitochondrial (cytochrome *b*) DNA show that *O. utiaritensis* differs from *O. nigripes* and from other forms of the genus, including the recently described taxon *O. moojeni*. *Oligoryzomys utiaritensis* differs in external (whitish ventral pelage and tail weakly bicolored) and cranial (incisive foramina never extending posteriorly the alveolus line of M1) characters from sympatric species. It has the highest diploid number ($2n=72$) within *Oligoryzomys*, and is characterized by three putative synapomorphies in cytochrome *b*, and one in intron 7 of beta fibrinogen. We also point to the assignment of *Oligoryzomys eliurus* as a junior synonym of *O. nigripes*. Finally, we present phylogenetic analyses of intrageneric relationships showing that *O. utiaritensis* is a member of a clade containing Amazonian and Cerrado taxa, including *O. moojeni*, *O. rupestris*, and *O. delicatus*.

Keywords: pygmy rice rat, hantaviruses, South America, phylogeny, cytochrome *b*, intron 7 beta fibrinogen, karyotype, morphometrics

Introduction

Oligoryzomys Bangs is a speciose and widespread rodent genus found in all Neotropical countries, from Mexico to Argentina. Eighteen *Oligoryzomys* species are currently recognized (Musser & Carleton, 2005; Weksler & Bonvicino, 2005), nine of which are putatively distributed in Brazil: *Oligoryzomys chacoensis* (Myers & Carleton), *O. flavescens* (Waterhouse), *O. fornesi* (Massoia), *O. fulvescens* (Saussure), *O. microtis* (Allen), *O. moojeni* Weksler & Bonvicino, *O. nigripes* (Olfers), *O. stramineus* Bonvicino & Weksler, and *O. rupestris* Weksler & Bonvicino. Through Brazil, *Oligoryzomys* species occupy a variety of habitats, from humid environments like the Atlantic Forest, Pantanal, and Amazonia to drier environments like the Cerrado and Caatinga (Carleton & Musser, 1989), and from the sea level to 3,000 m above sea level.

Oligoryzomys species inhabit several areas currently undergoing massive development in the “agricultural frontier” of Central and Northern Brazil, where cases of Hantavirus pulmonary syndrome (HPS) have been reported (Oliveira *et al.*, 2009; Oliveira *et al.*, 2011; Rosa *et al.*, 2005; Rosa *et al.*, 2010; Suzuki *et al.*, 2004). Four