

COLLECTION RECORDS OF *Gyldenstolpia planaltensis* (AVILA-PIRES, 1972) (RODENTIA, CRICETIDAE) SUGGEST THE LOCAL EXTINCTION OF THE SPECIES

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ABSTRACT: The genus *Gyldenstolpia* was recently described and includes two species, *G. fronto* and *G. planaltensis*, both very rare. *Gyldenstolpia planaltensis* had records in only two localities in the central-western Brazil and is endemic to the Cerrado biome. A new locality is added to *G. planaltensis*, extending its distribution, and was obtained from a specimen housed in a museum collection. Summarized data on the distribution, ecology and natural history of *G. planaltensis* denotes that this species can be already extinct or committed to extinction because of habitat conversion and habitat loss.

RESUMEN: Registros de *Gyldenstolpia planaltensis* (Avila-Pires, 1972) (Rodentia, Cricetidae) sugieren la extinción local de la especie. El género *Gyldenstolpia* fue recientemente descrito e incluye dos especies, *G. fronto* y *G. planaltensis*, ambas muy raras. *Gyldenstolpia planaltensis* tenía registros en solamente dos localidades del centro de Brasil central y es endémica del bioma Cerrado. Una nueva localidad, correspondiente a un ejemplar de museo, se agrega para *G. planaltensis*, ampliando su distribución. Los datos resumidos sobre la distribución, ecología e historia natural de *G. planaltensis* denotan que esta especie podría estar extinta o encontrarse en vías de desaparecer debido a la conversión y pérdida del hábitat.

Key words. Cerrado. Conservation. Endemism.

Palabras clave. Cerrado. Conservación. Endemismo.

The genus *Gyldenstolpia* (Pardiñas et al., 2008a) comprises two species, *G. fronto*, which includes the subspecies †*G. fronto fronto* (Winge, 1887) and is known only from upper Pleistocene-Holocene fossil deposits in the Lagoa Santa region, Minas Gerais state, Brazil, and *G. f. chacoensis* (Gyldenstolpe, 1932), known only from the holotype collected in the Oro River valley in northeastern Argentina. The second species is *G. planaltensis* (Avila-Pires, 1972), endemic to the Central plateau of central-western Brazil (Pardiñas et al., 2008a). This species is known only from two localities in Distrito Federal. The type locality

is the Brasília Zoobotanical Park (Avila-Pires, 1972), rectified by Pardiñas et al. (2008a) as the Sgt. Sílvio Delmar Hollembach Brasília Zoological Garden. The second locality is the Águas Emendadas Ecological Station (where specimens were incorrectly identified as *K. tomentosus* by Marinho-Filho et al., 1998; Bezerra et al., 2007). Pardiñas et al. (2008a) make it clear that *G. planaltensis* is a distinctive taxon which is rare, poorly known, and endemic to the Cerrado biome.

This study aimed to summarize data on the distribution of *G. planaltensis* in order to help guide decisions regarding the man-

agement and conservation of this endemic Cerrado species.

A comprehensive bibliographic review was carried out to compile all existing information on the species. To search for new specimens, 10 scientific collections were inspected: Natural History Museum (BMNH), London, UK; “Fundación Félix de Azara” (CAF), Buenos Aires, Argentina; “Laboratório de Mamíferos Aquáticos” (LAMAq), Santa Catarina Federal University (UFSC), Florianópolis, Brazil; “Museo Argentino de Ciencias Naturales Bernardino Rivadavia” (MACN), Buenos Aires, Argentina; “Museu Nacional” (MN) - Rio de Janeiro Federal University (UFRJ), Rio de Janeiro, Brazil; “Museo Nacional de Historia Natural de Uruguay” (MNHN), Montevideo, Uruguay; “Museu Paraense Emílio Goeldi” (MPEG), Pará, Brazil; Zoological Museum of the São Paulo University (MZUSP), São Paulo, Brazil; mammal collection of the Brasília University (UNB), Distrito Federal, Brazil; and Zoological Museum of the University of Copenhagen (ZMUC), Copenhagen, Denmark.

Four new specimens and one new locality were recorded for *G. planaltensis* (Fig. 1). Three of the four new specimens are from the Águas Emendadas Ecological Station (Locality 4), a protected area in Planaltina, Distrito Federal, where the species was previously known to occur. These specimens were collected in the early 1990s (J. Marinho-Filho, pers. comm.) and were recently catalogued in the mammal collection of the Brasília University (numbers UNB 2080, 2081 and 2157). The addition of these three new specimens brings to six the number of specimens known from the Águas Emendadas locality. Unfortunately, they are represented exclusively by skins and lack information on microhabitat, gender (except for specimen UNB 2157), and precise collection dates. Specimen UNB 2157 is a young female with external measurements and weight as follows: total length = 287 mm, tail length = 103 mm, foot length = 34 mm, internal ear length = 19 mm, weight = 139 g.

The fourth new specimen represents a new locality for *G. planaltensis*: Serra do Roncador, Ribeirão Cascalheira municipality, Mato Grosso state, Brazil (Locality 3). Deposited in

the Natural History Museum, London, with the number BMNH 79.324 (Fig. 2), this new record extends the previously known distribution of the species ca. 525 km to the northwest. The specimen is an adult female with skin, skull and jaw in perfect conditions. It was collected on 30 April 1969 by Ian R. Bishop, and its field number is M275. Its external measurements and weight are as follows: body length = 160 mm, tail length = 105 mm, foot length = 31 mm, internal ear length = 21 mm, weight = 98 g.

This animal was collected during the 1967-1969 Xavantina Expedition, carried out by the Royal Society and the Royal Geographic Society in cooperation with Brazil's National Research Council and other Brazilian institutions (Askew et al., 1970a) during the construction of a highway in the Serra do Roncador. This region is located in a transitional area between the Cerrado and Amazonian biomes and bordered by two important rivers: the Xingu to the west and the Araguaia to the east. The specimen was collected at “R3 Valley near base camp”. According to the map in Askew et

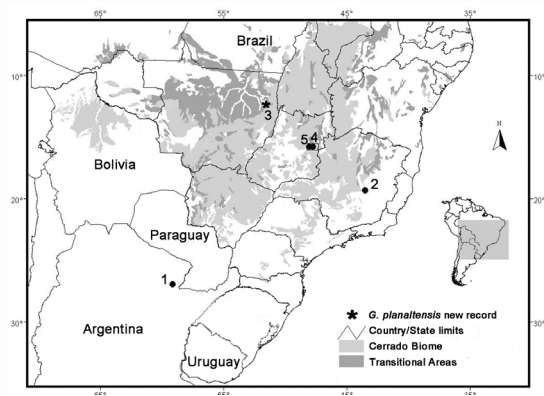


Fig. 1. Map showing records of the genus *Gyldenstolpia*: 1. *G. f. chacoensis* - Río de Oro region, Chaco, Argentina (26° 18' - 20° 3' S, 59° 30' - 58° 33' W) (Gyldenstolpe, 1932); 2. *G. f. fronto* - Lagoa Santa, Lapa da Escrivania Nr. 5, Minas Gerais state, Brazil (19° 39' S, 43° 45' W) (Winge, 1887); 3. *G. planaltensis* - R3 Serra do Roncador, Ribeirão Cascalheira, Mato Grosso state, Brazil (ca. 12° 51' S, 51° 46' W); 4. *G. planaltensis* - Águas Emendadas Ecological Station, Planaltina, Distrito Federal, Brazil (15° 32' - 15° 38' S, 47° 33' - 47° 37' W) (Marinho-Filho et al., 1998); 5. *G. planaltensis* - Ggt. Silvio Delmar Hollembach Brasília Zoological Garden, Brasília, Distrito Federal, Brazil (5° 47' S, 47° 55' W) (Avila-Pires, 1972; Pardiñas et al., 2008a).

al. (1970b, Figure 2), R3 was a transect 7 km long and 20 m wide whose center was approximately 2 km from the base camp, with habitat described as cerrado sensu stricto (Askew et al., 1970a; b), the predominant vegetation type of the Cerrado biome, characterized by dense savanna in which trees and shrubs mostly 3-8 m tall account for roughly 40% of cover (Ribeiro and Walter, 1998). Today the vegetation found in the Ribeirão Cascalheira region is described as a mosaic of semideciduous forests, cerrado sensu stricto, open grasslands, working pastures, and agricultural land (IBGE, 2004). In in loco situation, there are also found gallery forests in valley bottoms and cerrado sensu stricto vegetation associated with both latosols and sandy soils. There is no natural open grassland.

Current knowledge of *Gyldenstolpia* suggests that the conservation status of its two species is critical (Pardiñas et al., 2008a). Although the new locality record from Serra do Roncador (Locality 3) extends the previously known distribution of *G. planaltensis*, this new records

call attention to the fact that the most recent records of the species are from the 1990s (Locality 4) and that the habitats in which they were collected have been significantly altered. This new locality is for a specimen collected in the 1960s. I sampled in the Locality 3 on two occasions (May 2006, during the dry season, and November 2008, during the rainy season) with various conventional collection methods (including Sherman®, Tomahawk®, and pit-fall traps), but did not find any of the species' preferred habitats according to the literature (Pardiñas et al., 2008a): open habitats that are subject to flooding or “campos úmidos”—open grasslands or grasslands with a scattering of trees and shrubs where drainage varies seasonally and soils are typically saturated; the water table is typically close to the surface (Ribeiro and Walter, 1998). These habitats are sensitive to changes in the water table, and it is likely that anthropogenic impacts, especially the conversion of natural habitats and the re-routing of streams and rivers, have eliminated them from the region.

A similar concern applies to the *G. planaltensis* records from the Águas Emendadas Ecological Station (Locality 4) in the early 1990s, since long-term studies there in more recent years, including systematic collections of small mammals (Ribeiro and Marinho-Filho, 2005; Rocha, 2007) and studies of large mammal diets (Rodrigues et al., 2007), have failed to locate the species. Águas Emendadas and its surroundings suffer significant anthropogenic impacts, which have fragmented and severely altered several areas, and these impacts have been shown to influence the structure of animal communities there (e.g., snakes in França and Araujo, 2007; birds in Borges and Marini, 2010).

Gyldenstolpia in a broad sense is classified as Endangered both in the 2010 IUCN Red List (Pardiñas et al., 2008b) and in the Official List of Brazilian Fauna at Risk of Extinction (Machado et al., 2008). However, it is possible that the few populations of *G. planaltensis* known are already extinct or committed to extinction because of habitat conversion and habitat loss (deforestation rates in the Cerrado biome have reached as much as ca. 3 million

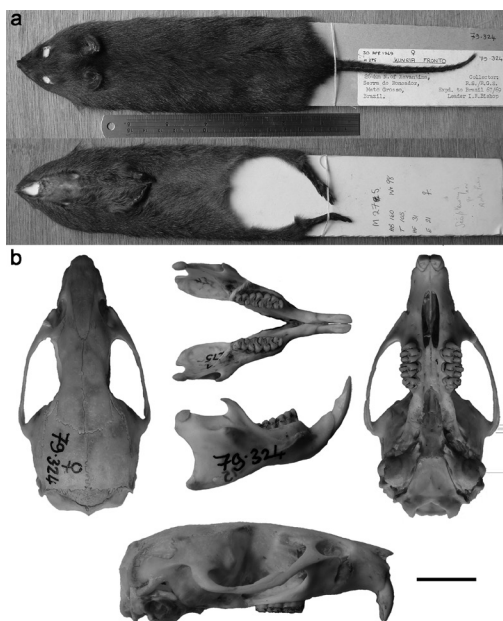


Fig. 2. Specimen from Serra do Roncador, Ribeirão Cascalheira, Mato Grosso state, Brazil (BMNH 79.324): (a) ventral and dorsal views of the skin; (b) dorsal, ventral, and right lateral views of the skull, and superior and right lateral views of the mandible.

ha/year; Machado et al., 2004). Habitat conversion and habitat loss are the leading threats to terrestrial mammals in Brazil (Costa et al., 2005) and endemic small mammal species are uniquely important components of the region's biodiversity, since they have restricted geographical ranges and are highly sensitive to changes in habitat (Bonvicino et al., 2002). The species *Juscelinomys candango*, known only from the type series specimens collected on current site of the Brasília Zoological Garden, Distrito Federal, Brazil, is considered Threatened in the Official List of Brazilian Fauna at Risk of Extinction (Machado et al., 2008) but Extinct by the 2010 IUCN Red List (Leite and Patterson, 2008). The argument for considering *J. candango* extinct is that only one population is known: the species has not been recorded since 1960 despite significant efforts at the type locality and in neighboring regions, and natural habitats at the original locality have been fragmented, degraded, and converted to other uses since 1960. The situation of *G. planaltensis* is not much better. It is known from just three populations, with one of them (Locality 3) 525 km distant from the other two (Localities 4 and 5) (Fig. 1), and the most recent record of the species was made 15 years ago. The fact that significant efforts to collect new specimens in the known localities have failed, considered together with the species' apparently strict habitat preferences, is especially worrisome.

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