

Mammalia, Rodentia, Sigmodontinae, *Abrothrix lanosus* (Thomas, 1897): Topotype, distribution, and new locality records for Chile

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ABSTRACT: *Abrothrix lanosus*, distributed throughout southern South America, is one of the least known Patagonian sigmodontine rodents. So far, neither a topotype from the type locality, the Madre de Dios Archipelago (Chile), neither specimens from adjacent areas have been collected. In this contribution, seven new recording localities and a topotype are given. The measurements of gross morphological features, including the cranium of the first topotype collected and other seven individuals are reported. Moreover, the findings establish new northern (48°11' S, 74°25' W) and western (49°25' S, 75°27' W) distribution limits in Chile for the species.

Among the Abrothrichini D'Elfa *et al.*, 2007, *Abrothrix* Waterhouse, 1837 with nine species, is the most diverse genus. Its wide distribution ranges from Peru to Tierra del Fuego (Musser and Carleton 2005). One of the smallest species of the genus, *A. lanosus* (Thomas, 1897; Figure 1) is one of the least known Patagonian sigmodontine rodent (Galliari and Pardiñas 1999). Characteristic features are the cinnamon-brown flanks, fair belly, whitish feet, small eyes and ears, and the tail, that reaches about 65% of head and body length combined (Osgood 1943; Mann 1978; Feijoo *et al.* 2009). *A. lanosus* is restricted to Patagonia in the Argentine provinces of Santa Cruz and Tierra del Fuego, as well as in the extreme south of Chile (Massoia and Chebez 1993) and occupies moist and cold forest habitats with abundant and dense vegetation cover, between sea level and 600 m a.s.l. (Osgood 1943; Tamayo and Frassinetti 1980).

Although *A. lanosus* is known from several localities in Chile, these concentrate mainly south of 51° S and on Tierra del Fuego (Osgood 1943; Yañez *et al.* 1978; Reise and Venegas 1987; Feijoo *et al.* 2009). Few records come from the northern part of the distributional area, however, the Argentine localities "Cerro Casa Piedra" (47°53' S, 72°51' W) of the Perito Moreno National Park (Galliari and Pardiñas 1999) and "Upper Río Chico" of the province of Santa Cruz (48°24' S, 71°49' W) (Allen 1905) stand out. At both sites, the species is uncommon and it was registered by the use of pellets and traps, respectively. In Chile, populations of these latitudes are unknown. The type locality (Bahía Monteith: 50°22' S, 75°02' W) represents the northern distribution limit in Chile and is also the western limit of the species. Musser and Carleton (1993) erroneously cited Bahía Monteith as being located in Argentina at the coast of the Magellan Strait. Bahía Monteith, however, is situated at the south coast of Anafur Island of the Madre de Dios Archipelago (50° S), within the Chilean Patagonia channel region (Teta *et al.* 2006; Feijoo

et al. 2009), a locality from which no more collections have been made. The present paper aims to contribute to the discussion of the species distribution on the basis of new collections, made in continental and insular Chilean Patagonia.



FIGURE 1. *Abrothrix lanosus* from Egg Channel in Madre de Dios Island (locality E; MZUC-UCCC - 32943) (photos by P. Irrazabal and J. Guzmán taken on 16 January 2010).

The new recording localities lie within or - in the case of the Madre de Dios Archipelago - just outside the Bernardo O'Higgins National Park (BONP). The collections were obtained during November 2009 and January 2010 and the number of the license was 1740 from Agriculture Ministry (SAG).

The BONP comprises the southwestern Aysén Region and a large part of Magallanes Region in southern Chile (Figure 2). It covers an area of 3.5 million ha in a remote zone without easy access and includes the 1.3 million ha of glaciated terrain of the Southern Patagonia Icefield. Specimens were captured with Sherman traps, offering oatmeal as bait. Caught animals were measured, sexed, weighted, and prepared according to standard museum procedures (Table 1). The studied specimens were age-classified using the tooth-wear criteria described by Patterson (1992). The taxonomic identification was based on external morphological features as well as on those associated to the skull (Allen 1905; Osgood 1943; Feijoo *et al.* 2009) (Figure 3). The specimens are housed in the collection of Zoology Museum of Concepción University (MZUC-UCCC), Concepción-Chile, under MZUC-UCCC catalog number.

Eight individuals of *A. lanosus* from seven new localities in Chilean Patagonia were captured. Four of these recording localities lie on the continent and three are insular, including the Madre de Dios Archipelago, the type locality. The new localities, arranged in geographic order from north to south, are (see Figure 2):

A: BONP, Van der Meulen Island, SO Van der Meulen Channel (48°11' S, 74°25' W; MZUC-UCCC - 32938)

B: BONP, W Duque de Edimburgo Channel (49°04' S, 74°21' W; MZUC-UCCC - 32939)

C: BONP, Eyre Channel, 4 km N Glaciar Pío XI Iceberg (49°14' S, 74°04' W; MZUC-UCCC - 32940; 32941)

D: BONP, SE Kalau Island (49°25' S, 75°27' W; MZUC-UCCC - 32942)

E: N Madre de Dios Island, Egg Channel (50°05' S, 75°07' W; MZUC-UCCC - 32943)

F: BONP, SO Peel Channel, 6 km Amalia Iceberg (50°57'

S, 73°46' W; MZUC-UCCC - 32944)

G: BONP, Norte Channel, 11 km SO Amalia Iceberg (50°03' S, 73°49' W; MZUC-UCCC - 32945)

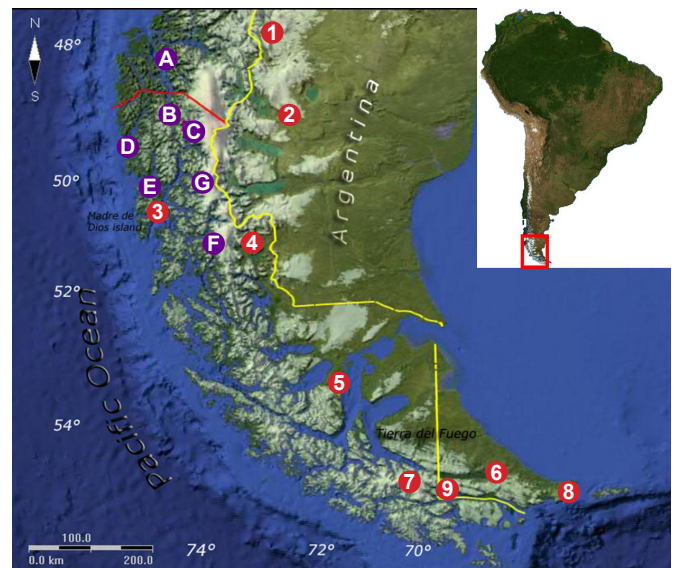


FIGURE 2. Recording localities for *Abrothrix lanosus*. The actual records known are marked with numbers from 1 to 9 (see Feijoo *et al.* 2009); the type locality is Madre de Dios Island (locality 3); and the new records (this article) are cited from A to G. Map done in the Earth Explorer 5.0.

Although the natural history of Chilean mammal species is among the best studied on the South American continent (Kelt 1994), the accidental geography and the difficult access of the extensive channel region between the Chonos Archipelago and the Magellan Strait hamper an appropriate collecting effort (Osgood 1943). The type locality of *A. lanosus* is situated within this zone, however, neither a topotype has been collected, nor were specimens reported from nearby localities (Teta *et al.* 2006; Feijoo *et al.* 2009). In the present contribution a topotype is reported for the first time, coming from the northern coast of Madre de Dios Island of the homonymous archipelago. The collection site ("E") is located *ca.* 30 km to the northwest of Monteith Sound. There, a single specimen was collected in an open, semi-inundated *Nothofagus*

TABLE 1. External measurements, weights (grams) and standard rodent skull measurements (mm) of *Abrothrix lanosus* specimens obtained in the Chilean Patagonia.

| MZUC-UCCC | 32938 | 32939 | 32940 | 32941 | 32942 | 32943 | 32944 | 32945 | | | | |
|--|-------|-------|-------|-------|--------|--------|-------|-------|-------|------|------|------|
| Locality | A | B | C | C | D | E | F | G | | | | |
| Sex | Male | Male | Male | Male | Female | Female | Male | Male | Mean | SD | Min | Max |
| Age class | 5 | 4 | 4 | 4 | 3 | 5 | 4 | 4 | | | | |
| Measurements | | | | | | | | | | | | |
| Total length | 173 | 168 | 170 | 160 | 158 | 175 | 157 | 167 | 166.0 | 6.89 | 157 | 175 |
| Head and body length | 102 | 98 | 100 | 83 | 92 | 105 | 87 | 100 | 95.9 | 7.74 | 83 | 105 |
| Tail length | 71 | 70 | 70 | 77 | 66 | 70 | 70 | 67 | 70.1 | 3.27 | 66 | 77 |
| Foot length with claw | 20 | 23 | 23 | 24 | 24 | 21 | 22 | 21 | 23.1 | 1.13 | 20 | 24 |
| Ear length | 11 | 12 | 12 | 12 | 12 | 13 | 12 | 12 | 12.0 | 0.53 | 11 | 13 |
| Weight | 20 | 23 | 22 | 24 | 24 | 21 | 22 | 21 | 22.1 | 1.46 | 20 | 24 |
| Greatest length of skull | - | 25.8 | 27.0 | 25.7 | 25.5 | 26.2 | 26.4 | 26.2 | 26.1 | 0.5 | 25.5 | 27.0 |
| Length of palate | - | 14.1 | 14.8 | 13.8 | 13.5 | 14.6 | 14.2 | 14.1 | 14.2 | 0.4 | 13.5 | 14.8 |
| Height of skull in the interorbital region | - | 7.4 | 7.4 | 7.5 | 7.6 | 7.4 | 7.3 | 7.5 | 7.4 | 0.1 | 7.3 | 7.6 |
| Breadth across the zygomatic arches | - | 12.1 | 11.9 | 11.7 | 11.9 | 12.8 | 12.2 | 12.3 | 12.1 | 0.4 | 11.7 | 12.8 |
| Length of mandible | - | 13.0 | 12.8 | 12.4 | 13.3 | 13.0 | 13.0 | 12.7 | 12.9 | 0.3 | 12.4 | 13.3 |
| Least interorbital breadth | - | 4.8 | 4.7 | 4.7 | 5.1 | 4.7 | 4.8 | 4.9 | 4.8 | 0.1 | 4.7 | 5.1 |
| Maxillary toothrow length | - | 3.7 | 3.7 | 3.5 | 3.8 | 3.9 | 3.6 | 3.6 | 3.7 | 0.1 | 3.5 | 3.9 |

betuloides-*Podocarpus nubigena* forest. The specimen was caught alive in the vicinity of a freshwater creek.

The northernmost collection was made on Van der Meulen Island ("A"), where a single specimen was caught in a peat bog dominated by *Cyperaceae*. The finding in that island extends on 300 km the northern distributional limit of the species in Chile to 48° S. With regards to the east-west extension of the distributional area, *A. lanosus* was recorded on Kalau Island next to the Wellington Archipelago, which builds part the channel region's western outpost at the border to the open Pacific Ocean. The relatively wide Picton Channel separate Kalau Island

from the Wellington Archipelago. The finding in Kalau Island ("D") extends nearly 30 Km the western distribution for *A. lanosus*. The survey site on Kalau Island was a moist coastal plain dominated by graminean vegetation where *A. lanosus* occurs in sympatry with *Oligoryzomys longicaudatus*.

It should be mentioned that *A. lanosus* was uncommon in the study area, given the fact that at twenty sample sites with over 1,200 traps set up, just 8 individuals were caught. Only at locality "C" two specimens were caught (Glaciar Pio XI), whereas at the other sites just one individual was collected, reflecting the low abundance of the species (in accordance with Galliari and Pardiñas 1999). All species were captured in peat bogs, *Nothofagus* forests, or low matorral. All habitats are characterized by being very moist and associated with the coast. With regards to the rodent fauna of the area, there is just very little information available. Species mentioned for the zone are: *Abrothrix olivaceus markhami* (Pine 1973; Rodríguez-Serrano *et al.* 2008), *Oligoryzomys longicaudatus*, and *Loxodontomys micropus* (Markham 1979). Neither the cited publications, nor other, more general compilations (Markham 1971; Venegas and Sielfeld 1998), report *A. lanosus* to be present in Chile at latitudes south of 50°S, whereas they do for Argentina (Galliari and Pardiñas 1999). So, the findings presented here extend the distribution of the species in this poorly known region of the Chilean Patagonia.

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FIGURE 3. ReSkull, mandible and teeth of *Abrothrix lanosus* from Egg Channel in Madre de Dios Island (locality E; MZUC-UCCC - 32943). From up to bottom: dorsal, ventral and lateral skull views, left mandible in lateral view, and right tooththrow from mandible. Topotype MZUC-UCCC - 32943 (catalogue number); JG 282 (Jonathan Guzmán field number).

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