



Microsciurus santanderensis (Rodentia: Sciuridae)

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Abstract: *Microsciurus santanderensis* (Hernández-Camacho, 1957) is a sciurid commonly called the Santander dwarf squirrel. *M. santanderensis* is a small tree squirrel with orange and black mixed fur and is 1 of 4 species in the genus *Microsciurus*. Endemic to Colombia, South America, in forests at elevations up to 3,800 m, *M. santanderensis* is listed as “Data Deficient” by the International Union for Conservation of Nature and Natural Resources, and more research is needed to determine its conservation needs.

Key words: Colombia, endemic, rodent, Santander dwarf squirrel, South America

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Microsciurus santanderensis (Hernández-Camacho, 1957)

Santander Dwarf Squirrel

Sciurus pucheranii santanderensis Hernández-Camacho, 1957.

Type species. Type locality “Meseta de Los Caballeros, 5 Km NW of La Albania, Municipality of San Vicente de Churrurí, Santander, Colombia.”

Microsciurus santanderensis: Hernández-Camacho, 1960. First use of current name combination.

CONTEXT AND CONTENT. Order Rodentia, suborder Sciuromorpha, family Sciuridae, subfamily Sciurinae. The genus *Microsciurus* is polyphyletic (Villalobos and Gutierrez-Espeleta 2014); the number of species recognized varies in the literature. A total of 11 species (3 in Central America and 8 in South America) are recognized by de Vivo and Carmignotto (2015) and 4 species (2 in Central America and 2 in South America) are currently recognized by Koprowski et al. (2016). Here we follow Koprowski et al. (2016) and recognize: *M. alfari* (Central American dwarf squirrel), *M. flaviventer* (Amazon dwarf squirrel), *M. mimulus* (western dwarf squirrel), and *M. santanderensis* (Santander dwarf squirrel). *M. santanderensis* is monotypic (de Vivo and Carmignotto 2015; Koprowski et al 2016).

NOMENCLATURAL NOTES. *Microsciurus santanderensis* was originally included as a subspecies of *Sciurus pucheranii* (Andean squirrel), but is now recognized as a separate species (Hernández-Camacho 1957; Cabrera 1960); however, the generic affinity and monophyly remain questionable (de Vivo and Carmignotto 2015). The type specimen is housed in the Instituto de Ciencias Naturales, Universidad Nacional de Colombia (ICN # 416—Ramírez-Chaves 2011).

Microsciurus is derived from the Greek, *mikros*, meaning small, *skia*, meaning shadow, and *oura*, meaning tail (Gotch 1996). The specific epithet refers to the department of Santander in Colombia where the type specimen was collected. The English common name for *M. santanderensis* is the Santander dwarf squirrel (Wilson and Cole 2000; Wilson and Reeder 2005). Spanish common names for *M. santanderensis* are arditia pioja, ardilla pioja (Hernández-Camacho 1957) and ardilla pioja or rabicana (Pérez-Torres and Correa Q. 1997; Donegan et al. 2004).

DIAGNOSIS

The distribution of *Microsciurus santanderensis* overlaps to an unknown extent with those of *M. alfari*, *M. flaviventer*, *M. mimulus*, *Sciurus granatensis* (red-tailed squirrel), and the Andean squirrel, so sympatry among these species is possible in

portions of their ranges. *M. santanderensis* lacks the white subauricular spots of *M. alfari* and the pale yellow postauricular patch of *M. flaviventer*, and is longer in total length (272–308 mm) than either *M. alfari* (228–240 mm) or *M. mimulus* (235–268 mm—Eisenberg 1989; Thorington et al. 2012). *M. santanderensis*, besides lacking the distinctive red pelage and tail, is shorter in total length than the red-tailed squirrel (340–565 mm—Thorington et al. 2012). *M. santanderensis* is shorter in total length than the Andean squirrel (324–341 mm), and sympatry between these 2 species may be restricted to higher elevations (2,200–3,500 m—Leonard et al. 2009; Thorington et al. 2012).



Fig. 1.—Ventral, lateral, and dorsal views of a prepared specimen of *Microsciurus santanderensis* (male from La Albania, Mesa de Los Caballeros, Santander, Colombia; Colección de Mamíferos Alberto Cadena García, ICN [Instituto de Ciencias Naturales, Colombia] # 416). Photographs by E. Rudas Burgos and H. Agudelo Zamora used with permission.

GENERAL CHARACTERS

Microsciurus santanderensis is a small tree squirrel (Fig. 1; Hernández-Camacho 1957). Total length (mm) is 272–308, tail length 136–152, hind foot length 42–45, and ear length 15–18 ($n = 5$ —Hernández-Camacho 1960). Females are slightly larger than males (Hayssen 2008).

Microsciurus santanderensis has an ochraceous-orange (all color descriptions follow Hernández-Camacho 1957) dorsal and lateral pelage mixed with black, and a black middorsal line. The pelage of upperparts is relatively short, with 5–6 mm middorsal hairs. The forearms are similar in color to the sides of the body, gradually becoming lighter forward, and light pinkish-cinnamon near the toes. The venter is pinkish buff. Postauricular spots are absent, but subauricular spots are light ochraceous-buff. The ears are covered inside by short orangish hairs. The back of the crown has a large blackish spot. The rostrum and orbital ring are pinkish-cinnamon. The forehead is ochraceous-orange, finely mixed



Fig. 2.—Dorsal, ventral, and lateral views of skull and lateral view of mandible of *Microsciurus santanderensis* (male from Puerto Wilches, Sabana de Torres, Santander, Colombia; Museo de Historia Natural, UIS-M [Universidad Industrial de Santander, Colombia] specimen # 035). Greatest length of skull is 36.06 mm. Photograph by J. G. Moreno-Patiño used with permission.



Fig. 3.—Geographic distribution of *Microsciurus santanderensis* in Colombia.

with black. The cheeks are a dirty ochraceous-buff. The chin is washed with dirty ochraceous-yellow, with light buff borders around lips. The feet are covered with short and dense cinnamon hairs, becoming pinkish-cinnamon around the toes. The heels are cadmium yellow coloration. *M. santanderensis* has moderately short ears, and, in proportion to its body, a long and relatively narrow tail, tipped with pure white hairs. The ventral side of the tail is buff and mixed with black. The mystacial vibrissae are black and up to 39–43 mm in length, supraorbital and genal vibrissae are black, and the mandibular vibrissae are short and whitish (Fig. 1; Hernández-Camacho 1957; Hernández-Camacho 1960).

Cranial measurements (mm) from the holotype (Fig. 2) were: nasal length, 10; interorbital breadth, 13.3; palatal length, 18.5; palatilar length, 15.8; diastema, 9.3; distal breadth of rostrum, 6.7; and maxillary tooththrow length, 7.85 (Hernández-Camacho 1957).

DISTRIBUTION

Microsciurus santanderensis is endemic to Colombia, South America, and occurs in the rainforests between the Magdalena River and the western slopes of the Cordillera Oriental (Hernández-Camacho 1960; Rodríguez-Mahecha et al. 2006; Koprowski and Roth 2008; de Vivo and Carmignotto 2015) within the Caribbean and Andean zones (Fig. 3; Alberico et al. 2000; Alberico and Rojas-Dias 2002). *M. santanderensis*

is reported from the departments of Antioquia, Bolívar, César, Córdoba, and Santander in forests from 100–1,000 m and 2,700–3,800 m in elevation (Hernández-Camacho 1960; Alberico et al. 2000; Alberico and Rojas-Dias 2002; Institute of Natural Sciences, Faculty of Science, National University of Colombia 2004; Thorington et al. 2012); *M. santanderensis* was absent in the most recent survey in Antioquia (Cuartas and Muñoz-Arango 2003). The species has been confused with the Andean squirrel; thus, the distribution of *M. santanderensis* is poorly known (Thorington et al. 2012; de Vivo and Carmignotto 2015).

FORM AND FUNCTION

The skull of *Microsciurus santanderensis* is similar to that of the Andean squirrel but has a slightly longer rostrum. Incisors are ochraceous-orange (Hernández-Camacho 1957). The dental formula is: $i\ 1/1$, $c\ 0/0$, $p\ 2/1$, $m\ 3/3$, total 22 (Pérez-Torres and Correa Q. 1997). The anterior premolar (PM3) is absent (Hernández-Camacho 1957).

ECOLOGY

Little is known about the ecology of *Microsciurus santanderensis*, other than its distribution in humid forests in the low to mid elevations in the Cordillera de La Paz, Colombia (de Vivo and Carmignotto 2015). *M. santanderensis* is arboreal and diurnal (Thorington et al. 2012), and is often associated with oak

forests (Otálora 2003; Sáenz-Jiménez 2010) and humid low elevation forests (de Vivo and Carmignotto 2015). Although its distribution likely overlaps with those of other tree squirrels such as *M. alfari*, *M. flaviventer*, *M. mimulus*, the red-tailed squirrel, and the Andean squirrel, nothing is known of interspecific interactions (Thorington et al. 2012). More research is necessary on all aspects of the biology of this species.

CONSERVATION

Microsciurus santanderensis is currently listed as “Data Deficient” by the International Union for Conservation of Nature and Natural Resources (Koprowski and Roth 2008). Major threats to this species are unknown, and further research is needed to determine its conservation needs.

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