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Akodon serrensis Thomas, 1902 (Mammalia: Rodentia: Sigmodontinae): Records in Santa Catarina state, southern Brazil

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ABSTRACT: We report *Akodon serrensis* Thomas, 1902 from three localities in the state of Santa Catarina, in southern Brazil. The specimens were identified based on cytogenetic and craniometric analyses. These are the first records of *A. serrensis* collected in Santa Catarina, which extend the range of this species ca. 330 km S.

The genus *Akodon* includes small-sized rodents, which have tail length little smaller than the head and body length, a light to dark brown dorsal color, and lack a defined limit between the dorsal and ventral colors. The ventral hairs of this genus have a grayish base and grayish-yellow or grayish-white apex (Bonvicino *et al*. 2008). Forty-one species of *Akodon* are recognized in South America (Musser and Carleton 2005), 10 of which occur in Brazil (Oliveira and Bonvicino 2006). Only two species were known from the state of Santa Catarina, in southern Brazil (Cherem *et al*. 2004). These are *A. montensis* Thomas, 1913, with the diploid number (2n) = 24 and the number of autosomal arms (FNa) = 42, and a taxon with 2n = 44 and FNa = 44, which has been treated as *A. reigi* González *et al*., 1998 or *A. paranaensis* Christoff *et al*., 2000 (see Pardiñas *et al*. 2003; Gonçalves *et al*. 2007; D'Elía *et al*. 2008).

In this paper, a third species of *Akodon* from Santa Catarina, *A. serrensis* Thomas, 1902, is reported. This species was thought to possibly occur in the state (Cherem *et al*. 2004; Bonvicino *et al*. 2008), but no records of voucher specimens have been reported in the literature.

Akodon serrensis was described by Thomas (1902) based on five males from Roça Nova, in the state of Paraná, in southern Brazil. The diagnostic characters cited by Thomas (1902) include the rich ochraceous color of the tips of its belly hairs, the ochraceous color of its inguinal region, and the proportions of its skull as well very large molars (in proportion). Karyologically, *A. serrensis* shows 2n = 46 and FNa = 46 (Geise *et al*. 1998; Christoff *et al*. 2000). Phylogenetically, some molecular analyses (*e.g.*, D'Elía 2003) identified a sister group relationship between *A. serrensis* and *Thaptomys*. If so that species would falls outside the *Akodon* genus, besides major morphological similarities to *Akodon* rather than *Thaptomys*.

Akodon serrensis has been reported from the Brazilian states of Paraná, São Paulo, Rio de Janeiro, Espírito Santo and Minas Gerais, in mountainous and upper mountainous woodlands in the Atlantic Forest biome and in high-altitude grasslands (Geise *et al*. 1998; Hershkovitz 1998; Christoff *et al*. 2000; Geise *et al*. 2001; Bonvicino *et al*. 2002; Geise *et al*. 2004). Pereira *et al*. (2005) reported *A. serrensis* for the Misiones province, in Argentina.

The first records of *A. serrensis* for the state of Santa Catarina are from three localities, which extend the range of this species ca. 330 km S: State Biological Reserve of Sassafrás (REBio Sassafrás) (26°42' S, 49°40' W, 950 m), Doutor Pedrinho county; Alto da Boa Vista (27°42' S, 49°09' W, 1200 m), Rancho Queimado county; and Gateados Farm (27°58' S, 50°49' W, 920-1000 m), Campo Belo do Sul county (Figures 1-2). These localities are found within the Atlantic Forest biome, in the *Floresta Ombrófila Mista* ecosystem. In Alto da Boa Vista, *A. serrensis* was captured along the edges of forest fragments, near high-altitude grasslands, which are used as cattle pastures.

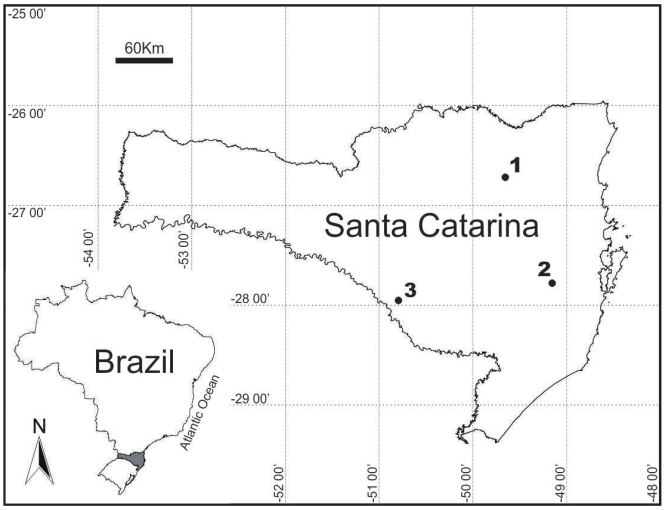

FIGURE 1. Collecting localities of *Akodon serrensis* in the state of Santa Catarina, southern Brazil: 1) State Biological Reserve of Sassafrás, Doutor Pedrinho; 2) Alto da Boa Vista, Rancho Queimado; 3) Gateados Farm, Campo Belo do Sul.

Figure 2. *Akodon serrensis* (UFSC 3805) from Alto da Boa Vista, Rancho Queimado county, Santa Catarina, southern Brazil.

Ten specimens of *A. serrensis* were collected (IBAMA license numbers: 016/08 and 11743-1) and housed at the Scientific Collection of Animal Biology Laboratory of the Universidade Regional de Blumenau (FURB), Blumenau, and at the Mammal Scientific Collection of the Universidade Federal de Santa Catarina (UFSC), Florianópolis, which are both in the state of Santa Catarina (Table 1). Tissue samples for DNA analysis were taken from the vouchers and housed at the same institutions.

These specimens of *A. serrensis* are dorsally dark brown and ventrally ochraceous, mainly within the inguinal region. In relation to the other two species of *Akodon* from Santa Catarina, all *A. serrensis* examined can be distinguished by their relatively broad cranial case, wider interorbital region, short rostrum and nasals, longer palate and larger molars, without anteromedian flexum/flexid in first upper molar (Figure 3), even in younger specimens.

The specimens from REBio Sassafrás and Gateados Farm were cytogenetically analysed, through direct preparation of marrow according to Ford and Hamerton (1956), with modifications proposed by Sbalqueiro and Nascimento (1996). A karyotype of 2n = 46 and Fna = 46 was obtained, the same reported for specimens from the states of Paraná, São Paulo, Rio de Janeiro and Espírito Santo (Geise *et al*. 1998; Christoff *et al*. 2000; Cáceres 2004).

The new records of *A. serrensis* from Santa Catarina, which were recently collected, indicate that the mammals of this state have not been well surveyed, even in coastal regions where most studies about mammals have occurred. It also indicates the importance of biological collecting and adequate housing of scientific collections, even though there is public opposition and criticism of these activities, especially for "charismatic megafauna" (Patterson 2002).

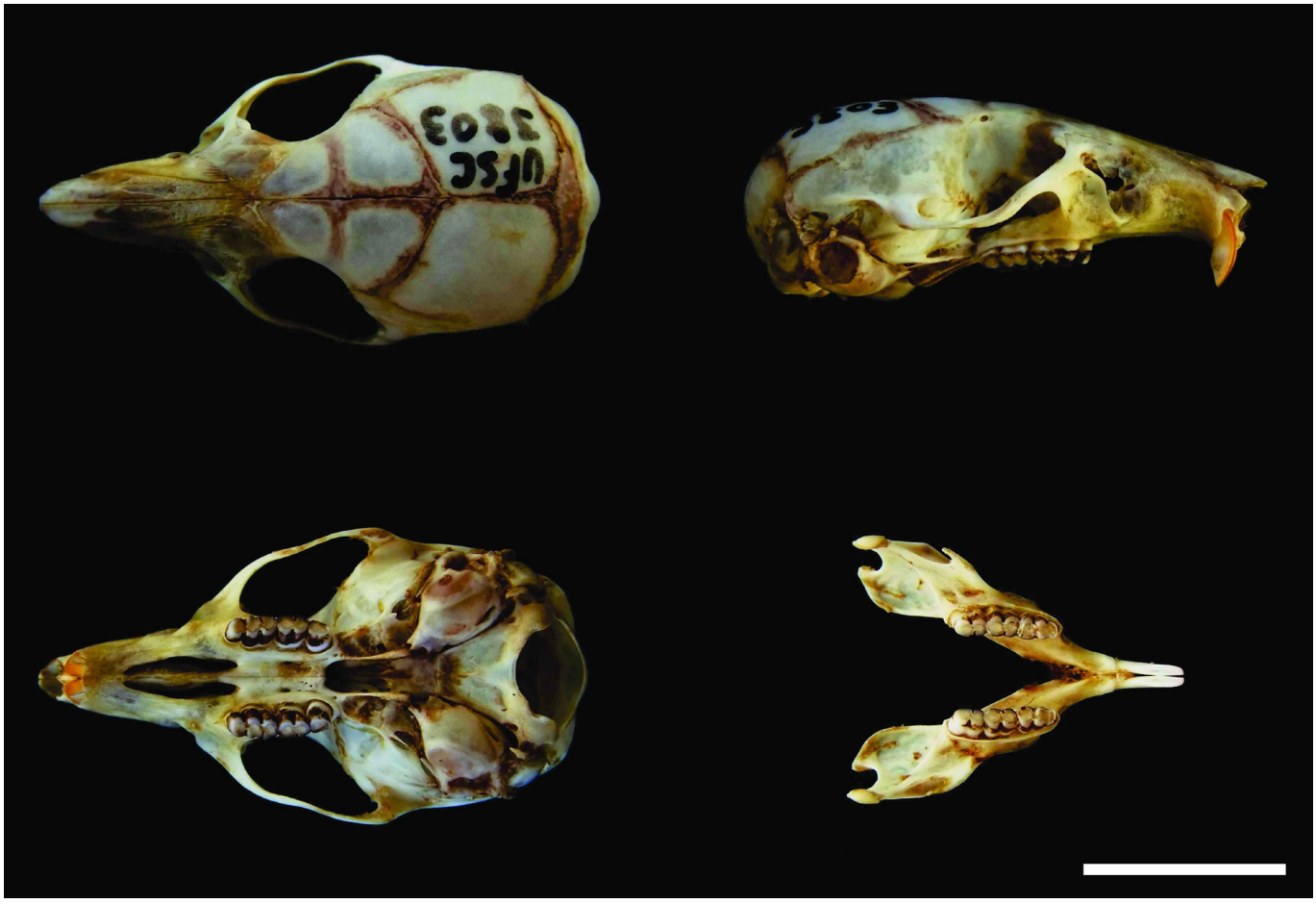

Figure 3. Dorsal, ventral and lateral view of skull and occlusal view of mandible of *Akodon serrensis* (UFSC 3803) from Alto da Boa Vista, Rancho Queimado county, Santa Catarina, southern Brazil (bar = 10mm).

Table 1. Locality, catalog number, date, sex, external measurements (in mm) and weight (in g) of specimens of Akodon serrensis from Santa Catarina state, southern Brazil. F, female; I, sex unknown; M, male; W, body mass; TO, total length; TL, tail length; E, ear length; HFC, hind foot length with claw; HF, hind foot length without claw.

LOCALITY	NUMBER	DATE	SEX	W	TO	TL	E	HFC	HF
Doutor Pedrinho	FURB 12135	19 VIII 2006	M	27	165	75	19	22.3	20.3
	FURB 12139	19 VIII 2006	F	26	165	70	17	21.7	19.4
	FURB 12248	03 XI 2006	F	20	-	-	-	-	-
	FURB 12249	03 XI 2006	I	20	-	-	-	-	-
	FURB 12702	06 VI 2008	M	26	167	78	15	25	23.5
Campo Belo do Sul	FURB 12234	23 X 2006	F	22	163	74	19	24	22
Rancho Queimado	UFSC 3698	02 V 2008	F	27	174	82	18	26	24
	UFSC 3802	18 VI 2008	M	24	180	84	17	25.5	23.5
	UFSC 3803	19 VI 2008	F	20	168	80	16	24	22
	UFSC 3805	20 VIII 2008	M	20	180	86	17.5	26	24.5

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