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Notes on Geographic Distribution

Rhinella scitula (Caramaschi & Niemeyer, 2003) (Amphibia: Anura: Bufonidae): New distribution records

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Abstract: *Rhinella scitula* is a small frog belonging to the *R. margaritifera* group that is found in southwestern and central Mato Grosso do Sul, Brazil, and in the provinces of Amambay and Concepcion in Paraguay. We extend the distribution of the species across the north and the southeast prior distribution limit, and provide an updated map. The distribution of *R. scitula* encompasses mainly areas with seasonal forests and mountainous landscape in central-western Brazil and northeastern Paraguay.

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Rhinella scitula is a small bufonid (snout-vent length 34–46 mm in males and 46–51 mm in females) belonging to *R. margaritifera* group that is found mainly on the margins of temporary or permanent streams within gallery forest (Caramaschi and Niemeyer 2003). Its reproduction takes place in small streams after rainfalls (explosive pattern), where males call mainly during twilight (Caramaschi and Niemeyer 2003). The geographical distribution of the species within Brazil is known to range from southwestern to central state of Mato Grosso do Sul (Caramaschi and Niemeyer 2003; Maragno and Souza 2007). It is also recorded in Paraguay, near the border with Brazil, in the provinces of Amambay and Concepcion (Brusquetti and Lavilla 2006).

Recently, we recorded this species in the municipalities of Amambai (Campanário farm) and Bela Vista (Xerez farm), state of Mato Grosso do Sul, Brazil (Table 1). The recording in Amambai extends the species distribution about 120 km southeast of the previous distribution limit (Concepcion department, Paraguay; Brusquetti and Lavilla 2006). The recording in Bela Vista fills the distribution gap between the populations in Brazil and Paraguay. Only the individuals from Amambai were collected (ICMBio 10379-1) and subsequently deposited in the Zoological Collection of Universidade Federal de Mato Grosso do Sul — UFMS (ZUFMS AMP2991-2992).

While reviewing the Zoological Collection of UFMS, we found two specimens collected in the Pantanal floodplain (ZUFMS AMP 1579 and AMP 2621; Figure 1), near the northern limit of the Bodoquena mountain range. Both specimens were collected near UFMS research station (Table 1). The first individual (ZUFMS AMP 1579) was collected in 12 July ,1990, and the second (ZUFMS AMP 2621) in 8 December, 1991. These are the only recordings of this species in the Pantanal, and extend the species distribution about 170 km north of the prior distribution limit (Estância Mimosa Ecotourism; Ávila *et al.* 2010; Frost 2013). There is one species from the *R. margaritifera* group that was known to occur in Pantanal floodplain (*R. paraguayensis*), which differs from *R. scitula* by the larger snout vent length (SVL; 42.2–52.6 mm in males and 51–53.3 mm in females of *R. paraguayensis*; 33.8–46.1 mm in males and 45.9–50.5 mm in females of *R. scitula*), rounded snout in lateral view (subacuminate snout in *R. scitula*), well developed and larger postorbital crest (more than 4.4 mm in *R. paraguayensis*; 2.8–4.4 mm in *R. scitula*), and more granulose skin on dorsum (smoother in *R. scitula*; Ávila *et al.* 2010). We compared the two specimens deposited in UFMS zoological collection to the diagnosis and photos provided by Ávila *et al.* (2010) to confirm their identification as *R. scitula*. Both individuals have subacuminate snout in lateral view, poorly developed postorbital crest and skin on dorsum smoother than *R. paraguayensis* (Figure 1). The first individual (ZUFMS AMP 1579, Figure 1A and B) is a subadult, with 30 mm of SVL and 2.9 mm of postorbital crest length. The second individual (ZUFMS AMP 2621, Figure 1C and D) is an adult female (eggs were visible through the abdomen skin), with 49.4 mm of SVL and 3.9 mm of postorbital crest length.

Here we present an updated distribution map (Figure 2) with the recordings of the Amambai, Bela Vista and Corumbá municipalities, in addition to nine records that fill the distribution gaps and are not cited in previous maps (Ávila *et al.* 2010; Frost 2013). Of these nine records (Table 1), seven are located in Bodoquena mountain range, including four obtained from Uetanabaro *et al.* (2007: Rancho Branco farm, municipality of Bodoquena; Remanso farm, municipality of Bodoquena; Laudejá farm, municipality of Bonito; and Harmonia farm, municipality of Porto Murtinho) and three obtained from specimens

at the Zoological Collection of UFMS (Taquaral River, municipality of Bonito, ZUFMS AMP 2814-2821; Sol de Maio farm, municipality of Bodoquena, ZUFMS AMP 2825; and Cabeceira do Prata farm, municipality of Jardim, ZUFMS AMP 2554 and 2568). We also include one recording in "Parque Natural Municipal Cachoeiras do Apa", municipality of Porto Murtinho (not collected), and one record in Camisão district, municipality of Aquidauana (ZUFMS AMP 2354). Besides the new records, we include six localities (Table 1) previously listed in articles or internet databases (Ávila *et al.* 2010; Frost 2013): one record in the species type locality (Estância Mimosa Ecotourism), municipality of Bonito (Caramaschi and Niemeyer 2003); one in Vale das Bruxas, municipality of Aquidauana (Maragno and Souza 2007); and four in Paraguay (two in the province of Amambay and two in the province of Concepcion) (Brusquetti and Lavilla 2006), near the border with Brazil (Figure 2).

Rhinella scitula is abundant in seasonal forest areas with rocky outcrops (Uetanabaro *et al.* 2007). Its distribution covers mainly mountainous areas in the southwest of Mato Grosso do Sul, Brazil, and in Paraguay near the border with Brazil (Figure 2), with altitudes varying from about 100 m to about 700 m. Less commonly, this species can be found in lower-elevation areas with flat terrain, like the Pantanal, though only close to mountain ranges. This suggests that *R. scitula* has high displacement capacity, although it is mainly associated with both seasonal forests and mountainous areas due to the abundance of calling and reproductive sites (Caramaschi and Niemeyer 2003).

The occurrence of *R. scitula* in Pantanal is restricted to areas near the northern limit of Bodoquena mountain range (see locality 4 in Figure 2). It is probable that this species also occur in areas with granitic-gneissic mounds and outcrops in the municipality of Porto Murtinho, west of Bodoquena mountain range.

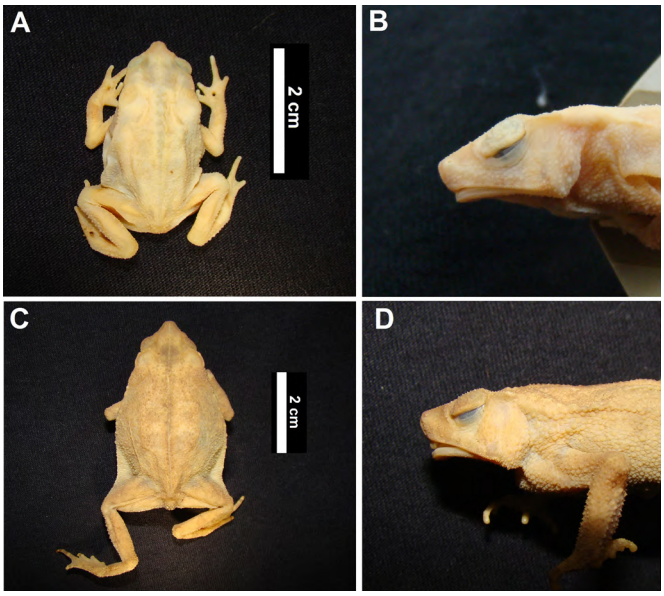

Figure 1. *Rhinella scitula* collected in UFMS research station, municipality of Corumbá, Mato Grosso do Sul state, Brazil. A) Dorsal view of ZUFMS AMP 1579. B) Snout of ZUFMS AMP 1579 in lateral view. C) Dorsal view of ZUFMS AMP 2621. D) Snout of ZUFMS AMP 2621 in lateral view.

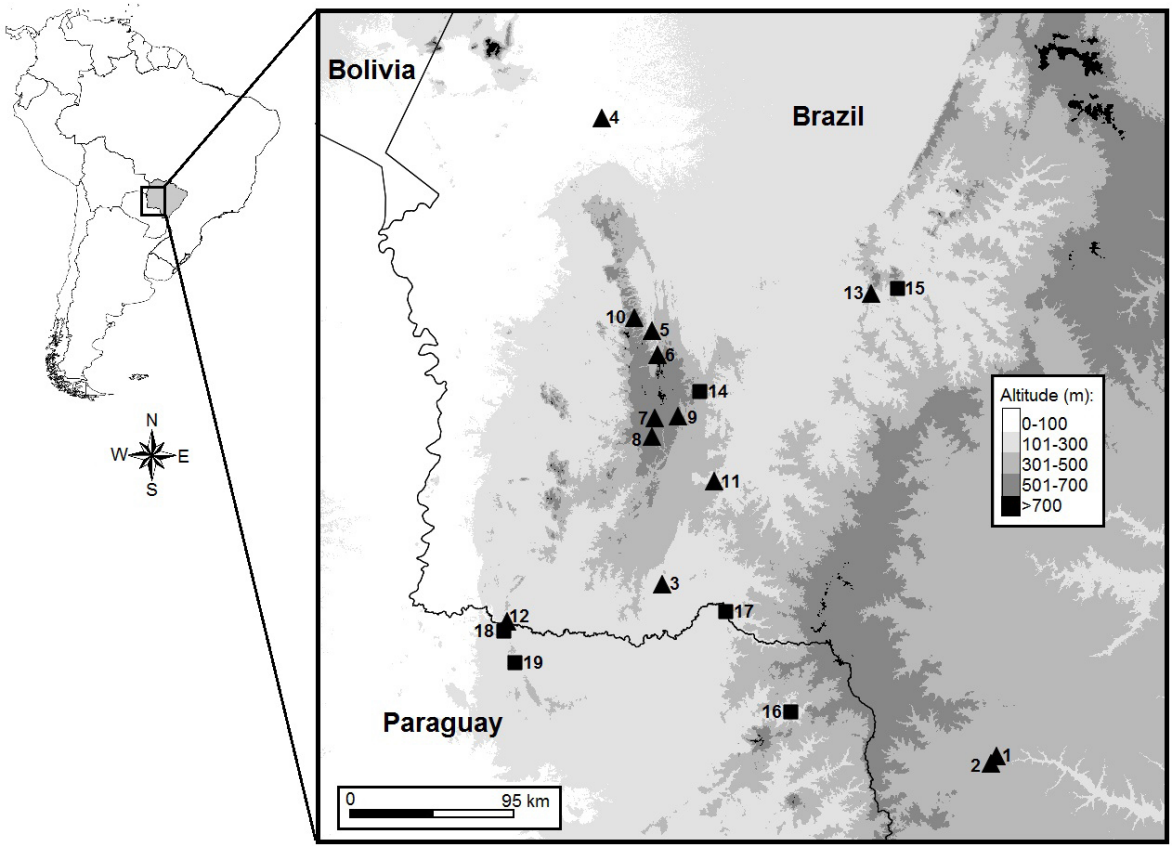

Figure 2. Geographic distribution map of *Rhinella scitula*. Triangles are records from the present work, and squares are records from the literature. The localities are: 1 and 2) Campanário farm; 3) Xerez farm; 4) UFMS Pantanal research station; 5) Rancho Branco farm; 6) Remanso farm; 7) Laudejá farm; 8) Harmonia farm; 9) Taquaral river; 10) Sol de Maio farm; 11) Cabeceira do Prata farm; 12) Parque Natural Municipal Cachoeiras do Apa; 13) Morcego stream, Camisão district; 14) Type locality, Estância Mimosa Ecotourism; 15) Vale das Bruxas; 16) National Park Cerro Corá, department of Amambay, Paraguay; 17) Bella Vista, department of Amabay, Paraguay; 18) National Park Serrania de San Luis; 19) Estância San Luis.

Table 1. Geographic coordinates of the 19 localities cited in *Rhinella scitula* distribution map.

LOCALITY NUMBER	LOCALITY NAME	GEOGRAPHIC COORDINATES	REFERENCES
1	Campanário farm, municipality of Amambai	22°51′43.22″ S, 54°59′13.21″ W	Present study
2	Campanário farm, municipality of Amambai	22°53′52.36″ S, 55° 0′55.76″ W	Present study
3	Xerez farm, municipality of Bela Vista	21°58′44.20″ S, 56°42′32.01″ W	Present study
4	UFMS research station, municipality of Corumbá	19°34′36.00″ S, 57° 1′7.00″ W	Present study
5	Rancho Branco farm, municipality of Bodoquena	20°40′14.00″ S, 56°45′38.00″ W	Uetanabaro *et al.* (2007)
6	Remanso farm, municipality of Bodoquena	20°47′38.65″ S, 56°44′5.02″ W	Uetanabaro *et al.* (2007)
7	Laudejá farm, municipality of Bonito	21° 7′12.85″ S, 56°44′55.73″ W	Uetanabaro *et al.* (2007)
8	Harmonia farm, municipality of Porto Murtinho	21°13′3.11″ S, 56°45′38.33″ W	Uetanabaro *et al.* (2007)
9	Taquaral river, municipality of Bonito	21° 6′39.65″ S, 56°37′46.10″ W	Present study
10	Sol de Maio farm, municipality of Bodoquena	20°36′12.05″ S, 56°51′5.42″ W	Present study
11	Cabeceira do Prata farm, municipality of Jardim	21°26′52.39″ S, 56°26′25.65″ W	Present study
12	Cachoeiras do Apa, municipality of Porto Murtinho	22°10′13.17″ S, 57°30′35.34″ W	Present study
13	Camisão district, municipality of Aquidauana	20°28′45.14″ S, 55°38′7.17″ W	Present study
14	Estância Mimosa, municipality of Bonito	20°58′59.88″ S, 56°30′59.76″ W	Caramaschi and Niemeyer (2003)
15	Vale das Bruxas, municipality of Aquidauana	20°27′23.01″ S, 55º29′55.70″	Maragno and Souza (2007)
16	NP Cerro Corá, department of Amambay	22°37′60.00″ S, 56° 2′60.00″ W	Brusquetti and Lavilla (2006)
17	Bella Vista, department of Amabay	22° 7′0.00″ S, 56°22′60.00″ W	Brusquetti and Lavilla (2006)
18	NP Serrania San Luis, department of Concepcion	22°12′58.17″ S, 57°31′37.31″ W	Brusquetti and Lavilla (2006)
19	Estância San Luis, department of Concepcion	22°22′60.00″ S, 57°28′0.00″ W	Brusquetti and Lavilla (2006)

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