

NOTES ON GEOGRAPHIC DISTRIBUTION

**Amphibia, Anura, Cycloramphidae, *Proceratophrys bigibbosa* (Peters, 1872)
and *Proceratophrys brauni* Kwet and Faivovich, 2001:
Distribution extension and new state record**

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Proceratophrys Miranda-Ribeiro, 1920 includes 18 species of cycloramphids (Frost 2009) commonly known as the smooth horned frogs (Frank and Ramus 1995). As indicated by the group's common name, the eyelids of many species are adorned with elongate dermal appendages (for review see Prado and Pombal 2008). Several other species of *Proceratophrys* lack conspicuous palpebral appendages, including the type species *P. bigibbosa* (Peters 1872) and *P. brauni* Kwet and Faivovich 2001. These species are included in the *P. bigibbosa* species group, which was characterized by Lynch (1971) as lacking hornlike palpebral appendages and having a short, blunt snout, postocular cranial protuberances, and large marginal tubercles on eyelids.

Proceratophrys brauni differs from *P. bigibbosa* in smaller body size, less extensive toe webbing, rows of tubercles more distinctive on the dorsum, weaker postocular cranial protuberances, and in characteristics of the advertisement call (e.g. shorter call duration and number of pulses in *P. brauni*) (Kwet and Faivovich 2001). Males of both species call from streamlets of clear, flowing water, but *P. bigibbosa* breeds in the spring (September to November) and calls mainly at night (occasionally during the day), whereas *P. brauni* breeds in the summer (November to February) and calls as much during the day as at night (Kwet and Di-Bernardo 1999; Kwet and Faivovich 2001). Eggs and tadpoles are unknown. (Kwet and

Di-Bernardo 1999) To date *Proceratophrys bigibbosa* and *P. brauni* have been recorded at few localities (Figure 1). The species inhabit montane regions with subtropical moist forest, from 300 to 1200 m elevation (Kwet and Di-Bernardo 1999; Kwet and Faivovich 2001).

Proceratophrys bigibbosa was previously reported from southeastern Brazil, in state of Rio Grande do Sul, municipalities of Arroio do Tigre, Canela, Nova Petrópolis, São Francisco de Paula, Sertão, and Sinimbu, and in state of Santa Catarina, municipalities of Chapecó and Guatambu. It was also recorded from northeastern Argentina, province of Misiones, municipality of Dos de Mayo and Parque Provincial Moconá (Braun 1973; Braun and Braun 1980; Kwet and Di-Bernardo 1999; Kwet and Faivovich 2001; Lavilla et al. 2002; Zanella and Busin 2007; Kwet 2008; Lucas and Fortes 2008).

Proceratophrys brauni is endemic to southern Brazil and has only been reported from states of Rio Grande do Sul (municipalities of Barracão, Cambará do Sul, and São Francisco de Paula) and Santa Catarina (municipality of Timbé do Sul) (Braun and Braun, 1980; Kwet and Faivovich 2001). Here we report new records that expand the distribution for both species based on material housed in the *Coleção Herpetológica do Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul* (MCP), and

Coleção Herpetológica, Departamento de Zoologia, Universidade Federal do Rio Grande do Sul (UFRGS).

As summarized in Table 1, we examined specimens of *Proceratophrys bigibbosa* from five new localities in the state of Rio Grande do Sul and two in state of Santa Catarina. We also examined new material of *P. brauni* from two new localities in Rio Grande do Sul, two in Santa Catarina, and one in Paraná. These new records include the first record of *P. brauni* in state of Paraná. The intermediate localities near published records were expected (Zanella and Busin 2007), but our new records expand the distribution of *P. bigibbosa* 70 km further

southeast and of *P. brauni* 260 km further north. Based on these limited locality data, we suggest that *P. bigibbosa* has a more southern distribution, ranging across the southern part of the south Brazilian highlands and adjacent Argentina, and that *P. brauni* has a more northern distribution, occurring in the northern part of the south Brazilian highlands and probably extending into Santa Catarina. Kwet and Faivovich (2001) reported *Proceratophrys bigibbosa* and *P. brauni* in sympatry at a locality in Rio Grande do Sul, and here we report sympatry of these species at another three localities in Rio Grande do Sul and Santa Catarina states (Bom Jesus, Anita Garibaldi and Campo Belo do Sul) (Table 1).

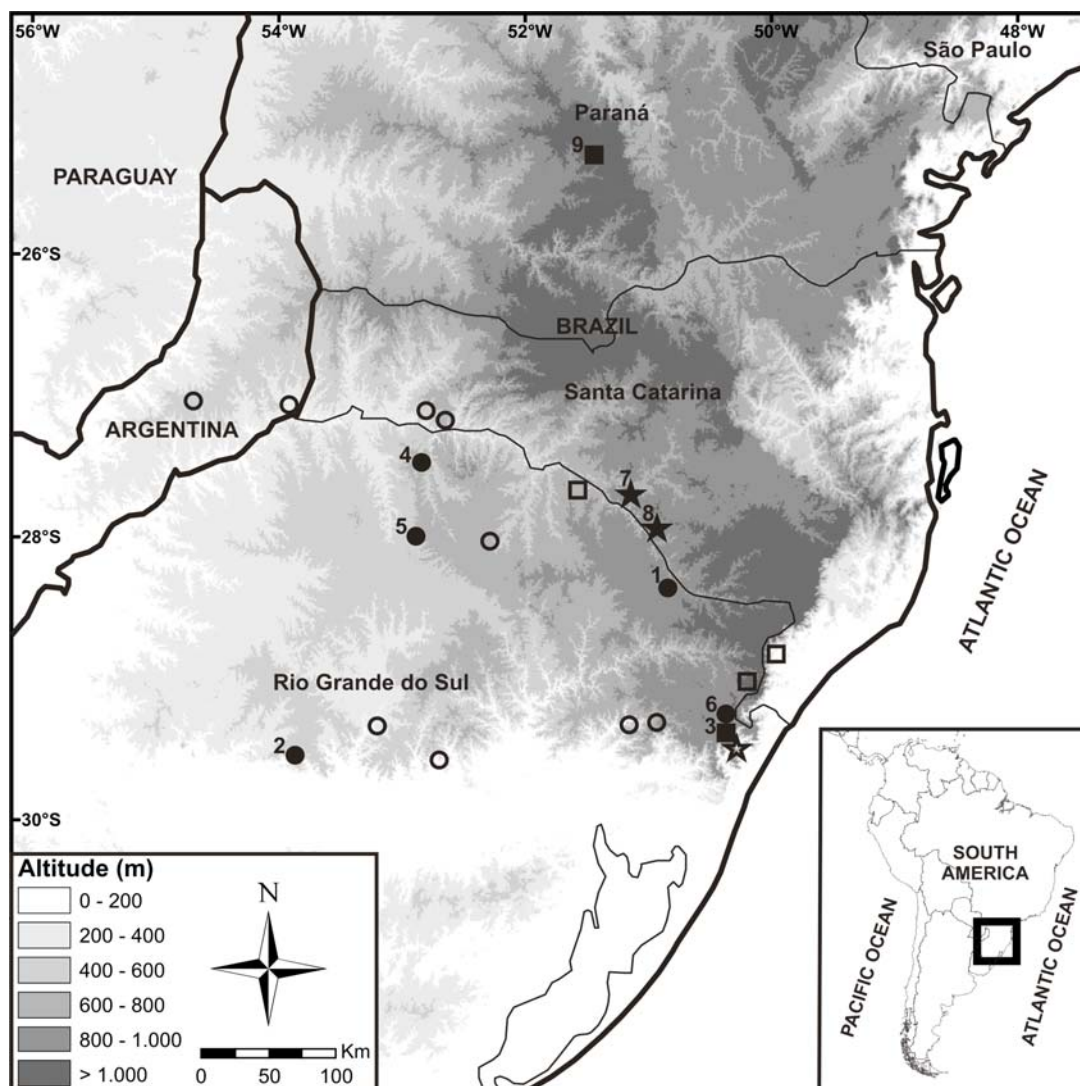


Figure 1. Collection localities of *Proceratophrys bigibbosa* and *P. brauni* in northeastern Argentina and southern Brazil. All new records are numbered 1–9 and are detailed in Table 1. References for published records are given in the text. Solid circles: new records of *P. bigibbosa* in isolation. Solid squares: new records of *P. brauni* in isolation. Solid star: new records of *P. bigibbosa* and *P. brauni* in sympatry. Open circles: published records of *P. bigibbosa* in isolation. Open squares: published records of *P. brauni* in isolation. Open star: published record of *P. bigibbosa* and *P. brauni* in sympatry.

Detailed collection information was available for four individuals. For *P. bigibbosa*: UFRGS 2778, Anita Garibaldi (locality 7 in Figure 1), collected at the edge of a rocky stream in an open area near the forest edge; MCP 9718, Aratinga (locality 6), collected at the edge of a rocky stream inside the forest; UFRGS 3572, Nonoai (locality 4), collected at the edge of a muddy stream inside the forest. For *P. brauni*: UFRGS 2571, Bom Jesus (locality 1), found calling in shallow temporary stream covered by dense vegetation (shrubs and grasses) outside the forest near its edge.

Based on available data, Kwet and Di-Bernardo (1999) and Kwet and Faivovich (2001) reported a breeding season from September–November for *P. bigibbosa*, but the new material includes calling males collected in June and July at localities 5 and 4, respectively. Similarly, those authors reported a breeding season of November–February for *P. brauni*, but herein a calling male of this species was also collected in September at locality 1.

Table 1. New records of *Proceratophrys bigibbosa* and *P. brauni* for Rio Grande do Sul (RS), Santa Catarina (SC) and Paraná (PR) states, Brazil. Localities are numbered as in Figure 1. MCP: material housed in *Coleção Herpetológica do Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul*; UFRGS: material housed in the *Coleção Herpetológica, Departamento de Zoologia, Universidade Federal do Rio Grande do Sul*.

Municipality /State	Locality	Species	Voucher number	Coordinates	Date
Bom Jesus, RS (1)	not specified	<i>P. bigibbosa</i>	MCP 9717	28°16'37" S, 50°42'57" W	03 Oct 2007
			UFRGS 2987	28°18'22" S, 50°42'37" W	30 Sep 2007
			UFRGS 3004	28°18'24" S, 50°42'49" W	02 Oct 2007
		<i>P. brauni</i>	UFRGS 2571	28°18'22" S, 50°42'37" W	01 Sep 2006
			UFRGS 3299	28°17'07" S, 50°43'55" W	01 Aug 2008
Itaara, RS (2)	<i>Centro Internacional de Projetos Ambientais</i>	<i>P. bigibbosa</i>	MCP 10268	29°32'15" S, 53°47'30" W	Feb 2007
Itati, RS (3)	<i>arroio Humaitá</i> , Rota do Sol road (RS-486)	<i>P. brauni</i>	UFRGS 1712	29°22'12" S, 50°10'55" W	29 Sep 1995
			UFRGS 1763		Jul 1998
			UFRGS 1765		Apr 1998
Nonoai, RS (4)	not specified	<i>P. bigibbosa</i>	UFRGS 3572	27°29'18" S, 52°48'02" W	17 Mar 2009
Rondinha, RS (5)	<i>Parque Estadual de Rondinha</i>	<i>P. bigibbosa</i>	UFRGS 2148	27°59'48" S, 52°49'02" W	30 Jun 2000
			UFRGS 2149		
			UFRGS 2150		
São Francisco de Paula, RS (6)	Aratinga, Rota do Sol road (RS-486)	<i>P. bigibbosa</i>	MCP 9718	29°19'12" S, 50°12'13" W	12 Oct 2007
Anita Garibaldi, SC (7)	not specified	<i>P. brauni</i>	MCP 9418	27°47'17" S, 51°09'20" W	23 Jul 2007
			UFRGS 2562	27°47'19" S, 51°09'26" W	26 Sep 2006
			UFRGS 2778		27 Oct 2007
			UFRGS 2842		10 Aug 2007
Campo Belo do Sul, SC (8)	<i>Florestal Gateados</i>	<i>P. bigibbosa</i>	UFRGS 3017	27°59'32" S, 50°53'48" W	14 Dec 2007
			UFRGS 3236	27°59'32" S, 50°53'48" W	26-30 Apr 2008
			UFRGS 3613	27°59'32" S, 50°53'48" W	08 Feb 2009
		<i>P. brauni</i>	UFRGS 2776	27°59'32" S, 50°53'48" W	28 Aug 2007
Guarapuava, PR (9)	not specified	<i>P. brauni</i>	MCP 9038	25°18'41" S, 51°25'27" W	05 Apr 2006
			UFRGS 3695		09 Jul 2006
			UFRGS 3696		20 Sep 2006

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