

NOTES ON GEOGRAPHIC DISTRIBUTION

Amphibia, Anura, Leptodactylidae, *Leptodactylus chaquensis*: Distribution extension in the state of Rio Grande do Sul, Brazil.

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Leptodactylus chaquensis Cei 1950 is a large size frog that belongs to the *L. ocellatus* group (Frost 2007). Its distribution is associated to the diagonal Caatinga-Cerrado-Chaco and Pampa biomes (Duellman 1999). The range distribution of this species includes northern Argentina (Córdoba, Chaco, Corrientes, Entre Ríos, Formosa, Jujuy, Salta, Santiago del Estero, Santa Fé, and Tucumán), Chaco and western oriental region of Paraguay, northern Uruguay (Artigas and Salto), lowland Bolivia, and parts of western (Acre), southwestern (Mato Grosso do Sul), southeastern (São Paulo and Minas Gerais), and southern Brazil (Rio Grande do Sul) (Vasconcelos and Rossa-Feres 2005; Silveira 2006; Frost 2007; Santos et al. 2007; AmphibiaWeb 2008).

In the state of Rio Grande do Sul, *L. chaquensis* was reported only from three localities by Garcia and Vinciprova (1998): municipality of Bossoroca (*Missões* region), municipality of São Vicente do Sul (*Depressão Central* region), and municipality of Uruguaiiana (*Campanha* region). Here, we extend the range distribution of *L. chaquensis* in 122 km to southeastern from the nearest locality in the state of Rio Grande do Sul (municipality of São Vicente do Sul) (Garcia and Vinciprova, 1998) to the *Serra do Sudeste* region (Figure 1). The Serra do Sudeste is a singular environment in the state of Rio Grande do Sul, characterized by rock outcrops of crystalline shield, natural grasslands (Pampa Biome), with patches of deciduous forest (Leite, 2002; Porto, 2002).

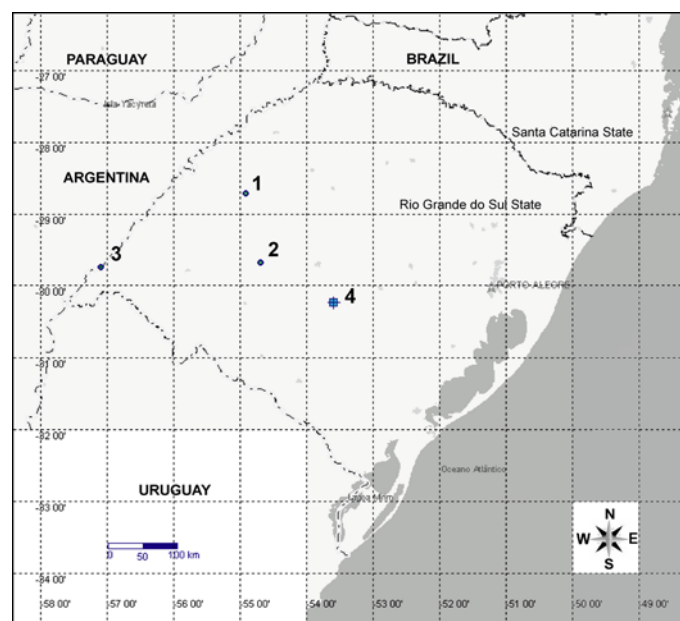


Figure 1. Range distribution of *Leptodactylus chaquensis* in the state of Rio Grande do Sul, Brazil. 1, municipality of Bossoroca, *Missões* region; 2, municipality of São Vicente do Sul, *Depressão Central* region; 3, municipality of Uruguaiiana, *Campanha* region; 4, municipality of São Sepé, *Serra do Sudeste* region (new record).

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On 25 December 2007, we recorded three males and one female of *Leptodactylus chaquensis* in two permanent ponds located in remnants of natural grasslands surrounded by soybean (30°15'03.9" S, 53°35'05.1" W, 198 m; 30°15'25.5" S, 53°34'50.6" W, 216 m) in the municipality of São Sepé, located between the *Depressão Central* and southeastern Rio Grande do Sul. The males were recorded vocalizing partially submerged amidst the emergent aquatic vegetation (*Eleocharis sellowiana* Kunth, Cyperaceae). One male was captured and housed in the Herpetological Collection of the *Universidade Federal de Santa Maria* (ZUFSM 4354). Other 20 anuran species occur syntopically with *L. chaquensis* in these two water bodies: *Rhinella icterica*, *Dendropsophus minutus*, *D. sanborni*, *Elachistocleis bicolor*, *Hypsiboas pulchellus*, *Leptodactylus fuscus*, *L. gracilis*, *L. mystacinus*, *L. ocellatus*, *Phyllomedusa iheringii*, *Odontophrynus americanus*, *Physalaemus biligonigerus*, *P. cuvieri*, *P. gracilis*, *P. henselii*, *Pseudis minuta*, *Pseudopaludicola falcipes*, *Scinax fuscovarius*, *S. granulatus*, and *S. uruguayus*. Two other anurans occur in adjacent water bodies: *Leptodactylus latinasus* and *Limnomedusa macroglossa*.

Leptodactylus chaquensis (Figure 2A) and *L. ocellatus* (Figure 2B) are considered sibling species (Cei 1980) that can be morphologically differentiated in the studied area by the following features: brownish dorsal coloration (greenish or yellowish coloration in *L. ocellatus*), double vocal sac (unique in *L. ocellatus*), weak hypertrophy of forearms during the reproductive season (strong hypertrophy in *L. ocellatus*), snout truncate (snout rounded in *L. ocellatus*), and posterior surface of the thighs with an uniform dark green coloration (thighs coloration is dark green with yellow blotches in *L. ocellatus*). The uniform green coloration of the thighs is a practical and useful characteristic because it allows recognizing not only adult males, but also juveniles and adult females. Besides morphological features, both can be easily differentiated by their advertisement calls (description in Barrio 1966). The new records reported here indicate that probably *L. chaquensis* has a wide distribution in Rio Grande do Sul, associated mainly with the Pampa. This species is well adapted to human disturbed areas (Santos et al. 2007; AmphibiaWeb 2008). Argentinean and Brazilian populations of *L. chaquensis* are not considered endangered (Lavilla et al. 2000; Machado et al. 2005), but Uruguayan populations were threatened (Maneyro and Langone 2001).



Figure 2. A, *Leptodactylus chaquensis* (see details of the double vocal sac and the brownish dorsal coloration); B, *Leptodactylus ocellatus*. Both from the municipality of São Sepé, *Serra do Sudeste* region, state of Rio Grande do Sul, Brazil. Photos by T. G. Santos.

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In the seasonal floodplains of the Brazilian Pantanal, *Leptodactylus chaquensis* has an explosive reproductive pattern associated with the rainy season (October/November to February/ March), when clutches are deposited in puddles and flooded areas (Prado et al. 2000; Prado et al. 2005). Additionally, multimale spawning was reported for the species in the Pantanal (Prado and Haddad 2003). Schaefer et

al. (2006) recorded similar reproductive patterns for populations of *L. chaquensis* in forested areas in northeastern Argentina. However, data on reproductive behavior are inexistent for more austral populations from the Pampa Biome, where climatic seasonality is related to variation in temperature and photoperiod, rather than to the annual rainfall (Both et al. 2008).

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Literature cited

- AmphibiaWeb. 2008. AmphibiaWeb: Information on amphibian biology and conservation. Accessible at <http://amphibiaweb.org/>. Berkeley: University of California. AmphibiaWeb. Captured on January 2008.
- Barrio, A. 1966. Divergencia acústica entre el canto nupcial de *Leptodactylus ocellatus* (Linné) y *L. chaquensis* Ceí (Anura, Leptodactylidae). *Physis* 26: 275-277.
- Both, C., I. L. Kaefer, T. G. Santos, and S. T. Z. Cechin. 2008. An austral anuran assemblage in the Neotropics: seasonal occurrence correlated with photoperiod. *Journal of Natural History* 42: 205-222.
- Ceí, J. M. 1980. Amphibians of Argentina. *Monitore Zoologico Italiano (N.S.)*. Monografia 2: 1-609.
- Duellman, W. E. 1999. Distribution patterns of amphibians in South America; p. 255-328 *In* W. E. Duellman (ed.). *Patterns of distribution of amphibians: a global perspective*. Baltimore and London: The Hopkins University Press.
- Frost, D. R. 2007. Amphibian Species of the World: an Online Reference. Version 5.1 (10 October, 2007). Accessible at <http://research.amnh.org/herpetology/amphibia/index.php>. New York: American Museum of Natural History. Captured on January 2008.
- Garcia, P. C. A. and G. Vinciprova. 1998. Range extensions of some anuran species for Santa Catarina and Rio Grande do Sul states, Brazil. *Herpetological Review* 29(2): 117-118.
- Lavilla, E. O., M. L. Ponssa, D. Baldo, N. Basso, A. Bosso, J. Cespedez, J. C. Chebez, J. Faivovich, L. Ferrari, R. Lajmanovich, J. A. Langone, P. Peltzer, C. Ubeda, M. Vaira, and F. Vera Candioti. 2000. Categorización de los Anfibios de Argentina, p. 11-34 *In* E. O. Lavilla, E. Richard, and G. J. Scrocchi (ed.). *Categorización de los Anfibios y Reptiles de la República Argentina*. Tucumán: Asociación Herpetológica Argentina.
- Leite, P. F. 2002. Contribuição ao conhecimento fitoecológico do sul do Brasil. *Ciência & Ambiente* 24: 119-138.
- Machado, A. B. M., C. S. Martins, and G. M. Drummond. 2005. Lista da fauna brasileira ameaçada de extinção, incluindo as espécies quase ameaçadas e deficientes em dados. Belo Horizonte: Fundação Biodiversitas. 157 p.
- Maneyro, R. and J. A. Langone. 2001. Categorización de los anfibios del Uruguay. *Cuadernos de Herpetología* 15(2): 107-118.
- Porto, M. L. 2002. Os Campos Sulinos, sustentabilidade e manejo. *Ciência & Ambiente* 24: 119-138.
- Prado, C. P. A. and C. F. B. Haddad. 2003. Testes size in leptodactylid frogs and occurrence of multimale spawning in the genus *Leptodactylus* in Brazil. *Journal of Herpetology* 37(2): 126-134.
- Prado, C. P. A., M. Uetanabaro, and C. F. B. Haddad. 2005. Breeding activity patterns, reproductive modes, and habitat use by anurans (Amphibia) in a seasonal environment in the Pantanal, Brazil. *Amphibia-Reptilia* 26(2): 211-221.
- Prado, C. P. A., M. Uetanabaro, and F. S. Lopes. 2000. Reproductive strategies of *Leptodactylus chaquensis* and *L. podicipinus* in the Pantanal, Brazil. *Journal of Herpetology* 34(1): 135-139.
- Santos, T. G., D. C. Rossa-Feres, and L. Casatti. 2007. Diversidade e distribuição espaço-temporal de anuros em região com pronunciada estação seca no sudeste do Brasil. *Iheringia (Série Zoologia)* 97(1): 37-49.
- Schaefer, E. F., M. I. Hamann, A. I. Kehr, C. E. González, and M. I. Duré. 2006. Trophic, reproductive and parasitological aspects of the ecology of *Leptodactylus chaquensis* (Anura: Leptodactylidae) in Argentina. *Herpetological Journal* 16(4): 387-394.
- Silveira, A. L. 2006. Amphibians from the Municipality of João Pinheiro, an area of "Cerrado" savanna in northwestern Minas Gerais, Brazil. *Arquivos do Museu Nacional* 64(2): 131-139.
- Vasconcelos, T. S. and D. C. Rossa-Feres. 2005. Diversidade, distribuição espacial e temporal de anfibios anuros (amphibia, anura) na região noroeste do estado de São Paulo, Brasil. *Biota Neotropica* 5(2): 1-14.

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