

Amphibia, Anura, Hylidae Rafinesque, 1815 and Hylodidae Günther, 1858: Distribution extension and new records for Santa Catarina, southern Brazil

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ABSTRACT: In the present study we report new records of the anurans *Hypsiboas curupi*, *Scinax littoralis*, *Dendropsophus elegans*, and *Crossodactylus schmidti* for the state of Santa Catarina. These records expand the geographic distribution currently known for these species and contribute for the knowledge of the southern Brazilian anuran fauna.

The rich fauna of amphibians of Brazil (SBH 2010) contrasts with the current loss and degradation of natural habitats and the scarce knowledge on the taxonomy, biology, and geographic distribution of most species. The lack of information about geographic distribution of species obscures the interpretation of macro-ecological and evolutionary patterns (Garcia *et al.* 2007a), which in turn are the basis for decision-making process regarding biodiversity conservation. Nevertheless, geographic distribution data is one of the most important criteria used to evaluate the conservation status of species (MMA 2003; IUCN 2008; Bressan *et al.* 2009), demonstrating its application and importance.

In the state of Santa Catarina, as well in other Brazilian states, knowledge on the richness and geographic distribution of amphibians is still incipient, despite the recent years increase in scientific published papers (*e.g.* Garcia *et al.* 2008; Lucas and Fortes 2008; Kwet *et al.* 2009; Lucas *et al.* 2010).

In the present study, we report new records of four anuran amphibians in the state of Santa Catarina, based on specimens collected in the field or specimens deposited at the *Museu de Zoologia da Universidade de São Paulo* (MZUSP). These records expand the geographic distribution currently known for these species, and contribute with the knowledge of the southern Brazilian anuran fauna.

Hypsiboas curupi Garcia, Faivovich and Haddad, 2007, was recently described based on specimens collected in Misiones, Argentina (Garcia *et al.* 2007b). Since then, new species records have been reported for Paraguay (Brusqueti and Lavilla 2008) and for the state of Rio Grande do Sul, Brazil (Iop *et al.* 2009). This species appears to be associated with Araucaria Forest and Interior Forest, in the Atlantic Forest domain (Garcia *et al.* 2007b). In this study we present the first records of *H. curupi* in western Santa Catarina (Figure 1). The species was registered between 19:00 and 21:00 h in São Miguel do

Oeste (26°44'41.3" S, 53°23'40.9" W; 270 m of elevation), on 15 February 2007; Caxambú do Sul (27°10'06.4" S, 52°53'27.0" W; 340 m of elevation), on 19 October 2007, on 12 March 2008, and on 26 September 2008; Concórdia (27°17'20.4" S, 52°06'58.1" W; 403 m of elevation; Figure 2), on 03 October 2008, and on 27 February 2010; and Ponte Serrada (26°46'17.3" S, 51°57'18.0" W; 930 m of elevation), on 25 October 2008. Seasonal deciduous forest is the predominant vegetation type in the municipalities of São Miguel do Oeste, Caxambu do Sul, and Concórdia, whereas in Ponte Serrada the predominant vegetation type



FIGURE 1. Map showing the new records of *Hypsiboas curupi* in the state of Santa Catarina, Brazil.

is mixed ombrophilous forest. The new records extend the geographic distribution in about 60 km eastward from Misiones, Argentina. Voucher specimens were housed at *Coleção Herpetológica da Universidade Federal de Minas Gerais* (UFMG 3216 and 3220) and *Coleção de Anfíbios da Universidade Comunitária da Região de Chapecó* (CAUC 0869). No specimens were collected in the municipality of Concórdia.

In all occasions, we observed *H. curupi* males calling in the vegetation along creeks bordering or in the forest. The creeks had muddy bottoms and clear water. The microhabitat was similar to that reported by Iop *et al.* (2009). A maximum of eight individuals were observed in creek segments of up to 200 m. One record from Concórdia has been confirmed in a conservation unit (*Parque Estadual Fritz Plaumann*, 741 ha). Considering the current degraded condition of the mixed ombrophilous forests and seasonal deciduous forests in the state of Santa Catarina, the populations of *H. curupi* recently observed might be threatened.



FIGURE 2. Female of *Hypsiboas curupi* from Parque Estadual Fritz Plaumann, municipality of Concórdia, state of Santa Catarina, Brazil. Photo: Elaine M. Lucas.

Scinax littoralis (Pombal and Gordo, 1991) was known to occur only in the type-locality, in the municipality of Iguape, state of São Paulo (Frost 2010). Recently, Conte *et al.* (2009) found this species in the municipalities of Morretes and Guaraqueçaba, state of Paraná, extending its geographic distribution in 154 km southward. We examined specimens of *S. littoralis* (MZUSP 55873-55918) collected in 1978 in the district of Pirabeiraba (26°12'18" S, 48°55'39" W), municipality of Joinville, northern coast of the state of Santa Catarina. This record expands the distribution of *S. littoralis* in 80 km southward from the currently known distribution (Conte *et al.* 2009; Figure 3).

Dendropsophus elegans (Wied-Neuwied, 1824) occurs from Bahia to Paraná states in the Atlantic Forest and transition between Cerrado and Caatinga, from sea level to approximately 800 m of elevation (Frost 2010). It has a long reproductive season and an elaborated reproductive behavior (Bastos and Haddad 1995). In southeastern Brazil, *Dendropsophus elegans* is relatively common and occurs in forests and open, artificial, and natural habitats

(Carvalho-e-Silva *et al.* 2008). We examined a specimen of *D. elegans* (MZUSP 64718) from the municipality of Timbó, in the central Vale do Itajaí (municipality headquarters at 26°49'32" S, 49°16'18" W), state of Santa Catarina (Figure 4). This occurrence expands the distribution currently known for the species in 160 km southwestward (Lingnau and Bastos 2002).



FIGURE 3. Map showing the new record of *Scinax littoralis* in the municipality of Joinville, state of Santa Catarina, Brazil.



FIGURE 4. Map showing the new record of *Dendropsophus elegans* in the municipality of Timbó, state of Santa Catarina, Brazil.

Crossodactylus schmidti Gallardo, 1961, occurs in Argentina, southeast Paraguay, states of Paraná (Frost 2010) and Rio Grande do Sul (Caldart *et al.* 2010), southern Brazil, in elevation ranging from 300 to 750 m (Frost 2010). On 03 and 15 February 2007, around 18:00 h, we observed respectively 20 and 10 active individuals in a creek with rocky bottom and clear water, in a fragment of seasonal deciduous forest, in the municipality of São Miguel do Oeste, westernmost of Santa Catarina (26°44'41.3" S, 53°23'40.9" W; 270 m of elevation; Figures 5 and 6). The area comprises approximately 400 ha and is a property of the Brazilian Army, used for military training. The creek forms small waterfalls, and flows to the Rio das Antas. The individuals were observed on the rocks in the riverbed and margins of the creek, always very close to the flowing water. Collected specimens were housed at the *Coleção Herpetológica da Universidade Federal de Minas Gerais* (UFMG 3184 and 3185). In addition, 44 specimens of *C. schmidti* collected by the naturalist Fritz Plaumann, in Nova Teutônia (27°09'49" S, 52°25'27" W; Figure 6), municipality of Seara, western Santa Catarina, dated from 1951, are deposited as MZUSP 8725-8769.



FIGURE 5. Male of *Crossodactylus schmidti* in the municipality of São Miguel do Oeste, state of Santa Catarina, Brazil. Photo: Elaine M. Lucas.

No sampling effort was recently conducted to collect *C. schmidti* around Seara. Although this species is relatively conspicuous, *C. schmidti* has not yet been observed in several other localities where it could potentially be found in western Santa Catarina. The deterioration of forests in this region might compromise the conservation of populations of *C. schmidti*, which could be threatened in the state. *Crossodactylus schmidti* is considered "near threatened" according to the world list of endangered species (IUCN 2010), mainly due to degradation and logging in the areas of occurrence (Segalla *et al.* 2004).

The state of Santa Catarina is entirely located in the Atlantic Forest domain, one of the world's biodiversity hotspots (Myers *et al.* 2000). Based on available information, it houses a high diversity of amphibians (Garcia *et al.* 2007a). Considering the scarcity of information on its diversity, additional information on the richness and geographic distribution of species at different regions of the state should be considered a priority, so as to support more effective conservation strategies.



FIGURE 6. Map showing the new record of *Crossodactylus schmidti* in the municipalities of São Miguel do Oeste and Seara, state of Santa Catarina, Brazil.

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