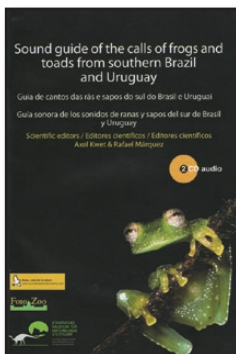


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## Sound Guide of the Calls of Frogs and Toads from Southern Brazil and Uruguay

Axel Kwet and Rafael Márquez. 2010. Alosa, Barcelona, Spain ([www.sonidosdelanaturaleza.com](http://www.sonidosdelanaturaleza.com)). 2 audio CDs + 56 pp. booklet. €11.90 (approx. US \$14.65). ISBN 978-84-613-8920-9.



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Bioacoustics has long been an interesting field of study for herpetologists. Calls are one of the most characteristic traits of anurans, perceived and used to distinguish species well before the animals themselves are spotted. Although many field herpetologists carry a recorder as a mandatory piece of equipment, the recorded calls of many species are still not available. The *Sound Guide of the Calls of Frogs and Toads from Southern Brazil and Uruguay* compiled and edited by Axel Kwet and Rafael Márquez, advances our knowledge of the anuran calling repertoire.

This guide presents the calls of 109 anurans, although 16 of the species were undescribed and/or uncertain as of 2010 when the guide was published. The calls are divided into two audio-only compact discs: one with 55 species belonging to the family Hylidae, and the other with 54 species belonging to ten additional families. Each species is represented by a single track, generally divided into different cuts with overall good quality recordings. The listener can follow the tracks and their cuts using a color print booklet provided with the audio CDs. The booklet, 56 pages long, contains scientific name (ordered by species group at the genus level), photograph, distribution map, and natural history information for each species. The photographs provided are small, but this is to be expected for a sound guide. The maps are very simple but somewhat confusing because of the recurrent change of scale, but they are still a nice addition for this type of publication.

The level of detail for the calls is noteworthy. First of all, more than one cut is presented for most species, stating, for example, the social context in which the call was emitted and/or emphasizing when more than one type of note occurs. Thus, even if the call is not sufficiently understood to receive a definitive classification (Toledo et al. 2014), the guide provides a valuable starting point for natural history and behavior studies. Moreover, additional descriptions are given in the audio and/or booklet, for instance, background noise, different species participating in the chorus, air temperature, time of recordings and type of recording filter, factors that may influence the calling activity of frogs and the quality of the recordings.

The accessibility to the text is very convenient. Every piece of information is given in English, Spanish, and Portuguese, which

is great for use in undergraduate courses, where students might not be comfortable with the English language, as well as anybody else that may fall into this category. Although there is not an upfront definition of the bioacoustic terms used throughout the booklet, the language is intuitive and accurately utilizes the scientific terminology of this field.

At least four other sound guides for Brazilian species have been published (Atlantic Forest domain: Haddad et al. 2005, Toledo and Haddad 2011; Cerrado, Campo Rupestre, and Pantanal domains: Toledo et al. 2007; Rio Claro Farm, São Paulo state: Maffei and Ubaid 2014), but each of these contain 76 species at most. At the same time, this is the first sound guide for frogs in Uruguay, including over 30 out of 48 known anurans (Maneyro 2012), which is a huge contribution to the field of herpetology in that country. Furthermore, the geographic range of almost 20 species included in the guide extends to northern Brazil, as well as Bolivia, Paraguay and Argentina. The result is a comprehensive overview of frog calls from habitats on the border between Brazil and Uruguay (e.g., coastal dune zone and grassland; Maneyro and Kwet 2008), and also from a variety of habitats throughout Brazil, Uruguay, and additional countries.

Although some open access websites make frog calls available (e.g., AmphibiaWeb), the content is usually not as detailed or standardized across researchers. In this guide, in particular, most of the 109 species were recorded by Axel Kwet, which diminishes the recording setting and equipment variation. In conclusion, the *Sound Guide of the Calls of Frogs and Toads from Southern Brazil and Uruguay* is a well-done and welcome project. Because this guide was released in 2010, we believe that within a few years it would be promising to have an updated—and maybe interactive—sound guide, incorporating the resolution of the undescribed and/or uncertain species. This would represent an even more useful contribution to South American herpetology to which the scientific editors Kwet and Márquez are clearly committed.

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