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# Description of the previously unknown advertisement calls of *Hyalinobatrachium fragile, H. pellucidum*, and *Vitreorana antisthenesi* (Amphibia: Centrolenidae)

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## Abstract

We provide for the first time detailed descriptions of the advertisement calls of three species of glassfrogs of the family Centrolenidae. The call of *Hyalinobatrachium pellucidum* is a single, high-pitched tonal note, lacking amplitude modulation, lasting 0.12–0.18 s, and with a dominant frequency of 4863.54–5408.68 Hz. The call of *H. fragile* is also composed of a single tonal note, lasting 0.12–0.15 s, with a dominant frequency of 3774.78–3931.89 Hz; however, the call of *H. fragile* exhibits amplitude modulation that resembles the shape of a Goldfish cracker when visualized as an oscillogram. The call of *Vitreorana antisthenesi* consists of a single note of modulated pulses that decrease in energy, lasting 0.03–0.05 s, and with a dominant frequency of 5345.44–5484.73 Hz. We compare these three calls to those of congeneric species in a phylogenetic context.

**Key words:** advertisement call, bioacoustics, glassfrogs, *Hyalinobatrachium fragile*, *Hyalinobatrachium pellucidum*, Peru, Venezuela, *Vitreorana antisthenesi*

## Introduction

The description of anuran advertisement calls is important because calls provide phylogenetic information, play an important role in advancing comparative studies of anurans, facilitate species identification and description, and allow for non-invasive identification and monitoring (e. g., Heyer et al. 1994; Schwartz 2001; Señaris 2001; Bosch & Boyero 2003; Bosch & De la Riva 2004; Rodel & Ernst 2004; Robillard et al. 2006; Cisneros-Heredia & McDiarmid 2007; Wollenberg et al. 2007; Padial et al. 2008; Goicoechea et al. 2009; Castroviejo et al. 2011a). The identification and collection of glassfrogs (family Centrolenidae), a monophyletic group of arboreal anurans endemic to the Neotropics, is especially difficult (Myers & Donnelly 2001; Castroviejo-Fisher et al. 2011a), and the use of advertisement calls for non-invasive inventories and/or population monitoring has proved helpful (Kubicki 2007). However, using calls for these purposes is hampered by the fact that quantitative call descriptions exist for fewer than 20% of species of centrolenids (Dautel et al. 2011).

Here we provide the first detailed call descriptions for three species of centrolenids (*Hyalinobatrachium fragile*, *H. pellucidum*, and *Vitreorana antisthenesi*) and make comparisons with other species in their respective genera.

## Materials and Methods

One topotype adult male *Hyalinobatrachium fragile* (MHNLS 17161) and one *Vitreorana antisthenesi* (not collected) were recorded (12 and four calls respectively) between 19:18 and 21:00 on July 02, 2005 along a stream that intersects the road Manrique-La Sierra (9°51'44" N, 68°32'58" W; 564 m a.s.l.), near San Carlos, Cojedes, Venezuela. We assigned the recorded calls to *Vitreorana antisthenesi* because they are identical to the ear to those

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