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Redescription of the advertisement call of *Physalaemus albifrons* (Spix, 1824) (Amphibia, Anura, Leptodactylidae)

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The genus *Physalaemus* Fitzinger, 1826 is composed by 46 species occuring from north to southern South America, east of the Andes (Frost 2015). *Physalaemus albifrons* is morphologically differentiated from the other species mainly due to the presence of a second tarsal tubercle located nearly the tibio-tarsal articulation (Bokermann 1966). *Physalaemus albifrons* occurs in Brazil from north of the State of Maranhão through the states of Piauí, Ceará, Bahia, Paraíba, Pernambuco, and Alagoas, being its more austral occurrence in the State of Minas Gerais (Frost 2015). The advertisement call of *P. albifrons* was described by Bokermann (1966); however, the description needs improvement by applying new technologies, which we provide herein.

Calls were recorded in the Municipality of Floriano (6°46'S; 43°00'W; 155 m a.s.l.; DATUM SAD69) State of Piauí, Northeastern Brazil, on 3 December 2012, between 18:30 and 19:20. The recording was made with a Roland Edirol R1 Wave 24 bits recorder, with a Yoga HT-81 super unidirectional Electric Condenser microphone at a distance of one meter from the caller. The bioacoustic analyses were performed in the softwares Sony SoundForge 8.0., to the temporal parameters, and SoundRuler 0.9.6.0., to the spectral parameters, with a sample rate of 44.1 kHz and 16 bits of resolution. The spectrogram was evaluated through the software SoundRuler with Fast Fourier Transformer length (FFT) at 1024 points, overlap at 75% and window function in Hanning. The bioacoustic parameters follow Heyer *et al*. (1990). The following parameters were analyzed: the duration of the calls (in seconds), interval between calls (s), carrier frequency (Hz), modulation of dominant and fundamental frequencies (Hz), and the call repetition rate (calls/minute).

Three specimens of *P. albifrons* were sampled and deposited in the Coleção de História Natural da Universidade Federal do Piauí (CHNUFPI 1400–SVL= 20.7 mm, and mass = 0.83 g; CHNUFPI 1403–20.6 mm, 0.76 g; CHNUFPI 1410–21.2 mm, 0.78 g). They were diagnosed by the presence of a second tarsal tubercle located nearly the tibio-tarsal articulation. Fifty six calls were analyzed from the three voucher specimens (an average of 18 calls per specimen) at an air temperature of 25.1°C. The call is composed of one note not pulsed, with harmonic structure (Figure 1). The mean duration (± standard deviation) of the call was 0.45±0.02 s (0.37 to 0.48; n = 56). The intercall intervals had an average of 0.55±0.21 s (0.22 to 1.13). The average dominant frequency was 2.82±0.08 kHz (2.76 to 2.94; n = 56) being situated between the fifth and the eighth harmonics. The carrier frequency presented a negative modulation being the average of the dominant frequency equal to minus 1.0±0.07 kHz (-0.81 to -1.20). The fundamental frequency had an average of 370.9±19.0 Hz (352 to 387; n = 56) with an average negative modulation of 138.7±21.2 Hz (-70 to -176). The repetition rate of the call was 58.4±4.4 (52.9 to 63.7; n = 56) calls/minute or 0.97±0.07 (0.88 to 1.06; n = 56) notes/second.

Bokermann (1960) reported that the call duration was two tenths of a second; the intercall interval mean five to eight tenths of a second; the fundamental frequency ranged between 100 and 200 Hz; and the dominant frequency, situated from the second to the forth harmonics, ranged from 1 to 2 kHz. Our sample shows a call with duration of four tenths of a second. The intercall interval although similar was broader in our analysis (0.55±0.21; 0.22 to 1.13 s). The fundamental frequency ranged from 352 to 387 Hz, higher than the original description, although it is not possible to see the values declared by Bokermann (1966) in the figure provided in his paper. The dominant frequency ranged from 2.76 to 2.94 kHz being situated between the fifth and eighth harmonics. The difference in call duration could be related to the time, since Bokermann (1966) recorded the specimens at 22 h (in the present study it was done at the beginning of the night), added to this, the temperature was lower during the Bokermann's recording (20°C), and this variation could represent a

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