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A female release call from the species *Rhinella icterica* (Amphibia, Anura, Bufonidae)

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Resumen: Describimos aquí, por vez primera, la llamada de liberación de una hembra de *Rhinella icterica*. Se registraron cuarenta llamadas de liberación en el municipio de Bocaina de Minas, Minas Gerais, Brasil. Las llamadas, emitidas esporádicamente, presentan intervalos regulares entre ellas. La llamada está compuesta por una sola nota, no pulsada, que se diferencia de la llamada de liberación del macho por su menor duración, número de notas por llamada y por la ausencia de pulsos en las notas. Este tipo de llamada puede ser una barrera precigótica importante, puesto que esta especie es simpátrica con *R. rubescens*.

The vocalizations are, frequently, the most conspicuous characteristic of the anurans being emitted in different social contexts (Wells, 1977; Köhler *et al.*, 2017). Although the reproductive calls are of highest value in taxonomy, the release call may contain species-specific features that could be useful in taxonomy (Köhler *et al.*, 2017). Indeed, in the case of females' release call, the sexual selection probably acts to avoid hybridization and is important in recognition of related syntopic species (Köhler *et al.*, 2017).

Rhinella icterica (Spix, 1824) belongs to the *R. marina* group and is distributed in southern Brazil from the State of Bahia to Rio Grande do Sul, including Minas Gerais and Goiás (Frost, 2021). The release call of the species is known, until now, only for males (Batista *et al.*, 2017). Batista *et al.* (2017) found two types of release calls in the males of the species. The "A" type is composed of a single pulsed note and the "B" type is composed of a series of pulsed notes.

Herein we describe, for the first time, the release call of a female of *R. icterica*

(SVL = 123 mm) (Figure 1). The call was obtained, on the 27th of December 2016, in Serra Verde (22°09'03"S / 44°32'24"W, Datum WGS 84; 1,622 masl), located in the upper Grande river basin, in the District of Santo Antônio, Municipality of Bocaina de Minas, State of Minas Gerais, Brazil, in the Mantiqueira mountain range, Northwest portion of Área de Proteção Ambiental da Serra da Mantiqueira. The record was obtained in a Tascam DR05 recorder with a Rode NTG2 shotgun microphone at a distance of 20 cm from the calling female while it was caught by the index and thumb fingers just behind the forelimbs, like an amplexus. The record parameters were set in 24 bits and 48 kHz of resolution. The analysis was made in *Raven Pro* 1.5 (Cornell Lab, 2017) with FFT in 512 points and window resolution in Hann. The call parameters follow Köhler *et al.* (2017), being call duration in seconds, interval between calls in seconds, call rate (call/min), notes per call, note rate (notes/second), dominant frequency in kHz, frequency modulation in kHz, bandwidth in kHz, and rise-time in seconds. The recorded female is vouchered in the Museu Nacional do Rio de Janeiro (MNRJ 92843), Brazil. The results are shown as mean ± standard deviation (interval).

Figure 1: The recorded female of *Rhinella icterica* (voucher specimen MN 92843).
Figura 1: La hembra registrada de *Rhinella icterica* (espécimen MN 92843).

Forty release calls were recorded at 27.0°C air temperature and 62% of relative humidity. The calls (Figure 2) present regular inter-call intervals within groups of calls which, in turn, are emit-

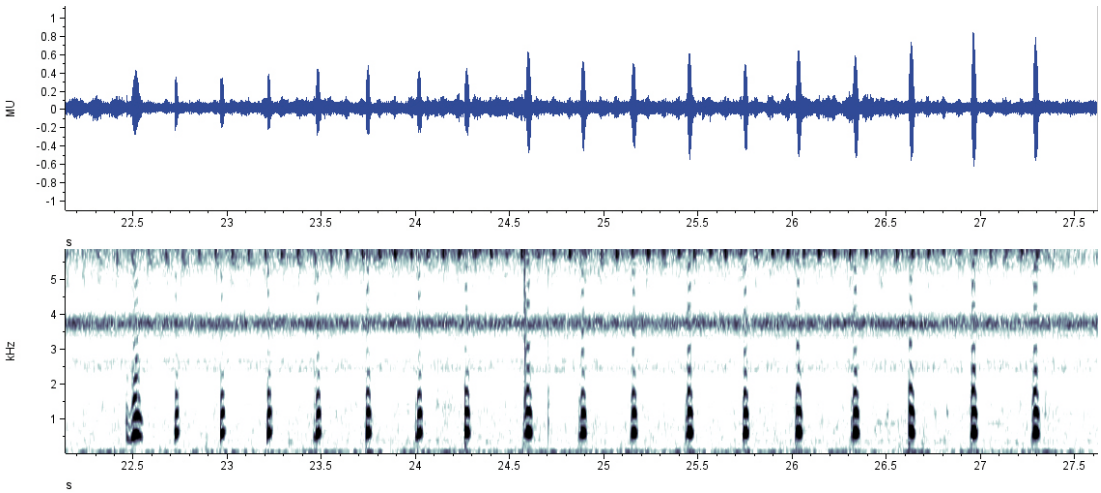

Figure 2: Oscillogram (above) and spectrogram (bellow) from a call group with a sequence of 18 *Rhinella icterica* female's release calls. FFT in 512 points and window type in Hann. Air temperature 27.0°C, relative humidity 62%. Voucher specimen MNRJ 92843.
Figura 2: Oscilograma (arriba) y espectrograma (abajo) de un grupo de llamada con una secuencia de 18 llamadas de liberación de hembras de *Rhinella icterica* FFT en 512 puntos y tipo ventana en Hann. Temperatura del aire 27,0°C; humedad relativa 62 %. Espécimen MNRJ 92843.

ted sporadically. The call is composed by a single, non-pulsed, note that lasts 0.04 ± 0.01 (0.02 – 0.09) second, and it is distant from another note 0.24 ± 0.03 (0.17 – 0.29) second. The call rate is 219.6 ± 20.3 (182.4 – 265.5) notes/min, which is equivalent to 3.7 ± 0.3 (3.0 – 4.4) notes/sec. The call is harmonic with, at least, 10 visible harmonic bands. The dominant frequency is situated in the first harmonic at 0.58 ± 0.04 (0.56 – 0.66) kHz without modulation. The bandwidth is at 0.68 ± 0.15 (0.18 – 1.31), and the call rise-time has 0.01 ± 0.004 (0.005 – 0.026) second.

The *R. icterica* female's release call described herein differs from the male's release call type A described by Batista *et al.* (2017) by the shorter call duration (0.02 to 0.09 s in the female's release call and 0.48 to 1.15 s in the males' release call), by the number of note per calls (one in the female's release call and 17 to 36 in the males' release call); differs from the release call type B described by Batista *et al.* (2017) by the number of notes per call (one in the female's release call and 3 to 7 in the males' release call) and by the absence of pulses in the notes (1 to 33 in the male's release call).

We have described here, for the first time, the *R. icterica* female's release call, a species that is widespread in the upper basins of Preto and Grande rivers, in the Municipality of Bocaina de Minas. *R. icterica* is syntopic to *R. rubescens* in the upper Grande river basin and its release call could be an important prezygotic barrier.

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A case of digital hindlimb malformations in *Rana iberica*

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Resumen: Se describen las malformaciones halladas en la extremidad posterior izquierda de un macho adulto de *Rana iberica*. Este animal presentaba braquidactilia (número reducido de falanges en los dedos IV y V), sindactilia (dedos III, IV y V ampliamente soldados) y polifalangia en el dedo IV.