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with a carapace width of ca. 10 cm. The depth of the burrow was not determined, although it was filled with water to within 12 cm of the top. *Cardisoma guanhumi* is primarily herbivorous, although occasionally eating carrion, including frogs (Wolcott and Wolcott 1987. Physiol. Zool. 60:262–268). It is possible the crab was not perceived as a predator despite its considerably larger size. This crab was observed in the burrow both day and night, while the *L. albilabris* was only observed after dark. On each night of observation I removed the plywood after the frog began calling to confirm its location. The frog always retreated away from the burrow either under another piece of plywood or the concrete slab of the outbuilding (on the first night of observations the frog was captured to confirm identification before it retreated in this manner). The frog returned to approximately the same location each night to call suggesting that this location was preferred as a calling site but not as a retreat site.

NOAH M. GORDON, Department of Biology, Koch Center 219, University of Evansville, Evansville, Indiana 47722, USA; e-mail: ng62@evansville.edu.

***LEPTODACTYLUS FRAGILIS* (White-lipped Foamfrog). DISTRESS CALL.** Although anurans produce a wide array of vocalizations, most studies have focused on studying advertisement calls with other call types receiving little attention. Additional types of vocalization include territorial, courtship, fighting, and defensive calls (Duellman and Trueb 1994. Biology of Amphibians. McGraw-Hill, New York. 670 pp.). Distress calls are defensive calls triggered by dangerous circumstances such as being captured by a predator (Hödl and Gollmann 1986. Amphibia-Reptilia 7:11–21). Although their function is unclear, it has been suggested that distress calls act as a defensive mechanism to reduce the chances of predation. Distress calls occur in numerous species of anurans but only recently these calls have been carefully characterized in a growing number of species (de Toledo and Haddad 2009. S. Am. J. Herpetol. 4:25–42). Several species in the family Leptodactylidae produce distress calls, but it is unclear how widespread this anti-predatory strategy is in this clade. Here I describe the defense call of *L. fragilis*. The observations took place in the canal area, Gamboa, Panama (9°07.0'N, 79°41.9'W).

During the evening of 12 July 2010 I captured a female *L. fragilis* (36.4 mm SVL) that was motionless by a breeding puddle. As it was captured, the frog produced an open-mouth vocalization strikingly different in acoustic structure from the mating call of the species (Fig. 1A). She produced over 35 distress calls (34 were recorded and 33 analyzed) and arched her body backwards two times between calls as if she was playing dead. The defensive calls were easily triggered by holding the frog from the rear legs or allowing it to escape and capturing it again. The distress calls are short (0.636 ± SD 0.17s), high frequency cries (dominant frequency: 11.32± SD 1.22 kHz) that are rich in harmonics, and can have from one to three notes (Fig. 1B). Most calls, however, have two notes (75.6%). The first note is longer than the other two that are similar in duration and structure (note 1: 0.297 ± SD 0.13s; note 2: 0.127 ± SD 0.02; note 3: 0.126 ± SD 0.01). This acoustic structure differs strikingly from the mating call of this species, which consists of a short and low-pitched upward sweep whistle with few harmonics (Ibañez et al. 1999. The Amphibians of Barro Colorado Nature Monument, Soberania National Park and Adjacent Areas. Editorial Mizrachi & Pujol, Panama).

During12 July–11 Aug 2011, I captured 16 *L. fragilis* (12 males and 4 females) and recorded when they produced a distress call. Only two individuals produced distress calls, the female mentioned above and a male (32.7 mm SVL) found on 28 July 2010.

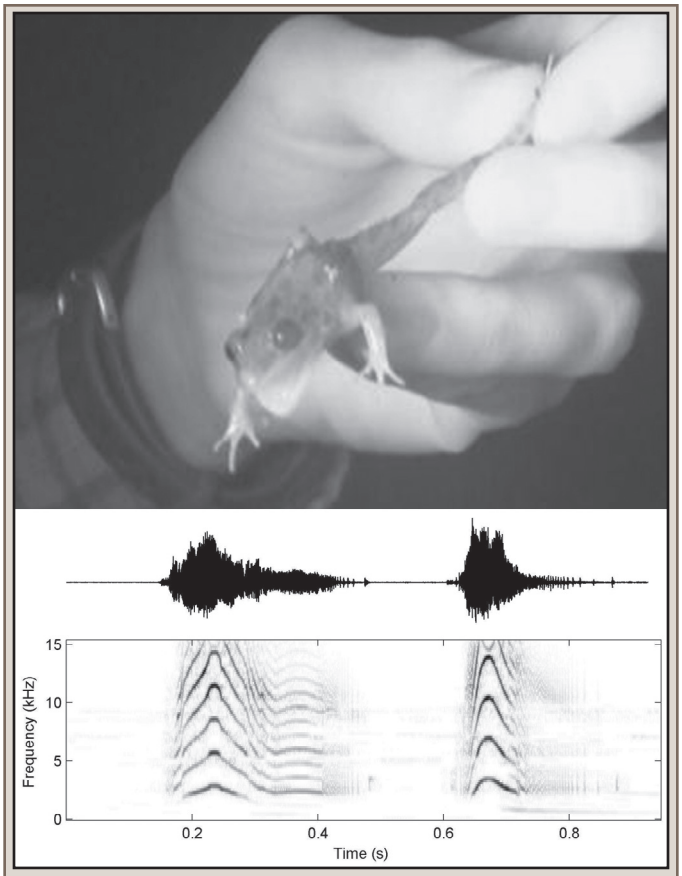

FIG. 1. (A) Female *Leptodactylus fragilis* producing distress calls with her mouth open. (B) Oscillogram (above) and spectrogram (below) of representative distress calls produced by a female *L. fragilis*.

When captured, the male also arched his body backwards between producing distress calls. In both cases, the distress calls were emitted with the frog's mouth open as has been observed for distress calls emitted by most anuran species studied (de Toledo and Haddad 2009, *op. cit.*, but see Figueiredo-de-Andrade et al. 2010. Herpetol. Notes 3:37–39). Distress calls in this species, as has been reported for other species, are not consistently triggered by humans handling the frogs.

The distress call of *L. fragilis* is similar in its general acoustic structure to the distress calls described for species in the *fuscus* and *pentadactylus* group (De Toledo and Haddad 2009, *op. cit.*: *L. pentadactylus*, *L. savage*, *L. mystacinus*, *L. fuscus*, *L. troglodytes*, and *L. vastus*; Toledo et al. 2005. Herpetol. Bull. 2005:29–31: *L. labyrinthicus*). Despite the large differences in advertisement calls among those species, the release calls are relatively similar, consisting of short, high-pitched screams. The characterization of the distress calls of *L. fragilis* reported here builds upon recent studies describing defensive calls in anurans. A robust set of descriptions of distress calls will allow further investigations to examine the function and evolution of this call type.

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XIMENA E. BERNAL, Department of Biological Sciences, Texas Tech University, Lubbock, Texas 79409, USA; e-mail: ximena.bernal@ttu.edu.

***LEPTODACTYLUS FUSCUS* (Rufous Frog). PREDATION.** *Leptodactylus fuscus* is distributed in the neotropical region from