



Interspecific Amplexus of a Gulf Coast Toad, *Incilius nebulifer* (Girard 1854), and a Hurter’s Spadefoot, *Scaphiopus hurterii* (Strecker 1910), in Bastrop County, Texas, USA

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Reports of inaccurately directed amplexus among amphibians abound in the herpetological literature. For example, numerous publications document the occurrence of interspecific amplexus between anuran taxa (e.g., Ribeiro et al. 2014; Bell and Scheinberg 2016; Sajjan et al. 2017; Asad et al. 2018). Less common are reports of amplexus between anurans and caudates (e.g., Marco and Lizana 2002; Moldowan et al. 2013; Simovi et al. 2014; Howell 2017). Instances of anuran taxa amplexing with inanimate objects and exhibiting necrophilia can likewise be found (e.g., Mollov et al. 2010; Oyervides and Zaiden 2013; Jennier and Hardy 2015; Lima-Araujo et al. 2017). Within the anuran families Bufonidae and Scaphiopodidae, several species are known to engage in heterospecific amplexus (e.g., Creuser and Whitford 1976; Bettaso et al. 2011; Clause et al. 2015; Heyborne et al. 2018). However, evidence of such behavior taking place between members of the two families is apparently absent from the literature. Herein we provide what is, to the best of our knowledge, the first report of a bufonid in amplexus with a scaphiopodid.

At 2135 h on 23 April 2021, while conducting an anuran survey on private property in Bastrop County, Texas, USA (30.2125°N, 97.2515°W; WGS 84), we observed a male Gulf Coast Toad (*Incilius* [*Bufo*] *nebulifer*) in amplexus with a Hurter’s Spadefoot (*Scaphiopus hurterii*). The amplexant pair (Fig. 1) was on a dirt road surrounded by a mosaic of oak-conifer woodlands and pastures containing deep sandy soils. Conditions included heavy rainfall, an ambient temperature of 22.67 °C, relative humidity at 90.4%, and a maximum windspeed of 10.14 km/h. After several minutes, the *I. nebulifer* released the *S. hurterii* and the two individuals moved off the roadway.

When amplexed by a conspecific of the same gender or an anuran belonging to a different species, many anurans utilize physical or auditory signals to communicate the perceived

incompatibility. These signals include body vibration and release calls (Bowcock et al. 2008; Vitt and Caldwell 2009; Powell et al. 2016). We did not observe any such behavior from the female *S. hurterii* and are unsure what prompted the *I. nebulifer* to release it.

Reproductive isolation between anurans often is driven by divergence of advertisement call characteristics (e.g., Blair 1941; Blair 1955; Fouquette 1975; Gerhardt 1994; Leary 2001). In many anuran taxa, females evaluate the advertisement calls of males and choose to mate with males that produce calls with desirable characteristics (Vitt and Caldwell 2009). Amplexus is typically prompted when the female approaches or makes physical contact with the male. For this reason, mate selectivity may be higher in females than males. This may render males with a predisposition to amplex other anurans that approach it while chorusing, with little regard to whether the approaching anuran is conspecific or heterospecific.

Both *I. nebulifer* and *S. hurterii* are explosive breeders that frequently are faced with temporally limited opportunities for reproduction that coincide with rainfall events (Tipton et al. 2012; Dixon 2013). The urgency to reproduce during these



Fig. 1. Male Gulf Coast Toad (*Incilius nebulifer*) in amplexus with a Hurter’s Spadefoot (*Scaphiopus hurterii*) on a dirt road in Bastrop County, Texas, USA. Photograph by Lawrence G. Bassett.

events may also contribute to the lack of selectivity exhibited by *I. nebulifer*. For example, at this same site, we have encountered numerous instances of interspecific amplexus between *I. nebulifer* and the federally endangered Houston Toad (*Anaxyrus* [*Bufo*] *houstonensis*). This activity has yielded viable hybrid offspring and higher-order hybrids occur within the resident *A. houstonensis* gene pool (McHenry 2010). Reporting instances of interspecific amplexus such as this is important for characterizing the reproductive interference endured by many anuran taxa.

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