



Two Incidents of Heterospecific Amplexus involving Mexican Treefrogs (*Smilisca baudinii*), a Rio Grande Leopard Frog (*Lithobates berlandieri*), and a Morelet's Leaf Frog (*Agalychnis moreletii*) (Amphibia: Anura: Hylidae, Ranidae, and Phyllomedusidae)

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Numerous accounts of heterospecific anuran amplexus have been reported (e.g., Luría and Vásquez 2011; Flores-Hernández and Martínez-Coronel 2014; Marchant et al. 2015; Loc-Barragán et al. 2016), as have combinations of heterospecific and necrophilous amplexus with other frogs and salamanders (Álvarez 2011; Simovi et al. 2014; Cortés et al. 2014) or other species and inanimate objects (Mollov et al. 2010). Clause et al. (2015) also reported reproductive interference that seemed to be influenced by the lack of selectivity in the males of many anurans.

At 1943 h on 12 March 2014, we found a male Morelet's Leaf Frog (*Agalychnis moreletii*) in amplexus with a female Mexican Treefrog (*Smilisca baudinii*; Fig. 1) in the Centro Ecoturístico Rancho Fermín, Municipality of Atoyac, Veracruz, Mexico (18.9011°N, -96.8058°W; WGS84; elev. 725 m), on the shore of a pond (3 m diameter) in a shady patch planted with coffee (*Coffea arabica*) and lemon trees (*Citrus* sp.). These frogs constantly moved about in the vegetation during the 30 min of observation, possibly due to the discomfort of the female *S. baudinii*. Additionally, we recorded eggs clutches and larvae of *A. moreletii* and Southern Gulf Coast Toads (*Incilius valliceps*) in the pond.

We observed a second instance of heterospecific amplexus at 2147 h on 18 July 2014. A male *S. baudinii* was in amplexus with a Rio Grande Leopard Frog (*Lithobates berlandieri*; Fig. 2) in the Colonia Agrícola Rincón de las Flores, Municipality of Tezonapa, Veracruz, Mexico (18.7196°N, -96.8466°W; elev. 1,029 m). The frogs were encountered inside a concrete pond (10 x 7 m). Both remained motionless for several

minutes until noticing our presence. The *L. berlandieri* then jumped into the water. Six minutes later the male *S. baudinii* surfaced in the same area where it was observed initially in amplexus. In the same pond, we observed tens of *L. berlandieri*, several Southern Gulf Coast Toads, three male and one female *A. moreletii*, and another male and two female *S. baudinii*. Also present were eggs of *I. valliceps* and *A. moreletii* and larvae and juveniles of all the mentioned species.

Although previous observations of heterospecific amplexus involving *S. baudinii* (e.g., Streicher et al. 2010; Loc-Barragan et al. 2016; Heyborne et al. 2018) and *L. ber-*



Fig. 1. A male Morelet's Leaf Frog (*Agalychnis moreletii*) in amplexus with a female Mexican Treefrog (*Smilisca baudinii*). Photograph by Eduardo M. Pérez-Gómez.



Fig. 2. A male Mexican Treefrog (*Smilisca baudinii*) in amplexus with a male Rio Grande Leopard Frog (*Lithobates berlandieri*). Photograph by Víctor Vásquez-Cruz.

landieri (Halliday 1980) have been published, this is the first report of this behavior between these species and between *S. baudinii* and *A. moreletii*. To the best of our knowledge, this is the first record of *A. moreletii* engaged in heterospecific amplexus.

Although we do not know what triggered these behaviors, amplexus of *A. moreletii* and *S. baudinii* might have been influenced by the considerable degradation of the habitat at the breeding site. The case of *S. baudinii* and *L. berlandieri* most likely reflects a lack of selectivity by male *S. baudinii* during a period of intense reproductive activity at the beginning of rainy season. Effects of this type of reproductive interference include an unnecessary investment of time and energy for both individuals.

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