



Fig. 2. American Robin (*Turdus migratorius*) with San Diegan Legless Lizard (*Anniella stebbinsi*), photographed on 19 March 2023 at El Monte County Park, near Lakeside, San Diego County, CA.

NATURAL HISTORY NOTE

Interspecific Amplexus Between Western Spadefoot (*Spea hammondi*) and Western Toad (*Anaxyrus boreas*) in Yorba Linda, California

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Interspecific amplexus occurs when a male amphibian, typically an anuran, directs mating behavior at a vertebrate of a different species (Alvarez et al., in review). This behavior has been well documented among many anuran species (Serrano 2022a, 2022b). Members of the family Bufonidae appear particularly susceptible to reports of interspecific amplexus, likely due to their explosive breeding natural history (Wells 1977, Bateson 1983, Ferreira et al. 2019). Males of this group stage near breeding sites and appear to amplex objects of similar size to themselves that move in their vicinity (Brown 1977, Bateson 1983, Olson 1989). This aspect of their natural history tends to support interspecific amplexus, and reports of anurans amplexing other species are common. Here we describe an unusual observation of interspecific amplexus between two

western spadefoot (*Spea hammondi*) adults and a California toad (*Anaxyrus boreas halophilus*).

On March 5, 2023, while conducting a survey adjacent to the Chino Hills State Park, Yorba Linda, California, we heard numerous calls from breeding *S. hammondi*, and mating pairs were suspected to be associated with ponded water nearby. We followed aural cues to a frequently calling *S. hammondi* where we found an adult *A. b. halophilus* in thoracic amplexus with a *S. hammondi* (Figure 1). Initially, we did not observe a third *S. hammondi*, that was situated between the amplexing pair, until the middle *S. hammondi* expressed an alarm call causing an immediate observation of the vocal sacs protruding between the other two anurans (Figure 2).

The observation of the amplexing threesome lasted for several minutes, during which time the of *A. b.*

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Fig. 1. In situ photo of *Anaxyrus boreas halophilus* in amplexus with two amplexing *Spea hammondii*. Photo by Luc T. Myers.



Fig. 2. Side view of an *Anaxyrus boreas halophilus* in amplexus with two amplexing *Spea hammondii*. Photo by Luc T. Myers.

halophilus remained attached to the two *S. hammondii*, while the middle *S. hammondii* continued its alarm call. We elected to remove the *A. b. halophilus*, partially due to the status of *S. hammondii* as currently listed as a special status species in California (Thomson et al. 2016). The *A. b. halophilus*, however, was difficult to remove and resisted this effort.

After removal of the *A. b. halophilus*, the two *S. hammondii* remained in amplexus and were left at the location of the observation. We speculated that the *A. b. halophilus* may have injured or killed *S. hammondii* if we had not intervened (Bateson 1983).

Interspecific amplexus can result in increased predation potential (Alvarez 2011), this is highlighted by the fact that our observation was facilitated by the *S. hammondii* emitting a constant alarm call. In addition, it has been shown that interspecific amplexus could potentially cause reductions in population growth rates at specific locations (D'Amore et al 2009). Further, Dearing et al. (2015) and Islam et al. (2021) both report the potential for pathogen transmission during interspecific amplexus, potentially contributing further to declines in some species. While the overall effect of interspecific amplexus between *S. hammondii* and a *A. b. halophilus* would be almost impossible to fully understand, we speculate that this observation may indicate that in areas where these species are sympatric, this behavior could contribute negatively to an already declining regionally and locally *S. hammondii* population.

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