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# HETEROSPECIFIC AMPLEXUS BETWEEN *TRIPRION PETASATUS* (ANURA: HYLIDAE) AND *INCILIUS VALLICEPS* (ANURA: BUFONIDAE) FROM YUCATÁN, MEXICO

## AMPEXO HETEROESPECÍFICO ENTRE *TRIPRION PETASATUS* (ANURA: HYLIDAE) E *INCILIUS VALLICEPS* (ANURA: BUFONIDAE) EN YUCATÁN, MÉXICO

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**ABSTRACT.** The heterospecific amplex between *Tripurion petasatus* and *Incilius valliceps* is documented for the first time in the locality of Pisté, Yucatan Mexico. This behavior has been documented previously in other amphibians, many of them also explosive reproducers that take advantage of temporary bodies of water, in places with a marked dry season.

**RESUMEN.** Se documenta por primera vez el amplexo heteroespecífico entre *Tripurion petasatus* e *Incilius valliceps* en la localidad de Pisté, Yucatán México. Este comportamiento ha sido documentado con anterioridad en otros anfibios, muchos de ellos también reproductores explosivos que aprovechan los cuerpos de agua temporales, en sitios con una marcada estación de secas.

The Yucatán casque-headed tree frog *Tripurion petasatus* (Cope, 1856) is widely distributed in the Yucatán Peninsula, Mexico, Belize, and throughout El Petén, Guatemala, although its occurrence in Honduras has recently been called into question (Lee, 1996; McCranie, 2015; Frost, 2017). The Southern Gulf Coast toad *Incilius valliceps* (Wiegmann, 1833) ranges from central Veracruz, Mexico to northern Costa Rica on the Atlantic versant,

and from the Isthmus of Tehuantepec to south-central Guatemala on the Pacific slope, with an isolated record for El Salvador (Oliver-López *et al.*, 2009; Frost, 2017). Amplexus occurring between amphibians of different orders (Höbel, 2005a; Simović *et al.*, 2014), families (Sodrè *et al.*, 2014; Clause *et al.*, 2015; Bell & Scheinberg, 2016; Reilly *et al.*, 2016), genera (Streicher *et al.*, 2010; Kindermann, 2015; Marchant *et al.*, 2015; Loc-Barragán *et*



al., 2016), and species (Höbel, 2005b; Ceron & Zocche, 2016; Schalk, 2016) that overlap spatially and temporally has been documented previously, even if one of those involved is dead (Waterstrat *et al.*, 2008; Müller, 2016), or both are males (Costa-Campos *et al.*, 2016).

We found an axillary amplexus between a male *T. petasatus* and a male *I. valliceps* on 13 June 2015, at Pisté, Yucatán, Mexico (20.682085° N, -88.600571° W; WGS84; elev. 30 m; Fig. 1). Our observation occurred at 20:34 h at a temporary pond surrounded by secondary vegetation and dry forest. Only one other species of anuran, *Smilisca baudinii* (Duméril & Bibron, 1841), was observed to be active in the area. During courtship, the males normally call to attract conspecific females, and differences in vocalization frequencies help to reduce interspecific mating (Wells, 2007). *Triprion petasatus* and *I. valliceps* emit a very different vocalization: 2100 – 2300 Hertz (pulse frequency of 75 – 90 seconds, and duration of 350 milliseconds) and 1800 – 2000 Hertz (pulse frequency 40 – 50 seconds, 2 – 5 seconds duration), respectively (Lee, 1996). At the same time, *T. petasatus* males average 55 mm in snout-vent length (SVL) and females average 70 mm in SVL, whereas male *I. valliceps* average 73 mm in SVL and females average 88 mm in SVL (Lee, 1996).



**Figure 1.** Axillary amplexus between a male *Triprion petasatus* (top), and a male *Incilius valliceps* (bottom) observed at Pisté, Yucatán, Mexico. Photo by Tania Ramírez-Valverde.

Therefore, the similarity in body size between *T. petasatus* females and male *I. valliceps* could have contributed to the lack of specific discrimination (Yu & Lu, 2013).

In areas with a marked dry season, like the northern Yucatán Peninsula (Torrescano-Valle & Folan, 2015), explosive reproductive events are commonplace where *T. petasatus* and *I. valliceps* congregate in temporary ponds to mate and oviposit, as we observed the night of the discovery, with several tens of individuals of both species congregated, and *S. baudinii* in lower numbers. Therefore, heterospecific and multiple amplexus, even between males, seems to be common among explosive breeders, due to the high number of individuals and an often male-biased sex ratio at the same site (Wogel *et al.*, 2005), the short time for breeding (Höbel, 2005b), confusion of chemical signals (Mollov *et al.*, 2010), and low selectivity toward females (Machado & Bernarde, 2011). To our knowledge, this is the first observation documenting this behavior between individuals of *T. petasatus* and *I. valliceps*, two common anuran species found in sympatry, and suggests that neither differences in morphology and vocalization help to completely prevent heterospecific amplexus.

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