

When males clasp males: interfamilial amplexus between *Dendropsophus minutus* (Peters, 1872) and *Pithecopus hypochondrialis* (Daudin, 1800) in the Brazilian Cerrado

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Amplexus is the fundamental mating position in anuran reproduction, in which the male clasps the female until oviposition and fertilisation occurs (Wells, 1977). Interspecific amplexus is classified as a form of misdirected amplexus, occurring when an individual attempts to mate with a partner of a different species (Serrano et al., 2022; Soni et al., 2025). This behaviour typically takes place during the breeding season, especially under conditions of intense competition, in which males indiscriminately grasp any organism resembling a female through a trial-and-error process (Duellman and Trueb, 1994; Wells, 2007).

From a biological and evolutionary perspective, interspecific amplexus can be energetically costly and may reduce individual reproductive success, as it consumes time and energy that would otherwise be allocated to suitable partners (Magnhagen, 1991; Bowcock et al., 2009; Serrano et al., 2022). This behaviour is generally triggered by superficial visual stimuli, although the use of chemical and tactile cues has also been suggested as part of the mate-recognition mechanism in nature (Duellman and Trueb, 1994; Soni et al., 2025).

Here, we assessed whether species of *Dendropsophus* and *Pithecopus* have been mentioned in reports on interspecific amplexus within the literature through an in-depth literature assessment, based on recommendations by van den Burg and Kaiser (2026). Firstly, we note the overview compiled by Serrano et al. (2022). Our assessment showed that species of the genus *Dendropsophus* have been reported engaging in

interspecific amplexus with a variety of other species, such as *Dendropsophus brevifrons*–*Dendropsophus minutus* (Aichinger, 1987), *Dendropsophus columbianus*–*Pristimantis* sp. (Bedoya et al., 2014), *Dendropsophus minutus*–*Callimedusa tomopterna* (Melo-Sampaio and da Silva, 2017), *Dendropsophus elegans*–*Boana semilineata* (Pedro and Nali, 2020), *Dendropsophus leucophyllatus*–*Boana courtoisae* (Amanajás et al., 2024), and *Dendropsophus sanborni*–*Dendropsophus elianeae* (Routh et al., 2026). In all previously reported cases, *Dendropsophus* males were always found occupying the upper position in amplexus. By contrast, for the genus *Pithecopus*, there is only a single record of interspecific amplexus, between *Pithecopus nordestinus* and *Physalaemus cuvieri* (Ribeiro et al., 2014).

We observed a male *Dendropsophus minutus* in axillary amplexus with a male *Pithecopus hypochondrialis* (Fig. 1) during a nocturnal herpetofaunal survey conducted on 24 November 2025, at 21:22 h, in the headwaters region of the Araguaia River, municipality of Mineiros, Goiás, Brazil (18.0193°S, 53.0702°W; datum SAD 69; elevation 774 m). The frogs sitting on the vegetation above a temporary pond, where no oviposition was observed. The individuals remained immobile in amplexus for approximately eight minutes, after which they were collected and placed in a plastic bag, where they remained in amplexus until transportation to the field team's accommodation. During the observation period, the male *P. hypochondrialis* did not emit release calls nor displayed any apparent attempt to escape from the amplexus. The specimens were subsequently euthanised and deposited in the herpetological collection of the Centro de Estudos e Pesquisas Biológicas of Pontifícia Universidade Católica de Goiás (*Pithecopus hypochondrialis*: CEPB-10456; *Dendropsophus minutus*: CEPB-10457). The *P. hypochondrialis* individual was identified as a male based on post-

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Figure 1. Interspecific amplexus between a male of *Dendropsophus minutus* (CEPB-10457) in axillary amplexus with another male of *Pithecopus hypochondrialis* (CEPB-10456) in Mineiros municipality, Goiás State, Brazil. Photo by Igor Gerolineto-Alves.

collection gonadal examination, which confirmed the presence of testes. The male *P. hypochondrialis* (snout-vent length = 30.7 mm) was substantially larger than the male *D. minutus* (snout-vent length = 11.6 mm).

We identified the individual as *D. minutus* based on the following set of characters: a weakly glandular dorsum and a variable dorsal pattern, exhibiting yellow or cream colouration with dark dorsal and transverse bands (Vaz-Silva et al., 2020). Identification of the *P. hypochondrialis* specimen followed the combination of characters described by Vaz-Silva et al. (2020), consisting of the presence of a narrow white stripe on the upper lip that does not reach the margin of the lower eyelid and is not visible in dorsal view. The specimens were collected as part of the herpetofaunal inventory of the Araguaia Biodiversity Research Programme (PPBio Araguaia). Despite the wide distribution and abundance of both species, this represents the first documented case of interfamilial male-male amplexus involving *Dendropsophus minutus* and *Pithecopus hypochondrialis*.

Different species may exhibit similar reproductive modes, making use of comparable resources such as breeding sites, reproductive periods, and the arboreal stratum utilised during reproduction (Lirio et al., 2019). In the case of the species examined here, both have a prolonged breeding season and occupy similar arboreal strata at reproductive sites, where males typically call while perched on marginal and internal pond vegetation at heights between 0.2–1.0 m (Vaz-Silva et al., 2020). This ecological overlap may help

to explain the observation reported herein, although interspecific amplexus is more commonly associated with explosive breeding aggregations (Wells, 2007). The marked size difference between the individuals may also have contributed to this event. In many anuran species, females are larger than males (Arntzen, 1999), and males rely on a combination of visual and tactile cues during mate recognition (Wells, 2007). Therefore, the larger body size of the male *P. hypochondrialis* may have acted as a visual cue resembling a potential female, resulting in a mate-recognition error by the male *D. minutus*. No release calls were heard during the observation period, despite such vocalisations being known in phyllomedusid frogs (Mângia et al., 2019).

The observed interaction is consistent with a mate-recognition error, possibly facilitated by overlap in reproductive habitat and by the marked body size difference between the individuals involved. Such interactions may impose energetic costs and reduce reproductive opportunities for males. Additional observations are needed to better understand the ecological and behavioural factors associated with misdirected amplexus in Neotropical anurans.

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