



# Interspecific Amplexus of a Male Himalayan Toad, *Duttaphrynus* cf. *himalayanus* (Gunther 1864), and a Female Asian Common Toad, *Duttaphrynus melanostictus* (Schneider 1799), in West Kameng, Arunachal Pradesh, India

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**M**ate recognition plays a crucial role in successful sexual reproduction, and understanding its aspects is essential because it influences sexual selection, genetic variation, and population dynamics (Blumstein 1998). Amphibians, as key bioindicators and regulators of insect populations, are critical to ecosystem health (MacCulloch 2008). Yet, research on amphibians is limited and challenging due to their cryptic behavior, environmental sensitivity, and diverse reproductive strategies (Womack et al. 2022). This underscores the importance of studying amphibian reproduction, as it directly influences species survival and population stability (Vitt et al. 1990).

Misdirected amplexus has been recorded in 19 frog families, with ~ 76% of the species belonging to four families: Bufonidae (23.2%), Ranidae (21.5%), Hylidae (19%), and Rhacophoridae (11.4%) (Soni et al. 2024). One particularly significant area of research is interspecific amplexus, during which individuals of different species attempt to mate. Understanding this behavior is crucial because it can result in wasted reproductive efforts, hybridization, and potential population declines, further complicating conservation efforts; therefore, gaining deeper insights into both mate recognition and interspecific amplexus is vital for conservation and management strategies (Bradford 1991; Bradford et al. 1994; Matthews et al. 2001).

Interspecific reproductive competition can occur when species compete for shared territorial and/or signaling space involved in mate attraction and reproduction (Grether et al. 2009; Burdfield-Steel and Shuker 2011; Pfennig and Pfennig 2012). Reports have documented incidents of interspecific amplexus in amphibians involving taxa from various orders (Moldowan et al. 2013; Simović et al. 2014), families (e.g., Sodré et al. 2014; Theis and Caldart 2015; Melo-Sampaio

and Da Silva 2017), and genera (e.g., Groffen et al. 2019; Pedro and Nali 2020).

In India, interspecific amplexus has been reported previously between the Nicobar Island Frog (*Indosylvirana nicobariensis*) and Berdmore's Narrow-mouthed Frog (*Microhyla berdmorei*) (Decemson et al. 2020); Kalakkad Treefrog (*Rhacophorus calcadensis*) and Malabar Gliding Frog (*R. malabaricus*) (P. Manoj in Sayyed and Nale 2017); Indian Burrowing Frog (*Sphaerotheca breviceps*) and Asian Common Toad (*Duttaphrynus melanostictus*) (Vivek et al. 2014); Ghate's Shrub Frog (*Raorchestes ghatei*) and Mottled



**Figure 1.** Interspecific amplexus of a male Himalayan Toad (*Duttaphrynus* cf. *himalayanus*), and a female Asian Common Toad (*Duttaphrynus melanostictus*) in West Kameng in 2024, Arunachal Pradesh, India. Photograph by Vikas Gautam.

Globular Frog (*Uperodon mormoratus*) and Ornate Narrow-mouthed Frog (*Microhyla ornata*) (Sayyed and Padhye 2020); Bombay Bubble-nest Frog (*Raorchestes bombayensis*) and Ornate Narrow-mouthed Frog (*Microhyla ornata*) (Yadav and Yankanchi 2014); Malabar Tree Toad (*Pedostibes tuberculosus*) and Asian Common Toad (*Duttaphrynus melanostictus*) (Sayyed and Nale 2017); Anamalai Dot Frog (*Uperodon anamalaiensis*), Terrestrial Frog (*Fejervarya* sp.), and Anamallais Indian Frog (*Indirana brachytarsus*) (Harpalani et al. 2015); Terai Treefrog (*Polypedates teraiensis*) and White-lipped Treefrog (*Polypedates braueri*) and Cope's Assam Frog (*Hydrophylax leptoglossus*) (Muansanga et al. 2021); and Malabar Gliding Frog (*Rhacophorus malabaricus*) and Common Indian Treefrog (*Polypedates maculatus*) (Sayyed 2013). We herein report the first observation of interspecific amplexus between a male Himalayan Toad (*Duttaphrynus cf. himalayanus*) and a female Asian Common Toad (*Duttaphrynus melanostictus*).

The Himalayan Toad is widely distributed in the Himalayan Region of China, Pakistan, Nepal, Bangladesh, Bhutan, and India (Frost 2021), but the mating system of this explosive breeder is not well understood. The Asian Common Toad is distributed all over Asia and a growing number of studies on sexual selection have noted that females are generally the choosier sex and that males compete for mates (Zhang et al. 2020). Those differences between sexes arise mostly because females usually invest more in offspring, have lower potential reproductive rates, or are less abundant than males (Emlen and Oring 1977; Glutton-Brock and Vincent 1991; Eberhard 1996; Sih et al. 2014; Trivers 2017).

At 2200 h on 18 July 2024, during a herpetological survey, I encountered a male *D. cf. himalayanus* (SVL 74.0 mm) in axillary amplexus (Carvajal-Castro et al. 2020) with an adult female *D. melanostictus* (SVL 82.0 mm) (Fig. 1). The pair was in a perennial stream in Lapusa Village of West Kameng District, Arunachal Pradesh, India (27.39351, 92.63846; elev. 1,508 m asl). Water and air temperatures were 11.5 °C and 11.8 °C, respectively. Both individuals were quiescent and remained in a vertical position holding onto the substrate until 0022 h on 19 July 2024, when they separated and jumped into running water.

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