



Interfamilial Male-male Amplexus between a Malabar Gliding Frog (*Rhacophorus malabaricus*; Rhacophoridae) and a Bicolored Frog (*Clinotarsus curtipes*; Ranidae) from the Western Ghats, India

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Amplexus misdirected toward other species, the same sex, and even inanimate objects appeared early during the diversification of anurans and probably occurs in most genera (Brischoux and Lorrain-Soligon 2023). Misdirected amplexus has been attributed to factors including climate change, habitat modifications, short overlapping mating seasons, and variable operational sex ratios (Jithin et al. 2021 and references therein). Herein we present the first report of interfamilial male-male amplexus between a Malabar Gliding Frog (*Rhacophorus malabaricus*) and a Bicolored Frog (*Clinotarsus curtipes*), two species endemic to the Western Ghats of India.

At 1644 h on 7 August 2023, we observed a male Malabar Gliding Frog in axillary amplexus with a male Bicolored Frog on the edge of a manmade pool in a coffee estate in Avandur, Kodagu District, India (12.39511, 75.65707; elev. 1,042 m asl). Habitat in the area is an approximately equal mix of coffee and diverse forest trees. The Malabar Gliding Frog initially had its forelimbs positioned behind the arms of the Bicolored Frog (Fig. 1A) but quickly acquired a more secure grasp by moving its toes over the shoulders of the latter (Fig. 1B). The Bicolored Frog, possibly attempting to free itself, shifted its position but amplexus continued (Figs. 1C & D). We observed the event for approximately 20 minutes, during which we noted the presence of several female Malabar Gliding Frogs in the immediate area. Both individuals had moved away when we revisited the pool about two hours later. This event might have been facilitated by the similar sizes of males of both species and the fact that both species breed during the monsoon months in perennial pools or streams (Krishnamurthy and Katre 1997; Kadadevaru and Kanamadi 2000; Daniel 2002).

Frogs in the family Rhacophoridae are among those with the highest rates of misdirected amplexus (Serrano et al. 2022). Malabar Gliding Frogs have been recorded in male-male interspecific amplexus with an Indian Treefrog (*Polypedates maculatus*; Sayyed 2013) and with a female and another Kalakad Gliding Frog (*Rhacophorus calcadenensis*; Sayyed and Nale 2017; Serrano et al. 2022) of unknown sex. No records document misdirected amplexus in any of the three species of *Clinotarsus*; the genus, however, has a high probability of exhibiting such behavior (Brischoux and Lorrain-Soligon 2023). Misdirected mating efforts cost frogs time and energy, thus reporting instances of such behaviors is important as they could be indicative of environmental changes (Serrano et al. 2022).

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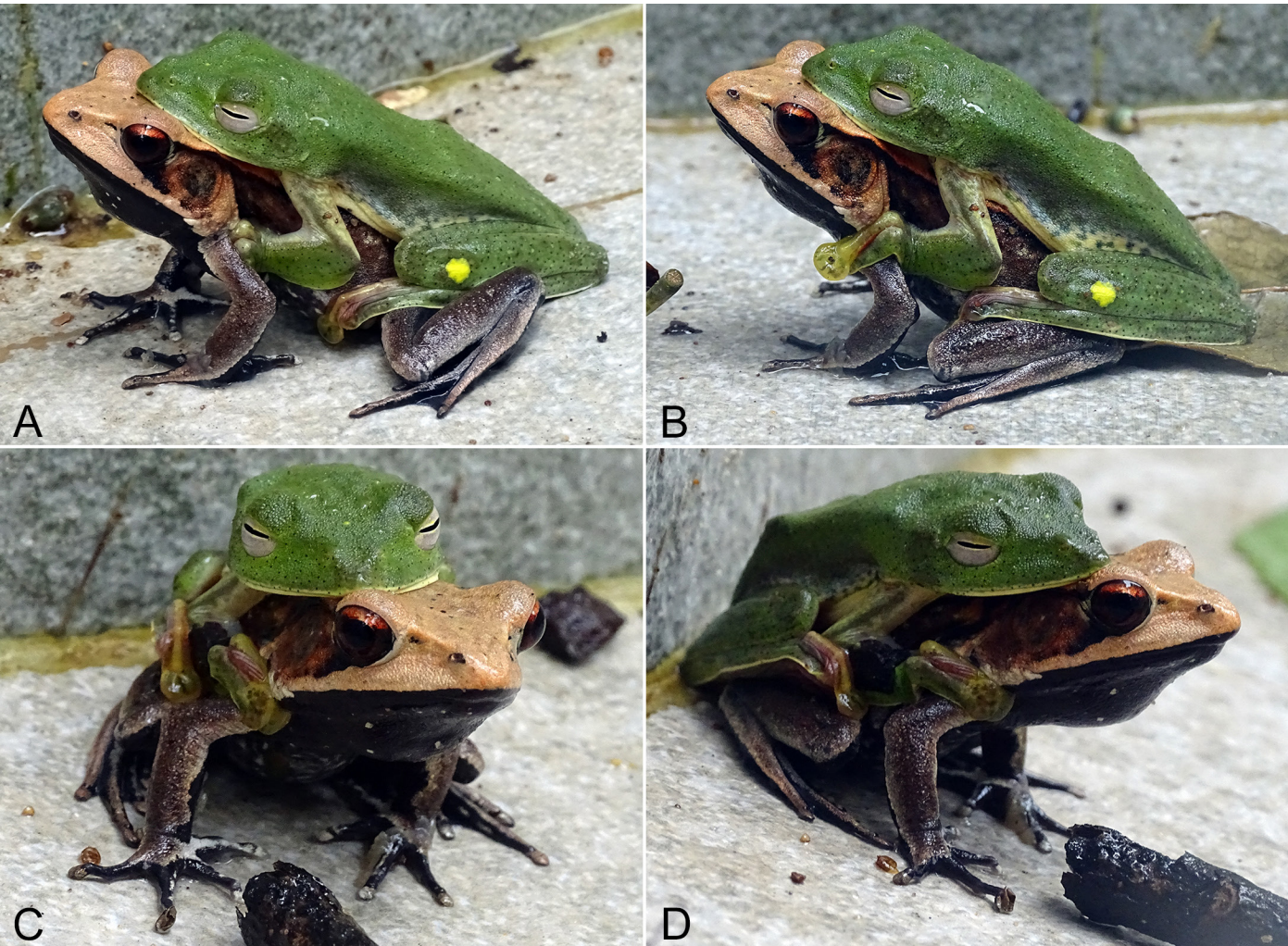


Figure 1. A male Malabar Gliding Frog (*Rhacophorus malabaricus*) in interfamilial amplexus with a male Bicolored Frog (*Clinotarsus curtipes*) with fingers under the arm (usually the preferred position for axillary amplexus with a female gliding frog (A); with fingers moved over the shoulders of the Bicolored Frog, likely for a firmer grip (B); and the Bicolored Frog changing its position as amplexus continues (C–D). Photographs by Romit Shilpe.

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