

## *Pseudophilautus popularis* (Common shrub frog): Male territorial combat and vocal interaction in Sri Lanka

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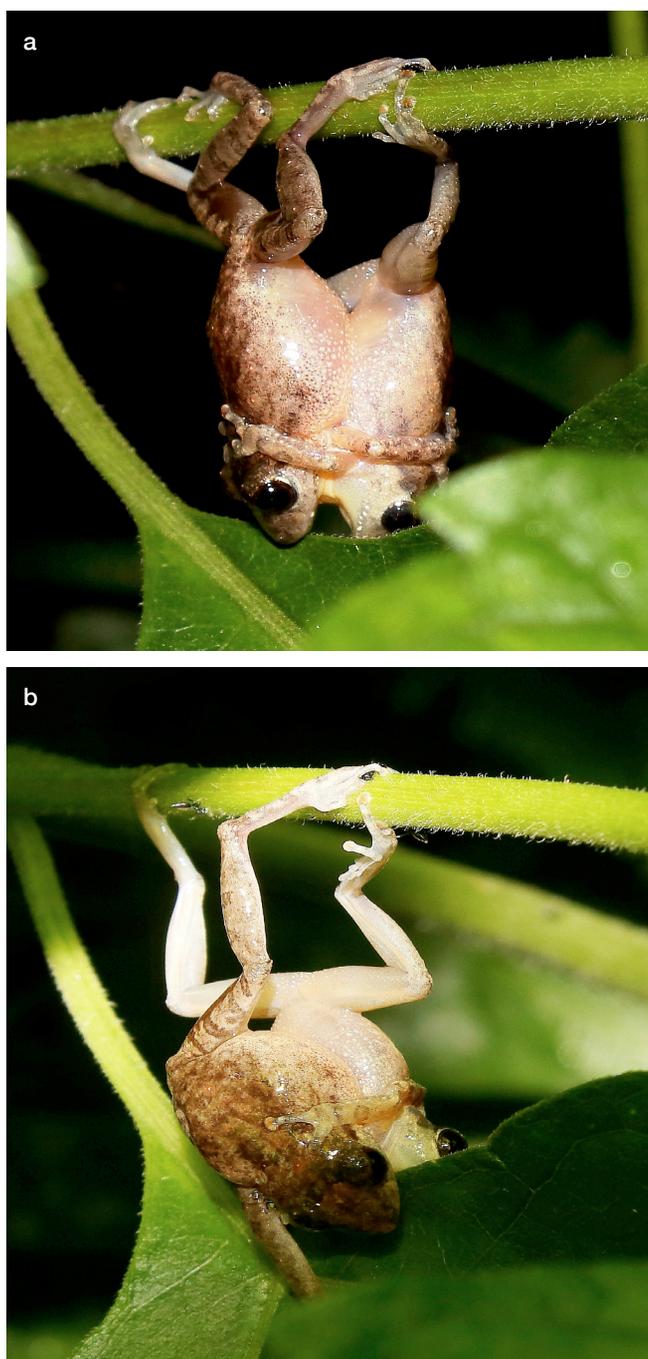
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The Common Shrub Frog, *Pseudophilautus popularis* (family: Rhacophoridae, Manamendra-Arachchi and Pethiyagoda, 2005) is a widely distributed species endemic to the low-county wet zone (up to 1060 meters above sea level) in Sri Lanka (Manamendra-Arachchi & Meegaskumbura, 2012). It is a synanthropic species that can be found near forest edges and grasslands (Manamendra-Arachchi & Pethiyagoda 2005; Karunarathna & Amarasinghe, 2010). Although *P. popularis* is commonly found within its distribution range, little is known about male-male interactions. Herein, we report the first ever observation of vocal interactions and combat behavior in a Sri Lankan amphibian, *P. popularis* (Manamendra-Arachchi & Pethiyagoda, 2005).

The observation was made at 2243 hrs on 14 June 2015 just after rain, in Hunuwela Rubber Estate, Ratnapura District, Sri Lanka (6.6375°N, 80.6000°E, WGS84, 280 m elevation). The site is surrounded by mature evergreen forests, including rubber and tea plantations, and is close to the southern slope of the central hills. Initially we encountered the advertisement calls of *P. popularis*, which sounded like “creek...creek...,” with the calls gradually sharpening as they progressed (see Samarasinghe, 2011). We observed the first male calling in a resting position on a leaf blade of *Chromolaena odorata* (family: Asteraceae) about 0.2 m above ground. The second male was also calling in a resting position about 0.3 m above ground on a branch of the same plant. Approximately one minute after our observations started, the first male approached the branch where the second male was sitting. At this point, the calls of both males change to a high-pitched call, which sounded like “tip...tip...” Each male called around 10 times while situated 3 cm apart on the same branch. Both frogs soon engaged in physical contact by grasping each other, presumably a sign of aggression, and by lifting their forelimbs and showing their swollen vocal sacs. A few seconds later, it appeared as if both males were about to fall off the branch but clung on



**Figure. 1a.** Combat between two male *P. popularis*. **1b.** Photograph showing *P. popularis* male attempting to dislodge the second male *P. popularis*.

with their hindlimbs, while their forelimbs and upper bodies were locked in a tight clasp (Fig. 1a). Later, the first male was able to grasp a leaf of the plant and use it as an anchor and strike the second male with its remaining forelimb and both hindlimbs (Fig. 1b). Subsequently, the second male retreated off the branch and from the immediate region. The first male returned to making the high-pitch aggressive calls for a few more minutes. The event lasted for about eight minutes although no female frogs were observed in the vicinity.

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