

Observations on the breeding behavior of the Philippine Sticky Frog *Kalophrynus sinensis*, Peters (1867)

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Photographs by: Dennis A. Mugot.
Subjects identified by: Jake Wilson B. Binaday.

Location: Barangay Poblacion, Municipality of Claveria, Misamis Oriental.

Elevation: 630 metres ASL.

Habitat: Artificial pond.

Date and time:

i) 17 August 2019, 06:10 hrs.

ii) 22 March 2020, 19:38 hrs.

Identity of subjects: Philippine Sticky Frog, *Kalophrynus sinensis* (Amphibia: Anura: Microhylidae)

Description of records:

On the early morning of 17 August 2019, several pairs of *Kalophrynus sinensis* were observed mating in a small artificial pond with shallow water, by the porch of a house. One of the pairs in amplexus was video recorded while the female released its eggs. While the male grasped the female's body, the female pushed its posterior end upward with its hindlimb above the water's surface until both the cloaca of the two sexes almost met. During this process, the male formed a diamond-shaped chamber with its thighs and legs by conjoining both of its heels (Figs. 1a-b).

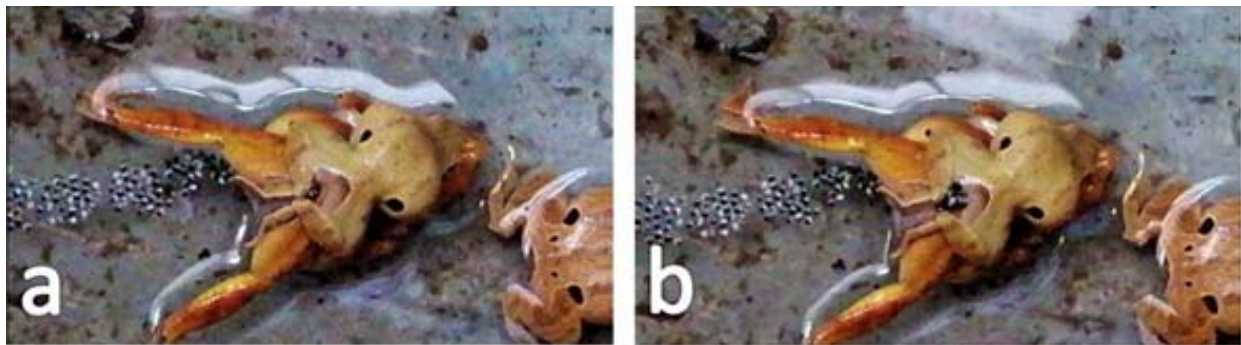


Figure. 1a-b. *Kalophrynus sinensis* amplexus process.

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After the eggs were released, the male spread its hindlimbs outwards while the female lowered its posterior end until the eggs reached the water's surface (Figs. 1c-f). This process was repeated until all of the eggs in the clutch were released. It was also observed that an unpaired male tried to separate the pair several times during this process, but failed to do so.

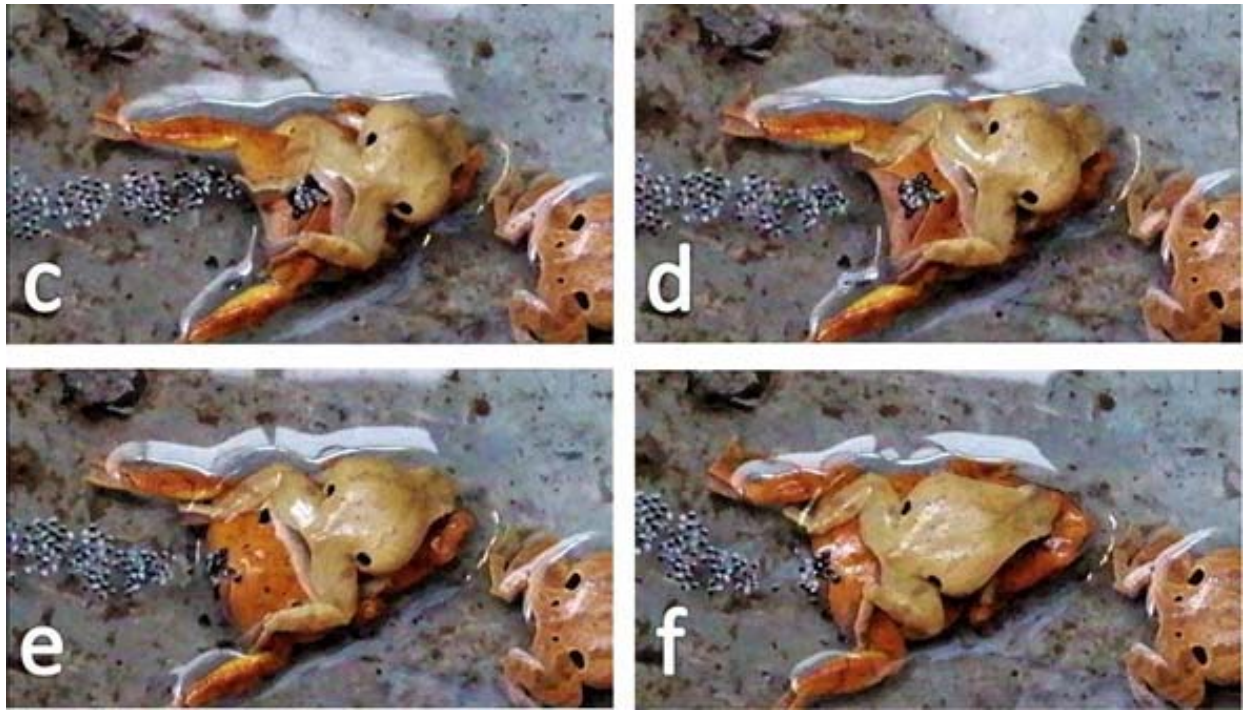


Figure. 1c-f. *Kalophrynus sinensis* amplexus process.

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On the evening of 22 March 2020, two vocalizing males and a female *Kalophrynus sinensis* were observed in the same pond. Several tadpoles were also observed within the pond, but there were no eggs. The frogs were then observed every five minutes. One of the male frogs paired with the female and stayed for around 3 hours in the pond (Fig. 2). While in the amplexus position, the skin colouration of both sexes turned lighter, but the unpaired male's skin colour remained unchanged. The paired frogs left the pond while still in amplexus, probably due to disturbance during the observation process. However, the unpaired male stayed in the pond and continuously made calls for the rest of the night. The pair was not observed again until 12 p.m. In the morning of 23 March 2019, a clutch of eggs was found in the pond, along with the unpaired male (Fig. 3).



Figure 2. *Kalophrynus sinensis* in amplexus, along with several tadpoles.

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Figure 3. Clutch of eggs of *Kalophrynus sinensis* with an adult male.

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Remarks:

The individuals were identified as *Kalophrynus sinensis* based on (i) black inguinal spots, (ii) light-edged ocelli, (iii) presence of middorsal stripe from snout to neck where it bifurcates, (iv) dorsolateral ridge distinct from shoulder to inguinal area, (v) dorsal surface granular rugose, (vi) lack of webbing on fingers, and (vii) modestly webbed toes (Zug 2015).

This observation of the female using its hindlimb to raise its posterior end from the water's surface during amplexus could provide some explanation as to why this species prefers shallow water as its mating ground: the female needs its hindfeet to touch the ground for it to raise its posterior end. Other *Kalophrynus* species have been documented breeding in shallow waters in small ephemeral pools and phytohelms (Vassilieva et al. 2014; Zug 2015). Moreover, by raising the eggs from the water's surface during the release of the male's sperm likely increases the chance of fertilizing the eggs.

The Philippine Sticky Frog is known to occur throughout the islands of Basilan, Bohol, Camiguin Sur, Culion, Dinagat, Leyte, Mindanao, Samar (Diesmos et al. 2015). This species hide under forest litter during the day and emerges at night to forage and breed in shallow pools of water (Zug 2015). It can frequently be encountered during the rainy season, where males call while floating in ephemeral pools and water-filled cavities in habitats of varying levels of disturbances, up to 1200m elevation (Sanguila et al. 2016; Venturina et al. 2020). This observation provides additional information on the species breeding behavior..

References:

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