



Predation on Gliding Leaf Frog (*Agalychnis spurrelli*) Eggs by Savage’s Thin-toed Frog (*Leptodactylus savagei*) Tadpoles in Sierpe de Osa, Costa Rica

Raby Nuñez Escalante¹, Danixa Peña Villalobos², and Jared Moreno Chinchilla³

¹Sierpe de Osa, Puntarenas, Costa Rica (sierpefrogs@gmail.com [corresponding author])

²Ciudad Cortes, Puntarenas, Costa Rica (danixa.2605@gmail.com)

³Palmar Norte, Puntarenas, Costa Rica (jaredchinchilla59@gmail.com)

Although most anuran tadpoles are herbivores or detritivores, those of some species are carnivores (Alford 1999) and some are cannibalistic (Duellman and Trueb 1994).

Along with many other species, Savage’s Thin-toed Frogs (*Leptodactylus savagei*) reproduce in temporary or permanent ponds and swamps during the wet season. Amplecting pairs produce foam nests (Fig. 1) in which the tadpoles (Fig. 2),



Fig. 1. The foam nest of Savage’s Thin-toed Frog (*Leptodactylus savagei*) is produced during oviposition. Notice the head of a male emerging from the foam; female is completely embedded in the foam. Photograph by Raby Nuñez Escalante.



Fig. 2. Savage’s Thin-toed Frog (*Leptodactylus savagei*) tadpoles are large opportunistic predators. Photograph by Jared Moreno Chinchilla.



Fig. 3. Seven Savage’s Thin-toed Frog (*Leptodactylus savagei*) tadpoles feeding on fallen Gliding Leaf Frog (*Agalychnis spurrelli*) eggs. Photograph by Raby Nuñez Escalante.

which ultimately become very large (to 83 mm at stage 40), begin development (Hero and Galatti 1990; Savage 2002). The developing larvae feed initially on the foam produced by the male, but later will either eat algae (Vinton 1951) or become carnivorous, often preying on tadpoles of other and their own species (Heyer et al. 1975; Muedeking and Heyer 1976), including the toxic eggs and tadpoles of the Mesoamerican Cane Toad (*Rhinella horribilis*) (Leenders 2016).

At 2347 h on 16 May 2021, RN encountered seven *L. savagei* tadpoles devouring Gliding Leaf Frog (*Agalychnis spurrelli*) eggs (Fig. 3) that had fallen from an overhanging American Oil Palm (*Elais oleifera*) frond (Fig. 4). We counted 43 eggs but more had almost certainly been eaten. To the best of our knowledge, this is the first report of *L. savagei* larvae feeding on *A. spurrelli* eggs.

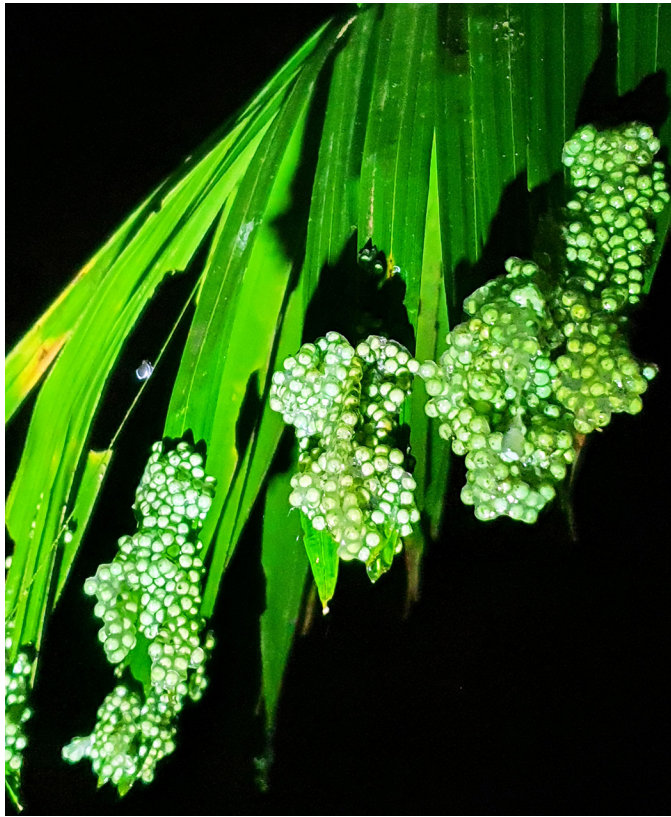


Fig. 4. Gliding Leaf Frog (*Agalychnis spurrelli*) egg masses on a frond of an American Oil Palm (*Elais oleifera*) (right). Eggs usually adhere to the overhanging fronds until the larvae drop into the water below, but the large number of eggs on the same frond apparently caused some of them to fall. Photograph by Raby Nuñez Escalante.

Literature Cited

Alford, R.A. 1999. Ecology: resource use, competition, and predation, pp. 240–278. In: R.W. McDiarmid and R. Altig (eds.), *Tadpoles: The Biology of Anuran Larvae*. University of Chicago Press, Chicago, Illinois, USA.

Duellman, W.E. and L. Trueb. 1994. *Biology of Amphibians*. Johns Hopkins University Press, Baltimore, Maryland, USA.

Hero, J.M. and U. Galatti. 1990. Characteristics distinguishing *Leptodactylus pentadactylus* and *L. knudseni* in the Central Amazon rainforest. *Journal of Herpetology* 24: 226–228. <https://doi.org/10.2307/1564240>.

Heyer, W.R., R.W. McDiarmid, and D.L. Weigmann. 1975. Tadpoles, predation and pond habitats in the tropics. *Biotropica* 7: 100–111. <https://doi.org/10.2307/2989753>.

Leenders, T. 2016. *Amphibians of Costa Rica. A Field Guide*. Zona Tropical Publications, Comstock Publishing Associates, Cornell University Press, Ithaca, New York, USA.

Muedeking, M.H. and W.R. Heyer. 1976. Descriptions of eggs and reproductive patterns of *Leptodactylus pentadactylus* (Amphibia: Leptodactylidae). *Herpetologica* 32: 137–139.

Savage, J.M. 2002. *The Amphibians and Reptiles of Costa Rica: A Herpetofauna Between Two Continents, Between Two Seas*. University of Chicago Press, Chicago, Illinois, USA.

Vinten, K.W. 1951. Observations on the life history of *Leptodactylus pentadactylus*. *Herpetologica* 7: 73–75.