



FIG. 1. *Leptodactylus insularum* (San Miguel Island Frog) exhibiting defensive behavior.

Herpetofauna between Two Continents, between Two Seas. University of Chicago Press, Chicago, Illinois. 934 pp.; Heyer and de Sá 2011. Contrib. Zool. 635:1–58).

On 12 March 2015, I caught an adult specimen of *L. insularum* ca. 300 m NW of La Gamba Tropical Research Station, approx. 10 km NW Golfito, Provincia de Puntarenas, Costa Rica (8.70312°S, 83.20456°W, WGS 84; elev. 120 m). The individual was placed in a bag overnight and handled for a photo session the next morning. During manipulation the frog inflated its body and raised its legs and body well above the ground, displaying the aposematic coloration of the posterior thighs (Fig. 1). This behavior lasted for a short while (< 20 sec) and could be repeated several times by tapping the frog gently on its head.

Defensive behaviors of frogs were recently reviewed by Toledo et al. (2011. Ethol. Ecol. Evol. 23:1–25). Accordingly, a behavior as described above is classified as full body-raising with legs vertically stretched, showing aposematic colors. Within the genus, full body-raising has been described from *L. labyrinthicus*, *L. laticeps*, *L. latrans*, and *L. mystacinus*, but apparently not from members of the *L. boliviensis* group (Toledo et al., *op. cit.*). According to Toledo et al. (*op. cit.*), the behavior is common in species with noxious skin secretions. Toxic skin secretions are known from a number of species of the genus (e.g., Ryan et al. 2010. Herpetol. Rev. 41:337–338; Toledo et al. 2011, *op. cit.*; Haddad et al. 2013. Guia dos Anfíbios da Mata Atlântica: Diversidade e Biologia. Anolisbooks, São Paulo. 544 pp.), but to my knowledge not yet from *L. insularum*, but they are likely to occur.

Many thanks to Jörg Scheidung and Jeff Schreiner for their help in the field and to Mark Scherz for his help in the office.

MICHAEL FRANZEN, Zoologische Staatssammlung München (ZSM-SNSB), Münchhausenstrasse 21, 81247 München, Germany; e-mail: michael.franzen@zsm.mwn.de.

LIMNONECTES PALAVANENSIS (Smooth Guardian Frog)

PREDATION. *Limnonectes palawanensis* is a nocturnal leaf-litter frog found in the western and northern part of Borneo and Palawan Island of the Philippines (Das 2007. A Pocket Guide: Amphibians and Reptiles of Brunei. Natural History Publications [Borneo], Kota Kinabalu, Sabah, Malaysia. 208 pp.). This small frog (snout–urostyle length: males = 21–30 cm, females = 28–33 cm) inhabits the forest floor of primary and secondary mixed-dipterocarp forest, where males sporadically call to attract females. Females lay eggs in the leaf litter and the eggs are

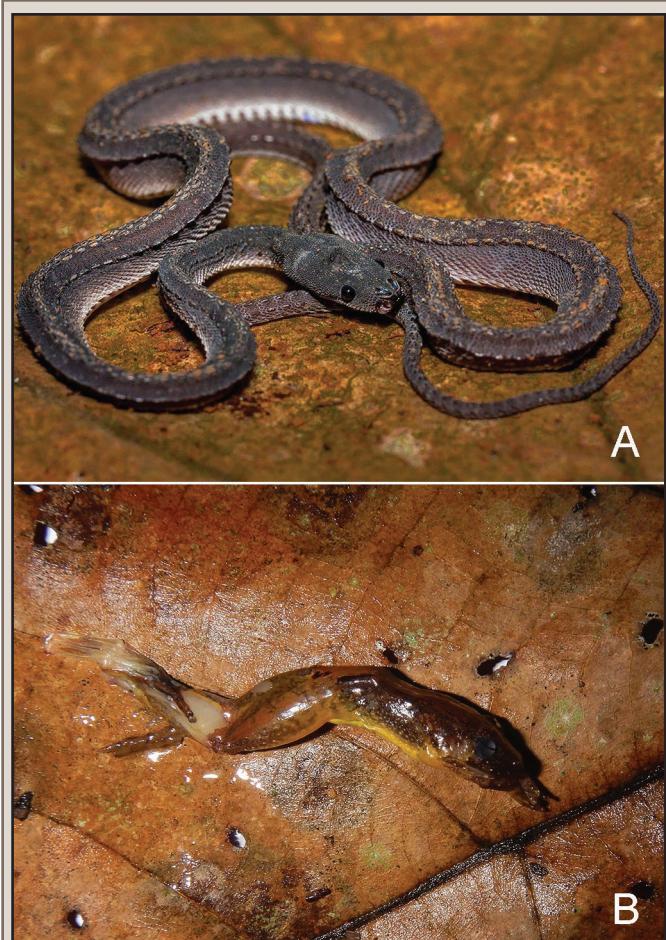


FIG. 1. A) Rough-backed Snake (*Xenodermus javanicus*) after regurgitation occurred. B) Regurgitated individual of *Limnonectes palawanensis*.

guarded by the males until hatching. The male then transports the newly hatched tadpoles to small bodies of water (Inger and Voris 1988. Copeia 1988:1060–1061; Goyes Vallejos 2016. Doctoral Dissertation. University of Connecticut, Storrs, Connecticut). Instances of predation have never been reported for *Limnonectes palawanensis*. Here, we report a predation event by the Rough-backed Snake (*Xenodermus javanicus*) of an adult female of *L. palawanensis*. Seemingly a frog specialist, *X. javanicus* is active at night and it has been observed foraging under dead leaves on the forest floor, prime *L. palawanensis* habitat (Stuebing et al. 2014. A Field Guide to the Snakes of Borneo. Natural History Publications [Borneo], 2nd edition, Kota Kinabalu, Sabah, Malaysia. 310 pp.).

This observation took place at the Kuala Belalong Field Studies Centre (KBFSC), located within the Ulu Temburong National Park (Brunei Darussalam; 4.546°N, 115.157°E; WGS 84). On the night of 16 October 2014, we observed an adult *X. javanicus* with its stomach engorged, close to an artificial pool sporadically used by males of *L. palawanensis* to deposit tadpoles. The individual was taken to the KBFSC Laboratory to be photographed and released the following night (Fig. 1A). At 0900 h on 17 October 2014, a regurgitated individual of *L. palawanensis* was found in the terrarium where the individual *X. javanicus* was held. Upon examination, we found that it was an adult female (Fig. 1B). This observation constitutes the first record of predation of *L. palawanensis*.

JOHANA GOYES VALLEJOS, Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, Connecticut, USA (e-mail: johana.goyes@uconn.edu); **HANYROL H. AHMAD SAH**, Faculty of Science, Universiti Brunei Darussalam, Tungku Link, Gadong BE 1410, Brunei Darussalam.

LITHOBATES SPHENOCEPHALUS (Southern Leopard Frog) and **AMBYSTOMA MACULATUM** (Spotted Salamander).

INTERSPECIFIC AMPLEXUS. Interspecific amplexus has been described in a variety of both native and invasive anurans, especially in those species that have explosive reproductive events (Wells 2007. *The Ecology and Behavior of Amphibians*. University of Chicago Press, Chicago, Illinois. 1400 pp.). When multiple anuran species are breeding in aggregations there may be misidentification during the mating process. The literature reports males attempting to mate with inanimate objects, other males, dead conspecifics, and individuals of other species (Bedoya et al. 2014. *Herpetol. Notes*. 7:515–516; Rocha et al. 2015. *Herpetol. Notes*. 8:213–215). The literature usually reports incidences of interspecies amplexus between organisms of the same order (generally between anurans). However, multiple instances of interspecific amplexus between anurans and caudates have been described. Here I report the interspecific amplexus between an anuran, *Lithobates sphenocephalus*, and a caudate, *Ambystoma maculatum*.

During the spring amphibian migrations in Harford County, Maryland, USA (39.2555°N, 76.15480°W, WGS84; elev. 6.5 m), multiple species of amphibians breed simultaneously in the same ephemeral wetlands. At 2144 h on 25 March 2015, an adult *L. sphenocephalus* was found in amplexus with an adult *A. maculatum* (Fig. 1) in an ephemeral roadside ditch less than 1 m from the edge of a road. The area is part of a large wetland complex with breeding *Anaxyrus americanus*, *L. sylvaticus*, *Pseudacris crucifer*, *Acis crepitans*, and *L. palustris* all present within the same wetland complex that night. After photos were taken, the animals were released back into the roadside ditch. The *A. maculatum* immediately swam away and started struggling violently to remove the *L. sphenocephalus*, but was unable to accomplish this in the 20 min. they were observed. There has been no other observed interspecific amplexus at the site within the last two years.

I thank Richard Seigel for his review and comments on this note.



FIG. 1. Interspecific amplexus by *Lithobates sphenocephalus* on *Ambystoma maculatum*.

HUNTER J. HOWELL, Department of Biological Sciences, Towson University, 8000 York Road, Towson, Maryland 21252-0001, USA; e-mail: hhowel1@students.towson.edu.

OREOPHYRNELLA QUELCHII (Roraima Black Frog). ARBOREAL NIGHT SHELTER.

The Guayana highlands of South America, also known as Pantepui, constitute a singular biogeographical province recognized by the uniqueness of its biota, biodiversity and endemism. This region is characterized by sandstone tabletop mountains (tepui) that often emerge as high-elevation “islands” (1500–3000 m elev.) in the overall landscape (Huber 1995. In Steyermark et al. [eds.], *Flora of the Venezuelan Guayana*, pp. 1–61. Timber Press, Portland, Oregon). Bufonids of the genus *Oreophrynella* are endemic to the summits and slopes of the eastern tepuis in southern Venezuela and adjacent Guyana and Brazil (ca. 1067–2800 m elev.). This genus currently contains nine species. They are clearly distinguished from other bufonids by their small size, thick skin between digits, and opposable toes (Kok 2009. *Zootaxa* 2071:35–49). Most of the species are diurnal rock dwellers with terrestrial habits (McDiarmid and Gorzula 1989. *Copeia* 1989:445–451; Señaris et al. 1994. *Publ. Asoc. Amigos de Doñana* 3:1–37; Señaris 1995. *Mem. Soc. Cienc. Nat. La Salle* 140:177–182; Señaris et al. 2005. *Pap. Avul. Zool.* 45:61–67). *Oreophrynella* highland species are found active mainly on bare sandstone in open areas on the tepuis or resting beneath rocks, but occasionally they can be observed sitting < 1 m above ground on leaves of *Stegolepis guianensis*, *Lomaria* sp., and *Brocchinia hechtiioides* (McDiarmid and Gorzula 1989, *op. cit.*). Although McDiarmid and Gorzula (1989, *op. cit.*) have studied at least four species of *Oreophrynella* (including *O. quelchii*) in four tepuis, it is not clear what species they reported climbing bushes, and importantly, why these rock dwellers may engage in such climbing. The two upland species *O. dendronastes* and *O. macconnelli* have arboreal habits and are primarily found associated to vegetation (Lathrop and MacCulloch 2007. *Herpetologica* 63:87–93; Kok 2009, *op. cit.*).

Oreophrynella quelchii is a small toad (SVL = 18–23 mm), endemic to the summit of Roraima and Wei-Assipu tepuis, near the borders of Venezuela, Guyana and Brazil, between 1700–2800 m elev. (MacCulloch et al. 2007. *Herpetol. Rev.* 38:24–30). *Oreophrynella quelchii* is diurnal and terrestrial, and is usually found on bare sandstone or open bare rocky surfaces, but also in peat patches along or near small streams or temporary puddles. This species is listed as Vulnerable (Hoogmoed and Señaris 2004. <http://dx.doi.org/10.2305/IUCN.UK.2004.RLTS>.

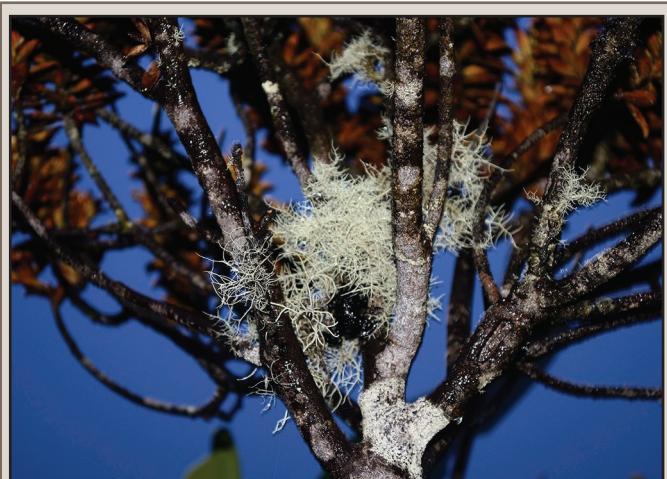


FIG. 1. *Oreophrynella quelchii* resting in a tangle of lichen attached to a *Bonnetia roraimae* bush at the summit of Mount Roraima, Venezuela.