

Everglades National Park, Homestead, Monroe Co. Florida, USA (25.1588°S, 80.9131°W; WGS 84) was dissected and found to contain a juvenile *O. septentrionalis* (SVL = 2.5 cm). This is the first known documented incidence of *N. clarkii* consuming *O. septentrionalis*.

Likelihood of successful establishment of a non-indigenous species such as *O. septentrionalis*, may be increased when they possess a novel weapon or defense mechanism (Callaway and Ridenour 2004. *Front. Ecol. Environ.* 2:436–443). However, time and exposure may reduce the novelty and thus dampen the effectiveness of these defense mechanisms. Avian and ophidian taxa are expected to be predators of *O. septentrionalis* in the non-native range because they are the primary predators within the native distribution (Henderson and Powell 2009. *Natural History of West Indian Reptiles and Amphibians*. University Press of Florida, Gainesville, Florida. 495 pp.). Although *O. septentrionalis* negatively impacts some native anurans, they may also provide a significant new food resource for native snakes and birds. Additionally, native snakes may factor in regulating *O. septentrionalis* abundance and distribution.

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PEDOSTIBES HOSII (Brown Tree Toad). SKIN SECRETIONS. Several species of amphibians produce skin secretions to protect themselves from predators. This secretion can be divided into four categories: odoriferous, adhesive, noxious, and slippery (Toledo et al. 2011. *Ethol. Ecol. Evol.* 23:1–25). *Pedostibes hosii* is a medium-sized arboreal bufonid distributed in southern Thailand, Peninsular Malaysia, Borneo and Sumatra (Das 2007. *Amphibians and Reptiles of Brunei*. Natural History Publications Borneo, Kota Kinabalu. 200 pp.). In Peninsular Malaysia it can be found in primary rain forest, on low vegetation along small forest streams (Berry 1975. *The Amphibian Fauna of Peninsular Malaysia*. Tropical Press, Kuala Lumpur. 133 pp.). Herein we report secretions produced by parotoid glands of *P. hosii* as an antipredatory strategy.

Between 2030 and 2100 h on 20 December 2014, an adult male *P. hosii* was observed calling from a tree branch (approx. 2.5 m above ground) at the edge of Sungai Sedim, Kedah, Malaysia



FIG. 1. Milky white secretions produced by *Pedostibes hosii* from Kedah, Malaysia.

(5.25060°N, 100.46510°E; WGS 84). We captured the toad and put in on leaves to photograph. Suddenly the toad produced a smelly milky secretion from both parotoid glands and stayed immobilized. The secretion was viscous, white in color and smelt like pepper. While releasing these secretions, the specimen was in a normal posture (immobilized) with both of its eyes open. The toad continually released the secretions until we finished photographing it (approx. 2 min). Later the specimen was brought back to the laboratory for measurements (SVL = 74 mm; 16 g). The specimen was preserved and deposited at School of Pharmacy, Universiti Sains Malaysia (14USM-SS-PH01). This finding is the first description of antipredatory secretions by *P. hosii*.

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PRISTIMANTIS ACHATINUS (Cachabi Robber Frog). PREDATION. Anurans are important prey for numerous arthropod taxa (Toledo 2005. *Herpetol. Rev.* 36:395–399). Among these, arachnids are reported to be the most significant predators during the amphibians' terrestrial stage (Armas 2001. *Rev. Iber. Aracnol.* 3:87–88; Menin et al. 2005. *Phyllomedusa* 4:39–47). Nevertheless, few reports exist about predation of anurans by amblypygids (Formanowicz et al. 1981. *Herpetologica* 37:125–129; Hovey et al. 2016. *Herpetol. Rev.* 47:113–114). *Pristimantis achatinus* is a common frog widely distributed in the northwestern lowlands of Ecuador, and along the west slopes of the Andes (Boulenger 1898. *Proc. Zool. Soc. Lond.* 9:107–126). Here we report predation of *P. achatinus* by whip spiders (Amblypygi: Phryniidae: *Heterophrynus armiger*).

On 15 Feb 2016 at ca. 0100 h, at forest reserve “El Jardín de los Sueños” in the municipality of La Maná in Cotopaxi Province, Ecuador (0.837944°S, 79.205585°W, WGS 84; 537 m elev.; temp. 23°C), we observed an adult *H. armiger* at the edge of a trail on exposed soil. This amblypygid grabbed a *P. achatinus* by its raptorial pedipalps. The frog was still alive but did not show any sign of struggling. Upon our approach the whip spider was startled and released the amphibian, which quickly escaped. An hour later, several hundred meters further along the same trail, we spotted



FIG. 1. *Heterophrynus armiger* preying on a *Pristimantis achatinus* in the cloud forest near La Maná, Cotopaxi Province, Ecuador.

another amblypygid of the same species carrying a recently caught *P. achatinus* (SVL ca. 40 mm). We managed to get closer this time and photograph the interaction (Fig. 1), followed immediately by the same outcome as observed in the previous case—the arachnid released the live frog. We suspect the whip spiders sensed our presence due to their extreme sensitivity to vibrations (Igelmund and Wendler 1991. *J. Comp. Physiol. A* 168:75–83). Although they failed to complete the predation interaction due to our interference, it should be noted that our consecutive observations taken on the same night suggest this interaction is common in the area. This is the first report of amphibian predation by *H. armiger* in the cloud forests west of the Andes.

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PRISTIMANTIS NERVICUS (Lynch's Nervous Frog). **REPRODUCTION.** *Pristimantis nervicus* is an endemic, direct developing frog from the family Craugastoridae, that inhabits the highlands of the Northern Cordillera Oriental, specifically found in Cundinamarca, Boyacá and Meta, Colombia (Lynch 1994. *Rev. Acad. Colomb. Cien. Exact.* 19:195–203). This species is a component of the high altitude amphibian community present at elevations

between 3000 and 4000 m (Navas 1999. *Rev. Acad. Cien. Exact.* 23:465–474). In the original species description, Lynch (1994, *op. cit.*) comments on a nesting event of a female guarding her clutch under a flat stone. Neither breeding nor mating behaviors, besides a description of its mating call, have been reported in the literature and no additional information on nesting attributes is available (Lüddecke et al. 2002. *In* Miaud and Guyetaut [eds.], *Current Studies in Herpetology*, pp. 285–294. Proceedings of the 9th Ordinary General Meeting of the Societas Europaea



FIG. 1. General habitat of *Pristimantis nervicus*, Pantano de Martos 3500 m. elev.



FIG. 2. *Pristimantis nervicus* couple engaged in amplexus.



FIG. 3. Nest laid in a small depression under lichen and moss. Arrow indicates location of female with eggs.



FIG. 4. Closeup of female *Pristimantis nervicus* guarding her nest