



FIG. 1. *Siphlophis compressus* exhibiting head-hiding behavior at Michelin Ecologica Reserve, Bahia state, northeastern Brazil.

York), and, as a result, several defensive behaviors are presented by snakes. *Siphlophis compressus* is a semi-arboreal species found in forested areas of the Amazon in Brazil, Colombia, Ecuador, French Guyana, Peru, and Trinidad and Tobago, as well as in the Atlantic Forest of eastern and northeastern Brazil (Gaiarsa et al. 2013. Pap. Avul. Zool. 53[19]:261–283). Defensive behavior of *S. compressus* was observed on 31 July 2015 at 2030 h in Atlantic forest at Michelin Ecological Reserve – MER (13.81667°S, 39.13333°W; SAD69), Igrapiúna municipality, Bahia state, northeastern Brazil. At the moment of encounter the snake was in leaf litter, and when we approached, the snake expand its head into a triangular shape. The snake kept this position for several minutes, and then hid the head under its body (Fig. 1). Head triangulation is common in arboreal snakes, and has been described for *S. compressus* (Martins et al. 2008. South Am. J. Herpetol. 3:58–67). The head-hiding posture, in which the head is concealed under one or more parts of the body, leaving it less vulnerable to predator attack (Greene, *op. cit.*), has not been previously reported for *S. compressus*.

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**SPILOTES PULLATUS (Caninana). DEFENSIVE BEHAVIOR.** *Spilotes pullatus* is a large, diurnal, and primarily arboreal snake that is widespread in the Neotropics (Vanzolini et al. 1980. Répteis da Caatinga. Academia Brasileira de Ciências, Rio de Janeiro, Brazil. 196 pp.). Its defensive repertoire includes inflating the neck laterally, raising the anterior part of the body, thrashing its tail on the ground, striking towards the potential predator, and cloacal discharge (Rossman and Williams 1966. Proc. Louisiana Acad. Sci. 29:152–156; Cunha and Nascimento 1978. Offdiós da Amazonia X - As cobras da região leste do Pará. Publ. Avul. Mus. Par. Emilio Goeldi 31:1–218; Sazima and Haddad 1992. In Morellato [ed.], História Natural da Serra do Japi: Ecologia e Preservação de uma Área Florestal no Sudeste do Brasil, pp. 212–261. Ed. Campinas, Unicamp/FAPESP; Marques and Sazima 2004. In Marques and Duleba [eds.], Estação Juréia-Itatins: Ambiente Físico, Flora e Fauna, pp. 257–277. Holos, Ribeirão Preto). Rossman and Williams (*op. cit.*) call attention to throat inflating, but no mention is made of sound production. Here we present a field observation of *S. pullatus* emitting sound during its varied defensive display.

Our observation was made in the private reserve Projeto Dacnis in Ubatuba (23.463550°S, 45.130833°W, WGS 84; 31 m elev.),



FIG. 1. Female *Spilotes pullatus* emitting a defensive hissing sound with half-open mouth.

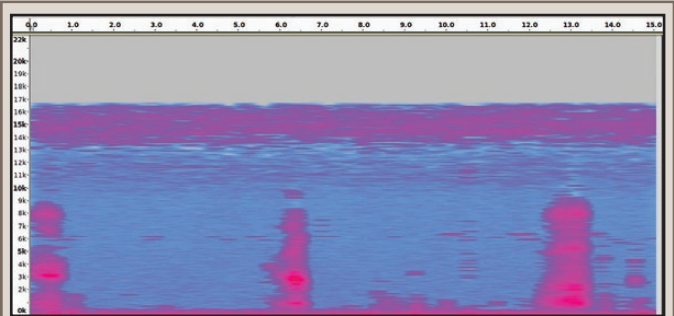


FIG. 2. Sonogram of three hisses in sequence. Vertical scale indicates frequency in KHz, horizontal scale indicates time (sec). Note that highest frequency of hiss is about 10 KHz.

southeastern Brazil, on 15 April 2015 at 0730 h. A female *S. pullatus* (total length = 185 cm) was found on the ground at the edge of a lowland Atlantic Forest trail. As we approached, she displayed a varied and escalating defensive repertoire. First, she thrashed her tail against forest litter, which produced a characteristic sound. Then she raised the anterior 30% of her body and inflated her throat, drawing air into her lungs and emitting a short hiss as she exhaled, mouth half open (Fig. 1). Additionally, she charged toward us several times. The hissing sound was recorded and later analyzed with the aid of a rough sonogram (Fig. 2). The frequency range of the hissing sound is about 1,000–9,500 Hz and the fundamental frequency is at about 500 Hz.

To the best of our knowledge, this is the first published record of *S. pullatus* emitting a hissing sound in defense. The half-open mouth is very characteristic and seemingly not recorded for this snake previously. The frequency range and the fundamental frequency of the hissing produced by *S. pullatus* are comparable to the hissing sounds produced by the large temperate colubrid *Pituophis melanoleucus* (Pinesnake; Young et al. 1995. J. Exp. Zool. 273:472–481).

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**STEGONOTUS BATJANENSIS (Northern Moluccan Ground Snake). DIET.** *Stegonotus batjanensis* is a nocturnal colubrid inhabiting the Moluccas of eastern Indonesia, where it is known from islands in the vicinity of Halmahera and Ambon. Very little is known of its ecology (de Lang 2013. The Snakes of the Moluccas [Maluku], Indonesia. Edition Chimaira, Frankfurt am Main. 417