

suggest that the snake observed here was experiencing the sublethal effects of TTX and that the impairment eventually subsided, and the snake fully recovered. We cannot speculate on the duration of the snake's immobility and thus exposure to predators (or the elements), but lab studies show that recovery in *T. sirtalis* generally occurs within 1 to 3 h (Williams et al. 2003. *Herpetologica* 59:155–163), though some snakes remain impaired for over 7 h (Brodie and Brodie 1990, *op. cit.*). This observation is noteworthy because it is the first to document predation by *T. elegans* on metamorphosed *Taricha* in the wild and suggests yet a fourth snake species may be engaged in the complex arms-race with newts.

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**VIPERA ASPIS HUGYI (Southern Italian Asp). COLORATION.**

*Vipera aspis* is a polytypic species for which four subspecies are currently recognized: *V. a. aspis*, *V. a. francisciredi*, *V. a. hugyi*, and *V. a. zinnikeri* (Golay et al. 2008. *Amphibia-Reptilia* 29:71–83; Di Nicola et al. 2019. *Anfibi & Rettili d'Italia. Edizioni Belvedere*, Latina, Italy. 568 pp.). The polymorphism level is high in all subspecies, with dorsal ground hues usually varying from light grey to brown or reddish. The most common dorsal pattern is the blotched morph and varies in the different subspecies with more or less separated blotches of variable size (*V. a. aspis* and *V. a. francisciredi*), variably thick zig-zag band (*V. a. aspis* and *V. a. zinnikeri*) or elliptical, roundish or quadrangular shapes (*V. a. hugyi*; Zwahlen et al. 2012. 7th World Congress of Herpetology, Vancouver, Canada. 739 pp.; Di Nicola et al. 2019, *op. cit.*). Melanistic individuals are known for all *V. aspis* subspecies (Bruno 1976. *Atti Soc. Ital. nat. Museo civ. Stor. nat. Milano*. 117:165–194; Bruno 1985. *Le vipere d'Italia e d'Europa*. Edagricole, Milan, Italy. 278 pp.; Brodmann 1986. *Die giftschlanger Europas und die gattung Vipera in Afrika und Asien*. Kümmerly + Frey, Bern, Switzerland. 148 pp.), even though they are only rarely reported for *V. a. hugyi* (Di Nicola and Meier 2013. *Herpetol. Rev.* 44:698). A rarer condition is the patternless or concolor morph (showing no or greatly reduced dorsal pattern), which is well known for the nominate subspecies (Mebert et al. 2011. *Elaphe* 1:9–13; Tessa 2016. *Atti XI Congresso Nazionale della Societas Herpetologica Italica*, Trento 2016) and poorly reported for *V. a. zinnikeri* (De Smedt 2006. *The Vipers of Europe*. – Eigenverlag, Halblech, Germany. 340 pp.; K. Mebert, pers. comm.). This color morph was also observed on a putative hybrid between the latter subspecies and *V. latastei* (Zuazo et al. 2019. *Bol. Asoc. Herpetol. Esp.* 30:35–41) and was reported in a generic way for *V. a. francisciredi* (De Smedt. 2006, *op. cit.*). The adaptive function of the concolor morph still requires further investigation (Zwahlen et al. 2012, *op. cit.*; Tessa 2016, *op. cit.*) although several hypotheses have already been proposed (see Dubey et al. 2015. *BMC Evol Biol* 15:99).

*Vipera aspis hugyi* is endemic to southern Italy, being distributed in central and southern Campania, Apulia and Basilicata (excluding the northernmost portions), Calabria, Sicily and on Montecristo Island (where it was introduced in historical times; Masseti and Zuffi 2011. *Br. Herpetol. Bull.* 117:1–9; Di Nicola et al. 2019, *op. cit.*). On 29 May 2019, at 1129 h, an adult patternless *V. a. hugyi* was observed in the territory of Noto, Province of Siracusa, Sicily, Italy (36.96°N, 14.93°E; 520 m asl), by some forest workers who photographed (Fig. 1), filmed, and then let the snake go. The individual had a totally uniform light brown dorsal



FIG. 1. Adult patternless *Vipera aspis hugyi* individual from Noto territory, Siracusa, Sicily.

color; unfortunately, no detailed images of the head and belly are available. The snake was found moving in a small grassy clearing, located on the edge between a pine reforestation and a garrigue with scattered bushes and rocky outcrops. The authors did not have the opportunity to personally examine the snake, but the morphological evaluation of the animal habitus and the finding point leave no doubts about the reliability of the observation and the subspecific identity of the individual. This report constitutes the first observation of patternless morph in *V. a. hugyi*. Further field investigation will be useful to check if it is an isolated case or if this morph can be locally widespread, as happens in other asp populations (Mebert et al. 2011, *op. cit.*)

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**XENOCHROPHIS TRIANGULIGERUS (Triangle Keelback). DIET and FEEDING BEHAVIOR.**

The diet of *Xenochrophis trianguligerus*, a widespread aquatic natricine, has been reported to include frogs, including frogspawn and tadpoles (e.g., Stuebing and Inger 1999. *A Field Guide to the Snakes of Borneo*. Natural History Publications (Borneo), Kota Kinabalu, Malaysia. 262 pp.), and fish (Das 2010. *A Field Guide to the Reptiles of South-East Asia*. New



FIG. 1. *Xenochrophis trianguligerus* consuming a fanged frog (*Limnonectes* sp.) in Lambusango Forest Reserve, Buton Island, southeast Sulawesi, Indonesia.

Holland Publishers, London, UK. 376 pp.). However, the diet of *X. trianguligerus* east of Wallace's Line, in Sulawesi and the Moluccas, remains poorly documented (de Lang and Vogel 2005. *The Snakes of Sulawesi*. Edition Chimaira Publishing, Frankfurt, Germany. 312 pp.). Here, we report observations of this species pre-dating and consuming fanged frogs (*Limnonectes* sp.) in Sulawesi.

One observation was made on 4 July 2008 within Lambusango Forest Reserve, Buton Island, southeast Sulawesi, Indonesia (5.35187°S, 122.90182°E; WGS 84). Both the snake and frog were observed on sandy soil ca. 10 m from the bank of a small river, between the buttresses of a small tree. The snake initially seized the frog by its left rear leg and then maneuvered itself into a position where it could consume it, rear first (Fig. 1). A similar observation was made by one of the authors (GG) in Bako National Park, North Sulawesi, in August 2013. These observations demonstrate that components of the diet of *X. trianguligerus* in Sulawesi is similar to that of the species elsewhere in Southeast Asia, and also highlights this snake as a predator of poorly-known *Limnonectes* frogs. Images of this predation event have been deposited in the National Museum of Natural History, Smithsonian Institution, Herpetological Image Collection (USNM Herp Image 2901, 2902).

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**XENOPELTIS UNICOLOR (Sunbeam Snake). PARASITES.** *Xenopeltis unicolor* is known from southeast Asia and the East Indies (Wallach et al. 2014. *Snakes of the World A Catalogue of Living and Extinct Species*. CRC Press, Boca Raton, Florida. 1201 pp.). There are two published records of helminths from *X. unicolor*: the cestode *Macrobothriotaenia ficta* (Scholz et al. 2013. *Zootaxa* 3640:485–499) and the nematode *Meteterakis longispiculata*

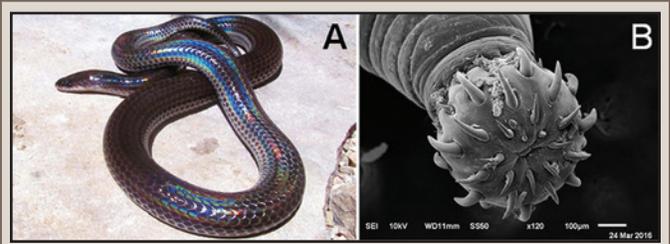


FIG. 1. A) *Xenopeltis unicolor* from Sumatra, Indonesia; B) SEM image of the anterior end of the acanthocephalan parasite, *Sphaerechinorhynchus serpenticola* removed from the intestine of *X. unicolor*.

(Schmidt and Kuntz 1972. *Trans. Amer. Microsc. Soc.* 91:63–66). In this note we add to the helminth list of *X. unicolor*.

One adult female *X. unicolor* (540 mm SVL, 60 mm tail length) collected in 2014 from Sumatra, Indonesia (0.5897°S, 101.3431°E; WGS 84), was obtained from Bushmaster Reptiles, Boulder, Colorado, USA. It was deposited in the University of Northern Colorado Museum of Natural History Herpetology Collection (UNC-MNH 6074), sacrificed, and the body cavity was opened and searched for helminths utilizing a dissecting microscope. The small intestines contained an assortment of helminths. They were cleared in a drop of lactophenol, examined under a compound microscope and identified as two Cestoda (*Macrobothriotaenia ficta*), five Nematoda (*Meteterakis longispiculata*), and 30 Acanthocephala (*Sphaerechinorhynchus serpenticola*). We identified *M. ficta* by comparison to Scholz et al. (2013, *op. cit.*) and *M. longispiculata* from the key provided by Zhang and Zhang (2011. *Zootaxa* 2869:63–88). *Sphaerechinorhynchus serpenticola* (Fig. 1) was identified by comparison to the original description (Schmidt and Kuntz 1966. *J. Parasitol.* 52:913–916). *Sphaerechinorhynchus serpenticola* is previously known from *Naja naja* from Borneo (Schmidt and Kuntz 1966, *op. cit.*) and *Ophiophagus hannah* from Thailand (Kiel and Schmidt 1984. *Avian/Exotic Practice* 1:26–30). A list of species of *Meteterakis* and their helminths was provided by Junker et al. (2015. *Syst. Parasitol.* 92:131–139) and *X. unicolor* is the only known host of *Macrobothriotaenia ficta* (Scholz et al. 2013, *op. cit.*). Voucher helminths were deposited in the Harold W. Manter Parasitology Laboratory (HWML), The University of Nebraska, Lincoln, Nebraska, USA as *Macrobothriotaenia ficta* (HWML 111563), *Meteterakis longispiculata* (HWML 111564), *Sphaerechinorhynchus serpenticola* (HWML 111565). *Sphaerechinorhynchus serpenticola* in *X. unicolor* is a new host record.

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