

2022. Field Guide to Amphibians and Reptiles of Illinois. Illinois Natural History Survey, Champaign, Illinois. 277 pp.).

At 1530 h on 24 September 2022, we observed an adult female *T. radix* attempting to consume a foreign non-food object along the Boneyard Creek within the engineering quadrangle of the University of Illinois campus in Champaign, Illinois, USA (40.1135°N, 88.2433°W; WGS 84; 213 m elev.). Upon encounter, the *T. radix* was photographed in situ and left undisturbed for ca. 5 min of observation. The snake had successfully taken the object into its mouth, but the object appeared stuck, and the snake was unable to swallow or regurgitate it (Fig. 1). We captured the snake then removed and safely discarded the object. The object appeared to be a red polyurethane foam ear plug measuring 2.5 cm × 1 cm (Fig. 2). Immediately after capture and successful removal of the object, the snake was released at the capture location. To our knowledge, this is the first recorded instance of *T. radix* attempting to consume a foreign object.

Instances of snakes consuming non-food items are uncommon, but not unprecedented (Smith 1953. *Herpetologica* 9:93–95; Jacobson et al. 1980. *Vet. Med. Small Anim. Clin.* 75:879–880; Zwart et al. 1986. *Tijdschr. Diergeneeskd.* 111:925–927; Souza et al. 2004. *J. Herpetol. Med. Surg.* 14:4–5; Vasaruchapong and Chanhom 2013. *Thai. J. Vet. Med.* 43:297–300; Scott et al. 2021. *J. Amer. Vet. Med. Assoc.* 258:1135–1141). Critically, this phenomenon has implications for the individual's welfare and survival, as ingestion of non-food items can lead to physical injury or death due to blockage or damage to the gastrointestinal tract (Scott et al. 2021, *op. cit.*). It is possible that the snake mistook the ear plug for a potential prey item (e.g., soft-bodied invertebrate) (Burghardt et al. 1993. *Brain Behav. Evol.* 41:138–146). However, further research is needed to better understand factors influencing decision-making and prey selection of *T. radix*.

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### *TRIMERESURUS INSULARIS* (White-lipped Island Pit Viper).

**COLOR.** The venomous *Trimeresurus insularis* is widespread throughout the islands of the Lesser Sunda archipelago of Indonesia and Timor-Leste (Uetz et al. [eds.] 2023. *The Reptile Database*. <http://www/reptile-database.org>; 19 Jan 2023). There are notable variations in the color morphs that are considered to be consistent with long term isolation (Reilly et al. 2019. *Zoologica Scripta*. 48:614–626). However, there is low genetic divergence among island populations (Malhotra and Thorpe. 2004. *Mol. Phylogenet. Evol.* 32:83–100), suggesting possible recent colonization or movement between islands. In addition, the venom components show remarkable similarities between different island populations (Jones et al. 2019. *J. Proteome Res.* 18:2206–2220).

Most of the specimens of *T. insularis* from across the wide range show shades of green (Fig. 1A, B), with a small portion of individuals in a few isolated populations showing shades of yellow/brown, and an even smaller proportion of individuals

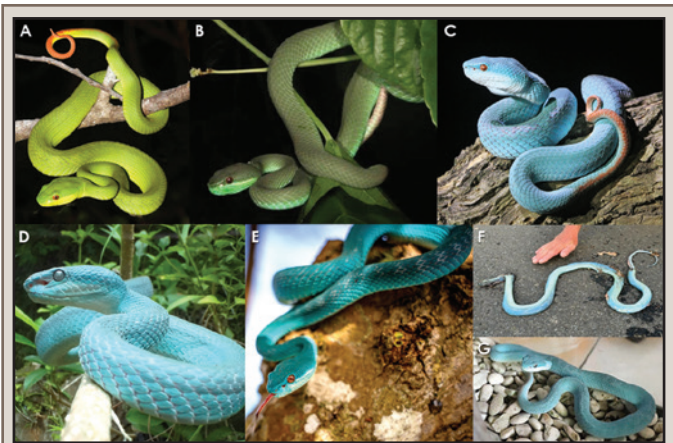


FIG. 1. *Trimeresurus insularis* green morph from Bali (A) and Komodo island (B) in comparison to the cyan morph from Komodo Island (C), Sumbawa (D), Lombok (E and F), and Gili Asahan (G). All locations are in Indonesia.

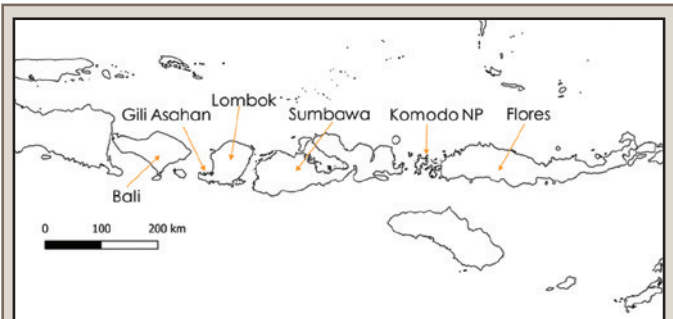


FIG. 2. Location of Gili Asahan, Lombok, Sumbawa in comparison to Komodo National Park.

showing shades of cyan. Known locations of the cyan morph, often referred to as the 'blue pit vipers', are restricted to three small islands—Komodo, Rinca, and Padar—of Komodo National Park (NP) in the Nusa Tenggara region of Indonesia (pers. obs.; de Lang 2011. *Asian Herpetol. Res.* 2:46–54; Fig. 1C, 2). Although there are anecdotal records of this morph being collected for the pet industry from the adjoining Sumbawa Island to the west of Komodo NP (Kennedi et al. 2021. *Media Konservasi*. 26:217–230), we are unaware of any photographic or published records of this color morph from outside Komodo NP. Regular visits to Flores, east of Komodo NP by the authors and colleagues, have not resulted in any individuals of the cyan morph, although both green and yellow individuals are encountered frequently. The cyan morph is highly charismatic and is an icon often used to promote Komodo NP (Somaweera et al. 2018. *Amphibians and Reptiles of Komodo National Park*. National Park Authority. 31 pp.) and is highly in-demand in the pet industry, commonly referred to as the Komodo Blue Pitviper.

Here, we compile the first confirmed photographic records of the cyan color morph of *T. insularis* from other islands of Indonesia. These records are based on anecdotal and opportunistic information provided by villagers, colleagues and field work conducted by some of the authors.

In October 2021, at least two specimens of the cyan color morph were found by locals in Gili Asahan, a small outcrop islet with a hilly interior and dry scrubland vegetation lying south of Lombok along the Sekotong Peninsula, ca. 400 km west of Komodo NP. The specimens were encountered in a coconut

plantation and anthropogenic habitat. According to the locals, the specimens were captured and held in captivity at the time (Fig. 1G).

In May 2022, villagers of Kokarlia Village in Poto Tano District of Sumbawa Island (ca. 290 km west of Komodo NP) found a cyan morph specimen on a vine-covered fence at a local corn plantation (Fig. 1D). The specimen notably had silver-colored eyes. The surrounding habitat mostly comprised dry scrublands. According to the villagers, the specimen was captured, temporarily held in captivity, and released at the nearby natural habitat. Locals also mentioned a cyan morph specimen collected in the Simpang forest in Sumbawa, but no photographs were available.

In February 2023, during a nighttime herpetological survey conducted by some of the authors at the wildlife protected area Kawasan Taman Wisata Alam (TWA) Gunung Tunak in Central Lombok (Lombok Tengah: ca. 350 km west of Komodo NP), two individuals of the cyan morph (Fig. 1E) were encountered along with three individuals of the usual green morph. The cyan morph individuals were found under prevailing rainy conditions on a Jambu Hutan (*Eugenia polyantha*) tree and a Lamtoro (*Leucaena glauca*) tree with a ground cover of *Mimosa pudica*. Discussion with the locals suggests that the cyan morph is occasionally encountered in the general area.

In June 2023, a very large (estimated to be ca. 150 cm SVL) road-killed specimen of the cyan morph (Fig. 1G) was found near Kelok Buwun Mas on the road to Belongas in south-west Lombok, ca. 350 km west of Komodo NP. The road transects through a hilly, forested area at the location. The specimen was not collected.

To our best knowledge, these provide the first published records of the cyan color morph of *T. insularis* outside its only known range in Komodo NP. It is unlikely that the individuals were translocated or escaped pets, given 1) none of the locations (Lombok or Sumbawa) are consumer destinations in the pet snake market (Hierink et al. 2020. Biol. Cons. 248:108601), 2) the 2023 records are from a wildlife protected area, and 3) discussions with local communities suggest that they have encountered specimens of this color morph very occasionally over a long period of time. This note also highlights the importance of consulting and considering local knowledge when assessing the distribution of taxa. In a similar case, all the specimens of *T. insularis* from Timor-Leste reported in scientific collections and literature at the time were of the vivid green morph, but locals strongly assured that a bright yellow phase, commonly seen in specimens from Wetar—an island in Indonesia's Maluku Province to the northeast—is also present in eastern Timor-Leste (O'Shea and Kaiser 2013. Herpetol. Rev. 44:68–76).

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**VIPERA ASPIS (Asp Viper). REPRODUCTION.** The reproductive biology of *Vipera aspis* has been the subject of many detailed field and laboratory investigations. These viviparous snakes are capital breeders, which means that females need to store a



FIG. 1. A) Gravid female *Vipera aspis* photographed in Italy in August 2015; B) ventral view of the same viper showing the shape of the abdomen typical of gravid females; C) details of the viper's head photographed in 2015 (C1), 2017 (C2) and 2018 (C3). Notice the same pattern of scales: arrows indicate apical scales with identical arrangement and shape. In C2, the viper was photographed before ecdysis.

sufficient amount of body reserves before they can reproduce (Naulleau and Bonnet 1996. Oecologia 107:301–306; Bonnet et al. 1998. Oikos 83:333–342; Aubret et al. 2002. Horm. Behav. 42:135–147). As a consequence, the reproductive patterns of *V. aspis* are strongly influenced by climatic conditions and vary largely with latitude (Naulleau et al. 1999. J. Herpetol. 33:688–691). Thus, females from populations located at the northern limit of the species' range (west-central France) do not reproduce every year, and some of them may breed only once in their lifetime (Bonnet et al. 2002. Ecology 83:2124–2135). In more suitable climates, such as along the Mediterranean coast of central Italy, female vipers have a higher breeding frequency, and some females reproduce annually (Zuffi et al. 1999. Acta Oecol. 20:633–638). Climate also has a significant influence on reproductive success, as it affects gestation length, litter size, and offspring body mass (Zuffi et al. 1999, *op. cit.*; Lourdais et al. 2002. J. Anim. Ecol. 71:470–479; Lourdais et al. 2004. Oikos 104:551–560). Reproduction has not been investigated in *V. aspis* living at high altitudes, although it is generally assumed that in mountain habitats female vipers follow a biennial or triennial breeding pattern due to the less favorable climate (see Zuffi et al. 1999, *op. cit.*).

Here we report observations made on a female *V. aspis* at an elevation of 1369 m on the Italian western Alps (45.37632°N, 7.29516°E; WGS 84). The snake was identified by head scale patterns and markings (Fig. 1) and recurrently observed in the month of August in 2015, 2017, and 2018 in exactly the same location near a ruined building facing an alpine pasture field. Unfortunately, we were unable to scrutinize the locality