



A Plastic Bag Consumed by a Common Indian Krait, *Bungarus caeruleus* (Schneider 1801)

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Kraits in the elapid genus *Bungarus* Daudin 1803 range widely throughout southeastern Asia (Abtin et al. 2014). Of the 16 known species (Abtin et al. 2014; Wallace et al. 2014), 15 are restricted to southern portions of southeastern Asia (Slowinski 1994; David and Ineich 1999; Kuch et al. 2005) and one to Iran (Abtin et al. 2014). The Common Krait (*Bungarus caeruleus*) is the only species in peninsular India south of the Ganges Basin (Smith 1943). It is abundant, especially in central India (Whitaker and Captain 2004; Deshmukh et al. 2015) and in the Nagpur District (Deshmukh et al. 2015, 2016). Kraits are nocturnally active and are known to feed on snakes (even other kraits) but also

on rodents, lizards, and frogs (Whitaker and Captain 2008). Herein we record an instance of a Common Krait consuming a plastic bag.

At 0800 h on 22 August 2017, S. Katgube encountered a subadult *Bungarus caeruleus* in rock debris (Fig. 1) in the Kalmeshwar Tehsil of Nagpur District, Maharashtra, India (20°17'08.24"N, 20°20'14"E). The snake (approximate total length 635 mm) was trying to expel a black plastic bag through its cloaca. The ingested plastic bag, 297.04 mm in length, was compacted in the posterior part of the body (Fig. 2) and the snake seemed unable to expel it. The animal appeared to be exhausted and its movements were restricted



Fig. 1. A subadult Common Krait (*Bungarus caeruleus*) trying to expel a plastic bag. Photograph by Shubham Katgube.

by the bag. After waiting for one hour, we began to pull out the bag. We had to apply considerable force (Fig. 3) and believe it would have been impossible for the snake to expel it

without assistance. We believe that the ingestion of the plastic bag, whether taken secondarily or accidentally, would likely have been fatal to the snake. The bag probably smelled like



Fig. 2. A subadult Common Krait (*Bungarus caeruleus*) clearly showing the ingested black plastic bag. Photograph by Sagar Deshmukh.

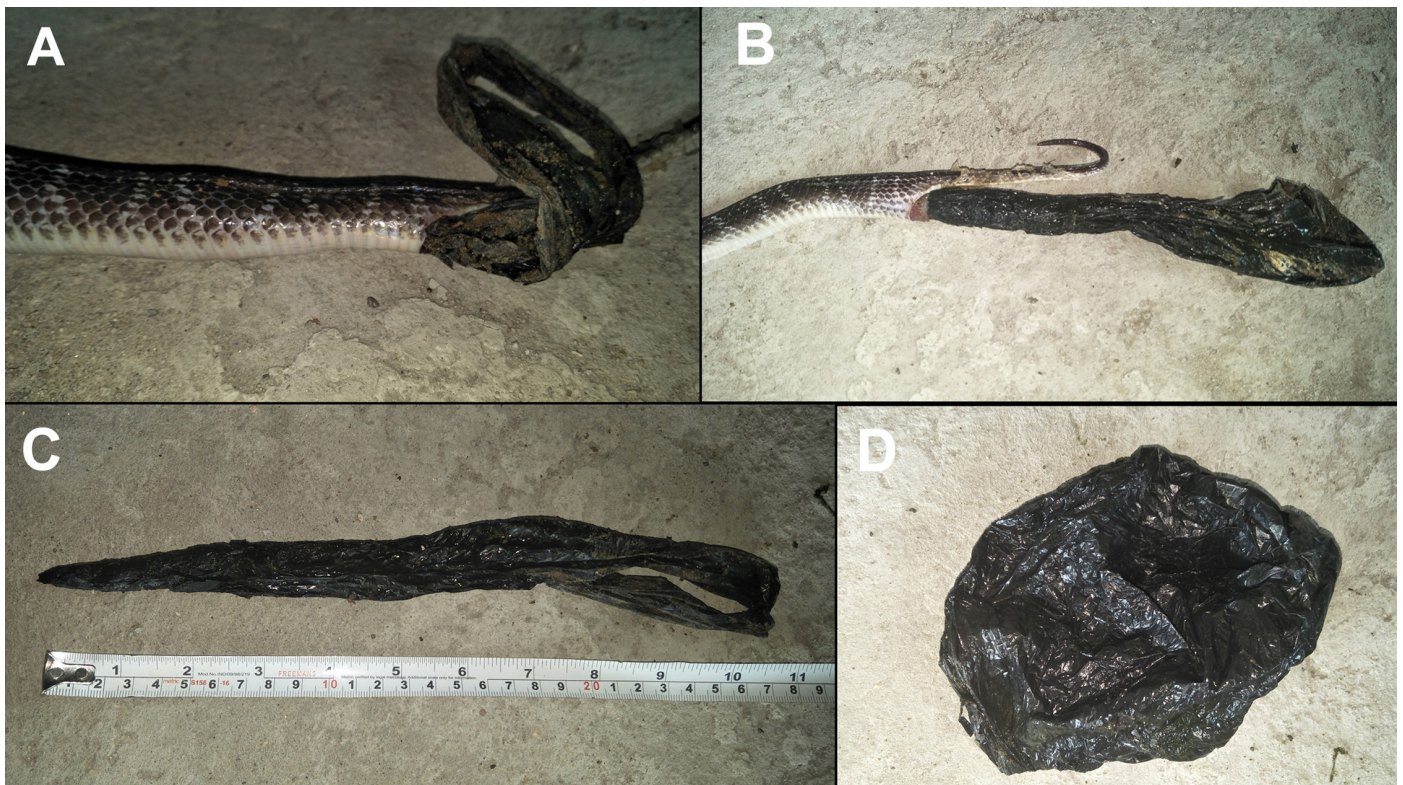


Fig. 3. A subadult Common Krait (*Bungarus caeruleus*) that had consumed a plastic bag: (A) One-third of the bag had been expelled when the snake was first encountered; (B) half of the bag removed after the authors intervened, (C & D) the plastic bag after removal. Photographs by Sagar Deshmukh.

meat as such bags are frequently used to carry non-vegetable items. *Bungarus caeruleus* relies heavily on its olfactory sense (Deshmukh et al. 2016) and probably was attracted by the scent emanating from the bag.

Snakes typically are carnivorous, with various species consuming a variety of invertebrate and vertebrate prey, often in accordance with the size of predator and prey (e.g., Green 1997). Recently, occurrences of herbivory, consumption of inanimate objects, and scavenging have been reported. Lilywhite et al. (2008) mentioned the consumption of marine plants by a Florida Cottonmouth (*Agkistrodon conanti*). Mookhergy (1946) described an Indian Python (*Python molurus*) that had consumed four mangoes infested with insect larvae. Irvine (1953) reported a snake feeding on the yellow fruit of *Momordica foetida*, a perennial African Vine. Similarly, Dalziel (1937) recorded snakes feeding on fruit under *Vitex micrantha*, a tropical African tree. Perry (1954) noted that her pet Leopard Snake (*Zamenis situla*) opportunistically swallowed cheese rinds before reverting to its normal carnivorous diet. Recently, Sharma et al. (2016) reported the instance of an Oriental Ratsnake (*Ptyas mucasa*) feeding on an onion and consuming a rolled piece of cloth. D'Abreu (1911) reported the presence of stones in the stomach of a Checkered Keelback (*Xenocrophis piscator*) and speculated that it might serve a similar purpose as stones consumed by crocodiles and birds. Scavenging also has been reported in a number of species (e.g., DeVault and Krochmal 2002). Lilywhite et al. (2002) described Florida Cottonmouths (*Agkistrodon conanti*) feeding on dead fish dropped by birds and moving to an intertidal zone to feed on dead fish. Ayres (2012) studied scavenging behavior in the genus *Natrix* and found *N. natrix* and *N. maura* feeding on the carcasses of newts. Pandirkar et al. (2015) recorded a Common Kukri Snake (*Oligodon arnensis*) scavenging on a road-killed Garden Lizard (*Calotes versicolor*). Monopatra (2011) and Deshmukh et al. (2016) documented scavenging behavior in *Bungarus caeruleus*.

Plastic bags affect wildlife in both marine and terrestrial environments. Plastic bags, once ingested, cannot be digested or easily passed. Plastic in the gut can prevent digestion and lead to a slow and painful death. Such incidents could easily affect other species. In the example described herein, the consumed plastic bag halts the digestion and restricts movement so that the snake becomes an easy meal for another predator or scavenger, which could in turn suffer the same consequences.

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