

Mouthful of snake: An African snake-eater's (*Polemon fulvicollis graueri*) large typhlopid prey

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Snakes feed on a broad range of animals. Prey items include diverse groups of invertebrates (such as insects, centipedes and molluscs) and vertebrates (fishes, frogs, lizards, birds and mammals). Even cannibalism is documented. However, a few—phylogenetically unrelated—groups of snakes are facultative or exclusive predators of other snakes. Notable ophiophagous snakes are king cobras (*Ophiophagus hannah* (Cantor, 1836)) in Asia, mussuranas (*Clelia*) and coral snakes (*Micrurus*, e.g. Greene, 1984) in America, but representatives of several other genera occasionally feed on snakes. In some cases, prey can be as large as the predator which obviously poses a biomechanical challenge for ingestion (Shine, 1991; Jackson et al., 2004). In Africa, species of *Polemon* (Serpentes: Lamprophiidae) are known to be mainly ophiophagous. The genus *Polemon* contains at least 13 species of these venomous snake-eaters (see Reptile Database, Uetz, 2013), which are distributed in West, Central and East Africa. One of the more common species occurring in Central and East Africa is *Polemon fulvicollis* (Mocquard, 1887). It is a small snake (usually under 500 mm in length), having a blackish, cylindrical body with a light, cream-coloured nuchal collar, small eyes and a head not distinct from body. Although *Polemon* is known to feed on smaller snakes, documentation of predation events and prey is extremely rare. Here we provide photo-documentation of prey and

predator and report a further case of predation based on a historical specimen.

On 17 January 2013 early morning we found an adult, probably female specimen of *Polemon fulvicollis graueri* on the Idjwi island that is located in the Lake Kivu in the Albertine Rift (Democratic Republic of the Congo). It was found in a disturbed, cleared habitat that was formerly covered by forest, at the summit of the Bugarula Hill (S 2.05815, E 29.05791), at around 1541 m above sea level. The habitat is interesting since these snakes were reported to occur mainly in forest habitats, living secretively in leaf litter or underground (e.g. Spawls et al., 2001). The specimen was ca. 420 mm in total length (snout-vent length: 388 mm, tail length: 32 mm), had 256 ventral and approximately 13 subcaudal scales (including tip), and obviously contained a large item of prey because its body was fairly stretched (Fig. 1 upper left). The snake was euthanized, and during handling it did not regurgitate the prey. After dissection of the snake-eater, in the gut we found a punctate blind-snake *Afrotyphlops* cf. *punctatus* (Serpentes: Typhlopidae) showing some early signs of digestion (Fig. 1) indicating a successful predation event. The blind-snake was swallowed head-first, and was around 365 mm in length. Notably, blind-snakes of *Afrotyphlops* have a rather robust body and can grow up to >500 mm, hence they can be larger and heavier than specimens of *Polemon fulvicollis*. In the observed case, the body diameters of both snakes were very similar. According to Greene (1983) and Jackson et al. (2004), we estimated the following basic indices: LR (length ratio; prey's total length/predator's snout-vent length): 365 mm/388 mm=0.941; WR (prey/predator weight ratio, here given as ethanol-preserved weights): 27.5 g/44.7 g=0.615; IR (ingestion ratio; diameter of the prey related to the head diameter of the predator): 9 mm/12 mm=0.750.

A similar predation event with the same species of predator (i.e. *Polemon fulvicollis graueri*) has been detected involving a specimen deposited in the Royal Belgian

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Figure 1. A specimen of *Polemon fulvicollis graueri* found on the Idjwi island (DRC) with its scolecophidian prey, *Afrotyphlops cf. punctatus*.

Institute of Natural Sciences (Brussels, Belgium). The specimen RBINS(=IRSNB) 19.599/6421 (No. 485) was collected on 26.12.1949 in the proximity of Mutsora, one of the main rangers' stations in the Virunga National Park (Democratic Republic of the Congo). The circumstances of capture are unknown. This historical specimen has a total length of approximately 410 mm, and contains a specimen identified as *Afrotyphlops cf. lineolatus* (Fig. 2). Since the prey—except for its forepart—is still inside the body of the predator, we did not remove it to avoid any further damage. Therefore no other measures are provided here. These two observations confirm that *Polemon fulvicollis* feeds on various typhlopids and it is able to ingest very large prey.

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Figure 2. Top: Another specimen of *Polemon fulvicollis graueri*, deposited in the RBINS, contains an *Afrotyphlops* cf. *lineolatus* in its gastrointestinal tract. Bottom: close-up of the forepart of both specimens.

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