

Unsuccessful predation of *Elapomorphus quinquelineatus* (Serpentes: Colubridae) on *Amphisbaena microcephala* (Amphisbaenia: Amphisbaenidae)

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Snakes are known to be able to ingest large prey items which are swallowed whole, and, the larger the snake, the larger the prey that can be manipulated and swallowed (Ditmars, 1912; Gans, 1961; Mushinsky, 1987). The morphology, disposition, and mobility of the cranial bones and glottis, as well as the capacity for distension of the associated soft tissues, are characteristics that permit these habits (Arnold, 1983; Gans, 1961). Ideally, the prey size would be limited by the snake morphology because there is an obvious survival value in the capacity of the snake to choose appropriate prey. However, there are several reports on snakes found dead with excessively large prey items lodged in their mouths (Barton, 1949; Howard, 1949; Godley, 1980; Hailey and Davies, 1986 a, b). The attempt to take excessively large preys is much greater in young (small) than in old (large) snakes (Godley, 1980; Mushinsky, 1987; Sazima and Martins, 1990).

In this paper, we report an unsuccessful attempt of a large adult snake, *Elapomorphus quinquelineatus* (Raddi, 1820) (Serpentes, Colubridae), to eat an adult amphisbaenian, *Amphisbaena microcephala* (Wagler, 1824) (Amphisbaenia, Amphisbaenidae), which resulted in both of their deaths.

Observations were made at Serrinha do Alambari (S -22.398746, W -44.5233554; 598 m a.s.l.), Municipality of Resende, State of Rio de Janeiro, Brazil, on 11 November 2005, by U. Caramaschi and H. de Niemeyer. Voucher specimens are deposited in the Museu Nacional, Rio de Janeiro, Brazil (MNRJ) under the numbers MNRJ 14192 (*E. quinquelineatus*) and MNRJ 14193 (*A. microcephala*).

The Serrinha do Alambari, which is located along the Itatiaia massif of the Mantiqueira mountain complex, is a protected area with altitudes between 550 and 1100 m above sea level. This region contains original Atlantic Rain Forest as well as several grades of regenerated

forest. The mountainous relief is constituted by alkaline rocks originated by the enormous magmatic extrusion that culminated in the formation of the Itatiaia massif. Several clear and cold creeks drain the region. The soil is shallow, consisting of decomposed rocks covered by organic matter provenient of the forest. The soils are poor, argillaceous, with low pH and high levels of aluminum. The climate is mesothermic with mild summer. The hot and rainy season occurs between September and April, and the cold and dry season happens between May and August.

The specimens were located at 10:00 h on cultivated grass in a garden. Both predator and prey were alive but with slow and sporadic movements. The amphisbaenian became motionless about 10:30 h and the snake soon after at about 11:00 h. The predator, *E. quinquelineatus*, has a total length of 830 mm (760 mm of rostrum-cloacal length), 16.5 mm of head length (from the tip of snout to the posterior corner of mouth), 18.4 mm of head width (measured between the posterior corners of mouth), and 17.0 mm of largest body diameter. The prey, *A. microcephala*, measured 435 mm of total length (410 mm of rostrum-cloacal length) and 15.0 mm of largest body diameter. The predator, which swallowed the prey head-first, consumed 55 mm of the prey item before becoming stuck. The greatest width of the swallowed part was 22.0 mm and corresponds to the pectoral scutes of the amphisbaenian.

According to Marques et al. (2001), the snake *Elapomorphus quinquelineatus*, which attains a medium length of 500 to 1000 mm, is diurnally active though individuals of this species are rarely observed because of their secretive, subterranean habits, living under the soil or in the litter. Its food habits commonly include snakes, amphisbaenians, and anguid lizards, which are killed by the venom injected through the opisthoglyph fangs. *Amphisbaena microcephala* attains 500 mm in total length (Gans, 1971) and is a very active and specialized digger species, rarely coming to the surface (Navas et al., 2004). However, this species is commonly eaten by specialized predators such as elapid snakes of

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Figure 1. *Elapomorphus quinquelineatus* (830 mm in total length) in the unsuccessful predation on *Amphisbaena microcephala* (435 mm in total length).

the genus *Micrurus* (Marques and Sazima, 1997). Thus, the encounter of the predator and its prey, both with subterranean habits, is expected but did not explain why they were agonizing on the surface, where both were very exposed to predators (birds and mammals, for instance). The death of the prey item was also expected due to the poisoning caused by the snake bite. However, the death of the predator was unexpected and caused apparently solely by mechanical asphyxiation, since its largest diameter was very close to the largest diameter of the prey, which caused it to be stuck. Besides the correct head-first position to ingest the prey, which probably required some kind of manipulation of the prey by the predator, it apparently made an evaluation mistake with respect to its capabilities to ingest its prey, which led to the death of both.

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