Roads and traffic have severe ecological impacts on wildlife. While direct loss of habitat and changes in the hydrology are problems related to road construction, once a road starts being used by automobiles other impacts arise. These include isolation of populations, facilitation of the dispersal of pest species, and the effect of run-off from roads on aquatic communities (Spellerberg, 1998). However, the most conspicuous ecological impact is animal casualties. Approximately five million reptiles and frogs are road-killed every year in Australia (Forman et al., 2003).

While solid data regarding the construction and short- vs. long-term effects of roads are available for several temperate ecosystems in Europe and North America (Spellerberg, 1998), numbers are not well known for the Neotropics (D’Anunciação et al., 2013). On the one hand, greater and more diverse numbers of scavenger species may be able to retrieve road-kills before they are detected by researchers (Antworth et al., 2005; Korner-Nievergelt et al., 2015), and on the other some physiological requirements that account for large numbers of road-killed snakes in temperate regions may play only a minor role in tropical environments, where less time of the day and night is spent on thermoregulation (Bovo et al., 2012).

In most studies on road-killed vertebrates carried out in Brazil, reptiles rank in the third position when considering the number of casualties, after birds and mammals (Gomes et al., 2013; Carvalho et al., 2015; Deffaci et al., 2016). Most of these reptiles are terrestrial snakes like *Boa constrictor*, but large terrestrial lizards like *Tupinambis merianae* are also represented (Gomes et al., 2013). Arboreal snakes and lizards are much less susceptible to death on roads, but even strictly arboreal species may have to move on the ground periodically in order to proceed with egg-laying or to move between forested areas in fragmented landscapes. In these cases they may need to cross a road, and during this high-risk endeavour fast-moving lizards, like the members of the genus *Enyalius*, may be less likely to get run over than slow-moving lizards, such as members of the genus *Polychrus*. Several studies have reported on road-killed *Polychrus acutirostris* (Carvalho et al., 2014; Braz and França, 2016). The genus *Polychrus* contains eight species distributed from Honduras to South America, where they can be found on both sides of the Andes (Avila-Pires, 1995; Murphy et al., 2017). The species within the genus with the largest distribution is *Polychrus marmoratus*, which can be found in Guyana, French Guiana, Suriname, Venezuela, Colombia, Ecuador, Peru, Paraguay, and Brazil (Hoogmoed, 1973).

On 16 November 2016 at 2350 h we encountered a female *Siphlophis compressus* (Daudin, 1803) trying to swallow an already dead *Polychrus marmoratus* (Linnaeus, 1758) in the middle of the BA-262 road between Uruçuca and Ilhéus (14.6184° S, 39.2592° W; WGS84), southern Bahia, Brazil (Fig. 1). The snake did not appear to be disturbed by our arrival or continued presence and continued swallowing her prey. We followed the event for 10 min but as the snake was swallowing a very large prey and as cars were driving past at full speed due to low amounts of traffic at the late hour, we decided to place the snake and the half-engulfed lizard inside a snakebag. After arriving in Ilhéus we confirmed that the snake had managed to completely swallow her prey.

We kept the snake for several weeks in a terrarium, where she refused any kind of food offered (lizards). On 28 December 2016 she laid five eggs.
(Fig. 2), measuring from 27.6–30.2 mm in length, 13.1–13.8 mm in width, and weighing 3.19–3.31 g. After oviposition she continued rejecting offered *Hemidactylus mabouia* and only consumed one *Anolis fuscoauratus*. On 13 February 2017 the snake was brought to the herpetological collection of Universidade Estadual de Santa Cruz where it was euthanized, measured (snout–vent length 930 mm, tail length 281 mm, total length 1211 mm) and accessioned into the collection (MZUESC 17583).

The genus *Siphlophis* is composed of seven mostly arboreal species, which can be found in South and Central America. *Siphlophis compressus* ranges from Costa Rica to Rio de Janeiro State in southeastern Brazil (Guedes et al., 2011). It is an arboreal and nocturnal snake that has been reported to prey on a lizard of the genus *Tropidurus* (Withworth et al., 2011) and on an *Iguana iguana* (Mollo Neto et al., 2013). Prudente et al. (1998) suggested that lizards with diurnal activity may be apprehended by *S. compressus* while asleep on branches at night. This snake has also been reported to occasionally prey on anurans, snakes, mammals, and lizard eggs (Guedes et al., 2011). Individuals of *S. compressus* have been reported to lay between 3 and 12 eggs (Martins and Oliveira, 1998; Gaiarsa et al., 2013). The clutch of five eggs reported here is close to the mean number of 6.2 eggs reported by Gaiarsa et al. (2013).

There are several ways to explain how the two arboreal reptiles made their way onto a road, based on the circumstances of the encounter. The lizard’s cloacal region appeared everted and we presume that this was the effect of having been run over by a car before the snake encountered it. The eversion could perhaps be the result of constriction during a predation attempt by a snake, but the musculature of the slender *S. compressus* does not appear to be strong enough to cause the required pressure. In terms of the encounter itself, we consider three possible scenarios for how the snake found the lizard. In one scenario the injured lizard continued to move, and its vigorous movement might have attracted the snake as it perched on a nearby tree or bush. In a second scenario, the snake could have been attracted by the chemical cues from the everted cloaca of the injured lizard. In a third, but unlikely scenario, the snake coincidentally crossed the road at the very same place where the lizard had been injured or killed and encountered it by chance.

**Figure 1.** *Siphlophis compressus* (MZUESC 17583) swallowing a *Polychrus marmoratus* on the BA-262 road, near Ilhéus, Bahia, Brazil.
Scavenging on carcasses has mostly been reported for terrestrial snakes. Reports have included that of a Northern Pacific Rattlesnake (Crotalus oreganus oreganus) trying to swallow a road-killed Deer Mouse (Peromyscus maniculatus) (Dornburg and Weaver, 2009). According to DeVault and Krochmal (2002), scavenging by snakes may be far more common than currently acknowledged. Some species, such as Cottonmouths (Agkistrodon piscivorus), may even obtain the majority of their food in this way (Wharton, 1966). Studies on the Brown Treesnake (Boiga irregularis) have shown that these snakes are able to locate carrion using only olfactory cues, whereas live prey is found most effectively by a combination of visual and chemical cues (Shivik et al., 2000). Unfortunately, too little is known about how accurate the senses and abilities of neotropical snakes are, including information on how far they can see or from how far away the chemical cues of a possible prey source can be smelled.

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References


