Active male-male competition for mate access in the giant parrot snake *Leptophis ahaetulla* (Squamata: Colubridae), in the southwest Amazon, Brazil

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The genus *Leptophis* comprises 11 species occuring through the Neotropics and Mexico (Oliver, 1948). The largest species, *Leptophis ahaetulla* Linnaeus, 1758, is a medium-sized colubrid that reaches a snout-vent length of 958 mm in males and 835 mm in females (Albuquerque, 2008). The species is widely distributed, with records from Mexico to Argentina (Albuquerque, 2008; Oliver, 1948), though not from the Cerrado biome (Bernarde et al., 2012). Certain aspects of *L. ahaetulla* biology have been documented: it has a wide habitat tolerance, having been reported in both primary forests and disturbed environments (Martins & Oliveira, 1998), is semi-arboreal in habit and diurnal in activity patterns (Albuquerque et al., 2007; Martins and Oliveira, 1998). These snakes are oviparous and few aspects on their reproductive biology have been reported, including eggs and clutch size (Albuquerque, 2008; Linardi, 2016; Rand, 1969), communal nests and neonate biometry (Linardi, 2016). This paper presents the first report of male-male competition in *L. ahaetulla*.

On 20 October 2015 at 16:10 hrs, a pair of *L. ahaetulla* were observed in copulation, with a second male attempting to dislodge the first. Observations were made in a protected forest fragment at the Rondon II Hydroelectric Power Plant (11°58'40"S, 60°41'58"W, 296 m.a.s.l.), in Pimenta Bueno municipality, Rondônia State, the southwest Amazon, Brazil. The animals, two similar sized males (estimated 800 mm in total length) and a smaller female (around 700 mm), were first encountered at about 1.30 m above the ground in the branches of a small tree (*Casearia* sp., Salicaceae) and engaged in reproductive activity when detected (Fig. 1). As the second male approached, the male that was copulating began to move higher into the branches, dragging the female with him. The second male responded by following the pair and attempting to wind his body around the body of the first male. This continued until the animals reached the end of a tree branch some 4.5 m above the ground within the canopy. At this point, the second male bit the first one in the neck. Finally, the three snakes fell to the ground and the mating pair separated and all three exited in different directions across the forest floor. The entire sequence of observations lasted around 15 minutes.

We did not observe directly the initial pre-copula behaviour of the pair; but likely these performances were similar to those reported by Cruz-Lizano et al. (2013), where the male approached the female, aligned their bodies and began to roll over the female's body with caudocephalic waves. In contrast to the observations of Cruz-Lizano et al. who reported copulation in late January, during the driest season in their region, our observation occurred when the regional climate was changing from the dry to wet season. If the 89 day incubation period reported by these authors also occurred here, this would indicate hatching in the middle of January in our study area, a timing also observed by Linardi (2016) for the species in São Paulo State, south-eastern Brazil. Our report showed that access for mating can generate active competition among *L. ahaetulla* males. Though larger size in females allows greater reproductive capacity, it is common in many Colubrid genera for males to be the larger sex (Bonnet et al., 1998), but this is the first report in this genus. Such activities are generally associated with active male combat (Shine, 1978), which would appear congruent with the reproductive patterns observed here for *L. ahaetulla*.

Figure 1. Male-male competition between two males of the snake *L. ahaetulla* (climbing together the branches at the right hand), while one male was already mating with a female (located at the left side)

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