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Climbing behavior in the aquatic snake *Helicops hagmanni* Roux 1910 (Serpentes: Dipsadidae)

Leandro João Carneiro de Lima Moraes* and Rafael de Fraga

The genus *Helicops* Wagler, 1830 (Hydropsini) comprises 16 species of aquatic snakes (Uetz et al., 2014) widely distributed in South America, from Colombia to Argentina (Rossman, 1970, 1973). Seven of these species have been found in the Amazon Basin: *H. angulatus*, *H. hagmanni*, *H. leopardinus*, *H. polylepis*, *H. tapajonicus*, *H. apiaka* and *H. trivittatus* (Uetz et al., 2014). Because most Amazonian snakes typically show very low detection probabilities (Fraga et al., 2014), studies on ecology and natural history of the genus *Helicops* in the Amazon have been based on few specimens (e.g. see Martins and Oliveira, 1999; Fraga et al., 2011). Basic information on habitat use, home range, feeding and reproductive behavior remains poorly understood. It is known that all species of *Helicops* hunt mainly during the night, preying on animals living in riparian habitats, such as tadpoles, fish and semi-aquatic lizards, and they have been often found in water or hidden within the aquatic vegetation in streams and ponds (Martins and Oliveira, 1999). However, habitat use by *Helicops* during the day, when the snakes are inactive resting or basking, has never been reported. This note reports on an individual of *H. hagmanni* found during the day, perching in a tree, an unexpected and not yet documented behavior for this aquatic species.

We found an unsexed adult of *H. hagmanni* (Figure 1) on 03 June 2014, at 5:18 PM, perched about 2 meters above the ground, on the vegetation adjacent to a small first order stream, in Reserva Ducke, Manaus, Amazonas, Brazil (02°57'42" S, 59°55'40" W). The area is dominated by Moriche palms (*Mauritia flexuosa*) riparian herbs and aquatic macrophytes, and it is inserted in a sunny clearing, which was opened to construct the headquarters of the reserve. The specimen was not collected, however it showed a pattern of colors and circular blotches on the body unlikely to be confused with other species in central Amazonia (see Fraga et al., 2013). Species identification was confirmed by Vinicius T. de Carvalho.

Snakes of the genus *Helicops* have the morphological characters typical of an aquatic life style, such as eyes and nostrils dorsally oriented, a robust and dorsoventrally flattened body and a short tail. In snakes not adapted to climb, gravity can potentially collapse the circulatory system (Lillywhite, 1987), therefore, this climbing behavior was unexpected in *Helicops*, and it possibly requires a higher energetic expenditure. It has been previously postulated that Amazonian terrestrial diurnal snakes climb on vegetation to rest during the night due to the abundance of nocturnal terrestrial predators, such as ants and giant spiders (Martins, 1993). However, this can not be the case for *Helicops*, because this species is aquatic and nocturnal. Our hypothesis for the explanation of this observation is that the cost for climbing may be compensated by the access to warmer microclimates, which might results in a better thermoregulation. This hypothesis couldn't be tested here but deserve to be tested in the future, by studying the influence of vertical gradients of temperature on physiological processes of *H. hagmanni*.

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Instituto Nacional de Pesquisas da Amazônia - INPA. Av. Efigênio Sales, 2239, Aleixo, CEP 69060-020, Manaus, Amazonas, Brazil

* Corresponding author e-mail: leandro.jclm@gmail.com

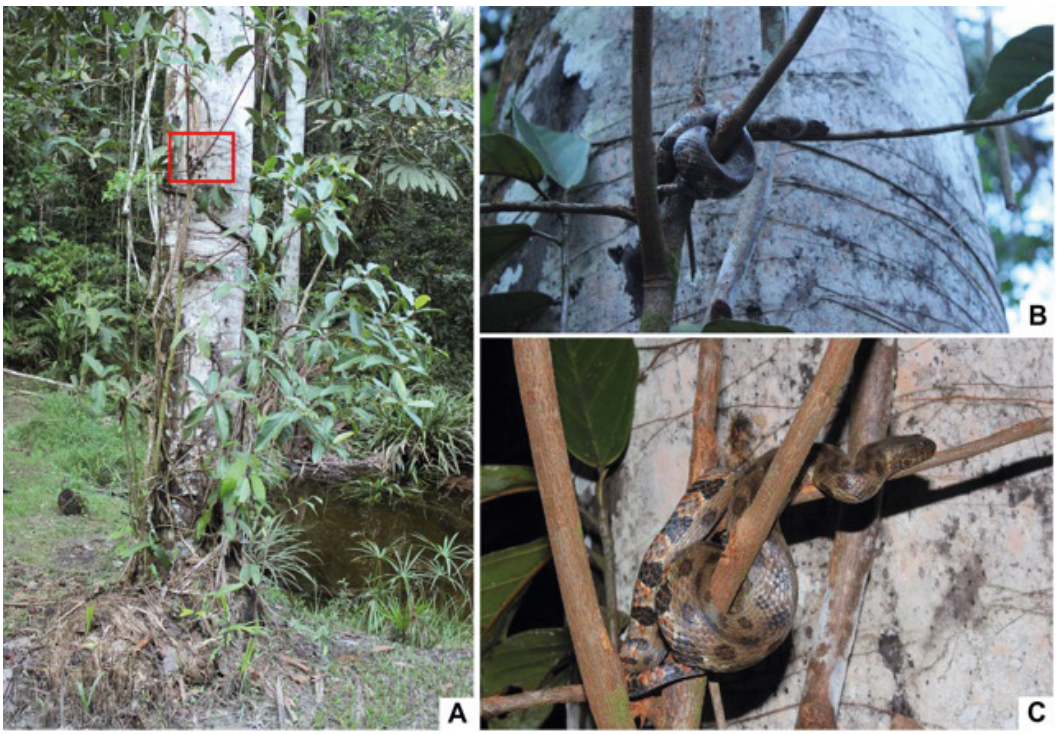

Figure 1. An adult unsexed of *Helicops hagmanni* (A, B, C) on the vegetation surrounding a stream in central Amazonia, 2 meters above the ground. Photos by L.J.C.L. Moraes.

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