

Helicops angulatus (Water Mapepire)

Family: Dipsadidae (Rear-fanged Snakes)

Order: Squamata (Lizards and Snakes)

Class: Reptilia (Reptiles)



Fig. 1. Water mapepire, *Helicops angulatus*.

[<https://www.flickr.com/photos/nclarkii/5621799658/in/photostream/>, downloaded 25 January 2015]

TRAITS. *Helicops angulatus* (also known as the water mapepire or brown-banded water snake) is a water dwelling snake that has a thick body. Females are larger than males, reaching up to 735mm in length, while males reach a maximum length of 686mm (Martins and Olivera, 1998). The tail narrows noticeably after the anus, with males having longer tails than females (Boos, 2001). The eyes and nostrils are positioned at the top of the head (Fig. 3), an adaptation which allows for vision and breathing while the rest of the body is submerged (Boos, 2001). The tongue is black. Dorsal scales are keeled (with ridges). The dorsal surface is brown/ greyish brown in colour with dark brown crossbands (Fig. 1). The venter, or underside of the snake, varies in colour; it can be red, grey or light yellow, with black or dark brown crossbars and spots (Fig. 2). Venter colour variation is not sexually dimorphic and appears to be genetically based (Ford and Ford, 2002). *H. angulatus* is very mildly venomous as its salivary excretion contains toxins, and it is rear-fanged, having longer teeth at the back of the mouth to deliver this venom to help disable prey during swallowing. The snake appears to be muscularly weak, most likely due to its life in an aquatic habitat (Ford and Ford, 2002).

DISTRIBUTION. Besides Trinidad, *H. angulatus* can be found in a number of South American countries (Fig. 4). These include, Brazil, Bolivia, Ecuador, Guyana, French Guiana, Suriname, Colombia and east of the Andes in Venezuela (Cisneros-Heredia, 2006). This species occupies still or slow flowing water in small ponds, rivers, herbaceous swamps, flooded pastures, water-filled ditches and dams in savannas and forested areas (Roberto et al., 2009).

HABITAT AND ACTIVITY. This snake is primarily nocturnal and is rarely seen during the day. It is exclusively aquatic, swimming in shallow waters of ponds, rivers or swamps, when active (Martins and Olivera, 1998). According to a study done by Henderson et al. (1976), the snakes appear to become active and come out into the open waters about 20 minutes after dark. The little data that is available about *Helicops angulatus* indicates that these snakes stay in one area for extended periods of time, or visit the same area frequently (this is based on mark and recapture methods) (Martins and Olivera, 1998). The size of the area in which *H. angulatus* utilizes in a period of about three days has been found to be approximately thirty metres squared (Henderson et al., 1976).

FOOD AND FEEDING. Food is hunted at night, when the snake is most active; however it has been observed foraging by day (Martins and Olivera, 1998). Prey includes tadpoles, frogs, fish and aquatic lizards – whatever of these is most common in the particular aquatic habitat the snake occupies. From observing captive snakes, it appears as though *H. angulatus* possibly captures its prey by stalking and then striking quickly, grasping its prey with its mouth. This snake does not constrict, but swallows its prey whole, as observed by Rocha and López-Baucells (2014). If the prey is too large, or fights too much, the energy expenditure by the snake would be considered wasteful and the snake would let the prey go (Rocha and López-Baucells, 2014).

POPULATION ECOLOGY. Little is known about the dynamics of this species within its population. However, *H. angulatus* does not appear to be territorial as it resides and hunts in an area with many other snakes of its own kind (Ford and Ford, 2002). *H. angulatus* does appear to be solitary (does not eat, sleep or hunt in groups), like most other snakes.

REPRODUCTION. The snake is reported to be facultatively viviparous (Ford and Ford, 2002), that is, they can give birth to live young under certain conditions. Birth of live young occurs when suitable nesting sites are not accessible. When these snakes do nest, they do so close to the water's edge, within approximately 10m (The Herpetofauna of Trinidad & Tobago, 2015). The time at which the female snakes lay their eggs appears to be variable and can occur throughout the year (Martins and Olivera, 1998; Ford and Ford, 2002). *H. angulatus* may lay as little as 2 eggs or as many as 20 eggs at a time (Ford and Ford, 2002).

BEHAVIOUR. Juvenile behaviour: Like many snakes, juveniles have to fend for themselves once hatched or born. Little is known about the behaviour of juvenile *H. angulatus*.

Antipredator behaviour: There has not been much available information regarding the antipredatory behaviour of *H. angulatus*, except for its defensive behaviour when handled by humans. Depending on the individual snake, *H. angulatus* can vary from docile to very aggressive when handled (Martins and Olivera, 1998). Aggressive individuals bite to defend themselves, and do so repeatedly (Ford and Ford, 2002). Aggressive snakes may also rotate and thrash their bodies. If approached on land, the snake flattens the body dorsoventrally, enlarges

the head and opens the jaws (Martins and Olivera, 1998). It may also make subtle thrashes of the body. Docile snakes can be handled with ease by humans and do not bite, thrash or make any other sort of defensive attacks (Ford and Ford, 2002). However, non-aggressive snakes were observed by Ford and Ford (2002) to turn over to expose their coloured bellies. There have not been many studies on the natural predators of *H. angulatus*, but there has been a sighting of a *H. angulatus* neonate being consumed by a large *Corydalidae* larva in the São Bartolomeu River in Brazil (Leão and Brandão, 2012).

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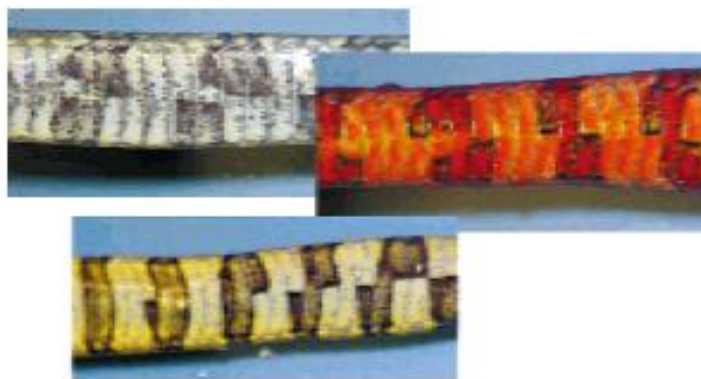


Fig. 2. Variation in venter colour of *H. angulatus*.

[Ford and Ford, 2002]



Fig. 3. Dorsally positioned eyes and nostrils of *H. angulatus*.

[<http://www.trinidad-tobagoherps.org/Helicopsangulatus.htm>, downloaded 24 March 2015]

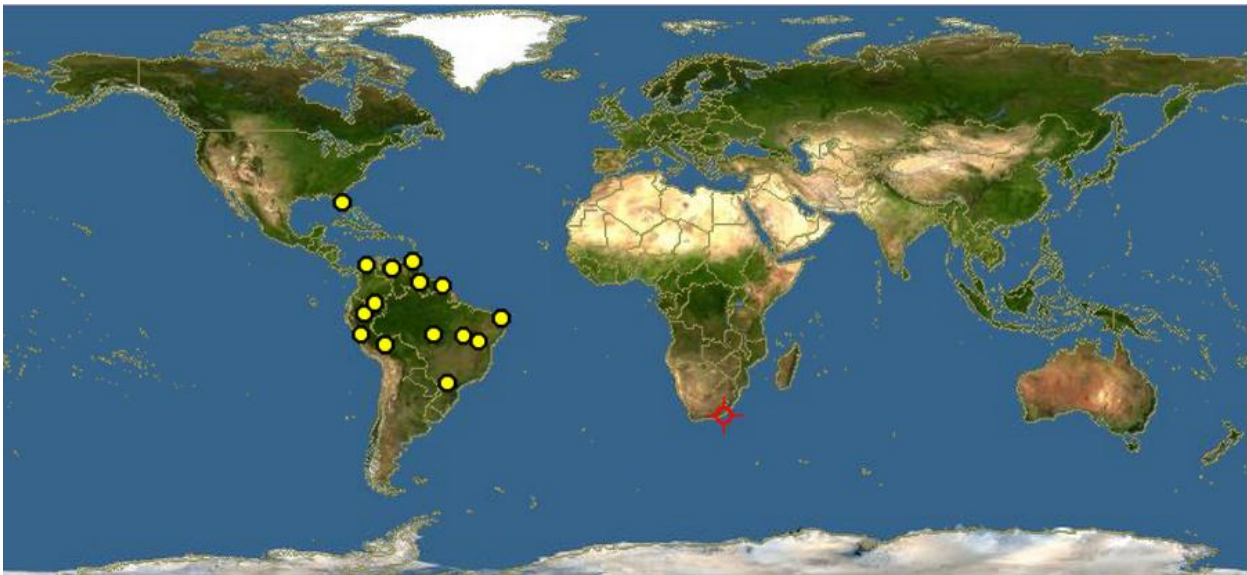


Fig. 4. Brown-banded water snake geographic distribution.

[http://www.discoverlife.org/mp/20m?act=make_map&kind=Helicops+angulatus, downloaded 10 February 2015]