

# DEFENSIVE BEHAVIOR IN A JUVENILE SPECIMEN OF THE SNAKE *TANTILLA MELANOCEPHALA* (LINNAEUS, 1758)

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**ABSTRACT:** The main purpose of this note is to describe the observation on a peculiar defensive behavior in a juvenile snake specimen assignable to *Tantilla melanocephala*, coming from an Andean population in the Cordillera de Mérida, Venezuela. Currently, information about the ethology of species in this genus is very scarce.

**KEY WORDS:** Ethology, black-headed snake, Serpentes, Colubridae, Andes, Venezuela.

**RESUMEN:** N. Sánchez-Guillén e I. Mendoza-Mendoza. “Comportamiento defensivo en un ejemplar juvenil de la serpiente *Tantilla melanocephala* (Linnaeus, 1758)”. El presente trabajo tiene como objetivo describir un peculiar comportamiento defensivo observado en un ejemplar juvenil de la serpiente *Tantilla melanocephala*, el cual es proveniente de una población andina en la Cordillera de Mérida, Venezuela. Actualmente, la información disponible sobre la etología de especies en este género es muy escasa.

**PALABRAS CLAVE:** Etología, culebra de cabeza negra, Serpentes, Colubridae, Cordillera de Mérida, Venezuela.

## INTRODUCTION

Over millions of years, the many different kinds of animals have developed ways of defending themselves (Wilsdon 2009). The defensive strategies exhibited by snakes are particularly varied, so much that a single species, or inclusive a single individual, may show several anti-predator behaviors (Greene 1988, Natera-Mumaw *et al.* 2008). In general, snakes escape from threats, by mean of fast and secretive movements (Mendoza 2008). Other snakes species exhibit most elaborated elusive behaviors; such behaviors might be related to the use of cryptic coloration (or camouflage), aposematic coloration and mimicry (e.g. Roze 1970, Lancini 1986, La Marca and Soriano 2004, Mendoza 2008). The most common type of mimicry found among snakes is Batesian mimicry (when some harmless species mimic harmful ones). Additionally, some snakes escape death by playing dead (Mendoza 2008); this defense is called death feigning (Wilsdon 2009). In this note, our objective is to report a casual observation on behavior in a juvenile snake of *Tantilla melanocephala* (Linnaeus, 1758), from San José de La Providencia, Mesa Bolívar, Municipio Antonio Pinto Salinas, in Mérida State, Venezuela.

The genus *Tantilla* Baird & Girard 1853, belonging to the family Colubridae (Rivas *et al.* 2012), is a Neotropical lineage with some species reaching the Nearctic region. It is made up of about sixty species of secretive snakes, harmless to man (Köhler 2003),

characterized by a small size (total length roughly between 130 and 700 mm, e.g. *T. atriceps* and *T. impensa*, respectively), modest head no wider than the neck, flattened dorsoventrally, tiny eyes with circular pupil, cylindrical body, and short tail gradually becoming pointed (Roze 1966, Chippaux 1986, Lancini and Kornacker 1989, La Marca and Soriano 2004). In relation to coloration patterns, they are distinguished by a dark brown or black skullcap that stands out conspicuously against its pale brown body (Stebbins 2003). As a result of this, these snakes are known as black-headed snakes (Werler and Dixon 2000).

In Venezuela, only two species of *Tantilla* have been reported: *T. melanocephala* (Linnaeus, 1758) and *T. semicineta* (Duméril, Bibron & Duméril, 1854), both inhabitants of Andean ecosystems in the Cordillera de Mérida (La Marca and Soriano 2004, Rivas *et al.* 2012). To identify our specimen, we applied keys for families (Roze 1966, Köhler 2003) and genera (Roze 1966, Chippaux 1986, Köhler 2003). The specimen object of this note was tentatively assigned to *T. melanocephala* by comparing with the species keys and descriptions provided by Roze (1966), Peters and Orejas-Miranda (1970) and Lancini and Kornacker (1989); these keys have not been updated and it may be possible that *T. melanocephala*, as currently known, constitutes a species complex (see Savage 2002). The individual examined is a juvenile specimen with maxillary teeth 15+1/14+1;

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unlike other conspecifics, it is equipped with a large (about three times greater than maxillary teeth), grooved tooth (or fang) at the back of each upper jaw-bone; nasal plate entire, being different, in this regard, to the condition reported by the aforementioned authors. The remaining features are as follows: 7 (3,4) supralabials; 6 (4) infralabials; two postocular plates; temporalia 1+1 (Fig. 1), ventralia 135; and subcaudalia 64. Coloration on specimen is shown in figures 1 and 2.

The specimen object of this note is deposited at the Collection of Amphibians and Reptiles of the Laboratorio de Biogeografía, Universidad de Los Andes (ULABG), in Mérida, Venezuela, under the number ULABG 7806.

### THE OBSERVATIONS

During the afternoon of 17 March 2014, being at Finca La Fortuna, at the Venezuelan Andean locality of San José de La Providencia, W Mérida city, Mérida State, at 8°29'8.63"N and 71°35'50.46"W (811 m elevation), the first author observed a peculiar defensive display in a juvenile snake specimen (total length: 176 mm, tail length: 40 mm), assignable to *T. melanocephala*, exhibited while being manipulated. The specimen had been found active the previous day around the 18 hours by Olegario Guillén (owner of the estate) on the floor of a kitchen facility. Such a display consisted of raising the anterior third of body at about 45° with respect to the palm of the hand, with the tail coiled to a finger and the head motionless and maintained at about 0° angle in relation to the horizontal level. In this position, it began an energetic waving motion, describing four horizontal alternating waves only in the aforementioned body region. It was observed repeatedly in the course of five minutes. Posteriorly, this behavior was repeated on the ground, where the



**FIG.1.** Lateral view of juvenile specimen of *Tantilla melanocephala* ULABG 7807. See the dark skullcap and pale spot behind the tiny eye that characterize this group of snakes. Scale= 3 mm.

*Vista lateral del ejemplar juvenil de Tantilla melanocephala ULABG 7807. Note la capucha negra y la mancha clara detrás del ojo que caracterizan a este grupo de serpientes. Escala= 3 mm.*

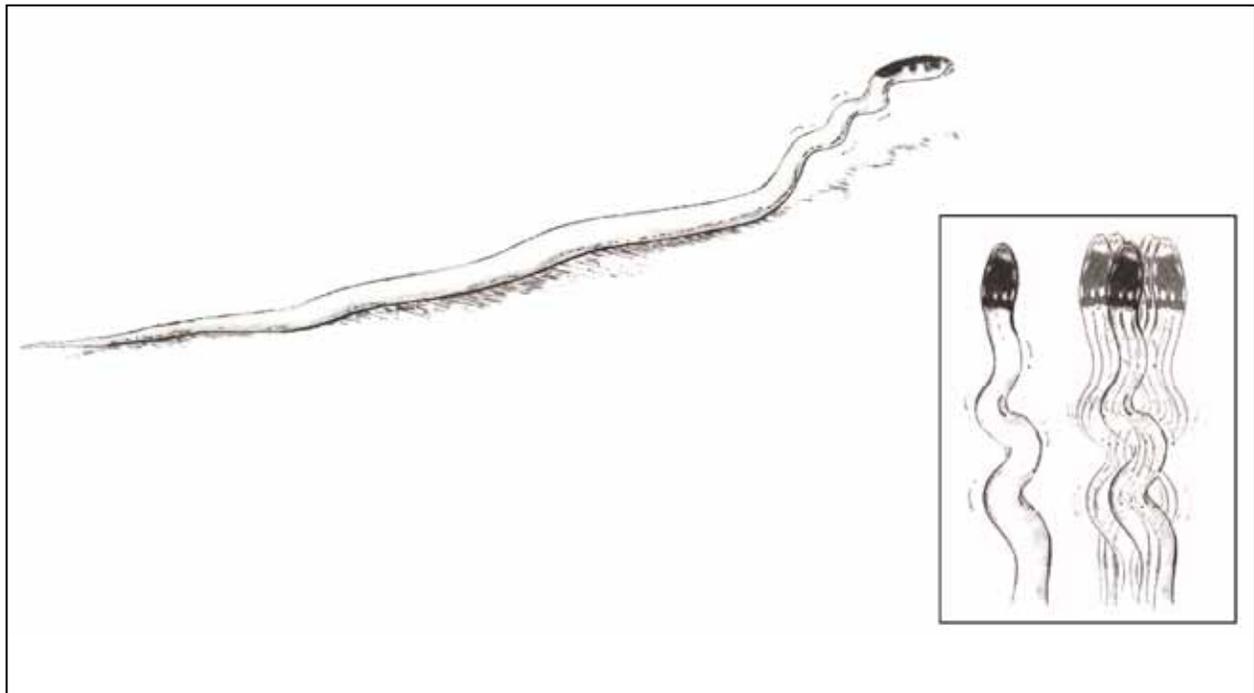


**FIG.2.** Dorsal view of head of specimen of *Tantilla melanocephala* ULABG 7807, with internasals and prefrontals plates colored white. Scale= 5 mm.

*Vista dorsal de la cabeza de ejemplar Tantilla melanocephala ULABG 7807, con escamas internasales y prefrontales coloreadas de blanco. Escala= 5 mm.*

specimen, without being directly manipulated, reacted to human approaching by describing the same pattern, but remaining the rest of the body motionless in a relaxed position. After a few minutes the snake stopped its defensive display and tried to escape. Clearly, this behavior is different from any passive defense strategy (like camouflage or similar mechanisms) commonly exhibited by snakes. Among active defenses, it does not represent a display to dissuade potential predators; this strategy was discarded because it is unlikely, for an obvious reason: the snake does not encourage the enemy to attack a non-vital area of the body, as is usual in such a behavior. On the other hand, we do not believe either that it is a typical threatening posture, such as an "S"-shape posture, nor any kind of mimicry (at least with other snake). Nonetheless, it is unknown whether this complex behavior keeps any connection with the local common name "centipede snakes". In addition, this juvenile specimen does not seem to conduct offensive behavior; further observations are required, but it is probably safe to state that it does not classify in any of the aforementioned types of behavior.

Although it is often difficult to distinguish between basic defense and intimidation, and given the general rule that nonpoisonous snakes tend to exaggerate their intimidatory methods more than the really poisonous ones, we postulate that this juvenile snake specimen assignable to *T. melanocephala* exhibited an intimidating-warning defensive behavior. We do not know whether this is a typical behavior solely present in young specimens or if it also occurs in adults of this taxon. In any case, the report adds to the scanty available information on the behavior of *Tantilla* snakes.



**FIG.3.** Sketch of peculiar display exhibited by juvenile specimen of black-headed snake (ULABG 7807), showing an energetic waving motion.  
*Boceto del despliegue defensivo exhibido por un ejemplar juvenil de serpiente cabeza negra (ULABG 7807), que muestra un movimiento ondulante rítmico.*

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