

# Death-feigning as defensive behaviour of eight lizard species of the Amazon rainforest

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Death-feigning or thanatosis is a defensive behaviour in which an animal adopts a posture resembling a dead individual when it is physically threatened by a potential predator (Hampreys & Ruxton, 2018). This can be an effective mechanism against predators that will not feed on dead animals or need to detect prey by its movement (Toledo et al., 2011). The evolution of anti-predatory behaviours is an important component of the natural history of lizards (Downes & Hoefer, 2004), although until now thanatosis had only been reported for Amazonian lizard in the families Gymnophthalmidae and Tropiduridae. In this study we report the death-feigning behaviour displayed by eight lizards species from the Brazilian Amazon rainforest (Table 1) and add new records for the families Dactyloidae, Alopoglossidae, Gymnophthalmidae and Sphaerodactylidae.

We undertook fieldwork in a terra firme forest at the Reserva Extrativista Beija-Flor Brilho de Fogo, municipality of Pedra Branca do Amapari, Amapá state, Brazil (0°47'30.6"N, 51°58'42.1"W). The area consists of dense forest with large trees and sandy and clay ground being the watershed of the Amapari River (Drummond et al., 2008). The local climate is classed as Equatorial (Am) according to the Köppen-Geiger classification with two well-defined seasons: a dry season occurring between July and September, and a rainy season between December and June (Alvares et al., 2013).

The data presented in this study were collected between July and October 2019. During field surveys of the herpetofauna, we captured eighteen species of lizards during active visual searches (Heyer et al., 1994) during the morning. All lizards were handled carefully during measurements (body size and mass). Of the eighteen species of lizard captured, eight species exhibited thanatosis during handling.



**Figure 1.** Death-feigning behaviour of Amazonian lizards *N. chrysolepis*, *A. angulatus*, *N. bicarinatus* and *A. reticulata*. (top to bottom)

**Table 1.** Death-feigning behaviour observed in eight species of Amazonian lizards

Family	Species	Date in 2019	Time	Duration of thanatosis
Dactyloidae	<i>Norops chrysolepis</i>	13 July	13.01 h	40 s
Alopoglossidae	<i>Alopoglossus angulatus</i>	23 October	08.09 h	25 s
Gymnophthalmidae	<i>Neusticurus bicarinatus</i>	23 October	08.13 h	50 s
	<i>Arthrosaura reticulata</i>	24 October	09.03 h	120 s
	<i>A. kockii</i> (male)	24 October	09.48 h	100 s
	<i>Cercosaura</i> aff. <i>argulus</i>	25 October	10.16 h	30 s
Sphaerodactylidae	<i>Gonatodes humeralis</i> (female)	26 October	09.56 h	30 s
Tropiduridae	<i>Plica plica</i>	26 October	10.20 h	60 s



**Figure 2.** Death-feigning behaviour of Amazonian lizards *A. kockii*, *C. aff. argulus*, *G. humeralis* and *P. plica*. (top to bottom)

The lizards put themselves in a death-feigning posture by turning their ventral surface upward exposing the cloaca area, contracting the limbs, closing their eyes, and curving their tails laterally (Fig. 1, Fig. 2). This is the first report of death-feigning behaviour of the lizards *Norops chrysolepis*, *Alopoglossus angulatus*, *Neusticurus bicarinatus*, *Arthrosaura reticulata*, *Arthrosaura kockii*, *Cercosaura aff. argulus* and *Gonatodes humeralis*, and the second record for *Plica plica*. The specimens collected were deposited in the Herpetological Collection of the Universidade Federal do Amapá, municipality of Macapá, Amapá State, Brazil (CECC).

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