Lizards are commonly predated by snakes, birds, mammals, other lizards and frogs (Beebe, 1944; Martins and Oliveira, 1998; Downes, 2001; Rodrigues and da Silva, 2009; Rodrigues, de Freitas and Leal, 2013; Do Couto and Menin, 2014). Predation studies about lizards are important to understand the evolution of defensive strategies, such as toxic and distasteful secretions, cryptic and aposematic coloration and a variety of defensive postures and behaviors (Greene, 1988; Lima and Dill, 1990; Lima, 1998; Downes, 2001). Furthermore, information about predation on lizards is also necessary to understand predator-prey interactions, which are essential to develop conservation and management strategies for these taxa (Sinclair and Arcese, 1995). Predation events can be divided into six phases: localization, identification, approach, subjugation, ingestion and digestion (Toledo, Sazima and Haddad, 2011). Once a reptile encounters a predator, its behavioral responses depend on the morphology and ecology of the animal, as well as the identity and proximity of the predator (Greene, 1988).

The polychrotine lizards of the genus *Polychrus* (Cuvier, 1817) occur in Central America northward to Nicaragua and are widely distributed in South America, on both sides of the Andes (Ávila-Pires, 1995). The genus contains seven species (Koch et al., 2011), of which two occur in Colombia (*P. gutturosus* and *P. marmoratus*). The bush anole *Polychrus gutturosus* Berthold, 1846 is distributed from northwestern Honduras and western Costa Rica to northwestern Ecuador (Köhler, 2003; Savage, 2002) from sea level to 1300 m elevation (Castro-Herrera and Vargas-Salinas, 2008). According to Duellman (1979), this species occurs on the Pacific slopes of the Cordillera Occidental in Colombia and Ecuador, the northern parts of the Colombian cordilleras and in the highlands in lower Central America; it is also found in the Magdalena valley of Colombia (Moreno-Arias et al. 2008). *Polychrus gutturosus* inhabits undisturbed lowland moist forests, wet forests, forest edges and stream courses that lead into the adjacent Premontane Moist Forest. It is strictly diurnal, arboreal and rarely seen (Savage 2002).

The only predation event recorded for the bush anole was provided by Ruthven (1922), who registered an individual found inside of the stomach of the parrot snake *Leptophis ahaetulla* (Linnaeus, 1758) at the Sierra Nevada de Santa Marta, Colombia. However, he did not provide detailed information about the predation event. Here, we describe in detail a new predation event on the bush anole (*P. gutturosus*) by *L. ahaetulla*, based on observations in the Gorgona Island National Natural Park, Colombia, which represents the first record of the lizard for this island.
During herpetological surveys conducted in March 2012 in the Gorgona Island Natural National Park, Cauca department, Colombia (02°47’ - 03°06’ N and 078°06’ - 078°18’ W), we observed a parrot snake preying an individual of bush anole. The identity of both species was determined by comparing digital photographs with original descriptions and taxonomic keys by Peters and Orejas-Miranda (1970), Pérez-Santos and Moreno (1988), Savage (2002), Koch et al. (2011) and Castro-Herrera, Valencia and Villaquirán (2012). None of the specimens observed was collected. In the Gorgona Island, two species of the *Leptophis* genus have been recorded (*L. ahaetulla* and *L. depressirostris*) (Castro-Herrera, Valencia and Villaquirán, 2012). These species are distinguished by the presence of loreal scale (absence in *L. ahaetulla* and present in *L. depressirostris*; Savage, 2002; Figure 1A). Morphologically *P. gutturosus* is distinguished from *P. marmoratus* by the absence of a strong keeling in the ventral part of the jaw (Figure 1B). In addition, inside of Colombia, *P. gutturosus* is distributed in the Pacific region and in the Magdalena Valley (Figure 2), while *P. marmoratus* is found in the Amazon region (Koch et al., 2011).

Furthermore, we report the first record of *Polychrus gutturosus* from Gorgona Island (Figure 2), and we mapped the distribution of the species based on published records (Myers and Rand, 1969; Aleman-Mejia, 2008; Moreno-Arias et al., 2008; Laurencio and Malone, 2009; Koch et al., 2011), which were complemented with the revision of the databases of Colección de Reptiles del Instituto de Ciencias Naturales (Universidad Nacional de Colombia), and Global Biodiversity Information Facility (GBIF). Cartography was obtained from satellite images (Terrametrics 2014, Google Inc) which are available with the complement OpenLayers of Google Satellite for QGis 2.0.1.

The observation of the predation event was made on March 8, 2012, nearby the creek Iguapoga. The event, which was photographed completely, began at 1038 h when we noticed that a lizard fell from the canopy of a tree (Figure 3A) of approximately 20 m of height. Fifteen seconds later a snake also fell from the same tree at a short distance from the lizard. The snake took immediately a straight posture stalking the lizard through the vegetation (Figure 3B). Two minutes later the snake caught the lizard by the head. The snake started to pull it out of the understory and dragged it next to the base of the tree from where they fell. The lizard fought back by grasping the vegetation around with its hind limbs (Figure 3C). At 1044 h the snake

![Figure 1.](image1.png)

*Figure 1. Leptophis ahaetulla* observed preying an individual of the bush anole *Polychrus gutturosus* in the Gorgona Natural National Park, Colombia. (A) Notice the lack of the loreal scale, which allowed the identification in the field of the snake and; (B) notice the lack of a strong keel in the ventral part of the jaw, which allowed the identification in the field of the bush anole.
tried to swallow the lizard partially to get it up to the tree, but the lizard was still holding the vegetation. Ten minutes later the snake released the lizard and bite it again making slow oscillating movements with the jaws. This caused an injury to the lizard on the neck and head (Figure 3D). At 1059 h it started again to gobble, this time without trying to climb the tree. After fourteen minutes, the snake had swallowed the lizard up to its fore limbs (Figure 3E), and five minutes later half of the lizard’s body was eaten. While swallowing the hind limbs (1132 h), it started to move slowly towards the tree and began to climb (Figure 3F). Thirteen minutes later the snake reached a ~1.8 m of height and moved through the epiphytes (Figure 3A). The snake had swallowed almost all of the body of the lizard except the tail (Figure 3G). At 1211 h the snake had climbed up to ~3.5 m of height and only the tip of the tail of the lizard could be seen (Figure 3H). Finally the snake disappeared through the vegetation.

The new record of *P. gutturosus* for Gorgona island is notable and suggests the possibility of discovering other reptiles species not reported to date, despite of the extensive and systematic herpetological surveys in the last century (Barbour, 1905; Parker, 1926; Alberico, 1986; Castro, Ayala and Carvajal, 1979; Medem, 1979; Urbina-C. and Londoño-M., 2003; Urbina-Cardona, Londoño-Murcia and García-Ávila, 2008; Castro-Herrera, Valencia and Villaquirán, 2012). This record fills a gap between Buenaventura, Colombia (3°41’N y 76°57’W) and Esmeraldas, Ecuador (1°17’N y 78°50’W), in accord with Global Biodiversity Information Facility records, reports from Koch et al. (2011), and a specimen from the Instituto de Ciencias Naturales, Universidad Nacional de Colombia (ICN 51320) (Figure 2).
been reported to prey five genera of the family Hylidae (Dendropsophus, Hypsiboas, Osteocephalus, Scinax and Sphaenorhynchus) (Albuquerque, Galatti and Di-Bernardo, 2007). Savage (2002) also recorded the ingestion of Agalychnis saltator by L. ahaetulla. Vitt and Vangilder (1983) reported the ingestion of Scinax ruber, Phyllomedusa hypochondrialis, and unidentified lizard tails and remains of geckos (Gonatodes humeralis and Hemidactylus mabouia) by L. ahaetulla collected in the state of Pernambuco, northeastern Brazil. In the work of Ruthven (1922) and in this paper, individuals of P. gutturosus predated by L. ahaetulla have been recorded. Although there is information about the preys of L. ahaetulla and the species that prey upon P. gutturosus, there is still a scarce knowledge about the features and behaviors related to predation. For example, is jumping from the forest canopy a defensive behavior against predators in P. gutturosus? And if so, is it successful avoiding snake predation, or what kind of predators is it for?

Acknowledgements. This contribution was made during a conservation project of Atelopus elegans funded by National Natural Parks of Colombia, through the research fund “Mono Hernández” code 225. The authors thank Margarita López-García, José Rances Caicedo, and Julián Rojas for their valuable comments and inputs, which have improved our manuscript. This work was also made possible by a graduate scholarship from the Consejo Nacional de Ciencia y Tecnología (Conacyt) to JAV and a scholarship from the U.S. Fish and Wildlife Service to DAG-H and SE-L.

References


