

# PREDATION ATTEMPTS OF THE GRAY FOX (*UROCYON CINEREOARGENTEUS*) AND THE NEOTROPICAL OTTER (*LONTRA LONGICAUDIS*) BY THE CENTRAL AMERICAN BOA CONSTRICTOR (*BOA IMPERATOR*) IN THE NORTHERN PORTION OF THE SELVA LACANDONA, CHIAPAS, MEXICO

## INTENTOS DE DEPREDACIÓN DE LA ZORRITA GRIS (*UROCYON CINEREOARGENTEUS*) Y DE LA NUTRIA DE RÍO (*LONTRA LONGICAUDIS*) POR PARTE DE LA MAZACUATA (*BOA IMPERATOR*) EN LA PORCIÓN NORTE DE LA SELVA LACANDONA, CHIAPAS, MÉXICO

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**Resumen.**— Las interacciones depredador-presa en la naturaleza son escasamente observadas y foto documentadas. Este tipo de información de historia natural es vital para comprender la cadena trófica y la ecología de las especies involucradas. Presentamos nueva información relevante sobre la dieta de la Mazacuata (*Boa imperator*) en la porción norte de la Selva Lacandona, Chiapas, México. Esperamos que esta información sea de beneficio para el entendimiento de las redes tróficas en esta región multicultural y biodiversa del sur de México.

**Palabras claves.**— Mazacuata, Zorrita gris, Nutria de río, interacción presa-depredador, Selva Lacandona.

**Abstract.**— Predator-prey interactions in the wild are scarcely observed or photo documented. This kind of natural history information is vital to understanding trophic chains and the ecology of the species involved. We present relevant new information regarding the diet of the Mesoamerican Boa (*Boa imperator*) in the northern region of the Selva Lacandona in Chiapas, Mexico. We expect that this information will be beneficial for the understanding of trophic webs in this multicultural and biodiverse region from southern Mexico.

**Key words.**— Central American Boa Constrictor, Gray Fox, Neotropical Otter, prey-predator interactions, Selva Lacandona.

Predator-prey relationships play an important role in the structure of communities (Miller et al., 2006); this trophic interaction is fundamental for the functioning of natural communities (Barroso et al., 2013). Predation is the major cause of mortality in natural populations and can occur at any stage

in the life history of a given species (Vitt & Caldwell, 2013). Wildlife species consume the food that is available in their habitat, therefore, their diet functions as a link between the local resources, being a key driver of balance in ecosystems (Ojasti & Dallmeier, 2000). Studies on diet allow understanding of trophic

relationships between biotic communities (Villalobos et al. 2014; Viteri-Paschand & Mármot-Kattán, 2019). Predation events in the wild are difficult to observe and are scarce and rarely documented (Shepard, 2007; Brito De Carvalho et al., 2011).

The *B. imperator* is the largest snake found in Mexico (Heimes, 2016). The average adult size is 150–200 cm total longitud (TL). The longest specimen known to date measured 320 cm (Heimes, 2016). This heavy-bodied snake has a dorsal pattern of dark blotches and a median dark head stripe, vertical pupils, the head is covered by small scales on the top, dorsal scales smooth and in 55-79 rows at mid-body; small spine-like spurs on each side of the anal opening; narrow transverse ventral scales; subcaudals single (Heimes, 2016).

The current known distribution range of *B. imperator* in Mexico goes from central-south Tamaulipas along the Atlantic versant to the east of the Isthmus of Tehuantepec including the states of the Yucatan peninsula, and the state of Chiapas. They can also be found in all countries of Central America up until the northern region of Colombia in South America (Card et al., 2016). It inhabits subtropical and tropical thorn woodlands, tropical deciduous forests, evergreen seasonal forests, lowlands, submontane rain forests, savannas, and mangrove swamps. These snakes are mostly nocturnal, but adults are frequently observed moving about on the ground or in shrubs or trees during the day, particularly in densely forested areas. These snakes feed on a variety of small to moderately-sized vertebrates, including iguanas and other large lizards, birds, rats, opossums, agoutis, coatis, ocelots, and young deer (Heimes, 2016).

In this scientific note, we report two new different prey items in the diet of the Mesoamerican Boa (*B. imperator*) in southern Mexico. During fieldwork led by AIMM and RTG within the maya-lacandon communities of Nahá and Metzabok in the northern region of the Selva Lacandona (Mountains East of Chiapas), we observed a couple of prey-predator interactions involving in both cases the Mesoamerican Boa (*B. imperator*) preying on the Gray Fox (*Urocyon cinereoargenteus*) and Neotropical otter (*Lontra ongicaudis*).

**Observation # 1:** On the 13th of May 2014 during fieldwork in the community of Puerto Bello Metzabok (17°06'53"N, 91°37'32"W) a Mesoamerican Boa (*B. imperator*) was observed by RTG attempting to ingest a Neotropical otter (*L. longicaudis*). The whole process took place during several minutes and then the prey was regurgitated by the predator presumably due to the human interaction. The type of vegetation was that of



**Figura 1.** Un individuo adulto de la Boa Mesoamericana (*Boa imperator*) en el intento de alimentarse de un zorro gris (*Urocyon cinereoargenteus*) en la comunidad Maya-Lacandona de Puerto Bello Metzabok en la porción norte de la Selva Lacandona, Chiapas, México. Foto: Rafael Tarano González.

**Figure 1.** An adult individual of the Mesoamerican Boa (*Boa imperator*) preying on a Gray fox (*Urocyon cinereoargenteus*) in the Mayan-Lacandon community of Puerto Bello Metzabok in the northern part of the Selva Lacandona in Chiapas, México. Photo: Rafael Tarano González.

tropical evergreen forest. After observation and taking some photographs, the specimens were left alone. The boa was observed once again at the same site by RTG in subsequent visits to the same area.



**Figura 2.** Un fallido intento de ingestión de la Nutria neotropical (*Lontra longicaudis*) por un individuo adulto de *Boa imperator* en la comunidad de Puerto Bello Metzabok en la parte norte de la Selva Lacandona, Chiapas, México. Foto: Rafael Tarano-González.

**Figure 2.** A failed attempt of consumption of the Neotropical otter (*Lontra longicaudis*) by a second adult individual of *Boa imperator* in the community of Puerto Bello Metzabok in the northern region of the Selva Lacandona in Chiapas, México. Photo: Rafael Tarano-Gonzalez.

**Observation # 2:** On the 9th of September 2019 in the community of Puerto Bello Metzabok in the municipality of Ocosingo, Chiapas (17°06'54" N, 91°37'29"W), RTG observed an adult individual of the Mesoamerican Boa (*B. imperator*) attempting to ingest an adult Gray Fox (*U. cinereoargenteus*) individual. The event took place in a tropical evergreen forest. RTG decided not to disturb the moment and so he only took a couple of photographs and immediately left the area.

The gray fox, *U. cinereoargenteus*, is listed as "Least Concern" in the Red List of the International Union for the Conservation of Nature (Roemer et al., 2016). It is a medium-sized predator weighing between 3 kg and 5 kg (Fritzell & Haroldson, 1982), with solitary habits, and active during the daytime and nighttime hours (Fullerand & Cypher, 2004). This fox's distribution range goes from southern Canada to northern Venezuela and

Colombia, except for some mountainous regions in the northern United States and eastern Central America (Fritzell & Haroldson, 1982). In México, it can be found throughout the country (Roemer et al. 2016), inhabiting almost all vegetation types (Fritzell & Haroldson, 1982). For its part, the Neotropical otter (*L. longicaudis*) is a predator at the top of the food chain in the rivers where they live and mold the biotic communities at lower trophic levels. The neotropical otter, *L. longicaudis*, is widely distributed in the Americas, but despite its wide distribution range, it is becoming a threatened species as populations continue to decrease due to poaching, habitat loss, water pollution, and roadkills (Lavariega et al., 2020).

To the best of our knowledge, this is the very first time that these two types of prey items are formally documented as part of the diet of this massive constrictor snake in this natural

protected areas due to the Maya-Lacandon community efforts to guarantee the conservation of biodiversity for perpetuity.

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