



# FIRST PREDATORY RECORD ON *Caluromys derbianus* BY *Boa imperator* IN COSTA RICA

## PRIMER REGISTRO DE DEPREDACIÓN DE *Caluromys derbianus* POR PARTE DE *Boa imperator* EN COSTA RICA

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### ABSTRACT

Documented predation events regarding *Caluromys derbianus* as prey are scarce in Central America, only a few wildlife and domestic animals have been reported as predators of this mammal. Herein, we document the first predatory event on this marsupial species by Central American Boa (*Boa imperator*) in Costa Rica. This record contributes to the ecological knowledge and natural history of this medium-sized mammal.

**Key words:** Central America, constriction, ingestion, marsupial, natural history, snake.

### RELEVANCIA

Se documenta un evento de depredación de *Caluromys derbianus* por *Boa imperator*. Este registro contribuye a la ecología y comportamiento de las especies depredador-presa en el ecosistema.

### RESUMEN

Los eventos documentados de depredación de *Caluromys derbianus* como presa son escasos en Centroamérica, solo unos pocos animales silvestres y domésticos han sido reportados como depredadores de este mamífero. En esta nota reportamos el primer registro de depredación para este marsupial por parte de la Boa centroamericana (*Boa imperator*) en Costa Rica. El presente registro contribuye al conocimiento ecológico y la historia natural de este mamífero de tamaño mediano.

**Palabras clave:** Centroamérica, constricción, historia natural, ingestión, marsupial, serpiente.

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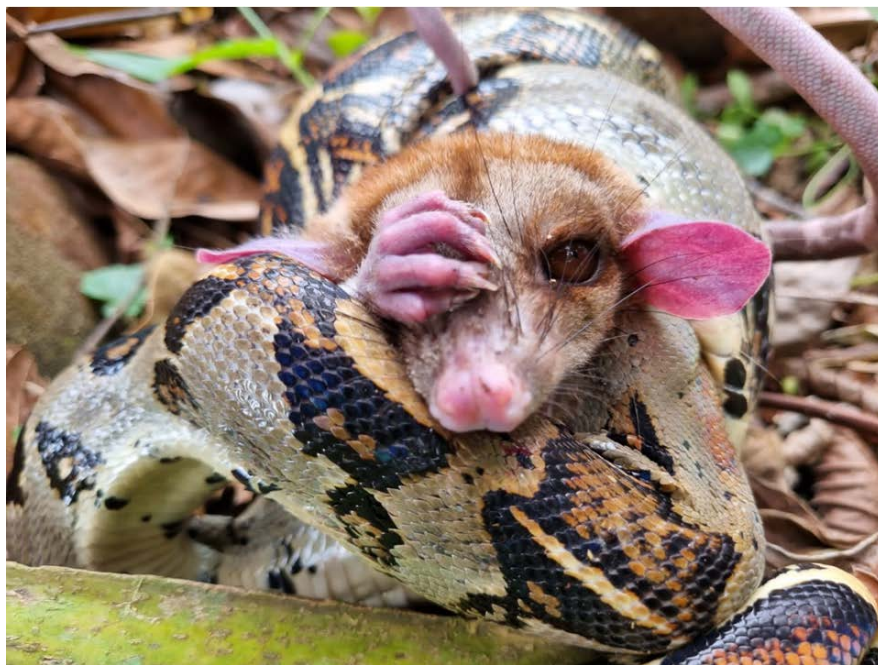
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The Central American woolly opossum *Caluromys derbianus* Waterhouse, 1841, has a wide distribution, from southern Mexico to western Colombia and Ecuador. The species inhabits primary and disturbed tropical humid forests from sea level to about 2,600 m of elevation (Alberico *et al.*, 2000; Bucher and Hoffmann, 1980; Eisenberg, 1989; Gardner, 2007; Reid, 2009). Despite this species having a widespread distribution, the population is rapidly decreasing in parts of its geographical distribution (Mexico and Ecuador) due to deforestation (Solari and Lew, 2015). In addition, little has been published concerning the natural history and biology of the species, including information on its distribution of the *C. derbianus*, ecology, and conservation threats (Bucher and Hoffmann, 1980; Fonseca and Astúa, 2015; Ortega *et al.*, 2021; Phillips and Jones, 1968).

According to Bucher and Hoffmann (1980), predators for the Central American woolly opossum were not known. Nevertheless, wildcats (*e.g. Leopardus pardalis, Leopardus wiedii, and Herpailurus yagouaroundi*), one owl (*Pulsatrix perspicillata*) and domestic animals (*e.g. dogs and cats*) have been documented recently as predators for this opossum (Marineros *et al.*, 2016; Moreno *et al.*, 2006; Ortega *et al.*, 2021), as well as for other species of South American

woolly opossums (Bianchi *et al.*, 2011). *Boa imperator* has been also reported as a predator for other opossums (Greene, 1983; Heimes, 2016), though no literature has been reported yet on the predation of *C. derbianus*. Herein, we report the first predatory event on the Central American woolly opossum *C. derbianus* (Didelphidae) by the Central American Boa Constrictor *B. imperator* (Boidae) or as it is usually known in Costa Rica: “Béquer”.

On March 22, 2022 at 8:00 hours an adult individual of *B. imperator* was identified constricting an adult individual of *C. derbianus* of unknown sex at the intersection of route 32 and the entrance to 28 miles, Batán, Matina, Limón Province, Costa Rica (10°04'28"N 83°22'19"W; WGS 84; 29.8 m.a.s.l.). The predatory event was identified by some peasants doing agricultural work in a farm who heard the opossum emitting agonizing squeals of agony while the boa constricted it with its body, making slow movements until suffocated and killed the marsupial. The constriction and ingestion process lasted up to an hour approximately (Figure 1). The opossum and the snake were identified following Reid (2009) and Köhler *et al.* (2005). The photographic records of both species are deposited under the reference numbers 114107276 and 114107706 in the “iNaturalist” Catalogue,



**Figure 1.** Central American Boa (*Boa imperator*) constricting a Central American woolly opossum (*Caluromys derbianus*) in Batán, Matina, Limón Province, Costa Rica. Photo by: Alejandro Vargas Navarro.

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*Boa imperator* is known to prey on a variety of small and medium-sized vertebrates, including for example, frogs, reptiles, birds, and small and medium-sized mammals (Greene, 1983; Hernández and Monter-Pozos, 2022; Janzen, 1970; Lendeers 2019; Monroy-Vilchis *et al.*, 2011; Solórzano, 2004). In Costa Rica and Mexico *B. imperator* has been documented as the predator of other opossums with which coexist in similar habitats (Greene, 1983; Heimes, 2016). *B. imperator* and *C. derbianus* present similar distribution in Costa Rica (GBIF, 2021). Therefore, our observation was predicable. However, it is novel in terms of the natural history of this marsupial (*C. derbianus*).

Sister species *Boa constrictor* has been suggested as an important predator of rodents and opossums, since it fulfills an outstanding ecosystem role in pests and human diseases control (Mattison, 2007; O’Shea, 2007; Stone and Holtzman, 1996). In Panamá, *C. derbianus* is known to carry the human disease leishmaniasis (Carreira *et al.*, 2017), which is transferred by blood-feeding sand flies (Psychodidae) that parasitize the opossum (Bartlett and Bartlett, 2003; Mattison, 2007; O’Shea, 2007). Although there is no information regarding the occurrence of this disease by *C. derbianus* in Costa Rica (Carreira *et al.*, 2017), the above shows the importance of our observation in terms of the biological interactions involving the snake and marsupial; which allows the possibility of developing future studies on diseases with this marsupial species.

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