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Research note

Consumption of an adult *Puma yagouaroundi* (Felidae) by the snake *Boa constrictor* (Boidae) in Central Mexico

Consumo de un jaguarundi adulto *Puma yagouaroundi* (Felidae) por la serpiente *Boa constrictor* (Boidae) en el centro de México

Octavio Monroy-Vilchis[1,2]*, Óscar Sánchez[3] and Vicente Urios[2]

[1]*Estación Biológica Sierra Nanchititla, Centro de Investigación en Recursos Bióticos. Universidad Autónoma del Estado de México. Instituto Literario 100. Colonia Centro. 50000, Toluca, Estado de México, México.*
[2]*Estación Biológica Terra Natura, Centro Iberoamericano de la Biodiversidad. Universidad de Alicante. Fundación Terra Natura. Apartado 99. 03080 Alicante, España.*
[3]*Consultor Científico en Conservación de Vida Silvestre. Av. Ixtlahuaca 609, Col. Sánchez. C.P. 50040. Toluca, México.*
**Correspondent: omv@uamex.mx; tavomonroyvilchis@gmail.com*

Abstract. Few felids have been recorded as being preyed upon by the boa constrictor snake (*Boa constrictor*). Documentation of predation on felids by reptiles is scarce, and natural predators of the adult jaguarundi (*Puma yagouaroundi*) are poorly known. Here, we report for the first time an adult male jaguarundi being eaten by the snake *Boa constrictor* (of 273 cm snout-to-vent length) at the Sierra Nanchititla Natural Reserve, Estado de México.

Key words: felid predation, interactions, Sierra Nanchititla, Estado de México.

Resumen. Pocos depredadores han sido registrados como presas de la boa constrictor (*Boa constrictor*). La depredación de felinos por reptiles es escasamente documentada y los depredadores naturales del jaguarundi (*Puma yagouaroundi*) son pobremente conocidos. Aquí, nosotros informamos de un evento de depredación de un jaguarundi macho adulto que fue consumido por una *B. constrictor* (longitud hocico-cloaca: 273 cm) en la Reserva Natural Sierra Nanchititla, Estado de México.

Palabras clave: depredación de felinos, interacciones, sierra Nanchititla, Estado de México.

The boa constrictor snake (*Boa constrictor*) is a generalist and opportunistic predator that consumes a wide range of endothermic and ectothermic prey (Greene, 1997; Sironi et al., 2000). Scattered accounts indicate that *Boa constrictor* occasionally preys on predators such as raptors (Boback et al., 2000) or the carnivore *Procyon pygmaeus* (McFadden et al. 2010), but in general predatory mammals have been poorly documented as prey species of the boa (Janzen, 1970; Bakkergard and Timm, 2001). Predation on adult felids by any animal is poorly documented and natural predators of the jaguarundi (*Puma yagouaroundi*) are unknown (Nowell and Jackson, 1996; Oliveira, 1998; Sunquist and Sunquist, 2002). In the literature, there is only a single reference of a jaguarundi apparently killed by a puma in South America (Crawshaw, 1995). In 16 additional studies of jaguar and puma diets in areas of sympatry with jaguarundi from Mexico to Brazil, none of them reported jaguarundi as prey (Oliveira, 2002). Heretofore, natural predators of jaguarundi were also unknown at Nanchititla (Monroy-Vilchis et al., 2009). Predation on felids is an ecological interaction poorly documented because of the difficulties associated with the low probabilities of observing such events in nature. Here, we report for the first time an adult jaguarundi consumed by an adult boa constrictor at the Sierra Nanchititla Natural Reserve (RNSN), Estado de Mexico.

The RNSN has an extension of 66 338 ha and is located in the southwestern extreme of the Estado de México 1(8°45’38” - 19°4’13” N, and 100°15’59” - 100°36’34” W). The lower slopes (42-1 400 m) are covered by tropical dry forest characteristic of the Balsas River Basin, and higher elevations (1 400-2 080 m) are covered by pine-oak forests characteristic of the Trans Mexican Volcanic Belt. In addition, agriculture and introduced grassland zones are present, mostly in low areas (Zepeda et al., 2008; Monroy-Vilchis et al. 2008a). Boa constrictors have been reported at the Sierra Nanchititla Natural Reserve (Casas-Andreu and Aguilar-Miguel, 2005), as well as the following 5

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feline species: *Leopardus wiedii*, *Leopardus pardalis*, *Puma yagouaroundi*, *Puma concolor* and *Panthera onca* (Sánchez et al., 2002; Monroy-Vilchis et al., 2008b).

As part of an ongoing study on ecology and conservation of felids at the RNSN, on June 15th, 2004 we were informed that a local inhabitant found a large boa (approximately 273 cm in snout to vent length and 29 cm tail length) on 1 of our sampling trails and killed it. We went to the site as soon as possible after receiving the notice, and after closer inspection of the snake, we noticed that it had consumed a jaguarundi. The snake had not finished swallowing the felid, and only a third of the mammal was inside the boa. This event happened at 18:00 hours in a pine-oak forest with grassland with some elements of tropical dry forest and oak forest (*Bursera sp*., *Pseudosmodingium perniciosum*, *Plumeria rubra*, *Quercus magnolifolia* and *Q. elliptica*). The area had a 90% of herbaceous coverage and less than 5 % of tree and shrub coverage. Even though first-hand observation of the boa killing the jaguarundi were not made, evidence such as the fact the jaguarondi's eyes appeared crystalline and fresh while the body was very flaccid suggest that the snake had recently killed the jaguarundi. The cat was an adult male (testes were evident and light wear of canine teeth was observed). Jaguarundi skull measurements (following Sánchez et al., 2002; in mm) were as follows: total length 99.47, zygomatic breadth 61.37, interorbital constriction 17.52, postorbital constriction 30.23, breadth of braincase 14.44, palatal breadth 14.51, palatal length 30.44, maxillary bone length 21.34, mandibular toothrow 31.09 and maxillary toothrow 36.11 (catalogue number: 117 in Reference Collection Universidad Autónoma del Estado de México).

Ecological information about jaguarundi is scarce. This record is important because it is the first time a natural predation event of an adult of this feline has been documented. Adult jaguarundi are commonly killed by local people, as has been reported at several geographic locations (Urbano-Vidales et al., 1987; Sánchez et al., 2002); but there are no previous reports of natural predators for adult individuals of this feline. Local people report killing this cat infrequently because jaguarundis occasionally attack small domestic animals such as poultry; people also kill this feline for medical or ornamental purposes (Monroy-Vilchis et al., 2008a). Young individuals of *Boa constrictor* have been reported to eat small vertebrates such as frogs, lizards, birds, and mice (Lee, 1996), and as adults, to prey opportunistically on small to large mammals such as bats, rodents, armadillos, opossums, coatis and even young primates, young peccaries, and newly born fawns (Janzen, 1970; Thomas, 1974; Álvarez del Toro, 1982; Chapman, 1986; Sironi et al., 2000; Bakkegard and Timm, 2001). However, we are not aware of any previous records of *Boa constrictor* predating jaguarundi, or on any other feline species. Our report suggests the need for more detailed studies on the predators of wild felines like jaguarundi and about the interaction between these species.

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