



Field Note

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Abstract

It is well documented that Andean bears (*Tremarctos ornatus*) feed extensively on plants and carrion, but their hunting habits remain understudied. Better understanding and documentation of Andean bear feeding ecology can improve conservation efforts for this vulnerable species. Here, we report an observation of an Andean bear hunting and capturing a wild guinea pig (*Cavia aperea*) in Chingaza National Natural Park, in Cundinamarca, Colombia. The sighting occurred in January 2023 by a team of conservationists, and we provided photographic evidence and details of the encounter. Our observation suggests that Andean bears are capable hunters of small rodents, indicating that hunting may play a more important role in the ecology of Andean bears than previously appreciated and highlighting the need for a better understanding of this feeding behaviour.

Introduction

The Andean bear is the only extant bear species in South America. This elusive member of the Ursidae family inhabits a large elevation gradient (220 – 4750 m) in ecosystems from northwestern Colombia, west to Venezuela and south to Bolivia (García-Rangel 2012) with some evidence of presence in Argentina (Cosse *et al.* 2014; Figure 1). The population of Andean bears is declining, and they are considered Vulnerable by the International Union for the Conservation of Nature (Velez-Liendo & García-Rangel 2017). Principal threats include preventative and retaliatory killings for crop and livestock losses, habitat loss and fragmentation, and likely climate change (Velez-Liendo & García-Rangel 2017, Vela-Vargas *et al.* 2021). Given that Andean bears preferentially select for high montane habitats (Peralvo *et al.* 2005, Rojas-VeraPinto *et al.* 2022) where climate change threats are especially acute (Cresso *et al.* 2020), bear diet and feeding ecology may be impacted by altitudinal shifts in plant communities and human encroachment (Rojas-VeraPinto *et al.* 2022).

Andean bears are omnivores, consuming a range of fruits and foliage, with bromeliads and palm trees being dietary staples (Peyton 1980, García-Rangel 2012). In high altitude habitats like paramos, a high montane area above the tree line, Andean bears are thought to subsist mainly on Puya plants (*Puya spp.*), consuming the soft edges of the bottom of the leaves (Peyton 1980, Parra-Romero *et al.* 2019). There is less known about other food sources for Andean bears, particularly animal protein and how they attain it. Some research demonstrates they will attempt to predate and likely consume mountain tapirs (Castellanos 2011, Rodríguez-Bolaños *et al.* 2014, Pisso-Florez *et al.* 2021) and deer (Cervidae; García-Rangel 2012, Vela-Vargas *et al.* 2021) and consume rodents (Rodentia, including from the family Caviidae; Castellanos 2011, Gonzales *et al.* 2016). However, there is uncertainty around the predatory capabilities of Andean bears, with some research indicating that meat consumption of wild prey is primarily through scavenging rather than preying on live animals (García-Rangel 2012). Taxonomic investigation suggests that omnivorous members of the Ursidae family have exceptionally strong bite force, though this was likely selected to process grasses and other vegetal fibres rather than prey (Sacco & Van Valkenburgh 2004). Andean bears are known to prey on livestock (Goldstein *et al.* 2006, García-Rangel 2012, Velez-Liendo & García-Rangel 2017, Vela-Vargas *et al.* 2021), though actual depredation losses are likely lower than perceived because of encountering scavenging bears with carcasses that die of other causes (Goldstein *et al.* 2006, Parra-Romero *et al.* 2019). Moreover, little is known about their

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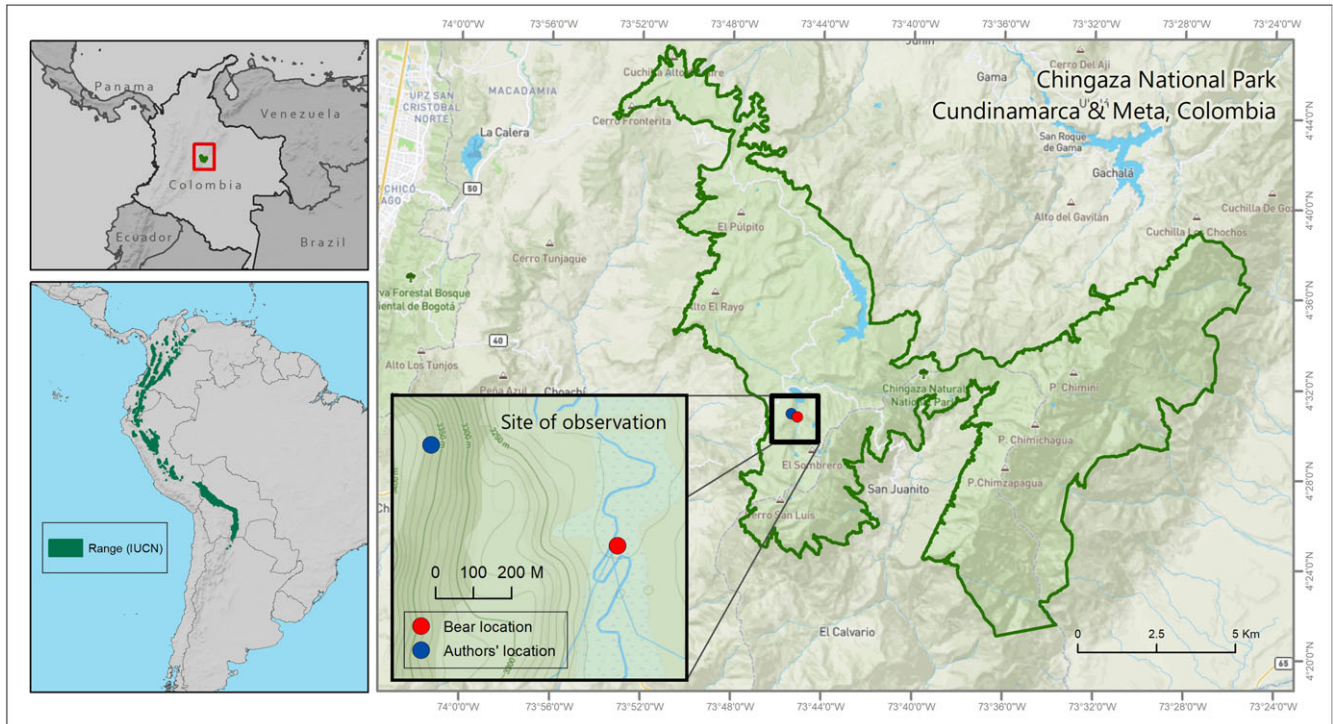


Figure 1. Map of the known range of *T. ornatus* and location of Chingaza National Natural Park. Sources: IUCN, Parques Nacionales Naturales de Colombia, Natural Earth, Mapbox.

predatory behaviours and predation rates on wild prey because of their elusive nature (García-Rangel 2012).

Species of the Caviidae family (i.e., guinea pigs, cavies and maras), specifically the subfamily of Caviinae, are present throughout much of *T. ornatus* range in the Andes Mountains. Gonzales *et al.* (2016) first reported on the Andean bear consumption of Caviidae through scat samples in highland areas of the Cajamarca and Amazonas provinces of Peru. However, there is no published literature describing the hunting behaviour of Andean bears on wild rodents or other prey species. Better understanding of this behaviour may lead to more informed conservation strategies for Andean bears.

Observation

Chingaza National Natural Park (Chingaza NNP) is a 766 km² protected area located in the Eastern Andes near the Colombian capital of Bogotá (Parques Nacionales Naturales de Colombia 2023). The area features high Andean mountain and wetland areas, and sub-Andean humid forest. Chingaza NNP bear density was estimated at 2.9 per 100 km² in 2020 in the buffer area (Rodríguez *et al.* 2020), and at least 60 bears were known to transit the national park in 2020 (Parra-Romero & González-Maya 2020) (Parra-Romero & González-Maya 2020). Chingaza NNP also hosts 101 mammal species (Parra-Romero & González-Maya 2020), including white-tailed deer (*Odocoileus goudotii*), little brocket deer (*Mazama rufina*), puma (*Puma concolor*), spotted paca (*Cuniculus taczanowskii*), and 531 bird species (Linares *et al.* 2020). Wild guinea pigs (*Cavia aperea*) are naturally occurring in the park and prefer tall grass habitats near streams and marshes.

On January 18th, 2023, the authors observed a bear of unknown sex at a distance of approximately 300 metres in a lowland riverine area with 60-centimetre-tall grasses in Chingaza NNP (coords: 4.514045, -73.755796). The observation took place at approximately 3,259 metres above sea level in open paramo habitat at 15:00 hours approximately 500 metres from the Chingaza Lagoon area (Figure 1). The bear initially was moving through the riparian area when a member of our party spotted it. The bear stood on its hind legs, seemingly attuning its senses. Its gaze appeared to be directed towards the authors, who were on a hillside overlooking the riparian area by Chingaza Lagoon. This posture indicated the bear was assessing its environment. In a pounce, it descended onto all four limbs, searching among the ground cover. It pounced again and emerged from the tall grass with a small animal in its mouth. Through photographic and video evidence (Figure 2), we verified that it was a wild guinea pig. The bear rapidly retreated to dense shrubs near the river and did not emerge while we were present. In the lower basin area near Chingaza Lagoon, the authors observed small trails through the grasses indicative of guinea pig presence.

Conservation implications of understanding hunting strategies

Our observation contributes important natural history information that can improve conservation strategies for Andean bears. Notably, the site of the hunting observation was a riparian area that was restored after cattle grazing affected the composition and structure of vegetation (Vargas Ríos *et al.* 2012). This riparian area provides habitat for guinea pigs, as observed by the authors. It is also where most bear sightings take place in the park, which may be



Figure 2. An Andean bear of unknown sex carries a captured wild guinea pig in its mouth.

Photo credit: Sebastian Di Domenico.

a function of its higher use by tourists and suitable habitat for bears. Further research into fine-scale habitat selection of Andean bears in Chingaza NPP can contribute to understanding behavioural ecology and fitness consequences.

A recent proliferation of bear sightings by tourists may be an opportunity for bear conservation but ought to be monitored carefully. Sustainable wildlife tourism provides financial support to local communities and research funds which can contribute to long-term population viability (Hyde *et al.* 2023). However, care should be taken to ensure that tourism does not affect bear fitness or ecosystem health in Chingaza NPP. Currently, tourism is highly restricted to certain times and limited capacity.

Understanding the behaviour of animals that come into conflict with humans, such as Andean bears, can aid in the creation of conservation strategies. Seasonal variation in resource availability and needs of wildlife are often secondary drivers of conflicts with humans (Mumby & Plotnik 2018). In particular, bears consume livestock on farms surrounding Chingaza NPP. Cattle are grazed with little supervision over extensive areas, therefore bears are undeterred from livestock (Parra-Romero *et al.* 2019). More research on the temporal trends of animal protein consumption and hunting strategies can help guide the restoration of critical habitats that support native prey and improve efforts for conflict mitigation on surrounding cattle operations.

Conclusions

Our observation provides important insight into the understudied hunting behaviour of Andean bears. The gap in knowledge of their hunting behaviour is an important shortcoming in the understanding of the autecology of Andean Bears. Even small amounts of animal protein can maximize growth in bear species (Robbins *et al.* 2007). Thus, even though most of the diet of Andean bears is non-animal related (Peyton 1980, García-Rangel 2012), such caloric and protein procurement could be an essential part of Andean bear life history strategies. Further research is required to understand behavioural adaptations for hunting and temporal patterns in protein acquisition.

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Competing interests. The authors declare no competing interests.

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