Short Communication

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Notes about food consumption strategies of the Crane hawk: *(Geranospiza caerulescens)* (aves, accipitridae) on Cane toad: *Rhinella marina*

Abstract

The Crane Hawk: *Geranospiza caerulescens* is one of the most common raptors in forests and open lands across Central and South America. Little is known about its eating habits, even less about the type of consumption strategy the bird applies to its prey. Based on a film recording, the text describes how a Crane Hawk individual predates a Cane Toad; *Rhinella marina* in a lowland savanna of the municipality of Puerto Salgar, Cundinamarca, Colombia.

Keywords: Colombia, feeding habits, raptors, predation, amphibia

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Introduction

It is known that transformed tropical savannas, where patches of native forest endure, are the usual hunting area for several raptor species.[1] Yet, more detailed knowledge of feeding habits besides the nature of their prey remains scarce in terms of community.[2] The Crane Hawk: *Geranospiza caerulescens,*[3] is a slender bird of strong and notoriously long legs, with short and broad wings, whose presence extends from Mexico to southern Brazil and northern Argentina.[4] Although a relatively common raptor in lowland forests and savannas, its feeding habits remain poorly documented.[5] Like the African raptors of the genus *Polyboroides ssp*., the Crane Hawk has long, and highly mobile legs especially well adapted for prey extraction from cavities, holes, notches and hollow trunks, and manipulation of prey of considerable size in proportion to its own.[4,6] Based on observation and audiovisual material, the aim here is to provide a detailed outline of the bird's mechanism of consumption when predating a Cane Toad (*Rhinella marina*) capable of secreting caustic or irritating substances, and certainly able to react against predation more efficiently than other prey. Ferguson-Lees and Christie,[7] describe the Crane Hawk's diet as very broad and go on to describe foraging techniques, however, the 2001 work doesn't mention Cane Toads specifically. It is pertinent to highlight; based on Bokermann,[3] Olmos,[8] Bierregaard,[2] Ferguson-Lees y Christie,[7] Sutter et al.[6] that Cane Toads are not a common prey on the dietary habits on Crane Hawk, possibly due to its size, skin characteristics and its capacity to expel caustic substances.

However, as Hagan y Johnston,[9] and Begon et al.[10] propound, there´s a set of conditions that can bias on the feeding habits of organisms, in this case, the evident habitat loss associated with native rainforest, which was cut down to establish cattle pastures, can force certain species to look for different feed sources to the usual. The region where this event was documented has been particularly transformed, currently just 15-20% of the native cover is left consistent in the Gallery rainforest and the rest of this original forest was converted into prairies.

Methods

On 12 August 2015, during the dry season, several bird inventories were carried out in the region of Puerto Salgar, Cundinamarca, Colombia, at 5° 45´20" N 74° 30´20" W (the point where was seen Crane Hawk) and 190 m a.l.s., in a pasture savanna used for cattle ranching surrounded by very small relicts of native Gallery Forest, (Figure 1). This image comprises an area of 19.500 km.[2]). Transect walks of unspecific distance were carried out during morning hours (0430 h 1100 h). The video was captured at 0645 h, at approximately 40 m. from the individual to remain unnoticed. A FUJIFILM FINEPIX-50X camera was used.

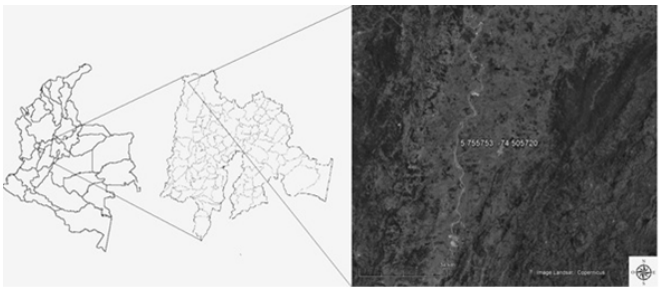

Figure 1 Location of observation point of the Crane hawk, in a lowland savanna used for livestock production Puerto Salgar, Cundinamarca-Colombia, This image comprises an area of 19.500 km^2.

Results

A film record of 3:02 min. was thus obtained, where the Crane Hawk is shown while predating and sacrificing a Cane Toad (The video can be seen following this link: https://youtu.be/L7a7cspoZoo).

Discussion

Birds of prey usually apply two main capture strategies: in the wing and on the ground. The bird will always favor the strategy assuring the lowest possible energy consumption for securing food, adapting wings and type of flight accordingly. If the hunt is of the prolonged type, weak, injured, or old prey will be opted for, less so perhaps during surprise attacks.[11] In the case of the six subspecies of the *Geranospiza sp*. genus, their relatively long legs equipped with extremely flexible intertarsal joints assure great dexterity for capturing and manipulating prey.[6] This premise becomes more evident in the video herein presented, where the bird not only prevents the prey from excreting, but also presses, shakes, and lacerates the Toad, then tears its skin without using the beak and manipulates it with great ease. Likewise, even if not filmed, the evidence suggests a case of prey

extraction from a relatively deep cavity (18cm) formed by boulders at the edge of a small watering canal intake. This confirms Burton's observations,[12] which provided examples of such birds that extracted prey hidden in relatively small cavities. During the three-minute video, the bird exerts constant pressure on the Toad's body using fingers and nails and then tramples on it to crush the prey against the floor. The images also show how the Hawk lands on a fallen tree trunk in what seems a deliberate action for standing on a harder surface, increasing thereby the pressure applied on the amphibian.

It can also be appreciated how the bird utilizes the claws rather than the beak to tear the prey's skin and flesh. During the entire footage, only one attempt of beak utilization is seen. Some records made by Bokermann,[3] hint at the exceptional predatory abilities of these birds, thanks primarily to the structure of their legs. He mentions the case of an adult male specimen of *G. caerulescens* collected in Campos do Jordao, State of Sao Paulo, Brazil, which, upon examination, proved to have eaten 18 tree frogs, *Fritziana goeldii* (Boulenger 1895), a species that lives exclusively in epiphytic bromeliads, mainly *Vriesia betuminosa* (Wawra 1879). When disturbed, these nocturnal frogs never abandon the bromeliads but sink instead into the tank formed between the leaves. An explanation for a successful hunt of this magnitude necessarily implies that the Hawk used its claws to detect the frog's presence by touch amid the bromeliad leaves, capitalizing on the adaptive features of its long-articulated legs.

Likewise, Sutter et al.[6] confirm that the Crane Hawk's hunting and capturing habits combine stalking, scanning-and-observation, and short flights across the forest canopy, with inspections into cavities, hollow trunks, epiphytes (such as bromeliads), tree barks, branches, and shallow ponds. The video also features the bird using the wings for increased support and balance during the action, while the tail assists the legs in assuring stability. The Crane Hawk appears to be an opportunistic predator capable of using a whole array of hunting methods.[8] The habits frequently observed for food techniques, together with the predominance of nocturnal animals in the diet, suggest that these birds use hideout inspection for prey capture. This behavior leads to maximized capitalization of resources largely unavailable to other species, preventing thus diet overlap and increasing the benefits obtained from diversified predation. There's another issue related to certain lack of information about the specific use of the Cane Toad as prey for the Crane Hawk, and probably this is related to the severe landscape transformation which put some pressure on the prey birds forcing them to look for a more heterogeneous feed source.

Acknowledgments

None.

Conflicts of interest

The author declared that there are no conflicts of interest.

References

1. Thiollay JM. Current status and conservation of falconiformes in tropical Asia. *J Raptor Res.* 1985;32(1):40–55.
2. Biierregaard JR, Richard O. The biology and conservation status of Central and South American Falconiformes: a survey of current knowledge. *Bird Conserv Int.* 2010;(5):325–340.
3. Bokermann WCA. Observations on feeding habits of the hawk Geranospiza caerulescens (Vieillot 1817) (Aves, Accipitridae). *Rev Brasil Biol.* 1978;38(3):715–720.
4. Hilty SL, Brown WL. *A guide to the birds of colombia*. New Jersey: Princeton University Press; 1986, pp. 996.
5. Sutter J, Martinez WEA, Oliva, FT, et al. Diet and hunting behavior of the Crane Hawk in Tikal National Park, Guatemala. *Condor*. 2001;1(103):70–77.
6. Sutton GM. Blackish Crane Hawk. *Wilson Bull.* 1954;(66):237–242.
7. Lees FJ, Christie DA. *Raptors of the world*. New York: Houghton Mifflin Harcourt, 2001, pp. 992.
8. Olmos F. Harrier-like hunting behavior by a Crane Hawk; *Geranospiza caerulescens*. *Bull Brit Ornithol Club.* 1990;(110):225–226.
9. Hagan JM, Johnston DW. Ecology and conservation of neotropical migrant landbirds. *Manomet Birds Observatory*. 1992, pp. 609.
10. Begon M, Harper JL, Townsend CR. *Ecology from individuals to ecosystems.* 4th edn, 1996, pp. 1068.
11. Panasci, T. Comparative breeding ecology and success of Roadside Hawks in human-modified and forest habitats of Peten, Guatemala. Boise; Boise State Univ. 1995.
12. Burton PJK. The intertarsal joint of the harrier-hawks *polyboroides* spp. and the crane hawk *geranospiza caerulescens*. *IBIS.* 1978;120(2):171–177.