

COMUNICACIÓN BREVE

MANED WOLF'S DIET IN A PROTECTED AREA IN NORTHEASTERN ARGENTINA

Dieta del Aguará Guazú en un área protegida del nordeste de Argentina.

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RESUMEN: El aguará guazú (*Chrysocyon brachyurus*), es la especie de cánido más grande de Sudamérica. En Argentina la información de su dieta es escasa. Describimos sus hábitos alimentarios a través de las heces colectadas en la Reserva Natural Rincón de Santa María (29° 50' S, 58° 35' W), provincia de Corrientes, Argentina. La dieta estuvo compuesta por frutas (*Psidium sp.*) (50%) y presas animales: armadillos (11,1%), aves (8,4%), peces (5,6%), reptiles (2,8%) y crustáceos (2,8%). A pesar de haber obtenido una baja composición dietaria, nuestros resultados demuestran la flexibilidad en la dieta del aguará guazú en un área dominada por un paisaje antropizado.

PALABRAS CLAVES: Canidae, *Chrysocyon brachyurus*, Corrientes, ecología trófica.

ABSTRACT: The maned wolf (*Chrysocyon brachyurus*), is the largest species of canid of South America. In Argentina, information about this species is scarce. We described the feeding habits collecting fecal samples inside the Natural Reserve Rincón de Santa María (RSM) (29° 50' S, 58° 35' W), Corrientes province, Argentina. The diet was composed of fruit (*Psidium sp.*) (50%) and animal prey: armadillos (11.1%), birds (8.4%), fishes (5.6%), reptiles (2.8%) and crustaceans (2.8%). Despite a low dietary composition, our results showcase the dietary flexibility of the maned wolf in an area dominated by an anthropized landscape.

KEYWORDS: Canidae, *Chrysocyon brachyurus*, Corrientes, trophic ecology.

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The maned wolf (*Chrysocyon brachyurus*, Illiger 1815) is the largest South American canid, whose distribution includes the grasslands and savanna of Argentina, Peru, Bolivia, Paraguay, and sub-Amazonian Brazil (Aragona and Setz, 2001). Some of the main threats affecting maned wolf populations include habitat fragmentation, agricultural expansion, vehicular accidents, and domestic dogs as potential pathogens transmitters (Soler *et al.*, 2015; Cirignoli *et al.*, 2019). This species is categorized as “Near-Threatened” globally (Paula and DeMatteo, 2016) and “Vulnerable” in Argentina (Cirignoli *et al.*, 2019). This species has been characterized with an opportunistic/generalist behavior, with a diet that includes small mammals, fruits, birds, and insects (Rodrigues *et al.*, 2007; Lima Massara *et al.*, 2012; Kotviski *et al.*, 2019). In Argentina, there's only two reports of diet in Argentina based on opportunistic findings of feces and dead animals of Corrientes and Santa Fe province (Pautasso, 2009; Soler *et al.*, 2015). In this study, we extended the current knowledge about the trophic ecology of maned wolf by quantifying and describing diet composition in a protected area located in northern Argentina.

This study was conducted in the Natural Reserve Rincón de Santa María (RSM) in northeastern of Corrientes Province, Argentina (29° 50' S, 58° 35' W) (Figure 1). The area consists of 34.01 km² with a humid subtropical climate with no dry season and precipitation of more than 1800 mm annually (Montiel *et al.*, 2016). This protected area is in a transition zone where the Southern Cone Mesopotamian savanna region converges with the humid Chaco. Fieldwork was carried out for 10-12 days every two months between August 2017 and August 2018. We searched and collected fecal samples across predetermined transects on roads and trails of RSM. We recognized maned wolf fecal material by its size, shape, odor, hair presence, deposition site and nearby tracks (Santos *et al.*, 2003). Due to coexistence with two other species of foxes (*Cerdocyon thous* and *Lycalopex gymnocercus*) in RSM, at the laboratory we ran a thin layer chromatography analysis to determine specific fecal bile acid patterns to confirm feces were from maned wolves (Cazón *et al.*, 2009). The diet analysis consisted of macroscopic examination of the remains and classification into food categories. We identified each of

these categories at different taxonomic levels using remaining elements such as seeds, scales, feathers, bones, teeth, claws and hairs (Bueno *et al.*, 2002). The importance of each food item was determined with two parameters: occurrence and relative frequency. Occurrence is the number of fecal samples with a certain food item while relative frequency is the percentage of occurrence in relation to the total number of food items found (Rodrigues *et al.*, 2007).

Natural Reserve Rincón de Santa María (RSM), Corrientes, Argentina

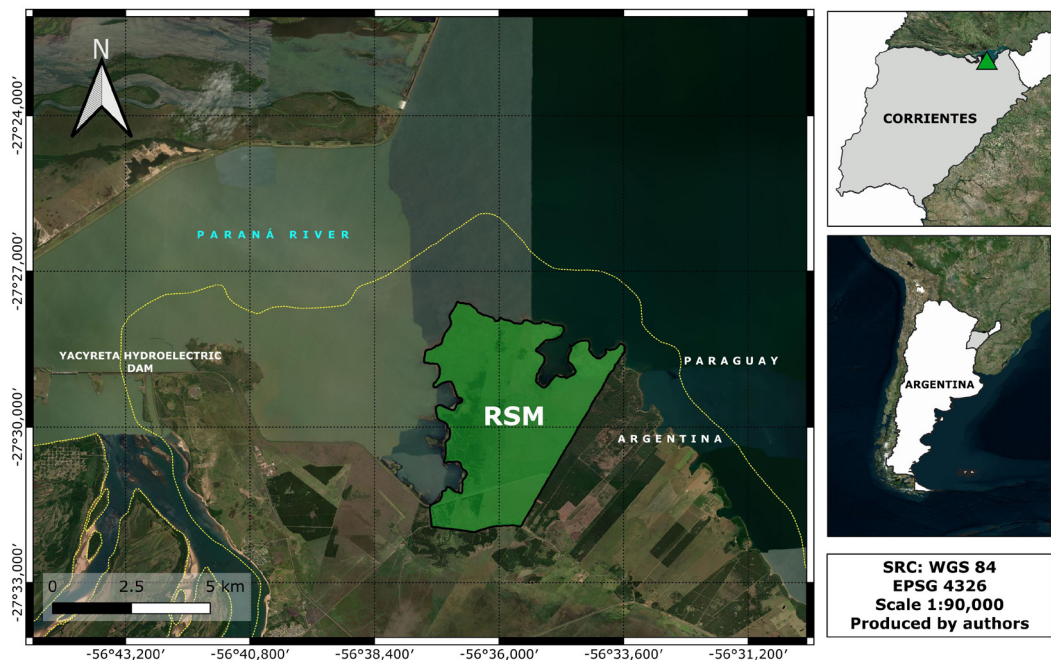


Fig. 1. Location of our study site in Corrientes province, northeastern Argentina: Natural Reserve Rincón de Santa María (RSM).

We collected 19 fecal samples of maned wolf during six sampling periods from August 2017 to August 2018. These samples contained items of multiple categories (31.6%) or a single item (68.4%). We identified seven feeding categories: six categories of animal origin and one of vegetal origin within 36 records (Table 1). We found that the maned wolf had an equally diet based on relative frequency of food categories. Equal frequencies of vegetal and animal items have been reported before in Brazil and Bolivia

(Aragona and Setz, 2001; Bueno *et al.*, 2002; Santos *et al.*, 2003; Silva and Talamoni, 2003; Rodrigues *et al.*, 2007; Castro and Emmons, 2012; Kotviski *et al.*, 2019). However, we recovered fruits of *Psidium* sp. as the only vegetal item. Vegetal items are commonly found in the diet of maned wolves and several studies have shown a wide diversity of vegetal items in their diets (Aragona and Setz, 2001; Santos *et al.*, 2003; Rodrigues *et al.*, 2007; Castro and Emmons, 2012). Other studies registered the presence of fruits of *Psidium* sp. before (Silva and Talamoni, 2003; Rodrigues *et al.*, 2007; Soler *et al.*, 2015) but, to our knowledge, this is the first report with such a high occurrence. In comparison, studies in Corrientes (Argentina), during 2002-2008, reported that maned wolves consumed *Psidium* sp. (10%) but also fruits of *Syagrus romanzoffiana* and *Butia yatay* (Arecaceae) (10%) (Soler *et al.*, 2015). The Reserve has presence of *S. romanzoffiana* and other fleshy fruits that the maned wolf can consume (Montiel *et al.*, 2016). Regardless, we only registered *Psidium* sp., potentially explained by the lower number of feces we collected and the time of the year we collected the samples.

Categories	Occurrence	Relative frequency (%)
<i>Vegetal</i>		
Myrtaceae, <i>Psidium</i> sp.	18	50
<i>Animal</i>		
<i>Invertebrate</i>		
Crustaceans	1	2.8
<i>Vertebrate</i>		
Fish	2	5.6
Reptile	1	2.8
Birds	3	8.3
<i>Mammals</i>		
Rodentia (Rodents)	7	19.4
Dasyproctidae (Armadillos)	4	11.1
Total	36	100

Table 1. Diet of the maned wolf (*C. brachyurus*) in the Natural Reserve Rincón de Santa María, Corrientes, Argentina during August 2017 - August 2018 (N= 19).

On the other hand, animal items were more diverse in the diet as we found six categories (rodents, armadillos, birds, reptiles, fish, and crustaceans) in fecal samples. As other studies, mammals were the most frequent animal item in the diet (Bueno *et al.*, 2002; Silva and Talamoni, 2003; Bueno and Motta-Junior, 2006; Rodrigues *et al.*, 2007; Castro and Emmons, 2012; Lima Massara, 2012). We registered two different categories of mammals in this study: rodents (19.4%) and armadillos (11.1%). Rodents and armadillos are common animals in open areas on northern Argentina; therefore, they are an easy prey to catch (Rodrigues *et al.*, 2007). Rodents appear in the maned wolf diet in all studies, represented by mostly small but different species (Rodrigues *et al.*, 2007; Soler *et al.*, 2015). Armadillos are present in nearly all studies and are the primary taxon with biomass with high energetic value (3015 kcal per unit) equivalent to two days of nutrition (Castro and Emmons, 2012). Birds appeared with a frequency of 8.3%. We were not able to identify the species, but studies in Brazil have shown maned wolf eat mostly grassland bird species (Silva and Talamoni, 2003; Rodrigues *et al.*, 2007). Reptiles appeared at a low frequency (2.8%) in our study, which was also observed in other study sites (Silva and Talamoni, 2003; Santos *et al.*, 2003; Rodrigues *et al.*, 2007). Fish and crustaceans have only been registered in studies in Argentina (Pautasso, 2009; Soler *et al.*, 2015), and we found both categories in our samples at low frequencies (5.6% and 2.8%).

Our results inform the diet composition of the maned wolf in a new study site for the species, located in a transition zone between two ecoregions of northern Argentina. Although the taxonomic categories within the dietary composition are relatively low in comparison to other studies, it is possibly related to the landscape of the protected area dominated by anthropized grasslands and a few forest patches. However, this behavior in a moderately transformed landscape, showcase the dietary flexibility of maned wolves to survive. Nevertheless, more studies are needed to better understand the feeding behavior and conservation status of the maned wolf population in this region of Argentina.

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