

Note

## Diet of the crab-eating fox, *Cerdocyon thous* (Carnivora, Canidae) in Paulo Cesar Vinha State Park, Espírito Santo State, Brazil

La diète du renard crabier *Cerdocyon thous* (Carnivora, Canidae) au parc d'état Paulo Cesar Vinha, Espírito Santo, Brazil

Andressa Gatti<sup>1,\*</sup>, Rita Bianchi<sup>2</sup>, Claudia Regina Xavier Rosa<sup>2</sup> and Sérgio Lucena Mendes<sup>1,2</sup>

<sup>1</sup> Programa de Pós-Graduação em Biologia Animal, Universidade Federal do Espírito Santo, Av. Marechal Campos, 1468, Maruípe-Vitória, Espírito Santo, Brazil, e-mail: gatti.andreassa@gmail.com

<sup>2</sup> Departamento de Ciências Biológicas, Universidade Federal do Espírito Santo. Av. Marechal Campos, 1468, Maruípe-Vitória, Espírito Santo, Brazil

\* Corresponding author

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The crab-eating fox, *Cerdocyon thous* (Linnaeus 1766) is a medium-sized (3.0–8.0 kg) canid of nocturnal habits with a wide distribution in South America (Langguth 1975, Brady 1979, Berta 1982). In Brazil it is found in various different habitats, including the coastal plains (restingas) (Langguth 1975, Berta 1982, Motta-Junior et al. 1994, Facure and Giaretta 1996, dos Santos and Hartz 1999, Wang and Sampaio 2001).

A restinga is a typical Brazilian coastal plain that occurs between the beach and mature rainforest. It consists of xerophyllous vegetation, including salt-adapted upper beach species, grassland, brush and scrub forest (Rizzini 1979). The objective of this study was to investigate the diet of the crab-eating fox diet in a restinga area in Espírito Santo State, identifying and quantifying the main food items.

Paulo Cesar Vinha State Park (20°33'–20°38'S, 40°23'–40°26'W), comprising approximately 1500 ha, is located in Guarapari Municipality, on the southern coast of Espírito Santo State in southeastern Brazil. The region's climate is tropical with rainy summers and a dry period in winter (Fabris and Cesar 1996).

The diet of *C. thous* was determined from the analysis of scats collected every fortnight in different plant formations in the park from June 2000 to September 2002. The material collected was sorted, and food item remains such as seeds, arthropod fragments, teeth, hair, nails, feathers, and scales, among others, were selected for analysis.

Predator scat identification included a structural micro-analysis (scale type and medullary pattern) of the guard

hairs ingested during grooming (Quadros 2002), in addition to identification of the footprints associated with the scats.

Seeds were identified by comparison with seed collections representative of the fruits available in the study area. Animal structures were compared with specimens deposited in the Universidade Federal do Espírito Santo (UFES) and Museu de Biologia Professor Mello Leitão (MBML) zoological collections.

The importance of each type of prey was analyzed based on the percentage of occurrence of the items (in relation to the total items), and in the frequency in scats (percentage of scats in which each item was found) (Crawshaw 1995).

A total of 131 scats were collected. Fruit was the item most consumed, occurring in 97% of the samples, followed by arthropods (77.9%) and lizards (19.8%). The most common fruit in the scats was *Allagoptera arenaria* (Gomes) O. Kuntze, found in 88.5% of all scats (Table 1).

Insects corresponded to 71% of the samples, represented mostly by orders Orthoptera and Coleoptera. Vertebrates occurred in 49.6% of the scats. Item occurrence percentages are listed in Table 1.

The most important items in the diet of *C. thous* at Paulo Cesar Vinha State Park, in order of frequency, were fruits, arthropods and small vertebrates. There were no significant differences in consumption of the main items between the rainy and dry seasons during the study period.

The high consumption of guriri fruit (*Allagoptera arenaria*) by the crab-eating fox can be explained by its year-round availability and its easy accessibility. Facure and Giaretta (1996) recorded guriri fruit as the most frequent item in the scats of this carnivore, followed by insects and vertebrates, corroborating the results of the present work.

Amphibians and fishes were not frequent in the *C. thous* diet, in agreement with previous observations made in the Venezuelan Llanos (Bisbal and Ojasti 1980) and in southeastern Brazil (Motta-Junior et al. 1994, Facure and Giaretta 1996, Facure and Monteiro-Filho 1996) that found that these vertebrates form a small part of the diet of this species.

In a study by MacDonald and Courtenay (1996) in the Brazilian Amazon, fruit was also the main item consumed by this species. These data differ from previous studies carried out in the Venezuelan Llanos (Bisbal and Ojasti 1980), which showed small vertebrates as the main food

**Table 1** Food items found in 131 fecal samples from crab-eating fox in Paulo Cesar Vinha State Park, Guarapari Municipality, Espírito Santo State.

Item	n	% scats	% items
<b>Fruits</b>			
<i>Allagoptera arenaria</i> (Arecaceae)	116	88.6	24.0
Seeds n.i.	37	28.0	19.0
<i>Cereus fernambucensis</i> (Cactaceae)	30	22.9	6.2
<i>Eugenia</i> sp. (Myrtaceae)	13	9.9	2.7
<i>Neomithrantes obscura</i> (Myrtaceae)	12	9.2	2.5
<i>Marlierea neuwiediana</i> (Myrtaceae)	7	5.3	1.4
<i>Schinus terebinthifolius</i> (Anacardiaceae)	4	3.0	0.8
<i>Psidium cattleianum</i> (Myrtaceae)	2	1.5	0.4
<i>Tocoyena bullata</i> (Rubiaceae)	2	1.5	0.4
<i>Ocotea notata</i> (Lauraceae)	1	0.8	0.2
<i>Smilax rufescens</i> (Smilacaceae)	1	0.8	0.2
<i>Scaevola plumieri</i> (Goodeniaceae)	1	0.8	0.2
<b>Arthropods</b>			
Insects n. i.	61	46.6	12.6
Orthoptera	33	25.2	6.8
Coleoptera	32	24.4	6.6
<i>Ocypode quadrata</i> (Ocypodidae)	25	19.1	5.1
<b>Molluscs</b>			
Molluscs n.i.	1	0.8	0.2
<b>Lizards and snakes</b>			
<i>Tropidurus</i> gr. <i>torquatus</i> (Tropiduridae)	12	9.2	2.5
Colubridae n.i.	11	8.4	2.3
<i>Mabuya agilis</i> (Sincidae)	9	6.9	1.9
Lacertilia n.i.	6	4.6	1.2
Ophidia n.i.	6	4.6	1.2
<i>Bothrops jararaca</i> (Viperidae)	2	1.5	0.4
<i>Ameiva ameiva</i> (Teiidae)	2	1.5	0.4
Teiidae n.i.	1	0.8	0.2
<b>Mammals</b>			
Rodentia n.i.	3	2.3	0.6
<i>Bolomys</i> sp. (Muridae)	2	1.5	0.4
<i>Akodon</i> sp. (Muridae)	1	0.8	0.2
Didelphimorphia n.i.	2	1.5	0.4
<i>Caluromys philander</i> (Didelphidae)	2	1.5	0.4
<i>Metachirus nudicaudatus</i> (Didelphidae)	2	1.5	0.4
<i>Gracilinanus microtarsus</i> (Didelphidae)	1	0.8	0.2
<i>Marmosops</i> sp. (Didelphidae)	1	0.8	0.2
<i>Monodelphis</i> sp. (Didelphidae)	1	0.8	0.2
<i>Sylvilagus brasiliensis</i> (Leporidae)	1	0.8	0.2
Birds n.i.	8	6.1	1.6
Fishes n.i.	7	5.3	1.4
Amphibians n.i.	5	3.8	1.0
Vertebrates n.i.	13	9.9	2.7

N, number of occurrences of each item; % scats, percentage of total of scats in which each item was found; % items, percentage of occurrence of each item in relation to the total number of items. n.i., not identified.

item. The data suggest that the crab-eating fox has a basically frugivorous diet, supplemented by arthropods (mostly insects) and small vertebrates. This generalist diet indicates that *C. thous* takes part in several ecological interactions, acting as a primary and secondary consumer, and in addition is a potential seed disperser, especially of *A. arenaria*, which is an important plant in restinga regeneration.

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