

**NOTES ON THE FOOD HABITS AND PREY SELECTION OF THE
MANED WOLF (*Chrysocyon brachyurus*) (MAMMALIA, CANIDAE)
IN SOUTHEASTERN BRAZIL**

The largest living South American canid, the maned wolf, *Chrysocyon brachyurus* (Illiger, 1811) is listed as “near threatened” by IUCN (IUCN 2003). This species inhabits grassland savannahs (“cerrado”) of central South America (LANGGUTH, 1975; DIETZ, 1984; MEDEL; JAKSIC, 1988). Despite the ecological studies of Dietz (1984) and MOTTA-JUNIOR et al. (1996) little is known about prey biomass consumption and prey selection of the maned wolf (MEDEL; JAKSIC, 1988). Besides, a detailed description of the diet of the maned wolf, the aim of this study was to verify a previous hypothesis about the opportunistic feeding behaviour of this canid (DIETZ, 1984; MOTTA-JUNIOR et al., 1996).

The study was carried out at Parque Florestal Salto e Ponte I (19°12' S, 48°08' W), 13 km northeast of the town Prata in the State of Minas Gerais, Brazil. This area is a farmland with a total area of 797 ha, covered mostly with young *Pinus caribaea* (var. *hondurensis* Barr. et Golf.) plantation and an extensive understory of *Brachiaria* sp. grass. Patches of natural vegetation also occur, including “cerrado”, gallery forest and *Mauritia flexuosa* L. palm groves in the valleys, on permanently marshy ground. Virtually all surrounding areas are covered with cerrado which is used as pasture for cattle. The climate is Köppen's Aw, or tropical with a marked dry season. A more detailed description of vegetation cover in the region of study can be found in Goodland; Ferri (1979).

The diet was studied by analysis of 46 scats collected bimonthly between May 1992 and April 1993. Remains of crania, mandibles, feathers, chitins and seeds were used to identify and count food items through comparison with a reference collection from the study area. Whenever possible food items were identified to the species level. Some identifications were made by specialists in museums and herbaria. The diet was quantitatively described by: (1) frequency of occurrence of an item as a function of total

occurrences of all items (DIETZ, 1984); (2) minimum number of individual animal prey (EMMONS, 1987); and (3) estimated biomass consumption (MOTTA-JUNIOR et al., 1996). The average number of seeds per fruit species was compared with the number of seeds in scats to estimate the number of fruits consumed and their biomass (CASTRO et al., 1994). Prey biomasses were estimated by counting the minimum number of individuals in scats and then multiplying this number by the mean body mass of each species at the study site (EMMONS, 1987).

The abundance of small mammals (< 2,000 g) was evaluated by a total trapping effort of 1,440 trap-nights. Forty snap-traps (16.5×9.0 cm) and 20 live-traps (40×20×20 cm) were placed in lines, spaced 10 m apart, covering all four habitats in the study area. The bait used was a mixture of peanut butter, sardine and banana, with traps being checked early in the morning. Animals were bimonthly trapped for four consecutive nights, totalling six months of field work simultaneous to scat collection.

Prey selection analysis was performed through a contingency table procedure (ZAR, 1999), in which absolute observed frequencies of small mammals in the diet were compared with absolute frequencies (expected) of these species in the study area, derived from trapping results (JAKSIC, 1989).

The analysis of faecal samples revealed at least 29 species or morphospecies of food items including fruits, grass leaves and animals (Appendix). This supports previous reports on the omnivorous maned wolf's diet (DIETZ, 1984; MEDEL; JAKSIC, 1988). Small rodents and *Solanum lycocarpum* St. Hill. fruits yielded the bulk of the diet by frequency of occurrence with 40.7% and 26.2%, respectively (Table 1). A similar pattern was found when biomass consumption is considered, but fruits of *S. lycocarpum* were the most important item (Table 1). In general, the results are in accordance with other studies (DIETZ, 1984;

MOTTA-JUNIOR et al., 1996; ARAGONA; SETZ, 2001; SANTOS; SETZ; GOBBI, 2003), except that armadillos were poorly represented in the biomass analysis as in Juarez; Marinho-Filho, 2002.

In spite of their large body size (around 23 kg) the maned wolf feeds heavily on small vertebrates weighing between 10 and 100 g, mostly represented by rodents (Table 1). A possible explanation is related to the solitary habits of this canid species (DIETZ, 1984). The most important food items found in this study, which occur in grasslands and savannahs (cerrado *sensu lato*), were the rodent species *Calomys* spp., *Bolomys lasiurus* (Lund, 1841), *Pseudoryzomys simplex* (Winge, 1887), and the fruits from *S. lycocarpum*. These findings are in accordance with results from another locality in central Brazil (MOTTA-JUNIOR et al., 1996), suggesting that cerrado vegetation is very important for the maintenance of this canid.

There was a highly significant difference between availability (total number of captured individuals = 74) and predation of small mammals by the maned wolf ($\chi^2 = 388.36$; d.f. = 6; $P < 0.001$; Table 2). This result was accounted for by the apparent selection of the terrestrial *Calomys* spp. and *P. simplex* (EISENBERG; REDFORD, 1999), and a lower consumption of *B. lasiurus*, *Oxymycterus delator* (Thomas, 1903), *Lutreolina crassicaudata* (Desmarest, 1804), *Didelphis albiventris* (Lund, 1840) and *Oryzomys* aff. *subflavus* (Wagner, 1842) than expected by chance (Table 2). The partially diurnal habit of *B. lasiurus* (VIEIRA; BAUMGARTEN, 1995; EISENBERG; REDFORD, 1999), semi-fossorial habit of *O. delator* (HERSHKOVITZ, 1994) and scansorial habit of *D. albiventris* and *O. subflavus* (ALHO; VILLELA, 1984; FONSECA et al., 1996; MOTTA-JUNIOR, 2000) perhaps accounted for the differential vulnerability to predation of these species. It is suggested, therefore, that terrestrial species are more vulnerable to predation than scansorial or semi-fossorial ones; they can possibly escape more easily from the cursorial maned wolf. Presumably many individuals of *B. lasiurus* were trapped during the day, when the wolves are virtually inactive (DIETZ, 1984). However, there are only scattered and qualitative data on these small mammal species. An alternative explanation relates to methodological caveats regarding prey abundance which is used as "prey availability", which is not necessarily true (JAKSIC, 1989). More detailed data on behavioural, ecological and physical attributes

of prey species are needed to give a better explanation of the selective diet of the maned wolf (CORLEY et al., 1995).

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TABLE 1 – Food items found in 46 scats of maned wolves collected in the state of Minas Gerais, Southeastern Brazil. Values in parentheses are percentages. The number of individual fruits consumed were not considered because of difficulties in making comparisons with that of animals. Estimated biomass is shown in grams.

Food items	Occurrence	Number	Estimated Biomass
<i>Solanum lycocarpum</i> fruits	45 (26.2)		6,200.0 (33.2)
Miscellaneous fruits	5 (2.9)		2081.2 (11.1)
Grasses	23 (13.4)		
Subtotal Plants	73 (42.4)		8,281.2 (44.3)
Insects	7 (4.1)	7 (4.5)	9.4 (0.0)
Lizards	1 (0.6)	1 (0.6)	68.2 (0.4)
Snakes	4 (2.3)	4 (2.6)	600.0 (3.2)
Birds	14 (8.1)	14 (9.0)	1,040.0 (5.6)
Opossums	1 (0.6)	1 (0.6)	698.1 (3.7)
Armadillos	1 (0.6)	1 (0.6)	1,700.0 (9.1)
Rodents	70 (40.7)	126 (81.3)	4,801.6 (25.7)
Unidentified Medium Mammal	1 (0.6)	1 (0.6)	1,500.0 (8.0)
Subtotal Animals	99 (57.6)	155 (99.8)	10,417.3 (55.7)
Total	172 (100.0)	155 (99.8)	18,698.5 (100.0)

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TABLE 2 – Contingency table for the analysis of small mammal selectivity by the maned wolf in the State of Minas Gerais, southeastern Brazil. Species which avoid being captured with the traps used, such as *Cavia aperea* and Echimyidae (pers. obs.), were not included.

Species	Observed (scats)	Expected (traps)
<i>Lutreolina crassicaudata</i>	0	6.5
<i>Didelphis albiventris</i>	1	9.7
<i>Bolomys lasiurus</i>	28	66.4
<i>Oligoryzomys</i> (= <i>Oryzomys</i>) <i>nigripes</i> ¹	6	1.6
<i>Oryzomys</i> aff. <i>subflavus</i>	1	16.2
<i>Calomys tener</i> ²	63	11.3
<i>Calomys callosus</i> ²	3	0
<i>Rhipidomys mastacalis</i> ¹	0	3.2
<i>Oxymycterus delator</i>	0	6.5
<i>Pseudoryzomys simplex</i> ¹	12	1.6
Non identified small rodents ¹	9	0
Total	123	123

(1) and (2) are groups of species combined because expected values were below 5.

APPENDIX

Food items consumed by the maned wolf in the Parque Florestal Salto e Ponte I. Mean weights (g) of prey and fruits are in parentheses. Scientific nomenclature follows MOTTA-JUNIOR et al. (1996) and references therein.

Fruits

Alibertia sessilis, Rubiaceae (6.6)
Annona sp., Annonaceae (348.1)
Duguetia furfuracea, Annonaceae (108.3)
Solanum lycocarpum, Solanaceae (620.0)
 Grass (Poaceae, Cyperaceae)

Insects

Acrididae sp. (1.2)
 Copiphorinae sp. (1.0)
 Gryllidae (2.0)
 Orthoptera n. id. (1.0)
 Scarabaeidae sp. (2.0)

Lizards

Unidentified sp. (68.8)
 Snakes
 Unidentified sp. (150.0)

Birds

Tinamidae sp., small (150.0)
 Passeriformes spp., small (20.0)

Volatinia jacarina (10.0)

Other unidentified birds (150.0)

Eggs (10.0)

Opossums

Didelphis albiventris (698.1)

Armadillos

Dasybus sp., small (1,700.0)

Rodents

Bolomys lasiurus (48.0)

Calomys callosus (22.2)

C. tener (15.2)

Cavia aperea (518.0)

Echimyidae sp. (235.0)

Oligoryzomys nigripes (18.0)

Oryzomys aff. *subflavus* (75.4)

Pseudoryzomys simplex (47.0)

Muridae spp., small (30.0)

Other Mammals

Unidentified medium mammal (1,500.0)