

# NOTES ON THE STOMACH CONTENTS OF CERTAIN CARNIVORA (MAMMALIA) FROM THE KALAHARI GEMSBOK PARK

J. DU P. BOTHMA

Nature Conservation Branch.  
Transvaal Provincial Administration, Pretoria.

In order to better understand why the black-backed jackal *Canis mesomelas* has become a sheep killer, it is essential to compare its habits in agricultural areas with those in natural areas. This includes a comparison of its food habits in nature reserves and farming areas. Most of the nature reserves in South Africa are, however, relatively small and are usually surrounded by agricultural areas. The animals living in these reserves often wander into the agricultural areas and back to the reserves so that their habits may not be entirely natural.

In addition these reserves are usually characterised by the absence of lion and leopard, resulting in a different predation pattern than that which exists where the larger predators are present. The Kalahari Gemsbok Park is unique in more than one sense. It is a true desert, with abundant lion. Ecologically speaking it is natural in virtually all respects. The Park therefore presents an ideal opportunity to study certain aspects of the ecology of its predators, a field of study which is as fascinating as claimed by Eloff (1964).

Attention is given at present to the food habits of the jackal and foxes of the Kalahari Gemsbok Park. The results as listed below are preliminary only, as they are based on rather small samples. However, they already indicate interesting differences from the results of a larger study of especially the black-backed jackal in agricultural areas (Bothma, in press).

## MATERIAL AND METHOD

The contents of twenty stomachs from the Kalahari Gemsbok Park were examined volumetrically according to the method in Grafton (1965). This included the stomachs of 8 bat-eared foxes, *Otocyon megalotis*, 11 black-backed jackal, *Canis mesomelas* and a single stomach of a silver fox, *Vulpes chama*.

## RESULTS

*Otocyon megalotis*, bat-eared fox:

The stomachs of four males and four females were collected from that part of the Park between Laisodkai and Kwana near the Nossob River and their contents consisted of the following:

97.9% insects, 1.9% reptiles and 0.2% wild fruit, berries and seeds.

Of the insects, 84.0% were termites, 9.3% beetles, 2.9% locusts, and 1.0% corn crickets. The termites were all workers of *Hodotermes mossambicus* (Hagen). The beetles consisted of 94.7% of the larvae of the 'tok-tokkie' (Tenebrionidae: Molurini) and 5.3% of tenebrionid adults. The locusts (large red) were unidentified, while the corn crickets were identified as *Acanthoproctus vittatus* Walker (Tettigoniidae: Hetrodinae). The occurrence of the latter is interesting as the corn cricket is said to secrete a protecting fluid when alarmed, which might have been distasteful to the fox (Haacke, pers. com.).

The reptiles consisted of a single ground gecko, *Chondrodactylus angulifer* Peters (Gekkonidae). This particular stomach was taken from a male fox collected from Groot Brak on 19th June, 1965. Wild fruit was present in two stomachs, and consisted of the Kriedoring (*Lycium* sp.) in each case.

The total food volume of the 8 stomachs was 521.0 cc., the range 35-115 cc. and the mean food volume 65.1 cc.

*Canis mesomelas*, black-backed jackal:

Eleven stomachs were examined. One stomach was empty. Volumetrically the other stomachs contained the following: Insects (63.4%), rodents (12.2%), carrion (11.2%), reptiles (5.4%), arachnids (5.0%), grass (1.4%), wild fruit (0.6%), birds (0.4%) and the bark of some shrub or tree (0.4%).

The insects included locusts (95.5%), termite workers (2.5%), corn crickets (1.8%) and beetles (0.2%). The locusts, termites and corn crickets were similar to those found in the stomachs of *Otocyon megalotis*, while the beetles were unidentifiable.

A single stomach containing a springhare, *Pedetes capensis*, completed the rodent complement. The reptiles, fourth most important by volume, consisted of one legless lizard, i.e. the striped Kalahari blindworm *Typhlosaurus lineatus* Boulenger; and a common striped skink, *Mabuya striata* (Peters). In addition there was the skin of an unidentified lizard.

The arachnids were found in a single stomach which contained at least four specimens of the scorpion *Opisthophthalmus wahlbergii*, (Scorpionidae). The wild fruit were seeds of the "kruisbessie", *Grewia* sp., and the tsama, *Citrullus lanatus* (Thunb.) Mansf. The single bird occurrence was unidentifiable and consisted of a few feathers only.

Roundworms were found in two stomachs.

The total food volume for the 11 stomachs was 1309.0 cc., the range 0-370 cc. and the mean 119.0 cc.

*Vulpes chama*, silver fox:

The stomach of a single adult female with no exact locality in the Park, was examined. The stomach contained 22.0 cc. of food, of which 95.5% was workers of the termite *Hodotermes mossambicus* (Hagen), while 4.5% consisted of an unidentified beetle.

## DISCUSSION

The limited material allows no definite conclusions. However, the high incidence of insects in the stomachs of the bat-eared fox seems proof that this animal is mainly insectivorous. The occurrence of a corn cricket secreting a protecting fluid, in stomachs of *Otocyon megalotis* and of *Canis mesomelas*, is interesting.

The high incidence of insects by volume in the stomachs of the black-backed jackal is of importance particularly as it was found that in other areas of South Africa artiodactyls and rodents were more important than insects. (Bothma in press). In the latter study insects and carrion together occupied third position in relative importance. The relative frequency in which reptiles occurred in the Kalahari Gemsbok Park stomachs is not surprising as the study area is desert.

The relative scarcity of vertebrates in stomachs of *Canis mesomelas* from the Park also is of importance particularly as in Bothma (op. cit.) this group was an important food.

## CONCLUSION

It is evident that a detailed study of the food habits of the predators in the Kalahari Gemsbok Park may yield interesting results on possible differences in diet in ecologically different areas. A study of this kind may help to explain the reason why the black-backed jackal has become an important predator on domestic stock in agricultural areas.

## ACKNOWLEDGEMENTS

I wish to thank the National Parks Board for permission to collect material from the Kalahari Gemsbok Park, and to thank the staff of that Reserve for doing the collections. I also wish to thank the Director of Nature Conservation in Transvaal for permission to include this study in my official duties. Mr. I. M. Prinsloo helped with the preparation of the specimens. Mr. S. S. du Plessis critically read this manuscript.

The following persons and institutions identified various specimens; their assistance is gratefully acknowledged: Transvaal Museum: W. Haacke (reptiles and scorpions), dr. Schulze (tenebrionids), dr. Van Son (crickets and beetles), Department of Agricultural and Technical Services, dr. Coaten (termites), National Herbarium-Botanical Research Institute, Mrs. Van Hoepen (seeds, etc.).

## REFERENCES

- Eloff, F. C. 1964: Desert research in South Africa. *The Zool. Soc. of Southern Africa, News bulletin* 6(1): 2-5.
- Grafton, R. N. 1965: Food of the black-backed jackal: a preliminary report. *Zoological Africana* 1 (1), 41-53.