

## THE YELLOW MONGOOSE *CYNICTIS PENICILLATA* AND OTHER SMALL CARNIVORES IN THE MOUNTAIN ZEBRA NATIONAL PARK

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The Mountain Zebra National Park is situated some 27 km southwest of Cradock, Republic of South Africa. The Park is characterized by mountains rising to 1 803 m.a.b.s., upland plateaux and valleys. The vegetation consists of arid montane grassland on the highlying areas, a mixed *Themeda triandra/Eragrostis curvula* grassland on the hillslopes and plateaux and a mixed shrubby vegetation along the valley slopes. Riverine thickets dominated by *Acacia karroo* and *Lycium* occur.

The mean annual rainfall for the area is 364,3 mm falling mostly from January to March. Temperature ranges from well below freezing, to 34°C. Light snowfalls may occur from May to August.

Small carnivores that occur in the Park are Yellow Mongoose *Cynictis penicillata*, Cape Grey Mongoose *Herpestes pulverulentus*, Water Mongoose *Atilax paludinosus*, Suricate *Suricata suricatta*, Striped Polecat *Ictonyx striatus* (De Graaff & Nel 1970, *Koedoe* 13: 147–149; Nel & Pretorius 1971, *Koedoe* 14: 99–110), Small-spotted Genet *Genetta genetta* (*pers. obs.*) and White-naped Weasel *Poecilogale albinucha* (collected by P. Bronkhorst). Little has been published on these species in the Cape and for this reason a short term study was carried out to determine the diet and habitat preference of five of these small carnivores.

### *Material and Methods*

Up to five small mammal traps baited with mice (mostly *Rhabdomys pumilio* and *Otomys unisulcatus*) were placed at selected sites in the Weltevrede to Berghof area of the Park. Trapping took place from August to November, 1979. The traps were checked at dawn and dusk and animals caught were immobilized using 20 mg of Ketalar given as an intramuscular injection. On two occasions the drug was administered orally. The animal was then measured, weighed, marked by ear clipping and coloured dye on tail tip and neck, and released at the capture site, once fully awake.

The diet was determined by faecal analysis. The faeces collected were

Table 1

*Mean body measurements of male and female Yellow Mongoose Cynictis penicillata (Standard Error of mean in parenthesis)*

Sex	N	Mass (g)	Tail (mm)	Ear (mm)	Body length (mm)	Hindfoot (mm)
♀ (ad)	5	823,2 (SE 32,07)	251,0 (SE 7,31)	19,8 (SE 0,66)	598,2 (SE 6,34)	73,8 (SE 1,07)
♀ (juv)	1	297,5	160,0	19,0	400,0	60,0
♂♂ (ad)	3	905,8 (SE 23,50)	262,3 (SE 4,16)	22,3 (SE 1,13)	630,0 (SE 6,71)	80,0 (SE 0,00)

examined macro- and microscopically placed evenly on a dissecting board. Undigested food remains were collected from the sample using a grid system with one hundred random points. The food items from each random point was identified as far as possible.

## *Results*

### *General observations and habitat preference*

Only the Yellow Mongoose were successfully trapped, nine were captured, consisting of five adult females, one juvenile female and three adult males. These animals lived at five sites in the old cultivated areas. Each site consisted of a system of burrows. A large amount of faecal deposits were always present at one of the burrows.

The Yellow Mongoose were diurnal, hunted in pairs or solitarily and were most frequently seen in the old lands dominated by small karoo bushes. Up to five animals were recorded in one colony. The burrows in different areas were 50–200 m apart and the mongooses moved from one site to another. On two occasions a pair was seen feeding among a flock of Crowned Guineafowl *Numida meleagris* with no interspecific reaction. Both species appeared to be feeding on termites.

Body measurements of the Yellow Mongoose caught, are given in Table 1. The mean immobilization time for eight animals was 2,86 minutes ( $SE\bar{X} = 0,53$ ). The ninth animal took 15 minutes to become immobile for no apparent reason. The mean time taken for the drug to wear off was 83,56 min ( $SE\bar{X} = 9,85$ ).

Four Cape Grey Mongoose were caught, two of which were males. The other two were released, and their sex not determined. These animals were diurnal and occupied the thickets and sparsely wooded, often rocky areas. They were the most frequently encountered small carnivore in the Park and moved about singly.

No other small carnivores were caught during the study period.

Water Mongoose were common along the stream beds, especially on the Wilgerboom River. This river has dense thickets which provides refuge for the species. Small-spotted Genet also occurred along the riverine area, but were probably more common in the wooded rocky kloofs. The only sign of Suricate was found at a burrow on Rooiplaat, which is an open grassland area mixed with dwarf shrub. Water Mongoose and Small-spotted Genet were nocturnal and the Suricate was diurnal.

### *Food preference*

The results from the faecal analysis are given in Table 2. A more

Table 2

*Comparison of prey selection by five small carnivores in the Mountain Zebra National Park as determined by scat analysis*

Species	Prey items from 100 point samples							Total
	SM	R	P	I	B	C	OI	
Yellow Mongoose <i>Cynictis penicillata</i>	4	0	10	85	1	0	0	100
Cape Grey Mongoose <i>Herpestes pulverulentus</i>	25	18	10	46	0	0	1	100
Water Mongoose <i>Atilax paludinosus</i>	8	0	21	17	22	32	0	100
Suricate <i>Suricata suricatta</i>	12	25	13	50	0	0	0	100
Small-spotted Genet <i>Genetta genetta</i>	25	9	10	56	0	0	0	100

SM = Small mammals, mainly Muridae

R = Reptiles, scales from unidentified spp.

P = Plant material, mainly fruit, especially *Diospyros lycioides*

I = Insects

B = Birds

C = Crabs

OI = Other invertebrates such as centipedes and worms

detailed breakdown of insect families in the diet of the five small carnivores is given in Table 3.

The Yellow Mongoose fed mainly on insects, in particular various kinds of beetles, grasshoppers and termites. It was also found to feed on plant material such as fruit from *Diospyros lycioides* and occasionally small mammals. The remains of one small unidentified bird was recorded. This agrees basically with the findings of Zumpt (1968, *Jl.S. Afr. vet. med. Assn* 39(4): 89–91); Smithers (1971, *The mammals of Botswana*); Viljoen & Davis (1973, *Ann. Transv. Mus.* 18: 353–363); Herzig-Straschil (1977, *Zool. Afr.* 12(1): 225–229); Stuart (1978 *Dept. of Nature and Environmental Conservation, Cape Province. Research Report*, Sept. 1978: 91–145) and Rowe-Rowe (1978, *Lammergeyer* 25: 1–48).

The Cape Grey Mongoose also utilized insects (especially Orthoptera), to a large degree but also took small mammals and reptiles. Honeycomb was recorded at four sample points. The fruit of *Diospyros lycioides* was previously recorded for the species by Stuart (1978).

The Water Mongoose concentrated on crabs but also ate birds (Black Duck *Anas sparsa*), fruit (*Diospyros lycioides*) and insects (Coleoptera). A small percentage of small mammals are also eaten. This agrees with the findings of Rowe-Rowe (1978) although no frog remains were recorded in the present study.

The Suricate also fed on insects to a large degree, especially Coleoptera

Table 3  
*Relative percentage of insect families represented in the diet of five small carnivores in Mountain Zebra National Park*

Species	Orthoptera	Coleoptera	Isoptera	Hymenoptera	Hemiptera	Total
Yellow Mongoose <i>Cynictis penicillata</i>	34,21	43,65	16,51	5,90	0	100
Cape Grey Mongoose <i>Herpestes pulverulentus</i>	45,23	28,57	19,05	2,38	4,77	100
Water Mongoose <i>Atilax paludinosus</i>	0	100	0	0	0	100
Suricate <i>Suricata suricatta</i>	37,50	39,58	22,92	0	0	100
Small-spotted Genet <i>Genetta genetta</i>	26,54	34,69	38,77	0	0	100

and Orthoptera, and also on reptiles. Small mammals were recorded at 12 sample points and the fruit of *Diospyros lycioides* was once again recorded for the species. This agrees basically with the findings of Zumpt (1968), Smithers (1971) and Stuart (1978). Smithers (1971) found Muridae to be the most common food item for this species.

Although a certain amount of overlap in home range did occur, the five species discussed occupied fairly distinct habitat types.

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