

Notes on the diet of four species of viverrid in a limited area of southern Namaqualand, Northern Cape, South Africa

Chris and Tilde STUART

Random sampling of carnivore scats was carried out on the farm « Sewefontein » (3119CA) on the western escarpment of Northern Cape Province, South Africa. The area lies at approximately 700 m ASL and falls within a winter rainfall regime. The vegetation lies within a transition zone, with elements of both 'fynbos' (Cape macchia) and 'karroid scrub' being dominant. Much of the vegetation ranged from 30 cm to 80 cm in height, with taller bushes and small trees along the water courses, and there were extensive areas in the valley bottom cleared for the cultivation of grain and lupins. The fringing ridges had extensive areas of bare, deeply incised rock.

Of the twelve carnivore species known to occur in the study area, five were viverrids but one of which was only an occasional visitor from the neighbouring plains, *Suricata suricatta* and no scats were collected.

As will be observed from the tables not all months are represented. This is the result of the authors being absent from the study area and not a reflection on the presence or absence of the carnivores on the farm during those periods. Very little has been recorded on the diet of carnivores in this region (see Stuart, 1981 ; Skinner & Smithers, 1990) and although the following notes are not complete or comprehensive we felt them still worth committing to paper.

Atilax paludinosus Marsh mongoose

Observations over a period of six years indicated that at least three individual *Atilax* occupied the study area. These are solitary and nocturnal foragers, with scats being deposited in small middens within the home range or scattered at random along pathways. This large mongoose took a wide range of invertebrate prey, with coleopterans and crustaceans (freshwater crabs) being of particular importance. Amphibian prey was dominated by two species (the most common in the valley), *Xenopus laevis* and *Rana angolensis*. The single tortoise record was of a hatchling *Chersine angulata*. The four lizards recorded (three in January and one in December) were all skinks (*Mabuya* probably *capensis*). Most bird remains were of small unidentified passerines but two samples taken in January included the feathers of *Francolinus capensis*. This latter was abundant in the study area. Although no effort was made to identify rodents to species level if only hair was present, in several cases teeth and bones allowed us to make identifications by comparison with reference material. *Otomys irroratus* and *O. unisulcatus* were present in the January, July and November samples, and the single record for May was of *Rhabdomys pumilio*. The single shrew in the July sample was identified as *Crocidura cyaneae*. In the case of the lagomorphs, all were *Lepus saxatilis*. Of particular interest was the presence of the remains of two small carnivores in the November sample, namely *Cynictis penicillata* and *Galerella pulverulenta*. Given its larger size, *Atilax* is easily capable of overpowering these two carnivores but it is possible that they had been scavenged, particularly as both are diurnal species, whereas the marsh mongoose is almost exclusively nocturnal. The same may apply to the single hyrax (*Procavia capensis*) record for January. The occurrence of sheep wool in three of the January samples and two

of those from December almost certainly indicates scavenging from dead animals. *Atilax* tracks were observed around sheep and cattle carcasses in the district on several occasions, and we surmise that the principle attractions were fly maggots and various species of beetle.

Galerella pulverulenta Cape grey mongoose

During the course of a low-key live trapping programme nine individual *Galerella* were captured and marked within the study area, probably a fairly true reflection of the population size. This is a diurnal and solitary forager, and scats are deposited at random within the home range. Insect remains made up a major part of the scats analysed in these samples, with coleopterans and termites (mainly *Hodotermes*) making up by far the majority. Lizards were sampled in all months except July, with the majority being skinks (*Mabuya*-probably *capensis*) but *Pedioplanis* sp., *Cordylus cataphractus* and *Pseudocordylus* sp. were also recorded. None of the snakes were identified to species level but the tortoise scales in a September scat were of *Homopus signatus* and those in October were from a juvenile *Chersine angulata*. Rodent occurrences were lower than expected, with *Otomys unisulcatus* and *Aethomys namaquensis* remains dominating. The single *Hystrix africae australis* occurrence in May almost certainly indicates a case of scavenging as this small carnivore would not attack a porcupine under normal circumstances. Both leporid records from May were of *Lepus saxatilis*. The single elephant shrew recorded in May was *Elephantulus edwardii*, one of two species occurring in the study area. Both the common duiker (*Sylvicapra grimmia*) and sheep remains are almost certainly a result of scavenging.

Cynictis penicillata Yellow mongoose

Although these mongooses are colonial burrowers (approximately eight individuals in two warrens were present in the study area) they are solitary, diurnal foragers. Scats are deposited at middens within close proximity to the warren. Invertebrates, mainly coleopterans, *Hodotermes* sp., orthopterans, scorpions and solifugids, were obviously of major importance in this species diet. From August to December lizards featured strongly in the scat samples with skinks (*Mabuya*-probably *capensis* and *variegata*) making up approximately half of the total, with *Cordylus cataphractus* and *Pedioplanis* sp. also being present. Of the eight snake records only two were identified, as *Leptotyphlops* sp. The single tortoise record, from the September sample, was a juvenile *Chersine angulata*. Birds were of considerable importance from September to December, particularly October (remains in more than half of sample) and November (slightly less than half of scats) and this coincides closely with the breeding season of many bird species in the area. Most bird remains (feathers, feet and claws) were of small passerines and included fledglings, but in several samples bird egg-shell fragments were identified. No attempt was made to identify birds to species level. Rodents were of frequent occurrence in the samples, with *Otomys unisulcatus* remains dominating. The two lagomorph records (October and November) were of leverets (teeth in scats, as well as hair and claws) and although *Lepus*, they could have been *capensis* or *saxatilis*. The presence of sheep wool in a number of

Table 1:
Atilax paludinosus Occurrence of prey items in monthly scat samples

Food item	January	May	July	August	October	November	December
Insects:							
Coleoptera	32	3	3	1	0	9	3
Hodoterms	4	0	0	0	0	3	2
Formicidae	13	0	0	0	0	4	1
Orthoptera	11	0	0	0	0	1	0
Dragonfly nymphs	3	1	0	0	0	0	2
Unid.insect fragments	2	0	1	0	0	0	1
Other invertebrates:							
Scorpions	1	0	0	0	1	0	1
Crabs	23	4	5	1	0	6	2
Reptiles:							
Lizards	3	0	0	0	0	0	1
Snakes	2	0	0	0	1	3	0
Tortoise	1	0	0	0	0	0	0
Amphibians:	29	4	5	1	0	6	4
Birds:	15	0	0	0	1	4	0
Mammals:							
Rodents	13	1	5	0	1	5	0
Lagomorphs	3	0	0	0	0	0	1
Shrew	0	0	1	0	0	0	0
Carnivores	0	0	0	0	0	2	0
Hyrax	1	0	0	0	0	0	0
Sheep	3	0	0	0	0	0	2
Vegetation:							
Grass	10	1	3	1	1	3	3
Scat totals	33	4	5	1	1	9	4

Table 2:
Galerella pulverulenta Occurrence of prey items in monthly scat samples

Food item	January	May	June	July	August	Sept	October	November	December
Insects:									
Coleoptera	3	23	3	2	7	1	3	14	0
Hodo-&Trinovertermes	1	19	3	1	7	2	1	12	13
Formicidae	1	13	1	0	0	2	2	2	6
Orthoptera	0	9	0	0	1	0	2	7	9
Unid.insect fragments	0	8	2	1	4	3	5	3	7
Other invertebrates:									
Scorpions	1	2	1	0	0	1	2	3	6
Solifugidae	0	1	0	0	0	0	1	1	3
Myriopoda	1	3	0	0	0	2	1	5	
Reptiles:									
Lizards	2	4	1	0	3	1	2	1	4
Snakes	0	1	0	0	0	1	1	1	0
Tortoise	0	0	0	0	0	1	1	0	0
Amphibians:	0	0	0	0	0	1	0	0	0
Birds:	0	1	0	0	1	0	0	0	3
Mammals:									
Rodents	3	10	0	0	2	1	2	9	8
Lagomorphs	0	2	0	0	0	0	0	0	0
Elephantshrew	0	1	0	0	0	0	0	0	0
Hyrax	0	0	0	0	0	0	0	0	1
Common duiker	0	0	0	0	1	0	0	0	0
Sheep	0	1	0	0	1	0	0	0	0
Vegetation:									
Grass	0	2	0	0	0	1	2	2	0
Seeds	0	3	0	0	0	0	0	1	2
Scat totals	3	35	3	2	10	4	5	20	22

Table 3:
Cynictis penicillata Occurrence of prey items in monthly scat samples

Food item	June	July	August	September	October	November	December
Insects:							
Coleoptera	Present	10	21	62	40	77	65
Hodoterms	Present	11	23	62	37	85	82
Formicidae	Present	None	None	9	5	10	1
Orthoptera	Present	None	None	17	43	80	70
Lepidoptera	None	None	None	None	3	None	None
Unid.insect fragments	Present	1	None	10	7	14	12
Other invertebrates:							
Scorpions	Present	3	8	41	32	41	39
Solifugidae	0	1	0	9	11	26	13
Myriopoda	Present	0	0	12	5	8	6
Reptiles:							
Lizards	Present	0	4	19	11	13	17
Snakes	0	0	0	2	0	4	2
Tortoise	0	0	0	1	0	0	0
Mammals:							
Rodent	Present	8	11	42	14	24	20
Lagomorphs	0	0	0	0	1	1	0
Sheep	0	0	0	3	1	3	2
Common duiker	0	0	0	0	0	1	0
Scat totals:	Mixed	12	27	62	44	99	91

Table 4:
Genetta genetta Occurrence of prey items in monthly scat samples

Food item	January	May	June	July	August	November	December
Insects:							
Coleoptera	1	Present	3	1	11	1	
Hodoterms	1	Present	0	0	0	0	
Formicidae	0	0	0	0	0	0	1
Orthoptera	0	0	0	0	0	2	6
Unid. insect fragments	0	0	1	0	0	0	0
Other invertebrates:							
Scorpions	0	Present	0	0	2	1	4
Solifugidae	0	Present	0	0	1	0	1
Myriopoda	1	Present	0	0	0	0	0
Reptiles:							
Lizards	0	Present	0	0	6	1	0
Snakes	1	0	0	0	0	0	2
Birds:	0	Present	0	0	2	1	2
Mammals:							
Rodent	1	Present	1	1	11	3	6
Lagomorphs	0	Present	0	0	0	0	0
Vegetation:							
Grass	0	Present	0	0	5	0	3
Seed	0	Present	0	0	1	0	4
Scat totals	1	ca.24	3	1	11	3	9

samples, and common duiker (*Sylvicapra grimmia*) hair in one November scat almost certainly indicates scavenging.

Genetta genetta Common genet

A solitary, nocturnal hunter with perhaps two to four individuals being present in the study area. Scats may be deposited on small middens or at random along pathways within the home range. Although only small samples were collected and analysed, it is clear that invertebrates and in particular coleopterans were of particular importance. Lizards were significant in the August sample, of which four were identified as skinks (*Mabuya* sp.) and two as legless lizards (*Acontias meleagris*). Rodent remains occurred in all monthly samples, with one record of *Rhabdomys pumilio*. This was the only viverrid that seemed to be deliberately feeding on wild fruits, with the seeds of wild olive (*Olea europaea* subsp. *africana*) and 'skilpadbessie' (*Nylandtia spinosa*) being identified. Both fruits have large seeds with a fruit-coating, and are eaten in large quantities by a canid, *Otocyon megalotis*, occurring within the study area, as well as several frugivorous bird species.

General comment

Although the four viverrid species occurring in the study

area have a generally similar diet, *Atilax paludinosus* is the only one to feed on quantities of freshwater crabs and frogs. *Atilax* and *Genetta genetta* are strictly nocturnal hunters, with *Cynictis penicillata* and *Galerella pulverulenta* being diurnally active. The latter two mongooses are largely separated by their favoured habitats, the former showing a strong preference for more open terrain with sparse vegetation cover (offered in the form of open agricultural land in the study area) and *Galerella* rarely venturing far from rock cover. Although far from comprehensive this brief study gives a first insight into the diet of four common viverrids occurring on the western escarpment of South Africa.

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References

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African-Arabian Wildlife Research Centre,
P.O. Box 6, Loxton 6985, South Africa