

A NOTE ON THE SMALLER MAMMALS OF  
THE MOUNTAIN ZEBRA NATIONAL PARK

by

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and

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*Abstract*—Collecting in April 1971 yielded 74 specimens of 16 species. Of these, seven species (*Elephantulus rupestris*, *Lepus saxatilis*, *Pronolagus crassicaudatus*, *Graphiurus murinus*, *Aethomys namaquensis*, *Desmodillus auricularis* and *Gerbillurus paeba*) are new records for the park. Distribution in habitat-types for each species known to occur are described.

*Introduction*

Comparatively little has been published on the flora, fauna, physiography and geology of the Mountain Zebra National Park. Skead (1965) has given a good if somewhat brief account of the main features of this park and recognises nine vegetation types, based on bird distribution. The influence of these habitat types on mammalian distribution is probably less pronounced. The main feature of the park is steep-sloped valleys, covered with *Acacia* forest and scrub (denser along the water-courses) which peter out to lower hillside scrub along the slopes of the hills. The scrub is for the most part replaced by grassveld near the summits. Also found in the valleys are disused lands and small patches of grassveld, and man-made habitats such as homesteads and dams. The hillsides are frequently broken up by rocks and boulders of varying size and extent. The only large expanse of grassveld is found on the Rooiplaat Plateau. According to Skead (1965) the summit of the Bankberg (1 767 m a.s.l.) represents a unique habitat; this area has, however, not yet been visited.

*Material and methods*

Traps of various types were used to collect insectivores, rodents and carnivores. Springhares, hares and dassies were collected with No. 6 shot. Traplines with 40-50 traps per line, spaced seven to 10 metres apart, were set out in likely looking areas in the habitats listed below.

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Museum specials, McGill rat traps and "Footes" (locally produced, unnamed rat traps) were used. Large wire traps (National Trap Co) were put out at some of the traplines to collect carnivores. Macabee mole traps were set at three localities. Gin traps (No. 1) were set in the burrows of small carnivore colonies. Large wire traps were baited with the remains of the dassies collected; snap traps were baited with a mixture of peanut butter, rolled oats, golden syrup and sunflower oil. Traplines were checked twice daily, in the early morning and late afternoon. Gin traps were checked more frequently.

### *Collecting localities*

Localities where mammals were obtained may be grouped according to the main habitat types as: A. Hill slopes; B. Flat, grassy areas; C. Old-fields and transitional zones. Collecting localities, and the types of traps used at each, are depicted in fig. 1.

#### A. Hill slopes

##### Locality 1:

A fairly steep western slope, from a ravine some distance up the hillside. On the upper parts the ground cover is fairly sparse and the terrain is fairly rocky, but there are some trees and shrubs. The ground cover mainly consists of *Walafrida geniculata* and *Cynodon incompletus*. *Acacia karroo* occurs as a tree or shrub, 2-4 m tall and there are also a few specimens of *Rhus schlechteri* up to 4 m tall. There are some dense mixed thickets of *A. karroo*, *R. schlechteri* and *Asparagus suaveolens*.

Further down the slope the ground cover improves markedly. The main species are *Themeda triandra*, *Eragrostis curvula*, *Tragus koelerioides*, *Digitaria eriantha*, *Stachys rugosa* and the small shrub *Chrysocoma tenuifolia*.

##### Locality 2:

A high ridge with a slightly western slope above the Kranskop road. Deep, dark soil with scattered outcrops of boulders. There is a good ground cover consisting mainly of clumps of *Danthonia disticha*, but the grasses *Themeda triandra*, *Eragrostis lehmanniana* and *Cynodon incompletus* also occur. *Elytropappus rhinocerotis* occurs extensively and the shrub *Helichrysum hamulosum* (40-50 cm tall) is also very conspicuous. The forb *Stachys rugosa* is quite common.

##### Locality 3:

Traps were placed along a low, south-east facing, limestone ridge. Above and below this ridge the vegetation consists of short grass with some bushes; some stunted bushes and trees also occur along the ridge itself.

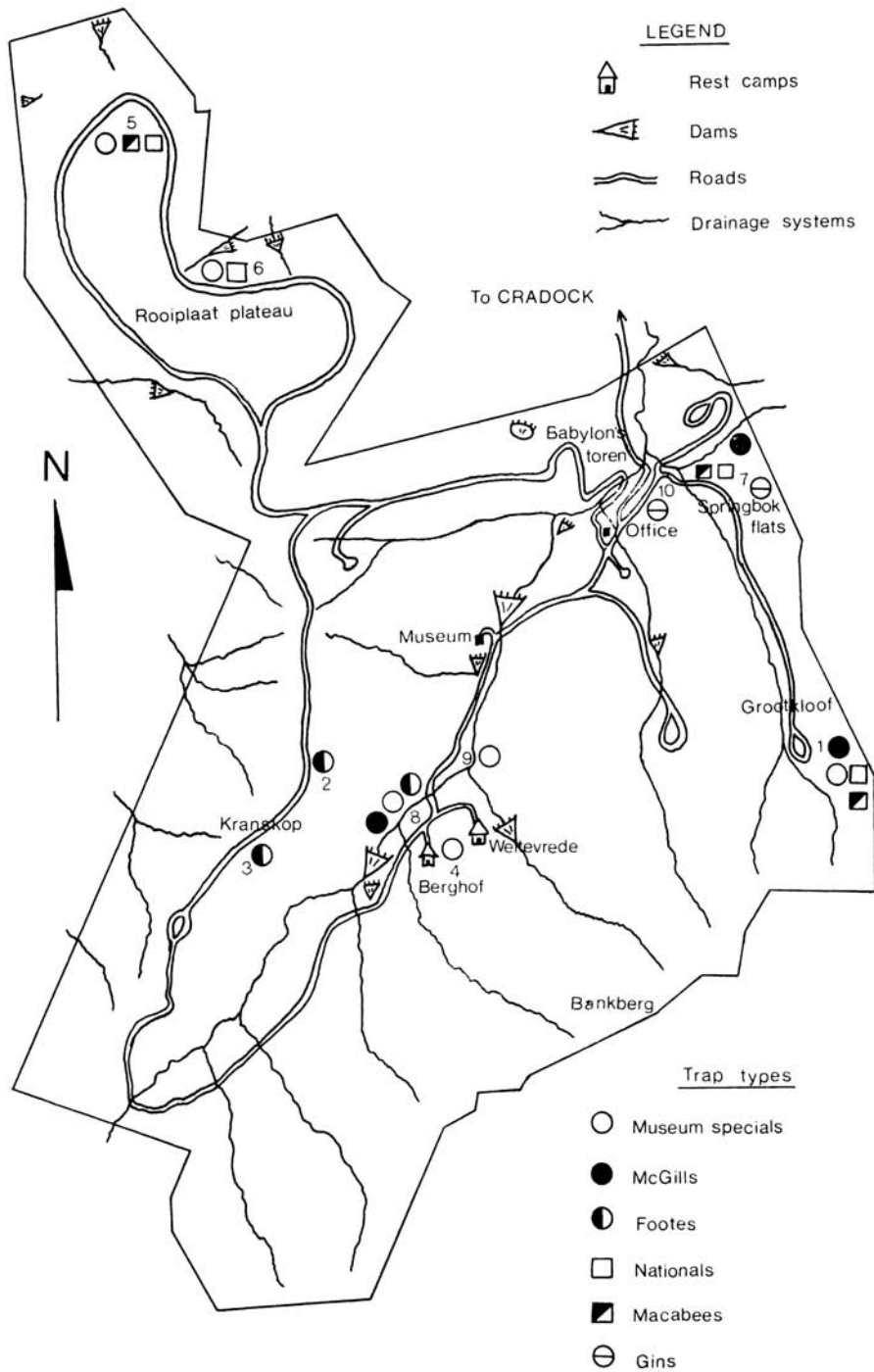


Fig. 1. Map of the Mountain Zebra National Park showing collecting localities and types of traps used at each.

Locality 4:

The north-facing hillside behind the Berghof homestead. The lower part of the trapline adjoined some thickets of indigenous trees, and then ascended over very broken terrain, with numerous rocks, boulders and large rock expanses.

B. Flat, grassy areas.

Locality 5:

A flat sandy area which is virtually treeless. The grass cover consists mainly of *Eragrostis lehmanniana*, *Aristida curvata*, *Digitaria eriantha*, *Themeda triandra*, *Cymbopogon plurinodis* and *Tragus koelerioides*. There are numerous small shrubs, of which *Elytropappus rhinocerotis* and *Eriosephalus ericoides* are dominant.

Locality 6:

A slightly sloping treeless area, better watered than the surrounding parts. The central part of the vlei consists of a practically pure stand of *Eragrostis curvula*. It is surrounded by an area with sparser ground cover in which the main grasses are *Eragrostis obtusa*, *Aristida curvata*, *Cynodon incompletus* and *Melica decumbens*. The small shrub *Pentzia globosa* and the forb *Moraea polystachya* are fairly common.

Both of these localities are situated on the gently undulating Rooiplaat Plateau.

Locality 7:

Gently sloping, sandy soil with a good grass cover and with isolated low bushes. This locality is situated on the eastern edge of the Springbokvlakte.

C. Oldfields and transitional zones.

Locality 8:

An essentially level area, with the trapline skirting a hedge between two oldfields, crossing an open area between the two oldfields, and then continuing along the edge of the oldfield and very dense riverine bush. Sandy soil with no visible rocks. The bush consists mainly of *Acacia karroo* (up to 10 m tall), *Lycium tetrandrum*, *Rhus schlechteri*, *Melianthus comosus*, *Maytenus heterophylla* and *Asparagus suaveolens*, whilst the creeper *Clematis brachiata* is quite common.

Locality 9:

Again deep soil, but less sandy. Along the edge of the thin strip of riverine bush, then across the oldfield covered with *Tribulus terrestris* and along the hedge between the oldfield and road. No rocks.

Locality 10:

Open *Acacia*-veld bordering on grassveld. Deep, sandy soil with no rocks.

### *Species occurring*

The following account includes data from trapping, sight records and data kindly supplied by the Nature Conservator, Mr. Wim Prinsloo, as well as previous records (Labuschagne and Van der Merwe, 1963; Skead, 1965; and De Graaff and Nel, 1970). Nomenclature follows Meester *et al* (1964). The estimates of the abundance of each species as given here are understandably very subjective and could be erroneous.

#### *Order Menotyphla*

##### *Family Macroscelididae*

##### *Elephantulus rupestris* Rock Elephant Shrew

Two males and one female were trapped, a single male at the edge of Springbokvlakte (locality 7) under a thick bush near the rock-strewn foot of the hill. The other two specimens were taken on the slope of the hill behind the Berghof homestead (locality 4), amongst rocks, but again under bushes. This species is probably widespread in similar habitat throughout the park, but it is doubtful if it is present in high numbers.

#### *Order Lipotyphla*

##### *Family Erinaceidae*

##### *Erinaceus frontalis* Hedgehog

Said to occur by Labuschagne and Van der Merwe (1963). Probably rare, if at all present.

#### *Order Chiroptera*

##### *Family Vespertilionidae*

##### *Eptesicus capensis* Cape Serotine

So far the only bat definitely known to occur; this bat was trapped in the eaves of the Nature Conservator's house in 1965 (De Graaff and Nel, 1970). This colony was still present in 1971, but not sampled.

#### *Order Primates*

##### *Family Cercopithecidae*

##### *Papio ursinus* Chacma Baboon

Widespread and abundant along the kranzes and hillsides, occasionally venturing down to the lower slopes and flats.

##### *Cercopithecus aethiops* Vervet Monkey

A small, but evidently flourishing troop (or troops) ranges along the riverine forest belt, especially at the picnic spot near the Doornhoek homestead. Frequently seen in a poplar grove at this spot.

#### *Order Carnivora*

##### *Family Canidae*

##### *Otocyon megalotis* Bat-eared Fox

Not seen, but according to the Nature Conservator they occur in small

numbers on Rooiplaat Plateau and the Springbokvlakte. Scarce and sparsely distributed in the park.

*Vulpes chama* Silver Fox

Has very infrequently been seen by the Nature Conservator. Probably very rare.

*Canis mesomelas* Black-backed Jackal

According to the Nature Conservator one is resident in the park, on the Rooiplaat Plateau. This species is regarded as vermin in the surrounding sheep-farming areas and is subject to high hunting pressure. The chances of other individuals finding their way into the sanctuary of the park is, therefore, rather slim.

Family Mustelidae

*Ictonyx striatus* Striped Polecat

One specimen (a male) was taken in a burrow on the Springbokvlakte (locality 7), although its occurrence has previously been noted (Skead, 1965). Probably unevenly distributed.

Family Viverridae

*Genetta* sp Genets

Genets (either *G. genetta* or *G. tigrina*) have been seen by the Nature Conservator. In the absence of any specimens to hand it is difficult to say which of the two (or both) occur.

*Herpestes pulverulentus* Cape Grey Mongoose

Two males were taken in large wire traps (National) in hillside scrub (locality 1) and under a thicket on the Springbokvlakte (locality 7), while two others were spotted on the road near the picnic spot. This species is probably widespread, especially along the denser scrub covering the hillsides, and fairly numerous. It seems to be a strictly diurnal species, as has also been previously noted by one of us (J.J.L.P.) in different parts of its range.

*Cynictis penicillata* Yellow Mongoose

Although only two (a male and a female) were collected at the edge of the Springbokvlakte (locality 10) this species is abundant in this area, and other suitable habitats in the park, especially where sandy soil affords opportunities for burrowing. Colonial and diurnal; it occurs (and cohabits) with *Ictonyx* and *Suricata*.

*Suricata suricatta* Suricate

A single male was taken in a burrow at the Springbokvlakte (locality 10) in the same system (colony) as the two yellow mongooses. Probably somewhat less common than the yellow mongoose, although having more or less the same distribution.

*Family Protelidae*

*Proteles cristatus* Aardwolf

A single specimen was seen on the Rooiplaat Plateau. Probably scarce, although the secretive nature of this animal may give a false impression of its numbers.

*Family Felidae*

*Felis libyca* African Wild Cat

Seen by the Nature Conservator on several occasions, but scarce in the park.

*Felis nigripes* Blackfooted Cat

Two are known to occur in the park, these having been introduced from a neighbouring farm.

*Felis caracal* Caracal Lynx

These have been observed on several occasions by the Nature Conservator; once a family group of five were seen on the Springbokvlakte. Probably fairly common.

*Order Tubulidentata*

*Family Orycteropodidae*

*Orycteropus afer* Aardvark

Widely distributed, and fairly common on the flat areas, and also along the hillsides up to the summits of the outridges of the Bankberg.

*Order Hyracoidea*

*Family Procaviidae*

*Procavia capensis* Cape Dassie

Prolific; found all over the park, on rocky kranzes and other suitable habitat. This is probably (apart from some rodents) the most abundant species present in the park and should be an important source of food for carnivores and raptors.

*Order Lagomorpha*

*Family Leporidae*

*Lepus saxatilis* Shrub Hare

One female was collected in Grootkloof. This is probably the most abundant of the two lagomorph species present and occurs throughout the park. It seems that the hare given as *L. capensis* in De Graaff and Nel (1970) was probably wrongly identified and should be referred to as *L. saxatilis*; *L. capensis* was observed to occur just outside the park, on the flat Karoo plains but not within the present limits of the park.

*Pronolagus crassicaudatus* Natal Red Hare

One male was collected in Grootkloof. This species, much smaller than

the previous one, is especially abundant along the Grootkloof and probably also in similar habitats (rocky plains along hillsides) in other parts of the park. They have also been noted on the valley bottoms and the Springbokvlakte.

*Order Rodentia*

*Family Bathyergidae*

*Cryptomys hottentotus* Common Mole-rat

Widely distributed and abundant in the park, on flat sandy plains and valley bottoms but also in the steeply sloping, rocky and shale soils of the valley sides, and the Rooiplaat Plateau. Four males and one female were collected.

*Family Hystricidae*

*Hystrix africae-australis* Cape Porcupine

Probably occur in fair numbers according to the quills spotted, but are rather seldom seen due to their nocturnal activity.

*Family Sciuridae*

*Xerus inauris* Cape Ground Squirrel

Only one small colony is present, on the Rooiplaat Plateau. This is rather surprising in view of the extent of this plateau which would seem to offer suitable habitat for this species. Other areas in the park, especially on the flats in the valley bottoms, seem ideal habitat but penetration to these areas is probably hindered by the occurrence of thick riverine shrub, effectively "plugging" entry to these areas and probably serving as barriers for distribution.

*Family Pedetidae*

*Pedetes capensis* Springhare

Common in parts, especially sandy areas (e.g. the Springbokvlakte and the Rooiplaat Plateau) where the soil permits the digging of burrows. A female was collected on the Springbokvlakte.

*Family Muscardinidae*

*Graphiurus murinus* Forest Dormouse

Two females were trapped in thick bush behind the Berghof homestead. In the absence of further sampling of this habitat in other areas of the park, the distribution and status of this species is unclear although the extent of this habitat-type in the park would seem to augment well for a fairly widespread distribution along the river courses in the riverine scrub/forest.

*Family Muridae*

*Aethomys namaquensis* Namaqua Rock Mouse

Common and widespread along the rocky hillsides; this species seems to



be the dominant rodent in this habitat, co-occurring in places (see table 2) with *Saccostomus* and *Elephantulus*. Four males and 12 females were collected.

*Praomys natalensis* Multimammate Mouse

Fairly common in the riverine scrub and thickets; also trapped behind the Berghof homestead and on the Rooiplaat Plateau, surprisingly enough, in low grassveld. Four males and two females were collected.

*Rhabdomys pumilio* Striped Mouse

Prolific along the river courses, in the thick riverine scrub, and especially where this habitat borders on oldfields. Twelve males and 12 females were collected.

*Saccostomus campestris* Cape Pouched Mouse

Specimens were trapped on the hillsides at the end of the Grootkloof road, behind the Berghof homestead, and the edge of riverine scrub and oldfields. They seem to prefer bushy areas, perhaps as a result of more berries and seeds being present in this habitat type. Two males and four females were taken.

Family Cricetidae

*Otomys unisulcatus* Bush Karoo Rat

Collected in 1965 in the riverine scrub/forest; probably widespread in this habitat in the park.

*Desmodillus auricularis* Namaqua Gerbil

Only one male was trapped on the border between two oldfields with thick sandy soil. Perhaps somewhat sparsely distributed in this soil type along the valley bottoms, and, like other gerbils, subject to population fluctuations.

*Gerbillurus paeba* Lesser Gerbil

Two specimens (both males) were collected, at the same locality as *Desmodillus*. Distribution and status probably the same.

Of the nine rodent species collected during April 1971 only *Aethomys*, *Rhabdomys* and possibly *Praomys* were in a reproductive condition. Four *Aethomys* females were lactating; six *Rhabdomys* females were either lactating or pregnant, and eight males had descended and enlarged testes. Two *Praomys* males had descended and enlarged testes, and a female seemed pregnant. The single male *Desmodillus* had descended, but not noticeably enlarged testes. Six juvenile *Aethomys* (two males, four females), three juvenile female *Rhabdomys* and one juvenile female *Praomys* were amongst the specimens collected.

*Discussion*

A total of 1 142 trapnights yielded 74 specimens, i.e. a trapping success of 6,5 %. This low figure is disappointing, but as can be seen from Table 1 the various localities yielded very uneven results, perhaps as a result of differences in cover and food resources. The low trapping success may also indicate a fairly evenly balanced predator-prey relationship (H. W. Setzer, *pers. comm.* to J.J.L.P.).

Table 1

*Trapping results at localities sampled in the three habitat types.*

<i>Habitat</i>	<i>Locality number</i>	<i>Trap Nights</i>	<i>Number specimens caught</i>	<i>Trap success %</i>
Hill slopes ... ..	1	157	13	8,3
	2	144	0	0,0
	3	60	3	5,0
	4	78	13	16,7
Flat, grassy areas ...	5	135	3	2,2
	6	144	0	0,0
	7	136	5	3,7
Oldfield and transitional zones... ..	8	194	21	10,8
	9	78	10	12,8
	10	3	3	100,0

On average the hillsides and transitional zones yielded the most specimens; both these habitat types perhaps including more diverse microhabitats, shelter and food resources than the flat, uniform grass areas. Especially rewarding was the oldfield/riverine scrub transitional zone, this giving a clearcut "edge effect" in the trapping results.

Table 2 depicts the localities and habitat-types at which the various species were collected, or observed by the authors. Other records are not included as they seldom are precise enough as to the habitat type. For the smaller species with presumably smaller home ranges the hillsides offer enough diversity to harbour a larger variety of species; this diversity could be approached by the transitional zones and riverine scrub, although the latter habitat has only been cursorily sampled and could produce a greater variety of species than is known to occur there at present.

It is interesting to compare the list of species of small mammals known at present to occur in the park with the list of Skead (1958) of mammals of the Cradock district. Three species of insectivores (*Elephantulus intufi*,

Table 2

*Distribution of small mammals in localities sampled.*

Species	Habitat type and localities										
	Hill slopes				Flat, grassy areas			Oldfield/ transitional zones			Riverine scrub
	1	2	3	4	5	6	7	8	9	10	
<i>Elephantulus rufescens</i> ...				×			×				
<i>Cercopithecus aethiops</i> ...										×	
<i>Ictonyx striatus</i> ...							×				
<i>Herpestes pulverulentus</i> ...	×						×				
<i>Cynictis penicillata</i> ...							×		×		
<i>Suricata suricatta</i> ...							×		×		
<i>Proteles cristatus</i> ...					×						
<i>Procavia capensis</i> ...	×										
<i>Lepus saxatilis</i> ...	×						×				
<i>Pronolagus crassicaudatus</i> ...	×										
<i>Cryptomys hottentotus</i> ...	×			×	×	×	×	×			
<i>Pedetes capensis</i> ...							×				
<i>Graphiurus murinus</i> ...				×							
<i>Aethomys namaquensis</i> ...	×		×	×							
<i>Praomys natalensis</i> ...				×	×			×	×		
<i>Rhabdomys pumilio</i> ...	×						×	×		×	
<i>Saccostomus campestris</i> ...	×			×			×	×			
<i>Otomys unisulcatus</i> ...										×	
<i>Desmodillus auricularis</i> ...								×			
<i>Gerbillurus paeba</i> ...								×			

*Macroscelides proboscideus* and *Crocidura cyanea*), five species of bats (*Eidolon helvum*, *Taphosus mauritanus*, *Tadarida aegyptiaca*, *Tadarida bocagei* and *Miniopterus schreibersi*), six species of carnivores (*Poecilogale albinucha*, *Mellivora capensis*, *Lutra maculicollis*, *Aonyx capensis*, *Atilax paludinosus* and *Ichneumia albicauda*), one lagomorph (*Lepus capensis*) and seven rodents (*Graphiurus ocellatus*, *Leggada minutoides*, *Steatomys pratensis*, *Malacothrix typica*, *Otomys irroratus*, *Otomys sloggeti*, and *Parotomys brantsi*) are known from the Cradock district but have, as yet, not been recorded from the park. Species trapped in the park, and not on Skead's list as occurring in the Cradock district are *Pronolagus crassicaudatus* and *Graphiurus murinus*. Until more extensive trapping is carried out in the park it is impossible to say which other species occur in the park; as has been noted above *Lepus capensis* was observed just outside the park borders on the Karoo flats; this habitat which would favour *Parotomys* as well is not represented within the present borders of the park. The two otters

(*Lutra* and *Aonyx*) would be doubtful inhabitants, as the lack of perennial streams would probably preclude their continuous habitation in the park. As both *Desmodillus* and *Gerbillurus* occur in the park (albeit in low numbers) the presence of *Malacothrix* would seem fairly probable. The highest peaks in the park (i.e. Bankberg) have not been sampled to date so the presence of *Otomys sloggeti* is uncertain, but not improbable.

#### *Acknowledgements*

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#### REFERENCES

- DE GRAAFF, G. and J. A. J. NEL. 1970. Notes on the smaller mammals of the Eastern Cape National Parks. *Koedoe* 13: 147-149.
- LABUSCHAGNE, R. J. and N. J. VAN DER MERWE. 1963. *Mammals of the Kruger and other National Parks*. Pretoria: National Parks Board.
- MEESTER, J., D. H. S. DAVIS and C. G. COETZEE. 1964. *An interim classification of Southern African Mammals*. Roneoed and distributed with the assistance of the Zoological Society of South Africa and the Council for Scientific and Industrial Research.
- SKEAD, C. J. 1958. Mammals of the Uitenhage and Cradock districts C.P., in recent times. *Koedoe* 1: 19-59.
- SKEAD, C. J. 1965. Report on the bird-life in the Mountain Zebra National Park, Cradock, C.P. 1962-1964. *Koedoe* 8: 1-40.