An annotated checklist of the amphibians, reptiles and mammals of the Nylsvley Nature Reserve

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A report of the Savanna Ecosystem Project
National Programme for Environmental Sciences

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PREFACE

The Savanna Ecosystem Project of the National Programme for Environmental Sciences is one of several national scientific programmes administered by the CSIR. The National Programme is a cooperative undertaking of scientists and scientific institutions in South Africa concerned with research related to environmental problems. It includes research designed to meet local needs as well as projects being undertaken in South Africa as contributions to the international programme of SCOPE (Scientific Committee on Problems of the Environment), the body set up in 1970 by ICSU (International Council of Scientific Unions) to act as a focus of non-governmental international scientific effort in the environmental field.

The Savanna Ecosystem Project being carried out at Nylsvley is a joint undertaking of more than fifty scientists from the Department of Agricultural Technical Services, the Transvaal Provincial Administration, the CSIR, the Transvaal Museum, and eight universities. As far as possible, participating laboratories finance their own research within the project. The shared facilities at the study area and the research of participating universities and museums are financed from a central fund administered by the National Committee for Environmental Sciences and contributed largely by the Department of Planning and the Environment.

The research programme of the Savanna Ecosystem Project has been divided into three phases - Phase I (mid 1974 to mid 1976) - a pilot study of the Nylsvley study area, in particular the description and quantification of structural features of the ecosystem, Phase II (mid 1976-1979) - studies in the key components and processes including the development of mathematical models, and Phase III (1979-1984) - extension to other sites and the study of management strategies for the optimal utilization of *Burkea* savanna ecosystems.

The present report contributes to a series of Savanna Ecosystem Project reports describing features of the faunal structure.

ACKNOWLEDGEMENTS

It is a pleasure to express my gratitude to Mr K Hoffman (Division of Nature Conservation) for his help in collecting records; Dr S M Hirst for initiating the survey and for his continued support; Mr N J Dippenaar (Transvaal Museum) for assistance in the identification of shrews; Mr I L Rautenbach (Transvaal Museum) for his list of species collected on the farm Mosdene which has proved invaluable in enabling me to arrive at an accurate picture of the mammals of the area; and to Messrs W R Tarboton, G vd H Whitehouse, C Bragg, I D Temby, R C Carr and N I Passmore for valuable discussions.

TITLES IN THIS SERIES

1. A description of the Savanna Ecosystem Project, Nylsvley, South Africa. December 1975. 24 pp.

2. Sensitivity analysis of a simple linear model of a savanna ecosystem at Nylsvley. W M Getz and A M Starfield. December 1975. 18 pp.

3. Savanna Ecosystem Project - Progress report 1974/1975. S M Hirst. December 1975. 27 pp.

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15. A checklist of the birds of the Nylsvley Nature Reserve. W R Tarboton. September 1977. 14 pp.

16. Grondsoorte van die Nylsvley-natuurreservaat. H J von M Harmse. September 1977. 64 pp.

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19. Introducing you to satellite operated Data Collection Platforms (DCP's). C C Stavropoulos. September 1977. 9 pp.

20. A phytosociological classification of the Nylsvley Nature Reserve. B J Coetzee, F van der Meulen, S Zwanziger, P Gonsalves and P J Weisser. December 1977. 31 pp.

21. An annotated checklist of the amphibians, reptiles and mammals of the Nylsvley Nature Reserve. N H G Jacobsen. December 1977. 65 pp.

ABSTRACT

A survey of the distribution, status and general ecology of amphibians, reptiles and mammals was undertaken on the Nylsvley Nature Reserve, Transvaal from mid-1974 to mid-1977 as part of the South African Savanna Ecosystem Project. A total of 18 frog, 3 tortoise, 1 terrapin, 23 lizard, 1 amphisbaenid, 29 snake and 62 mammal species were recorded on the Reserve. As new additions continued to be made late in the survey, it is clear that the checklist is not yet complete.

SAMEVATTING

'n Opname van die verspreiding, status en algemene ekologie van amfibieë, reptiele en soogdiere op die Nylsvley-natuurreservaat, Transvaal is van middel 1974 tot middel 1977 onderneem as deel van die Suid-Afrikaanse Savanne-ekosisteemprojek. 'n Totaal van 18 padda-, 3 skilpad-, 1 waterskilpad-, 23 akkedis-, 1 wurmakkedis, 29 slang- en 62 soogdierspesies is op die Reservaat aangeteken. Aangesien nuwe byvoegings tot laat in die opname gemaak is, is dit duidelik dat die lys nog nie volledig is nie.

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INTRODUCTION

With the destruction of natural habitats in South Africa, the conservation of representative threatened ecosystems as nature reserves is becoming increasingly important.

The Nylsvley Nature Reserve is of special conservation interest, encompassing a large area of the Nyl River floodplain, a wetland renowned for its large waterfowl population (Tarboton 1971, 1977). The surrounding savanna communities also support a diverse avifauna while their reptile, amphibian and mammalian populations are rich in species if not in numbers.

The Reserve was originally developed as a cattle ranch with small areas under cultivation but at the same time was a private nature reserve. Conditions on the farm therefore permitted the establishment of breeding populations of animals which might otherwise have disappeared from the area. Part of the Reserve is now used as the intensive study site of the Savanna Ecosystem Project.

VEGETATION

A detailed phytosociological description of Nylsvley Nature Reserve is provided by Coetzee *et al* (1976). Only a brief account of the main vertebrate habitats need be given here.

Nylsvley Nature Reserve covers 3 120 ha of Mixed Bushveld (Acocks 1953) and lies on an extensive flat to gently undulating plain between 1 080 m and 1 140 m altitude. The Reserve comprises the farm Nylsvley 560 KR, situated between 24°36' and 24°42' S latitude and 28°40' and 28°44' E longitude, on the Springbok flats, 10 km south of Naboomspruit, Transvaal, South Africa. Two hills feature prominently, namely Maroelakop (1 140 m) in the south-east and Stemmerskop (1 090 m) slightly west of the former. The area is bisected by the Nyl River which flows along a shallow valley trending south-west to north-east. The terrain to the south and east is essentially sandy with the exception of Maroelakop and Stemmerskop which are formed by sandstones of the Waterberg System. The area to the west and north is underlain by loam or clay, particularly along the flat country flanking the Nyl River. Termitaria are a common feature of the north-western section.

Bushclump savanna (Coetzee et al *1976 - types 1.3, 2.1)*

This vegetation type is essentially medium to tall grassland interspersed with numerous termitaria which carry distinctive thickets. Prominent grasses include *Elionurus argenteus, Loudetia flavida, Tristachya rehmannii, Setaria perennis* and *Digitaria monodactyla*. The bushclumps consist of a variety of woody species such as *Acacia tortilis, Rhus pyroides, R leptodictya, Zizyphus mucronata* and *Pappea capensis*.

This habitat is of importance to the vertebrate fauna, with at least one herd of impala *Aepyceros melampus* as well as grey duiker *Sylvicapra grimmia* resident, while kudu *Tragelaphus strepsiceros*, reedbuck *Redunca arundinum* and warthog *Phacochoerus aethiopicus* also utilize the area at times. The red veld rat *Aethomys chrysophilus* is resident in the bushclumps.

Combretum apiculatum *savanna (Coetzee* et al *1976 - type 1.3.1)*

This includes the area surrounding the homestead and extends to the boundary fence in the west. The greatest part lies on a felsite knoll with small scattered rocky outcrops. It is mainly dominated by *Combretum apiculatum* while *Vitex rehmannii, Combretum molle, C zeyheri, Peltophorum africanum, Terminalia sericea* and *Dombeya rotundifolia* are important constituents. Scattered termitaria are found throughout this savanna, with the woody species mentioned under Bushclump savanna. The grass cover is generally poor, being mainly sourveld. Impala and duiker are resident while kudu also utilize the area. Warthog are found mainly on the lower slopes adjoining the flats and use the numerous burrows dug by antbears *Orycteropus afer* in termitaria. The stony knoll forming the centre of this vegetation type is the sole known habitat of the ocellated sandveld lizard *Eremias lineoocellata lineoocellata*, in the Reserve.

Diplorhynchus condylocarpon *savanna (Coetzee* et al *1976 - type 1.2)*

Restricted to the three elevated areas forming low hills of Waterberg sandstone and conglomerates in the south and south-east. These areas are covered by savannas of varying composition. *Diplorhynchus condylocarpon* is the most prominent tree and characterises this association. Other typical trees and shrubs of these hills are *Pseudolachnostylis maprouneifolia, Combretum molle, C zeyheri, Burkea africana, Ochna pulchra* and *Barleria bremekampii*. The grass cover is sparse and varied.

These areas are very rocky with frequent large exposed sheets of bedrock. The broken nature of the terrain offers shelter to small mammals which move down to lower elevations to hunt or feed in the *Burkea* savanna. While these areas are probably only important to kudu and duiker, impala also utilize the slopes to feed. The existence of the Natal red hare *Pronolagus crassicaudatus* on Maroelakop is possibly due to the protection offered by rocks and it is mainly restricted to this habitat.

Small rock outcrops within the *Burkea* savanna can be considered part of the above association as the vegetative composition is essentially similar and therefore harbours mammal species characteristic of rocky hills.

Burkea africana *savanna (Coetzee* et al *1976 - type 1.1)*

This vegetation association is to be found mainly on the higher slopes on deeper sandy soils. The greater portion of the South African Savanna Ecosystem Project study area falls within this community.

The more prominent trees of this type include *Burkea africana, Terminalia sericea, Combretum zeyheri, C molle, Ozoroa paniculosa, Strychnos pungens, S cocculoides* and *Securidaca longipedunculata*. The last three species are characteristic of the area. Common shrubs include *Grewia flavescens* and *Ochna pulchra*. The main grasses are *Eragrostis pallens* and *Digitaria eriantha* while under the shade of trees and shrubs *Panicum maximum* is dominant. This savanna is also noted for the presence of gifblaar *Dichapetalum cymosum* which is extremely poisonous to cattle during the period of its pre-rain flush.

Acacia *savanna (Coetzee* et al *1976 - types 2.1, 2.2)*

This vegetation type is one of the more important in the Reserve and flanks the Nyl River floodplain for most of its length. The soil is a fairly compact reddish loam to clay. The vegetation is dominated by microphyllous tree savanna. The prominent trees are *Acacia tortilis, A karroo, Dichrostachys cinerea, Zizyphus mucronata* and *Rhus pyroides*, while many other species occur on the numerous termitaria found in the area. *Carissa bispinosa* and *Euclea undulata* are prominent shrubs on termitaria. In more open areas *Acacia tortilis* is the most dominant species with occasional *Boscia foetida* var *rehmanniana*. The grass *Sporobolus iocladus* and the forb *Ocimum canum* are the most characteristic herbaceous species. Elsewhere the grass cover is very varied depending on the compactness of the soil and thus soil water holding capacity. *Heteropogon contortus* is a common grass.

Numerous shallow depressions form ephemeral pans in the area which are of importance to amphibians as breeding sites and to which they migrate at the onset of the first heavy rains. During the dry season these areas are covered by short grass and are utilized by impala. Kudu, impala, steenbuck *Raphicerus campestris* and warthog are common residents of this vegetation type.

Grassland (Coetzee et al *1976 - types 1.3.2.2, 3a, 3b)*

Areas of open grassland with tall grass species are found throughout the Reserve, mainly in low lying areas interspersed with the foregoing savanna types, many following shallow drainage lines. Most of the grasslands, however, flank the Nyl River floodplain or the *Acacia* savanna. *Tristachya rehmannii* is one of the more important species in some lowlands, but more commonly a mixed dominance of varying importance is found comprising *Elionurus argenteus, Schizachyrium jeffreysii, Rhynchelytrum villosum, Trachypogon spicatus, Digitaria monodactyla* and *Setaria perennis*.

A large lowland area with soils of black clay, the so-called turf vlei, and surface or sub-surface calcium carbonate concretions trends south to north-east. The soil surface is uneven and cracks during the dry season. This area is subject to inundation during periods of heavy rainfall. On account of the uneven surface, grass species vary in dominance, but *Setaria woodii, Dicanthium papillosum, Aristida bipartita* and the sedge *Scirpus dregeanus* are common. To the north-east of Stemmerskop this vegetation has been invaded by *Acacia nilotica* and *A karroo*. In the southern part of the area this vegetation has been modified by ploughing and is dominated by the grass *Dinebra retroflexa*.

The turf vlei grasslands are of importance to the Reserve's reedbuck population. Warthog are also abundant in these grasslands, as are shrews and several rodents.

Nyl River floodplain (Coetzee et al *1976 - Nyl River and marshy area)*

Marshy vegetation is found on the low-lying Nyl River floodplain. *Oryza longistaminata* is a common grass in the wetter areas and is of importance to the numerous warthog feeding here, which uproot large patches in search of the rhizomes. Sedges are important and several small reedbeds *Phragmites australis* are found providing nesting sites for a variety of birds.

The Cape clawless otter *Aonyx capensis* and the marsh mongoose *Atilax paludinosus* hunt and reside here while the shallow waters of the inundated flood plain provide ample breeding sites for the amphibians of the area. Fish, in particular barbel *Clarias gariepinus*, are abundant in the Nyl River and in the shallow water of the floodplain. Depressions which hold water longer than the floodplain become fish traps and hundreds of young fish, particularly barbel, are trapped here, providing food for a variety of birds and mammals. During May, pied crows *Corvus albus* were seen catching barbel in such pans. In the dry season the area is visited by warthog, impala and possibly steenbuck, while rodents and shrews are abundant.

METHODS

During 1974, 1975 and 1976, observations were made on all non-avian vertebrates encountered on the Reserve. Smaller mammals such as rodents, shrews and bats were trapped or collected within the various vegetation types. Trapping of rodents was done by placing traps along runways, near holes and piles of vegetation where the likelihood of obtaining specimens was favourable. Larger mammals were observed directly or by the examination of spoor along roads and paths in the area. Spotlight surveys were made on moonless nights to determine the presence of nocturnal species. This method was also used for collecting snakes, particularly after a heavy downpour.

The scraping of the boundary road facilitated the discovery of two specimens of an amphisbaenid as well as one snake. Additional observations were made by K Hoffman while burning fire breaks and on other tours of duty.

A list of mammals collected by the Transvaal Museum on the farm Mosdene, some three kilometers south-east of Naboomspruit and lying approximately six kilometers north of Nylsvley, substantiates existing records and indicates possible additions to the checklist.

ECOLOGICAL NOTES

A variety of factors influence the distribution of the vertebrate fauna on the Reserve. The reptiles and amphibians are perhaps the most sensitive and are influenced mainly by edaphic, climatic and vegetation factors whereas the mammals, being homoiothermic, are largely independent of the edaphic and climatic factors but more dependent on vegetation factors.

The influences of the edaphic and climatic factors are best illustrated by certain species such as the puffadder *Bitis arietans* which exhibit some movement from the low-lying wetland areas in May to avoid the extremely low temperatures during winter and return during August/September to utilize the grasslands and floodplains through the summer months. These grasslands have a relatively abundant rodent fauna essentially composed of three species, one of which, *Otomys angoniensis*, appears to be frequently eaten by these adders. A similar migration pattern is seen amongst the amphibians where many species hibernate in the *Burkea* savanna during the months June to September, only to emerge with the first rains and move down

the slope to the water where reproductive activity takes place. These animals then return to hibernate in late summer. Species such as the bicoloured quill-snouted snake *Xenocalamus bicolor*, the lined shovel-snout snake *Prosymna sundevalli*, the Cape worm lizard *Monopeltis capensis* and Sundevall's skink *Riopa sundevalli* are edaphic-dependent species requiring a sandy substrate in which to live, while the golden mole *Amblysomus hottentottus* is also restricted to this sandy soil.

The majority of mammals and also some reptiles and amphibians are restricted or show a preference for certain vegetation types or habitats. This can be illustrated by reedbuck which live predominantly in the grassy areas of the Reserve. Cane rats *Thryonomys swinderianus* are only found in rank vegetation along the Nyl River while the black musk shrew *Crocidura mariquensis* is found in marshy areas. Among the reptiles the boomslang *Dispholidus typus* and vine snake *Thelotornis capensis* are both arboreal as are many species of lizards. The vine snake shows an apparent seasonal preference for *Grewia flavescens* shrubs and *Strychnos pungens* trees.

The variety of species per vegetation type is illustrated in Table 1.

Table 1. Numbers of species of amphibians, reptiles and mammals according to vegetation type at Nylsvley.

Vegetation Type	Amphibians	Reptiles	Mammals	Total
Burkea africana savanna	11	41	43	95
Diplorhynchus savanna (rocky outcrops)	5	32	25	62
Combretum apiculatum savanna	7	35	39	81
Acacia tortilis savanna	12	33	37	82
Bushclump savanna	10	35	37	82
Grassland	14	28	31	73
Nyl River floodplain	15	11	17	43
Total number of species assessed = 132 (23 lizards, 1 amphisbaenid, 17 frogs, 29 snakes and 62 mammals)				

The diversity of species in the *Burkea* savanna is probably due to the sandy nature of the soil which gives another dimension to the structure of this habitat. There are at least four species of vertebrate restricted to the Study Area while several others occur more frequently in this habitat than elsewhere in the Reserve. Animals such as the golden mole *Amblysomus hottentottus*, the Cape worm lizard *Monopeltis capensis*, the bicoloured

quill-snouted snake *Xenocalamus bicolor* and Sundevall's skink *Riopa sundevalli* are restricted to this area. Each of the major vegetation types have "endemic" species while a large proportion of the vertebrate species occur throughout the Reserve.

Microhabitat preferences shown by saurian and amphisbaenian genera are illustrated in Figure 1.

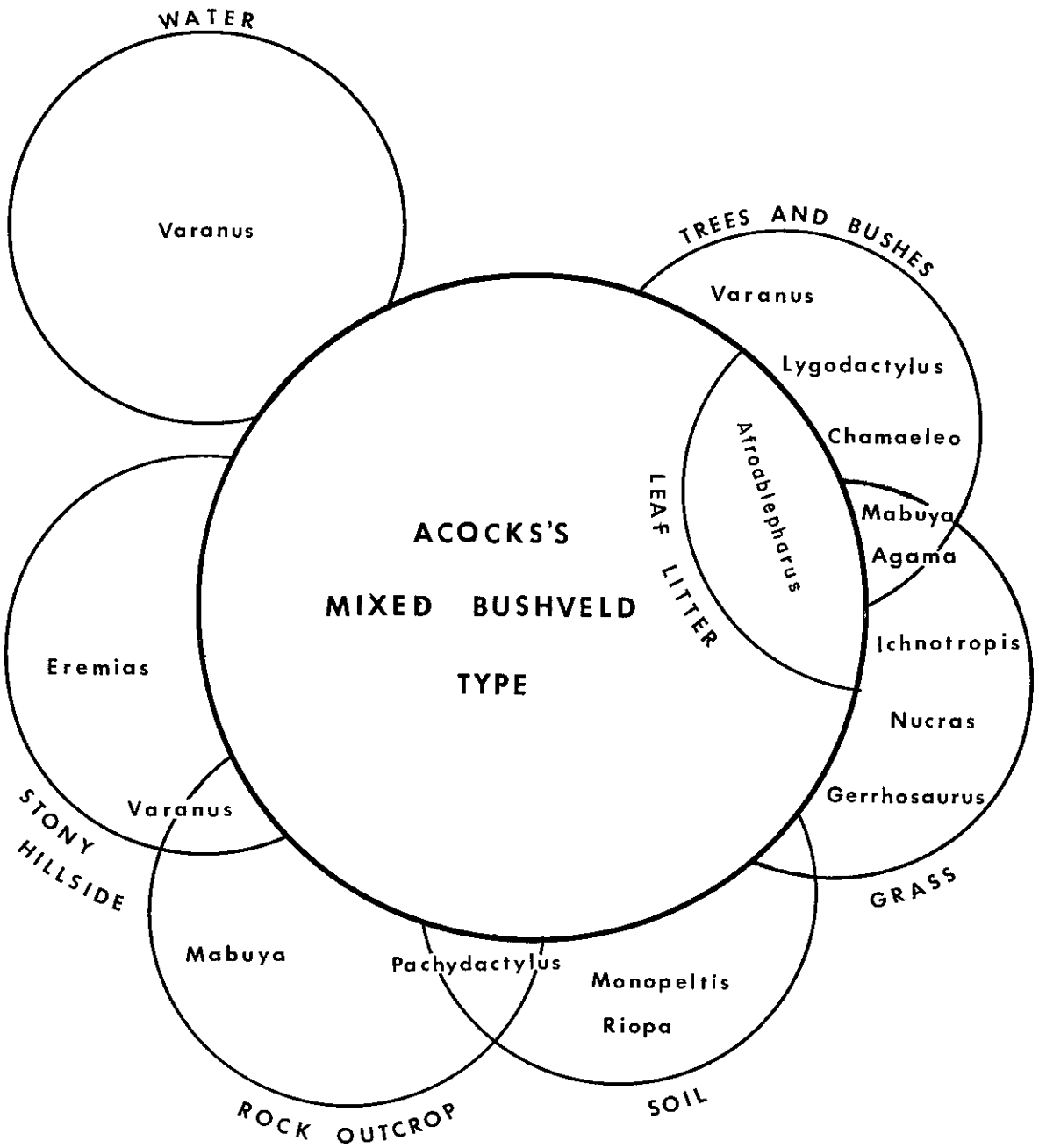


Figure 1. Habitats and microhabitats occupied by various saurian and amphisbaenian genera on Nylsvley.

The *Burkea* savanna can be further sub-divided into several strata in which saurians and amphisbaenids occupy the following microhabitats -

Soil	deep	*Monopeltis capensis*
	shallow	*Riopa sundevalli*
Soil surface	grassy areas	*Ichnotropis capensis*
	leaf litter	*Afroablepharus wahlbergi*
	around bases of trees and shrubs	*Mabuya varia* *Ichnotropis capensis* *Afroablepharus wahlbergi*
Shrubs	bole	*Lygodactylus capensis* - mainly juveniles and subadults
Trees	bole	*Lygodactylus capensis* - adults *Agama atricollis* *Mabuya varia*
	branches	*Lygodactylus capensis*
Dead logs		*Lygodactylus capensis* *Mabuya varia*

A zonal distribution pattern is evident, although perhaps not as rigid as suggested above. *Mabuya varia* forages mainly on the ground but is frequently observed clinging to the bole of trees 30 to 60 cm above the ground and on rare occasions will climb up into the branches if disturbed.

The variety of lizards in any one habitat type and even over the whole Reserve is not as great as that of desert areas, as for instance in Australia where as many as 40 species of lizards may be found in a single habitat type (Pianka 1969).

Apart from the above distributional influences, food availability determines the extent of searching movements. This factor increases in importance in higher trophic levels. Thus the majority of secondary and tertiary consumers have large home ranges encompassing a wide variety of habitats. There is therefore a greater degree of mobility but less specialization in food specificity. The primary and some secondary consumers on the other hand are not as extensive in movements as the above and a considerably greater degree of habitat specialization may be found.

Van Dijk (1971) correlates the type of food of anurans with mode of locomotion and habitat. This correlation is not supported by Nylsvley evidence where the majority of secondary and tertiary consumers have a

diverse diet. Food preferences may therefore vary between localities, as indicated in the common rain-frog *Breviceps mossambicus* which is generally a termite eater but many specimens of which were found to feed exclusively on several species of small black ants (Hymenoptera) on Nylsvley.

In the Study Area rodents are sparsely distributed and only the black-eared climbing mouse *Dendromus melanotis*, is relatively frequent. The lizards and amphibians therefore provide the main food source for secondary and tertiary consumers. The commonest snakes found in the *Burkea* savanna are the vine snake *Thelotornis capensis* and the short-snouted sand snake *Psammophis sibilans brevirostris*, both of which are almost wholly lizard eaters, as are several of the less common snakes. Although some exclusively frog eaters are relatively common, it is surprising that this food source, which probably has a biomass in excess of the reptiles, is not exploited to a greater extent.

THE CHECKLIST

The present checklist is incomplete in many respects, but provides an indication of the Reserve's faunistic diversity. Discussions with local residents and literature surveys suggest that at least 13 further species of non-avian vertebrate might be added to the present checklist, viz -

Tomopterna krugerensis	Sandveld pyxie
Pelusios sinuatus	Hinged terrapin
Pachydactylus punctatus punctatus	Spotted thick-toed gecko
Gerrhosaurus nigrolineatus nigrolineatus	Black-lined plated lizard
Typhlops schlegeli schlegeli	Giant blind snake
Lycodonomorphus rufulus rufulus	Brown water snake
Elaps dorsalis	Striped dwarf garter snake
Causus rhombeatus	Common night adder
Crocidura cyanea infumata	Reddish-grey musk shrew
Otomys irroratus	Vlei rat
Dasymys incomptus	Swamp rat
Poecilogale albinucha	Snake polecat
Felis caracal	Caracal

The checklist follows the classification of FitzSimons (1943, 1962), Meester and Setzer (1971), Pienaar (1966), Pienaar *et al* (1976) and Poynton (1964) with more recent nomenclatural changes in the reptiles based on personal communication from Mr W D Haacke (Transvaal Museum).

CLASS AMPHIBIA

Order : ANURA Family : PIPIDAE

Xenopus laevis laevis (Daudin)

Common clawed frog (Gewone platanna)

Common along the Nyl River and other drainage lines where water is relatively permanent. An aquatic frog, it rarely emerges from the water, only rising up to the surface to breathe before diving again. In the rainy season it may be found moving across country when the soil is wet during and after a shower of rain. The tips of the toes are clawed, hence the name. It is insectivorous and to a certain extent carnivorous, feeding on tadpoles, fish and other animals which it can overpower. Breeding occurs in the summer months.

Order : ANURA Family : BUFONIDAE

Bufo regularis Reuss

Common toad (Gewone skurwepadda)

Recorded in the Reserve in both *Combretum apiculatum* savanna and in the Study Area but is expected over most of the Reserve, hibernating away from the low-lying areas during winter. It breeds in the shallow waters of the Nyl River floodplain as well as in large pans.

Order : ANURA Family : BUFONIDAE

Bufo garmani Meek

Northern mottled toad (Noordelike gevlekte skurwepadda)

Widespread in the Reserve but is most abundant in the Study Area. Large numbers of juveniles hibernate in the *Burkea* savanna, moving up from the turf vlei during February to May. The adult emerges in September to November to breed in the vlei areas. Nocturnal, but has been heard calling during the day at the onset of the breeding season in September.

Order : ANURA Family : BUFONIDAE

Schismaderma carens Smith

Red toad (Rooiskurwepadda)

Occasional, mainly around the homestead but also under stones in *Combretum apiculatum* savanna and in the Study Area. Probably widespread in the Reserve, but uncommon.

Order : ANURA Family : MICROHYLIDAE

Breviceps mossambicus adspersus (Peters)

Common rain-frog (Gewone blaasop)

Recorded mainly from the *Burkea* savanna where it is abundant. Also found in other areas of the Reserve except for the floodplain and other low-lying areas which are seasonally inundated, as this frog is a poor swimmer. It is a specialised frog, aestivating underground only to emerge when atmospheric humidity is high. On cloudy, warm, moist days it may be heard calling vigorously. Very susceptible to dehydration and quickly burrows into the soil. It is an efficient burrower, descending backwards into the soil with the aid of spade-like tubercles on the hindfeet. The rain-frog does not hop or leap but progresses by walking and feeds largely on small black ants (Hymenoptera). It utters an astonishingly loud cry in distress and may void water under these circumstances. The eggs are laid in a spherical nest underground and the young emerge in late summer and early autumn.

Order : ANURA Family : MICROHYLIDAE

Phrynomerus bifasciatus bifasciatus (Smith)

Red-banded frog (Rooibandpadda)

Probably occurs throughout the Reserve with the possible exception of areas far from water. It hibernates in rotting logs and in holes in the ground during winter, emerging after the first heavy rains to breed in shallow water such as pans and along the floodplain. Appears to be common, judging by the number of trilling calls heard at night, but is not often seen. It is a slow-moving frog preferring to walk stiltedly, but hops if disturbed. Feeds on termites (Isoptera) and other slow-moving prey. If the animal is moving about, the skin forms a layer of mucus which apparently retards dehydration, to which it is very susceptible. Skin secretions are poisonous and very irritating to the eye membranes.

Order : ANURA Family : RANIDAE

Pyxicephalus adspersus adspersus Tschudi

African bullfrog (Afrikaanse brulpadda)

Rare in the Reserve, frequenting shallow ephemeral pans. Its booming calls is often heard at night at the onset of the rainy season. As with the bullfrogs found in the Kruger National Park, it does not appear to grow to the large sizes seen on the highveld. It hibernates by digging burrows in moist soil, only to emerge after the first heavy spring rains, when it makes its way to the pans to mate and breed. Young bullfrogs were found in March under a rotting log. Probably restricted to the low-lying areas along the Nyl River in *Acacia tortilis* savanna but may wander further afield.

Order : ANURA Family : RANIDAE

Tomopterna delalandei cryptotis (Boulenger)

Striped pyxie (Gestreepte sandpadda)

Occasional throughout the Reserve but possibly preferring sandy soil such as may be found in the Study Area. As for the previous frogs, it aestivates underground in burrows which it digs itself and only appears with the first heavy spring rains. It is very susceptible to dehydration.

Order : ANURA Family : RANIDAE

Tomopterna natalensis Smith

Natal pyxie (Natal sandpadda)

Rare in the Reserve, being occasionally trapped in the Study Area, but is probably more widespread in other habitats. Has also been recorded from Mosdene.

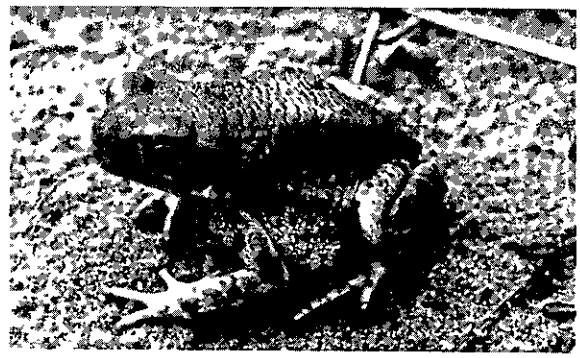
Order : ANURA Family : RANIDAE

Rana angolensis Bocage

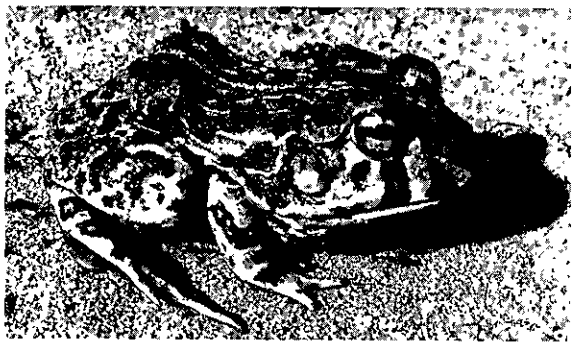
Common rana (Gewone rivierpadda)

Common throughout the low-lying grassy areas of the Reserve especially in vleis and along the floodplain. It is often heard along the Nyl River throughout the year with the exception of the winter months. Has also been recorded on Mosdene. It is restricted to wetlands and sits by day on the banks of the river under grass but leaps into the water at the first sign of danger.

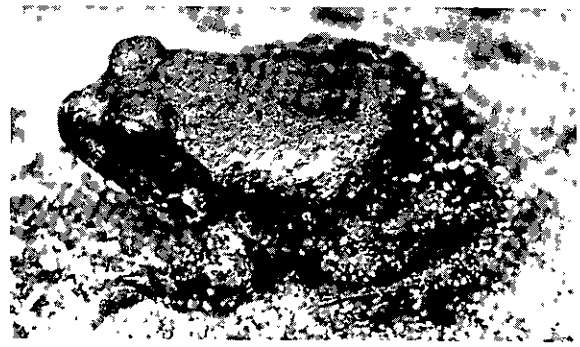
Bufo regularis



Schismaderma carens



Pyxicephalus adspersus adspersus



Tomopterna natalensis

Rana fasciata fasciata

Kassina senegalensis

Order : ANURA Family : RANIDAE

Rana fasciata fasciata Smith

Striped rana (Gestreepte rivierpadda)

Common along the Nyl River floodplain and other drainage lines. It moves away from these areas during the late rainy season so that it may be found far afield. Two adults were captured in a trap in *Burkea* savanna. Its clicking call may be heard throughout the year with the exception of the winter months. An agile frog, living in grass tussocks, it hides during the day but emerges after dark to feed.

Order : ANURA Family : RANIDAE

Ptychadena anchietae Günther

Red-backed grass-frog (Rooirug-graspadda)

Occasional throughout the wetter areas of the Reserve but is also fond of shallow pans in *Acacia tortilis* savanna such as those formed by warthog. At such sites, small numbers may be found hiding under grass or bushes at the waters edge and even further back in some instances. From these places of concealment they leap quickly into the water upon being disturbed, usually coming up to the surface some distance away. On occasions they may attempt to hide in grass tussocks.

Order : ANURA Family : RANIDAE

Ptychadena mossambica (Peters)

Mozambique grass-frog (Mosambiekgraspadda)

Rarer than the above grass frog but appears to occupy a similar habitat.

Order : ANURA Family : RANIDAE

Phrynobatrachus natalensis (Smith)

Common puddle-frog (Gewone plaspadda)

Abundant in the Reserve during the rainy season, being found in all habitats to which it moves in search of small pools in which to breed. It is most abundant along the floodplain and other more permanent bodies of water but even temporary puddles may harbour two or more animals. Nocturnal, hiding by day at the edge of pools or under vegetation or other sites, it moves about freely at night especially during a rain storm. Breeding occurs during the summer months.

Order : ANURA Family : RANIDAE

Phrynobatrachus ukingensis mababiensis FitzSimons

Dwarf puddle-frog (Dwergplaspadda)

Several specimens of both sexes were collected around shallow ephemeral pans along a drainage line. It is, however, probably more widespread in other low-lying areas of the Reserve, breeding in shallow water. It is amongst the smallest of frogs, being about 10 mm from nose to cloaca.

Order : ANURA Family : RANIDAE

Cacosternum boettgeri (Boulenger)

Boettger's dainty frog (Blikslanertjie)

Common in the Reserve in certain areas such as the floodplain and vlei areas, but rarer in the woodland areas. It requires a moist retreat during winter in which to hibernate and is commonly found under stones, rotting vegetation or logs. It is characterised by having a mottled or spotted ventrum.

Order : ANURA Family : RANIDAE

Chiromantis xerampelina xerampelina Peters

Grey tree-frog (Vaalboompadda)

Very rare in the Reserve, a single specimen being seen on a beam under the roof of the office building. Unfortunately it was not collected and no further specimens have been seen. Whether this specimen was accidentally introduced or whether it occurs naturally is difficult to assess. It can sit exposed to the sun during the day, becoming very white in coloration. It constructs a large foam nest from fluid excreted by glands and whipped to a froth by the hindfeet. The eggs hatch in this nest and the tadpoles wriggle themselves free of the nest to drop into the water above which the nest is invariably constructed.

Order : ANURA Family : RANIDAE

Kassina senegalensis (Dum & Bibr)

Short-toed running frog (Kort-toon lopende padda)

Abundant in the Reserve, being found wherever shallow water occurs, in particular the floodplain and other grassy areas. The characteristic call "quoink" can be heard at night and even during the day after a shower of

rain or on overcast days. It usually calls from tussocks of grass at the edge of or in shallow water as well as from the mouths of holes. During winter it hibernates in holes, rotting logs or under stones and rotting vegetation. It is abundant in the Study Area and is commonly trapped during the rainy season.

CLASS REPTILIA

Order : CHELONIA Family : TESTUDINIDAE

Kinixys belliana belliana Gray

Hinged tortoise (Skarnierskilpad)

Rarely seen in the Reserve and then mainly in the *Burkea* savanna. Mainly active in summer, hibernating when the weather becomes cool. It has a tendency to move to Maroelakop in late summer and remain there during winter.

Order : CHELONIA Family : TESTUDINIDAE

Testudo (Psammobates) oculifera Kuhl

Kalahari geometric tortoise (Kalahari geometriese skilpad)

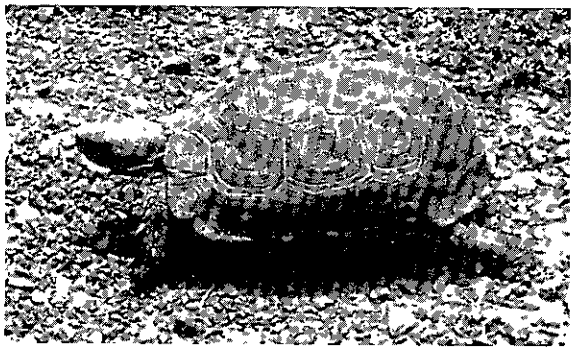
Rare on Nylsvley, seen on only three occasions in the sandveld of the Study Area. As with most reptiles, these tortoises also hibernate during the cold season when they bury themselves under piles of brush or bushes.

Order : CHELONIA Family : TESTUDINIDAE

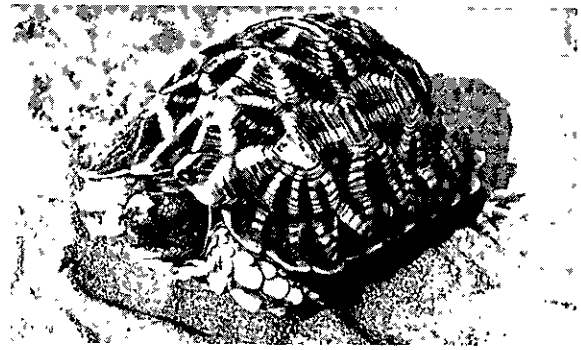
Testudo (Geochelone) pardalis babcocki Loveridge

Leopard tortoise (Bergskilpad)

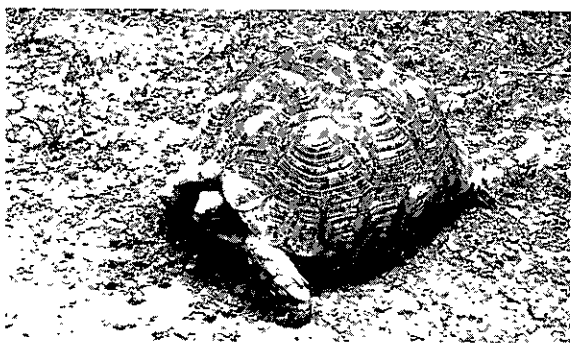
This is the most common of the three species of terrestrial tortoises found on Nylsvley and may be found throughout the Reserve with the possible exception of the Nyl River floodplain itself. Most frequently observed around Maroelakop where it possibly hibernates.



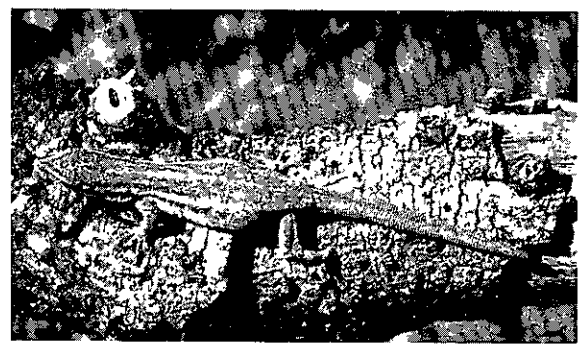
Kinixys belliana belliana



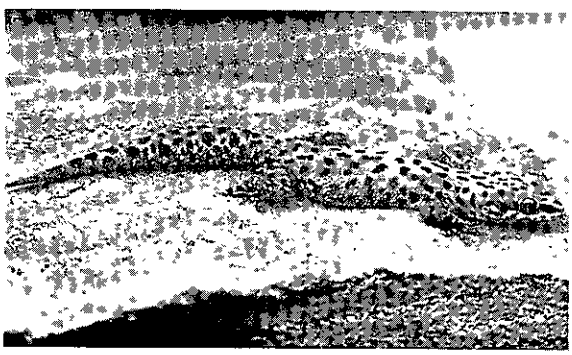
Testudo (Psammobates) oculifera



Testudo (Geochelone) pardalis babcocki



Lygodactylus capensis



Pachydactylus affinis affinis

Chamaeleo dilepis dilepis

Order : CHELONIA Family : PELOMEDUSIDAE

Pelomedusa subrufa (Lacépède)

Cape terrapin (Platdop waterskilpad)

Various reports of terrapins have been substantiated and the occurrence of this reptile is widespread on the Reserve including the Nyl River and floodplain as well as small seasonal pools in grassland and in the turf vlei. During the rains it wanders far afield in search of new pools. It is carnivorious, feeding on tadpoles, fish, frogs and anything it can overpower. The front feet are frequently used to push larger food objects away from the mouth so that the horny beak can tear off pieces.

Order : SQUAMATA Family : GEKKONIDAE
Sub-order : SAURIA

Lygodactylus capensis A Smith

Cape dwarf gecko (Kaapse dwerggeitjie)

Abundant throughout the Reserve where suitable bush and trees are found. It is diurnal and almost exclusively arboreal, only coming to ground to feed and when moving from one tree to another. It is very agile and when captured often utters a loud squeak. Foraging usually takes place near the base of the tree where the lizard remains clinging head downwards 15 to 30 cm above the ground. Although active throughout the year, during the winter months fewer animals are seen. It has an extended breeding season over most of the year and two eggs are laid at a time. These eggs are soft when laid and adhere to each other. The eggs are placed in holes in wood, in crevices and under bark. Preferred sites may be used successively over several years and by several individuals so that up to 14 eggs have been seen together. The young hatch after approximately two months. Average weight of adult is 0,79 g.

Order : SQUAMATA Family : GEKKONIDAE
Sub-order : SAURIA

Pachydactylus capensis capensis A Smith

Cape thick-toed gecko (Kaapse diktoongeitjie)

A nocturnal terrestrial gecko which moves about slowly when foraging. Relatively rare in the Reserve with only five specimens having been seen during the survey. Three were in *Combretum apiculatum* savanna while two others were found in *Burkea* savanna. However, the species is probably more common than this suggests as it is found under stones, logs and frequently in deserted rodent burrows. Usually solitary and apparently restricted to the drier parts of the Reserve. Two eggs are laid in summer, usually under stones. The eggs are not joined and lie singly. An immature specimen was found during September.

Order : SQUAMATA
Sub-order : SAURIA

Family : GEKKONIDAE

Pachydactylus affinis affinis Boulenger

Transvaal thick-toed gecko (Transvaalse diktoongeitjie)

Only a single specimen has been found; this under a rock on an outcrop in *Combretum apiculatum* savanna. Usually solitary but on occasions two may be found in the same retreat. Nocturnal.

Order : SQUAMATA
Sub-order : SAURIA

Family : GEKKONIDAE

Pachydactylus bibroni turneri (Gray)

Bibron's thick-toed gecko (Bibron se diktoongeitjie)

One of the largest of southern African geckos, it is mainly rupicolous on the Reserve. Nocturnal, spending the day resting in cracks and crevices between rocks. The eggs are laid under stones or rocks during the summer months and one collected on Maroelakop during December measured 16 x 15 mm. As it is known to inhabit termitaria in other parts of Africa, it is possible that this lizard may be more extensively distributed in the Reserve. It is a powerful gecko with strong jaws which can bite quite painfully.

Order : SQUAMATA
Sub-order : SAURIA

Family : AGAMIDAE

Agama atricollis A Smith

Tree agama (Boomkoggelmander)

Occasionally seen, mainly around the homestead but several have been captured in the Study Area and have also been seen below Maroelakop. Essentially arboreal but often seen on the ground crossing to another tree or feeding near the base of a tree. This diurnal lizard feeds mainly on ants, even of the smallest species. An adult was found to have nine bee stings in the roof of its mouth indicating that bees also are taken as food items. The eggs are laid in the ground during spring and the young hatch out during mid to late summer. This animal is characterised by the males possessing brilliant blue heads during courtship. Its strong jaws can inflict a painful but harmless bite.

Order : SQUAMATA
Sub-order : SAURIA

Family : AGAMIDAE

Agama hispida (Linnaeus)

Spiny agama (Stekelkoggelmander)

Rarely seen in the Reserve, having only been found in *Combretum apiculatum* savanna and in the Study Area. A terrestrial agama, sandy in colour, blending extremely well with its surroundings. This agama subsists largely on ants. The eggs are laid in December in a hole in the ground.

Order : SQUAMATA
Sub-order : SAURIA

Family : CHAMAELEONTIDAE

Chamaeleo dilepis dilepis Leach

Common flap-necked chameleon (Gewone trapsoetjie/verkleurmannetjie)

Widespread in the Reserve but only occasionally seen when crossing roads or while moving along a branch. Easily sighted at night with the aid of a torch.

Order : SQUAMATA
Sub-order : SAURIA

Family : SCINCIDAE

Mabuya capensis (Gray)

Three-lined skink (Driestreepskink)

Two specimens have thus far been collected on the Reserve, one in the Study Area and the other near the homestead. Indications are that it is rare. This sluggish skink lives in holes, under logs and in other suitable places. Completely terrestrial and diurnal in habit. It is solitary and can be expected in other parts of the Reserve with the exception of the Nyl River floodplain and *Diplorhynchus* savanna.

Order : SQUAMATA
Sub-order : SAURIA

Family : SCINCIDAE

Mabuya varia (Peters)

Variable skink (Varieërende skink)

One of the most abundant lizards in the Reserve being widespread with the exception of the floodplain and the turf vlei. It appears to be commonest in the *Burkea* savanna as well as Maroelakop and Stemmerskop. It is equally at home amongst the boulders of the rocky outcrops and hills as

in the bushes and trees of the Study Area. Diurnal, it forages actively in the leaf litter feeding on insects while one even regurgitated a snake-eyed skink *Afroablepharus wahlbergi* on capture. Four to eight eggs are laid at a time during mid-summer and the young hatch towards the end of summer. Average weight of adult is approximately 3,0 g.

Order : SQUAMATA
Sub-order : SAURIA

Family : SCINCIDAE

Mabuya sp (aff *M lacertiformis/variegata* complex)

This is a small skink, very similar to the variable skink but differing in being darker in colour with black spots on the back coalescing to form longitudinal lines interspersed with broken lines of white which are formed by white spots on the lower margin of each scale. There is a vertebral stripe of white formed by two adjoining rows of scales also with white-tipped scales. The head shields are dark-edged with scattered dark spots. In general this lizard is more depressed with a narrower head than *M varia*. It would thus appear to be intermediate between *M varia* and *M variegata*, the former being widespread in the Transvaal while the latter is restricted to the Transvaal north of the Soutpansberg.

This lizard is rupicolous, being found on large rocky outcrops such as Maroelakop, Stemmerskop and the ridge in the Vaalboskamp. It is sympatric with *M varia* on these outcrops but whereas the latter may be found in most habitats, the former is exclusively a rock dweller. Animals appearing to be in reproductive condition were found in summer.

Order : SQUAMATA
Sub-order : SAURIA

Family : SCINCIDAE

Mabuya striata punctatissimus (A Smith)

Striped skink (Gestreepte skink)

Occasionally seen in the Reserve but nowhere common except around the homestead. Rare in most of the woodland habitats of the Reserve, it is well adapted to living around human dwellings and is now probably more numerous than in the past. It is an arboreal, diurnal skink and is commonly seen basking on the walls of outbuildings and foraging from these elevated positions. The young are born during the summer months.

Order : SQUAMATA Family : SCINCIDAE
Sub-order : SAURIA

Riopa sundevalli sundevalli (A Smith)

Sundevall's skink (Sundevall se skink)

Appears to be restricted to the sandy areas of the Reserve, mainly in the *Burkea* savanna. A burrowing lizard with reduced fore- and hind limbs, it propels itself with snake-like sideways movements under loose sand. It is difficult to handle on account of its strong snake-like twistings. It is usually found under logs and stones and may be partially nocturnal as it has been seen moving about after dark.

Order : SQUAMATA Family : SCINCIDAE
Sub-order : SAURIA

Afroablepharus wahlbergi (A Smith)

Snake-eyed skink (Slangoogskink)

A small lizard occurring in all the woodland habitats of the Reserve. As in the previous species the limbs are reduced, but not to the same extent. It does not appear to burrow into the soil but tends to inhabit the litter layer where it snakes its way under leaves in search of food and shelter. It breeds during the rainy season, the males becoming bright orange-pink on the belly and throat. It is common in the Study Area but occasional elsewhere.

Order : SQUAMATA Family : SCINCIDAE
Sub-order : SAURIA

Acontias gracilicauda Essex

Slender-tailed legless skink (Dunstertpootlose skink)

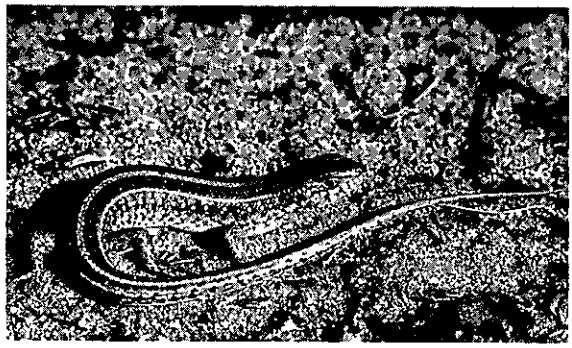
Rare, a single specimen was collected by E Grei on the main road through the turf vlei. It may be an accidental introduction as it is a highveld species and no additional specimens have been found.

Order : SQUAMATA Family : LACERTIDAE
Sub-order : SAURIA

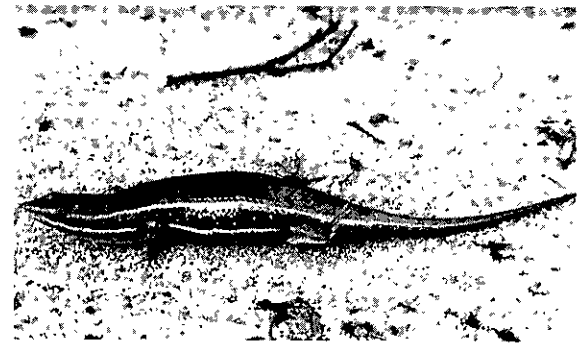
Nucras taeniolata ornata Gray

Ornate sandveld lizard (Gestreepte sandveldakkedis)

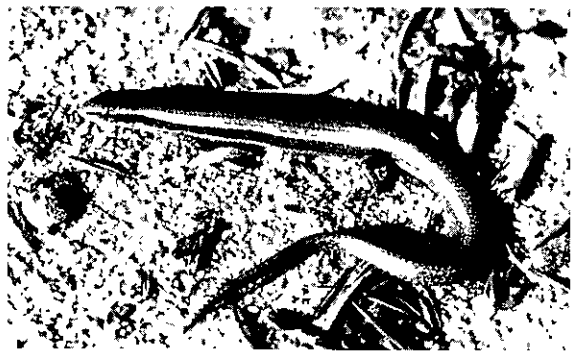
Rare in the Reserve, having only been recorded in *Combretum apiculatum* savanna on two occasions. Observed running from bush to bush under which



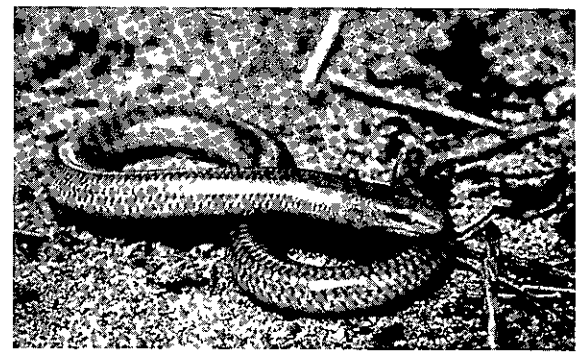
Mabuya capensis



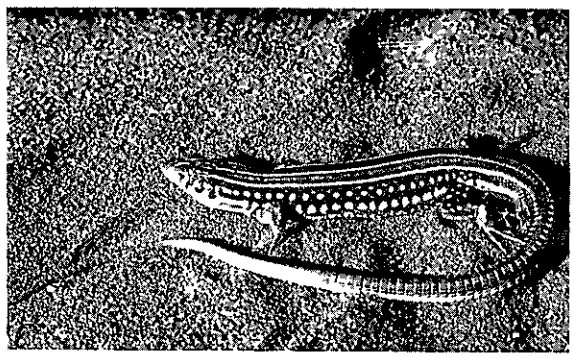
Mabuya varia



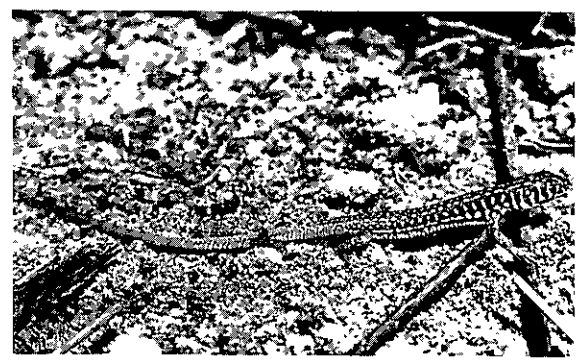
Afroablepharus wahlbergi



Acontias gracilicauda



Nucras taeniolata ornata



Nucras intertexta

it hid. Appears to be restricted to the harder soils such as those of the *Combretum apiculatum* savanna and possible also in *Acacia tortilis* savanna and in the grassland areas. It does not occur in the Study Area where its place is taken by the spotted sandveld lizard.

Order : SQUAMATA Family : LACERTIDAE
Sub-order : SAURIA

Nucras intertexta (A Smith)

Spotted sandveld lizard (Gevlekte sandveldakkedis)

More common than the above species and restricted to the *Burkea* savanna of the Study Area where four specimens have been found. Diurnal.

Order : SQUAMATA Family : LACERTIDAE
Sub-order : SAURIA

Eremias lineoocellata lineoocellata Dum & Bibr

Ocellated sandveld lizard (Kollerige sandveldakkedis)

This lizard is restricted to the *Combretum apiculatum* savanna and surrounding areas where the soil is compact. Rare, it is mainly seen along the stony knoll behind the homestead where it favours a rocky surface with small stones between grass tussocks, taking refuge under stones when disturbed and only running short distances, tiring rapidly if chased repeatedly. Up to six eggs are laid during summer, the young appearing some two months later. The paucity of adults during autumn suggests that the species might have a short life expectancy.

Order : SQUAMATA Family : LACERTIDAE
Sub-order : SAURIA

Ichnotropis squamulosa Peters

Mozambique rough-scaled sand lizard (Mosambiek grofgeskubde sandveldakkedis)

Has only been recorded on a single occasion in the Reserve in the lower part of the *Burkea* savanna. This species is not typically a savanna species but prefers open sandy grassland and can therefore be expected to occur in such habitats. On occasions found sympatrically with the following species.

Order : SQUAMATA
Sub-order : SAURIA

Family : LACERTIDAE

Ichnotropis capensis (A Smith)

Cape rough-scaled sand lizard (Kaapse grofgeskubde sandveldakkedis)

Widespread in the *Burkea* savanna where it is abundant. It may be found in the sandy grassland areas bordering on the *Burkea* savanna. It is a diurnal lizard, most frequently seen during the mornings when it is most active. Usually seen running from tussock to tussock in short swift dashes and if pursued hides itself within the tussock between the grass culms. It also lives in holes and is probably able to dig these to suit its purpose. This lizard has a life expectancy of less than a year. Mating takes place in early summer and the eggs are laid towards December. The juveniles appear some two months later while the adults almost totally disappear by the end of January.

Order : SQUAMATA
Sub-order : SAURIA

Family : VARANIDAE

Varanus exanthematicus albigularis (Daudin)

White-throated monitor (Veldlikkewaan)

Common, but found mainly in the wooded areas of the Reserve such as *Combretum apiculatum* and *Burkea* savannas. It is a large clumsy diurnal lizard, found in a variety of places such as rocky outcrops and under the bark of trees. It weighs more than 3 kg when adult and is armed with strong jaws and claws. It feeds on a variety of animals including insects (Tenebrionid beetles) as well as small vertebrates and eggs. The eggs are laid during the summer months in a hole in the ground which may be 50 cm deep. One nest was found opened with the remains of two eggs in it, both of which showed signs of having been opened by a small carnivore, most likely a mongoose. The young are born in January/February. The adults are heavily predated on by the Martial eagle *Polemaëtus bellicosus*. Large numbers of ticks *Amblyomma* sp are found in nostrils and to a lesser extent on other parts of the body.

Order : SQUAMATA
Sub-order : SAURIA

Family : LACERTIDAE

Varanus niloticus niloticus (Linnaeus)

Nile monitor (Waterlikkewaan)

Occasionally seen along the Nyl River, sunbathing on the bridge across the Nyl and elsewhere along the river. A semi-aquatic animal, the Nile monitor is able to climb trees and move rapidly across the ground but is particularly graceful in water. Always found near permanent water where

it feeds on crabs, young birds, eggs, frogs, etc. The eggs are often laid inside living termitaria where the hatchlings dig their way out. Juveniles seen during May 1975.

Order : SQUAMATA Family : CORDYLIDAE
Sub-order : SAURIA

Gerrhosaurus validus validus A Smith

Giant plated lizard (Reuse pantserakkedis)

A single specimen was identified from a section of tail which was found near the homestead. A head was recovered from an eagle on the farm Deelkraal adjoining Nylsvley to the south. Diurnal and rupicolous in habits.

Order : SQUAMATA Family : CORDYLIDAE
Sub-order : SAURIA

Gerrhosaurus flavigularis flavigularis Wiegmann

Yellow-throated plated lizard (Geelkeelpantserakkedis)

Rare in the Reserve, having been recorded to date in the Study Area on three occasions. It is more suited to grassland areas and it is assumed that it will be more common in those habitats. Probably does not venture onto the floodplain.

Order : SQUAMATA Family : AMPHISBAENIDAE
Sub-order : AMPHISBAENIA

Monopeltis capensis capensis A Smith

Cape worm lizard (Kaapse wurmakkedis)

Restricted to the sandveld of the *Burkea* savanna where it is occasionally found. It burrows in loose soil, frequently at the base of trees and shrubs and also under decaying logs but may be found at a depth of 5 to 8 cm in the open between trees. Feeds mainly on soil arthropods.

Order : SQUAMATA
Sub-order : SERPENTES

The list of snakes for Nylsvley is considered almost complete with 29 species recorded thus far. Many species are nocturnal, only moving about on warm nights. In most species the mating season begins in spring and eggs or young are found in mid-summer. The greater activity seen in spring coincides with an abundance of prey species as the snakes, emerging from hibernation, are thin and require food after the period of fasting during the winter months. Of the 29 species known to occur only eight are dangerous to man. Of these, four are relatively common but infrequently seen and on the whole shy away from human intruders. The classification and nomenclature follows that of FitzSimons (1962).

Order : SQUAMATA
Sub-order : SERPENTES

Family : TYPHLOPIDAE

Typhlops lalandei Schlegel

Delalande's blind snake (Delalande se erdslang)

Rare, but widely distributed over the Reserve. Found under rotting logs and in compost heaps around the homestead, as well as under stones and in termite mounds. A burrowing snake which may be encountered on the surface during the rainy season. Feeds only on invertebrates.

Order : SQUAMATA
Sub-order : SERPENTES

Family : LEPTOTYPHLOPIDAE

Leptotyphlops distanti (Boulenger)

Transvaal worm-snake (Transvaalwurmslang)

Common on the Reserve, having been found in most habitats with the exception of the floodplain and other seasonally inundated areas. It occurs in a variety of sites such as under rocks on Maroelakop, in the Study Area, under logs, in termitaria and under grass tussocks. Appears to feed mainly on termites.

Order : SQUAMATA
Sub-order : SERPENTES

Family : PYTHONIDAE

Python sebae Gmelin

African python (Gewone luislang)

Occasionally seen in the Reserve but nowhere common. May be expected in all habitats as it is fond of water and prefers to live close to a permanent water source. It is, however, not restricted to this and is equally

at home in rocky koppies some distance away. A large male captured in 1974 weighed 44 kg and had a length of 4,25 m. This same snake was found to weigh 8 kg less almost two years later but at the end of the cold season. Feeds mainly on medium-sized vertebrates. A sluggish snake, it usually lies coiled up to wait for prey to pass by.

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

Boaedon fuliginosus fuliginosus (Boie)

Brown house snake (Bruinhuisslang)

Although not frequently recorded on the Reserve, it is probably common. Its presence can be expected over most of the Reserve with the exception of the floodplain. It has been recorded in *Combretum apiculatum* and *Burkea* savannas. A nocturnal snake feeding mainly on lizards such as *Mabuya varia* which is diurnal. Adults are very partial to rodents.

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

Lycophidion capense (A Smith)

Cape wolf snake (Kaapse wolfslang)

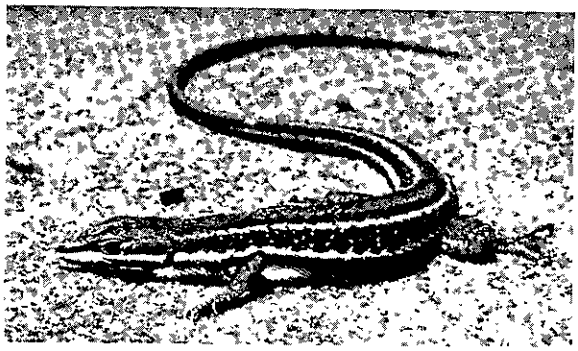
Probably widespread in the Reserve with the exception of the floodplain. Has only been recorded to date from the Study Area where it is occasionally found, particularly during the spring. Eggs are laid in summer. Feeds on lizards such as *Mabuya varia* and *Ichnotropis capensis*.

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

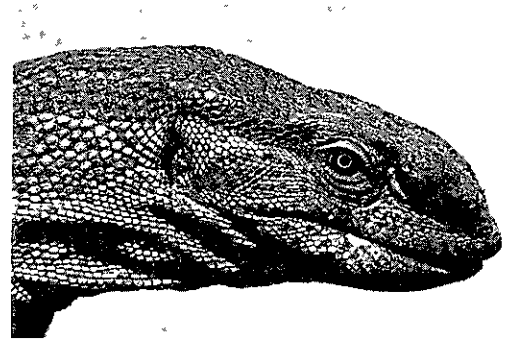
Mehelya capensis (A Smith)

Cape file snake (Kaapse vylslang)

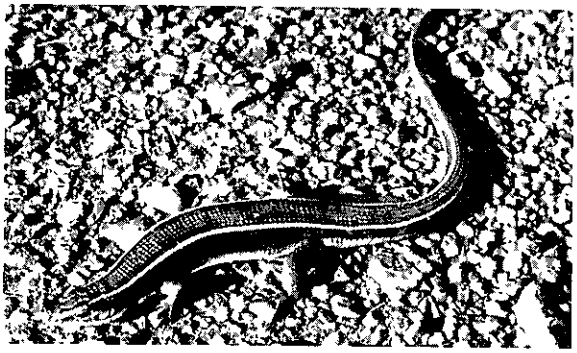
Rare in the Reserve and has only been collected on four occasions in the *Burkea* savanna of the Study Area but may be found over most of the Reserve. On capture it always buries its head under its body in a protective effort. It is completely harmless and should be afforded protection throughout the country. Feeds largely on snakes including the more poisonous species.



Ichnotropis capensis

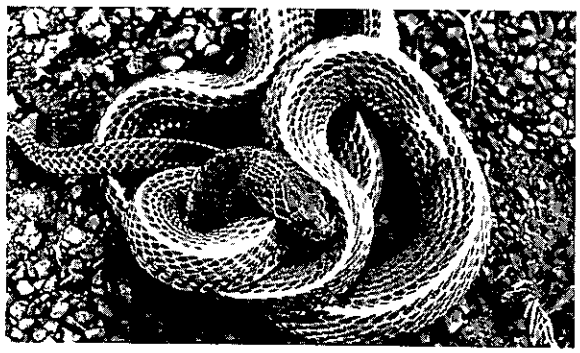


Varanus exanthematicus albigularis

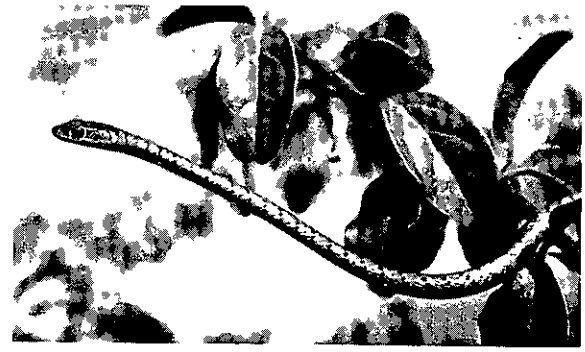


Gerrhosaurus flavigularis flavigularis

Lycophidion capense



Mehelya capensis



Philothamnus semivariegatus semivariegatus

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

Mehelya nyassae (Günther)

Black file snake (Swartvylslang)

Although generally considered rare over most of its range in southern Africa it is occasionally found in the Reserve although to date only in the Study Area. However, being nocturnal, it is easily overlooked and is probably more plentiful than suspected. It may be found over most of the Reserve and feeds largely on lizards such as *Ichnotropis capensis*. Breeds during the rainy season. On being molested this snake emits a pungent grey viscous fluid from glands in the cloaca. Average length 30 to 60 cm.

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

Philothamnus semivariegatus semivariegatus (A Smith)

Spotted bush snake (Gespikkelde bosslang)

Common, being found in every woodland habitat on the Reserve. Lives in holes in trees and under loose bark. Feeds largely on frogs and lizards, frequently attempting to swallow prey which is far too large. An arboreal species with keeled ventral scales to assist in climbing, it is one of a few snakes able to climb up the bole of a tree using the bark for leverage.

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

Philothamnus hoplogastor (Günther)

Common green water-snake (Gewone groenwaterslang)

Occasional, it has been recorded from most of the habitats on the Reserve but prefers low-lying areas such as the turf vlei and the Nyl River floodplain. A single specimen has been collected in the Study Area which is surprising as it is normally a resident of moist places. Feeds on frogs and is diurnal.

Order : SQUAMATA
Sub-order : SERPENTES
Family : COLUBRIDAE

Prosymna sundevalli lineata (Peters)

Lined shovel-snout snake (Gestreepte graafneusslang)

Rare in the Reserve with only five specimens having been captured, all from the Study Area. It may be restricted to this sandy habitat. As with many burrowing snakes it has the habit of moving jerkily if disturbed and may throw its body into a series of concentric circles when agitated.

Order : SQUAMATA
Sub-order : SERPENTES
Family : COLUBRIDAE

Pseudaspis cana (Linnaeus)

Mole snake (Molslang)

The only record to date of the occurrence of this species in the Reserve is that of a juvenile killed on the main road on the ecotone between the turf vlei and the *Burkea* savanna. It may be restricted to the sandy areas of the Reserve.

Order : SQUAMATA
Sub-order : SERPENTES
Family : COLUBRIDAE

Dasypeltis scabra scabra (Linnaeus)

Common egg-eater (Gewone eiervreter)

One of the commonest snakes in the Reserve which may be found in every habitat with the possible exception of the floodplain. A nocturnal reptile, fond of hibernating in disused termitaria, it becomes active during August/September and hibernates during June and July. Feeds only on the eggs of birds.

Order : SQUAMATA
Sub-order : SERPENTES
Family : COLUBRIDAE

Telescopus semiannulatus semiannulatus A Smith

Tiger snake (Tierslang)

The tiger snake is rare in the Reserve and has only been recorded from the *Burkea* savanna of the Study Area. However, it will probably be found in most of the woodland habitats. A nocturnal snake subsisting mainly on lizards.

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

Crotaphopeltis hotamboeia hotamboeia (Laurenti)

Herald snake (Rooilipslang)

Abundant in the Reserve, in particular the *Burkea* savanna of the Study Area. Nocturnal, it feeds largely on toads and frogs, becoming active during summer. Breeds during the rains.

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

Dispholidus typus typus (A Smith)

Boomslang

Common in the Reserve in all savanna habitats. As the name implies, it is essentially arboreal but is frequently encountered on the ground. Feeds mainly on birds, chameleons and lizards. Juveniles captured in late summer.

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

Thelotornis capensis A Smith

Vine snake (Takslang)

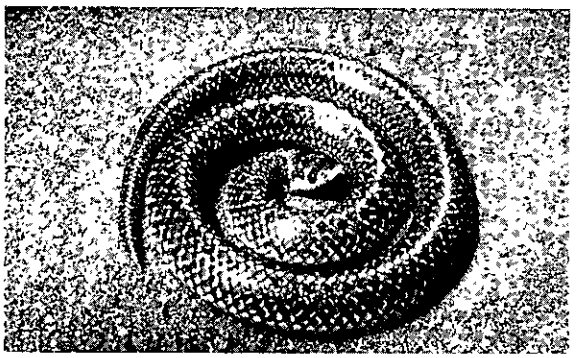
This species has only been found in the *Burkea* savanna to date where it is abundant during the period September to May after which it hibernates in holes in trees. It prefers *Grewia flavescens* shrubs and remains motionless for long periods of time. Feeds largely on lizards but will also eat frogs and possibly birds. Breeds during the summer months.

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

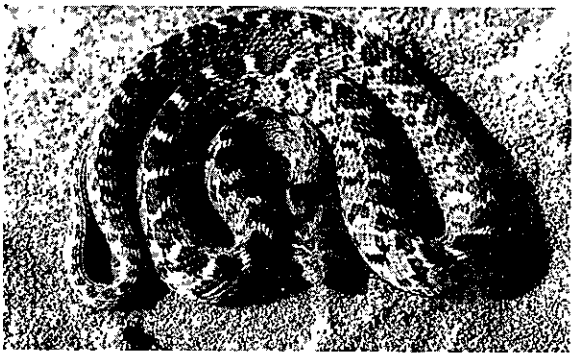
Psammophylax tritaeniatus tritaeniatus (Günther)

Striped skaapsteker (Gestreepte skaapsteker)

Common. Prefers open grassland to the more wooded communities but may be found throughout with the possible exception of the *Burkea* savanna. Fond of sunning itself on roads where it contracts its body into a series of

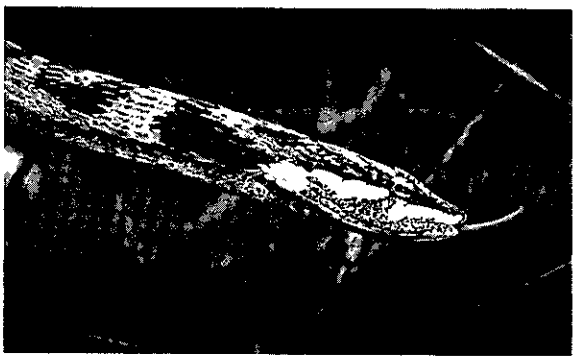


Prosymna sundevalli lineata

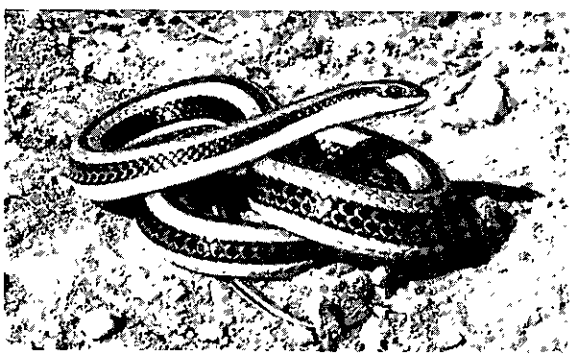


Dasypeltis scabra scabra

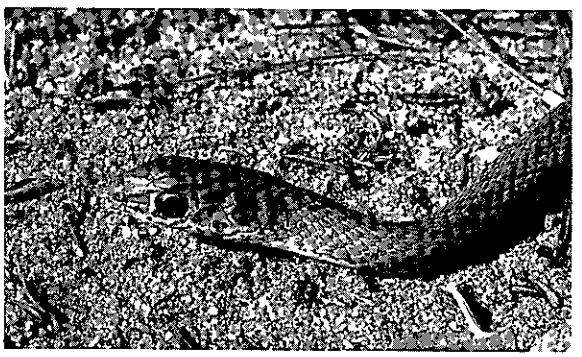
Dispholidus typus typus



Thelotornis capensis



Psammophylax tritaeniatus tritaeniatus



Psammophis sibilans brevirostrus

loops. Shelters under piles of vegetation and in heaps of stones. Eggs laid in October are hatched in December, after two and a half months incubation.

Order : SQUAMATA
Sub-order : SERPENTES
Family : COLUBRIDAE

Psammophis sibilans brevirostris Peters

Short-snouted sand snake (Kortneussandslang)

The most common snake in the Reserve, being found in all habitats. A diurnal snake feeding on lizards such as *Mabuya varia, M striata punctatissimus* and *Ichnotropis capensis*. It breeds during the rainy season. Probably one of the faster snakes, moving off rapidly when disturbed but usually stopping a short distance away and is then easily overlooked, or else it hides under grass tussocks.

Order : SQUAMATA
Sub-order : SERPENTES
Family : COLUBRIDAE

Psammophis angolensis (Bocage)

Pygmy sand snake (Dwergsandslang)

Very rarely found in the Reserve and only recorded to date from a single specimen captured in *Burkea* savanna during November 1976.

Order : SQUAMATA
Sub-order : SERPENTES
Family : COLUBRIDAE

Psammophis jallae Peracca

Jalla's sand snake (Jalla se sandslang)

A rare snake found only in the *Burkea* savanna. Diurnal, it feeds mainly on lizards. A beautiful, harmless snake with a bright yellow to orange ventral surface and reaching a maximum length of 120 cm.

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

Amblyodipsas polylepis (A Smith)

Purple-glossed snake (Loodkleurige grondslang)

Rare. Only one specimen has been collected to date, in the *Burkea* savanna of the Study Area. May be found elsewhere in the Reserve with the exception of the floodplain. A burrowing reptile, it is usually only encountered during the rainy season. On being disturbed or when agitated, it frequently hides its head under its body coils while elevating the tip of the tail as a mimic of the head so as to detract attention from the latter. It is harmless.

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

Xenocalamus bicolor australis FitzSimons

Bicoloured quill-snouted snake (Tweekleurige spitsneusgrondslang)

Rare and probably restricted to the Study Area where it burrows in the sand. Nocturnal, it may be found crawling about on the surface after a heavy downpour. It is easily recognised by the extremely sharp pointed rostral scale and distinct black dorsal and yellow ventral scales.

Order : SQUAMATA Family : COLUBRIDAE
Sub-order : SERPENTES

Aparallactus capensis capensis A Smith

Cape centipede-eater (Kaapse honderdpootvreter/mierslang)

Abundant in the Reserve, found in most habitats with the exception of the Nyl River floodplain and other drainage lines. A burrowing reptile which may be found in a variety of situations, such as under rocks, in the soil and under logs, bushes and in termitaria. Feeds on invertebrates including Chilopoda.

Order : SQUAMATA Family : ELAPIDAE
Sub-order : SERPENTES

Naja haje annulifera Peters

Egyptian cobra (Egiptiese kobra)

Occasional in the Reserve, being found in all habitats. A nocturnal and diurnal snake which preys largely on toads but will also eat mice. A

large 1,85 m specimen was particularly aggressive when captured and made repeated attacks when approached. Eggs are laid in mid-summer and hatch two to three months later.

Order : SQUAMATA Family : ELAPIDAE
Sub-order : SERPENTES

Naja mossambica mossambica Peters

Mozambique spitting cobra (Mosambiek spoegkobra)

Rare. Has only been found in the *Burkea* savanna of the Study Area mainly in the vicinity of a rocky outcrop. Not restricted to this habitat and may be found elsewhere in the Reserve. Feeds mainly on toads but will also eat mice. A nervous snake, it will not hesitate to spit if cornered. It does not have to raise the head and spread a hood in order to spit, but can do so merely by tilting the head slightly upwards.

Order : SQUAMATA Family : ELAPIDAE
Sub-order : SERPENTES

Dendroaspis polylepis polylepis Günther

Black mamba (Swartmamba)

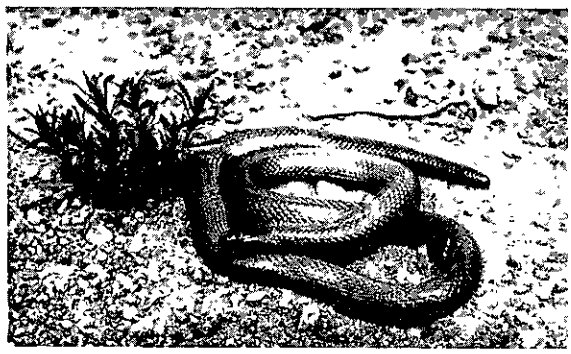
Rare in the Reserve. A large diurnal snake averaging 2,5 to 3,0 m, it feeds largely on small mammals as well as birds. It is a nervous reptile and will not bite unless provoked, preferring instead to escape down a hole, which is usually to be found in a termitarium or disused antbear burrow. One temporarily occupied the roof of the weather station hut but probably because of the constant activity there, moved to a more secluded spot. Breeds during the spring with juveniles hatching in late summer. Growth appears to be rapid if the food supply is good and specimens may reach a length of 150 cm in a year.

Order : SQUAMATA Family : VIPERIDAE
Sub-order : SERPENTES

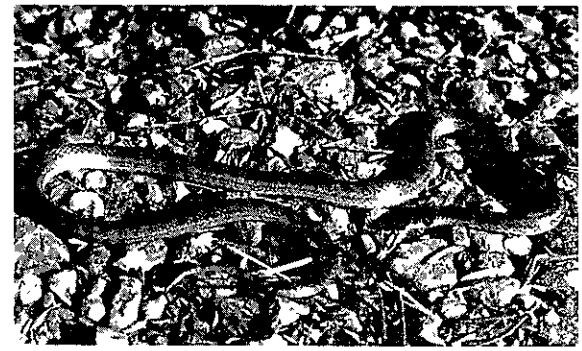
Atractaspis bibroni bibroni A Smith

Mole adder (Moladder)

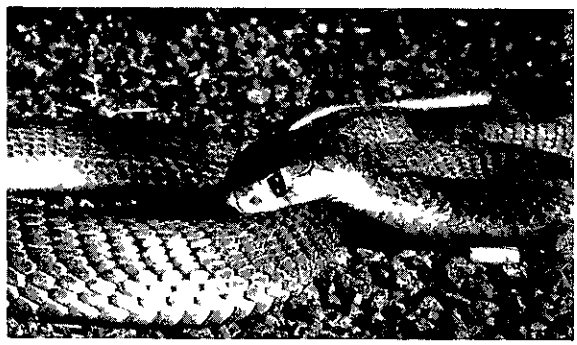
Rare in the Reserve, only a single specimen has been collected near the homestead. A burrowing reptile, usually found under stones or in disused termitaria, it is often found above ground during the rainy season after a downpour. It is nocturnal and when disturbed moves about jerkily as is typical of burrowing snakes. The poison fangs are long and the animal has to twist the lower jaw to one side to enable the fang to erect. It cannot



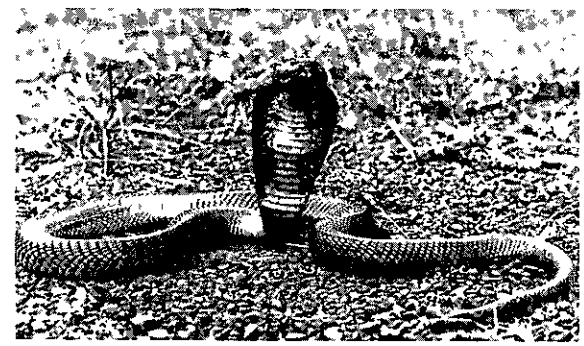
Amblyodipsas polylepis



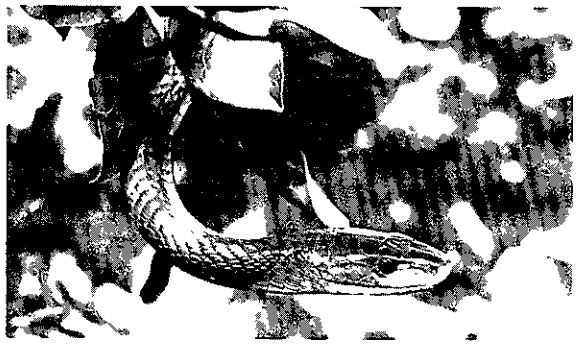
Aparallactus capensis capensis



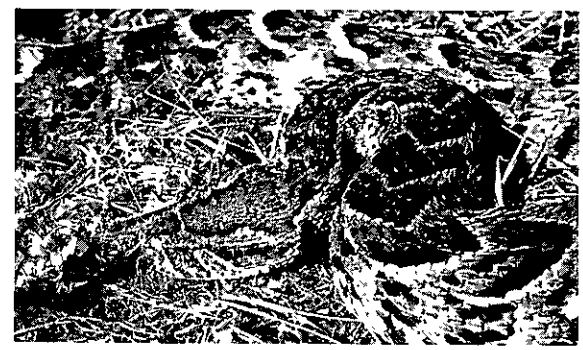
Naja haje annulifera



Naja mossambica mossambica



Dendroaspis polylepis polylepis



Bitis arietans arietans

be safely held behind the neck as with other snakes. There is some doubt as to the correct classification of this genus and it may be closer to the Aparallactinae of the Colubridae than to the Viperidae. Feeds mainly on *Leptotyphlops* spp.

Order : SQUAMATA
Sub-order : SERPENTES
Family : VIPERIDAE

Causus defillipi (Jan)

Snouted night adder (Wipneusnagadder)

A rare snake in the Reserve having been collected on only two occasions, at the homestead in *Combretum apiculatum* savanna. It prefers a moist environment and is mainly nocturnal, feeding on toads and frogs.

Order : SQUAMATA
Sub-order : SERPENTES
Family : VIPERIDAE

Bitis arietans arietans (Merrem)

Puffadder (Pofadder)

The puffadder may be found throughout the Reserve but prefers the low-lying areas along the turf vlei and the Nyl River floodplain. A common snake, it exhibits some seasonal movement patterns, moving to higher ground during May to avoid the very low temperatures of the vleis and moving back when the weather becomes warmer in September. It is a nocturnal snake but frequently moves about during the day, possibly to look for better hunting sites. Feeds largely on rodents such as *Otomys* but also eats toads and frogs. Mating takes place during July/August. The young are born during the rainy season (October to December) after a three to four month gestation period. A sluggish snake, it will not bite unless provoked but its striking speed is only slightly less than the Gaboon adder, which is considered the fastest of South African snakes.

CLASS MAMMALIA

Order : INSECTIVORA
Family : SORICIDAE

Myosorex varius (Smuts)

Forest shrew (Bosskeerbekmuis)

Although this shrew has not been recorded from Nylsvley to date, the recorded presence in owl pellets from Mosdene indicates that it may have

been overlooked. The common name above is a misnomer as it is most commonly found in moist situations along rivers in dense grass cover. It is therefore only expected along the Nyl River and possibly the turf vlei.

Order : INSECTIVORA Family : SORICIDAE

Crocidura hirta Peters

Lesser red musk shrew (Klein rooiskeerbekmuis)

A single specimen was trapped at the edge of the Nyl River floodplain along a path constructed by *Rhabdomys pumilio*. It is probably more common, but restricted to grassland, particularly along the Nyl River. It has also been recorded from Mosdene. The single specimen captured, a female, was found to be lactating in December.

Order : INSECTIVORA Family : SORICIDAE

Crocidura mariquensis (A Smith)

Black musk shrew (Swartskeerbekmuis)

A common shrew in the Reserve but restricted to very moist areas along the floodplain and the turf vlei. In the latter it is found at sites which occasionally dry up during the hot dry season. It is found along runways established by rodents such as *Rhabdomys pumilio* and *Otomys angoniensis* as well as at the edge of water in spongy areas.

Order : INSECTIVORA Family : SORICIDAE

Crocidura bicolor bicolor Bocage

Tiny musk shrew (Klein skeerbekmuis)

A common shrew of the woodlands, in particular the *Burkea* savanna where it inhabits rotting logs and also possibly disused rodent burrows. Nocturnal, it is very active and is quite commonly the prey of the barn owl *Tyto alba*, in whose pellets skulls are often found. Voracious feeders, a specimen weighing 1,5 g ate three grams of food in a night.

Order : INSECTIVORA Family : SORICIDAE

Suncus lixus Thomas

Dwarf shrew (Dwergskeerbekmuis)

Although not trapped, the presence of numerous skulls in barn owl pellets indicate that it is fairly common, particularly in the Study Area and is probably also found in the other savanna types.

Order : INSECTIVORA Family : CHRYSOCHLORIDAE

Amblysomus hottentottus hottentottus (A Smith)

Hottentot golden mole (Hottentotse goue mol)

A single specimen was captured in a pitfall trap and identified by the Transvaal Museum. A surprising find several hundred kilometres north and north-west of other records of the species and therefore extends the range of this species considerably. The animal is restricted to the *Burkea* savanna and the numerous sub-surface tunnels are a feature of this woodland particularly in summer when surface activity is at its highest. The animal appears to hibernate during winter as no surface burrows are to be seen until the first rains which initiate extensive burrowing activities. The tunnels appear to be restricted to the upper two thirds of the Study Area and excluded from the more grassy areas which characterise the more waterlogged soils supporting the *Eragrostis pallens - Setaria perennis* variation of the *Burkea* savanna. Golden moles are therefore mainly found in the drier *Burkea* savanna types while the rodent mole appears to prefer more waterlogged soils.

Order : INSECTIVORA Family : ERINACEIDAE

Erinaceus frontalis frontalis Smith

Hedgehog (Krimpvarkie)

Known to occur in the Reserve from a remnant of skin and a single specimen collected in a trap in *Burkea* savanna. Probably more widespread on the Reserve in most woodland habitats. It is also suspected to occur on Mosdene. Nocturnal, it rests by day under large grass tufts and bushes.

Order : INSECTIVORA Family : MACROSCELIDIDAE

Elephantulus brachyrhynchus brachyrhynchus (A Smith)

Short-snouted elephant shrew (Kortneusklaasneus)

Common in the Reserve, being found in most wooded habitats. Appears to be most common in the *Acacia tortilis* savanna and in parts of the Study Area. Frequented areas are usually identifiable by the trails leading from bushclump to bushclump. A diurnal mammal, it feeds in the shelter of shrubs, travelling rapidly across open stretches. Usually inhabits shallow burrows with escape hatches covered by a thin layer of sand and litter from which a quick escape is possible when threatened. A single young is born per annum.

Order : CHIROPTERA Family : EMBALLONURIDAE
Sub-order : MICROCHIROPTERA

Taphozous mauritianus E Geoffroy

Tomb bat (Witlyfvlermuis)

Status uncertain, a single specimen found at the homestead clinging to the wall of the office building under the overhang of the roof.

Order : CHIROPTERA Family : NYCTERIDAE
Sub-order : MICROCHIROPTERA

Nycteris thebaica E Geoffroy

Egyptian slit-faced bat (Kaapse langoorvlermuis)

Occasionally seen around the homestead but its status is difficult to determine. Usually seen singly, hanging or flying under the eaves of buildings, no doubt finding insect activity abundant around these sites. May also inhabit antbear burrows. This bat feeds on moths and other nocturnal flying insects.

Order : CHIROPTERA Family : RHINOLOPHIDAE
Sub-order : MICROCHIROPTERA

Rhinolophus clivosus Cretzschmar

Geoffroy's horseshoe bat (Geoffroy se hoefystervlermuis)

Rare and solitary, occasionally being seen around the homestead. It is quick to take flight if approached and is usually seen in outbuildings, where it feeds in the shelter of the roof.

Order : CHIROPTERA Family : VESPERTILIONIDAE
Sub-order : MICROCHIROPTERA

Pipistrellus rusticus rusticus Jameson

Rusty bat (Roeskleurige vlermuis)

This species has thus far been recorded from Mosdene and not Nylsvley but may be expected to occur in the Reserve.

Order : CHIROPTERA Family : VESPERTILIONIDAE
Sub-order : MICROCHIROPTERA

Pipistrellus kuhli subtilis (Sundevall)

Kuhl's pipistrelle (Kuhl se vlermuis)

A single specimen was collected in June under the bark of a dead *Burkea africana* in the Study Area in company with a Cape serotine bat *Eptesicus capensis*. Both animals were torpid and were easily captured. The animals shivered in an attempt to warm up and become active. Numbers of small bats thought to be of both the above species were seen flying above the Study Area during August.

Order : CHIROPTERA Family : VESPERTILIONIDAE
Sub-order : MICROCHIROPTERA

Eptesicus capensis (A Smith)

Cape serotine (Kaapse dakvlermuis)

As noted above, a single specimen was found under the bark of a dead tree. Several others have been collected inside hollow trees and branches in various parts of the Study Area. It is more common than Kuhl's pipistrelle and probably forms the greater part of the bats flying over the Study Area. All animals captured during the winter months were in a semi-torpid state and only in August did one see numbers of bats flying about. Its flight is erratic and butterfly-like.

Order : CHIROPTERA Family : VESPERTILIONIDAE
Sub-order : MICROCHIROPTERA

Scotophilus nigrita (Schreber)

Yellow house bat (Geeldakvlermuis)

Common throughout the area where buildings are found. Roosts in the roofs of the old farmhouses on Nylsvley and adjoining farms. It is not active

in winter. It is easily recognised by the yellow to yellowish-green belly and large size. It usually lives in small family groups of between four and seven individuals.

Order : PRIMATES Family : LORISIDAE

Galago senegalensis moholi A Smith

Night ape (Nagapie)

Occasional in the Reserve in most of the wooded habitats, particularly the *Acacia tortilis* savanna and to a lesser extent the Study Area. Completely nocturnal, it rests during the day in leaf nests which it constructs, and in hollow trees. Usually found in small family parties of two or three animals in such situations but appear to be solitary when foraging at night. Their call consists of a bird-like twitter uttered continuously. Also recorded from Mosdene.

Order : PRIMATES Family : CERCOPITHECIDAE

Papio ursinus ursinus (Kerr)

Chacma baboon (Bobbejaan)

A single baboon was seen in the Reserve, but it is not resident and it probably represents a lone male. It is however, found on farms within four kilometres of the Reserve. It has also been recorded on Mosdene.

Order : PRIMATES Family : CERCOPITHECIDAE

Cercopithecus pygerythrus (F Cuvier)

Vervet monkey (Blouaap)

Widespread and common in the Reserve. May often be seen in small troops of six to ten animals. Occasionally larger troops are seen while solitary animals, usually males, are also found. Appears to be on the move continuously between the river and the woodland areas. Also recorded from Mosdene. It is more conspicuous in the Study Area when the monkey orange *Strychnos* spp are ripe in late winter and spring.

Order : LAGOMORPHA Family : LEPORIDAE

Lepus capensis Linnaeus

Cape hare (Vlakhaas)

The presence of this hare has not yet been confirmed on Nylsvley, but it has been collected on Mosdene and can therefore be expected to occur in the Reserve. This hare appears to prefer grassland areas.

Order : LAGOMORPHA Family : LEPORIDAE

Lepus saxatilis F Cuvier

Scrub hare (Kolhaas)

Abundant, found in most habitats in the Reserve. Nocturnal, it feeds mainly on grasses but also digs shallowly for small corms and bulbs of sedges and other flowering plants such as *Cyperus albomarginatus*, *Fimbristylis hispidula* and *Oxalis* sp. This hare is distinguishable in the field from the Cape hare by virtue of its rufous nape as opposed to the off-white nape of the latter. Mating takes place in August.

Order : LAGOMORPHA Family : LEPORIDAE

Pronolagus crassicaudatus I Geoffroy

Natal red hare (Natalse rooihaas)

This hare is restricted to the larger rocky outcrops on the Reserve and is most common on Maroelakop. It has been recorded at the homestead where a single animal was seen, which no doubt originated from the small hill in the *Combretum apiculatum* woodland. This hill is by no means very rocky as is their customary habitat and as yet no middens have been seen, so that it can be considered very rare in this area. In contrast to other hares which defacate haphazardly, the red hare has middens to which it regularly returns. During the day it lies up between tufts of grass but more commonly under the overhang of large rocks and boulders with two exits to ensure an escape. When bounding about from boulder to boulder it is remarkably silent and may escape detection. It feeds on a variety of grasses and bulbs and especially the leaf bases of grasses and the corms of *Cyperus albomarginatus* and other sedges.

Order : RODENTIA Family : THRYONOMYIDAE

Thryonomys swinderianus Temminck

Great cane rat (Grootrietrot)

Occasional in the Reserve but restricted to areas flanking the Nyl River. No visual record is available although a dead specimen was picked up on the road near the Middelfontein turn-off on the main road to Nylstroom. An abundance of faeces have been recorded from the area, but only in certain localities such as on both sides of the bridge on the main road crossing the Nyl River. This animal requires dense cover in the form of long grass and reeds. It feeds on the culms of grasses and reeds *Phragmites australis*.

Order : RODENTIA Family : SCIURIDAE

Paraxerus cepapi cepapi A Smith

Yellow-footed squirrel (Geelpooteekhorinkie)

Common throughout the Reserve with the exception of open grasslands and the Nyl River floodplain. Probably most abundant in the *Burkea* savanna of the Study Area where it inhabits holes in *Burkea africana* trees for nesting and roosting. Usually found in small family groups.

Order : RODENTIA Family : HYSTRICIDAE

Hystrix africae-australis Peters

Porcupine (Ystervark)

Common in the Reserve especially the *Burkea* savanna where several large warrens are found. It is essentially a root and bulb feeder but may also consume the bark of trees such as that of young *Strychnos pungens*. Other feeding records include the roots of *Elephantorrhiza obliqua, Albizia tanganyicensis, Lannea edulis, L discolor* and *Bauhinia macrantha* as well as bulbs of *Crinum macowani* and tubers of *Jatropha zeyheri*. Nocturnal, it usually forages singly or in small groups of two or three animals. On being surprised at night it grunts and raises its spines and if approached too closely, may reverse into the adversary.

Order : RODENTIA Family : BATHYERGIDAE

Cryptomys hottentottus (Lesson)

Common mole rat (Gewone grysmol)

Found throughout the Reserve in isolated colonies with the exception of the Nyl River floodplain. Usually more than one individual per colony, on occasions up to five being trapped in a single burrow. Essentially fossorial, although occasionally found on the surface where it is sometimes captured by barn owls. In the Study Area it is most common on the lower slopes in the ecotonal zone between the savanna and grassland. Isolated occurrences are found higher up but not into typical *Burkea* savanna. It feeds on bulbs, corms and roots such as those of *Cyperus* spp, *Gladiolus* spp and even the roots of *Aloe* spp in times of stress.

Order : RODENTIA Family : PEDETIDAE

Pedetes capensis Forster

Springhare (Springhaas)

Although common in the Reserve, they are restricted to certain areas, mainly to the south and east of the Nyl River but small colonies also exist in the western section. It appears to be restricted to sandy soil particularly in grassland such as the ecotone between the *Burkea* savanna and the turf vlei. A nocturnal animal, it lives in extensive burrows frequently with escape holes. Although no doubt also a grazer, it feeds throughout the year on the roots of grass, shrubs and trees such as :

*	*Cynodon dactylon*	-	roots
*	*Brachiaria nigropedata*	-	leaf bases
*	*Eragrostis pallens*	-	culms
	Eragrostis chloromelas	-	leaf bases
	Lannea edulis	-	roots
*	*Lannea discolor*	-	roots
	Elephantorrhiza obliqua	-	roots
*	*Rhynchosia monophylla*	-	roots

* most important species.

The tree roots may be excavated to 60 cm depth in the soil. Springhares bear one young at a time and do not appear to have a breeding season.

Order : RODENTIA Family : CRICETIDAE

Saccostomus campestris Peters

Pouched mouse (Wangsakmuis)

A solitary mammal, it is frequently overlooked, but appears to be occasional in the Reserve. Specimens have been recorded from most habitats

with the exception of the Nyl River floodplain and possibly other low-lying grassland areas. It feeds largely on the seeds of various trees and shrubs such as *Acacia nilotica, Burkea africana, Peltophorum africanum* and *Euclea crispa* which are stored in cheek pouches to be carried to the nest to hoard. Contents of cheek pouches weighed 1,25 g on one occasion. It lives in disused termitaria, old rodent and springhare burrows, etc.

Order : RODENTIA Family : CRICETIDAE

Dendromus melanotis Smith

Black-eared climbing mouse (Swartoorklimmuis)

Abundant in the *Burkea* savanna but does not appear to be found elsewhere. It lives in holes in the ground, including those constructed by large dungbeetles. It appears to forage over large distances as recaptured individuals were 60 to 100 m from the original capture site. There are fluctuations in numbers during the year, with periods of high and low activity. The period of greatest activity was April while both March and May also showed considerable numbers. Unfortunately relatively large numbers died of exposure in the reptile traps during the winter months. The sex ratio of these mice is 1 female : 1,36 males. It feeds largely on grass seeds but probably also insects, which it accepts readily in captivity. Breeds in late summer and as many as seven young may be born on a single occasion.

Order : RODENTIA Family : CRICETIDAE

Dendromus mystacalis Heuglin

Lesser climbing mouse (Kleinklimmuis)

This animal has only been recorded on three occasions, twice in the Study Area and once at the homestead and can therefore be considered rare. It is however expected to occur widely and does not appear to have habitat restrictions. It feeds mainly on grass seeds. This species may often be found frequenting disused weaver and bishop bird nests. Like the black-eared climbing mouse, this mouse is adept at climbing which is facilitated by opposable thumbs and a semi-prehensile tail.

Order : RODENTIA Family : CRICETIDAE

Steatomys pratensis Peters

Fat mouse (Vetmuis)

This rodent is very rare in the Reserve and at present only known from one specimen which was captured by I Temby in the Study Area. As its name

implies, it has a layer of fatty tissue under the skin. It appears to be nocturnal and solitary.

Order : RODENTIA Family : CRICETIDAE

Tatera leucogaster (Peters)

Bushveld gerbil (Bosveldnagmuis)

The bushveld gerbil is an animal found mainly in the sandy areas of the Study Area where colonies of burrows are found under and around bushes, especially *Grewia flavescens*, which probably furnish a source of food as well. It is not restricted to this habitat and has also been found in *Acacia tortilis* savanna, but is not abundant there. The animal is reluctant to enter live traps. It feeds on seeds of *Peltophorum africanum* and other plant material such as the stems of *Achyranthes aspera*.

Order : RODENTIA Family : CRICETIDAE

Tatera brantsi (A Smith)

Highveld gerbil (Hoëveldnagmuis)

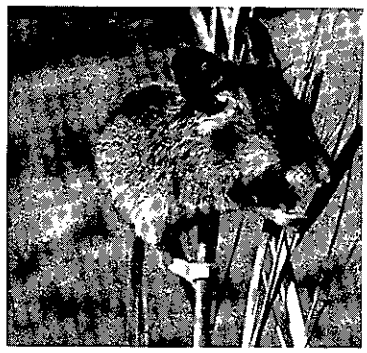
Not as common as the bushveld gerbil whose burrow systems are scattered throughout the Study Area. It appears to be a rodent of fallow cultivated lands and other sandy areas such as along the ecotone between grassland and savanna but has been recorded in true *Burkea* savanna. It also lives in colonies but fewer animals inhabit each colony.

Order : RODENTIA Family : CRICETIDAE

Otomys angoniensis Wroughton

Angoni vlei rat (Angonivleirot)

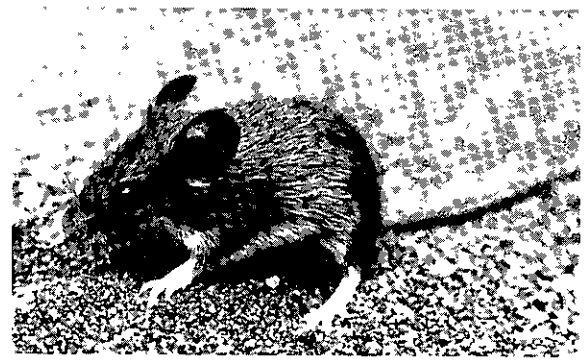
An abundant species of the low-lying areas of the Reserve. During the rainy season it may be found in a variety of habitats, one even being captured in the *Burkea* savanna far from the dense grass cover with which it is associated. It is relatively common around the homestead. In winter, however, it is more often found in close proximity of water where it still finds green grass culms which provide the greatest portion of its diet. It builds a round nest in the dense grass cover in which two to four young are born.



Dendromus melanotis

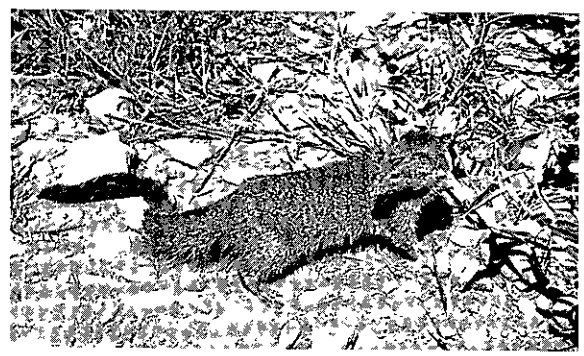
Steatomys pratensis

Lemniscomys griselda



Mus minutoides

Graphiurus murinus



Herpestes sanguineus

Order : RODENTIA Family : MURIDAE

Aethomys namaquensis (Smith)

Namaqua rock rat (Namakwaklipmuis)

Local, restricted to Maroelakop, Stemmerskop and smaller rocky outcrops in *Burkea* savanna, but common where it is found, making large untidy nests of grass pulled under a rock or between large boulders. Feeds on the seeds of *Diodea natalensis* and *Pavonia transvaalensis*.

Order : RODENTIA Family : MURIDAE

Aethomys chrysophilus (De Winton)

Red veld rat (Rooi veldrot)

Probably one of the most widespread rodent species in the Reserve, being found throughout the area with the possible exception of the Nyl River floodplain. Common, it prefers wooded environments, inhabiting disused rodent burrows, holes in trees and termitaria. It usually occurs singly or in pairs. Feeds on the seeds of *Hibiscus engleri*.

Order : RODENTIA Family : MURIDAE

Lemniscomys griselda (Thomas)

Single-striped mouse (Eenstreepmuis)

Widespread in the Reserve, having been found in most habitats. Usually seen singly and is diurnal in habit. It constructs nests in thick grass cover, in which five to seven young are born in March. A nervous animal, it may die from stress on being handled, while it sheds the skin of the tail very easily if held. It is reluctant to bite and can be handled freely in spite of formidable incisors. This was illustrated by a female with young in the nest who refused to leave in spite of an enquiring finger which she just nudged away with her nose.

Order : RODENTIA Family : MURIDAE

Mus minutoides (A Smith)

Dwarf mouse (Dwergmuis)

Common throughout the Reserve with the exception of low-lying areas such as the Nyl River floodplain and the turf vlei, but may be found on islands of raised land within these areas. It is, however, most common in wooded areas such as the Study Area and the *Combretum apiculatum* savanna. It

shelters in holes in the ground, in termitaria and under discarded refuse around human habitation, to which it is attracted. Nests are constructed out of grass in a hollow sphere, in which up to six young may be born at a time. Feeds largely on grass seeds but will also eat insects such as grasshoppers.

Order : RODENTIA Family : MURIDAE

Praomys (Mastomys) natalensis (Smith)

Multimammate mouse (Vaalveldmuis)

Occurs throughout the Reserve but appears to be most common in the ecotone between woodland and grassland where it utilises runways made by *Rhabdomys* and *Otomys*. It lives in deserted rodent burrows as well as in disused termitaria. Owing to its reproductive capacity, being able to have as many as twelve young at a time, it has the potential to increase to plague proportions during good seasons. It is omnivorous, feeding mainly on seeds but was responsible for considerable damage to trapped small mammal specimens by feeding on them, in particular the head. One also killed and partially consumed a trapped bicoloured quill-snouted snake. It is nocturnal but becomes partly diurnal when subject to its own population pressures.

Order : RODENTIA Family : MURIDAE

Rhabdomys pumilio (Sparmann)

Striped mouse (Gestreepte muis)

Common in the grassland areas of the Reserve, but not frequently found in the more wooded areas as the grass cover is too sparse to establish the tunnels along which it runs. Feeds on seed and grass culms. Constructs a spherical nest of grass in thick grass cover.

Order : RODENTIA Family : MURIDAE

Rattus rattus (Linnaeus)

House rat (Huisrot)

Known to occur on Nylsvley from a single specimen collected in the *Burkea* savanna. Attempts to trap this animal around the homestead have been unsuccessful to date but no doubt it also occurs there.

Order : RODENTIA Family : MUSCARDINIDAE

Graphiurus murinus (Desmarest)

Forest dormouse (Boswaaierstertmuis)

Occasionally found in the Reserve but restricted to the wooded habitats such as around the homestead and in the Study Area. A nocturnal rodent resting by day in holes of trees and in crevices between rocks, and on occasions utilising the nests of *Aethomys namaquensis*. An omnivorous rodent feeding mainly on fruit, seeds or insects.

Order : CARNIVORA Family : CANIDAE

Canis adustus Sundevall

Side-striped jackal (Witkwasjakkals)

Rare, having only been seen on one occasion in the centre of the Reserve. Unconfirmed reports have also been received from Mosdene.

Order : CARNIVORA Family : CANIDAE

Canis mesomelas (Schreber)

Black-backed jackal (Rooijakkals)

Abundant in the Reserve. Usually solitary animals, but may on occasion be seen in pairs. Feeds on any animal it can capture and has been known to kill duiker *Sylvicapra grimmia* and steenbuck *Raphicerus campestris* on the Reserve. It is also known to eat watermelons on the surrounding farms while elsewhere its diet includes tomatoes and avocado pears. It may be seen on the roads in the early morning and late afternoon. Its calls at dusk and during the night are a feature of Nylsvley.

Order : CARNIVORA Family : MUSTELIDAE

Aonyx capensis (Schinz)

Cape clawless otter (Groototter)

Rare. A recent observation of six animals together at a small impoundment across the Nyl River in the Reserve is the first sighting of this animal, as previously only spoor and faeces had been found along the river. The animals were observed feeding and seemed to take a number of barbel *Clarias gariepinus*. Remains found in faeces on the wooden bridge were those of barbel and a yellow-billed duck *Anas undulata*.

Order : CARNIVORA Family : MUSTELIDAE

Mellivora capensis (Schreber)

Honey badger (Ratel)

Very rare in the Reserve and only two sightings confirm the presence of this animal. One was near the bridge across the Nyl River and the other in the turf vlei along the road. Confirmed reports from Mosdene also establish its presence there.

Order : CARNIVORA Family : MUSTELIDAE

Ictonyx striatus (Perry)

Striped polecat (Stinkmuishond)

Occasionally seen in the Reserve and usually solitary. May be found in any habitat. Also occurs on farms surrounding Nylsvley. Feeds largely on insects and rodents but any animal it can overpower is eaten.

Order : CARNIVORA Family : VIVERRIDAE

Genetta genetta (Linnaeus)

Small-spotted genet (Kleinkolmuskeljaatkat)

Occasional in the Reserve and may be found throughout. Solitary and nocturnal, this cat-like viverrid feeds largely on insects but birds, reptiles and rodents are also eaten. Roosts in hollow trees and in holes in the ground during the day.

Order : CARNIVORA Family : VIVERRIDAE

Genetta tigrina (Schreber)

Large-spotted genet (Grootkolmuskeljaatkat)

Relatively rare in the Reserve and first observed by I Temby in the Study Area but subsequently a dead specimen was found in *Acacia tortilis* savanna. Likely to occur in most of the wooded habitats as well as rocky outcrops. Nocturnal, it rests by day in holes in trees and in the ground.

Order : CARNIVORA Family : VIVERRIDAE

Paracynictis selousi (De Winton)

Selous mongoose (Kleinwitstertmuishond)

Rare, only a single sight recorded by I Temby in the Study Area has been noted on Nylsvley. However, it has been seen more frequently on surrounding farms and may be more extensively distributed on Nylsvley. Nocturnal in habit, it may be found in small family groups of two or three animals. It feeds largely on insects and live in small warrens, usually disused springhare burrows.

Order : CARNIVORA Family : VIVERRIDAE

Cynictis penicillata (G Cuvier)

Yellow mongoose (Geel- of Rooimeerkat)

Not common in the Reserve and has only been recorded from the *Acacia tortilis* and bushclump savanna areas. Feeds mainly on arthropods but is fairly omnivorous. Two young are born in August/September after a gestation period of seven to eight weeks. Usually forages singly or in pairs.

Order : CARNIVORA Family : VIVERRIDAE

Herpestes sanguineus (Rüppell)

Slender mongoose (Rooimuishond)

Fairly common and widespread throughout the Reserve inhabiting holes in termitaria, trees or under rocks. This mongoose is the most cat-like of the Herpestinae, being able to climb trees with ease. Claws are short and curved but not retractable. Feeds on a variety of food but is less dependent on arthropods than most of the other species. Rodents and birds form a large part of its diet. May also kill and eat small snakes. Usually solitary but two together may be seen on occasions. Two young are born during October to January. The gestation period is seven to eight weeks.

Order : CARNIVORA Family : VIVERRIDAE

Ichneumia albicauda (G Cuvier)

White-tailed mongoose (Witstertmuishond)

Widespread in the Reserve having been seen in most habitats. It appears to prefer the ecotone between grassland and woodland but is commonly found

in both. The largest of the mongooses, it is conspicuous by its size and the manner in which the tail is arched when running. Feeds mainly on insects but any vertebrate which it can overpower is eaten. Lives in abandoned springhare and aardvark burrows. Nocturnal and solitary.

Order : CARNIVORA Family : VIVERRIDAE

Atilax paludinosus (G Cuvier)

Marsh mongoose (Kommetjiesgatmuishond)

May occasionally be seen at night in the Reserve, frequenting the low-lying areas such as the turf vlei and the Nyl River floodplain. Feeds mainly on animals close to and in the water such as frogs, rodents, crabs, fish and insects. The anal gland is very enlarged, hence the Afrikaans name, and is used for home range identification.

Order : CARNIVORA Family : VIVERRIDAE

Mungos mungo (Gmelin)

Banded mongoose (Gebande muishond)

The most common mongoose in the Reserve. Packs have been observed over the whole area with the exception of the Nyl River floodplain. At least one group of seven resides in the south-eastern corner of the Reserve within the Study Area, while a large pack of approximately 25 to 30 animals forages widely from the farm Klipputgat in the east through the northern half of the Study Area to the grassland north-west of Maroelakop. Another pack inhabits *Combretum apiculatum* savanna and bushclump savanna on the western boundary while a fourth pack established temporary residence at the cattle kraal near the homestead. It is, however, very migratory in habit and wanders over a large area with several resting places spread over its home range. It is essentially insectivorous but may eat anything it can catch and overpower. Breeding takes place from October to January with up to five young produced in a litter after a gestation period of two months. Infants were observed on Nylsvley in December. The pack assists in rearing the young and males may be very protective.

Order : CARNIVORA Family : PROTELIDAE

Protelis cristatus (Sparmann)

Aardwolf

Has been recorded from the ecotone between grassland and *Burkea* savanna on several occasions while a midden has been found on the edge of the *Combretum apiculatum* savanna. It is therefore expected over most of the Reserve

but it is rare. Nocturnal, it feeds largely on insects, especially termites, but may eat rodents and ground-roosting birds. Has also been recorded on Mosdene.

Order : CARNIVORA Family : HYAENIDAE

Hyaena brunnea Thunberg

Brown hyaena (Strandwolf)

Has not been recorded visually from the Reserve. Scats have been found on Stemmerskop and Maroelakop, while spoor was found below Maroelakop in the Study Area and on the roads in the bushclump savanna in the northern-most part of the Reserve. One animal was killed by a car several years ago on a farm adjoining Nylsvley. Has also been reported to occur on Mosdene.

Order : CARNIVORA Family : FELIDAE

Panthera pardus (Linnaeus)

Leopard (Luiperd)

Not permanently established in the Reserve but spoor had been seen in the Study Area prior to the start of the project. Subsequently not recorded again from the Reserve but an adult was seen by K Hoffman across the railway line approximately 500 to 1000 m from the Reserve boundary.

Order : CARNIVORA Family : FELIDAE

Panthera leo (Linnaeus)

Lion (Leeu)

Should perhaps not be recorded, but during 1973 a lion was temporarily resident in the Reserve before moving to the north-western Transvaal. A very rare occurrence.

Order : CARNIVORA Family : FELIDAE

Felis lybica Forster

African wildcat (Vaalboskat)

The spoor of this species or of a feral domestic cat has been observed on several occasions in the *Burkea* savanna. However, due to the lack of

sightings, it can be considered rare although expected over the whole Reserve.

Order : TUBULIDENTATA Family : ORYCTEROPODIDAE

Orycteropus afer afer (Pallas)

Antbear (Aardvark)

The antbear is widely distributed in the Reserve with the possible exception of the floodplain, as can be attested by numerous burrows. Although only visually recorded on two occasions, spoor is frequently encountered on the roads in the Study Area and also in the other parts of the Reserve. It is rare and appears to move over long distances when foraging.

Order : ARTIODACTYLA Family : SUIDAE

Potamochoerus porcus koiropotamus (Desmoulins)

Bushpig (Bosvark)

Although unsubstantiated records of the occurrence of this animal on the Reserve have been received, the presence of the bushpig on a neighbouring farm (Deelkraal), verifies these records and it can be said that it may sporadically occur on the Reserve. Although normally found in dense brush such as that along rivers and kloofs or ravines on mountain slopes, it is probably driven to such places to avoid persecution. Hopefully a population will become established on the Reserve. Although on the whole considered to be nocturnal, in areas where it is not persecuted it becomes partly diurnal. Feeds on roots, bulbs, corms and grasses but only forages in relatively loose soil.

Order : ARTIODACTYLA Family : SUIDAE

Phacochoerus aethiopicus Sundevall & Lönnberg

Warthog (Vlakvark)

Abundant in the Reserve, especially along the Nyl River floodplain and *Acacia* savanna flanking the floodplain, but also wandering into grassland and bushclump savanna, while utilising disused antbear burrows found on higher ground and in the woodland areas for resting and farrowing. These burrows are frequently modified by the warthog and enlarged to form a chamber. Warthog are diurnal, resting during the heat of the day under cover of thick bushes but have been observed as late as 20h00 still feeding and moving about. Litters of two to five young are produced from late

October but mainly in November. Feeds especially on the rhizomes of *Oryza longistaminata*, an abundant grass of the floodplain, uprooting large patches. Population estimates vary between 150 and 200 animals depending on the season. Their habit of wallowing in shallow water creates shallow pools over most of the low-lying areas of the Reserve which are utilised by amphibians and fish for breeding and which are consequently a source of food for birds and mammals.

Order : ARTIODACTYLA
Subfamily : BOVINAE

Family : BOVIDAE
Tribe : TRAGELAPHINI

Tragelaphus strepsiceros strepsiceros (Pallas)

Kudu (Koedoe)

Common in the Reserve particularly within *Acacia* savanna flanking the floodplain, but move throughout the area. Numbers vary between an estimated 60 in the wet season to possibly 100 during the dry season. Approximately 9 to 15 animals utilise the Study Area at times, particularly the south-eastern corner which encompasses areas of abandoned settlements with a varied flora. Kudu occur in small herds in the Reserve, the largest herd seen numbering 24 animals. They tend to concentrate on the areas closer to the river during the dry season, becoming more dispersed during the rainy season. Calving takes place mainly in January and February.

Order : ARTIODACTYLA
Subfamily : BOVINAE

Family : BOVIDAE
Tribe : TRAGELAPHINI

Tragelaphus scriptus Pallas

Bushbuck (Bosbok)

Rare. A pair recorded from *Acacia tortilis* savanna flanking the Nyl River floodplain. It prefers thick bush and rank grass for cover and is not found far from water.

Order : ARTIODACTYLA
Subfamily : CEPHALOPHINAE

Family : BOVIDAE

Sylvicapra grimmia (Linnaeus)

Grey duiker (Grys duiker)

Common throughout the area particularly the more wooded regions, where it has ample cover but seems to keep away from the floodplain except possibly to feed along the fringes. It is difficult to estimate numbers but at least 30 to 40 animals inhabit the Reserve.

Order : ARTIODACTYLA Family : BOVIDAE
Subfamily : REDUNCINAE

Redunca arundinum arundinum (Boddaert)

Reedbuck (Rietbok)

Appears to be more common in the Reserve than generally realized. Eleven animals were observed together on the floodplain on 31 October 1974. This is very unusual as normally the reedbuck are seen singly or in pairs and occasionally small family groups. There are approximately 50 animals in the Reserve. Reedbuck are restricted to the Nyl River floodplain and the turf vlei but also move into the various grassland areas adjoining the floodplain, while they were also seen on one occasion in the Study Area. Recorded lambing during July, December, January and February.

Order : ARTIODACTYLA Family : BOVIDAE
Subfamily : AEPYCEROTINAE

Aepyceros melampus melampus Lichtenstein

Impala (Rooibok)

The most abundant ungulate in the Reserve, numbering approximately 250 animals which are widespread throughout the area. Two herds are resident in the Study Area, being particularly fond of abandoned settlement areas around Maroelakop, while additional herds are scattered throughout the Reserve using even the floodplain, particularly during the dry season. Lambing takes place mostly during November. Impala are both grazers and browsers in the Reserve and have been observed feeding on the leaves and fruit of *Grewia flavescens* as well as grazing on *Panicum maximum* growing under the trees. The latter is well favoured. There is probably some seasonal movement away from the floodplain during the wet season and back again during the dry season.

Order : ARTIODACTYLA Family : BOVIDAE
Subfamily : ANTILOPINAE Tribe : NEOTRAGINI

Raphicerus campestris (Thunberg)

Steenbuck (Steenbok)

Found throughout the Reserve but not common. Appears to prefer the low-lying areas of *Acacia* savanna flanking the floodplain as well as areas of short to medium grassland, but also wanders into the more wooded areas and a few animals may be found in the Study Area. It is difficult to assess abundance but roughly 20 to 30 animals occur in the Reserve.

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