

A note on the small mammal fauna of Vaalkop Dam Nature Reserve

G.T.H. ELLISON

Mammal Research Institute, Pretoria University, Pretoria, 0002 Republic of South Africa.

Koedoe 33(1): 114-116 (1990). ISSN 0075-6458.

Vaalkop Dam Nature Reserve (25°23'S; 27°28'E), 50 km northeast of Rustenburg, comprises 2 391 hectares of Mixed Bushveld (Acocks 1975, *Memoirs of the Botanical Survey of South Africa* 40: 1-128), and 1 045 hectares of water surface contained in the dam itself (at full capacity).

Small mammal trapping was conducted at the south western boundary of the reserve between 24 April-6 May 1987, and 14-21 April 1989. Standard Sherman live traps, baited with peanut butter and rolled oats, were set in pairs, at 10 m intervals, in two trap lines: 1. *Dam edge*: along the edge of a small farm dam near the Warden's residence, comprising thick grass cover interspersed with small stands of *Eucalyptus* spp. 2. *Open bushveld*: within mixed bushveld with sparse grass cover and occasional *Acacia* spp. trees. Nine hundred and thirty six trap-nights were recorded in 1987 and 1 254 in 1989. Trapping success averaged over 85 % during 1987, and fell to approximately 40 % during 1989. Eleven small mammal species were captured in 1987, and 12 in 1989. These are listed in Table 1 together with their relative abundance and habitat preference. (Representatives of all 14 species collected have been deposited at the Transvaal Museum, Pretoria, South Africa).

During 1987 *Mastomys natalensis* was the dominant component of the small mammal community comprising over 85 % of all animals caught. It was not uncommon to find two individuals in a single trap, and on one occasion three were captured in this way. Two years later in 1989, however, less than 15 % of animals captured were *M. natalensis*, and whilst *Aethomys chrysophilus* was the dominant species (46,5 %), additional species were more evenly represented within the traps; the three Soricidae species comprising 13,8% of captures, and *Lemniscomys rosalia* making up 11,5 %.

The present study provides further evidence that populations of *M. natalensis* exhibit extreme population fluctuations under natural conditions. These fluctuations might have masked the relative abundance of other species within the small mammal community and could confound attempts to determine species composition using standard live-trapping techniques.

Smithers (1983, *The Mammals of the Southern African Subregion*, Pretoria: Pretoria University) suggested that population explosions of *M. natalensis* occur following the onset of heavy rains at the end of a prolonged dry period, and that their numbers mask similar responses by gerbils and other rodents. Indeed, the rainfall pattern at Vaalkop Dam Nature Reserve suggests that climatic factors may have been responsible for the huge population of *M. natalensis* observed: annual rainfall increased steadily from 380 mm in 1984, 423 mm in 1985, to 634 in 1986, the year preceding this study. However, Nel (1975, *Publikasies van die Universiteit van Pretoria, Nuwe Reeks* 97: 78-80) tentatively suggested that field studies of this species to date indicate the possibility that population cycles occur independently of climatic changes, in much the same way as those reported for

Table 1
Small mammals recorded at Vaalkop Dam Nature Reserve

Family	Specific name	Common name	Numbers caught		Habitat preference
			1987	1989	
Insectivora					
Soricidae	<i>Suncus lixus</i>	(Thomas, 1898)	2	71	Dam edge
	<i>Crocidura hirta</i>	(Peters, 1852)			
	<i>Crocidura cyanea</i>	(Duvernoy, 1838)			
Macroscelididae	<i>Elephantulus brachyrrhynchus</i>	(A. Smith, 1836)	5	28	Open bushveld
Rodentia					
Gliridae	<i>Graphiurus murinus</i>	(Desmarest, 1822)	0	3	<i>Acacia</i> spp. thicket
Cricetidae	<i>Tatera leucogaster</i>	(Peters, 1852)	10	31	Open Bushveld
	<i>Steatomys pratensis</i>	Peters, 1846	1	11	Open Bushveld
	<i>Saccostomus campestris</i>	Peters, 1846	15	5	Open Bushveld
	<i>Otomys irroratus</i>	(Brants, 1827)	1	2	Dam edge
	<i>Aethomys chrysophilus</i>	(De Winton, 1897)	54	239	Open Bushveld
Muridae	<i>Lemniscomys rosalia</i>	(Thomas, 1904)	5	59	Open Bushveld
	<i>Mus minutoides</i>	A. Smith, 1834	4	3	Open Bushveld
	<i>Mastomys natalensis</i> (sp. 1)	(A. Smith, 1834)	692	62	Ubiquitous
	<i>Rhabdomys pumilio</i>	(Sparman, 1784)	7	0	Open Bushveld
			Total 796 (85.0 %) 514 (41.0 %)		

northern hemisphere microtines. This aspect of *M. natalensis* biology is worthy of further research.

Acknowledgements

This report forms part of a study jointly by die Department of National Education, the Foundation for Research Development, and the University of Pretoria. The Department of Mammalogy, Transvaal Museum provided expert assistance during specific identification. The author would like to thank Nick and Amy Bezuidenhout for their kind hospitality during the study.