# ON THE NEST OF CRYPTOMYS HOTTENTOTUS IN THE KRUGER NATIONAL PARK.

*by*

G. de GRAAFF, M.Sc.(Rand)
(Dept. of Zoology, University of Pretoria)

**ABSTRACT.**

**This paper briefly describes the structure of a nest of the mole rat, *Cryptomys hottentotus*. In the Pretoriuskop area this species uses the gifbol *(Böphone disticha)*, grass roots and the sekelbos *(Dichrostachys nyassana)* as the main material for nest construction. The presence of invertebrates in the nest (such as mites and beetles) is mentioned.**

*Introduction :*

Little interest has hitherto been shown by South African zoologists in the smaller mammals such as the elephant shrews, bats, golden moles and rodents. Hitherto, the emphasis has largely been on research aspects of the larger mammals such as the primates, antelopes and carnivores. In the past decade, however, the possibility of rewarding, interesting and important research to be done on the smaller forms has become apparent and understood by a number of mammalogists presently active in this country. For example, the rodents (especially those genera acting as vectors in the spreading of plague) are being studied extensively at the Medical Ecology Centre in Johannesburg. A systematic revision of the shrew genus *Crocidura* has recently been completed (Meester, in press), and this work initiates and demonstrates the need for similar revisions of the indigenous South African mammals. These revisions are basically taxonomic and incorporate additional information on the zoogeography, embryology, genetics, behaviour and palaeontology (to mention only a few aspects) in order to arrive at a new insight in terms of the neozoological approach with the elucidation of the biological species as its central problem.

It is, therefore, understandable that research concerning the small mammals in the Kruger National Park has hitherto also been neglected to a certain extent. These animals are not of prime attraction to the tourists, and their cryptic nature does not allow an easy demonstration of their presence.

Concerning the rodents in the park, it is pitiful to state our meagre

knowledge of this group. The common vlei-rat *Otomys* has not yet been trapped (Brynard and Pienaar, 1960) and the dendromurids are relatively unknown, as are the mole rats. In order to assist in filling this gap in our knowledge, the author has undertaken a taxonomic-biological revision of the mole rats (Rodentia, family Bathyergidae) in Southern Africa. The work done on these animals in the Kruger National Park thus forms part of a greater and more extensive survey at present in progress.

During a visit to the Kruger Park in December, 1960, a nest of *Cryptomys hottentotus* was obtained from the firebreak in front of the Faai experimental plots (plot no. 2) south of Pretoriuskop (KNP locus S.35, S.49). References to nests of *Cryptomys* in the existing literature are restricted to three publications: Eloff (1951, 1952) commenting on the nest structure of *Cryptomys hottentotus bigalkei,* found near Bloemfontein, and Roberts (1951) who mentions the storage and sleeping chambers made by *Bathyergus, Georychus* and *Cryptomys*. Eloff relates the fact that these animals use the husks of *Homeria* (geeltulp, family Iridaceae) and sedges for nest construction and that a temperature of 24°C. can be attainened and maintained within these nests. Eloff does not explain how this measurement was taken. No detailed analysis of the structure and composition of a mole rat nest is hitherto available (undoubtedly coupled to the fact that they are not easily obtainable) and herefore the nest found on the Faai plots warrants a short note here.

*Description of the nest:*

The Faai plots are situated on weathered archaic granites, predominantly grey in colour. December being the rainy season near Pretoriuskop resulted in a very soft soil and it was relatively easy to dig out the nest. A noteworthy feature of that area is the virtual absence of stones in the soil. Fresh mole hills were scattered over the area and the tunnel system leading to the nest had various cul-de-sacs while the nest itself was found about 2 foot below the surface of the soil. It is interesting to note that the site of the nest was not situated on a small elevation as would be expected. The drainage of the soil seems to be sufficient to prevent sudden flooding of the tunnel system and the nest. The average diameter of the burrows is approximately 2 inches and an irregular spiral led down to the chamber where the nest was found and from which a number of passages led in other directions.

The overall structure of the nest is seen in Fig. 1. The circular shape had a diameter of 25-27 cms. and its weight was approximately 240 gms. It consisted of vegetable matter only, closely knit together by fine adventitious roots. According to Eloff (1952), these animal live in small colonies (6 to 8 individuals) all sharing a communal nest. The present author collected at least two specimens from this tunnel-system leading to the nest, and later it appeared that a number of other individuals had not been collected. Due

to the size of the nest, it is possible to infer that more than one individual contributed to its construction. It is not clear whether they sleep or rest on top of or inside this mass of vegetation.

By kind permission of the authorities, the nest was transported to Pretoria where it was analysed.

Botanical identification has shown that the animal utilizes the following plants to build its nest :

*Monocots.* 1. *Boophone disticha* (gifbol, family Amaryllidaceae). The fibrous, dry, outer enveloping bracts of the bulb as well as the brittle membranous bases of these bracts supporting the leaves were utilized. This plant formed the largest volume of the nest and the predominant material present. Furthermore, it is the prevalent bulbaceous monocot in this vicinity. The bracts were transported to the nests in large pieces: some measuring up to 140 x 60 mm.

2. *Hypoxis rooperi,* (family Amaryllidaceae). The adventitious roots emerging from the subterranean rootstock were used.

*Gladiolus varius,* also occuring in the vicinity (to a lesser extent), was not identified in the nest. It is also noteworthy that the genus *Homeria* does not occur in the Kruger National Park.

3. Graminae (grasses) :

The roots of grasses are fairly plentiful in the vicinity of the nest, and these elements supplied cohesion to the nest. These plants are not identifiable on root structure alone at this stage and the same applies to small pieces of culms found in the nest. The grasses occuring near the nest (more or less in order of importance) are:—

*Sporobolus pyramidalis,*
*Panicum maximum* (buffelsgras),
*Hyparrhinia dissoluta* (dekgras) and
*Elyonurus argenteus* (jongosgras),
*Loudetia simplex,*
*Cynodon dactylon* (kweekgras),
and
*Schizachyrium semiberbe.*

Other genera are numerically of lesser importance at that locality.

*Dicots.* The following plants grow in the vicinity of the nest: *Sclerocarya caffra* (maroela), *Dichrostachys nyassana* (sekelbos), *Ziziphus mucronata* (blinkblaar — wag-'n-bietjie), *Cassia petersiana* (kersboom), *Terminalia sericea* (sandgeelhout), and *Lippia asperifolia.*

1. *Dichrostachys nyassana,* (sekelbos, family Leguminosea). The roots of these plants (which is a dominant species on the No. 2 Faai plot) possess a thin, corky epidermis, which flakes off easily. A considerable number of flakes of this material were found in the nest with an approximately average size of 15 x 8 mm.

2. *Ziziphus mucronata,* (blinkblaar-wag-'n-bietjie, family Rhamnaceae). A few small fragments of the root of this tree have also provisionally been identified.

The fibrous roots of woody dicots are difficult to distinguish from one another, but it is clear that it makes a definite contribution to the structure of the nest. It may also be noted that the enveloping endocarp of a fruit of the maroela (*Sclerocarya* caffra, family Anacardiaceae) was also found in the nest. There were no teethmarks on the surface, and the fleshy cotylodons were not eaten. It is doubtful whether this part of the fruit is used for nest construction.

*General :*

It may be noted that the nest was soiled to a certain extent with faeces and was very densely infested with mites, viz. *Androlaelaps sp.* and *Haemolaelaps sp.* These ectoparasites were determined taxonomically by the South African Institute for Medical Research, Johannesburg. It may be that these animals may eventually prove to be host-specific. Hitherto, very little is known about the parasites associated with the mole rats.

Another interesting find was the presence of a larva of *Gonopus,* (Coleoptera, Tenebrionidae, Platynotini) among the vegetable matter of the nest. These beetles are known to occur in runs and burrows of other animals, but this is the first time that they have actually been found in association with a *Cryptomys* nest.

*Concluding remarks :*

Nesting behaviour (i.e. the construction, material used, etc.) and mating behaviour is a deeprooted basic behavioural pattern in animals. It may therefor be of importance to compare mole rat nests from different geographical localities in order to elucidate such problems as:

(a) are all the nests constructed on the same pattern, and

(b) what materials do the different species and subspecies use etc.?

Behavioural studies such as these will help to unravel the present chaotic taxonomic position of the group and may eventually prove to be a sounder indicator of differences between the species and on the infra-specific level than many morphological or anatomical features used hitherto.

*Acknowledgements :*

The author would like to express his sincere thanks to the National Parks Board (in particular Mr. R. J. Labuschagne) for facilities and permission to undertake work on the mole rats of the Kruger Park. In addition, Mr. A. M. Brynard, Warden, and Dr. U. de V. Pienaar, Bioligist, are thanked for their assistance and co-operation. Finally, his thanks are due to Dr. H. P. van der Schijff (Dept. of Botany, University of Pretoria) for his assistance in identifying the floristic elements of the nest and to Mr. J. Smit, Ranger at Shingwedzi, for his participation in collecting plant specimens for comparative purposes.

## LITERATURE


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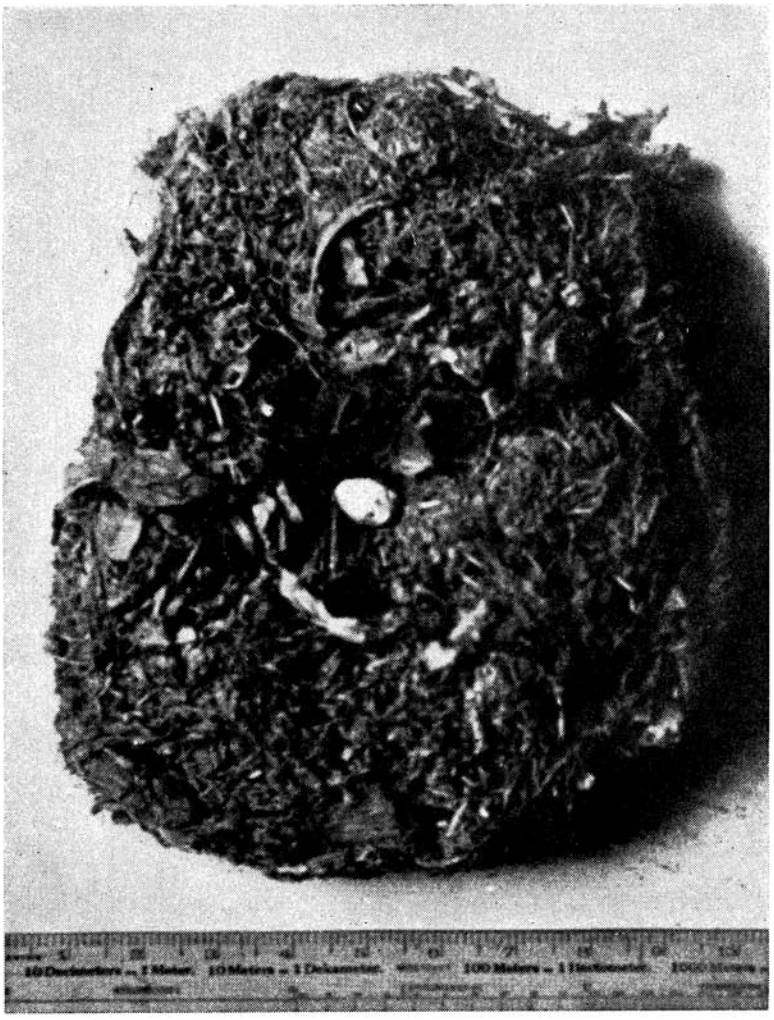

*Nest of Cryptomys hottentotus.*