

CHAPTER 19CRYPTOMYS KOMATIENSIS (ROBERTS) 1917

This species was first collected in the vicinity of the farm called Arnhemburg, in the Carolina district, Transvaal, and was first named and described by Roberts (1917, 272). Although the species resembles C. natalensis, it was recognized as being different due to its smaller size and the fact that the incisors project forward in a wider arch compared to C. natalensis. On the other hand, the inguinal mammae are always absent, as is the case in C. natalensis.

This species has also been oversplit by Roberts (1951, 396, 397) and it is therefore proposed to synonymize a number of species and subspecies in the present work. As here understood, C. komatiensis is regarded as a monotypic species.

The species is confined predominantly to the eastern Transvaal, ranging from the area east of Carolina, northwards to Barberton and Komatipoort, through the southern section of the Kruger National Park to Mariepskop and Acornhoek, eventually reaching Tzaneen and Woodbush on the eastern escarpment of the Drakensberg in the north. It thus seems to be adapted to hilly and mountainous areas.

Cryptomys komatiensis (Roberts)

Georychus komatiensis Roberts, Ann. Transv. Mus., 5: 272, 1917. Type locality: Arnhemburg Farm, Carolina district, Transvaal.

Georychus/...

Georychus rufulus Roberts, Ann. Transv. Mus., 5:

272, 1917. Type locality: Tzaneen, Transvaal.

Georychus stellatus Roberts, Ann. Transv. Mus., 5:

272, 1917. Type locality: Komatipoort, Transvaal.

Cryptomys melanoticus Roberts, Ann. Transv. Mus., 11:

4, 260, 1926. Type locality: Baloon Farm, Makoetsi River, Leydsdorp district, Transvaal.

Cryptomys natalensis streeteri Roberts, Ann. Transv.

Mus., 20: 4, 316, 1946. Type locality: Hektorspruit, Transvaal.

Type specimen:

An adult ♀, TM. No. 1765, collected on September 9th, 1915.

Type locality:

Arnhemburg, Carolina district, Transvaal.

Distribution: (Fig. 19.1).

Occurs in alluvial soils below the escarpment in the Carolina district, possibly ranging to the north and south of this locality. In a southerly direction it is replaced by C. natalensis. North-easternly, it is found in the vicinity of Barberton and Komatipoort. From this point westwards and north-westwards through the southern half of the Kruger National Park, Acornhoek, Mariepskop and Baloon Farm on the eastern side of the Drakensberg escarpment at or near the Makoetsi River in the Leydsdorp district. Thence northwards it ranges to the vicinity of Woodbush and Tzaneen.

Diagnostic characters:

A small-sized species, H.B. M= 120 mm., C.B. M = 31.2 mm. (♂♂), reminding one somewhat of

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C. hottentotus, but differing from that species in the absence of inguinal mammae. Colour more variable than in C. natalensis. ♂♂ slightly larger than the ♀♀. Frontal (occipital) patch usually absent.

Colour:

The overall colouration of this species is reminiscent of the colouration found in C. natalensis, although it seems to be far more homogeneous. No description of the colouration of the type specimen has been given. Specimens from Tzaneen have been described as sandy-buffish (nearest to the so-called pinkish-cinnamon of Ridgeway). On the other hand, specimens from Komatipoort are even more brightly coloured. It can thus be inferred that colour seems to be individually and geographically variable. This is also borne out by the fact that specimens from the eastern escarpment of the Drakensberg are usually slightly darker than the forms of Arnheemburg, especially as far as the ♂♂ are concerned.

Size: Adult ♂♂:

H.B.	102-137 mm., M = 120 mm.
T.	11-29 mm., M = 16 mm., (13.3% of H.B.)
H.F.	15-25 mm., M = 20 mm., (16.6% of H.B.)
C.B.	26.5-34.6 mm., M = 31.2 mm.
B.C.	12.9-14.8 mm., M = 13.9 mm., (44.5% of C.B.)
I.W.	6.5-7.9 mm., M = 7.0 mm., (22.4% of C.B.)
Z.W.	18.1-24.9 mm., M = 22.0 mm., (70.5% of C.B.)
M.W.	5.3-7.4 mm., M = 6.4 mm., (20.5% of C.B.)
U.T.R.	4.4-7.5 mm., M = 5.2 mm., (16.6% of C.B.)
L.J.	18.4-22.4 mm., M = 20.4 mm., (65.3% of C.B.)
L.T.R.	4.4-6.8 mm., M = 5.2 mm., (16.6% of C.B.)

Adult/...

Adult ♀♀:

H.B.	90-135 mm., M = 118 mm.
T.	12-23 mm., M = 17 mm., (14.4% of H.B.)
H.F.	18-23 mm., M = 20 mm., (16.9% of H.B.)
C.B.	28.6-32.6 mm., M = 30.6 mm.
B.C.	12.8-14.5 mm., M = 13.7 mm., (44.7% of C.B.)
I.W.	6.1-7.3 mm., M = 6.7 mm., (21.8% of C.B.)
Z.W.	19.5-23.2 mm., M = 21.1 mm., (68.9% of C.B.)
M.W.	5.5-6.7 mm., M = 5.9 mm., (19.2% of C.B.)
U.T.R.	4.3-6.0 mm., M = 5.0 mm., (16.3% of C.B.)
L.J.	17.7-21.2 mm., M = 19.6 mm., (64.0 of C.B.)
L.T.R.	4.4-6.2 mm., M = 5.0 mm., (16.3% of C.B.)

Some degree of sexual dimorphism is present, although not phenotypically obvious. When the ♂♂ are compared to ♀♀ in respect of the C.B. lengths, sexual dimorphism becomes apparent at the 5% level of probability (i.e. $t = 2.05$, 44 degrees of freedom, $P = 0.05$).

Size in this species seems to be geographically stable. Samples from Hektorspruit (C.B. length $M = 31.4$ mm., (♂♂)) do not differ substantially from similar samples derived from Mariepskop ($M = 31.7$ mm.) while specimens from Woodbush (virtually its northernmost point of distribution) shows a value of 31.6 mm. for the same measurement.

Skull and dentition:

The skull is of smaller dimensions than C. natalensis and not as ruggedly and strongly constructed. Again, there seems to be a great degree of variation in the size and extent of the cranial elements (i.e. the patterns exhibited by the sutures), so that virtually nothing of diagnostic value can be derived/...

derived from them.

As far as the molare are concerned, no diagnostic information can be gained from these structures. It has been stated that the incisors project forward in a wider arch, but this seems to be a relative, rather than an absolute characteristic.

Discussion:

As was the case in C. natalensis, it appears that the species komatiensis has also been oversplit. Originally the following species were described by Roberts: 'G. komatiensis, (Arnhemburg, Carolina district, 1917), 'G. rufulus (Tzaneen, 1917), 'G. stellatus (Komatipoort, 1917) as well as Cryptomys melanoticus (Baloon Farm, Makoetsi river, Leydsdorp district, Transvaal, 1926).

In 1951 Roberts (p. 396) placed the latter two species as subspecies of Cryptomys komatiensis (i.e. C.k. stellatus and C.k. melanoticus), while he retained the species rank for C. rufulus.

Ellerman et.al. (1953, 233) have, on the other hand, placed C. komatiensis as a race under their C. hottentotus group (i.e. C.h. komatiensis) and have tentatively placed C. rufulus and C. melanoticus as synonyms of C.h. komatiensis. It is interesting to note, however, that 'G. stellatus (i.e. C.h. stellatus of Ellerman et.al.) has not been placed in synonymy with C.h. komatiensis, in this respect differing from Roberts, who, in 1951 demoted stellatus from specific to subspecific rank under C.k. komatiensis.

Furthermore, it is of interest to note that Ellerman et.al. have also tentatively placed C. vandami as a synonym under the subspecies

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C.h. komatiensis, while 'G'. natalensis pallidus (accepted as a synonym under C. vandami by Roberts in 1951) and C. natalensis nemo (to replace the name pallidus Roberts, preoccupied), are also treated accordingly. If this procedure is correct, it would imply that in some populations of komatiensis the inguinal mammae are absent, while being present in others.

On the other hand, if these various species and subspecies (excluding the vandami individuals) are synonymized, as is being proposed in the present work, the pattern of distribution exhibited by C. komatiensis becomes more logical and understandable. This eliminates the necessity of finding an explanation for the occurrence of at least two species (the one with at least three subspecies) in the eastern and north-eastern Transvaal.

'G'. komatiensis was originally described as being allied to C. natalensis, in having the same general characters but being much smaller in size. These remarks are borne out by measurements obtained in the present work. The mean H.B. length for ♂♂ was found to be 120 mm., in contrast to 143 mm. in C. natalensis. Similarly, the C.B. lengths in komatiensis and natalensis were found to be 31.2 mm. and 34.8 mm. (♂♂) and 30.6 mm. and 33.6 mm. (♀♀) respectively. Apart from size, it appears that the incisors project forwards in a slightly wider arch than is the case in C. natalensis.

As was indicated above, this species was demoted to subspecific rank (as the nominate subspecies) by Roberts in 1951. In the synonyms given under C. k. komatiensis, a typological error has

occurred/...

occurred: the date of description of the species 'G'. komatiensis is given as 1913, (Roberts, 1951, 396) which should in fact read 1917.

Similarly, 'G'. stellatus was described in 1917 (p. 272) as a separate species from Komatipoort, and the description was based on a single (and hitherto only known) specimen. Referring this specimen to a new species, may have been due to the fact that a white frontal spot is present, which may have prompted Roberts to recognize the specimen as different. Its colouration was described as more brightly coloured than 'G'. rufulus (which was described as a pinkish-cinnamon). On the other hand, Roberts (1951, 396) demoted this species to subspecific rank, while he pointed out that the white frontal spot may be abnormal as it occurs sporadically in other forms as well. The skull of stellatus was described as being readily distinguishable by the narrow interorbital constriction, a character which is usually constant in all species of Cryptomys. On closer inspection, however, it becomes clear that this feature may not be so diagnostic as was originally thought, for a certain amount of variation in this characteristic is encountered.

Although Roberts (1917, 272) took Arnheemburg in the Carolina district as the type locality for the species described as komatiensis, he states that another specimen, trapped at Arnheemburg, may be referable to this species (i.e. stellatus). The occurrence of two closely related forms at the same locality does not seem to be taxonomically palatable, and this fact has also induced the present author to synonymize stellatus with komatiensis. When the type specimen/...

specimen of stellatus is compared to specimens representing komatiensis, I fail to see any phenotypic differences between the two so-called subspecies. Unfortunately, the sample-size of stellatus does not allow any statistical comparison.

In 1917, Roberts (p. 272) also described 'Georychus' rufulus as a new species from Tzaneen. Its colour was described as being a sandy-buffyish (close to pinkish-cinnamon), while the specimens were of small size. In this respect, it corresponds rather well with C. hottentotus but differs therefrom in the absence of inguinal mammae. Roberts (1951, 397) has described its distribution as follows: from the type locality (i.e. Tzaneen) northwards to the Zoutpansberg (i.e. cutting across the distribution range of C. vandami), southwards to Barberton district (i.e. cutting across the distribution pattern of C. melanoticus, C. jamesoni), and again near Durban (cutting across the pattern of C. natalensis) and possibly also near Pirie, near Kingwilliamstown! (which is in the geographical range occupied by C. hottentotus). It is evident that this supposed pattern of distribution for C. rufulus is ridiculous and can not be accepted. It is more logical to assume this animal to be a synonym of komatiensis, which occurs at Arnheemburg, Komatipoort, Hektorspruit, Acornhoek, Baloon Farm, further northwards along the eastern face of the Drakensberg escarpment, until the area and vicinity of Tzaneen is approached. Roberts stated that this species overlaps the distribution pattern of the slightly larger komatiensis (p. 397), often occurring close to it at the same localities.

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The close correspondence in overall size between rufulus and komatiensis is reflected in Table 19.1.

Table 19.1: Overall correspondence in size between C. rufulus and C. komatiensis.

	<u>♂♂</u> :		<u>♀♀</u> :	
	<u>Tzaneen</u>	<u>Arnhemburg</u>	<u>Tzaneen</u>	<u>Arnhemburg</u>
H.B.	M= 123 mm.	M= 123 mm.	M= 122 mm.	M= 119 mm.
C.B.	M= 31.4 mm.	M= 31.7 mm.	M= 30.4 mm.	M= 31.9 mm.
L.J.	M= 20.6 mm.	M= 21.0 mm.	M= 19.3 mm.	M= 20.2 mm.

These few measurements show very clearly that C. komatiensis from Arnhemburg is slightly, though not significantly, larger than C. rufulus from Tzaneen and surrounding areas, and that apart from size considerations, there seems to be no justification for the separation of rufulus from komatiensis. They do not differ significantly in size, colouration, phenotype or morphology.

Similarly, Cryptomys melanoticus was described as a new species by Roberts (1926, 260) from Baloon Farm, near the Makoetsi river, Leydsdorp district. This species was originally described as being closely allied to C. komatiensis, but differing therefrom in that the female is normally darker than the male, "... almost black in some cases", while the males are usually coloured like komatiensis, "... perhaps darker on the average only". Compared to C. rufulus, it is slightly larger in size (which occurs in the same ground!) and beyond these average dimensions there are no outstanding differences in the skulls.

As far as melanoticus is concerned, Roberts (1951, /...

(1951, 396) states that this form is apparently very variable in colour (to a greater extent than is usual) and that specimens in different localities also vary, being more uniform in colour in some places than in others. He states furthermore, that the distribution of melanoticus overlaps the distribution of rufulus from which it is by no means always easy to separate except on size. As far as size is concerned, the present author finds it virtually impossible to discriminate between these species (or as they were later interpreted, subspecies) on size only.

Therefore, it was felt that the logical step in the present work would be to treat these two described forms as conspecific and to place stellatus, melanoticus and rufulus under C. komatiensis.

Finally, the inclusion of Cryptomys natalensis streeteri as a synonym under C. komatiensis in the present work, requires some explanation. This animal was originally described as a new subspecies (Roberts, 1946, 316), with the type locality Hektorspruit. It was described as a smaller and browner form (near cinnamon brown) compared to C. natalensis with corresponding changes in the skull (i.e. being lighter and narrower compared to C. natalensis from Karkloof and Masiyeni in Portuguese East Africa, although the incisors are arched to the same degree).

On studying the type specimen, I have come to the conclusion that the specimen is a representative of komatiensis rather than natalensis. This is seen in the size of the specimen as well as its colouration. Furthermore, if the geographical distribution of komatiensis/...

komatiensis is considered, it can be taken to occur from Arnheburg, east of Carolina, ranging through to Barberton and further northwards to Komatipoort and other localities to the south of the Kruger National Park. The present author fails to see the feasibility of natalensis suddenly appearing in the range occupied by komatiensis.

Table 19.2: Comparison of certain measurements of C. komatiensis, C. natalensis streeteri and C. natalensis.

<u>♂♂:</u>			
	(Arnheburg) <u>Cryptomys</u> <u>komatiensis</u>	(Hektorspruit) <u>Cryptomys</u> <u>natalensis</u> <u>streeteri</u>	<u>Cryptomys</u> <u>natalensis</u>
H.B.	M = 123 mm.	M = 120 mm.	M = 143 mm.
C.B.	M = 31.7 mm.	M = 31.4 mm.	M = 34.8 mm.
L.J.	M = 21.0 mm.	M = 20.9 mm.	M = 23.1 mm.
<u>♀♀:</u>			
H.B.	M = 119 mm.	M = 118 mm.	M = 141 mm.
C.B.	M = 31.9 mm.	M = 30.3 mm.	M = 33.6 mm.
L.J.	M = 20.2 mm.	M = 19.9 mm.	M = 22.2 mm.

It is clear that these figures speak for themselves, indicating that C. natalensis streeteri is in fact much closer to C. komatiensis than to C. natalensis. The differences between komatiensis and natalensis streeteri are so small (e.g. C.B. length and L.J. length in ♂♂) as to be statistically insignificant. It is therefore proposed, to place the subspecies C. natalensis streeteri as a synonym under the species C. komatiensis.

Biological/...

Biological:

It seems that this species prefers higher lying areas, although it is not restricted thereto and seems to occur in diverse and different soil types. In the Carolina district, it occurs in alluvial soils in the valleys below the Drakensberg escarpment while it prefers the hilly country about the eastern escarpment at its foothills from Acornhoek, Mariepskop and northwards to Woodbush. As a rule it may be said to occur in stony ground.

Further biological information about this species is virtually non-existent.

Phylogenetic:

The closest relative of C. komatiensis appears to be C. natalensis, although the two species differ considerably in size. In both species the inguinal mammae are absent, possibly indicating a similar basic genotype.

List of localities:

Arnhemburg, Carolina district, 10 (TM),
Acornhoek, 3 (TM), Barberton, 2 (TM), Dzueni, 1 (KP),
Faai-Stungwane Fire Break, 7 (KP), Hektorspruit,
8 (TM), Krantzview, Carolina district, 1 (TM),
Legogote, 1 (SA), Mariepskop, 25 (TM), Tzaneen,
5 (TM), Warmbad, Carolina district, 4 (TM),
Woodbush, 8 (TM).