
ANNALS MEDEDELINGEN
OF THE VAN HET
TRANSVAAL MUSEUM

VOL. 10

PART 2

SOME ADDITIONS TO THE LIST OF SOUTH
AFRICAN MAMMALS

BY AUSTIN ROBERTS

With two figures

DURING recent years the collection of mammals in the Transvaal Museum has been considerably enriched, and amongst the material acquired are a number of undescribed forms and new records for S. Africa. The present paper will be followed by another in which the systematics of our mammals will be reviewed in the light of the material above mentioned and this again by a "Synoptic Check List," upon the same lines as my recent papers on the nomenclature of birds. In regard to the last, I have been criticised for recognising so many genera in birds; but when the systematics of mammals are compared with them, it will be seen that I am merely bringing the classification of the two classes into line, few changes being necessary in mammalogy. The only genera I shall deal with here are in the *Chrysochloridae*, though I should like to see the genera *Crociodura* and *Rhinolophus*, both of which are cumbersome, more suitably grouped than we find them to-day.

Rhinolophus darlingi barbertonensis subsp. nov.

Similar in structural characters to *R. darlingi* Andersen (*Ann. and Mag. N.H.* (7), xv, p. 20), which occurs in the highveld from Nyasaland to Transvaal, but differing therefrom in its consistently smaller size, especially in the skull. The following dimensions will serve to show this difference, those in brackets being of the typical form (from a specimen taken at Pretoria) and the others from the type taken in the district of Barberton; altogether ten specimens of the smaller form, from Barberton, Louws Creek, Gravelot Mine (near Leydsdorp) and Mokeetsi, all below the Drakensberg Mountains, and twelve of the larger, from Pretoria, have been compared, and the figures given represent the normal, hardly any overlapping being perceptible in the external dimensions, and less in the cranial. Length of head and body 45 (55), tail 33 (32), hind foot with claws 8 (8), ears 20 (21), all taken in the flesh. Length of forearm 45 (49); third finger, metacarpal 34 (36), first joint 14.5 (16.8), second joint 24.5 (26); fourth finger, metacarpal 33.2 (34.5), first joint 8.4 (9.8), second joint 15.2 (18); fifth finger, metacarpal 34 (36), first joint 11.2

(11·8), second joint 14 (16·5); tibia and foot with claws 26 (28). Skull: length from front of canines to occiput 18·8 (19·5); width of brain case 8·8 (9·2), width across canines 5 (5·5); length of upper tooth row, from front of canines to back of hindmost molar 6·8 (7·2).

Type: Adult female, T.M. No. 2476, taken at Louws Creek, Barberton, on March 14th, 1920.

Eptesicus zuluensis spec. nov. (text-fig. 1).

In external appearance very similar to *Eptesicus capensis* taken in the same place, but with a rather longer tail, and the skull smaller and deeper in the cranium, even when compared with *E. capensis gracilior* Thomas and Schwann (from Eshowe, Zululand). In its deep cranium it somewhat resembles *Glischropus nanus* (Peters), but differs therefrom in the absence of the small upper premolar and in dimensions of both body and skull. In the size of the skull it is about the same as in *Pipistrellus kuhli fuscatus* Thomas, but differs from this also in the number of teeth, narrower muzzle and deeper cranium. It is altogether an interesting animal, whose affinity to our known species is not at all clear, the longer tail seeming to point to its affinity to the longer tailed



Fig. 1. *Eptesicus zuluensis*.

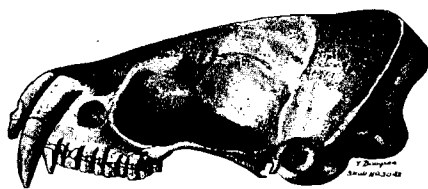


Fig. 2. *Eptesicus capensis*.

species *E. smithi* Wagner (Schreber, *Sauget. Suppl.* v, p. 747, footnote) and *E. melckorum* Roberts (*Ann. Transvaal Mus.* vi, p. 113), but for the skull being quite differently shaped. The following table of dimensions will serve for comparison of the type specimen with the dimensions given for the type of *gracilior*, of another specimen of the same form from Mokeetsi (N.E. Transvaal), and a series of *E. capensis* from a wide range of localities, including the type locality of *zuluensis*:

	Type of <i>zuluensis</i>	Type of <i>gracilior</i>	Mokeetsi specimen	Series of <i>capensis</i>
Head and body	45	47	44	49-55
Tail	37	28	30	30-34
Forearm	30·5	29	30·3	32-35
Canines to occiput	12·8	13·2	13·2	13·7-14·5
Basilar skull length	9·5	10·1	10	10·4-10·8
Mastoid width	7·5	7·6	7·8	7·6-8
Width across <i>M</i> 2	5·1	—	5·6	5·6-6·2
Palate length	4·6	—	5·5	5·3-5·5
Upper tooth row (canine to <i>M</i> 3)	4·4	—	4·7	4·7-5
Lower tooth row	4·9	5·1	5	5·5-5
Posterior height at bullae	6·1	—	5·3	5·3-5·8

The slightly raised cranium is the most marked character of the species, all members of the *Eptesicus capensis* group having the cranium on a level with the muzzle.

Type: Adult female, T.M. No. 3024, taken in the White Umfolosi Game Reserve, on June 29th, 1922. It was shot in the evening while flitting past

my camp. A specimen of the typical *E. capensis* (text-fig. 2) was taken in an aloe at the same place, and has rather shorter hair, whereas another specimen of *capensis* taken on higher ground at Ntambanana has the hair and same external appearance, even to the shape of the ears, as the type of *zuluensis*.

Kerivoula nidicola zuluensis subsp. nov.

In dimensions almost identical with a specimen of *K. nidicola* from Boror, and therefore larger than *K. lanosa*, but in colour much darker, the underparts of body being smoky greyish white, instead of buffy white, the upper parts darker, buffy brown instead of golden buffy as in *nidicola*. In *K. lanosa* the subterminal coloration of the hair is of a reddish brown, merging into the dark basal colour, whereas in *nidicola* the dark base of the hair is well defined from the subterminal golden buffy, which occupies the greater part of the hair; in *zuluensis* the dark base is even more pronounced, owing to the presence of a buffy line immediately above it, this becoming darker towards the tip of the hair, which becomes brown and produces a general dark effect. The hair of the back is long, as in *lanosa*, about two millimetres longer than in *nidicola*. White tips to the hairs of the back are present as in the other species.

Type: Adult male, T.M. No. 3025, taken from the nest of a weaver bird, together with two companions, on the White Umfolosi River, Zululand, on July 17th, 1922.

Myosorex transvaalensis spec. nov.

A member of the pale-footed group of the genus, differing from *M. caffer* of the south-eastern forests in its smaller skull, shorter and narrower muzzle (upper tooth-row 8.7-9.1 mm., as against 9.5-10.5, width at the molars 6.4-6.6 as against 7.1-7.5 in *caffer*). *M. varius* of the southern region has the skull somewhat intermediate, but is an altogether more pallid animal. It differs from the Drakensberg species (*M. tenuis*) in its pale feet and slightly different skull.

Colour: Dark brown above, speckled with greyish, but without the strong suffusion of tawny so conspicuous in *M. caffer*, the sides slightly lighter coloured and this merging gradually into a more buffy on the underparts of the body; upper surface of the hands and feet dull white; tail brown above and paler brownish white below. Skull more lightly built than in *caffer*. Hair of the back about 2 mm. shorter than in *caffer*, about 5 mm. as compared with 7 mm.

Type: Adult female, T.M. No. 2959, taken at Koster, on the edge of the "highveld" of Transvaal, May 3rd, 1922. Length of head and body 88 mm., tail 40, hind foot 13, ear 9 mm., as measured in the flesh. Skull: greatest length, including the incisors, 21.3, basilar length 18.2, greatest width 10.1, width of maxilla at the molars 6.4, upper tooth-row from front of incisors 8.9, length of large upper back teeth 5.1 mm.

A series of half a dozen specimens showing very little variation was taken at the same time, in scrub on the banks of a small stream.

Pachyura orangiae spec. nov.

In size intermediate between *P. varilla* Thomas (*Ann. and Mag. N.H.* (6), xvi, p. 54) from the Eastern Cape Province and *P. chryseos* Kershaw (*Ann. Durban Mus.* III, p. 31) from Natal, Zululand and highveld of Transvaal, the skull length including the incisors varying between 15.7 and 16.4 mm., as against 17 mm. or more in *varilla* and 14 to 15 in *chryseos*. In colour in the majority it is pale greyish with a slight chestnut tinge above, and in this

respect differs from *P. gracilis* Blainville, which is described as dark chestnut; but in some examples the chestnut is more conspicuous, forming a contrast with the pale whitish of the underparts of the body; the limbs in the lower part are of the same light coloration as the underparts. It is unlikely that *P. gracilis* is ever as greyish as even the darkest specimens of *orangiae*, having regard to the difference in climate of the southern region and that of the Vaal River region, and in any case the dimensions given point to a smaller animal, the head and body being given as 1" 7'" (= 43 mm.), tail 1" (= 27 mm.). The colour may be described in the type (an adult male in complete pelage) as light chestnut over the whole of the dorsal surface, on a pale greyish background, and ventrally whitish, with a faint tinge of buffy. The base of the hair is dark slate, followed by greyish and with the tips light chestnut; the lower part of the limbs whitish and the tail light chestnut above and whitish below. The tail is rather slender, though fairly broad at the base and tapering slightly, and rather closely haired, with numerous longer bristles almost to the tip. The ears are coloured like the surrounding hair, light chestnut above, but whitish on the lower part, and are clothed on the exposed parts with short bristles.

Type: Adult male, T.M. No. 2565, taken together with an adult female and three young in an old ant-heap at Angra Pequina, Bothaville District, May 5th, 1920. Head and body length 50 mm., tail 30, hind foot (s.u.) 9, ear 7.5, as taken in the flesh. Skull: greatest length including the incisors 15.9 mm., greatest width 7.2, width of maxilla at the molars 5.1, upper tooth-row including the incisors 6.4, lower tooth-row 5.9, sagittal height posteriorly 3.7. This species has also been obtained at Bothaville village, in Parijs district to the east and at Rosslyn north of the city of Pretoria. The small species *P. chryseos* Kershaw has been procured by me at Ntambanana, Zululand, and on the hills above and south of Pretoria.

Elephantulus capensis spec. nov.

Differing markedly from *Elephantulus rupestris* (A. Smith) and *E. edwardsi* (A. Smith) in having the tail almost nude, and in the rufous patch behind the ears being hardly perceptible. Cranially it differs but little from *E. rupestris*, except that it is larger and the bullae are smaller.

Colour: Greyer than in any previously described S. African species of the genus, the tawny rufous coloration being almost absent on the face and back, and only a slight suffusion of fulvous representing it. The rufous yellow patch behind the ears, so characteristic of all the other species, is hardly perceptible. The tail is very thinly clothed with short bristles, and blackish for at least two-thirds of its length, the basal portion lighter coloured like the body. In other respects very similar to the typical species of the genus. The skull offers little difference when compared with the other species, except that the teeth are more evenly spaced in the muzzle, the gap between the hindmost incisor and the canine being hardly greater than between the two back incisors, and these isolated teeth are broader when viewed from the side and thus are closer together.

Type: Adult female, T.M. No. 2312, shot amongst rocks at Klaver, Cape Province, on September 25th, 1917. Dimensions are given hereafter. Also three more specimens from the same place and one from Lamberts Bay.

E. vandami spec. nov.

In the main closely resembling *E. rupestris* from the lower Orange River mountains, but differing markedly in its much larger size. *E. edwardsi* is geographically interposed between this species and *E. rupestris*, and I must

therefore regard it as a distinct species. In dimensions it comes close to *E. myurus jamesoni* Chubb, which occurs commonly over the southern Transvaal from Swaziland to Schweizer Reneke and over the northern Orange Free State, but it differs in having the tail heavily bristled for at least the terminal third, the bristles long and black, showing up markedly against the greyish shorter hair, the tip pure black,

Type: Adult female, T.M. No. 2361, shot amongst rocks by G. P. F. van Dam, at Cradock, Cape Province, on October 7th, 1920. Dimensions of this and the other forms of the Union above mentioned are as follows:

		Head and body	Tail	Hind foot	Ear length
<i>E. capensis</i>	♂ (1)	115	138	35	29
<i>E. vandami</i>	♂ (2)	121	147	35	25
<i>E. m. jamesoni</i>	♂ (3)	141	148	38	25
<i>E. rupestris</i>	♂ (4)	105	135	33·5	24
<i>E. edwardsi</i>	♂ (5)	108	135	32	27

Skull dimensions

(The numbers in brackets indicate the same specimens as those in preceding table)

	(1)	(2)	(3)	(4)	(5)
Greatest length	38·5	38·5	39·5	36·8	34·9
Basilar length	33·5	33·8	34·6	32·5	30·3
Greatest width	21	—	21·1	19·8	19·6
Width of brain case	16·3	15·7	16·2	14·9	15
Interorbital width	7·8	6·2	8	6·8	7·5
Diameter of bullae	7·4	8·5	7·8	8	8·5
Length of nasals	16·2	16·8	16·5	16·2	13·5
Length of lower tooth row (<i>I-M</i> 2)	20·5	20·5	21	19·3	18·3

CHRYSOCHLORIDAE.

The generic arrangement of the *Chrysochloridae* is in need of some revision, the species found within our limits containing at least eight generic groups that may be defined with ease, and I therefore propose the following arrangement:

Chrysochloris G. Cuvier, type *Talpa aurata* Zimm. (= *asiatica* L.).

With 40 teeth in all, the lower posterior teeth without posterior talonids. Skull short and broad posteriorly, its width 74–81 % of its length. The only genus characterised by having an isolated temporal bulla (*i.e.* a bulla situated on the anterior surface of the cranium, inside the posterior plates of the zygomatic arch).

EREMITALPA gen. nov., type *Chrysochloris granti* Broom (cf. *Ann. and Mag. N.H.* (7), XIX, p. 265).

With 40 teeth in all, the lower back teeth without posterior talonids. Skull extraordinarily broad in proportion to its length, the cephalic index 85–90. The only genus having the fourth claw of the fore foot well developed; the hair also very long and silky, in this respect differing from the other small genera.

Chrysostricha Broom, type *Chrysochloris obtusirostris* Peters.

With only 36 teeth in all, the lower back teeth without a posterior talonid. Skull short anteriorly, but the cephalic index about 69–73. Differing from the other genera in its very short fur, the base of which is bright yellow instead of grey.

NEAMBLYSOMUS gen. nov., type *Chrysochloris gunningi* Broom.

With 38 or 40 teeth in all, the lower back teeth with only a trace of a posterior talonid on the premolars and none on the molars. The last upper molar is not always present and is a small round tooth, quite unlike the wedge-shaped teeth so characteristic of the family; the lower hindmost molar is apparently always present, but also of aberrant shape. The shape of this hindmost tooth and its irregularity of appearance in the maxilla seem to indicate a re-development from a group containing only 36 teeth. Skull shaped as in *Amblysomus*, the cephalic index 58-66. In general much like *Amblysomus*.

Amblysomus Pomel, type *Chrysochloris hottentottus* A. Smith.

With only 36 teeth in all, the lower back teeth with a posterior talonid (I have seen only two exceptions, in which the talonid is represented by a mere ledge). Skull rather long, the cephalic index 58-66. Burrowing claw very stout.

CHLOROTALPA gen. nov., type *Chrysochloris duthiae* Broom.

With 40 teeth in all, the hindmost molar small, but wedge-shaped like the others. Skull shaped as in *Amblysomus*, with the same cephalic index. In size smaller than *Amblysomus*, the burrowing claws weaker, and the tip of the nose upturned and rigid instead of level and flexible.

Bematiscus Cope, type *Chrysochloris villosus* A. Smith.

With 40 teeth in all, the lower back teeth with a posterior talonid, the hindmost molar normal. Skull altogether different in shape from the preceding genera, the posterior part being very broad, the anterior long and narrow, though relieved by the anteriorly converging zygomatic arches, which are peculiar in their posterior breadth, broad plates being formed by them and covering the anterior part of the cranium. The burrowing claws are weak and the hair is long, with coarse projecting bristles. In size much larger than preceding.

Chryso spalax Gill, type *Chrysochloris trevelyani* Guenther.

Very similar to the preceding genus, but differing in being still larger, with even more broadly developed posterior zygomatic plates, and with the hair altogether harsher in texture.

With regard to species, the following may be described as new:

Chlorotalpa montana spec. nov.

Differing from *C. sclateri* (Broom), which occurs from Beaufort West to Basutoland, in having the upper parts glossy greenish and only the under-parts of the body reddish; the markings of the face are somewhat similar, but pure white is only seen as an eye-like spot at the top of the whitish area, which is partly hidden by brown tips. The skull is of about the same length as in *C. sclateri*, but narrower, of about the same width as in the smaller *C. duthiae* of Knysna. The species no doubt occupies the forest patches on the east of the Drakensberg; but it is very local, not apparently occurring away from the forests, like the common *Amblysomus* which occurs in the same ground.

Type: Adult male, T.M. No. 2900, taken in a patch of scrub at Kastrol Nek (altitude 6500 feet), east of the town of Wakkerstroom, January 20th, 1922. Length of the head and body taken in the flesh 98 mm., of the hind foot without the claws 11.5 mm. Skull: greatest length 24.5, basilar length

16.3, greatest width 14.6, height posteriorly 11.7, interorbital width 7, length of the upper tooth-row, including the incisors 9.9, width of the palate across the outside of the molars 7.5, length of the palate 9.3; the largest burrowing claw measures in length 10.5, in breadth 4.3, the next one in length 5.3 mm. An adult female taken at the same time lacks the green gloss on the back, perhaps due to wear, and is bronzy brown instead. It is slightly smaller in the hind foot (11 mm.) and skull (greatest length 23.6, greatest breadth 14.3), and has one lateral and one inguinal pair of mammae.

Bematiscus rufopallidus spec. nov.

Differs from the Natal lowlands species, *B. villosus*, in being reddish coloured instead of dark yellowish brown, the hair of the back shorter (14-16 mm. instead of 18-21), and the skull probably larger, if the type proves not to be identical with the form found in the neighbourhood of Pietermaritzburg, as the published dimensions appear to indicate. The teeth are the same as in *B. villosus*, the largest upper back teeth measuring in transverse diameter 2.9-3.2 mm., as against about 3.7 in the form found at Pretoria. In my catalogue published in these *Annals* in 1913, when describing *B. pratensis*, I included this species, although the type and co-type were from Pretoria. About the same time, Dr Broom named the species *B. transvaalensis* (cf. Abstract, *P.Z.S.*, p. 547, 1913), and as this has priority by a few months, this specific name takes the place of *B. pratensis*; but the type of *B. transvaalensis* having been procured in the highveld at Springs, and the type of *B. pratensis* in the bankenveld at Pretoria, it seems likely that the latter name must stand to represent a subspecies, especially as the two specimens from Pretoria are broader and longer in the skull (36.5 × 24, as against 34.5 × 23.5). The new species described above appears to be somewhat intermediate between *transvaalensis* and *villosus*, as the dimensions are intermediate, the teeth small as in *villosus*, but the hair shorter and reddish as in *transvaalensis*. Dr Warren has very kindly lent me a number of specimens in the Natal Museum collection from the Natal midlands, which have greatly assisted me in coming to this conclusion. It seems likely from examination of this material that another form exists in the Natal midlands, the type of *B. villosus* having a smaller skull and having been taken near Durban.

In colour the present species is lighter reddish on the back, on account of the dark tips being practically absent, than the two specimens of *pratensis* from Pretoria and the type of *transvaalensis* as described by Broom.

Type: Adult male, T.M. No. 1236, taken as described in my catalogue in 1913, at Wakkerstroom, on January 3rd, 1913. Also a series of two more males and three females from the same place. There is a slight variation in dimensions and females have the skull rather shorter than males, although of about the same breadth, the extremes being:

	Males	Females
Length of head and body	150-165	145-160
Hind foot (s.u.) ...	14-16.5	16-17.5
Skull: greatest length ...	35-36.5	33.6-33.7
" " width ...	21.8-22.6	21.7-22.8
Posterior height ...	16.1-16.8	15.8-16.6
Length: upper teeth ...	13.7-14	13.2-13.8
Palate width ...	9.9-10.2	10-10.7

Ictonyx striatus maximus subsp. nov.

Comparison of the series of specimens in the Transvaal Museum collection seems to show that there are two groups of forms of the Striped Muishond, each of which has local races. I take the larger species to represent the typical

animal, and for purposes of comparison will describe one from Lamberts Bay, some distance to the north of Cape Town, whence the original animal was no doubt procured. The sutures of the skull close at an early age, and there is apparently little change in size after the milk teeth have been shed, so that comparisons are easily made. The larger species has the length of the hind foot over 56 mm., and the skull length over 65 mm., the smaller species giving measurements below these figures.

The present subspecies is based upon an immature male (with the milk dentition on the point of being displaced), but with a skull so much larger than any of the other forms that it is easily recognised. In colour the dorsal stripes are creamy white, and the markings do not differ appreciably from those of the typical form, except that there are white hairs sprinkled amongst the black above, no doubt a juvenile character. The underfur of the back measures about 20 mm. and is very close and soft, the long black bristles are not so numerous but longer (measuring about 45 mm. as against about 30 in *striatus*) and the long white bristles even longer; the hair of the tail is between 40 and 45 mm. in length, close-set and with woolly underfur at the base of the tail.

Type: Immature male, T.M. No. 1197, trapped at the burrow of a *Bematacus* at Wakkerstroom, January 3rd, 1913. Dimensions hereafter, with those of an older skull, labelled "Transvaal," probably of this species, in brackets.

I. striatus pondoensis subsp. nov.

Characterised by having the same dense woolly underfur and short tail of *maximus*, and long hind foot of the species, but with the dorsal median black diagonal mark and white spot on the forehead much smaller, the former completely severed from the lateral black dorsal stripe by the inner white stripe, and the hair of the tail either completely white or with a broad dark brown band in the middle of the hair, except at the base below, which is blackish. Hair of the back as in *maximus*, but on the tail rather longer, over 60 mm. In size smaller than *maximus* and *striatus*, but with the skull of about the same size as *striatus*, as will be seen on comparing the figures in the table hereafter.

Type: Adult male, T.M. No. 967, Port St Johns, collected by H. H. Swinny, November 18th, 1907.

Dimensions of the forms of Ictonyx striatus, males.

	<i>I. striatus</i>	<i>I. maximus</i> (juv. and ad.)	<i>I. pondoensis</i>	<i>I. limpopoensis</i>
Length head and body ...	360	350	321	343
" of tail ...	250	150	235	261
" of hind foot ...	58	58	58	58
" of ear ...	27	29	30	29
Skull: greatest length ...	67.4	70 (72.5)	68	68.5
" basilar length ...	58.5	61.8 (65)	60.7	60
Zygomatic width ...	41.4	39 (45.7)	42	45
Mastoid width ...	32.2	36 (36.2)	34.7	35.8
Width of brain case ...	30.1	32.3 (32.7)	30	29.7
Interorbital constriction ...	18	16.5 (19.3)	17.7	18
Intertemporal constriction ...	16.2	17 (15.7)	13.3	14.5
Height, from palate behind molars ...	19.8	21.2 (21.2)	19.5	18.7
Height at bullae ...	26.8	28.8 (29)	27.5	28.5
Greatest diameter of <i>P 4</i> ...	8.5	— (8.6)	8.3	8.5
Outside length of <i>P 4</i> ...	7.8	— (7.6)	7	7.2
Greatest width of <i>M 1</i> ...	7.3	7.5 (7.2)	7.5	7.4

Ictonyx striatus limpopoensis, described by me in these *Annals*, vol. v, p. 265, from the bushveld of western Transvaal, is characterised by having very scanty underfur and the bullae deeper than in the other forms.

I. orangiae spec. nov.

Differs from *I. striatus* in its smaller size in all respects. The colour markings are much the same, except that the inner white dorsal stripe is discontinuous on the middle of the back and again on the rump, only a few white hairs at the posterior half of the black diagonal dorsal mark indicating the continuation of the line. The frontal white spot in the type is elongate, measuring 20×8 mm. The tail is short, thickly clothed with long hair and with underfur at the base, mainly black in colour at the basal third, but the remainder mainly white, with dark bands in the middle of the hairs. The hair of the back is of about the same length as in *I. striatus* from Lamberts Bay. Dimensions of the animal and skull are given hereafter.

Type: Adult male, trapped at rat burrows, at Angra Pequina, in the sandy country south of Bothaville, O.F.S., May 14th, 1920.

I. orangiae pretoriae subsp. nov.

Very similar to the typical form, but with the underfur scanty and the upper carnassial tooth larger. Dimensions are given below.

Type: Adult male, T.M. No. 2444, trapped at mouse burrows at Boekenhoutfontein (on the border of the bushveld), Pretoria District, December 19th, 1919.

I. orangiae arenarius subsp. nov.

Differing in having the dorsal stripes pure white, instead of buffy white as in all the others described above, and the stripes formed as in *I. striatus* taken at the same place. It differs from *I. striatus* in being smaller (although this specimen and that of *striatus* are of the same age and sex) and has larger ears.

Type: Adult male, trapped at the burrows of gerbilles, in the sand dunes at Lamberts Bay, October 13th, 1917.

	<i>I. orangiae</i>	<i>I. o. pretoriae</i>	<i>I. o. arenarius</i>
Head and body	300	340	284
Tail	200	260	235
Hind foot (s.u.)	49	55	52
Ear	30	26	33
Skull: greatest length	62	63.5	61.5
„ basilar length	55.5	55.5	54.9
Greatest width	36.7	38.1	34.1
Mastoid width	31.5	33	29.9
Width brain case	31.2	29.7	28
Interorbital width	16.1	16.8	14.3
Intertemporal width	16.2	15	13.5
Height from palate behind molars	18.3	18.3	16.6
Height at bullae	26.5	25.8	25.5
Greatest diameter <i>P</i> 4	6.7	8	7.5
Outside length <i>P</i> 4	6.5	7.3	7
Width of <i>M</i> 1	6.7	6.5	6.7

Genetta rubiginosa zuluensis subsp. nov.

Similar in colour markings to *G. rubiginosa* of the dry western districts, but on the average much darker and larger. The dorsal stripe and spots are darker than in *G. rubiginosa*, and the proximal dark rings on the tail are black, with hardly any or no trace of rusty colour. This applies to four out of five skins, the fifth being much as in *rubiginosa*; but the skull of the fifth specimen is larger than in that species. I have compared this series with four specimens

from western and four from north-eastern Transvaal, and give the minimum and maximum of these eight specimens in brackets in the following table, the other dimensions being of the Zululand series:

Length of head and body	465-490	(440-532)
„ tail without hairs	435-470	(430-475)
„ hind foot (s.u.)	86-90	(80-83)
„ ear	45-50	(42-47)
Skull: greatest length	90.5-101	(84-91.5)
Basilar length	82.7-89.5	(75.5-84.5)
Zygomatic width	43.8-50	(39.5-47.5)
Width across bullae... ..	28.8-31.2	(27-28.8)
„ of brain case... ..	30.4-31.7	(30-32.5)
Interorbital constriction	12.5-15	(11.2-13.9)
Intertemporal constriction	9.5-12.4	(10-14.7)
Palate length	39.8-42.3	(36.2-40.2)
Width across outside of <i>P 4</i>	26-28.5	(24.5-28.5)
Length of bullae, with paroccipital process	18.2-18.8	(16.8-18.5)
Upper tooth-row, with <i>C</i>	31.5-35	(30.8-32.9)
Greatest diameter <i>P 4</i>	8.9-10	(8.5-9.8)
Outside length of <i>P 4</i>	7.3-8.8	(7.8-8.5)
Greatest diameter of <i>M 1</i>	7.2-8.6	(7.3-8)
Length of mandible... ..	63-69.5	(56.3-65)
Lower tooth-row	36.7-41.2	(35.1-38)

It is of interest to record that two out of six specimens have the internal cusp of *P 3* well developed, as in members of the other group (*felina*, *ludia*, *pulchra*, etc.). The type is an adult male (T.M. No. 3008) with a skull length of 101 mm. and a well-developed cusp to *P 3* and is the darkest specimen in the series. All were taken on the banks of the White Umfolosi, in the Umfolosi Game Reserve, in June and July, 1922.

Genetta pulchra Matchie (*Verh. Internat. Kongr.* p. 1139, 1902), described from Okavango and Damaraland, must be added to our list. It is a member of the *G. felina* group and is a paler animal with more rusty spots than *G. ludia*.

Ichneumia grandis haagneri subsp. nov.

Differs from the typical *I. grandis* (Thomas) of the eastern Transvaal, Swaziland and Zululand in having the woolly underfur white instead of pale yellowish. In the teeth and other general characters I can see no constant difference, though examination of a longer series may eventually disclose minor differences. We have at present three specimens from Hector Spruit, one from the Komati River, Barberton District, and one from Umfolosi Game Reserve of the typical form, and the type of the present form from Bridgewater, Rustenburg District, and another specimen from the Zoological Gardens, kindly presented by Dr A. K. Haagner, said to be from the same district, of the same colour. There appears to be little difference between the young and old animals of this species in colour, except that young animals are more blackish above in consequence of the presence of more of the long black bristles, the underfur remaining constant in colour.

Cynictis penicillata brachyura subsp. nov.

The subspecies recently described are all from the southern area and little has been said about the northern forms. In working out the specimens in the Transvaal Museum, I was considerably puzzled to identify these northern forms, until I found that there has been an error made in the length of the hind foot. Thomas many years ago (*P.Z.S.* 1882) recorded the dimensions of the types of Smith's species and from this it would seem that the northern forms had a foot length equal to that of the southern forms. This, it is clear, is by no means the case, the northern *C. leptura* having a foot length of about

70 mm., whereas the southern forms have it about 76 to 78 mm., as will be seen in the tables of measurements given presently. Schwann (*P.Z.S.* p. 104, 1906), in describing *C. p. intensa* from Deelfontein, mentioned the various forms that had been described, but concluded that Steedman had collected the type of *C. steedmanni* Ogilby somewhere in the Orange Free State and not at Uitenhage. This is, I think, also an error, as the dimensions published by Thomas go to show that the type has large teeth, though the skull is small and presumably therefore juvenile. A specimen in the Transvaal Museum collection, without a skull, from Uitenhage is quite different from any I have seen from the Orange Free State in its larger feet and long hair; but as there are apparently two forms in that province, one representative of the highveld and the other the dry western districts, possibly the specimens referred to by Schwann were of the highveld form. This is the one I am here naming. It differs from *C. p. steedmanni* in having a shorter foot, shorter tail and shorter hair, though the general tone of coloration is the same. The hair of the back measures about 25, of the tail well over 50 mm., in *steedmanni*, but only about 14 and 30 mm. respectively in the present highveld form. In the western O.F.S. specimens (*ogilbyi*) the hair of the back measures about 20 mm. and of the tail about 50. Dimensions of the body and skull will be given hereafter; but it may be pointed out that the teeth in the north-of-Karoo forms differ appreciably from those of the south, which seems to point to the existence of distinct species in the south and north respectively.

The colour of the present form may be described as tawny buff above, from the shoulders to the tail, more greyish on the hindneck, and on the sides becoming paler and the underparts of the body still paler, the throat palest and almost white; the extremities of the limbs are pale like the underparts; tail uniform like the back at the base above, but in the middle and on the sides at the base with more or less banding of black towards the tips of the hairs, which are again tawny yellowish; the tail is rather short and tapers in the terminal third. In some examples the upper parts are more tawny coloured.

Type: Adult male, T.M. No. 1902, taken at Boschkop, near Johannesburg, by W. Powell, February 23rd, 1916.

North of the Magaliesberg and westwards we find the form described by Smith as *C. leptura*, which has a short foot like the form described above, but the tail longer and its hair shorter by a few mm., so that it tapers more uniformly from the base to the tip.

C. penicillata bradfieldi subsp. nov.

A well-marked form differing in having a much smaller skull and the general coloration more bleached, in one specimen almost white in place of yellowish. The tail is apparently not distichous and in general the animal appears to be most closely allied to *C. leptura*, its small size, however, pointing to its being perhaps a distinct species.

Type: Adult male, T.M. No. 3484, "Quick-born," Okahandja District, S.W.A., presented by R. D. Bradfield, Esquire.

The following external and available cranial dimensions will serve to show how the species may be separated into three main groups:

		Head and body	Tail	Hind foot
(1)	<i>C. steedmanni</i>	393 (?)	235	78
(2)	Uitenhage ♂	342	253	76
(3)	Grahamstown ♂	368	247	76
(4)	<i>C. p. intensa</i> ♀	367	261	76
(5)	<i>C. p. pallidior</i> ♂	328	269	76

		Head and body	Tail	Hind foot	
(6)	<i>C. ogilbyi</i>	380 (?)	228	(76?)	
(7)	Bothaville	♂	330	230	69
(8)	"	♀ (♂)	330	215	70
(9)	Ventersburg Road	♀	335	220	67.5
(10)	<i>C. leptura</i>		380 (?)	228	(76?)
(11)	Wilgekuil	♂	335	235	70
(12)	"	♀ imm.	325	221	70
(13)	Jericho	♀	320	235	69
(14)	<i>C. p. brachyura</i>	♂	348	208	70
(15)	"	♀	335	205	70
(16)	Pretoria	♂	320	206	68
(17)	"	♀	300	190	62
(18)	<i>C. p. bradfieldi</i>	♂	330	214	65
(19)	"	♂	317	209	65
(20)	"	♀ imm.	282	203	61

In the skulls and teeth the differences between the three groups are more clearly seen:

		Greatest length	Basilar length	Greatest width	Greatest diameter <i>P</i> 4	
(1)	<i>C. steedmanni</i>	68	—	39.3	8.9	
(2)	Uitenhage	—	—	—	—	
(3)	Grahamstown	♂	74	66	41.7	8.5
(4)	<i>C. p. intensa</i>	♂	74	67	40	—
(5)	<i>C. p. pallidior</i>	♀	70.5	64	—	—
(6)	<i>C. p. ogilbyi</i>		67	—	40.3	8.1
(7)	Bothaville	♂	68	62	40.6	7.8
(8)	"	♀ (♂)	68.8	61.8	39.6	8
(9)	Ventersburg Road	♀	68.7	64.2	39.8	7.8
(10)	<i>C. leptura</i>		68	—	40.5	7.5
(11)	Wilgekuil	♂	69	61.5	41.2	8
(12)	"	♀ imm.	64.8	58.7	37.5	7.5
(13)	Jericho	♀	67.5	60.2	38.7	7.7
(14)	Johannesburg	♂	68	60.5	40.6	7.7
(15)	"	♀	66.3	60.5	39.5	7.1
(16)	Pretoria	♂	68.5	60.8	41.3	7.5
(17)	"	♀	66	57.5	38.4	7.1
(18)	Okahandja	♂	64.5	58.5	37.5	7.5
(19)	"	♂	63.5	58	36.8	7.5
(20)	"	♀ imm.	60.5	55.7	34.1	7.5

Otomys irroratus maximus subsp. nov.

Thomas has recently shown the importance of the number of laminae to the foremost lower and hindmost upper molars in these Water Rats, applying subgeneric names to emphasise this (cf. *Ann. and Mag. N.H.* (9), II, pp. 203-211), and it is therefore clear that what I formerly regarded and recorded as *Otomys anchietae* from N.W. Rhodesia are really a very large form of the typical subgenus and not of the subgenus *Anchotomys* of which *O. anchietae* is the genotype. In the same place Thomas has described *O. irroratus coenosus* from Kuruman as the largest form known; but the present one is even larger, one skull in the series measuring a fraction under 50 mm. in length, although not very old. The number of laminae is in the majority of specimens six in the last upper molar, but sometimes seven or five, while in the foremost lower molar as in *irroratus*. This form is apparently most closely allied to *O. i. angoniensis* Wroughton (cf. *Ann. and Mag. N.H.* (7), XVIII, p. 285) from farther east, in its shorter fur, narrow brain case and broad muzzle; but it differs therefrom in its much greater size, the upper tooth-row, for example, measuring 9.5-10 mm. (9.2 mm. in an immature specimen in which the teeth

are not yet fully expanded), as against only 9 mm. in *angoniensis*. The top of the skull is flatter and smoother on the parietals than in *irroratus*, and the flat area is also narrower. The nasals do not form an angle at the back of the expansion as in *irroratus*, nor is the expansion so convex, the sides sloping more, and the apex is narrower. As compared with *irroratus*, the skull is very long and relatively narrow, with more angulation and cresting where muscles are attached, even in comparatively young animals. In colour it is very similar to the typical *irroratus*, though on the average rather paler.

Type: T.M. No. 115, adult male, Machile River, N.W. Rhodesia, September 11th, 1907, taken by C. Wilde. Length of head and body 200 mm., tail 125, hind foot (s.u.) 36, ear 23. Skull: greatest length 47.9, basilar length 39.2, zygomatic width 22.8, width of brain case at squamosals 15, least interorbital width 4.4, width of nasals 9.2, length of nasals 21.5, length of upper molar series 10, greatest diameter of bullae 8, length of palatal foramina 9. The largest skull in the series measures 49.8 mm. in greatest length and has a width of 16 mm. for the brain case.

O. (Lamotomys) laminatus pondoensis subsp. nov.

Differs from the typical form from Zululand in its much lighter colour, the whole of the upper parts being light tawny, with a sprinkling of iridescent green; below rather paler and without the green sheen; hands and feet like the back; tail dark brown dorsally, laterally and ventrally buffish; ears coloured like the back, but a small ring round the eyes, and nose more reddish. Hair of the back long, the longest rather over 20 mm., the shorter ones about 12. Length of head and body 192, tail 103, hind foot 30, ear 20 mm. Skull with the nasals very sharply swollen from a distinct angle, as in *O. irroratus irroratus*, and measuring: greatest length 42.5 mm., basilar length 33, zygomatic width 20, width of brain case 15, least interorbital width 4.5, width of nasals 8.2, length of nasals 18.2, length of upper molar series 10.5, diastema 9.2, greatest diameter of bullae 7.2.

Type: Fairly old male, T.M. No. 79, Ngqeleni, W. Pondoland, May 27th, 1907, taken by H. H. Swinny.

Dendromus (Poemys) arenarius spec. nov.

Thomas (*Ann. and Mag. N.H.* (8), xviii, p. 238) has placed *Dendromus melanotis* A. Smith in a new subgenus *Poemys* on the basis of the fifth toe having a nail instead of a claw. This is not the only character, Thomas having overlooked that the fifth finger is more than a mere tubercle and in colour the group may be distinguished by the dark ears, which contrast strongly with the surrounding parts and the white spot at their anterior base. I may note as a matter of interest that in the present species, young and immature specimens from the same nests as adults lack a nail or claw, while the nail is present in the adults. This points to a re-development from a condition in which the claw or nail was constantly absent, and the probability of its origin prior to this from the species which had the toe normally with a claw. The typical group contains species which inhabit trees, while the present species was found in sandy flats far away from trees, and doubtless the loss of the claw arose as a result of the animal deserting its arboreal habits, and the nail subsequently developed as a result of the toe being brought into use again in grasping grass stems, along which it climbs with ease.

I may also note, in regard to the typical subgenus, that not only are the immature usually not striped, or only faintly striped, but females are similarly characterised in some cases. This applies in particular to *D. mesomelas* and *D. ayresi*, in which I have seen only one exception; but in the smaller

D. jamesoni the stripe seems to be absent or obscure only in the immature of both sexes, adult females being clearly striped. *D. ayresi* and *D. longicaudatus*, which I described in my catalogue in 1913, are quite valid species, despite Thomas's sweeping assertions to the contrary in the paper above quoted, as will be seen in the "key" presently to be given. The present species may be described as follows:

Colour: Above pale fulvous grey, with a conspicuous dorsal stripe in both sexes even in the young and otherwise with a slight admixture of black-tipped hairs as well; the face rather paler from the crown to the nose, but the eyelids black and a blackish patch in front of the eye, which serves to show up in contrast the pale frontal area; base of the hair above blue-grey; ears very dark brown or blackish, the inner surface with a coating of white, silky hairs; a large white patch at the anterior base of the ears; below, from the cheeks and in a well-defined line thence backwards along the flanks, pure white, the hair on the throat to the chest always pure white to the base and sometimes even extending to the abdomen; inside of the forelimbs pure white to the base of the hair, but inside of the hind limbs usually pale greyish at the base of the hair. Hands and feet white, outside of the limbs more fulvescent. Tail fulvescent, in some individuals rather darker above. Upper whiskers black, lower ones white. Structurally characterised as in the subgenus *Poemys*, with a nail on the fifth toe in adults, and the fifth finger longer than in the typical subgenus. In dimensions it is smaller and more slender than in *D. melanotis*, the tail always longer than the head and body. In *D. melanotis* the underparts are greyish and not pure white. The following measurements are taken from fifteen specimens, of all ages from immature to old, from the same locality: length of head and body 48-64, tail 66-89, hind foot 15-16, ear 15-18.5 mm. Skulls of the same: greatest length 19-20.8, basilar length 14-15, greatest zygomatic width 10-10.5, width of brain case 9.2-9.7, interorbital constriction 2.4-2.6, upper molar series 2.8-3.1, diastema 4-4.6, greatest diameter of bullae 4.1-4.6, length of nasals 6.8-7.9 mm. Dimensions of three specimens of *D. melanotis* in the Albany Museum from Grahamstown, kindly lent me by Mr J. Hewitt, were measured in the flesh by the collector as "head and body 70-72, tail 69-77, hind foot 15-18, ear 15 mm." The skulls are fragmentary, but the foreparts present measure: upper molar series 2.7-2.8, diastema 4.7-5.2, nasal length 7.8-8 mm., seeming to point to the skull being larger, but the teeth smaller, than in *arenarius*.

The following "key" will serve to identify the species so far described from S. Africa:

1. Fifth toe with a flattened nail, fifth rudimentary finger longer; ears dark brown to black, contrasting with the surrounding parts, and with a white mark at the anterior base: 2. (subgenus **Poemys** Thomas)
Fifth toe with a claw, fifth rudimentary finger a mere stub; ears light brown hardly differentiated from the surrounding colour and without a white patch at the base, though sometimes faintly whitish: 4. (subgenus **Dendromus**)
2. With a black mark on the forehead: **D. nigrifrons vulturinus** Thomas.
No black mark on the forehead: 3.
3. Coloration above brownish tawny, with a tinge of grey, below white; length of head and body 76, tail 107; greatest length of skull (old male) 23, greatest width across zygomatic arch 12: **D. longicaudatus** Rbts.
Coloration above fulvous grey, below greyish; length of head and body 68-77, tail 66-77; greatest length of skull probably 21-22:
D. melanotis A.Sm.
Coloration above pale fulvous grey, below pure white; length of head and

body 60-64, tail 80-89; greatest length of skull 20-20.8, greatest width 10-10.5:

D. arenarius Rbts.

4. Size largest, head and body length about 80-96, tail about 100-115, hind foot 19-20; greatest length of skull probably about 24.5, greatest width 12 (in an old male 12.2); dorsal stripe present in male, absent or inconspicuous in female; coloration above bright tawny fulvous, with little admixture of black hairs:

D. mesomelas Brants.

Size smaller, head and body 65-75, tail 91-103, hind foot 17-19; greatest skull length 21.5-23.5, width 11-11.5. Coloration above darker, due to a greater amount of black-tipped hairs; dorsal stripe conspicuous in males, absent or faint in females (exceptionally present):

D. ayresi Rbts.

Size smallest, length of head and body 55-65, tail 75-95, hind foot 16-17; greatest length of skull 19.5-21.5, greatest width 10-10.5. Coloration above as in *ayresi*, but dorsal stripe broader and present in both sexes when adult:

D. jamesoni Wr.

Cryptomys cradockensis spec. nov.

A member of the *C. hottentottus* group, differing from that species in being greyer in colour and larger in size, as will be seen from the figures given hereunder. The buffy colouring of the hair is present as in the typical *C. hottentottus*, but is paler and not so heavily laid on. The shape of the nasals and skull in general is the same, but on a larger scale. It would seem also to occur at Grahamstown, whence there are specimens in the Transvaal Museum collection taken by van Dam and Ivy. I name it as a species as it is possible that it occurs in the same ground as the typical *C. hottentottus* and it certainly intervenes between the ranges of *hottentottus* and *rufulus* which are not so readily recognised, and the differences between the species are not always defined clearly enough to enable one to judge of their exact status. This species is perhaps the starting point of a divergence from *C. hottentottus* towards the very distinct *C. vandami* of the north-eastern Transvaal, which overlaps the range of *C. rufulus* that represents *C. hottentottus* on the foothills of the Drakensberg.

In the adult female type there are one pair of pectoral, two pairs of lateral and one pair of inguinal mammae, one of the lateral pairs perhaps abnormal.

Type: Adult female, T.M. No. 2389, trapped by G. P. F. van Dam at Cradock, October 5th, 1918.

C. bigalkei spec. nov.

Seemingly allied to *C. cradockensis*, but differing therefrom in its larger grinding teeth and in colour markings. The buffy suffusion is present as in *cradockensis*, but there is a dark obscure dorsal line along the back and the face is dark with pale buffy white spots over the ears and eyes and the cheeks are yellowish buffy showing up clearly against the general dark coloration of the face. Mammae in the type are the normal six. Four specimens examined, consisting of an old male, fairly old female and two younger animals, all collected by Mr R. Bigalke of Glen, O.F.S., and kindly sent in the flesh to me.

Type: Adult female, T.M. No. 2806, Glen, O.F.S. taken on July 14th, 1921. Dimensions are given below.

Specimens, differing but slightly, from near Bothaville and from Parijs District, are apparently referable to this species.

C. transvaalensis spec. nov.

This species appears to be allied to *C. vandami* of the north-eastern Transvaal, taking its place in the western Transvaal bushveld districts. It differs from that species in being smaller, but with the interorbital constriction broader; the nasals are broad for the posterior two-thirds, the anterior third narrower, not posteriorly pointed, usually squared off to some extent and the

apex not markedly expanding. In size it is hardly different from *C. hottentottus*, from which it is distinguished at a glance by the shape of the nasals, the broader interorbital constriction and the greater length of the skull from the front of the molars to the condyles. In colour it is hardly separable from *hottentottus*; but the hair is shorter, measuring not more than 6 mm. as against 7 mm. or more in *hottentottus*, and very scanty, especially below, where it does not serve to hide the skin.

There is a considerable variation perceptible in series from various localities, and I am not at all sure that all those I have tentatively placed with species are correctly identified. One needs long series to identify these animals with certainty, especially as it frequently happens that individuals become injured when young and the skull becomes distorted as a result. Young animals also preponderate in collections. I may mention here that these little animals appear to do a great part of their burrowing with the powerful front teeth, the fore feet serving in removing the loosened soil. It follows therefore that these teeth become modified according to the nature of the soil they inhabit. They are the most conservative animals I know, and as they seldom leave their burrows, specific isolation is to be expected.

In the present case the series trapped in the same tunnel are constant according to age and sex and they all have a peculiar expansion between the orbits of the skull that ultimately, in the oldest male, forms a shell-like hood projecting outwards.

Type: Adult female, T.M. No. 2463, trapped by me in gravelly soil on the farm Boekenhoutfontein, on the border of the bushveld, Pretoria District, December 19th, 1919. Also occurs at Blokspruit, Jericho and other places far to the west and at Roodeplaat to the east, in this district. Inguinal mammae are always present, and in some cases an extra mamma appears on one side.

In the following tables of measurements I shall give the sexes separately, as the males are larger than females. I know of only one species in this genus (one which occurs from Rosslyn northwards to Nylstroom, overlapping the range of *transvaalensis*) in which the sexes are of the same size.

Measurements of adult to old males

	5 specimens <i>C. hottentottus</i>	2 specimens <i>C. cradockensis</i>	1 specimen <i>C. bigalkei</i>	4 specimens <i>C. transvaalensis</i>
Head and body	115-125	115-124	125	115-130
Hind foot in flesh	19.5-22	20-22	22	22.5-23
" skin	19-20	19-21	21	21-22
Tip of incisors to occiput... ..	35.2-36.2	36.5-38.2	40.3	34.3-37.8
Basilar length	26.7-27.5	27-28.5	30.2	26.5-30
Zygomatic width	22.5-23.5	23-24.3	28.3	21.5-26.6
Width of brain case	13.3-14	14.5-15.5	14.5	13.5-14.2
Interorbital constriction	6.4-7	6.5-7.2	7.5	7-7.2
Interorbital width	9.2-10.2	10-10.5	11.5	8.5-9.8
Exposed length of upper incisors	8.4-9.2	9.5-9.5	9.8	5.7-7.9
Upper incisors length (from behind molars)	23.5-25	24-25.2	25.8	22.5-26
Upper molar series	5-6	5.3-5.8	6	5-6
Lower " "	4.3-5.3	5.2-5.5	5.8	6
Palate length	19.2-19.8	19.6-20.8	22	19.2-21.7
Front of molars to back of condyles	18.3-19.8	19.2-20.5	21.2	18.8-20.5
Nasals, length	11.8-12.3	11.5-12	13.8	10.7-12.5
" width	3.2-4	3-3.5	3.2	2.8-3.5
Height at foramen magnum	10-10.3	9.2-10.2	10.5	9.6-10.8
" behind molars	11.4-12.2	11.8-12.6	13.8	11.7-13.2
Width of 3rd grinder	1.3-1.8	1.5-1.8	2.1	1.7-1.8

Measurements of females, adult to very old

	5 specimens	4 specimens	1 specimen	4 specimens
Head and body	110-115	118-120	116	115-130
Hind foot in flesh	20-22	20-21	20.5	22-23
" skin	18-20	18.5-19.5	—	20.5-21.5
Skull length from tip of incisors	32.8-34.8	34.5-35.5	36.7	33-35.5
Basilar length	25.5-26.2	26.8-27.5	30.2	25.5-27.5
Zygomatic width	20.5-21.3	22-23.4	24	21.8-25.2
Width brain case	13.1-13.7	13.3-13.7	15.2	13.5-14.4
Interorbital constriction	5.5-6.3	6.4-6.8	7.3	7-7.2
" width	7.6-8.3	9.2-9.8	9.1	8.2-9.3
Exposed length of upper incisors	7.6-7.9	7-8	8	5-7
Length upper incisors from roots	21-23.5	22-23	24	22-23
Upper molar series	5.1-5.5	5-5.6	6.3	5-6
Lower " "	4.8-5.2	4.9-5.5	6.2	5.2-6.2
Palate length	18.2-19.2	19.5-20	20.2	18.5-19.8
Front of molars to back of condyles	18.7-19.2	19-19.2	19.5	18.5-20.2
Nasals, length	10.2-12.5	11.8-12	11.5	10.2-12
" width	3-3.5	3.2-3.8	3	2.5-3.2
Height at foramen magnum	9.2-9.6	9.4-10	10.1	9.6-10.2
Height behind molars	11.1-11.5	11.7-12.6	12.1	12-13.1
Width of 3rd upper grinder	1.5-1.8	1.6-1.7	1.7	1.7-2

It is of interest to record that Mr R. D. Bradfield has procured specimens of *Cryptomys micklei* Chubb at "Quickborn," north of Okahandja, and therefore hundreds of miles away from the type locality and well within our limits. It was originally described from Kataba, north of the Zambesi (cf. *Ann. and Mag.* N.H. (8), III, p. 35).

Pronolagus randensis powelli subsp. nov.

Similar in the main to *P. randensis*, which occurs in the hills of the highveld about the Vaal River, at least from Johannesburg to Parijs, but differing in having the underfur more pinkish and the head less grey in general effect. The soles of the feet are not black, but very likely this character as seen in the type and paratype are due to staining from burnt grass, a very similar case being seen in a specimen of *P. ruddi* which I procured in the veld, near a forest, where the grass had recently been burnt off. The fur of the back is shorter by about 5 mm. than in *randensis*, and the skull appears to be on the average shorter and broader, as will be seen in the table of measurements given below.

Type: Adult female, T.M. No. 1555, taken by W. Powell at Rooikrans, Rustenburg District, April 6th, 1915.

P. randensis makapani subsp. nov.

Differs from *P. r. powelli* in being even more rufous coloured in general effect, the underfur similar, but the tips brown instead of black. The hair of the back is of about the same length, but is shorter on the front of the face. In size it is still smaller than *powelli*, as will be seen from the table of measurements below.

Type: Adult male, T.M. No. 647, taken by Dr H. L. Jameson at Makapan's Caves, near Piet Potgietersrust, and mentioned by him in the *Ann. and Mag.* N.H. (8), IV, p. 468.

Measurements of Pronolagus randensis subspecies

	<i>P. randensis</i> (♂, Parijs)	<i>P. r. powelli</i> ♀ adult	<i>P. r. makapani</i> ad. ♂
Head and body	480	466	430
Tail	110	78	90
Hind foot (s.u.)	100	95	90
Ear (opening)	87	78	82
Skull length	94	92	87
Basilar length	74	69	66.5
Greatest width	41	44	41.2
Nasals	47 × 20	46 × 18.2	44 × 17.8
Least interorbital width	18	18	17
Least intertemporal width	15	15.3	14.5
Palatal foramina	29 × 8.5	26.5 × 7	27 × 7.8
Diastema	32.5	28	28
Width of premaxilla opposite foremost premolar	23	22	20
Length: upper grinders	16	15.5	15.3

Procavia capensis natalensis subsp. nov.

Similar to *P. capensis* of the southern region in colour (which varies to some extent in individuals), but with the upper *P* 4 smaller, measuring only 5.8-6.2 in greatest width as against 6.6-7 in the typical *capensis*. In the general characters there is otherwise little to distinguish them.

Type: Old male, T.M. No. 2005, shot amongst rocks and bush at Piggs Peak, Swaziland, May 23rd, 1916.

This form appears to occupy the Drakensberg from Natal to Swaziland, whence there are a fair number of specimens in the Transvaal Museum collection. Dimensions are given below.

P. capensis coombsi subsp. nov.

Very similar in general to *P. capensis*, but with the black dorsal spot normally much larger and the animal itself larger and with broader back teeth, as will be seen from the table of measurements hereunder.

Type: T.M. No. 3489, shot by Mr C. Coombs at Hennops River, Pretoria, March 17th, 1923, an adult male with the hindmost molar fully developed, but not worn.

This form appears to occupy the western Transvaal, extending southwards into the Orange Free State.

Measurements of Procavia capensis subspecies, adults in stage VII to very old

	<i>P. capensis</i>	<i>P. c. natalensis</i>	<i>P. c. coombsi</i>
Head and body	490-510	500-510	500-540
Hind foot	62-64	62-66	64-70
Skull length	84-90	86-90	88.5-95.5
Basilar length	78-83	77.5-82.5	80-91
Zygomatic width	51-54	49-54.5	50-58
Width of brain case	32-35	32.5-35	33.5-35
" of nasals	19-20	18.5-21.5	20-26.5
" across molars	27.5-30	27-29.5	29.5-32
" upper <i>P</i> 4	6.6-7.2	5.8-6.2	6.5-7.1
" of upper <i>M</i> 1	7-7.7	7.2-7.8	7.1-8
" " <i>M</i> 2	7.4-8.6	7.2-7.8	7.9-9.1