

1446

ADDENDA AND CORRIGENDA TO
"MAMMALS OF NORTHERN RHODESIA" No. 2

By W. F. H. ANSELL (Biologist)

The Puku, Occ. Papers Dept. Game and Fisheries, Zambia, No. 3, 1965.

ADDENDA AND CORRIGENDA TO "MAMMALS OF NORTHERN RHODESIA" No. 2

By W. F. H. ANSELL (Biologist)

THIS paper follows a similar one in *Puku* No. 2 (Ansell, 1964), using the same terms, page references, and abbreviations, plus R.L.M. for the Rhodes-Livingstone Museum. Unless otherwise indicated the specimens are my own, are known or presumed adult, and are in the National Museum, Bulawayo; measurements are in mm.; and tail measurements are known or presumed to have been taken from root to tip from above, rather than from anus or pelvis (Ansell, 1965).

Mus musculus and *Colony's goslingi* are authentically recorded for the first time in the territory.

Elephantulus brachyrrhynchus subsp.

p. 1

N.M. 7563, 7581, ♂♂; 11932, ♀, Chilanga (C. W. Benson).

N.M. 11659, ♂, Kariba, 1628-D-2, 14th Jan., 1961 (T. R. H. Owen).

N.M. 11807, ♀, Choma District, 1627-C-1, 7th May, 1961 (C. W. Benson).

N.M. 20228, ♂; 20229, ♀, Fort Jameson District, 1331-D-4, 8th May, 1963 (V. J. Wilson).

DISTRIBUTION AND TAXONOMY

The Choma and Kariba specimens are apparently the first recorded from the Southern Province east of the old Barotse-Carte Cordon, whence the species was listed by Lancaster (1953, 13).

Fig. 1 shows tail length as a percentage of head and body length. Females may have slightly shorter tails in proportion, but in my own Western and North-Western Province series this was not significant ($t=0.077$, d.f. 40, $P>0.9$), and in the Balovale series in K.M., which included two ♀♀ with abnormally short tails, probably not significant ($t=2.315$, d.f. 48, $P<0.05>0.02$). Both sexes have therefore been combined in the histograms. My series from the Western and North-Western Provinces were all from about 24° E. and eastwards thereof. Original measurements from which the data in Fig. 1A were calculated were supplied by Mr. D. M. Collins.

HANNAY, P. W.	1962	A preliminary report on the rodents of the Nyika Plateau. <i>Bull. Nyasaland Museum</i> , 1961-1962, 28-34.
HATT, R. T.	1940	Lagomophia and rodentia other than Sciuridae, Anomaluridae and Iduuridae collected by the American Museum Congo expedition. <i>Bull. Amer. Mus. Nat. Hist.</i> , LXXVI, Art. ix, 437-604.
LANCASTER, D. G.	1953	A check list of the Mammals of Northern Rhodesia. Government Printer, Lusaka.
LAWRENCE, B. & LOVERIDGE, A. ...	1953	Mammals from Nyasaland and Tete. <i>Bull. Mus. Comp. Zool.</i> , Harvard, 110, 1, 1-80.
ROBERTS, A.	1951	<i>The mammals of South Africa</i> . Johannesburg Central News Agency.
SHORTRIDGE, G. C.	1934	<i>The mammals of South-West Africa</i> . Heinemann, London.
SWENEY, R. C. H.	1959	A preliminary annotated check list of the mammals of Nyasaland. The Nyasaland Society, Blantyre.
WROUGHTON, R. C.	1907	On a collection of mammals made by Mr. S. A. Neave in Rhodesia, north of the Zambesi, with field notes by the collector. <i>Mem. Proc. Manchester Lit. & Phil. Soc.</i> , II, No. 5, 1-39.

Mtizeze River (=Mtizizi), 1430-B-4, Petauke District.
 Niamadzzi River, 1431-B-2 to 1331-D-4, Fort Jameson District. (Not to be confused with Nyamadzi River in Petauke District, 1430-B-3 to 1430-B-1; nor the much larger Mnyamadzi River in Mpika District).
 Lichunyo, near Petauke, probably the Chunyu stream, 1430-B-2.
 Ulungu Mr. (=Bulonga, or Ulonga), 1430-A-4.
 Msanzara River—the Luangwa Valley part is in locus 1331-C-3.
 Niambwa's, 40 miles above Petau, 1530-A-1.
 Msetzi River, Petau District, 1529-B-4 to 1529-D-2.
 Petauke, type locality of *Leggada naevet* Thomas (= *Mus minutoides naevet*), and of *Mus damarensis rhodesiae* Osgood (= *Thaltonomys paedulus rhodesiae*).
 In Neave's time Petauke was at 14° 03' S., 31° 05' E., about 20 miles north-west of the present Petauke.

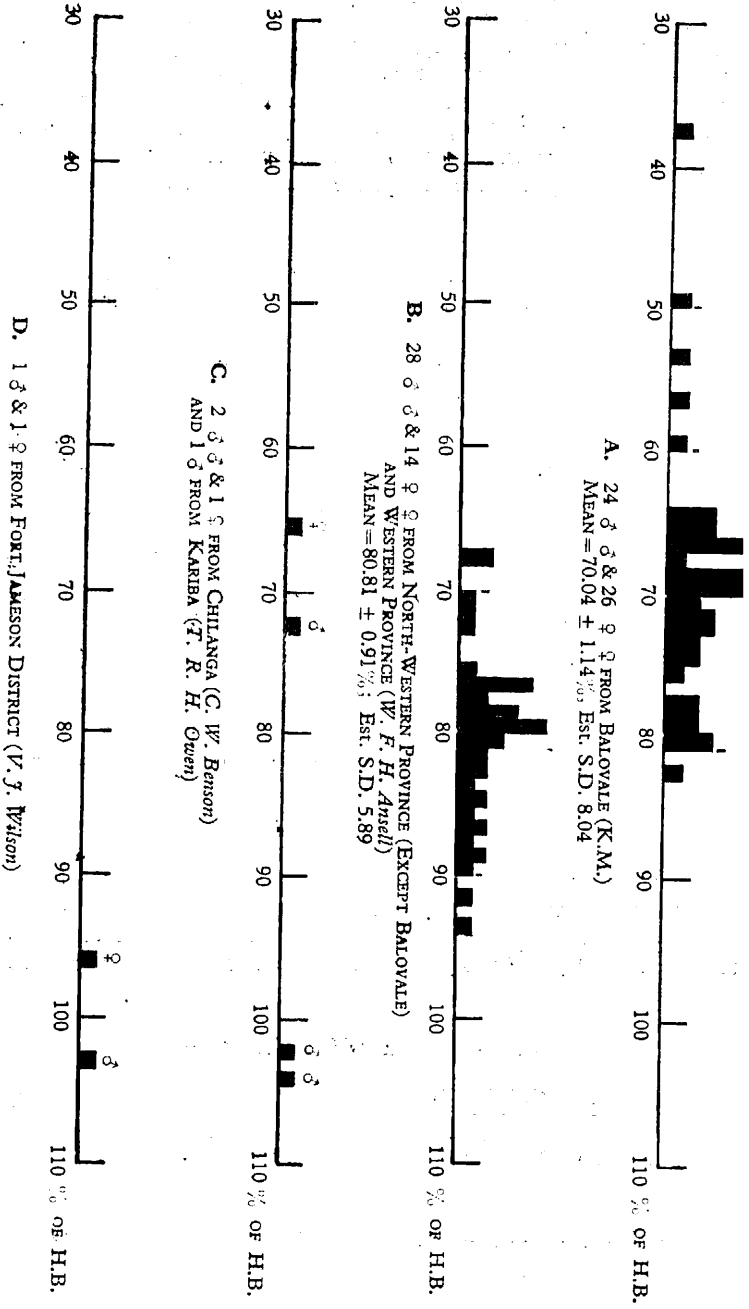
ACKNOWLEDGEMENTS

I am most grateful to Messrs. J. B. Allcock, C. W. Benson, D. M. Comins, D. A. Corton, P. W. Edwards, R. K. Hart, M. P. Stuart Irwin, T. R. H. Owen, L. D. E. F. Vesey-FitzGerald, and V. J. Wilson, for specimens and data; and for other information and assistance to Messrs. L. D. C. Allen, P. S. M. Berry, I. W. Breigam, E. L. Burton, and Chamanina Katongo, Dr. G. Corber, Dr. D. H. S. Davis, Messrs. R. W. Hayman, S. Kanduli and W. G. Mackenzie, Dr. J. A. J. Mccrister, Messrs. R. Morris, S. Mubambe, R. D. Rohwer, C. B. Smith, J. M. C. Uys, and J. Visser.

REFERENCES

ALLEN, G. M. ... 1939 A checklist of African mammals. *Bull. Mus. Comp. Zool., Harvard*, LXXXIII, 1-763.
 ANSELL, W. F. H. ... 1957 Some mammals from Northern Rhodesia. *Ann. Mag. Nat. Hist., Ser. 12*, x, 529-550.
 ANSELL, W. F. H. ... 1959 Further data on Northern Rhodesian ungulates. *Mammalia*, XXIII, 3, 332-349.
 ANSELL, W. F. H. ... 1960a *Mammals of Northern Rhodesia*. Government Printer, Lusaka.
 ANSELL, W. F. H. ... 1960b Contributions to the mammalogy of Northern Rhodesia. *Oec. Papers Nat. Mus. S.R.*, 24B, 351-398.
 ANSELL, W. F. H. ... 1964 Addenda and corrigenda to "Mammals of Northern Rhodesia", *Puku*, 2, 14-52.
 ANSELL, W. F. H. ... 1965 Standardisation of field data on mammals. *Zoologica Africana*, 1 (1): 97-113.
 BOHMANN, L. ... 1942 Die Gattung *Dendromus* A. Smith. *Zool. Anz.*, Band 139, 33-53.
 DAVIS, D. H. S. ... 1962 Distribution patterns of Southern African Muridae, with notes on some of their fossil antecedents. *Ann. Cape. Prov. Mus.*, II, 56-76.
 ELLERMAN, J. R. ... 1940 *The families and genera of living rodents*. Vol. 1, B.M. (Nat. Hist.), London.
 ELLERMAN, J. R., MORRISON-SCOTT, T. C. S., & HAYMAN, R. W. ... 1953 *Southern African mammals*. B.M. (Nat. Hist.), London.

Fig. 1



PROPORTIONATE TAIL LENGTH OF *ELEPHANTULUS BRACHYRRHYNCHUS* FROM ZAMBIA.
 SHOWN (TO NEAREST 1%) AS PERCENTAGE OF HEAD AND BODY LENGTH
 ALL ADULT OR SUBADULT; MINIMUM H. B. LENGTH 103 MM.

In comparing external measurements subjective differences between observers (perhaps even between the same observer at different times), must be borne in mind, as well as possible differences of technique (Ansell, 1965). Nevertheless, even making such allowances, it seems clear that the tail is significantly shorter in the Balovale series, whether the sexes are taken together or separately. Tests gave the following results: ♂ ♂ only, $t=4.920$, d.f. 50, $P<0.001$; ♀ ♀ only, $t=4.896$, d.f. 38, $P<0.001$; both sexes combined, $t=7.206$, d.f. 90, $P<0.001$. Balovale is about seventy miles due west of Kabompo, but available material does not indicate intergrading in tail proportion. The only one I have had from west of 24° E. was a ♂ from the upper Mumbenzi, 1323-B-4, with tail proportion 83% of head and body, and those collected at or near Kabompo bona gave calculations of 80%, 87%, 85%, 84%, 92% and 83%.

A specimen in the K.M. from Ndola has tail 82%, thus agreeing with my series, as do two in the B.M. from "East of Lake Bangweulu" and the Kalungwishi Valley, with tails of 81% and 80% respectively (original figures supplied by Dr. G. Corbet, *in litt.*).

The others are too few to permit any definite conclusion, but they suggest that the tail becomes proportionately longer in the south and south-east of the territory. The specimen from Choma, though not measured in the flesh, appears from the made-up skin also to have had a long tail. Lancaster (1953, 13) was followed in listing *E.b. malosae* Thomas from the Eastern Province, but this remains unconfirmed, and recent specimens from the Luangwa Valley in the B.M. are not nearly as grey as *malosae* and apparently nearer in colour to those from the Northern Province; one had tail 93% of H.B., but this was measured from the pelvis (G. Corbet, *in litt.*). In considering colour in this species it should be remembered that there is a distinct seasonal change, the coat being darker during the rainy season. Wilson's Fort Jameson specimens had the actual dimensions H.B. 110, tail 115, in the ♂, and H.B. 105, tail 102, in the ♀; while the tail of the type of *malosae* was similar, being 103, though, as the head and body were noted in the original description as "stretched", the proportion cannot be calculated reliably. Apart from the above specimens the type of the pale *E.b. mabidiensis* Roberts seems to be the only other form with tail longer than head and body (Roberts, 1951, Table 8), at least in southern Africa.

Clearly further material is needed before the status of the species in southern and south-eastern Zambia can be satisfactorily determined.

HABITAT

In November, 1960, I trapped a specimen by day at the edge of *Cryptosepalum* forest adjoining the dambo of the upper Mumbenzi River in the Kabompo District (1323-B-4). This forest edge is degraded by human activity, and it is uncertain whether the animal occurs in better developed *Cryptosepalum*.

WEIGHT

N.M. 20228, ♂, weighed 50 grams, and 20229, ♀, 45 grams.

Crocidura bicolor Bocage

p. 5

K.M. 19008, ♂, Chipengai area, 1332-B-2, 27th Nov., 1963 (V. J. Wilson).

H.B. 60, tail 40, H.F. (s.u.) 10, ear 8. Measured and skinned ex formalin.

Previous record was from Dundo, in north-eastern Angola (Ellerman *et al.*, 1953, 286). Hatt, who gave notes on range and habitat (1940, 506), considered it an uncommon species.

Dendromus mystacalis jamesoni Wroughton

p. 104

N.M. 22887, ♀, Petauke Old Boma, 1431-A-1, 6th April, 1964 (V. J. Wilson).

DISTRIBUTION AND TAXONOMY

Flesh measurements: H.B. 69, tail 98, H.F. (s.u.) 16, ear 14. Weight: about 10 grams. Skull: occipito-nasal length 20.7, zygomatic width 10.6.

This specimen has a distinct dorsal line about 2-3 mm. wide running from behind the shoulders to the tail root. The ventral hairs are white to the roots, with buffy tinge. The hind foot is buff coloured proximally, changing to whitish at the toes, and the fore foot is similar. D.5 of the hind foot has a claw, and no vestigial D.5 of the fore foot is apparent. A few white hairs are traceable below each ear, but they do not form a distinct spot.

The stripe in this specimen seems to place it with *jamesoni*, and Neave's specimen from Mterize River (1430-B-4), in the same general area is no doubt the same (Wroughton, 1907, 20, who used the name *D. pumilio* Wagner, later considered inapplicable to this small species). Its occurrence in the Petauke District makes the presence of *jamesoni* at Ndola rather less puzzling, but the distribution limits between it and *wyveri* nevertheless seem to form a curious pattern. Adequate series from the areas of presumable intergrading might, however, clarify the situation. Bohmann (1942, 39-44) indicated considerable variation of the dorsal stripe in several subspecies. He included eastern Bechuanaland and "South-western Rhodesia" in the range of *jamesoni*.

LOCALITIES

pp. 125-127

Mikwa stream, Kawambwa District. There are two Mikwa streams in Kawambwa District, one a tributary of the Munnunshi (1029-A-3); and the other, in ex-Chief Mutondolo's area, tributary to the Kafungula (S929-A-3). The latter was the collecting locality of several of Lancaster's specimens, including K.M. 430, *Pterodromus t. robustus* Thomas, mistakenly given as 1029-A-3 in Ansell (1960b, 351).

Iambe (= Tabwa, or Iambu), Mporokoso District. Type locality of *Cephalophus nyasae defriesi* Rothschild (= *Cephalophus monticola defriesi*). In Ansell (1960b, 376) S930 should read S830.

Neave's collecting localities

I have, with the assistance of the former District Commissioner, Petauke, Mr. I. W. Breigman, been able to trace the following of Neave's collecting localities listed in Wroughton (1907).

"Mbala country"—north and south of the Great East Road, centred roughly between Kawere and the (present) Petauke Boma, 1431-A-4.

Mus musculus Linn.

p. 113

B.M. 64.2086, ♂, near Livingstone, 1725-D-4, 30th August, 1964 (D. A. Cotton, per C. W. Benson).

DISTRIBUTION AND TAXONOMY

This is the first authentic *Mus musculus* from Zambia. During a visit to the Livingstone Game Park in early August, 1964, I was shown two wild caught mice among a colony of domestic albinos kept there for feeding the snakes, and the Warden, D. Cotton, kindly agreed that in due course one should be sent to me as a specimen. They had been captured in human habitation a few miles from Livingstone on the north side of the Zambezi. The species has evidently reached Zambia via the south, rather than from the north and east like *Rattus rattus* (Ansell, 1964, 37). Though no specimen has so far been collected in Livingstone itself it seems likely that it may have become established there.

Flesh measurements were: H.B. 100, tail 95, H.F. 18, ear 15. The mammary formula was the typical 3-2 = 10. Though the tips of the nasals were damaged, I managed to measure the occipito-nasal length before the skull was cleaned. This was 23.6. Other cranial and dental measurements were: zygomatic width, 12.2; interorbital width, 3.8; diastema 5.5; mandible, front of symphysis to back of ang. proc., 11.6; upper toothrow, crown level, 3.3; lower toothrow, 3.1. The teeth showed fairly heavy wear, but the basi-occipital suture was not obliterated.

Though there may be some overlap in size, *Mus musculus* is somewhat larger than *Mus triton* Thomas, with the tail proportionately, as well as actually, longer. There is not much difference in colour, but *Mus triton* has a rather more bristly texture to the fur. Cranially they are distinguished by the diastema, which in *Mus triton* is more than 25% of the occipito-nasal length, and under 25% in *Mus musculus* (compare above dimensions with Ansell, 1957, Table 3).

Because of its much smaller size, and contrasting white ventral surface, *Mus minutoides* A. Smith cannot be confused with *Mus musculus*.

Colonyms goslingi Thomas & Wroughton

? sex, Mundwiji Plain, Mwinilunga District, 1124-D-4, 14th May, 1964 (C. J. Vernon, per C. W. Benson).

This is a single lower mandible only, and is now in the collection of the Medical Ecology Centre, Johannesburg registered number 64.26.4. I am grateful to Dr. D. H. S. Davis for identifying it and allowing me to publish this record here.

DISTRIBUTION AND HABITAT

This specimen was from the pellet of a Grass-owl, *Tyto capensis*, a juvenile of which was collected in wet grassland (Benson, *infra*, p. 175). Though not previously known in Zambia, its presence in Mwinilunga District is perhaps not surprising in view of the number of mammals of West Africa subregion affinity occurring there. The nearest

DISTRIBUTION AND TAXONOMY

The first specimen recorded from the Eastern Province plateau. The type of *C. b. hendersoni* Dollman from Livingstonia, Malawi, is distinctly brownish, but in changing coat, and the skull is in fragments. It is thus not possible to assess the range or validity of the subspecies on present material. The Chipengali specimen is not noticeably different from those from farther west.

HABITAT

Collected in grass by the edge of the dam at Chipengali.

Potamogale velox Du Chaliln

p. 7

Two skins in the B.M. (Nos. 51.645 and 51.646) were obtained in 1950 from Katoka village, Mwinilunga District, through a former District Officer. I have now ascertained that the village was then about 11° 51' S, 24° 33' E, though it has since moved. There is no reason to suppose that the animals were not killed in the near vicinity. Other skins from Mwinilunga District (two in N.M., one in K.M.) are without definite locality.

The Bangweulu record is of an incomplete skin collected by Ross, B.M. 31.6.4.1, labelled simply "Luwingu". It may have come from the Luwingu part of the Bangweulu swamp, in square 1029-D or 1030-C, or a little farther south.

There is still no record of the species elsewhere in the territory.

Aonyx capensis subsp.

p. 35

DISTRIBUTION

On 6th February, 1964, L. D. C. Allen saw two otters of this species two miles downstream from the pontoon over the Muthondo River, 1231-B-3, on the bank of a small tributary stream. The identity was confirmed by examination of the spoor, which showed clearly in the wet soil (L. D. C. Allen, *dep. rec.*).

Though generally distributed in Zambia this is the only definite record known to me of either species of otter in the Luangwa Valley. It seems that otters are completely absent from the main Luangwa River, though it is not clear why this should be so.

Herpestes ichneumon subsp.

p. 39

DISTRIBUTION

On 17th May, 1964, I saw one at about 14.30 hrs. on the Malawi side of the Nyika Plateau, approximately 10° 39' S, 33° 50' E, in montane grassland. This supports the sight record mentioned in Ansell (1964, 24).

Herpestes sanguineus lancasteri Roberts

p. 40

N.M. 22893, ♂, Luangwa Valley, 1332-A-1, 20th June, 1964 (P. W. Edwards).

HABITS AND DIET

This specimen was collected by the road near a grass fire, where it was eating Orthoptera escaping from the fire. As well as these insects the stomach contained remains of a squirrel, *Paraxerus cepapi stadi* Thomas & Wroughton. In 1963 my terrier "reed" a mongoose of this species in a thicker clump, the first definite instance of

climbing; I have seen, though it has been reported elsewhere (Shorrledge, 1934; Roberts, 1951). It does not, of course, follow that the squirrel was caught up a tree, as this species spends a good deal of time on the ground.

Helogale parvula subsp.

p. 41

N.M. 22953, ♀, 22954 imm. ♀, Chipengali area, 1332-B-2, 28th July, 1964 (V. J. Wilson).

DISTRIBUTION

First record from the Eastern Province plateau, though known from the Nyika plateau (Ansell, 1964, 52), and also collected by me in the Luangwa Valley (1331-A-4).

Rhynchogale melleri Gray

p. 42

TAXONOMY

In Ansell (1960b, 368-371) some N.M. specimens were discussed, and during 1961 I was able to examine the B.M. series, including the types of *R. melleri* and *R. caniceps* Kershaw. All except the type of *melleri*, which is aberrant, have four upper premolars. The tooth size is variable, and it is interesting that B.M. 51.644, an oldish animal from Solwezi, has the last upper molar displaced a little forward, the exact opposite of the type of *caniceps*, which seems to confirm my previous suggestion (*loc. cit.*) that this is a variation of no taxonomic importance.

Comparing the types of *melleri* and *caniceps*, it is true that the latter has the temporal region more inflated, but, while the Solwezi specimen, 51.644, agrees with *caniceps* in this respect, so does B.M. 8.1.154 from Gorongosa in P.E.A., thus it is of doubtful geographical significance. The species is in fact very variable in cranial and dental characters, and on present evidence I now consider it doubtful if *caniceps* is separable from *melleri* even at subspecific level.

The hallux of the left hind foot of the type of *caniceps* lacks the claw, as did N.M. 4330 (Ansell, 1960b).

Bdeogale crassicauda Peters

p. 43

Chiswenche (N).

N.M. 22953, ♀, Chipengali area, Fort Jameson District, 1331-B-2, 28th Sept., 1964 (V. J. Wilson).

H.B. 440; Tail 280; H.F. 90 c.u., 85 s.u.; ear 38; weight 3½ lb.

DISTRIBUTION

Another specimen (believed female) was caught alive on 29th March, 1964, near the Lupande/Luangwa confluence, 13° 07' S, 31° 49' E. It is very rarely encountered, but during the past year there have been several reports from the Luangwa Valley, at least some of which may have been of this species. E. I. Burton (*in litt.*) has informed me that his specimens came from near the confluence of the Mutinondo and Munyamadzi Rivers (1231-B-2), and the lower Rukusuzi River (1232-C-1 or C-2). Lancaster's specimen from Isoka District in the K.M. was from the Isalala stream (S933-C-1). Skins from Fort Jameson District in the B.M. are without definite locality (R. W. Hayman, *in litt.*).

Aromalurus derbianus newei Dollman

p. 81

DISTRIBUTION

During 1963 Mr. R. D. Rohwer, then working as a prospector in the Luangwa Valley, reported that one of this species had been killed close to his camp near the base of the Muchinga escarpment. Unfortunately it was not possible to recover any part as a preserved specimen. However, just before dusk on 13th July, 1964, Mr. J. B. Allcock managed to photograph a similar animal high up in a tree, and has kindly allowed me to examine the pictures. These do appear to portray the species and Allcock's description of the way in which it escaped by a flying leap, and of the gliding membrane, supports the identification. The locality was 13° 03' S, 31° 24' E.

This record is of particular interest as it is the first indication of the species east of the Muchinga escarpment. It belongs to the West African element in the Zambian fauna, but is one of the category which ranges into south-eastern Africa in isolated high rainfall areas (Ansell, 1960a, 82, 123). It is in this country not confined to forest, but occurs extensively in *Brachystegia* woodlands, and it is clear that to such an arboreal species the wooded Muchinga escarpment need not form a physical barrier, though it is reasonable to suppose that the animal would not penetrate into the Mopane country of the valley floor between the *Brachystegia* and the riparian belt of the Luangwa.

Pedetes capensis angolae Hinton

p. 82

? sex, Mundwiji Plain, Mwinilunga District, 1124-D-4, 27th August, 1964 (M. P. Stuart Irwin).

Specimen now in R.L.M.

DISTRIBUTION

The first definite record from Mwinilunga District.

Thallomys paedulus rhodesiae Osgood

p. 93

(Coll. No.) A.1, ♀, Mfuwe Camp, Luangwa Valley, 1331-B-2, 26th March, 1964.

(Coll. No.) 18177, ♂, Luangwa River, west bank, below the Munyamadzi confluence, 1232-A-3, 25th June, 1964 (Vesey-FitzGerald collection).

DISTRIBUTION

The locality of Vesey-FitzGerald's specimen is the farthest north the species has so far been recorded in Zambia, as the specimens from farther north mapped by Davis (1962, Map 34) and referred to in Ansell (1964, 38) came from the Rukwa Valley, not, as I had supposed, from Abercorn (D. H. S. Davis, *in litt.*). Whether the distribution of the Zambia and Tanganyika populations is continuous remains to be confirmed, but the species can at least be expected to occur farther up the Luangwa Valley.

HABITAT AND HABITS

Vesey-FitzGerald's specimen was trapped in a hollow cleft at the base of a large *Diospyros mespiliformis* tree. Mine was caught by hand at night on the ground, by one of the Mfuwe camp buildings, just after rather heavy rain.

the long coat in their Nyika specimens simply due to retention of the juvenile pelage, but it seems likely to be a constant character of adults. It is not known what length coat Alcock's specimen had, though in skull size it is similar to the Nyika material. The type of *robustus* was stated in the original description to have fur about 12 mm. long.

Flesh measurements were:

	Total l.	H.B.	Tail	H.F. (s.u.)
N.M. 22863, ♀	197	175	22 (from above)	35
N.M. 22864, ♀	194	170	24 (from above)	36
Hanney's ♂	195	185	10 (from anus)	36

There seems to be considerable variation in cranial characters in this species, as in the related *Cryptomys*, which might prove difficult to correlate with geographical distribution if long series were studied. Whether the Nyika population represents a large, long-coated, upland race must await study of more material.

Hystrix africaeaustralis Peters

p. 78

N.M. 22949, ♂; 22950 ♀, both subadult, near Fort Jameson, 1332-D-1, 7th September, 1964.

TAXONOMY

These were dug out of a hole by a local African who brought them in shortly afterwards, enabling flesh measurements and weights to be recorded, which were as follows (tail measured as well as could be managed from below, anus to tip).

N.M. number	Sex	Total length	H.B. (cm.)	Tail (cm.)	H.F. (s.u.)	H.F. (mm.)	Ear (mm.)	Weight (lbs.)
22949	♂	86	76	10	110	104	49	34
22950	♀	80	71	9	105	98	42	32½

In the male the third molars were through the gums, but not yet occluding, while in the female these teeth were just cutting the jawbone, the lower slightly more advanced than the upper. It is not known whether the burrow held any other porcupines.

In Ansell (1960a, 78) the mammary formula was given as three pairs, this being quoted from Hart (1940) for the related species *Hystrix galatota* Thomas, no information from any Zambian specimen having been available. This non-parous female was carefully examined and found to have only two pairs, the position being as in Hart's illustration, on the side of the body just behind the shoulder. They were 7-8 mm. long and some 50 mm. apart. Two pairs have also been found in a recent specimen from Bredasdorp, South Africa (J. Visser, *in litt.*). Hitherto no external character differentiating *H. galatota* from *H. africaeaustralis* appears to have been found (Ellerman, 1940, 200), but evidently females can be distinguished by the mammae.

The penis of the male was directed backwards.

DIET

The stomach of the female contained well chewed up vegetable matter, which appeared to be largely sweet potato.

HABITS

In disposition the captured mongoose was placid, and, though rather nervous, did not damage its nose against the wire of the trap, nor indeed make any active efforts to get out. Nor did it spit or otherwise demonstrate when approached. The iris was greyish brown, with round pupil which contracted to a horizontal slit in bright light. Another mongoose was said to have been with this one, but was not caught. Wilson's specimen was alone, and was collected by the roadside at night, about 23.30 hrs.

DIET

The stomach of Wilson's specimen contained remains of termites and two centipedes. My live one was caught in a wire cage trap baited with pumpkin seeds, but after capture was fed on lean raw beef.

MAMMAE

Apparently hitherto unrecorded (Roberts, 1951, 157). The mammae in Wilson's specimen were not well developed, but were apparently two pairs abdominal (V. J. Wilson).

GENERAL

My specimen was sent to the London Zoological Gardens by air a few days after capture. It died on 16th December, 1964, and the skin and skull are now in the B.M.

DISTRIBUTION AND TAXONOMY

Felis serval subsp.

p. 45

I have recently been able to examine two R.I.M. specimens donated by Mr. R. K. Hart of Kalabo (1422-D-3). As they are only trade skins their exact locality is not known, but they probably came from somewhere in Kalabo District. One is the normal form, the other the small-spotted *F. brachyura* variant.

Ellerman *et al.* (1953, 146) considered the species not truly dimorphic, but simply very variable individually. I do not agree, because, despite the intermediates quoted from Pimant's collection, the great majority of skins I have seen were distinctly one type or the other (the large-spotted of course much more common). The real point, however, which they seem to have missed, is that the small-spotted serval, and intermediates between the two forms, seem entirely confined to the West African subregion, and such adjacent areas as Zambia, northern Angola, and Uganda, which have a marginal West African element in their fauna.*

As one would expect from the foregoing, the small-spotted serval has not been found in Zambia east of the Muchinga-Zambesi escarpment, though in the western areas it occurs south to "somewhere within the Victoria Falls Region" (Shortridge, 1934, 104).

*The type of *Felis brachyura hiposticta* Pocock was alleged to have come from Mombasa, but G. M. Allen (1939, 239) reasonably considered that this was only the port of shipment, and that it must have originated somewhere inland, perhaps "from some place on the Mombasa to Uganda Railway".

I agree with this author that it is a localised mutant form. A parallel case seems to be *Actinix rex* Pocock, now generally regarded as a phase of *A. jubatus* Schreber, which has an even more restricted distribution.

Diceros bicornis Linn.

p. 52

DISTRIBUTION

The following reports from the North-Western Province indicate this species farther north-west than any other recent records. They may refer only to wanderers, but perhaps indicate a tendency towards re-occupation of former range.

1. Two were seen by R. Morris, Veterinary and Tsetse Department, in August, 1962, at the confluence of the lower Musonwedzi and Kalombe streams (1325-B-3), some 22 miles north-west of Kasempa.

2. Spoor was reported by Head Game Guard Chanamina Katongo near the confluence of the Karondombeta stream and Chifuwe River (1324-C-4) in September 1963.

3. A report of a rhinoceros in the vicinity of the Kabompo/Dongwe confluence (1323-D-4) in May, 1963, was heard by Game Guard S. Kanduli, on leave in the area, who subsequently reported it. It is, of course, only second hand information, but in view of the preceding report may be correct.

Equus burchelli crawshayi de Winton

p. 53

TAXONOMY

Lawrence & Loveridge (1953, 76-77), though recognising *E. b. crawshayi* de Winton, did not mention the ground colour of their specimens. It seems worth noting that the zebra of the Nyika plateau show such a distinct yellow tinge that they appear in the field to be almost yellow and black rather than white and black. During May, 1964, among 31 seen there I did not notice a single exception to this. In the Luangwa Valley, by contrast, where the subspecies is still indeterminate, the colour is generally white and black, and, while a few show some yellowish tinge it is, from field observations, not nearly as marked as in the Nyika animals.

Redunca arundinum occidentalis Rothschild

p. 62

DISTRIBUTION

Though occurring away from the riparian area of the Luangwa Valley (Poles, cited in Ansell, 1960, and several subsequent dep. rec.) this species is normally absent from the immediate vicinity of the Luangwa River. The following sightings are therefore worth recording.

1. Maramba, half a mile from the Luangwa River, 1330-D-4; a single female seen by W. G. Mackenzie, Forestry Department, 13th October, 1963, in open Mopane/*Terminalia* woodland.

2. Goose Lagoon, only a few hundred yards from the Luangwa, 1331-B-2; a single female seen by me, 4th December, 1963, in *Hygrophila/Disperma*/annual grass community interspersed with thicker clumps.

Hippotragus niger Harris

p. 68

DISTRIBUTION AND HABITAT

On 14th August, 1964, C. B. Smith, a prospector in the area, saw a herd of sable antelope in broken hilly ground only about 15 miles due west of Mfuwe Camp (1331-B-1), nearer to the river than it has previously been reported. It was recorded from mopane country near Masoro Mission by Wilson (Ansell, 1964, 32), while Sweetley (1959, 53) stated that it was associated with such habitat in Malawi. Nevertheless, in the Luangwa Valley it seems definitely associated with the *Brachystegia* woodland, and at most only marginal in mopane.

Tragelaphus strepsiceros subsp.

p. 72

DISTRIBUTION

In February, 1964, Game Guard S. Mubambe reported having seen a male kudu in the vicinity of the Luampaji stream (1224-C-1). This is the only indication there has ever been of the species in Mwinlunga District, and it is considerably farther north than the Manyinga/Kabompo confluence (1324-A-4) mentioned as an unusual locality record in Ansell (1960a, xx). The latter was also a lone male, as was the one recorded some years ago on the boundary of the Kasempa and Solwezi Districts (Ansell, 1959, 347). It seems probable, therefore, that there may be some tendency for single bulls to wander outside the regular range.

Syncerus caffer Sparrman

p. 73

In August, 1963, R. K. Hart, of Kalabo, saw herds of three and seven buffalo, plus a lone bull, on the Liuwa Plain (1422-A-4) (C. W. Benson, *in litt.*). Benson also tells me that during a survey of the Liuwa Plain, 25th July/2nd August, 1964 he and B. Y. Sherry saw a densely packed herd of approximately 100, two small herds of eight and thirteen respectively, and a lone individual.

Heliophobius argenteocinerens subsp.

p. 76

N.M. 22863, 22864, ♀♀, Nyika Plateau, 1033-D-1, 17th May, 1964 (22864 is skull only). N.M. 22951, ? sex, Lundazi District, 1232-B-2 (J. B. Allcock), skull only.

DISTRIBUTION AND TAXONOMY

The Nyika specimens, collected near the Rest House, agree in skull dimensions with *H. a. robustus* Thomas, to which Hanney (1962, 29) referred a male from the Malawi side of the plateau. Like his specimen, 22863 has long fur, about 20 mm. dorsally, and 22864 was similar, as against 14 mm. in specimens of the smaller *H. a. angoniticus* Thomas from Fort Jamson and Petauke Districts. Lawrence & Loveridge (1953, 71) thought