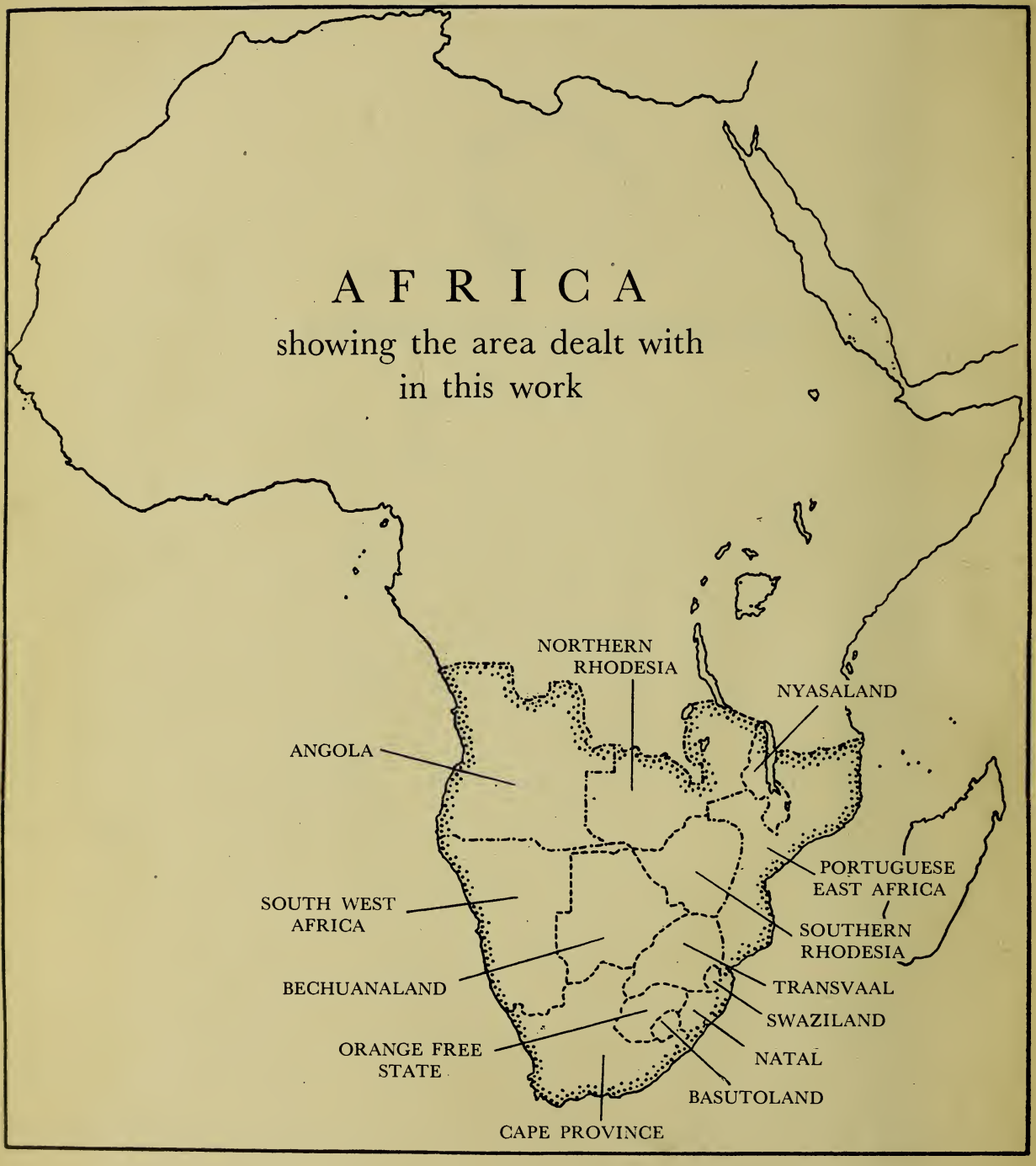
SOUTHERN AFRICAN MAMMALS

1758 to 1951


AFRICA
showing the area dealt with
in this work
NORTHERN RHODESIA
NYASALAND
ANGOLA
PORTUGUESE EAST AFRICA
SOUTH WEST AFRICA
SOUTHERN RHODESIA
BECHUANALAND
TRANSVAAL
SWAZILAND
ORANGE FREE STATE
NATAL
BASUTOLAND
CAPE PROVINCE

BRITISH MUSEUM
(NATURAL HISTORY)

SOUTHERN AFRICAN MAMMALS
1758 to 1951:
A RECLASSIFICATION

by
J. R. ELLERMAN
T. C. S. MORRISON-SCOTT
and
R. W. HAYMAN

LONDON
PRINTED BY ORDER OF THE TRUSTEES
OF THE BRITISH MUSEUM

Issued 23 *December* 1953] [*Price Two Pounds*

Sold at the British Museum (Natural History), Cromwell Road, S.W.7.
and by
B. Quaritch Ltd.; and H.M. Stationery Office

MADE AND PRINTED IN GREAT BRITAIN
BY TONBRIDGE PRINTERS LTD., TONBRIDGE, KENT

Sold at the British Museum (Natural History), Cromwell Road, S.W.7.
and by
B. Quaritch Ltd.; and H.M. Stationery Office

MADE AND PRINTED IN GREAT BRITAIN
BY TONBRIDGE PRINTERS LTD., TONBRIDGE, KENT

SOUTHERN AFRICA NORTH OF THE UNION

0 100 Miles 200 300

ANGOLA
NORTHERN RHODESIA
BAROTSE LAND
SOUTH WEST AFRICA
DAMARALAND
OVAMBOLAND
NGAMILAND
CAPRIVI
BECHUANALAND
KALAHARI DESERT
SOUTHERN RHODESIA
MATABELELAND
MASHONALAND
NYASALAND
PORTUGUESE EAST AFRICA
GAZALAND
TANGANYIKA TERRITORY

Bembe, Quindumbo, Jinga, Loanda, Funda, Golungo Alto, Duque de Bragança, Cunga, Canhoca, Ambaca, Dala Tando, Malange, Cuanza R., Dondo, Pungo Andongo, Kuango R., Luando R., Amboin, Dando, Chitau, ? Chissonque, ? Pedreira, Bimbi, Mombolo ?, Galanga, Andulu, Bailundo, Hanha, Lobito Bay, Quibula, Luimbale, Caiala, Bihe, Benguella, Quissange, Cuio B., ? Mt. Moco, Cuteo R., Ganguela, Caperolo R., Caconda, Caluquembe, Quilenges, Vila da Ponte, Capelongo, Humpata, Huila, Quipungo, Capangombe, Mossamedes, Pico Azevedo, Mulando, Mupa, R. Mbale, Cubango R., Cuito R., Cahama, Kakulovar R., Humbe, Evale, Mupanda, Cunene R., Cunene Falls (Rua Cana Falls), Chimpara, Kwando R., Machile R., Sesheke, Ondongwa, R. Okavango, Chobe R., Victoria Falls, Livingstone, Etosha Pan, Hoanib R., Omuramba Omatako, Tsumeb, Grootfontein, Outjo, Franzfontein, Otjiwarongo, Waterberg, Okombahe, Omaruru, Karibib, Cape Cross, Usakos, Okahandja, Gobabis, Windhoek, Swakopmund, Walvis Bay, Namib Desert, Rooibank, Kuiseb, Rehoboth, Lehutitung, Gaberones, Dundo, Dala, Lake Tanganyika, Lake Mweru, Luangwa R., Mwenza, Fort Hill, Songwe, Karonga, Isoka, Masuku Plat., Nyika Plat., Livingstonia, Lake Nyasa, Chinsali, Lake Bangweulu, L. Young, Mpika, Loangwa R., Ywaza, Mossimboa, Querimba Coast, Ibo I., Ndola, Balovale, Walamba, Serenje, Fort Jameson, Dwanga R., Mkhoma Dowa, Petauke, Misale, Broken Hill, Mumbwa, Loana, Fort Johnston, Ncheu, Zompa, Shire R., Mt Chiradgula, Namuli Mts., Cabaceira Pen., Lumbo, Mozambique, Kafue R., Namwala, Zambezi, Monze, ? Chilanga, Choma, Blantyre, Fort Lister, Libangula, Mlanje, Cholo, Chiromo, Tete, Mvukwe Mts., Bindura, Mazoe, Salisbury, Sena, Caia, Boror, Quelimane, Marandellas, Shupanga, Gorongoza, Chinde, Umtali, Macequece, Vumba, Enkeldoorn, Gwelo, Wankie, Melsetter, Birchenough Br., Beira, Bulawayo, Bembesi, Essexvale, Mt. Silinda, Plumtree, Matopo Hills, Tati District, Nuanetsi R., Bubye R., Limpopo R., Serowe, Maun, Botletle, L. Ngami, Guija, Coguno, Panda, Inhambane

UNION OF SOUTH AFRICA
& PART OF S.W. AFRICA

0 50 100 MILES 200 300

Tropic of Capricorn

25°

30°

15° 20° 25° 30°

Limpopo R. Messina Sand R. Nyelele R. Punda Maria Pafuri R. Zoutpansberg Louis Trichardt Shingwedzi Klein Letaba Kruger Mokeetsi Letaba R. National Tzaneen Letaba Olifants R. Leydsdorp Park Mbaloot R. Satara Pietersburg Woodbush Moorddrift Potgietersrust Waterberg Nylstroom Magaliesberg Rustenburg Pretoria Belfast Pilgrimsrest Toulon Pretorius Kop Skukuza Lydenburg Sabie R. Sabie Mts. Hectorspruit White River Komatipoort Malelane Barberton Piggs Peak Carolina Lourenco Marques Delagoa B. Steynsdorp Wonderfontein Krugersdorp Randfontein Johannesburg Springs Ermelo Potchefstroom Viljoens Drift Parys Vaal R. Vredefort Vryburg Schweizer Reneke Wolmaransstad Bothaville Heilbron Volksrust Wakkerstroom Pongola R. Mangüzi Maputa Ubombo Hlohluwe Utrecht Vryheid Mkuzi R. Newcastle Bloemhof Hoopstad Kroonstad Christiana Fourteen Streams Ventersburg Aberfeldy Harrismith Bethlehem Winburg Fouriesburg Ladysmith Bergville St. Lucia Bay Umfolosi Sibudeni? Eshowe Umhlazuti R. Mtaux Sources Estcourt Mooi R. Nottingham Rd. Dargle New Hanover Howick Pietermaritzburg Verulam Mt. Edgecombe Pinetown Durban Ilovo Ixopo Umzinkulu Kokstad Mount Fletcher Rouxville Herschel Aliwal North Bethulie Philippolis Caledon R. Thaba Putsua Mts. Orange R. Fauresmith Reddersburg Wepener Meadows Maseru Maluti Mts. Giants Castle Leribe Clocolan Modder R. Glen Bloemfontein Jagersfontein Koffiefontein Boshof Kimberley Campbell Griqualand West Griquatown Prieska Hopetown Kenhardt Upington Aughrabies Falls Louisvale Kakamas Nakop Warmbad Karasburg Goodhouse Orange R. Rietfontein Molopo R. Kuruman R. Kuruman Khosis Oliphantshoek Morokwen Molopo R. Pitsani Mafeking Zeerust Marico R. Crocodile R. Limpopo R. Maggiqueen R. Nosob R. Kalahari Gemsbok National Park Maltahohe Gibeon Great Brukkaros Mts. Berseba Helmeringshausen Keetmanshoop Aus Luderitz Aroab Karas Mts. Great South West Namaqualand Africa Klipfontein Steinkopf Little O'okiep Springbok Port Nolloth Bushmanland Namaqualand Kamieskroon Kamiesberg Garies Pofadder Van Wyks Vlei Brandvlei De Aar Colesberg Deelfontein Hanover Victoria West Hutchinson Richmond Middelburg Steynsburg Molteno Dordrecht Burghersdorp Jamestown Tsolo Griqualand East Pondoland Umsikaba R. Port St. Johns Ngqeleni Tembuland Lady Frere Sterkstroom Rosmead Queenstown Tarkastad Graaff Reinet Cradock Cathcart Blythswood Transkei Gt. Kei R. Komgha Amatola Mts. Pirie Bedford Somerset East Ft. Beaufort King Williams Town East London Buffalo R. Keiskama R. Koonap R. Gt. Fish R. Grahamstown Peddie Alicedale Albany Addo Sundays R. Alexandria Bathurst Port Alfred Bushmans R. Uitenhage Algoa Bay Port Elizabeth Sitzikama Mts. Knysna Plettenberg Bay George Outeniqua Mts. Belvedere Mossel Bay Riversdale Swellendam Heidelberg Montagu Matjesfontein Ladismith Laingsburg Sevenweeks Poort Prince Albert Zwartberg Mts. Cango Caves Steytlerville Oudtshoorn Olifants Doorn R. Worcester Wolseley Ceres Bains Kloof Tulbagh Saldanha Bay Berg R. Piquetberg Eendekuil Citrusdal Cedar Berg Clanwilliam Lamberts Bay Olifants R. Klaver Vredendal Van Rhynsdorp Calvinia Nieuwoudtville Nieuwerust Doorn R. Bitterfontein Sutherland Beaufort West Nelspoort Murraysburg Cape Province Cape Town Table Bay Robben I. Bellville Stellenbosch Franschhoek Paarl Malmesbury Hout Bay False Bay Simonstown Cape Point Res. C. Hangklip Elgin Caledon Hermanus Bredasdorp C. Agulhas Kaffirkuils R. Heidelberg

INTRODUCTION

Area covered by this work

The area covered by this work is the Union of South Africa, Bechuanaland, Southern Rhodesia, Northern Rhodesia, Nyasaland, South-West Africa, Portuguese East Africa (sometimes referred to as Mozambique, though we reserve this term for the province itself), and Angola (but not including the Portuguese territory of Kabinda, which lies north of the River Congo).

These limits are, we realize, artificial and, having dealt with southern Africa the ideal would have been to go on and deal with the whole of the Ethiopian region. But the Belgian Congo has been adequately dealt with by Schouteden, 1944–6, De zoogdieren van Belgisch-Congo en van Ruanda-Urundi, *Ann. Mus. Congo Belge*, Zoologie, *3:* 1–576, and Tanganyika Territory has been well listed by Swynnerton & Hayman, 1951, A checklist of the land mammals of the Tanganyika Territory and the Zanzibar Protectorate, *J.E. Afr. Nat. Hist. Soc. 20:* 274–392. And in general our reason for not extending our work to the north of these areas has been lack of opportunity.

Previous Works on this Area

The standard list of African mammals is Allen, 1939, A Checklist of African Mammals, *Bull. Mus. Comp. Zool. Harv. 83*. This great work is, and will be for years, the source book on African mammals. Our reason for offering the work which follows is twofold. In the first place, fourteen years have elapsed since Allen's work, and consequently there are newly-described forms to be recorded, and fresh knowledge has been gained about forms previously known. Secondly, Allen's list is alphabetical and therefore uncritical. For instance, in the Oryginae *Aegoryx* and *Oryx* are separated by *Hippotragus*, which is an entirely artificial and unfortunate arrangement, and inconvenient to the reader. On this latter ground alone we have therefore thought that a new list was justified. Nevertheless, we desire to acknowledge our very great indebtedness to the late G. M. Allen, whose monumental work has been such a boon to all workers on African mammals since 1939, and has, of course, been our springboard.

With regard to the imposing work of Roberts[1] (1951, *The Mammals of South Africa*) we find ourselves in some difficulty. The canon "*de mortuis* . . . " is one to which men of goodwill universally subscribe: on the other hand we believe that in scientific work there is an overriding consideration. We therefore record, with regret, that the scientific thought of the last few decades appears to have had little influence on this author's taxonomic assessments, and that his systematics to the last were little advanced from those of Père Heude who, in the 1880s, had five specimens of

[1] Dr. Austin Roberts died on 5th May, 1948. An obituary notice appeared in *Ann. Transv. Mus.* 1949, *21:* 153.

Sika Deer from the island of Formosa, and described five species. It is permissible, and indeed often mandatory, to describe a new form on the basis of one specimen. But in the case of races we believe it to be unwise, certainly as a routine.

Further, the description of new forms for the sake of describing them, a sort of parlour game in which our predecessors vied with one another to see who could have the most names to his "credit", seems to have been a vanity which found its echo in Roberts. We have also noticed four instances in which he described a race as new on two separate occasions, in one case with a different type specimen and type locality; such mishaps are, however, only the least of the disadvantages of mass production.

Method of this Work

We have attempted a reclassification of the mammals of our area, based on the extensive material in the study collections of the British Museum and the Transvaal Museum, and type specimens in the South African Museum, Cape Town, and taking into account the conclusions of recent workers in the field.

The arrangement is intended to be a natural one, and in broad outline largely follows Simpson (1945). Within the species the races are arranged in order of chronological priority, for the convenience of subsequent revisers.

We recognize that our treatment of races has been uneven. This is simply a reflection of incomplete evidence, and the results should be interpreted in the light of the following general principles, and bearing in mind that whereas it is open to anyone validly (nomenclaturally) to describe a new race in a few hastily written lines, it is quite a different matter to collect together enough evidence conclusively to show that such a description should not have been made.

Inevitably, therefore, if the taxonomy of a group, or an area, is to be reduced to some reasonable order, one is forced to supplement direct evidence with indirect, such as the reliability of the judgment of the author concerned, as assessed from his described forms for which direct comparative evidence is available, combined with the degree of variability known to exist in the form concerned, its genetic stability, and the extent of the isolation of the population. In this latter connection it may be observed that large, free-ranging forms, such as lions and many of the antelopes, must clearly be less likely to form stable geographical races than some very small mammals, many of which never move more than a few hundred yards from the place where they were born.

The whole question of the appropriateness of the formal trinominal recognition of races, the ascription of a finite label to something which is not finite in nature, is in our view debatable. This opinion is not new (*cf.* the "clines" of Huxley) and has recently been re-advocated (T.C.S.M–S., 1952, *A list of British mammals*, *4*), but we are aware that the idea of abandoning the formal nomenclatural recognition of races will as yet profoundly shock the orthodox. We nevertheless believe that it will come to be accepted. For the time being, however, we list races, sifted in accordance with the principles, and subject to the limitations, which we mention.

We have also made some reduction in the currently accepted species, and recog-

nize 350 in our area. We have examined, and provided keys for, all of these with the exception of fourteen species of Chiroptera, which are unrepresented in the British Museum, and thirty-two species of Cetacea and Sirenia.

The distributions of the species are given in some detail where we have the information, but are necessarily only roughly drawn in other areas. We draw attention to this lest the failure to mention any particular area be taken to imply the non-occurrence there of the species.

We would draw attention to the fact that the keys to the genera and species have been devised with special attention to forms occurring in South Africa, and all of them may not hold good if extralimital material be taken into account.

The synonyms printed in parentheses are those of which we are doubtful.

Acknowledgements

We record, with gratitude, our indebtedness to Mr. G. H. E. Hopkins and Mr. L. R. Conisbee for kindly reading through the proof sheets and making helpful suggestions, and also to the following gentlemen for the help given to J. R. E. while working in South Africa: Colonel J. A. B. Sandenbergh, Warden of the Kruger National Park; Mr Stephen Roche, of Toulon; Dr. S. H. Skaife and Dr. K. Barnard, of the South African Museum, Cape Town; Dr. V. Fitzsimons and Dr. B. Lundholm, of the Transvaal Museum, Pretoria (Dr. Lundholm has now left Pretoria); Mr. D. H. S. Davis, of the Plague Research Laboratory, Johannesburg; Mr. Hollings, ranger at De Beers, Kimberley district; and Mr. B. Bezuidenhout.

We also acknowledge the assistance we have received in the Mammal Room from Miss J. M. Ingles, particularly with regard to the laborious business of checking the references of original descriptions.

J. R. Ellerman
T. C. S. Morrison-Scott
R. W. Hayman

British Museum (Natural History)
9th April, 1953

CLASS MAMMALIA

Simpson (1945) is the basic work for the classification of mammals. The mammals with which this work is concerned all belong to the Infraclass Eutheria, which Simpson divides into four cohorts:

UNGUICULATA

Orders: Insectivora, Chiroptera, Primates, Pholidota.

GLIRES

Orders: Lagomorpha, Rodentia.

MUTICA

Order: Cetacea.

FERUNGULATA

Superorder: FERAE
Order: Carnivora (with Pinnipedia).
Superorder: PROTUNGULATA
Order: Tubulidentata.
Superorder: PAENUNGULATA
Orders: Proboscidea, Hyracoidea, Sirenia.
Superorder: MESAXONIA
Order: Perissodactyla.
Superorder: PARAXONIA
Order: Artiodactyla.

We follow the broad outline of this classification except that, as in our last work, we retain the Pinnipedia as an order.

ORDERS:

ORDER INSECTIVORA

Small mammals with short limbs, the fingers and toes with claws; relatively primitive brain structure; no opposability of the first finger or toe, the nose usually rather long; the main upper cheekteeth W-shaped or V-shaped; if the first upper and lower incisor are enlarged, then in the upper jaw these teeth are joined to the main cheekteeth by a series of small unicuspid teeth.

Simpson's classification of the South African families, 1945:

Order INSECTIVORA
Superfamily: Tenrecoidea.
Family: Potamogalidae.
Superfamily: Chrysochloroidea.
Family: Chrysochloridae.
Superfamily: Erinaceoidea.
Family: Erinaceidae.
Superfamily: Macroscelidoidea.
Family: Macroscelididae.
Superfamily: Soricoidea.
Family: Soricidae (Subfamily: Crocidurinae).

Roberts' classification, 1951 (in general agreement with the views of the late Dr. Broom):

Order: MENOTYPHLA
Family: Macroscelididae.

Order: LIPOTYPHLA
Suborder: Erinaceoidea.
Family: Erinaceidae.
Suborder: Soricoidea.
Family: Crociduridae (= Soricidae as here understood).

Order: CHRYSOCHLORIDEA
Family: Chrysochloridae.

The family Potamogalidae is not dealt with by Roberts as it is extralimital to the region he dealt with.

For remarks on the status of the Menotyphla see Ellerman & Morrison-Scott, 1951, 8.

Simpson (1945) states "Broom . . . has shown that the chrysochlorids are basically different from the other 'zalambdodonts'. He removed them from the Insectivora altogether and made a new order for them. This seems too radical."

Broom (*P.Z.S.* 1915, 351 and 1927, 235) separated the Chrysochloridae from the Insectivora as the order Chrysochloridea. He did this chiefly on the different structure of Jacobson's organ and on the lack of the mesethmoid bone in the Golden Moles. But we are not convinced that these characters are of sufficient significance to justify a separate order, especially as they appear to be present only in juvenile skulls, and apparently only three out of some ten species of the Chrysochloridae have so far been examined. Further, neither Broom nor Roux (1947, *Acta Zoologica, 28:* 165) who supports Broom, seems to have compared all the Insectivora with these characters in mind.

For the moment we retain the Chrysochloridae in the Insectivora.

For further details of the structure of the skull in this family, see Broom, 1916, On the structure of the skull in *Chrysochloris*, *P.Z.S.* 449.

1. The main upper cheekteeth W-shaped. ——2
   The main upper cheekteeth V-shaped. ——4

2. First lower incisor enlarged and thrown forwards; first upper incisor also large (and joined to the main cheekteeth by a series of small upper unicuspid teeth). Zygoma incomplete. Family SORICIDAE, page 18.
   First lower incisor not much enlarged nor thrown forwards; zygoma normally complete. ——3

3. Brain cavity relatively smaller. In Africa, tail vestigial and back densely covered with spines. Pubic symphysis short or absent (Flower & Lydekker, 1891). Family ERINACEIDAE, page 17.
   Brain cavity relatively larger. Tail long, and hindfoot relatively long. Back not spiny. Pubic symphysis long (Flower & Lydekker, 1891). Family MACROSCELIDIDAE, page 7.

4. Animal modified for aquatic life, with long, laterally compressed tail. Zygoma incomplete. (Five digits to fore- and hindfeet.) Family POTAMOGALIDAE, page 32.
   Animals highly modified for subterranean life, with no visible tail, eyes and ears absent or rudimentary; the digging done with 2 or at most 3 enlarged fore-claws, the other fingers much reduced. Five hindtoes. Zygoma present. Family CHRYSOCHLORIDAE, page 32.

FAMILY MACROSCELIDIDAE

The classification adopted here is outlined in Ellerman & Morrison-Scott, 1951, 14–15. It may be noted that Winge (1923) recognized a special subfamily "Rhynchocynini" for *Rhynchocyon*, contrasted with all the other genera, and there

is much to be said in favour of this classification as the dental characters of *Rhynchocyon* differ widely from those of the other Macroscelididae.

1. Upper incisors reduced to one, which is nearly vestigial, so that there is little functional dentition in front of the upper canine, which is enlarged and dominant. (Large species; no hallux; manus with three functional digits and a minute but clawed D.5). Genus *RHYNCHOCYON*, page 16
   Three upper incisors, canine not enlarged. ——2

2. Large species, length of skull 48.5 mm. and more, usually over 50 mm. No hallux. The bullae not enlarged. Genus *PETRODROMUS*, page 15
   Smaller species, skull 40.5 mm. and less, usually less than 40 mm. With a small hallux. ——3

3. Bullae much enlarged, showing conspicuously in the superior aspect of the skull. Genus *MACROSCELIDES*, page 13
   Bullae relatively small, or much less enlarged. Genus *ELEPHANTULUS*, page 8

Genus **ELEPHANTULUS** Thomas & Schwann, 1906

1906. *Elephantulus* Thomas & Schwann, Abstr. P.Z.S. No. 33: 10; P.Z.S. 577. *Macroscelides rupestris* A. Smith.
1906. *Nasilio* Thomas & Schwann, Abstr. P.Z.S. No. 33: 10; P.Z.S. 578. *Macroscelides brachyrhynchus* A. Smith. Valid as a subgenus.
1937. *Elephantomys* Broom, S. Afr. J. Sci. *33:* 758. *E. langi* Broom, from cave deposits at Schurveberg, Transvaal; valid as a subgenus to include also the living *E. intufi*.

1. Eleven lower teeth; a small but functional extra hind lower molar normally present. *Elephantulus* (*Nasilio*) *brachyrhynchus*,[1] page 9
   Ten lower teeth; two lower molars. ——2

2. The fifth tooth from the back in the upper toothrow is large, fourcusped and molariform. The bullae are not flattened, so that the external part of the bulla is on a much lower level as seen in ventral view than the median part. *Elephantulus* (*Elephantomys*) *intufi*, page 10
   The fifth tooth from the back in the upper toothrow is narrow, twocusped and sectorial. The bullae are somewhat flattened, so that as seen in ventral view the external part of the bulla is about on the same level as the median part. *Elephantulus rupestris*,[2] page 12

G. Allen (1939) listed *Elephantulus rufescens* Peters, 1878 (a probable subspecies of *E. rozeti* Duvernoy, 1833) from Mozambique, but we have reason to believe that this record is erroneous.

[1] We are inclined to treat *Nasilio* as a subgenus of *Elephantulus*.
[2] *Elephantulus rupestris* as based on a cotype in the British Museum and outlined in Ellerman and Morrison-Scott, 1951, 14–15; not *E. rupestris* of Roberts 1951, which we think = *intufi*.

Subgenus *NASILIO* Thomas & Schwann, 1906

Elephantulus brachyrhynchus A. Smith, 1836

Short-snouted Elephant-Shrew. Kortneusklaasneus[1]

Distribution[2]: in the Union, the Transvaal (Rustenburg district, Pretoria Pietersburg, Klein Letaba, Tzaneen, etc.). Portuguese East Africa, including Tete; Melsetter district, Mazoe, Bulawayo, etc., in Southern Rhodesia; Ngamiland, northern South-West Africa (Grootfontein district, western Caprivi, parts of Ovamboland (Shortridge)). Central and southern Angola northwards at least to Chitau. Northern Rhodesia, where widely distributed; Nyasaland. North of the limits of this work, the Belgian Congo, Kenya, Tanganyika and Uganda.

Elephantulus brachyrhynchus brachyrhynchus A. Smith, 1836

1836. *Macroscelides brachyrynchus* A. Smith, Report Exped. Explor. Cent. Africa, 42. Between Latakoo [near Kuruman] and the Tropic, (either southern Bechuanaland or northern Cape Province.)

1844. *Macroscelides brevirostris* Schinz, Synops. Mamm. *1:* 284. Substitute for *brachyrhynchus*.

(1852. *Macroscelides fuscus* Peters, Reise nach Mossamb. Zool. *1:* Säug. 87. Boror (12 miles from Quelimane, northern Portuguese East Africa).)

Range includes the western Transvaal and probably the dry western parts of Southern Rhodesia (Roberts). Nyasaland, part.

Elephantulus brachyrhynchus brachyurus Bocage, 1882

1882. *Macroscelides brachyura* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *9:* 27. Caconda, south-east of Benguela, Angola.

Elephantulus brachyrhynchus schinzi Noack, 1889

1889. *Macroscelides brachyrhynchus* var. *schinzi* Noack, Zool. Jahrb. *4:* 198. Ondongastamm, Ovamboland, South-West Africa. Ranges to Humpata and Quillenges, south-western Angola.

Elephantulus brachyrhynchus malosae Thomas, 1898

1898. *Macroscelides brachyrhynchus malosae* Thomas, P.Z.S. *1897:* 928. Mount Malosa, (north of Zomba), 5500 ft., southern Nyasaland.

Elephantulus brachyrhynchus tzaneenensis Roberts, 1929

1929. *Nasilio brachyrhyncha tzaneenensis* Roberts, Ann. Transv. Mus. *13:* 85. Tzaneen (west of the Kruger National Park, and near Woodbush), eastern Transvaal.

Elephantulus brachyrhynchus langi Roberts, 1929

1929. *Nasilio brachyrhyncha langi* Roberts, Ann. Transv. Mus. *13:* 85. Mazambo, lower Limpopo River, southern Portuguese East Africa.

[1] The Afrikaans name skeerbekmuis is used by Shortridge for some of the Soricidae as well as for members of the Macroscelididae.

[2] It should be noted that the small mammals of the Kruger National Park, Transvaal (Insectivora and smaller Rodentia) are not yet well known.

ELEPHANTULUS BRACHYRHYNCHUS SHORTRIDGEI Roberts, 1929

1929. *Nasilio brachyrhyncha shortridgei* Roberts, Ann. Transv. Mus. *13:* 86. Ndola (near the Congo border), western Northern Rhodesia.

ELEPHANTULUS BRACHYRHYNCHUS MABABIENSIS Roberts, 1932

1932. *Nasilio brachyrhynchus mababiensis* Roberts, Ann. Transv. Mus. *15:* 18. Tsotsoroga Pan, Ngamiland, northern Bechuanaland.

ELEPHANTULUS BRACHYRHYNCHUS SELINDENSIS Roberts, 1937

1937. *Nasilio brachyrhyncha selindensis* Roberts, Ann. Transv. Mus. *19:* 99. Mt. Selinda, Melsetter district, eastern Southern Rhodesia. Roberts also quoted specimens from the Bulawayo district.

Subgenus *ELEPHANTOMYS* Broom, 1937

Elephantulus intufi A. Smith, 1836

Bushveld Elephant-Shrew. Bosveldklaasneus

Distribution: in the Union, the British Museum possesses specimens from Klipfontein (north of Steinkopf) in Little Namaqualand, Louisvale (south bank of Orange River, near Upington), and Kenhardt, north-western Cape Province. Besides these places, Roberts quotes specimens from Cradock, Grahamstown, Upington, the Aughrabies Falls and Van Wyk's Vlei, Cape Province. Hewitt (1931) quoted one species of the genus from the eastern Cape (saying that *vandami* was the only one of three varieties "actually known to us") and localities quoted by that author included Rosmead (near Middleburg), Dordrecht (near Aliwal North), and Alicedale. The type locality was in the western Transvaal. South-West Africa; from about the Tropic of Capricorn to the Kaokoveld and Ovamboland (Shortridge); forms also named by Roberts from Great Namaqualand. Bechuanaland, and Matabeleland, Southern Rhodesia. Western Angola. Recorded from southern Tanganyika by Swynnerton & Hayman, 1951.

(In this work a classification is offered which is different from that of Roberts, owing to a difference of opinion as to the status of *E. rupestris*, which we take as the species with the narrow upper P.3, on account of the holotype in the British Museum. All Roberts' types have been examined, and all types and other material in the British Museum. But owing to confusion between *rupestris* and *intufi* by earlier authors, it becomes difficult to ascertain their exact distributions.)

ELEPHANTULUS INTUFI INTUFI A. Smith, 1836

1836. *Macroscelides intufi* A. Smith, Report Exped. Explor. C. Africa, 42. Flats beyond Kurrichaine, Marico district, western Transvaal. Range: western and northern Transvaal and adjacent parts of Bechuanaland and Matabeleland (Roberts).

ELEPHANTULUS INTUFI ALEXANDERI Ogilby, 1838

1838. *Macroscelides alexandri* Ogilby, P.Z.S. 5. Damaraland, South-West Africa (Windhoek nominated by Roberts, 1951). (Named after Captain Alexander). Ranges southwards to Berseba, Great Namaqualand, according to Roberts, and recorded from several localities in western Angola, northwards to Hanha, by Hill & Carter.

ELEPHANTULUS INTUFI VANDAMI Roberts, 1924

1924. *Elephantulus vandami* Roberts, Ann. Transv. Mus. *10:* 62. Cradock, eastern Cape Province. Range also includes Grahamstown and Van Wyk's Vlei, Cape Province.

ELEPHANTULUS INTUFI KALAHARICUS Roberts, 1932

1932. *Elephantulus intufi kalaharicus* Roberts, Ann. Transv. Mus. *15:* 17. Damara Pan, central Kalahari, Bechuanaland.

ELEPHANTULUS INTUFI MOSSAMEDENSIS Hill & Carter, 1937

1937. *Elephantulus intufi mossamedensis* Hill & Carter, Amer. Mus. Novit. No. 937: 1. 101 km. east of Mossamedes, south-western Angola.

ELEPHANTULUS INTUFI BARLOWI Roberts, 1938

1938. *Elephantulus barlowi* Roberts, Ann. Transv. Mus. *19:* 233. Aus (inland from Luderitz), Great Namaqualand, South-West Africa.

ELEPHANTULUS INTUFI NAMIBENSIS Roberts, 1938

1938. *Elephantulus namibensis* Roberts, Ann. Transv. Mus. *19:* 233. 45 miles north of Aus, Great Namaqualand, South-West Africa.

ELEPHANTULUS INTUFI CAMPBELLI Roberts, 1938

1938. *Elephantulus intufi campbelli* Roberts, Ann. Transv. Mus. *19:* 234. Barby Farm, 25 miles west of Helmeringshausen (west of Berseba, Great Namaqualand), South-West Africa.

(1938. *Elephantulus rupestris tarri* Roberts, Ann. Transv. Mus. *19:* 234. Barby Farm, 25 miles west of Helmeringshausen, Great Namaqualand, South-West Africa.)

ELEPHANTULUS INTUFI OKOMBAHENSIS Roberts, 1946

1946. *Elephantulus barlowi okombahensis* Roberts, Ann. Transv. Mus. *20:* 309. Okombahe, Omaruru, Damaraland, South-West Africa.

(1946. *Elephantulus intufi mchughi* Roberts, Ann. Transv. Mus. *20:* 309. Okombahe, Omaruru, Damaraland, South-West Africa.)

ELEPHANTULUS INTUFI GORDONIENSIS Roberts, 1946

1946. *Elephantulus barlowi gordoniensis* Roberts, Ann. Transv. Mus. *20:* 309. Upington, Gordonia district, north of the Orange River, northern Cape Province.

(1951. *Elephantulus rupestris rupestris* Roberts, Mamm. S. Africa, 28. Not of A. Smith, 1831.)

Specimens in B.M. similar to this form from Klipfontein (Little Namaqualand), Louisvale (near Upington) and Kenhardt, Cape Province.

Subgenus *ELEPHANTULUS* Thomas & Schwann, 1906

Elephantulus rupestris A. Smith, 1831

Rock Elephant-Shrew. Klipklaasneus

Distribution: in the Union, the Transvaal (widely distributed, including Rustenburg, Krugersdorp, Zoutpansberg, Woodbush, Pretoria, Johannesburg), Utrecht in northern Natal, the Orange Free State (Vredefort, Fauresmith, Meadows, Bothaville, etc.), and in the Cape Province, Little Namaqualand (recorded from the Kamiesberg, O'okiep, Springbok), Klaver, Lamberts Bay, Tulbagh, Wolseley, western Cape; Deelfontein, Richmond, Hanover, Port Elizabeth, etc. (Skulls in British Museum examined from Deelfontein, Vredefort, Johannesburg and Woodbush). North of the Union, from Gaberones, south-eastern Bechuanaland, and Southern Rhodesia. Unless the form *kobosensis* from south of Rehoboth belongs to this species, it is probable that all forms from South-West Africa should be referred to *E. intufi.*

ELEPHANTULUS RUPESTRIS RUPESTRIS A. Smith, 1831

1831. *Macroscelides rupestris* A. Smith, P.Z.S. *1830-31:* 11 (January). Also 1831, S. Afr. J. *1*, No. 5: 10 (October). Mountains near the mouth of the Orange River.

1830. *Macroscelides typus* Lesson, Cent. Zool. 51. Not of A. Smith, 1829.

ELEPHANTULUS RUPESTRIS EDWARDI A. Smith, 1839

1839. *Macroscelides edwardii* A. Smith, Illustr. Zool. S. Africa, Mamm. pl. 14. Near Oliphants River; thought by Roberts and Shortridge to be the Olifants River in the Oudtshoorn district, south-western Cape Province.

1939. *Macroscelides edwardsii* G. Allen, Checklist African Mamm., 5 and of earlier authors.

ELEPHANTULUS RUPESTRIS MYURUS Thomas & Schwann, 1906

1906. *Elephantulus rupestris myurus* Thomas & Schwann, P.Z.S. 586. Woodbush, north-eastern Transvaal. Range: Woodbush to Zoutpansberg, northern Transvaal; also recorded from Matabeleland, Southern Rhodesia.

ELEPHANTULUS RUPESTRIS JAMESONI Chubb, 1909

1909. *Elephantulus rupestris jamesoni* Chubb, Ann. Transv. Mus. *1:* 181. Johannesburg, Transvaal. Range: the grassveld plateau of southern Transvaal (eastwards to Drakensberg and Utrecht, Natal) and Orange Free State (southwards to Meadows, westwards to Bothaville), and westwards into Gaberones district, Bechuanaland.

ELEPHANTULUS RUPESTRIS MAPOGONENSIS Roberts, 1917

1917. *Elephantulus rupestris mapogonensis* Roberts, Ann. Transv. Mus. *5:* 277. Njelele River, north of the Zoutpansberg, northern Transvaal.

ELEPHANTULUS RUPESTRIS CAPENSIS Roberts, 1924

1924. *Elephantulus capensis* Roberts, Ann. Transv. Mus. *10:* 62. Klaver, western Cape Province. Range: western Cape Province from Little Namaqualand to Wolseley and Tulbagh.

ELEPHANTULUS (?) RUPESTRIS KOBOSENSIS Roberts, 1938

1938. *Elephantulus kobosensis* Roberts, Ann. Transv. Mus. *19:* 233. Kobos, 30 miles south-west of Rehoboth, South-West Africa.

ELEPHANTULUS RUPESTRIS KAROENSIS Roberts, 1938

1938. *Elephantulus karoensis* Roberts, Ann. Transv. Mus. *19:* 234. Deelfontein, north of Richmond, central Cape Province. Range: Deelfontein, Hanover, Richmond and Hutchinson (on the Karroo), and Port Elizabeth (Roberts).

ELEPHANTULUS RUPESTRIS CENTRALIS Roberts, 1946

1946. *Elephantulus myurus centralis* Roberts, Ann. Transv. Mus. *20:* 310. Fauresmith, western Orange Free State. Range includes Reddersburg, O.F.S. and Burghersdorp, north-eastern Cape Province.

Genus **MACROSCELIDES** A. Smith, 1829

1829. *Macroscelides* A. Smith, Zool. J. *4:* 435. *Macroscelides typus* A. Smith = *Sorex proboscideus* Shaw.
1829. *Eumerus* I. Geoffroy, Ann. Sci. Nat. *18:* 172, published as Eumère, for latinization of name see p. 470. Name published and put into synonymy at same time.
1830. *Macroscelis* Fischer, Syn. Mamm. Addenda, 657.
1831. *Rhinomys* Lichtenstein, Darst. Säugeth. pl. 38 and text. *Rhinomys jaculus* Lichtenstein = *Sorex proboscideus* Shaw.

Macroscelides proboscideus Shaw, 1800.

Short-eared Elephant-Shrew. Kortoorklaasneus

Distribution: Cape Province; north of Upington; Little Namaqualand (Port Nolloth, Klipfontein (north of Steinkopf), the Kamiesberg), Van Rhynsdorp, Lamberts Bay region, the Oudtshoorn district, the greater part of the Karroo, including several places in Bushmanland, Matjesfontein, Deelfontein, Hanover, Cradock, east of Calvinia, Middelburg district, and to Grahamstown. South-West Africa; Great Namaqualand; possibly but not certainly Damaraland.

MACROSCELIDES PROBOSCIDEUS PROBOSCIDEUS Shaw, 1800

1800. *Sorex proboscideus* Shaw, Gen. Zool. Mamm. *1:* 536. Cape of Good Hope. According to Roberts, from Roodewal, Oudtshoorn division, south-western Cape Province.
1829. *Macroscelides typus* A. Smith, Zool. J. *4:* 436. "Interior of South Africa." (Roodewal, Oudtshoorn division, Cape Province (Roberts).)

MACROSCELIDES PROBOSCIDEUS PROBOSCIDEUS [*contd.*]

1831. *Rhinomys jaculus* Licthenstein, Darst. Säugeth. pl. 38 and text. "East coast of South Africa."

1838. *Macroscelides typicus* A. Smith, Illustr. Zool. S. Africa, Mamm. pl. 10. Renaming of *typus*.

Specimens quoted from Beaufort West and Matjesfontein, Cape Province by Roberts.

MACROSCELIDES PROBOSCIDEUS MELANOTIS Ogilby, 1838

1838. *Macroscelides melanotis* Ogilby, P.Z.S. 5. Said to be from Damaraland, South-West Africa (but not subsequently collected there; Shortridge thought it was from Great Namaqualand; Roberts disagrees).

MACROSCELIDES PROBOSCIDEUS HEWITTI Roberts, 1929

1929. *Macroscelides proboscideus hewitti* Roberts, Ann. Transv. Mus. *13:* 86. Cradock, eastern Cape Province. Range includes Hanover, Deelfontein, etc.

MACROSCELIDES PROBOSCIDEUS CHIVERSI Roberts, 1933

1933. *Macroscelides proboscideus chiversi* Roberts, Ann. Transv. Mus. *15:* 265. 76 miles north of Upington (south of the Kuruman River), northern Cape Province.

MACROSCELIDES PROBOSCIDEUS LANGI Roberts, 1933

1933. *Macroscelides proboscideus langi* Roberts, Ann. Transv. Mus. *15:* 265. Vlermuisklip, Van Rhynsdorp district, western Cape Province.

MACROSCELIDES PROBOSCIDEUS ISABELLINUS Shortridge & Carter, 1938

1938. *Macroscelides typicus isabellinus* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 283. Port Nolloth, coast of Little Namaqualand, north-western Cape Province.

MACROSCELIDES PROBOSCIDEUS AUSENSIS Roberts, 1938

1938. *Macroscelides typicus ausensis* Roberts, Ann. Transv. Mus. *19:* 231. 20 miles north of Aus village, Great Namaqualand, South-West Africa.

MACROSCELIDES PROBOSCIDEUS HAREI Roberts, 1938

1938. *Macroscelides typicus harei* Roberts, Ann. Transv. Mus. *19:* 232. Brospan, midway between Brandvlei and Van Wyk's Vlei, Great Bushmanland, western Cape Province.

MACROSCELIDES PROBOSCIDEUS BRANDVLEIENSIS Roberts, 1938

1938. *Macroscelides typicus brandvleiensis* Roberts, Ann. Transv. Mus. *19:* 232. Brandvlei, Great Bushmanland, western Cape Province.

MACROSCELIDES PROBOSCIDEUS CALVINIENSIS Roberts, 1938

1938. *Macroscelides typicus calviniensis* Roberts, Ann. Transv. Mus. *19:* 232. 15 miles east of Calvinia, western Cape Province.

Genus **PETRODROMUS** Peters, 1846

1846. *Petrodromus* Peters, Ber. Preuss. Akad. Wiss. 257. *Petrodromus tetradactylus* Peters.
1916. *Cercoctenus* Hollister, Smithson. Misc. Coll. *66*, 1: 1. *Petrodromus sultan* Thomas.
1918. *Mesoctenus* Thomas, Ann. Mag. N.H. *1:* 366. *Petrodromus rovumae* Thomas.

We follow Swynnerton & Hayman (1951) in recognizing no subgenera in this genus.

1. The underside of the tail is normal and not rough to the touch.
Petrodromus tetradactylus, page 15

The underside of the tail is rough to the touch, the bristles usually terminating in knobs. ——2

2. The underside of the tail has the bristles clearly terminating in knobs, this specialization being at its greatest development. *Petrodromus sultan*, page 16

The underside of the tail is rough but clearly less specialized when seen through a magnifying glass. *Petrodromus rovumae*, page 16

Petrodromus tetradactylus Peters, 1846

Four-toed Elephant-Shrew. Groot of bosklaasneus

Distribution: in the Union, known with certainty only from Zululand. (There is said to be a *Petrodromus* north of the Zoutpansberg, northern Transvaal, but no specimens have been taken.) Portuguese East Africa, including districts of Tete, Beira and Gorongoza. Southern Rhodesia, Melsetter district. The eastern Caprivi, South West Africa (Shortridge). Recorded from north-eastern Angola. Northern Rhodesia, and Nyasaland. Beyond the limits of this work, the Belgian Congo and Tanganyika.

PETRODROMUS TETRADACTYLUS TETRADACTYLUS Peters, 1846

1846. *Petrodromus tetradactylus* Peters, Ber. Preuss. Akad. Wiss. 258. Tete, on the Zambezi, Portuguese East Africa. Ranges to southern Nyasaland, and has been recorded from the Petauke district, Northern Rhodesia.

PETRODROMUS TETRADACTYLUS VENUSTUS Thomas, 1903

1903. *Petrodromus venustus* Thomas, Ann. Mag. N.H. *12:* 339. Namwiwe, about 10° S., 33° E., near Namitawa, northern Nyasaland.
1913. *Petrodromus occidentalis* Roberts, Ann. Transv. Mus. *4:* 69. North-western Rhodesia.

This race has been recorded from the Kafue region, Northern Rhodesia.

PETRODROMUS TETRADACTYLUS TORDAYI Thomas, 1910

1910. *Petrodromus tordayi* Thomas, Ann. Mag. N.H. *5:* 83. Misumba, Sankuru River, south-central Belgian Congo. Recorded from Dundo, north-eastern Angola by Hayman (1951).

PETRODROMUS TETRADACTYLUS BEIRAE Roberts, 1913

1913. *Petrodromus beirae* Roberts, Ann. Transv. Mus. *4:* 69. Zimbiti, Beira, southern Portuguese East Africa.

PETRODROMUS TETRADACTYLUS WARRENI Thomas, 1918

1918. *Petrodromus tetradactylus warreni* Thomas, Ann. Mag. N.H. *1:* 364. Manguzi (about 6 miles from the coast and about the same distance from the Portuguese border), northern Zululand, Natal.

PETRODROMUS TETRADACTYLUS SWYNNERTONI Thomas, 1918

1918. *Petrodromus tetradactylus swynnertoni* Thomas, Ann. Mag. N.H. *1:* 368. Mount Selinda, Chirinda Forest, Melsetter, eastern Southern Rhodesia.

Petrodromus rovumae Thomas, 1897 Rovuma Four-toed Elephant-Shrew

Distribution: northern Portuguese East Africa and Tanganyika.

PETRODROMUS ROVUMAE ROVUMAE Thomas, 1897

1897. *Petrodromus rovumae* Thomas, P.Z.S. 434. Rovuma River, 100 miles inland, Newala district, south-eastern Tanganyika.

1918. *Petrodromus* (*Mesoctenus*) *mossambicus* Thomas, Ann. Mag. N.H. *1:* 369. Cabaceira (the peninsula forming the northern arm of Mozambique Bay, near Mozambique Island), northern Portuguese East Africa.

Specimens in B.M. from Lumbo, northern Portuguese East Africa.

Petrodromus sultan Thomas, 1897

Knob-bristled Forest Elephant-Shrew. Knopharige bosklaasneus

Distribution: Portuguese East Africa, Tanganyika, Kenya.

PETRODROMUS SULTAN SULTAN Thomas, 1897. (Extralimital.)

1897. *Petrodromus sultani* Thomas, P.Z.S. 435. Mombasa, Kenya.

1898. *Petrodromus sultan* Thomas, P.Z.S. *1897:* 928. "Misprinted *sultani* in original description. The name is a substantive in apposition" (Thomas).

Ranges to Tanganyika.

PETRODROMUS SULTAN SCHWANNI Thomas & Wroughton, 1907

1907. *Petrodromus schwanni* Thomas & Wroughton, P.Z.S. 289. Coguno, Inhambane district, southern Portuguese East Africa.

Genus **RHYNCHOCYON** Peters, 1847

1847. *Rhynchocyon* Peters, Ber. Preuss. Akad. Wiss. 36. *Rhynchocyon cirnei* Peters.

1918. *Rhinonax* Thomas, Ann. Mag. N.H. *1:* 370. *Rhynchocyon chrysopygus* Günther from Kenya. Valid as a subgenus.

Subgenus *RHYNCHOCYON* Peters, 1847

The typical subgenus is characterized by the "chessboard" pattern on the back. This genus is very distinct from the others, and should probably be regarded as a special subfamily Rhynchocyoninae.

Rhynchocyon cirnei Peters, 1847 Checkered Elephant-Shrew

Distribution: north of the Zambezi in Portuguese East Africa; Nyasaland; Tanganyika, with similar forms (? subspecies) in the Belgian Congo.

Rhynchocyon cirnei cirnei Peters, 1847

1847. *Rhynchocyon cirnei* Peters, Ber. Preuss. Akad. Wiss. 37. Quelimane, Boror district, north of the Zambezi, coastal Portuguese East Africa. Has been recorded from Zomba, southern Nyasaland.

Rhynchocyon cirnei macrurus Günther, 1881

1881. *Rhynchocyon macrurus* Günther, P.Z.S. 163. "Eastern Africa, banks of Rovuma River, 8° S." Quoted by Allen as "Rovuma River, 8° S., Tanganyika Territory." The following comment by Moreau, Hopkins & Hayman (1946) indicates this as on the border of Portuguese East Africa. "No part of the Rovuma River is nearer the Equator than 10° 30′ S. There is no evidence that the reference to 8° S. (which appears in the original) is any other than a pure error. The type specimen was definitely collected by Kirk on the second Rovuma trip with Livingstone. The map in Livingstone (1865) shows clearly the highest point reached on the river. The type locality can be restricted to 'Rovuma River, Tanganyika-Portuguese East African border, east of 38° 20′ E'."

Rhynchocyon (?) cirnei reichardi Reichenow, 1886

1886. *Rhynchocyon reichardi* Reichenow, Zool. Anz. *9:* 316. Marungu, southern Belgian Congo. Recorded from northern Nyasaland by Thomas.

Rhynchocyon cirnei hendersoni Thomas, 1902

1902. *Rhynchocyon hendersoni* Thomas, Ann. Mag. N.H. *10:* 403. Nyika Plateau (probably near Livingstonia), west of Lake Nyasa, northern Nyasaland.

FAMILY ERINACEIDAE

Subfamily Erinaceinae

Genus **ERINACEUS** Linnaeus, 1758

1758. *Erinaceus* Linnaeus, Syst. Nat. 10th ed. *1:* 52. *Erinaceus europaeus* Linnaeus, from Sweden.

1848. *Atelerix* Pomel, Arch. Sci. Phys. Nat. Genève, *9:* 251. *Erinaceus albiventris* Wagner, from Senegambia. Valid as a subgenus.

1867. *Peroëchinus* Fitzinger, S.B. Akad. Wiss. Wien. *54,* 1: 565; *56,* 1: 856. *Erinaceus pruneri* Wagner, from the Sudan, which is probably a race of *E. albiventris* Wagner.

1918. *Aethechinus* Thomas, Ann. Mag. N.H. *1:* 194. *Erinaceus algirus* Duvernoy & Lereboullet, from Algeria.

Subgenus *ATELERIX* Pomel, 1848

There is only one species in South Africa. There are several species of the genus *Erinaceus* named from south of the Sahara, but whether any of them are valid or whether, when all are revised, they may stand as races of the prior name in the subgenus, *E. frontalis* from South Africa, we do not know. But south of the Sahara there seems little difference except the presence or absence of the hallux, which is not a constant character (see J. Allen, 1922, *Bull. Amer. Mus. N.H. 47:* 13, who reports both conditions in the same litter in *E. langi* from the Belgian Congo). See also Ellerman & Morrison-Scott, 1951, 16. *Atelerix* is separated subgenerically from *Erinaceus* as typified by *E. europaeus* on account of having the third upper incisor two-rooted, and a wide median parting among the spines of the crown (impossible or difficult to check in dried skins).

Erinaceus frontalis A. Smith, 1831 Cape Hedgehog. Krimpvarkie

Distribution: in the Union, the grassveld districts of the Transvaal (including Krugersdorp, Johannesburg, Pretoria, east of Pietersburg, Woodbush), across the Drakensberg into Natal, the Orange Free State (Vredefort, etc.), and the eastern Karroo districts of Cape Province, from near Prieska and Deelfontein to Queenstown (Shortridge), Cradock, Hanover, Middelburg, Steynsburg, southwards to the Albany district; also near Kimberley and Upington (where rare). Has apparently been recorded from Southern Rhodesia. South-West Africa, "sparsely distributed throughout South-West Africa, and appears to be particularly scarce from Great Namaqualand southwards" (Shortridge, 1934). South-western Angola.

ERINACEUS FRONTALIS FRONTALIS A. Smith, 1831

1831. *Erinaceus frontalis* A. Smith, S. Afr. J. *1:* No. 5, 10. Northern parts of the district of Graaff Reinet, Cape Province (here restricted).
1831. *Erinaceus capensis* A. Smith, Philos. Mag. *9:* 61. *Nom. nud.*
1877. *Erinaceus fractilis* Peters, S.B. Ges. Naturf. Fr. Berl. 79 (*lapsus*).

ERINACEUS FRONTALIS ANGOLAE Thomas, 1918

1882. *Erinaceus diadematus* Dobson, Monogr. Insectivora, *1:* 10. Not of Fitzinger, 1867. Angola.
1918. *Aethechinus angolae* Thomas, Ann. Mag. N.H. *1:* 230. Benguela, south-western Angola.

FAMILY SORICIDAE

We have already (1951, 41) explained our reasons for the rejection of the subfamily Crocidurinae of Simpson and others. The South African genera would be referable to that group, if recognized, being characterized by having the teeth all white.

We do not think that in the region now under discussion there are more than two valid genera, *Crocidura* and *Suncus*. *Myosorex*, which has long been recognized by virtually all authors, is supposed to differ from these by having seven lower

teeth, which is said to be unique in the Soricidae. But examination of specimens of this supposed genus shows that the extra seventh tooth is so vestigial that when present it can barely be seen with the aid of a lens and does not seem of generic value even if constant. Our researches lead us to the conclusion, however, that it is very rarely present. *Myosorex* lacks the long caudal bristles of the tail characteristic of typical *Suncus* and *Crocidura* (as does the much later named *Sylvisorex*), but we do not think this is of more than subgeneric value. There is individual variation in this character in different species of *Crocidura*, some of which have the bristles barely traceable. We propose therefore to treat *Myosorex* as a subgenus of *Suncus*, and *Sylvisorex* as a synonym of *Myosorex*.

Pending a general review of the genus *Crocidura* south of the Sahara (G. Allen lists over one hundred supposed species), little can be offered by way of revision of the species now under discussion, but it does seem fairly clear that, until someone can undertake the herculean task, seven can be maintained as valid. Dollman's revision, 1915–1916, has been extensively used, but is now out of date in some ways; too much attention is paid therein to colour details, some of which seem not at all clear when the specimens are examined; and two characters have been used for specific purposes which do not seem, upon examination, to be very clearly borne out. These are the partial reduction of the elongated bristles on the tail in some species, and the fact that in some forms (*olivieri, fumosa*) the second upper unicuspid is supposed to be smaller than the third, whereas in related species this is supposed to be not so. But this character, too, has proved individually variable in at least one form (*occidentalis*).

Our tentative classification of *Crocidura* in South Africa is based on the following:

Crocidura suaveolens; pygmy species, skull not known to reach 18 mm. (In South Africa the tail may sometimes individually exceed 70 per cent of the head and body, but when all specimens are taken into account for each race it appears that this is not normal. See also our 1951 work for definitions).

Crocidura russula; a few outlying forms may possibly represent this species, which we defined in 1951 as with the skull over 18 mm. but in the majority of specimens under 20 mm.; tail normally less than 70 per cent of head and body.

Crocidura flavescens (January, 1827); giant species, skull not normally under 25 mm., and may be over 30 mm. We very tentatively unite all the larger forms of southern and eastern Africa, and as *olivieri* (retained by us in 1951) dates from May, 1827, that would also be regarded as an outlying race of *flavescens*.

Then there are left a very large number of named forms which have the skull in the majority of specimens normally at least 20 mm. but under 25 mm. (exceptions in both directions rare). These correspond to the *attenuata*-like species of Asia, but some of the African names antedate that name.

They further seem to divide quite clearly into three colour groups, which seem to represent (1) a very pale species; (2) a very dark, almost blackish species; and (3) an intermediate species, neither very dark nor very pale.

The very pale species is rare, and seems more or less confined to desert regions. The prior name seems to be *Crocidura smithi*. It is further characterized by its rather short tail, about 47–57 per cent of the head and body. The other two species occur

together in one or two places. We tentatively adopt *pilosa* as the prior name for the very dark species, in the absence of knowledge of extralimital forms, some of which may antedate. The tail is well over half the head and body, rarely over 70 per cent of it, most often though not always over 60 per cent. The prior name for the intermediate species is *Crocidura cyanea;* but this group appears to contain two species, which occur together in some places in the Union, and which differ in average tail length; typical *cyanea* and races have the tail rather long, normally (or in the majority of specimens) at least 60 per cent of the head and body; this percentage is not, or only very rarely reached individually, in the species which we define as *Crocidura hirta.* It may perhaps be mentioned that the well-known East African species *fumosa* is here regarded as belonging to *C. pilosa;* and that in typical *pilosa* and *fumosa* the skull can, rarely and individually, be under 20 mm. in length, and so the same size as *C. russula.* The majority of specimens, however, so far as measurements are available to us, seem to have the skull over 20 mm., and, at least on average, to be larger than *C. russula.* Most of the species here retained seem to range into East Africa. These results must be regarded as provisional.

With 30 (rarely 32) teeth. Genus *SUNCUS*, page 20
With 28 teeth. Genus *CROCIDURA*, page 24

Genus **SUNCUS** Ehrenberg, 1833

1833. *Suncus* Ehrenberg in Hemprich & Ehrenberg, Symb. Phys. Mamm. *2:* k. *Suncus sacer* Ehrenberg, the Egyptian race of *Sorex murinus* Linnaeus, from Java.
1838. *Myosorex* Gray, P.Z.S. *1837:* 123, 124. *Sorex varius* Smuts. Valid as a subgenus.
1839. *Pachyura* de Sélys Longchamps, Études de Micromamm. 32. *Sorex etruscus* Savi.
1904. *Sylvisorex* Thomas, Abstr. P.Z.S. No. 10: 12; P.Z.S. 1905, *1904,* 2: 190. *Crocidura morio* Gray, from Southern Nigeria.

1. No caudal bristle-hairs present. ——2
   With elongated caudal bristle-hairs at least traceable. ——4
2. Tail longer than head and body. *Suncus* (*Myosorex*) *megalura*,[1] page 24
   Tail shorter than head and body. ——3
3. Feet pale. *Suncus* (*Myosorex*) *varius*,[2] page 22
   Feet dark. *Suncus* (*Myosorex*) *cafer*, page 23
4. The head and body length averages less than 60 mm. in all forms (65 mm. appears to be the maximum for an individual in South Africa). *Suncus etruscus*, page 21

   The head and body is 64 mm. and more (in the majority of specimens examined it is not under 70 mm.). *Suncus lixus*,[3] page 22

[1] It should be noted that the prior name for the group of very longtailed Shrews hitherto referred to "*Sylvisorex*" appears to be *megalura* Jentink, 1888, from Liberia.
[2] The differences between *varius* and *cafer* are not very remarkable, but they seem to occur together.
[3] *Suncus lixus;* a non-pygmy species closely resembling the Indian species *S. stoliczkanus,* but it

Subgenus *SUNCUS* Ehrenberg, 1833

See Ellerman & Morrison-Scott, 1951, 65 for an outline of the main species (or species groups) in Europe and Asia. Several shrews in the Union appear broadly speaking to agree with *S. etruscus*, as defined by us, in size. (Except for *gracilis*, some of these are closer in size to the Indian form *nitidofulvus*, which we regarded as a race of *etruscus* but noted as being a little larger than is normal in the Palaearctic *etruscus*). As *etruscus* is known from Algeria and northern Nigeria, and it appears there are very small forms in Eastern Africa, we see no reason why these southern forms should not be regarded as outlying races of *S. etruscus*.

Suncus etruscus Savi, 1822 Dwarf Shrew. Kleinste Dwergskeerbekmuis

Distribution: as here understood, in the Union, forms are named from Port Elizabeth and East London, Tulbagh, and Doorn River (Cape Province), the Orange Free State (Bothaville), and Natal, and localities include Pretoria, Transvaal, Aberfeldy (near Harrismith), Orange Free State, Estcourt and Zululand, Natal, Pondoland, Griqualand East, Deelfontein, Klaver and Eendekuil (near Piquetberg), all Cape Province. Very small forms are named from Tanganyika and Kenya; the range includes northern Nigeria, Algeria, the Mediterranean region of Europe from Spain and France eastwards, and to the Caucasus, Russian Turkestan, Persia, Palestine, also Ceylon, India and Burma (for details see Ellerman & Morrison-Scott, 1951), and perhaps the Malay States.

Suncus etruscus etruscus Savi, 1822. (Extralimital)

1822. *Sorex etruscus* Savi, Nuovo Giorn. de Letterati, Pisa, *1:* 60. Pisa, Italy.

Suncus etruscus gracilis Blainville, 1838

1838. *Sorex gracilis* Blainville, Ann. Sci. Nat. Zool. *10:* 120. Cape of Good Hope (Port Elizabeth, southern Cape Province, *fide* Roberts).

1921. *Pachyura chriseos* Kershaw, Ann. Durban Mus. *3:* 31. Durban, Natal.

Range: Zululand to Port Elizabeth, also quoted by Roberts from Pondoland, Pretoria, and Viljoensdrift, northern Orange Free State.

Suncus etruscus varilla Thomas, 1895

1895. *Crocidura* (*Pachyura*) *varilla* Thomas, Ann. Mag. N.H. *16:* 54. East London, eastern Cape Province.

Suncus etruscus orangiae Roberts, 1924

1924. *Pachyura orangiae* Roberts, Ann. Transv. Mus. *10:* 61. Angra Pequina, Bothaville, north-western Orange Free State. Range includes part of the southern Transvaal.

appears that normally the feet are paler in *lixus*. We regard *gratulus* as a southern race of *lixus*. We have measurements for the largest form of the *etruscus* group in South Africa (*warreni*, Transvaal Museum collection), and seven skins give an average of 56 mm. These appear rather smaller than the figures given by Roberts (1951). The form is not represented in London. It is possible that it represents *lixus*, but its status is not certain.

SUNCUS (?) ETRUSCUS WARRENI Roberts, 1929

1929. *Suncus warreni* Roberts, Ann. Transv. Mus. *13:* 84. Doorn River (Van Rhynsdorp district), western Cape Province.

SUNCUS ETRUSCUS TULBAGHENSIS Roberts, 1946

1946. *Suncus tulbaghensis* Roberts, Ann. Transv. Mus. *20:* 312. Tulbagh, south-western Cape Province.

SUNCUS ETRUSCUS NATALENSIS Roberts, 1946

1946. *Suncus orangiae natalensis* Roberts, Ann. Transv. Mus. *20:* 312. 25 miles south-east of Ixopo, south-western Natal. Range includes Griqualand East, eastern Cape Province, and northwards to Vryheid, Natal.

Suncus lixus Thomas, 1898

Greater Dwarf Shrew. Groter Grysdwergskeerbekmuis

Distribution: Nyika Plateau, Nyasaland; Ndola in Northern Rhodesia; Legogot, Transvaal (Roberts also quotes it from Barberton and Tzaneen, Transvaal, but one of these specimens is rather smaller than usual and may not be authentic). A specimen in London from Kabompo district, Northern Rhodesia (identified as *gratulus*) is in size as this species but rather too dark for *gratulus*. The species also occurs in Tanganyika and Kenya.

SUNCUS LIXUS LIXUS Thomas, 1898

1898. *Crocidura* (*Pachyura*) *lixa* Thomas, P.Z.S. *1897:* 930. Nyika Plateau (between 10° and 11° S. and between 33° 40′ and 34° 10′ E., 6000–8700 ft.), northern Nyasaland.

SUNCUS LIXUS GRATULUS Thomas & Schwann, 1907

1907. *Pachyura gratula* Thomas & Schwann, P.Z.S. *1906:* 781. Legogot (near White River Village, near the southern border of the Kruger National Park), eastern Transvaal.

Subgenus *MYOSOREX* Gray, 1838

Suncus varius Smuts, 1832 Forest Shrew. Bosskeerbekmuis

Distribution: Natal (including Estcourt, Illovo, Zululand, etc.); Transvaal (near Wakkerstroom, Legogot, Tzaneen district, Koster and Randfontein (west of Johannesburg)); Basutoland; in the Cape Province, Little Namaqualand (Port Nolloth, the Kamiesberg), Citrusdal, Clanwilliam, Elgin, Cape Town, Simonstown, Knysna, George, Algoa Bay, Grahamstown, Port St. Johns (Pondoland). *Myosorex* was recorded from Dordrecht (near Aliwal North) by Shortridge.

Suncus varius varius Smuts, 1832

1832. *Sorex varius* Smuts, Enum. Mamm. Cap. 108. Algoa Bay, eastern Cape Province.

1832. *Sorex capensis* Smuts, Enum. Mamm. Cap. 8. Not of E. Geoffroy, 1811.

1838. *Sorex herpestes* Duvernoy, L'Institut, *6:* 111 (April); Mém. Soc. Mus. H.N. Strasbourg, *2*, 3: LL, 2. Swellendam district, south-western Cape Province (here restricted).

Range: western and southern Cape Province to Zululand and eastern Transvaal.

Suncus varius transvaalensis Roberts, 1924

1924. *Myosorex transvaalensis* Roberts, Ann. Transv. Mus. *10:* 61. Koster (south-west of Rustenburg), western Transvaal. Also known from Randfontein (west of Johannesburg) and the Maluti Mountains, Basutoland.

Suncus varius pondoensis Roberts, 1946

1946. *Myosorex varius pondoensis* Roberts, Ann. Transv. Mus. *20:* 311. Tegweni, Port St. Johns, Pondoland, eastern Cape Province. Also known from parts of Natal.

Suncus cafer Sundevall, 1846

Dark-footed Forest Shrew. Natalse Bosskeerbekmuis

Distribution: Natal, Zululand; eastern Transvaal (Wakkerstroom, Woodbush, Zoutpansberg); Port St. Johns and Ngqeleni, Pondoland, Pirie (near King William's Town), eastern Cape Province. Chirinda Forest, Umtali and Vumba, eastern Southern Rhodesia.

Suncus cafer cafer Sundevall, 1846

1846. *Sorex cafer* Sundevall, Öfvers. Vetensk. Akad. Förh. Stockholm, *3:* 119. Port Natal (=Durban), Natal. Range: Natal midlands to Durban (?) (Roberts).

Suncus cafer sclateri Thomas & Schwann, 1905

1905. *Myosorex sclateri* Thomas & Schwann, Abstr. P.Z.S. No. 15: 10; P.Z.S. *1:* 131. Ngoye Forest, Eshowe district, Zululand, Natal.

Suncus cafer tenuis Thomas & Schwann, 1905

1905. *Myosorex tenuis* Thomas & Schwann, P.Z.S. *1:* 132. Zuurbron, near Wakkerstroom, south-eastern Transvaal. Ranges northwards to Woodbush, Mariepskop and Zoutpansberg, Transvaal, and Southern Rhodesian localities as above.

Suncus cafer talpinus Thomas & Schwann, 1905

1905. *Myosorex sclateri talpinus* Thomas & Schwann, P.Z.S. *1:* 262. Umfolosi, Zululand, Natal.

SUNCUS CAFER AFFINIS Thomas & Schwann, 1905

1905. *Myosorex sclateri affinis* Thomas & Schwann, P.Z.S. *1:* 262. Sibudeni, Zululand, Natal.

SUNCUS CAFER SWINNYI Chubb, 1908

1908. *Myosorex swinnyi* Chubb, Ann. Transv. Mus. *1*, 2, Suppl.: 1. Port St. Johns district, Pondoland, eastern Cape Province.

Suncus megalura Jentink, 1888 Climbing Shrew. Klimskeerbekmuis

Distribution: as here understood (better known in literature as *Sylvisorex sorella* and its races); Vumba (Gorongoza district, border between Southern Rhodesia and Portuguese East Africa), Nyasaland, Northern Rhodesia, Angola (Mombolo). North of the limits of this work, Uganda, Kenya, Abyssinia, the Belgian Congo, Cameroons, Gold Coast and Liberia.

SUNCUS MEGALURA MEGALURA Jentink, 1888. (Extralimital)

1888. *Pachyura megalura* Jentink, Notes Leyden Mus. *10:* 48. Schlieffelinsville, Junk River, Liberia.

SUNCUS MEGALURA SORELLA Thomas, 1898

1898. *Myosorex* (?) *sorella* Thomas, P.Z.S. *1897:* 930. Masuku Plateau, northern Nyasaland.

SUNCUS MEGALURA SHEPPARDI Kershaw, 1921

1921. *Sylvisorex gemmeus sheppardi* Kershaw, Ann. Durban Mus. *3:* 32. Vumba, Gorongoza Province, near the Southern Rhodesian–Portuguese East African border.

SUNCUS MEGALURA ANGOLENSIS Roberts, 1929

1929. *Sylvisorex angolensis* Roberts, Ann. Transv. Mus. *13:* 84. Mombolo (=Namba), 11° 35′ S., western central Angola.

Genus **CROCIDURA** Wagler, 1832

1832. *Crocidura* Wagler, Isis, 275. *Sorex leucodon* Hermann, from Strasbourg, eastern France.

1860. *Rhinomus* Murray, Proc. Roy. Phys. Soc. Edinburgh, *2:* 159. *Rhinomus soricoides* Murray, from southern Nigeria.

1910. *Heliosorex* Heller, Smithson. Misc. Coll. *56*, 15: 6. *Heliosorex roosevelti* Heller, from East Africa.

See particularly Dollman, *On the African shrews belonging to the genus Crocidura;* Ann. Mag. N.H. 1915, *15:* 507, 562; *16:* 66, 124, 357, 506 and 1916, *17:* 188.

The listing of species in this genus is provisional.

1. Small species, the condylobasal length of the skull does not reach 18 mm.
Crocidura suaveolens, page 25

Larger species, the condylobasal length of the skull is not normally below 18 mm. ——2

2. Very large species, the condylobasal length of the skull is not normally under 25 mm. *Crocidura flavescens*, page 30
   Smaller species, the condylobasal length of the skull is normally less than 25 mm. ——3[1]

3. Small-medium in size; the majority of the specimens have the condylobasal length of the skull less than 20 mm., or 20 mm. at maximum. *Crocidura russula*, page 26
   Large-medium in size; the majority of the specimens have the condylobasal length of the skull more than 20 mm. in length. ——4[2]

4. Very dark, blackish in colour or nearly so dorsally. *Crocidura pilosa*, page 29
   Less dark in colour. ——5

5. Very pale in colour dorsally. *Crocidura smithi*, page 30
   Less pale in colour. ——6

6. Tail averages relatively longer, normally at least 60 per cent of the head and body length. *Crocidura cyanea*, page 27
   Tail averages shorter, below 60 per cent of the head and body length. *Crocidura hirta*,[3] page 28

Crocidura suaveolens Pallas, 1811

Tiny Musk-Shrew; Lesser Whitetoothed Shrew. Dwergskeerbekmuis

Distribution: widely distributed in the Palaearctic region, from Europe south of the Baltic to the Pacific coast of China, Persia, etc., Morocco and Algeria. Forms probably referable to this species occur in the Sudan, Kenya, Uganda, Tanganyika; and in South Africa, from Angola (Chitau, Capelongo, Caconda, Mossamedes district), Nyasaland, Northern Rhodesia, in South-West Africa from the Okavango region (Grootfontein district to western Caprivi), Ngamiland, etc., and in the Union, Tzaneen and Pretoria, Transvaal.

CROCIDURA SUAVEOLENS SUAVEOLENS Pallas, 1811. (Extralimital)

1811. *Sorex suaveolens* Pallas, Zoogr. Ross. Asiat. *1:* 133. Khersones, Crimea, southern Russia.

CROCIDURA SUAVEOLENS BICOLOR Bocage, 1898

1898. *Crocidura bicolor* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *1:* 29. Gambos, Mossamedes district, Angola.

CROCIDURA SUAVEOLENS WOOSNAMI Dollman, 1915

1915. *Crocidura bicolor woosnami* Dollman, Ann. Mag. N.H. *15:* 516. Lake Ngami, Bechuanaland. Range: Transvaal, Northern Rhodesia (Roberts), the Kalahari.

[1] Rare individual exceptions in the forms *beirae* and *nyikae*. In a genus as large as this, individual exceptions to some of the characters given seem inevitable.
[2] Rare individual exceptions in *pilosa, shortridgei* and (in East Africa) *fumosa*.
[3] As thus defined, these two species (*cyanea* and *hirta*) occur together in some places.

CROCIDURA SUAVEOLENS HENDERSONI Dollman, 1915

1915. *Crocidura bicolor hendersoni* Dollman, Ann. Mag. N.H. *15:* 517. "Livingstonia, 4000 ft., Nyasaland. This is about 10° 35′ S. on the west side of Lake Nyasa" (Moreau, Hopkins & Hayman, 1946).
Based on one specimen with badly broken skull.

Crocidura russula Hermann, 1780

Common European White-toothed Shrew. Mariko-skeerbekmuis

Distribution: widely distributed in the Palaearctic region of Europe south of the Baltic eastwards intermittently to Japan, South-western Asia; Morocco, Algeria. Evidently represented in East Africa, and similar forms occur in Angola, Northern Rhodesia, and parts of the Transvaal (Marico, near Barberton, Pretoria, etc.)

CROCIDURA RUSSULA RUSSULA Hermann, 1780. (Extralimital)

1780. *Sorex russulus* Hermann in Zimmermann, Geogr. Gesch. *2:* 382. Near Strasbourg, Bas-Rhin, eastern France.

CROCIDURA RUSSULA MARIQUENSIS A. Smith, 1844

1844. *Sorex mariquensis* A. Smith, Illustr. Zool. S. Africa, Mamm. pl. 44, fig. 1. "Wooded ravine near the Tropic of Capricorn." Marico River, near its junction with the Limpopo, western Transvaal (Roberts).

(1836. *Sorex concolor* A. Smith, Rept. Exped. Explor. C. Africa, 43. "Country about Latakoo" = Kuruman, northern Cape Province. Status uncertain).

CROCIDURA RUSSULA SILACEA Thomas, 1895

1895. *Crocidura silacea* Thomas, Ann. Mag. N.H. *16:* 53. Figtree Creek, de Kaap, Barberton district, eastern Transvaal. (Also recorded from Pretoria, Transvaal).

CROCIDURA (?) RUSSULA PITMANI Barclay, 1932

1932. *Crocidura pitmani* Barclay, Ann. Mag. N.H. *10:* 440. Maluwe-Serenje district, 3800 ft., Northern Rhodesia. Based on one "barely adult" female. Status dubious.

CROCIDURA (?)RUSSULA CHITAUENSIS Hill & Carter, 1937

1937. *Crocidura chitauensis* Hill & Carter, Amer. Mus. Novit. No. 937: 3. Chitau, 4930 ft., Central Angola.

CROCIDURA (?)RUSSULA MAQUASSIENSIS Roberts, 1946

1946. *Crocidura maquassiensis* Roberts, Ann. Transv. Mus. *20:* 312. Maquassi, Wolmaransstad district, western Transvaal. Based on one specimen with all the measurements of the *russula* group except the tail which exceeds 70 per cent of the head and body.

Crocidura cyanea Duvernoy, 1838

Reddish-grey Musk-Shrew. Rooigrysskeerbekmuis

Distribution: Cape Province; the Kamiesberg, Little Namaqualand, Citrusdal (Shortridge used the name *martensi* for most of the specimens presumably referable to *cyanea*, which is the sole form noted by Roberts for the western Cape Province); Oudtshoorn district, Cradock, Deelfontein, Port St. Johns, and Vryburg. Zululand; the Transvaal, districts of Legogot, Woodbush, Zoutpansberg, Pietersburg, Johannesburg, etc. Swaziland. Recorded from Salisbury, Southern Rhodesia. Damaraland, South-West Africa. Northern Rhodesia. Angola. Northwards to the Belgian Congo, and apparently as far north as the Sudan.

Crocidura cyanea cyanea Duvernoy, 1838

1838. *Sorex cyaneus* Duvernoy, L'Institut, *6:* 111 (April); Mém. Soc. Mus. H.N. Strasbourg, *2*, 3: LL, 2. "La Rivière des Éléphants, au sud de l'Afrique."

1841. *Sorex infumatus* Wagner in Schreber, Säugth. Suppl. *2:* 76. Cape of Good Hope.

1860. *Sorex argentatus* Sundevall in Grill, K. Svenska Vetensk. Akad. Handl. *2:* No. 10, 16, footnote. Roodeval, Oudtshoorn division, south-western Cape Province.

Range: quoted by Roberts from western Cape Province northwards to Damaraland, and (*argentata*) Oudtshoorn division and Cradock, Cape Province. Deelfontein (British Museum).

Crocidura cyanea martensi Dobson, 1890

1890. *Crocidura martensii* Dobson, Ann. Mag. N.H. *6:* 496. "Cape of Good Hope."

1931. *Crocidura holobrunneus* Roberts, Ann. Transv. Mus. *14:* 225. Mariepskop, Pilgrims Rest district, eastern Transvaal. (This is not certainly separable from *martensi* in colour.)

Range: recorded from Zululand and Zoutpansberg, Transvaal.

Crocidura cyanea electa Dollman, 1910

1910. *Crocidura electa* Dollman, Ann. Mag. N.H. *5:* 175. "Kamtoby," south of Lake Tanganyika, Northern Rhodesia. "We have been unable to find this on any map, and residents near the south end of Lake Tanganyika know of no such place. Brédo has suggested to us that 'Kamtoby' is a mistake for 'Kambole' (pronounced as three syllables), 40 miles west of Abercorn, Northern Rhodesia, and an old-established mission station at 4000 ft. overlooking the south end of Lake Tanganyika. This locality Kambole, taken in conjunction with the date of the specimen, fits well with the dates and localities of other specimens obtained by the collector.' (Moreau, Hopkins & Hayman, 1946.)

Crocidura cyanea pondoensis Roberts, 1913

1913. *Crocidura pondoensis* Roberts, Ann. Transv. Mus. *4:* 71. Ngqeleni district, west of Port St. Johns, Pondoland, eastern Cape Province. Roberts says it also occurs in Zululand, but it is very close to *martensi*, perhaps a synonym of that form.

CROCIDURA CYANEA ERICA Dollman, 1915

1915. *Crocidura erica* Dollman, Ann. Mag. N.H. *15:* 514. Pungo Andongo, northern Angola. Also recorded from Hanha, Luimbale and Benguela, Angola. A long-tailed form according to the measurements given by Hill & Carter.

CROCIDURA CYANEA VRYBURGENSIS Roberts, 1946

1946. *Crocidura martensi vryburgensis* Roberts, Ann. Transv. Mus. *20:* 313. Vryburg, northern Cape Province.

Crocidura hirta Peters, 1852

Zambezi Lesser Red Musk-Shrew. Sambesiese Kleinrooiskeerbekmuis

This is much like the earlier-named *C. cyanea*, but occurs with it, and has an average shorter tail.

Distribution: Angola (Caconda, Mossamedes, Bihé), Southern Rhodesia (Salisbury, Mt. Chirinda, etc.), Northern Rhodesia, Nyasaland, South-West Africa (Kaokoveld, Waterberg, etc.), Portuguese East Africa (Tete, Beira, near Inhambane and Lumbo, north of the Zambezi), the eastern Transvaal (Pietersburg, Tzaneen, Barberton district), Zululand, Natal and Swaziland. Further to the north the Belgian Congo, Tanganyika and probably elsewhere in East Africa.

CROCIDURA HIRTA HIRTA Peters, 1852

1852. *Crocidura hirta* Peters, Reise nach Mossambique, Zool. *1*, Säugeth., 78. Tete, Zambezi, Portuguese East Africa.

1852. *Crocidura canescens* Peters, *loc. cit.* 83. Tete, Portuguese East Africa.

1852. *Crocidura annellata* Peters, *loc. cit.* 85. Tete, Portuguese East Africa.

Ranges to Northern Rhodesia (Balovale, Ndola, and other localities), Nyasaland, the Kaokoveld in South-West Africa, Angola, Maputa in northern Zululand, Tanganyika, etc.

CROCIDURA HIRTA SACRALIS Peters, 1852

1852. *Crocidura sacralis* Peters, Reise nach Mossambique, Zool. *1*, Säugeth. 82. Cabaceira Peninsula (north of the Zambezi), Portuguese East Africa.

CROCIDURA HIRTA FLAVIDULA Thomas & Schwann, 1905

1905. *Crocidura flavescens flavidula* Thomas & Schwann, P.Z.S. *1:* 264. Umfolosi, Zululand, Natal. Range includes Swaziland, and Legogot and Tzaneen, eastern Transvaal.

CROCIDURA HIRTA BEIRAE Dollman, 1915

1915. *Crocidura beirae* Dollman, Ann. Mag. N.H. *15:* 511. Beira, south of the Zambezi, coastal Portuguese East Africa. A relatively large race.

CROCIDURA (?)HIRTA CUANZENSIS Hill & Carter, 1937

1937. *Crocidura cuanzensis* Hill & Carter, Amer. Mus. Novit. No. 937; 2. Chitau, 4930 ft., central Angola.

Incertae sedis:

CROCIDURA NIGRICANS Bocage, 1889

1889. *Crocidura nigricans* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *1:* 28. Quindumbo, Benguela district, Angola.

Possibly an earlier name for the next species; colour very dark, blackish, but condyloincisive length 20 mm. or less, *fide* Hill & Carter. We have not seen this species.

Crocidura pilosa Dobson, 1890 Black Musk-Shrew. Swartskeerbekmuis

Distribution: the Orange Free State, Pretoria and Woodbush, Transvaal, Mooi River, Natal; Coguno (near Inhambane), Portuguese East Africa, the western Caprivi in northern South-West Africa, Southern Rhodesia, Angola, Nyasaland (Chiromo, Nyika Plateau, etc.), Northern Rhodesia (where it occurs with *hirta*). As here understood, Kenya, Tanganyika, Abyssinia, southern Belgian Congo.

CROCIDURA PILOSA PILOSA Dobson, 1890

1890. *Crocidura pilosa* Dobson, Ann. Mag. N.H. *6:* 496. Transvaal; Roberts nominates Pretoria as type locality. Range includes the Orange Free State.

CROCIDURA PILOSA SYLVIA Thomas & Schwann, 1906

1906. *Crocidura sylvia* Thomas & Schwann, P.Z.S. 587. Woodbush, eastern Transvaal. Also recorded from Coguno, Inhambane district, Portuguese East Africa and Mooi River, Natal.

CROCIDURA PILOSA NEAVEI Wroughton, 1907

1907. *Crocidura neavei* Wroughton, Manchester Mem. *51*, 5: 7. Kafue River, Northern Rhodesia. "After comparing dates and localities of other specimens in Neave's collection we are satisfied that the type locality can be restricted to 'Upper Kafue River, near Ndola, Northern Rhodesia' " (Moreau, Hopkins & Hayman, 1946). Hill & Carter record a specimen from Humpata, Angola.

This and the last race are supposed to have the caudal bristle hairs few, restricted to the base of the tail; but at least in *sylvia* there is individual variation in this character.

CROCIDURA PILOSA TURBA Dollman, 1910[1]

1910. *Crocidura turba* Dollman, Ann. Mag. N.H. *5:* 176. Chilui Island, Lake Bangweulu, Northern Rhodesia.

(1915. *Crocidura zena* Dollman, Ann. Mag. N.H. *15:* 511. Chilui Island, Lake Bangweulu, Northern Rhodesia).

The British Museum has specimens from several localities in Northern Rhodesia, and from the southern Belgian Congo.

[1] The form *Crocidura luna* Dollman, 1910, Ann. Mag. N.H. *5:* 175, Bunkeya River, Katanga, southern Belgian Congo, has been recorded from the Melsetter district, Southern Rhodesia, but we have reason to think that these specimens are not authentic. The type of *luna* is more like *cyanea* in colour, whereas the Southern Rhodesian specimens seem to belong with *pilosa*.

CROCIDURA PILOSA JOHNSTONI Dollman, 1915

1915. *Crocidura fumosa johnstoni* Dollman, Ann. Mag. N.H. *15:* 510. Chiromo, 16° 30′ S., 35° 10′ E., southern Nyasaland.

CROCIDURA PILOSA ANGOLAE Dollman, 1915

1915. *Crocidura turba angolae* Dollman, Ann. Mag. N.H. *15:* 510. Bailundu country, Angola.

1915. *Crocidura ansorgei* Dollman, Ann. Mag. N.H. *15:* 511. Duque de Bragança, north-western Angola.

CROCIDURA PILOSA NYIKAE Dollman, 1915

1915. *Crocidura beirae nyikae* Dollman, Ann. Mag. N.H. *15:* 512. Nyika Plateau, 7000 ft., northern Nyasaland.

CROCIDURA PILOSA SHORTRIDGEI St. Leger, 1932

1932. *Crocidura shortridgei* St. Leger, Ann. Mag. N.H. *10:* 84. Popa Falls, western Caprivi, northern South-West Africa. Range: the Okavango and Caprivi district.

Crocidura smithi Thomas, 1895

Desert Musk-Shrew. Kalahari-skeerbekmuis

Distribution: in the Union known from the Orange Free State and the northern Cape Province (the Molopo River district, Kuruman). South-West Africa; Gobabis district, Damaraland, the Caprivi, and the Kalahari desert. Angola (Capelongo, in the south-western portion). If the form *katharina* belongs here, the northern part of Northern Rhodesia (Ndola).

Allied forms from the Sudan, Abyssinia and Kenya.

CROCIDURA SMITHI SMITHI Thomas, 1895 (Extralimital)

1895. *Crocidura* (*Crocidura*) *smithii* Thomas, Ann. Mag. N.H. *16:* 51. Upper Webi Shebeli River, at 7° 1′ N. (Moreau, Hopkins & Hayman, 1946), Abyssinia.

CROCIDURA SMITHI DESERTI Schwann, 1906

1906. *Crocidura deserti* Schwann, P.Z.S. 103. Molopo River, west of Morokwen, near the Bechuanaland border, extreme northern Cape Province. Range: South African localities quoted above, Ndola excepted.

CROCIDURA (?)SMITHI KATHARINA Kershaw, 1922

1922. *Crocidura katharina* Kershaw, Ann. Mag. N.H. *10:* 101. Ndola, near the Congo border, Northern Rhodesia. Rather a small form; skull length of type approximately 20 mm.

Crocidura flavescens I. Geoffroy, 1827

Giant Musk-Shrew. Rooiskeerbekmuis

The broadest possible view is taken of this species, which differs from those above in its larger size. There are some distinct types here listed as races, but so far as we

know, none of them occur together. There does not seem to be any striking difference between *occidentalis* and its supposed races and *flavescens*, and there is no clear difference in the size of their skulls when all specimens are taken into account. The tail tends to be relatively shorter in *flavescens* than in *olivieri*, *occidentalis* and allies, but the differences do not amount to very much.

Distribution: in the Union, the eastern Transvaal (near Wakkerstroom), Zululand, Natal (including Estcourt and Durban), and in the Cape Province, near Kokstad, Pondoland, Uitenhage, King William's Town, Knysna, Tokai (near Cape Town), Elgin and Franschhoek (near Paarl). South-West Africa; recorded from the Okavango region. Eastern Southern Rhodesia. Northern Rhodesia. Angola. Most of East Africa (probably excepting Somaliland), and much of West Africa, to Sierra Leone. Northwards to Egypt (*olivieri*, Lesson, May, 1827).

Crocidura flavescens flavescens I. Geoffroy (January), 1827

1827. *Sorex flavescens* I. Geoffroy, Dict. Class, *11:* 324 (January). Mém. Mus. H.N. Paris, *15:* 126 (December). "Le Cafrérie et le pays des Hottentots." Roberts nominates King William's Town, eastern Cape Province.
1829. *Sorex cinnamomeus* Lichtenstein, Verh. Ges. Naturf. Fr. Berlin, *1:* 385. Kaffraria.
1833. *Sorex capensis* A. Smith, S. Afr. J. *2:* 62. Renaming of *flavescens*.
1846. *Sorex rutilus* Sundevall, Ofvers. Vetensk. Akad. Förh. Stockholm, *3:* 119, note. "Port Natal" = Durban, Natal.

Range: eastern Cape Province to Natal and eastern Transvaal.

Crocidura flavescens occidentalis Pucheran, 1855

1855. *Pachyura occidentalis* Pucheran, Rev. Zool. Paris, *7:* 154. Gabon, West Africa. Has been recorded from Duque de Bragança, northern Angola.

Crocidura flavescens anchietae Bocage, 1889

1889. *Crocidura anchietae* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *1:* 26. Caconda (Benguela district), Angola.

Crocidura flavescens zuleika Dollman, 1915

1915. *Crocidura nyansae zuleika* Dollman, Ann. Mag. N.H. *15:* 509. Chirinda Forest. Melsetter district, eastern Southern Rhodesia.

Crocidura flavescens hera Dollman, 1915

1915. *Crocidura hera* Dollman, Ann. Mag. N.H. *15:* 509. Shire highlands, Blantyre district, southern Nyasaland.

Crocidura flavescens herero St. Leger, 1932

1932. *Crocidura nyanzae herero* St. Leger, Ann. Mag. N.H. *10:* 85. Mbambi, Grootfontein-Caprivi border, South-West Africa. The British Museum also has specimens from Northern Rhodesia.

CROCIDURA FLAVESCENS KNYSNAE Roberts, 1946

1946. *Crocidura flavescens knysnae* Roberts, Ann. Transv. Mus. *20:* 313. Knysna, southern Cape Province. Ranges westwards to the Cape Peninsula.

The following may belong to this group:
Crocidura luimbalensis Hill & Carter, 1937, Amer. Mus. Novit. No. 937: 1. Luimbale, 12° 15′ S., 15° 20′ E., Angola.

? Unidentifiable: *Crocidura capensoides*, described as *Sorex capensoides* A. Smith, 1838, S. Afr. J. *2:* 62. Near Cape Town. Type in British Museum, in a very bad condition.

FAMILY POTAMOGALIDAE

Genus **POTAMOGALE** du Chaillu, 1860

1860. *Cynogale* du Chaillu, Proc. Boston Soc. N.H. *7:* 361. *Cynogale velox* du Chaillu. Not of Gray, 1837.
1860. *Potamogale* du Chaillu, Proc. Boston Soc. N.H. *7*: 363. *Cynogale velox* du Chaillu.
1862. *Mythomys* Gray, P.Z.S. *1861:* 275. *Cynogale velox* du Chaillu.
1865. *Bayonia* Bocage, Mem. Acad. Sci. Lisboa, *4*, 1: Mem. 2, p. 3. 1865, P.Z.S. 402. *Bayonia velox* = *Potamogale velox* du Chaillu.

Potamogale velox du Chaillu, 1860 Otter-Shrew

Distribution: Angola (recorded from Chitau, Duque de Bragança, Caconda, Ambaca, near Loanda, Rio Côle), and Northern Rhodesia, the Bangweulu swamps where it is not common. Also the Belgian Congo, Gabon and southern Nigeria.

POTAMOGALE VELOX du Chaillu, 1860

1860. *Cynogale velox* du Chaillu, Proc. Boston Soc. N.H. *7:* 361. Equatorial Africa = Gabon, West Africa.
1895. *Potamogale allmani* Jentink, Notes Leyden Mus. *16:* 236. Old Calabar, West Africa.
1915. *Potamogale velox argens* Thomas, Ann. Mag. N.H. *16:* 470. Medje, on a branch of the Ituri, about 27° 40′ E., 2° 20′ N., Belgian Congo.

FAMILY CHRYSOCHLORIDAE

On the genera see Roberts, 1924, Ann. Transv. Mus. 10: 63; Forcart, 1942, *Beiträge zur Kenntnis der Insectivoren-familie Chrysochloridae*, Rev. Suisse Zool. *49:* 1.

An attempted revision of the Genera.

We suggest that there are five valid genera, and perhaps ten or eleven species, in the region south of the Zambezi-Cunene rivers, with two other groups of species (perhaps a few more) north of that region. The dental formula is not necessarily a

valid generic (or even specific) character in this order; see Ellerman & Morrison-Scott, 1951, 29, 30. For instance in the original series of *Amblysomus gunningi* (the type of Roberts' supposed genus "*Neamblysomus*"), all collected at the same time and place, the type skull has 10/10 teeth each side; one specimen has 10/10 on one side and 9/10 on the other; the other half dozen or so specimens have 9/10 teeth each side. Again, a large series of restricted *Chrysochloris* has been collected in Namaqualand and the western Cape Province; in this, 40 teeth is the normal dentition, but it is not constant; the form "*tenuis*" was based upon a specimen which has 36 teeth, and the form *namaquensis* sometimes has 9 upper teeth instead of the normal 10, and sometimes 9 on one side and 10 the other (Broom, *in litt*).

The dental formula is incidentally known to be highly variable within the Eurasian genus *Talpa*; see Schwarz's classification, 1948, P.Z.S. *118:* 36–48.

We therefore ignore dental formula as a generic character in the Chrysochloridae, and suggest that the characters of the functional clawed digging fingers and the bullae are important, and that there are five valid genera only, which may be keyed as follows:

1. Larger species, the length of the skull is 32.8 mm. and more, its width 20.2 mm. and more; the upper toothrow 12.7 mm. and more (Roberts). Zygomatic arch produced upwards posteriorly and meeting the lambdoid crest at the back.
Genus *CHRYSOSPALAX*, page 41

Smaller species, the length of the skull 30.5 mm. and less, its width 20 mm. and less; upper toothrow under 12 mm. (Roberts). Zygomatic arch not produced backwards as just described, and the posterior part of the skull much less specialized. ——2

2. With temporal bullae, showing clearly in superior aspect of the skull. ——3
No temporal bullae. ——4

3. Manus with large inner digit pad and 3 well-developed claws, the third not much smaller than the other two. Frontal region of skull more expanded.
Genus *CRYPTOCHLORIS*, page 39

Manus with no large inner digit pad and 2 well-developed claws; frontal region of skull less expanded. Genus *CHRYSOCHLORIS*, page 39[1]

4. Manus with 3 well-developed claws, the third not very much smaller than the others. Length of skull 20.6 mm. and less, its width 16.1–18.2 mm. (breadth–length index 85–90, Roberts). Genus *EREMITALPA*, page 38

Manus with 2 well-developed claws. Skull not under 21 mm., its width proportionately less (index below 83, Roberts).
Genus *AMBLYSOMUS*, page 34

"*Chrysotricha*" = "*Calcochloris*", "*Neamblysomus*" and "*Chlorotalpa*" are here regarded as being synonyms of *Amblysomus*.

[1] The extralimital East African *Chrysochloris stuhlmanni* Matschie, 1894, with its race *fosteri* St. Leger, 1931, Uganda belong to *Chrysochloris* as here understood (not "*Chlorotalpa*") and differ from *Chrysochloris asiatica* in the considerably narrower skull, and the bullae show less in upper view of skull than they do in the South African species.

Genus **AMBLYSOMUS** Pomel, 1848

1848. *Amblysomus* Pomel, Arch. Sci. Phys. Nat. Genève, *9:* 247. *Chrysochloris hottentotus* A. Smith.
1867. *Calcochloris* Mivart, J. Anat. Phys. *2* (= ser. 2, vol. 1): 133. *Chrysochloris obtusirostris* Peters.
1907. *Chrysotricha* Broom, Trans. S. Afr. Phil. Soc. *18:* 303. *Chrysochloris obtusirostris* Peters
1924. *Neamblysomus* Roberts, Ann. Transv. Mus. *10:* 64. *Chrysochloris gunningi* Broom.
1924. *Chlorotalpa* Roberts, Ann. Transv. Mus. *10:* 64. *Chrysochloris duthieae* Broom.
1942. *Huetia* Forcart, Rev. Suisse Zool. *49:* 2. *Chrysochloris leucorhina* Huet.

Authors who divide this group into some five genera should note that *Calcochloris* antedates *Chrysotricha* for the *obtusirostris* group.

1. Skull wide, its width 15.7–17 mm., its length 21–24.2 mm. (Breadth–length index 69–73, Roberts; 76, four skulls in B.M.). *Amblysomus obtusirostris*, page 35
   Skull narrower (breadth–length index 58–66, Roberts). In species with the skull of similar size (i.e., below 25 mm.) the width is 14–16 mm., but only once over 15.7 mm. in Roberts' figures and in B.M. ——2

2. Relatively small species, skull length 25 mm. and less. Usually with distinct light markings on part of the face. *Amblysomus sclateri*,[1] page 35
   Relatively large species, skull in long series quoted by Roberts, and in B.M., only less than 25 mm. in three individuals. In adult, usually little or no pale markings on the face. ——3

3. Extra hindmost molars, if present, shaped differently from those in front of them. Posterior talonid of lower molars absent or if present, feebly developed. *Amblysomus gunningi*,[2] page 38
   Extra hindmost molars absent. With well-developed posterior talonid to lower molars. *Amblysomus hottentotus*,[3] page 36

[1] *A. sclateri* represents *Chlorotalpa* of Roberts. All named forms from the Union are regarded as conspecific. The species (?)*A. marleyi* Roberts seems closely allied, but it is described as having 36 teeth, and *sclateri* and allies have 40 teeth. But as already noted dental formula is not constant in several of the other species, and *marleyi* might be merely an outlying race of *sclateri*.

[2] *Amblysomus gunningi*, type of *Neamblysomus* Roberts. For variation in dental formula see above. Not a well-known species. The characters given are mainly from Roberts, who uses the shape of the hindmost molars to distinguish the species from the *sclateri* group.

[3] In addition, the species *Amblysomus leucorhinus* has, according to Hill & Carter, been recorded from Angola, where rare. It is not represented in London, and no specimens were seen in the South African Museum (Cape Town) nor in the Transvaal museum. Its characters would seem to be, from the original description, total length of skull 21 mm., bullae not showing in superior aspect of skull, apparently two functional claws in the manus, face white, teeth 10/10. It is probably the prior name for the group referred by Roberts to *Chlorotalpa*. The form *congicus* Thomas, 1910 from the Belgian Congo, which has been regarded as a race of *leucorhinus*, has more of the face white than is the case in *sclateri* and *obtusirostris* and seems to have the width of the skull (about 68 per cent) slightly wider than *sclateri* and intermediate between it and *obtusirostris*, its skull length being about as in *leucorhinus*.

Amblysomus obtusirostris Peters, 1851

Yellow Golden Mole. Geel Kruipmol

Type of *Calcochloris* Mivart, 1868 (which antedates *Chrysotricha* Broom, 1907).

Distribution: Zululand and Portuguese East Africa (districts of Inhambane, Lourenço Marques, etc.).

Amblysomus obtusirostris obtusirostris Peters, 1851

1851. *Chrysochloris obtusirostris* Peters, Ber. Preuss. Akad. Wiss. 467. Inhambane, 24° S., coastal Portuguese East Africa.

Amblysomus obtusirostris chrysillus Thomas & Schwann, 1905

1905. *Amblysomus chrysillus* Thomas & Schwann, P.Z.S. *1:* 261. Delagoa Bay, coastal southern Portuguese East Africa. Ranges to the Umfolosi River, Zululand. The skull is smaller than in related forms.

Amblysomus obtusirostris limpopoensis Roberts, 1946

1946. *Chrysotricha obtusirostris limpopoensis* Roberts, Ann. Transv. Mus. *20:* 311. Masiene, north of the mouth of the Limpopo River, southern Portuguese East Africa.

Amblysomus leucorhinus Huet, 1885 Congo Golden Mole

Distribution: has been recorded from Cuango, north-central Angola (Hill & Carter). The Belgian Congo, the Cameroons.

Amblysomus leucorhinus leucorhinus Huet, 1885

1885. *Chrysochloris leucorhina* Huet, Nouv. Arch. Mus. H.N. Paris, *8:*8. The Congo, on the coast of the Gulf of Guinea. Has been recorded from Angola.

Amblysomus sclateri Broom, 1907. (Part of the genus *Chlorotalpa* of Roberts.)

Sclater's Golden Mole. Sclaterse Kruipmol

Distribution: Possibly Zululand, if *marleyi* can be referred here; Wakkerstroom, Transvaal; the Orange Free State; Basutoland; in the Cape Province, Sutherland, Beaufort West, New Bethesda (north of Graaff Reinet, specimen in B.M.), Herschel (near Aliwal North), Knysna and Port Elizabeth.

Amblysomus sclateri sclateri Broom, 1907

1907. *Chrysochloris sclateri* Broom, Ann. Mag. N.H. *19:* 263. (March, 1907). Beaufort West, western central Cape Province. Range includes Herschel and Basutoland (part).

Amblysomus sclateri duthieae Broom, 1907

1907. *Chrysochloris duthieae* Broom, Trans. S. Afr. Phil. Soc. *18:* 292. (24 December, 1907). Knysna, southern Cape Province. Also known from Port Elizabeth.

AMBLYSOMUS SCLATERI MONTANUS Roberts, 1924

1924. *Chlorotalpa montana* Roberts, Ann. Transv. Mus. *10:* 64. Kastrol Nek, 6,500 ft., east of the town of Wakkerstroom, south-eastern Transvaal.

AMBLYSOMUS (?)SCLATERI MARLEYI Roberts, 1931

1931. *Amblysomus marleyi* Roberts, Ann. Transv. Mus. *14:* 225. Ubombo, Zululand, Natal. Possibly a valid species; see remarks above, page 34, footnote 1.

AMBLYSOMUS SCLATERI GUILLARMODI Roberts, 1936

1936. *Chlorotalpa guillarmodi* Roberts, Ann. Transv. Mus. *18:* 253. Mamathes, north-western Basutoland. Ranges to Clocolan in the eastern Orange Free State.

AMBLYSOMUS SCLATERI SHORTRIDGEI Broom, 1950

1950. *Chlorotalpa shortridgei* Broom, Ann. Transv. Mus. *21:* 238. Sutherland (roughly 100 miles west of Beaufort West), western-central Cape Province.

Apparently a similar form has been named from the Inyanga district of Southern Rhodesia.

Amblysomus hottentotus A. Smith, 1829

Hottentot Golden Mole. Hotnotkruipmol

There are two main colour types found in this group, a reddish and a blackish (or dark brown). Roberts refers them to two groups of species, and says that both occur together in Pondoland and Grahamstown. Whether two valid species or two colour phases are indicated here is not yet clear. Hewitt (1931) recognized one form in Pondoland characterized by the dorsal area being glossy blackish, and said that a small proportion of the Pondoland specimens are coloured much like ordinary *hottentotus* (i.e., reddish), while at Grahamstown the colour of the specimens was said to vary considerably, some being quite dark above although the majority were reddish brown, and with albinos and semi-albinos occasionally found. Colour distinctions in subterranean mammals are not well understood. There appear to be no other differences between the two supposed groups that are of great importance, and we prefer to suggest that possibly two colour phases are indicated in this species rather than to recognize two distinct species based on colour alone.

Distribution: the Transvaal (Wakkerstroom, Carolina, Belfast, etc.), Swaziland, Zululand, Natal (including Pietermaritzburg, Durban, near Verulam, etc.), the Orange Free State (Heilbron, Fouriesburg, etc.) and in the Cape Province, Pondoland, King William's Town, Grahamstown, Bedford, Somerset East, Port Elizabeth, Fort Beaufort, near Kokstad, Knysna, George, Swellendam, Stellenbosch, Fransch-hoek (near Paarl).

It seems that too many races have been named in this species.

AMBLYSOMUS HOTTENTOTUS HOTTENTOTUS A. Smith, 1829

1829. *Chrysochloris hottentotus* A. Smith, Zool. J. *4:* 436. "Interior parts of South Africa"; Grahamstown, eastern Cape Province according to Roberts.
1831. *Chrysochloris holosericea* Lichtenstein, Darst. Säugeth. pl. 41 and text. "Interior of Cape Colony on the borders of Kafferland."
1841. *Chrysochloris affinis* Wagner, in Schreber, Säugth. Suppl. *2:* 123. No locality.
1841. *Chrysochloris albirostris* Wagner, *loc. cit.*, 124. "Kafferland." Based on a young specimen according to Roberts.
1841. *Chrysochloris rutilans* Wagner, *loc. cit.* 125. "Kafferland."
(1946. *Amblysomus hottentotus natalensis* Roberts, Ann. Transv. Mus. *20:* 311. Durban, Natal.)

Range includes Port Elizabeth and the Transkei.

AMBLYSOMUS HOTTENTOTUS IRIS Thomas & Schwann, 1905

1905. *Amblysomus iris* Thomas & Schwann, Abstr. P.Z.S. No. 18: 23; P.Z.S. *1:* 259. Umfolosi Station, Zululand, Natal.

If this species is divisible into two, based on colour, then the present is the prior name for the dark races. It is a relatively small form.

AMBLYSOMUS HOTTENTOTUS CORRIAE Thomas & Schwann, 1905

1905. *Amblysomus corriae* Thomas & Schwann, Abstr. P.Z.S. No. 20: 5; P.Z.S. *2:* 57. Knysna, southern Cape Province. Range: Knysna and George forested areas. Much like *iris*, but averages larger.

AMBLYSOMUS HOTTENTOTUS PONDOLIAE Thomas & Schwann, 1905

1905. *Amblysomus hottentotus pondoliae* Thomas & Schwann, P.Z.S. *1:* 260. Notinsila, western Pondoland, eastern Cape Province.

AMBLYSOMUS HOTTENTOTUS LONGICEPS Broom, 1907

1907. *Chrysochloris hottentota longiceps* Broom, Trans. S. Afr. Phil. Soc. *18:* 299. Near Pietermaritzburg, Natal.
1907. *Chrysochloris hottentota albifrons* Broom, Trans. S. Afr. Phil. Soc. *18:* 302. Howick, Natal.

Range: Natal midlands; averages slightly larger than the typical race, as in *pondoliae*.

Roberts has also named the following nominal races, all of which are, like *pondoliae* and *longiceps*, very similar to the typical race but slightly larger on average:

1946. *Amblysomus hottentotus devilliersi* Roberts, Ann. Transv. Mus. *20:* 310. Lamotte, Franschhoek (near Paarl), western Cape Province; specimens from Stellenbosch also quoted.
1946. *Amblysomus hottentotus swellendamensis* Roberts, Ann. Transv. Mus. *20:* 310. Grootvadersbosch, Swellendam district, south-western Cape Province.
1946. *Amblysomus hottentotus drakensbergensis* Roberts, Ann. Transv. Mus. *20:* 310. Wakkerstroom, south-eastern Transvaal. Ranges from Giants Castle, Natal to Belfast, eastern Transvaal.

AMBLYSOMUS HOTTENTOTUS SEPTENTRIONALIS Roberts, 1913

1913. *Amblysomus corriae septentrionalis* Roberts, Ann. Transv. Mus. *4:* 73. Wakkerstroom, south-eastern Transvaal. Based on one specimen, allied to but larger than *corriae*. (Probably the later named reddish form *drakensbergensis* of the same ground is a colour phase of this form.)

AMBLYSOMUS HOTTENTOTUS GARNERI Roberts, 1917

1917. *Amblysomus hottentotus garneri* Roberts, Ann. Transv. Mus. *5:* 278. Commissioner's residence, Piggs Peak, Swaziland.

AMBLYSOMUS HOTTENTOTUS ORANGENSIS Roberts, 1946

1946. *Amblysomus hottentotus orangensis* Roberts, Ann. Transv. Mus. *20:* 310. Vaalbank, Heilbron district, northern Orange Free State. Range also includes Viljoensdrift and Parys, northern Orange Free State.

AMBLYSOMUS HOTTENTOTUS LITTORALIS Roberts, 1946

1946. *Amblysomus corriae littoralis* Roberts, Ann. Transv. Mus. *20:* 311. Umhloti River, near Verulam (north of Durban), Natal. To this form Roberts refers also specimens from Grahamstown and Port St. Johns which do not conform to the typical reddish colouring of the typical race. See remarks above, under the species.

Amblysomus gunningi Broom, 1908

Gunning's Golden Mole. Gunningse Kruipmol

This is the type of "*Neamblysomus*" of Roberts. It might equally well be regarded, taking a very broad view, as an aberrant outlying subspecies of *A. hottentotus*. For variation in its dental formula see above, page 33.

Distribution: Woodbush, Transvaal.

AMBLYSOMUS GUNNINGI Broom, 1908

1908. *Chrysochloris gunningi* Broom, Ann. Transv. Mus. *1:* 14. Woodbush, eastern Transvaal.

Genus **EREMITALPA** Roberts, 1924

1924. *Eremitalpa* Roberts, Ann. Transv. Mus. *10:* 63. *Chrysochloris granti* Broom.

Eremitalpa granti Broom, 1907

Grant's Desert Golden Mole. Woestynkruipmol

Distribution: Little Namaqualand (Port Nolloth and Garies), and near Lamberts Bay, western Cape Province.

EREMITALPA GRANTI GRANTI Broom, 1907

1907. *Chrysochloris granti* Broom, Ann. Mag. N.H. *19:* 265. Garies (south of the Kamiesberg in southern Little Namaqualand), north-western Cape Province.

EREMITALPA GRANTI CANA Broom, 1950

1950. *Eremitalpa granti cana* Broom, Ann. Transv. Mus. *21:* 240. Lamberts Bay (coast westwards from Clanwilliam), western Cape Province.

Genus **CRYPTOCHLORIS** Shortridge & Carter, 1938

1938. *Cryptochloris* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 284. *Cryptochloris zyli* Shortridge & Carter.

Cryptochloris wintoni Broom, 1907[1]

De Winton's Golden Mole. De Wintonse Kruipmol

Distribution: two forms are known, one from Port Nolloth, coastal Little Namaqualand, and the other from near Lamberts Bay, western Cape Province.

CRYPTOCHLORIS WINTONI WINTONI Broom, 1907

1907. *Chrysochloris wintoni* Broom, Ann. Mag. N.H. *19:* 264. Port Nolloth, coast of Little Namaqualand, north-western Cape Province.

CRYPTOCHLORIS WINTONI ZYLI Shortridge & Carter, 1938

1938. *Cryptochloris zyli* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 284. Compagnies Drift, 10 miles inland from Lamberts Bay (coast westwards from Clanwilliam), western Cape Province.

Genus **CHRYSOCHLORIS** Lacépède, 1799

1799. *Chrysochloris* Lacépède, Tabl. Mamm. 7. *Chrysochloris capensis* Lacépède = *Talpa asiatica* Linnaeus.

Tentatively all named forms from the western Cape Province, which is the range of typical *Chrysochloris*, are here regarded as races of the first named *asiatica*.

As here understood this genus contains two species or groups of species; the *asiatica* group, with the skull broader, from the western Cape Province, and the *stuhlmanni* group, with the skull narrower, from Uganda, Tanganyika and the Belgian Congo.

[1] Neither of the forms in this genus is well known. The second, *zyli*, seems to have a slightly larger and narrower skull than *wintoni*.

Chrysochloris asiatica Linnaeus, 1758

Cape Golden Mole. Kaapse Kruipmol

Distribution: the western Cape Province; Robben Island, Cape Town, Worcester, Citrusdal, Eendekuil, Lamberts Bay, Klaver, Nieuwoudtville, 54 miles east of Calvinia, Little Namaqualand (Garies, inland from Port Nolloth, the Kamiesberg). Recorded in 1838 from Damaraland, but apparently not subsequently collected north of the Union.

CHRYSOCHLORIS ASIATICA ASIATICA Linnaeus, 1758

1758. *Talpa asiatica* Linnaeus, Syst. Nat. 10th ed. *1:* 53. "Siberia." Usually the locality is taken as the Cape of Good Hope.
1777. *Talpa inaurata* Schreber, Säugth. pl. 157. Cape of Good Hope.
1778. *Talpa aurea* Pallas in Schreber, Säugth. *3:* 562. Alternative name for *inaurata*.
1799. *Chrysochloris capensis* Lacépède, Tabl. Mamm. 7. Cape of Good Hope.
1799. *Chrysochloris rubra* Lacépède in Didot's Buffon, H.N. Quad. *14:* 158. Cape of Good Hope.

Range: region of Cape Town to Worcester, south-western Cape Province.

CHRYSOCHLORIS ASIATICA DAMARENSIS Ogilby, 1838

1838. *Chrysochloris damarensis* Ogilby, P.Z.S. 5. Damaraland, South-West Africa. (But no Golden Moles have since been collected in South-West Africa and Shortridge (1934) says that a specimen which he carried about on one of his expeditions there was not recognized by any of the local natives.)

CHRYSOCHLORIS ASIATICA NAMAQUENSIS Broom, 1907

1907. *Chrysochloris namaquensis* Broom, Ann. Mag. N.H. *19:* 266. Garies (south of the Kamiesberg in southern Little Namaqualand), north-western Cape Province.
1907. *Chrysochloris tenuis* Broom, Ann. Mag. N.H. *19:* 267. Garies, Little Namaqualand, north-western Cape Province. (Based on two skulls having 36 instead of 40 teeth.)
1946. *Chrysochloris dixoni* Broom, Ann. Transv. Mus. *20:* 329. Roodeberg Kloof, Garies, Little Namaqualand, north-western Cape Province.
1946. *Chrysochloris elegans* Broom, Ann. Transv. Mus. *20:* 331. Eselfontein, 4,500 ft., Kamiesberg, central Little Namaqualand, north-western Cape Province.
1946. *Chrysochloris shortridgei* Broom, Ann. Transv. Mus. *20:* 333. 15 miles inland from Port Nolloth, coastal Little Namaqualand, north-western Cape Province.

C. a. namaquensis is a relatively small race.

CHRYSOCHLORIS ASIATICA MINOR Roberts, 1919

1919. *Chrysochloris minor* Roberts, Ann. Transv. Mus. *6:* 113. Klaver (on the Olifants River, and south of Van Rhynsdorp), western Cape Province.
1950. *Chrysochloris asiatica visserae* Broom, Ann. Transv. Mus. *21:* 237. Eendekuil (north of Piquetberg), western Cape Province.

Chrysochloris asiatica bayoni de Beaux, 1921

1921. *Chrysochloris bayoni* de Beaux, Atti Soc. Ital. Sci. Nat. *60:* 236. Robben Island, off Cape Town.

Roberts made this a synonym of the typical race. But a specimen in the British Museum with the skull length 25.2 mm. is larger than our other specimens of this species, and larger than any quoted by Roberts (1951).

Chrysochloris asiatica concolor Shortridge & Carter, 1938

1938. *Chrysochloris concolor* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 284. 3 miles west of Nieuwoudtville (midway between Calvinia and Van Rhynsdorp), western Cape Province.

Chrysochloris asiatica taylori Broom, 1950

1950. *Chrysochloris asiatica taylori* Broom, Ann. Transv. Mus. *21:* 236. Lamberts Bay (coast west of Clanwilliam), western Cape Province.

Chrysochloris asiatica visagiei Broom, 1950

1950. *Chrysochloris visagiei* Broom, Ann. Transv. Mus. *21:* 238. Gouna, 54 miles east of Calvinia, western Cape Province.

Genus **CHRYSOSPALAX** Gill, 1883

1883. *Chrysospalax* Gill, Standard Nat. Hist. *5* (Mammalia): 137. *Chrysochloris trevelyani* Günther. Type fixed by Roberts, 1924, Ann. Transv. Mus. *10:* 64.
1892. *Bematiscus* Cope, Amer. Nat. *26:* 127, footnote. *Chrysochloris villosa* A. Smith (see Thomas, 1905, P.Z.S. *1:* 259).

Larger species; adult specimens with head and body length 198 mm. and more; length of the adult skull 40.5 mm. and more. *Chrysospalax trevelyani*, page 42
Smaller; length of the head and body 175 mm. and less; length of the skull 36.5 mm. and less. *Chrysospalax villosus*, page 41

Chrysospalax villosus A. Smith, 1833

Rough-haired Golden Mole. Grofhaarkruipmol

Distribution: Natal (Durban, Pietermaritzburg), the Transvaal (Springs (near Johannesburg), Pretoria, Wakkerstroom), and the eastern Cape Province (Griqualand East).

Chrysospalax villosus villosus A. Smith, 1833

1833. *Chrysochloris villosa* A. Smith, S. Afr. J. *2:* 81. "Towards Natal." (Near Durban, *fide* Roberts.)

Chrysospalax villosus transvaalensis Broom, 1913

1913. *Bematiscus transvaalensis* Broom, Abstr. P.Z.S. No. 121: 25 (May, 1913). P.Z.S. 546. Endicot, Springs (east of Johannesburg), Transvaal.
1913. *Chrysospalax pratensis* Roberts, Ann. Transv. Mus. *4:* 74. (October, 1913). Pretoria, Transvaal.

CHRYSOSPALAX VILLOSUS LESCHAE Broom, 1918

1918. *Bematiscus leschae* Broom, P.Z.S. 189. St. Cuthberts, "Isolo" (= Tsolo?), Griqualand East, eastern Cape Province.

CHRYSOSPALAX VILLOSUS DOBSONI Broom, 1918

1918. *Bematiscus dobsoni* Broom, P.Z.S. 190. Pietermaritzburg, midlands of Natal.

CHRYSOSPALAX VILLOSUS RUFOPALLIDUS Roberts, 1924

1924. *Bematiscus rufopallidus* Roberts, Ann. Transv. Mus. *10:* 65. Wakkerstroom, south-eastern Transvaal.

Chrysospalax trevelyani Günther, 1875

Giant Golden Mole. Reuse Kruipmol

Distribution: Port St. Johns (Pondoland), and Pirie forest, near King William's Town, eastern Cape Province.

CHRYSOSPALAX TREVELYANI Günther, 1875

1875. *Chrysochloris trevelyani* Günther, P.Z.S. 311. Pirie forest, near King William's Town, eastern Cape Province.

ORDER CHIROPTERA

Distinguished from the other orders by having the forelimbs modified as wings which are used for true flight.

On this order see:

DOBSON, 1878, *Catalogue of Chiroptera in the British Museum.*

MILLER, 1907, *The Families and Genera of Bats, Bull. U.S. Nat. Mus.* No. 57.

ANDERSEN, K., 1912. *Catalogue of the Chiroptera in the British Museum, 1. Megachiroptera* (all published).

1. Second finger retaining evident degree of independence, its ungual phalange present; humerus with trochiter and trochin small, the former never articulating with the scapula; mandible with angular process broad and low, or practically absent; margin of ear forming a complete ring. Skull with postorbital processes. Family PTEROPODIDAE, page 43[1]

   Second finger scarcely, if at all, independent from the third, its ungual phalange absent; humerus with trochiter and trochin large, the former usually articulating with scapula; mandible with angular process well developed, long and narrow: margin of ear not forming a complete ring. ——2

2. Premaxillaries absent. Family MEGADERMATIDAE, page 54

   Premaxillaries present. ——3

[1] The characters given for the families of the Chiroptera are mainly from G. S. Miller (1907). The classification of the Pteropodidae follows K. Andersen (1912).

3. Premaxillaries usually free, always incomplete, their boundaries never obliterated. ——4
   Premaxillaries always fused with surrounding parts, complete or incomplete, their boundaries very early obliterated. (Skull lacks postorbital processes). ——6

4. Premaxillaries represented by nasal branch only, or with a very incomplete palatal branch. Skull with postorbital processes. Tail perforates upper surface of interfemoral membrane. Family EMBALLONURIDAE, page 50
   Premaxillaries represented by palatal branch only. ——5

5. Premaxillaries bony throughout, in contact with each other and with maxillaries; tragus present; fibula absent; skull with postorbital processes; muzzle simpler. Family NYCTERIDAE, page 51
   Premaxillaries partly cartilaginous, free from each other and from maxillaries; tragus absent; fibula present; skull without postorbital processes; muzzle with conspicuous noseleaf. Family RHINOLOPHIDAE, page 55

6. Fibula robust, contributing largely to strength of short, stout leg; tail always produced well beyond the interfemoral membrane. Family MOLOSSIDAE, page 63
   Fibula slender or rudimentary, not contributing essentially to strength of long slender leg; tail not or scarcely produced beyond the interfemoral membrane. Family VESPERTILIONIDAE, page 70

SUB-ORDER MEGACHIROPTERA

FAMILY PTEROPODIDAE

The classic work on this family is by Knud Andersen (1912). Simpson (1945) who takes the view that recent specialists recognize too many genera in this order lists only three valid genera in South Africa. (He does not even recognize *Hypsignathus*, a very distinct genus, which Miller retained.) However, we think that all the genera recognized by K. Andersen are valid as judged by modern standards.

In the keys to the Chiroptera we are able to include only species which have been examined and are represented in the British Museum.

1. Facial axis of skull conspicuously deflected against basicranial axis; alveolar line, if projected backwards, passing through middle or upper edge of occipital condyle or through some point of supraoccipital. ——2
   Facial axis of skull very little deflected against basicranial axis; alveolar line, if projected backwards, passing through lower edge of occipital condyle or even some distance below condyle. ——3

2. Bullae form short bony auditory meatus; premaxillae spaced in front; first lower molar equal to second and third combined. Genus *EIDOLON*, page 44
Bullae without bony auditory meatus; premaxillae in contact or fused in front; first lower molar shorter than second and third combined.
Genus *ROUSETTUS*, page 45

3. Braincase not flattened posteriorly; more than 3 upper cheekteeth.
Genus *MYONYCTERIS*, page 50
Braincase flattened posteriorly; 3 upper cheekteeth. ——4

4. Rostrum short, orbit to tip of nasals equal to or less than lachrymal breadth.
Genus *MICROPTEROPUS*, page 49
Rostrum long, orbit to tip of nasals much longer than lachrymal breadth.
——5

5. Rostrum long and narrow, postdental palate deeply depressed posteriorly.
Genus *EPOMOPHORUS*, page 47
Rostrum long and broad, postdental palate flattened posteriorly. ——6

6. Rostrum not deeper than usual; premaxillae in simple contact in front, males with shoulder pouches and erectile shoulder brushes; muzzle without cutaneous leaves; outer ridge of lower molars simple. Genus *EPOMOPS*,[1] page 46
Rostrum considerably increased in depth; premaxillae ankylosed together anteriorly; no shoulder pouches or brushes; upper lip with cutaneous leaves; outer ridge of lower molars bilobed or trilobed.
Genus *HYPSIGNATHUS*,[2] page 47

SUB-FAMILY Pteropodinae

Genus **EIDOLON** Rafinesque, 1815

1815. *Eidolon* Rafinesque, Analyse de la Nature, 54. *Vespertilio vampyrus helvus* Kerr. For note on validity of *Eidolon* Rafinesque and fixing of type species see K. Andersen, 1908, Ann. Mag. N.H. *1:* 432.
1861. *Pterocyon* Peters, Mber. Preuss. Akad. Wiss. 423. *Pterocyon palaeceus* Peters = *Vespertilio vampyrus helvus* Kerr.
1881. *Leiponyx* Jentink, Notes Leyden Mus. *3:* 60. *Leiponyx büttikoferi* Jentink = *Vespertilio vampyrus helvus* Kerr.

Eidolon helvum Kerr, 1792

Straw-coloured Fruit-Bat. Geelvrugtevlermuis

Distribution: over nearly the whole continent as a migrant (Roberts). Has been recorded from Little Namaqualand, Bedford and Steynsburg (eastern Cape Province), Griqualand West; Harrismith (Orange Free State), Rustenburg and Pretoria,

[1] For further details separating *Epomops* from *Epomophorus* see K. Andersen, 1912, 514.
[2] Another genus of Pteropodidae, *Plerotes*, is unrepresented in London. It seems nearest *Epomophorus* and allies, but with 4 upper cheekteeth and simpler palate ridges. For further characters see K. Andersen, 1912.

Transvaal, etc. Mashonaland, Southern Rhodesia, Nyasaland, Ndola in Northern Rhodesia; Angola, whence recorded from Benguela, Caconda and other localities. Beyond the limits of this work, to Somaliland and the Sudan, thence to Senegambia. A closely allied form occurs in Arabia.

EIDOLON HELVUM Kerr, 1792

1792. *Vespertilio vampyrus helvus* Kerr, Linnaeus's Animal Kingd. xvii, 91. Senegal, West Africa (fixed by K. Andersen, 1907, Ann. Mag. N.H. *19:* 504).
1803. *Pteropus stramineus* E. Geoffroy, Cat. Mamm. Mus. H.N. Paris, 48 (no locality); not available, this work having been shown to be unpublished (Sherborn, Index Animalium, 1801–50, p. lviii). 1810. Ann. Mus. H.N. Paris, *15:* 95. (Timor, corrected to Sennaar by Temminck, 1837, Mon. Mamm. *2:* 84.)

Genus **ROUSETTUS** Gray, 1821

1821. *Rousettus* Gray, London Med. Repos. *15:* 299. *Pteropus aegyptiacus* E. Geoffroy.
1843. *Xantharpyia* Gray, List Mamm. B.M., xix, 37. *Pteropus amplexicaudatus* E. Geoffroy, from Timor.
1844. *Eleutherura* Gray, Voy. Sulphur, *1:* 29. *Pteropus leachii* A. Smith.
1852. *Cynonycteris* Peters, Reise nach Mossambique, Säugeth. 25. *Pteropus collaris* Illiger = *Pteropus leachii* A. Smith.
1912. *Stenonycteris* K. Andersen, Cat. Chiroptera B.M. *1:* 23. *Rousettus lanosus* Thomas, from Uganda. Valid as a subgenus.
1912. *Lissonycteris* K. Andersen, Cat. Chiroptera B.M. *1:* 23. *Cynonycteris angolensis* Bocage. Valid as a subgenus.

The South African form *leachi* is here considered as a subspecies of *R. aegyptiacus*.

Braincase strongly deflected; premaxillaries in contact; first lower premolar much larger in bulk than a lower incisor; wings from first toe.
Rousettus aegyptiacus, page 45

Braincase only slightly deflected; premaxillaries fused; first lower premolar equal in bulk to a lower incisor or only a little larger; wings from second toe.
Rousettus (*Lissonycteris*) *angolensis*, page 46

Subgenus *ROUSETTUS* Gray, 1821

Rousettus aegyptiacus E. Geoffroy, 1810

Egyptian Fruit-Bat; Cape Fruit-Bat. Kaapse Vrugtevlermuis

Distribution; coastal belt of the southern Cape Province, Cape Town, Knysna, Grahamstown, Pondoland; Natal, Zululand; Portuguese East Africa (Inhambane, K. Andersen); Angola (recorded from Hanha, Pungo Andongo, Quindumbo); northwards to Tanganyika, Kenya, Uganda, the Belgian Congo, Gabon; Egypt, Cyprus, Syria, Palestine.

ROUSETTUS AEGYPTIACUS AEGYPTIACUS E. Geoffroy, 1810

1810. *Pteropus egyptiacus* E. Geoffroy, Ann. Mus. H.N. Paris, *15:* 96 (misprint), corrected to *aegyptiacus* in 1818, Description de l'Egypte, H.N. *2:* 134. Great Pyramid, Giza, Egypt. Range includes the Angolan localities above.

ROUSETTUS AEGYPTIACUS LEACHI A. Smith, 1829

1829. *Pteropus leachii* A. Smith, Zool. J. *4:* 433. "Gardens about Cape Town."
1823. *Pteropus collaris* Lichtenstein, Verz. Doublett. Zool. Mus. Berlin, 3, 5. Not of Illiger, 1815.
1832. *Pteropus hottentottus* Temminck in Smuts, Enum. Mamm. Cap. 3. Cape Town.

Range: coastal belt of southern Cape Province, Natal, Portuguese East Africa, Tanganyika, Kenya, Uganda, the Congo.

Subgenus *LISSONYCTERIS* K. Andersen, 1912

Rousettus angolensis Bocage, 1898 Bocage's Fruit-Bat

Distribution: Angola (Amboin, Hanha, Quibula). Tanganyika and Kenya to the Cameroons.

ROUSETTUS ANGOLENSIS Bocage, 1898

1898. *Cynonycteris angolensis* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *5:* 133. Pungo Andongo, 9° 40′ S., 15° 40′ E., 1,200 m., northern Angola.

Genus **PLEROTES** K. Andersen, 1910

1910. *Plerotes* K. Andersen, Ann. Mag. N.H. *5:* 97. *Epomophorus anchietae* Seabra.

Plerotes anchietai Seabra, 1900 Anchieta's Fruit-Bat

Distribution: Angola (Chitau, Galanga). The lower Congo.

PLEROTES ANCHIETAI Seabra, 1900

1900. *Epomophorus anchietae* Seabra, J. Sci. Math. Phys. Nat., Lisboa, *6:* 116. Galanga, north-east of Benguela, Angola.

Genus **EPOMOPS** Gray, 1870

1870. *Epomops* Gray, Cat. Monkeys, Lemurs and Fruiteating Bats B.M., 126. *Epomophorus franqueti* Tomes.

Three interdental palate ridges; postdental palate with two pairs of strong triangular ridges at middle, and one or a few thin ridges at palation border.

Epomops dobsoni, page 47

Four interdental and about five to seven postdental palate ridges.

Epomops franqueti, page 47

Epomops franqueti Tomes, 1860 Franquet's Fruit-Bat

Distribution: Angola (recorded from Malange and Mossamedes). Northern Rhodesia (Abercorn). Tanganyika; westwards to southern Nigeria and the Gold Coast.

Epomops franqueti franqueti Tomes, 1860

1860. *Epomophorus franqueti* Tomes, P.Z.S. 54. Gabon, West Africa.
1862. *Epomophorus comptus* H. Allen, Proc. Acad. Nat. Sci. Philad. *1861:* 158. "West Africa" (= Gabon).

Epomops dobsoni Bocage, 1889 Dobson's Fruit-Bat

Distribution: Angola, whence recorded from several localities (apparently chiefly in the western and central districts). Katanga, southern Belgian Congo.

Epomops dobsoni Bocage, 1889

1889. *Epomophorus dobsonii* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *1:* 1. Quindumbo, Benguela district, western Angola.

Genus **HYPSIGNATHUS** H. Allen, 1861

1861. *Hypsignathus* H. Allen, Proc. Acad. Nat. Sci. Philad., 156. *Hypsignathus monstrosus* H. Allen.

Hypsignathus monstrosus H. Allen, 1861 Hammer-headed Fruit-Bat

Distribution: recorded from Dundo, north-eastern Angola. Uganda westwards to Gambia, and including Fernando Po.

Hypsignathus monstrosus H. Allen, 1861

1861. *Hypsignathus monstrosus* H. Allen, Proc. Acad. Nat. Sci. Philad., 157. "West Africa" (= Gabon).

Genus **EPOMOPHORUS**, Bennett, 1836

1836. *Epomophorus* Bennett, P.Z.S. *1835:* 149. *Pteropus epomophorus* Bennett = *Pteropus gambianus* Ogilby, from Gambia, West Africa.

1. Relatively small species, forearm about 66.5 mm. and less; males not conspicuously larger than females *Epomophorus labiatus*, page 48
   Relatively larger species, forearm (in interlimital species) about 72 mm. and more; males conspicuously larger than females. ——2

2. One well-developed postdental palate ridge.
   Epomophorus wahlbergi, page 48
   Two well-developed postdental palate ridges. ——3

3. Fourth palate ridge much nearer the third than the fifth.
Epomophorus angolensis, page 49

Fourth palate ridge about halfway between the third and the fifth.
Epomophorus crypturus, page 49

For further comparison of these species and their distinguishing characters compared with other extralimital species see K. Andersen, 1912, 520.

Epomophorus labiatus Temminck, 1837 Little Epauletted Fruit-Bat

Distribution: Northern Rhodesia (B.M.) Tanganyika, Abyssinia, the Sudan.

EPOMOPHORUS LABIATUS LABIATUS Temminck, 1837. (Extralimital)

1837. *Pteropus labiatus* Temminck, Mon. Mamm. *2:* 83. Sennaar, Sudan. (K. Andersen); originally given as "Abyssinia."

EPOMOPHORUS LABIATUS MINOR Dobson, 1880

1880. *Epomophorus minor* Dobson, P.Z.S. *1879:* 715. Zanzibar. Ranges to Fort Jameson, Northern Rhodesia.

Epomophorus wahlbergi Sundevall, 1846

Wahlberg's Epauletted Fruit-Bat. Wahlbergse Witkolvrugtevlermuis

Distribution: in the Union, known from Grahamstown, King William's Town and Port St. Johns, eastern Cape Province; ? the eastern Orange Free State (Short-ridge); Zululand, Durban, Natal and the eastern Transvaal, (Tzaneen, Hectorspruit, Steynsdorp). Portuguese East Africa (Inhambane district and west of Beira), Southern Rhodesia (Mashonaland, Matabeleland), Nyasaland, Northern Rhodesia, Angola, whence recorded from many localities. Tanganyika, Kenya to the Cameroons.

EPOMOPHORUS WAHLBERGI WAHLBERGI Sundevall, 1846

1846. *Pteropus wahlbergi* Sundevall, Öfvers. Vetensk. Akad. Förh. Stockholm, *3:* 118. Near "Port Natal" = Durban, Natal.

1870. *Epomophorus macrocephalus* var. *unicolor* Gray, Cat. Monkeys, Lemurs and Fruit-eating Bats B.M., 125. Shupanga, on the Zambezi, 18° S., Portuguese East Africa.

1870. *Epomophorus gambianus* Gray, *loc. cit.* 126, and of earlier authors, but not of Ogilby, 1835.

Range: Eastern Cape Province to Kenya.

EPOMOPHORUS WAHLBERGI HALDEMANI Halowell, 1846

1846. *Pteropus haldemani* Halowell, Proc. Acad. Nat. Sci. Philad. *3:* 52. "West Africa" (?Liberia).

1899. *Epomophorus zenkeri* Matschie, Megachiroptera Berlin Mus., 46. Lower Guinea; lectotype from Chinchoxo, Cabinda, Angola.

Range: from Benguela, Angola to the Cameroons, Tanganyika, etc.

Epomophorus crypturus Peters, 1852

Peters' Epauletted Fruit-Bat. Kleinvrugtevlermuis

Distribution: in the Union, Pirie (near King William's Town, B.M.), the Transvaal (Zoutpansberg, Tzaneen and Barberton districts). Portuguese East Africa (districts of Tete and Beira included, also Lumbo (north of the Zambezi)); eastern Southern Rhodesia, Ngamiland, Nyasaland, Northern Rhodesia, northwards to Katanga (southern Belgian Congo).

Epomophorus crypturus Peters, 1852

1852. *Epomophorus crypturus* Peters, Reise nach Mossambique, Säugeth. 26. Tete, on the Zambezi, western Portuguese East Africa.

Epomophorus angolensis Gray, 1870 Angolan Epauletted Fruit-Bat

Distribution: Angola (Hanha, Benguela, Chitau, Mupa, Cubango), and the north-western parts of South-West Africa.

Epomophorus angolensis Gray, 1870

1870. *Epomophorus macrocephalus* var. *angolensis* Gray, Cat. Monkeys, Lemurs and Fruit-eating Bats B.M., 125. Angola.

Genus **MICROPTEROPUS** Matschie, 1899

1899. *Micropteropus* Matschie, Megachiroptera Berlin Mus., 36, 57. *Epomophorus pusillus* Peters.

The recently described *Micropteropus grandis*, which is unrepresented in London, is considerably larger than *M. pusillus:* its forearm is 65.8 mm. (about 50–53 mm. in *pusillus*).

Micropteropus pusillus Peters, 1868 Dwarf Epauletted Fruit-Bat

Distribution: Angola (Canhoca, Malange). Tanganyika, the eastern side of Lake Victoria, the Bahr-el-Ghazal (southern Sudan) and Abyssinia to Gambia.

Micropteropus pusillus Peters, 1868

1868. *Epomophorus pusillus* Peters, Mber. Preuss. Akad. Wiss. *1867:* 870. Gambia, West Africa.

Micropteropus grandis Sanborn, 1950

Distribution: Dundo, north-eastern Angola; Thysville, Lower Congo.

Micropteropus grandis Sanborn, 1950

1950. *Micropteropus grandis* Sanborn, Publ. Cult. Comp. Diamantes Angola, No. 10: 55. Dundo, Lunda, north-eastern Angola.

Genus **MYONYCTERIS** Matschie, 1899

1899. *Myonycteris* Matschie, Megachiroptera Berlin Mus. 61, 63. *Cynonycteris torquatus* Dobson.
1912. *Phygetis* K. Andersen, Cat. Chiroptera B.M. *1:* 579. *Cynonycteris brachycephala* Bocage, from São Thomé Island, West Africa. Valid as a subgenus.

Subgenus *MYONYCTERIS* Matschie, 1899

Myonycteris torquata Dobson, 1878 — Little Collared Fruit-Bat

Distribution: Angola, the Belgian Congo, the Cameroons.

MYONYCTERIS TORQUATA Dobson, 1878

1878. *Cynonycteris torquata* Dobson, Cat. Chiroptera B.M., 71, 76. Angola.

SUB-ORDER MICROCHIROPTERA

FAMILY EMBALLONURIDAE

Lightly-built species with forearm normally below 50 mm., frontals not conspicuously concave, and coronoid process of mandible lower.
Genus *COLEURA*, page 50

Heavily-built species with forearm normally over 50 mm., frontals conspicuously concave, and coronoid process of mandible higher.
Genus *TAPHOZOUS*, page 51

Coleura is near the earlier-named genus *Emballonura* but has one upper incisor (in *Emballonura* there are two).

Genus **COLEURA** Peters, 1867

1867. *Coleura* Peters, Mber. Preuss. Akad. Wiss. 479. *Emballonura afra* Peters.

Coleura afra Peters, 1852 — Southern Sheath-tailed Bat

Distribution: Tete, Portuguese East Africa; Benguela, Angola (in the B.M.); Tanganyika, Kenya, with a closely allied form in Somaliland, the Sudan, the Congo, and southern Arabia.

COLEURA AFRA Peters, 1852

1852. *Emballonura afra* Peters, Reise nach Mossambique, Säugeth. 51. Tete, on the Zambezi, Portuguese East Africa.

Genus **TAPHOZOUS** E. Geoffroy, 1818

1818. *Taphozous* E. Geoffroy, Description de l'Egypte, *2:* 113. *Taphozous perforatus* E. Geoffroy, from Egypt.
1838. *Saccolaimus* Temminck, Tijdschr. Natuur. Gesch. *5:* 6. (As a subgenus.) *Taphozous saccolaimus* Temminck, from Java. Valid as a subgenus.
1922. *Liponycteris* Thomas, Ann. Mag. N.H. *9:* 267. *Taphozous nudiventris* Cretzschmar, from Egypt. Valid as a subgenus.

Only one species of this genus occurs in South Africa; it was the second to be named in the genus, and differs from *T. perforatus* (according to Dobson) in having the throat naked below, and in having a rudimentary gular sac present in the female.

Subgenus *TAPHOZOUS* E. Geoffroy, 1818

Taphozous mauritianus E. Geoffroy, 1818

South African Tomb-Bat. Witlyfvlermuis

Distribution: in the Union, the Transvaal (Zoutpansberg, near Pretoria, Tzaneen), Natal (including Durban), Alicedale (near Grahamstown) eastern Cape Province (also a 1901 record from Heidelberg in the Swellendam division of the south-western Cape Province). Angola (recorded from Mossamedes, Humbe, Benguela, Loanda, Duque de Bragança, etc.). Nyasaland. Further to the north, Kenya, Tanganyika, the Belgian Congo, Lado; Mauritius, Madagascar, etc.

TAPHOZOUS MAURITIANUS E. Geoffroy, 1818

1818. *Taphozous mauritianus* E. Geoffroy, Description de l'Egypte, *2:* 127. Island of Mauritius (east of Madagascar).
1838. *Taphozous leucopterus* Temminck, Tijdschr. Natuur. Gesch. *5:* 12. "Interior of South Africa."
1900. *Taphozous maritianus* (*sic*) var. *cinerascens* Seabra, J. Sci. Math. Phys. Nat., Lisboa, *6:* 77. Benguela, south-western Angola.

FAMILY NYCTERIDAE

Genus **NYCTERIS** G. Cuvier and E. Geoffroy, 1795

1795. *Nycteris* G. Cuvier and E. Geoffroy, Mag. Encyclop. *2:* 186, *nom. nud. Vespertilio hispidus* Schreber. Name validated by Opinion 111 of International Commission on Zoological Nomenclature.
1838. *Petalia* Gray, Mag. Zool. Bot. *2:* 494. *Nycteris javanicus* E. Geoffroy, from Java.

1. The lower P.4 relatively large. (Upper incisors bifid.) ——2
   The lower P.4 small. ——3

2. Smaller, forearm about 34 mm. *Nycteris nana*, page 52
   Larger, forearm about 39½–45 mm. *Nycteris arge*,[1] page 52

[1] *N. arge* is separable from the Oriental *N. javanica* because that species has the upper incisors trifid (B.M. material).

3. Upper incisors trifid. (Forearm about 38–41 mm., ear 17–24 mm.)
Nycteris hispida, page 52

Upper incisors bifid. ——4

4. Tragus pyriform (free portion narrowest at base, its outer and inner margins evenly convex (K. Andersen)). (Forearm about 42½–49 mm., ear 28–37 mm.)
Nycteris thebaica,[1] page 53

Tragus semilunate (inner margin joins the upper one in a sharp angle (K. Andersen)). ——5

5. Forearm about 40–42 mm. (Ear about 29–34 mm.) *Nycteris woodi*, page 54
Forearm about 47½ mm. and more. (Ear 28–34 mm.)
Nycteris macrotis,[2] page 54

Nycteris nana K. Andersen, 1912 Little Slit-faced Bat

Distribution: Dundo, north-eastern Angola; Spanish Guinea, Belgian Congo, Western Kenya.

Nycteris nana K. Andersen, 1912

1912. *Petalia nana* K. Andersen, Ann. Mag. N.H. *10:* 547. Benito River, Spanish Guinea.

Nycteris arge Thomas, 1903 Bates' Slit-faced Bat

Distribution: Dundo, north-eastern Angola; Western Kenya, Belgian Congo, Cameroons, Liberia.

Nycteris arge Thomas, 1903

1903. *Nycteris arge* Thomas, Ann. Mag. N.H. *12:* 633. Efulen, Cameroons.

Nycteris hispida Schreber, 1774

Hairy Slit-faced Bat. Harige Langoorvlermuis

Distribution: recorded from Port St. Johns, Pondoland (Hewitt, 1931). Inhambane, Portuguese East Africa. Angola (Mossamedes, Mt. Moco). Tanganyika, Kenya, southern Sudan, westwards to Senegal.

[1] It is customary to divide this species into two, *N. thebaica* and *N. capensis* because *thebaica* is supposed to have the small lower premolar more reduced and internal to the toothrow, whereas *N. capensis* is supposed to have the small lower premolar in the toothrow. Examination of material in the British Museum shows that the character is largely an individual one, and is by no means constant in either species. No other characters have been found to separate these two species, and accordingly they are here merged.

[2] *N. macrotis* has the ear length 28–32 mm., thereby differing from *N. aethiopica* (which incidentally it antedates), which has them 22–26 mm. in our material. But the Nyasaland form *oriana* has the ears 28–34 mm., and is therefore thought to represent *macrotis*.

Nycteris hispida hispida Schreber, 1774. (Extralimital)

1774. *Vespertilio hispidus* Schreber, Säugth. *1:* 169, pl. 56. Senegal.

Nycteris hispida villosa Peters, 1852

1852. *Nycteris villosa* Peters, Reise nach Mossambique, Säugeth. 48. Inhambane (south of the Zambezi), coastal Portuguese East Africa.

Nycteris thebaica E. Geoffroy, 1818.

Egyptian Slit-faced Bat; Cape Slit-faced Bat. Kaapse Langoorvlermuis

Distribution: in the Cape Province, Little Namaqualand (Goodhouse, Klipfontein, Port Nolloth, Garies), near Lamberts Bay, Swellendam, Knysna, widely distributed in the eastern Cape Province, Louisvale (opposite Upington), Kuruman. Zululand, Natal, Swaziland. The Transvaal; districts of Rustenburg, Pietersburg, Pretoria, Hectorspruit; the Kruger National Park (Skukuza) according to Stevenson-Hamilton. South-West Africa; "plentiful throughout from the Orange River to Cunene-Okavango rivers" (Shortridge). Recorded from several localities in Angola. Southern Rhodesia, Northern Rhodesia, Nyasaland. Portuguese East Africa (Tete included). Further to the north, Tanganyika, Kenya, Somaliland, Abyssinia, Eritrea, the Belgian Congo, northwards to Egypt, Palestine, Arabia and Corfu.

Nycteris thebaica thebaica E. Geoffroy, 1818. (Extralimital)

1818. *Nycteris thebaicus* E. Geoffroy, Description de l'Egypte, *2:* 119. Egypt.

Nycteris thebaica capensis A. Smith, 1829

1829. *Nycteris capensis* A. Smith, Zool. J. *4:* 434. Interior of South Africa; Swellendam, south-western Cape Province nominated by Roberts (1951).

1829. *Nycteris affinis* A. Smith, *loc. cit.* No locality. Grahamstown, eastern Cape Province nominated as type locality by Roberts (1951).

1840. *Nycteris discolor* Wagner in Schreber's Säugth. Suppl. *1:* 440. "Südspitze von Afrika." Knysna, according to Roberts.

1852. *Nycteris fuliginosa* Peter, Reise nach Mossambique, Säugeth. 46. Boror, 12 miles north-west of Quelimane, north of the Zambezi, Portuguese East Africa.

Range: southern Cape Province to Zululand, Transvaal, Southern Rhodesia, Portuguese East Africa, Nyasaland, Northern Rhodesia, Ovamboland (part), Tanganyika.

Nycteris thebaica angolensis Peters, 1871

1871. *Nycteris angolensis* Peters, Mber. Preuss. Akad. Wiss. *1870:* 903. Caconda, east of Benguela, Angola (type locality restricted by Hill & Carter, 1941).

Nycteris thebaica damarensis Peters, 1871

1871. *Nycteris damarensis* Peters, Mber. Preuss. Akad. Wiss. *1870:* 905. Otjimbingue, Damaraland, South-West Africa. Range: from the Orange River and Little Namaqualand to the Kaokoveld, Damaraland, Ngamiland, southern Angola, Tanganyika (part).

Nycteris macrotis Dobson, 1876 Large-eared Slit-faced Bat

Distribution: as here understood, Nyasaland, Angola (Mossamedes (B.M.), Dundo); Tanganyika, the Belgian Congo, Nigeria to Gambia.

NYCTERIS MACROTIS MACROTIS Dobson, 1876

1876. *Nycteris macrotis* Dobson, Monogr. Asiatic Chiroptera, 80., (*N.V.*) Sierra Leone, West Africa. Ranges to Angola.

NYCTERIS MACROTIS ORIANA Kershaw, 1922

1922. *Nycteris oriana* Kershaw, Ann. Mag. N.H. *10:* 179. Chiromo, Shire Valley, (16° 32′ S., 35° 9′ E., 200 ft.), southern Nyasaland. Ranges to Tanganyika.

Nycteris woodi K. Andersen, 1914

Wood's Slit-faced Bat. Woodse Langoorvlermuis

Distribution: Southern Rhodesia, and Northern Rhodesia.

NYCTERIS WOODI WOODI K. Andersen, 1914

1914. *Nycteris woodi* K. Andersen, Ann. Mag. N.H. *13:* 563. Chilanga, 4,100 ft. Northern Rhodesia. "Chilanga is the site of an old administrative headquarters ten miles east of Lusaka, the present capital of Northern Rhodesia (Lancaster, *in litt.*)" (Moreau, Hopkins & Hayman, 1946).

NYCTERIS WOODI SABIENSIS Roberts, 1946

1946. *Nycteris woodi sabiensis* Roberts, Ann. Transv. Mus. *20:* 304. Birchenough Bridge, Sabi River, Melsetter district of south-eastern Southern Rhodesia.

FAMILY MEGADERMATIDAE

Genus **LAVIA** Gray, 1838

1838. *Lavia* Gray, Mag. Zool. & Bot. *2:* 490. *Megaderma frons* E. Geoffroy.
1846. *Livia* Agassiz, Nomenclator Zool. Mamm. addenda, 6 (misspelling).

This genus differs from *Megaderma* in the more normal, less distorted W-pattern of its upper molars.

Lavia frons E. Geoffroy, 1810 Yellow-winged Bat

Distribution: in South Africa doubtful, but has been recorded from Ndola, Northern Rhodesia (Pitman, 1934). Tanganyika, Kenya, Uganda, the Sudan, westwards to Senegal.

LAVIA FRONS E. Geoffroy, 1810

1810. *Megaderma frons* E. Geoffroy, Ann. Mus. H.N. Paris, *15:* 192. Senegal.

FAMILY RHINOLOPHIDAE

1. Toes with 2 phalanges each; pelvis with postacetabular foramen (Miller). SUBFAMILY Hipposiderinae——2

   Toes (except hallux) with 3 phalanges each; pelvis without postacetabular foramen (Miller). SUBFAMILY Rhinolophinae; Genus *RHINOLOPHUS*, page 55

2. Rostrum less than half as long as braincase; nasal inflation inconspicuous; ears low. Small, forearm 32–35.8 mm. Genus *CLOEOTIS*, page 62

   Rostrum at least half as long as braincase; nasal inflation conspicuous; ears more prominent. In South Africa larger, forearm about 42 mm. and more. Genus *HIPPOSIDEROS*, page 60

SUBFAMILY Rhinolophinae

Genus **RHINOLOPHUS** Lacépède, 1799

1799. *Rhinolophus* Lacépède, Tabl. Mamm. 15. *Vespertilio ferrumequinum* Schreber, from France.
1847. *Aquias* Gray, P.Z.S. 15. *Rhinolophus luctus* Temminck, from Java (here restricted).
1901. *Euryalus* Matschie, S.B. Ges. Naturf. Fr. Berlin, 225. *Rhinolophus mehelyi* Matschie, from Rumania.

The most recent reviews of this very large genus are Tate, 1939, *Amer. Mus. Nov.* No. 1036, and 1943, *Amer. Mus. Nov.* No. 1219. These papers deal with the Oriental members of the genus, and slightly modify the arrangements of K. Andersen, 1905, *Ann. Mag. N.H. 16:* 243, 281, 289 and 648; 1905, *P.Z.S. 2:* 75, 121; and 1918, *Ann. Mag. N.H. 2:* 374.

In the 1905 papers (P.Z.S. and Ann. Mag. N.H. *16:* 648) the African members of the genus are dealt with and compared with their Asiatic allies.

According to the classification offered by Tate, it appears that only three groups occur in South Africa:

(1) the *pusillus* group, based on a species from Java.

(2) the *luctus* group, also based on a species from Java (Tate has merged Andersen's *macrotis* group (based on a species from Nepal) with the *luctus* group; K. Andersen placed certain African species in his *macrotis* group).

(3) the *ferrumequinum* group, based on the type and earliest named species in the genus, from France.

We have to thank Dr. C. C. Sanborn of the Chicago Natural History Museum for much help in dealing with this difficult genus.

1. Width of horseshoe over 9 mm. (Roberts). Skull length exceeds 23 mm. ——2

   Width of horseshoe below 9 mm. (Roberts). Skull length not exceeding 23 mm. ——3

2. Larger, forearm 61–67 mm. Skull length 26.7–29.6 mm.
Rhinolophus hildebrandti, page 60
Smaller, forearm 48½–58 mm. Skull length in South Africa 24.3–25.4 mm.
Rhinolophus fumigatus,[1] page 60

3. P.3 external to toothrow, canine and P.4 in contact. ——4
P.3 in toothrow, canine and P.4 not in contact. ——5

4. Forearm 45–50½ mm. Tibia and foot 26–30 mm. (Roberts). Skull length 20.5 mm. and less. *Rhinolophus darlingi*, page 57
Forearm (in South African forms) 50½–56 mm. Tibia and foot 30–34.5 mm, (Roberts). Skull length (in South Africa) 21 mm. and more.
Rhinolophus clivosus,[2] page 57

5. Connecting process rises to a narrow and high point. ——6
Connecting process with lower end blunt. ——7

6. First phalanx of fourth finger shorter. *Rhinolophus landeri*,[3] page 59
First phalanx of fourth finger long, more than half as long as second.
Rhinolophus blasii,[4] page 59

7. Larger, forearm 47–51 mm. Length of the skull 20 mm. and more.
Rhinolophus capensis, page 58
Smaller, forearm about 40–45 mm. Skull length about 18.7 mm. and less. ——8

8. Sella broader. (The only African species with three mental grooves, *fide* Sanborn). Length of skull about 17.7 mm. and more. *Rhinolophus simulator*, page 59
Sella narrower. Length of skull 17.6 mm. and less. ——9

9. Front edge of connecting process almost concave, fourth metacarpal longest, lancet with sides almost convex (Sanborn). *Rhinolophus denti*, page 58
Front edge of connecting process convex, fifth metacarpal longest, lancet pointed, sides concave laterally (Sanborn). *Rhinolophus swinnyi*, page 58

An eleventh species, *R. angolensis*, is unrepresented in London and not well known. Hill & Carter's notes suggest it may be allied to *landeri* and *blasii*; it appears to be rather smaller than either.

[1] We suggest *fumigatus* is the prior name for the species usually called *aethiops*. Although K. Andersen said they differed in forearm length, Angolan specimens referred by Hill & Carter to *aethiops* appear from their forearm length to be as *fumigatus*, showing that the two forms overlap in size.

[2] Dr. Sanborn writes us that the name *geoffroyi* should be dropped as unidentifiable, and that he proposes to regard *augur* (referred by Roberts to *geoffroyi*) as a subspecies of the northern *R. clivosus*. This species is very closely allied to *R. ferrumequinum*. Sanborn states *in litt.* that the length of the toothrow (C-M 3) is slightly greater than the width across the outer edges of M 3–M 3 in *ferrum-equinum* and less in *clivosus*.

[3] We regard the South African form *lobatus* as a race of the earlier-named *landeri*.

[4] We see no reason why we should not follow Jentink and regard the South African form *empusa* as a race of the earlier-named *R. blasii*.

Rhinolophus ferrumequinum group

Rhinolophus clivosus Cretzschmar, 1828

Geoffroy's Horseshoe Bat. Geoffroyse Blaarneusvlermuis; Hoefystervlermuis

Distribution: in the Cape Province, Pondoland, Grahamstown, Pirie, Plettenberg Bay, Knysna, Cape Agulhas, Cape Town, Klaver, Little Namaqualand (the Kamiesberg, O'okiep, north of Steinkopf), Kuruman. Vredefort, Orange Free State. Natal (Estcourt, Zululand, etc.). Transvaal; Potchefstroom, Krugersdorp, Johannesburg, Pretoria, near Potgietersrust, Woodbush, Lydenburg, Wakkerstroom, Legogot, etc. The Kruger National Park (Skukuza), (Stevenson-Hamilton). Southern Rhodesia, Northern Rhodesia, Nyasaland. Damaraland and the Kaokoveld, South-West Africa. Has been recorded (1887) from Angola. Tanganyika, Pemba and Zanzibar Islands, Kenya, the Belgian Congo. Eritrea, Algeria, Egypt, Arabia[1].

Rhinolophus clivosus clivosus Cretzschmar, 1828. (Extralimital)

1828. *Rhinolophus clivosus* Cretzschmar in Rüppell, Atlas Reise Nördl. Afrika, Säugeth. 47. Mohila, Red Sea Coast, approximately 27° 49′ N., 35° 30′ E., Arabia.

Rhinolophus clivosus augur K. Andersen, 1904

1904. *Rhinolophus augur* K. Andersen, Ann. Mag. N.H. *14:* 380. Kuruman, northern Cape Province.

(1829. *Rhinolophus geoffroyii* A. Smith, Zool. J. *4:* 433. Cape Town (Roberts, 1951). Roberts (1919) said "This name apparently takes place over that of *Rhinolophus augur*" but why this was apparent he did not explain, and there seems to be nothing in the description to identify it. Its type is neither in London nor in Edinburgh, so is apparently lost. We adopt Dr. Sanborn's suggestion and discard this name as unidentifiable.)

Range: western Cape Province to northern Transvaal.

Rhinolophus clivosus zuluensis K. Andersen, 1904

1904. *Rhinolophus augur zuluensis* K. Andersen, Ann. Mag. N.H. *14:* 383. Insuzi (misspelt Jususie) Valley, near Eshowe, Zululand, Natal.

1904. *Rhinolophus augur zambesiensis* K. Andersen, Ann. Mag. N.H. *14:* 383. Fort Hill, northern Nyasaland.

Range: eastern Cape Province, Natal, eastern Transvaal, to Southern Rhodesia, Northern Rhodesia, Nyasaland and, according to Roberts, the adjacent parts of Portuguese East Africa.

Rhinolophus darlingi K. Andersen, 1905

Darling's Horseshoe Bat. Darlingse Vlermuis

Distribution: Transvaal; districts of Barberton and Pretoria. Southern Rhodesia (Mashonaland). Damaraland and Great Namaqualand in South-West Africa. Nyasaland. Has been recorded from Benguela, Angola. Tanganyika.

[1] According to Dr. Sanborn, *R. acrotis* (Heuglin, 1861) should be merged with this species.

RHINOLOPHUS DARLINGI K. Andersen, 1905

1905. *Rhinolophus darlingi* K. Andersen, Ann. Mag. N.H. *15:* 70. Mazoe, Mashonaland, north-eastern Southern Rhodesia.
1924. *Rhinolophus darlingi barbertonensis* Roberts, Ann. Transv. Mus. *10:* 59. Louws Creek, Barberton district, south-eastern Transvaal.
1934. *Rhinolophus landeri* Shortridge, Mamm. S.W. Africa, *1:* 51. Not of Martin, 1838.
1946. *Rhinolophus darlingi damarensis* Roberts, Ann. Transv. Mus. *20:* 303. Oserikari, Okahandja district, Damaraland, South-West Africa.

Rhinolophus capensis Lichtenstein, 1823

Cape Horseshoe Bat. Kaapse Hoefystervlermuis

Distribution: in the Cape Province, Grahamstown, Knysna, Dordrecht (Shortridge), Cape Town, Elgin (British Museum), Lamberts Bay, Little Namaqualand (the Kamiesberg, Goodhouse). Nyasaland (Thomas).

RHINOLOPHUS CAPENSIS Lichtenstein, 1823

1823. *Rhinolophus capensis* Lichtenstein, Verz. Doublett. Zool. Mus. Berlin, 4. Cape of Good Hope.
1860. *Rhinolophus auritus* Sundevall in Grill, K. Svenska Vetensk. Akad. Handl. (2) *2:* No. 10, 13, footnote. Belvedere, near Knysna, southern Cape Province.

Rhinolophus denti Thomas, 1904

Dent's Horseshoe Bat. Dentse Vlermuis

Distribution: in the Cape Province, Kuruman, Louisvale (south bank of Orange River, near Upington). South-West Africa; the Kaokoveld to the southern border of Angola (Rua Cana Falls).

RHINOLOPHUS DENTI Thomas, 1904

1904. *Rhinolophus denti* Thomas, Ann. Mag. N.H. *13:* 386. May, 1904. Kuruman, northern Cape Province.

Rhinolophus swinnyi Gough, 1908

Swinny's Horseshoe Bat. Swinnyse Vlermuis

Distribution: in the Cape Province, Pondoland, Pirie (near King William's Town). Wakkerstroom, south-eastern Transvaal. Southern Rhodesia.

RHINOLOPHUS SWINNYI Gough, 1908

1908. *Rhinolophus swinnyi* Gough, Ann. Transv. Mus. *1:* 71. Ngqeleni district, west of Port St. Johns, Pondoland, eastern Cape Province.
1913. *Rhinolophus swinnyi piriensis* Hewitt, Rec. Albany Mus. *2:* 402. Pirie, near King William's Town, eastern Cape Province.
1946. *Rhinolophus swinnyi rhodesiae* Roberts, Ann. Transv. Mus. *20:* 304. Bezwe River, a tributary of the Wanetsi (?Nuanetsi) River, Limpopo Valley, southern part of Southern Rhodesia.

Rhinolophus simulator K. Andersen, 1904

Bushveld Horseshoe Bat. Bosveldvlermuis

Distribution: Natal (Dargle district), the Transvaal (Rustenburg district, Klein Letaba, Hectorspruit, etc.). Mashonaland, Southern Rhodesia, Southern Portuguese East Africa, Northern Rhodesia (Lake Bangweulu (if *bembanicus* is the same)), Nyasaland.

Rhinolophus simulator K. Andersen, 1904.

1904. *Rhinolophus simulator* K. Andersen, Ann. Mag. N.H. *14:* 384. November, 1904. Mazoe, Mashonaland, north-eastern Southern Rhodesia.

(1914. *Rhinolophus bembanicus* Senna, Ann. Mus. Z.R. Univ. Napoli, (2) *4:* No. 9, 1. Lake Bangweulu, Northern Rhodesia).

Rhinolophus pusillus group.

Rhinolophus landeri Martin, 1838

Lander's Horseshoe Bat. Kleinhoringvlermuis

Distribution: the eastern Transvaal (Roberts). Portuguese East Africa (Tete included), Northern Rhodesia, Nyasaland. The Belgian Congo, Tanganyika, Zanzibar Island, Kenya, Fernando Po.

Rhinolophus landeri landeri Martin, 1838. (Extralimital)

1838. *Rhinolophus landeri* Martin, P.Z.S. *1837:* 101. Island of Fernando Po.

Rhinolophus landeri lobatus Peters, 1852

1852. *Rhinolophus lobatus* Peters, Reise nach Mossambique, Säugeth. 41. Sena, south bank of the Zambezi River, 17° 28′ S., 35° 1′ E., Portuguese East Africa. Restricted by Moreau, Hopkins & Hayman, 1946. Range: as above, excepting Fernando Po.

Rhinolophus blasii Peters, 1866

Peak-saddle Horseshoe Bat. Saalneusvlermuis

Distribution: Transvaal (Krugersdorp and Pretoria districts), Southern Rhodesia, Nyasaland; Eritrea; Greece, Italy, Yugoslavia, Cyprus, Palestine, Transcaucasia, Turkmenia.

Rhinolophus blasii blasii Peters, 1866. (Extralimital)

1866. *Rhinolophus blasii* Peters, Mber. Preuss. Akad. Wiss. 17. New name for *clivosus* Blasius, 1857 (not of Cretzschmar, 1828). The type locality is here restricted to Italy.

Rhinolophus blasii empusa K. Andersen, 1904

1904. *Rhinolophus empusa* K. Andersen, Ann. Mag. N.H. *14:* 378. Zomba, southern Nyasaland. Range: as far south as the Transvaal.

Rhinolophus angolensis Seabra, 1898 Angolan Horseshoe Bat

Distribution: Hanha, Angola.

RHINOLOPHUS ANGOLENSIS Seabra, 1898

1898. *Rhinolophus angolensis* Seabra, J. Sci. Math. Phys. Nat., Lisboa, *5:* 250. Hanha, north of Benguela, western Angola.

Rhinolophus luctus group.

Rhinolophus fumigatus Rüppell, 1842

Damara Horseshoe Bat. Damaralandse Hoefystervlermuis

Distribution: Little Namaqualand (north of Steinkopf), Cape Province. South-West Africa; Great Namaqualand, the Kaokoveld. Angola (recorded from many localities, northwards at least to Chitau). Petauke district and Fort Jameson, eastern Northern Rhodesia. Tanganyika, Pemba Island, Kenya, Uganda, Somaliland, Eritrea, Abyssinia. (The form *eloquens* K. Andersen, 1905, is also regarded as a subspecies of *fumigatus*.)

RHINOLOPHUS FUMIGATUS FUMIGATUS Rüppell, 1842

1842. *Rhinolophus fumigatus* Rüppell, Abh. Senckenb. Mus. *3:* 132. Shoa, Abyssinia. Some skins bearing this name in the B.M. from Northern Rhodesia.

RHINOLOPHUS FUMIGATUS AETHIOPS Peters, 1869

1869. *Rhinolophus aethiops* Peters, Mber. Preuss. Akad. Wiss. *1868:* 637. Otjimbingue, Damaraland, South-West Africa. Range: Little Namaqualand to Angola.

Rhinolophus hildebrandti Peters, 1878.

Hildebrandt's Horseshoe Bat. Hildebrantse Vlermuis

Distribution: Rustenburg district, western Transvaal; Tete, Portuguese East Africa; Southern Rhodesia, including Salisbury and Mazoe; Nyasaland, Northern Rhodesia. Belgian Congo, Tanganyika, Kenya, southern Somaliland.

RHINOLOPHUS HILDEBRANDTI HILDEBRANDTI Peters, 1878

1878. *Rhinolophus hildebrandtii* Peters, Mber. Preuss. Akad. Wiss. 195. Ndi, Taita district, Kenya.

SUBFAMILY Hipposiderinae

Genus **HIPPOSIDEROS** Gray, 1831

1831. *Hipposideros* Gray, Zool. Misc. 37. *Vespertilio speoris* Schneider, from India.
1837. *Phyllorhina* Bonaparte, Fauna Ital. pt. 21: 3. *Rhinolophus diadema* E. Geoffroy, from Timor.

1866. *Macronycteris* Gray, P.Z.S. 82. *Rhinolophus gigas* Wagner (a race of *Rhinolophus commersoni* E. Geoffroy).
1871. *Doryrhina* Peters, Mber. Preuss. Akad. Wiss., 314. *Phyllorhina cyclops* Temminck, from the Gold Coast.
1871. *Sideroderma* Peters, *loc. cit.* 324. *Phyllorhina fuliginosa* Temminck, from West Africa.
1871. *Ptychorhina* Peters, *loc. cit.*, 325. *Rhinolophus caffer* Sundevall.
1871. *Synodesmotis* Peters, *loc. cit.* 329. *Phyllorhina megalotis* Heuglin, from Eritrea.

For other extralimital generic synonyms see Ellerman & Morrison-Scott, 1951, 123.

For a review of this genus see Tate, 1941, *Bull. Amer. Mus. N.H. 78*: 353. The large species *H. commersoni* should not be given generic rank under the name *Phyllorhina* as was done by Roberts and Shortridge; this name was based on an Oriental species and is treated by Tate in quite a different group of the genus. If subgeneric division is desired, then *Macronycteris* is available for *H. commersoni*, and *Ptychorhina* for *caffer*, which species Tate placed in his *galeritus* group.

Smaller, forearm about 42–51 mm. — *Hipposideros caffer*, page 61
Much larger, forearm about 90–107 mm. — *Hipposideros commersoni*, page 62

Hipposideros galeritus group

Hipposideros caffer Sundevall, 1846

South African Lesser Leafnosed Bat. Kaapse Blaarneusvlermuis

Distribution: in the Union, Port St. Johns (Pondoland), Natal including Durban, Zululand, and the eastern Transvaal (Wakkerstroom, Barberton, etc.). Portuguese East Africa (Tete included), Southern Rhodesia, South-West Africa (Damaraland, Ovamboland, the Kaokoveld). Angola, where widely distributed. Northern Rhodesia, Nyasaland. Northwards to Tanganyika, Uganda, Kenya, Eritrea, the Belgian Congo, Gabon district; Morocco; south-western Arabia.

Hipposideros caffer caffer, Sundevall, 1846

1846. *Rhinolophus caffer* Sundevall, Öfvers. Vetensk. Akad. Förh. Stockholm, *3*, 4: 118. Near Durban, Natal.
1852. *Phyllorhina gracilis* Peters, Reise nach Mossambique, Säugeth. 36. Tete, on the Zambezi, Portuguese East Africa.

Range: the Union as listed above, northwards to Tanganyika and, according to G. Allen, Eritrea.

Hipposideros caffer angolensis Seabra, 1898

1898. *Phyllorhina angolensis* Seabra, J. Sci. Math. Phys. Nat., Lisboa, *5:* 256. Benguela, Angola (type locality restricted by Hill & Carter, 1941). Ranges southwards to Damaraland.

Hipposideros caffer centralis K. Andersen, 1906

1906. *Hipposideros caffer centralis* K. Andersen, Ann. Mag. N.H. *17:* 275, 277. Entebbe, Uganda. Ranges to Angola.

Hipposideros commersoni group

Hipposideros commersoni E. Geoffroy, 1813

Commerson's Leafnosed Bat. Commersonse Blaarneusvlermuis

Distribution: South-West Africa (Kaokoveld, Outjo and Grootfontein districts to Damaraland). Northern Rhodesia. Recorded from many localities in Angola, northwards at least to Loanda, southwards to Benguela, Humbe, etc. Nyasaland. Portuguese East Africa (Beira, and includes Ibo Island (Cap Delgado group)). Northwards to Tanganyika, Zanzibar and Pemba Islands, Kenya, the Belgian Congo. Madagascar.

Hipposideros commersoni commersoni E. Geoffroy, 1813. (Extralimital)

1813. *Rhinolophus commersoni* E. Geoffroy, Ann. Mus. H.N. Paris, *20:* 263. Fort Dauphin, Madagascar.

Hipposideros commersoni gigas Wagner, 1845

1845. *Rhinolophus gigas* Wagner, Arch. Naturgesch. *11*, 1: 148. Benguela, south-western Angola.

1852. *Phyllorhina vittata* Peters, Reise nach Mossambique, Säugeth., 32. Ibo Island, 12° 20′ S., Cap Delgado group, northern Portuguese East Africa.

Hipposideros commersoni marungensis Noack, 1887

1887. *Phyllorhina commersonii* var. *marungensis* Noack, Zool. Jb. *2:* 272. Qua Mpala, Marungu, southern Belgian Congo. Ranges southwards to Beira and Damaraland. "There would appear to be no hard and fast line between *H.c. marungensis* and *gigas*" (Swynnerton & Hayman, 1951).

Genus **CLOEOTIS** Thomas, 1901

1901. *Cloeotis* Thomas, Ann. Mag. N.H. *8:* 28. *Cloeotis percivali* Thomas.

Cloeotis percivali Thomas, 1901

African Trident Bat. Drietandneusvlermuis

Distribution: the Transvaal, districts of Rustenburg, Krugersdorp, Pretoria, etc., Swaziland, Southern Rhodesia. Kenya.

Cloeotis percivali percivali Thomas, 1901.

1901. *Cloeotis percivali* Thomas, Ann. Mag. N.H. *8:* 28. Takaungu, north of Mombasa, Kenya. Ranges to Southern Rhodesia.

Cloeotis percivali australis Roberts, 1917

1917. *Cloeotis percivali australis* Roberts, Ann. Transv. Mus. *5:* 264. Mooimeisiesfontein, Rustenburg district, western Transvaal.

FAMILY MOLOSSIDAE

1. A prominent vertical projection on zygoma. Ears very large, about 38 mm.
Genus *OTOMOPS*, page 64
Not combining these characters. (In South Africa, ear about 27 mm. and less.)[1]
——2

2. Skull much flattened (depth of braincase only about a third of its width).
Genus *PLATYMOPS*, page 63
Skull not much flattened. Genus *TADARIDA*, page 64

Genus **PLATYMOPS** Thomas, 1906

1906. *Platymops* Thomas, Ann. Mag. N.H. *17:* 499. *Platymops macmillani* Thomas, from Abyssinia.
1917. *Sauromys* Roberts, Ann. Transv. Mus. *6:* 5. *Platymops* (*Sauromys*) *haagneri* Roberts.

The southern representatives of *Platymops* differ from the type species in their larger size (forearm 32 mm. in *macmillani*, 36–42 mm. in *petrophilus*), but we think that Roberts' two supposed species from South Africa are conspecific, and *petrophilus* has priority.

Platymops petrophilus Roberts, 1917

Flatheaded Freetailed Bat. Platkop Losstertvlermuis

Distribution: near Rustenburg, western Transvaal; Ceres, the Cedarberg and Goodhouse (Little Namaqualand), western Cape Province; South-West Africa (Great Namaqualand and Damaraland).

Platymops petrophilus petrophilus Roberts, 1917

1917. *Platymops* (*Sauromys*) *petrophilus* Roberts, Ann. Transv. Mus. *6:* 4. Bleskop, near Rustenburg, western Transvaal.

Platymops petrophilus haagneri Roberts, 1917

1917. *Platymops* (*Sauromys*) *haagneri* Roberts, Ann. Transv. Mus. *6:* 5. Keetmanshoop, Great Namaqualand, South-West Africa. (Damaraland in original description appears to be an error.)

Platymops petrophilus umbratus Shortridge & Carter, 1938

1938. *Platymops haagneri umbratus* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 282. Kliphuis, Pakhuis Pass, 11 miles north-east of Clanwilliam, western Cape Province.

[1] In specimens and measurements available to us.

PLATYMOPS PETROPHILUS ERONGENSIS Roberts, 1946

1946. *Platymops petrophilus erongensis* Roberts, Ann. Transv. Mus. *20:* 308. Ombu Farm, Eronga Mountain, Omaruru district, Damaraland, South-West Africa.

PLATYMOPS PETROPHILUS FITZSIMONSI Roberts, 1946

1946. *Platymops petrophilus fitzsimonsi* Roberts, Ann. Transv. Mus. *20:* 308. Mitchell's Pass, near Ceres, south-western Cape Province.

Genus **OTOMOPS** Thomas, 1913

1913. *Otomops* Thomas, J. Bombay N.H. Soc. *22:* 91. *Nyctinomus wroughtoni* Thomas, from Kanara, India.

Otomops martiensseni Matschie, 1897

Large Freetailed Bat. Grootste Losstertvlermuis

Distribution: Durban, Natal; Chitau, Angola; Tanganyika; the Belgian Congo.

OTOMOPS MARTIENSSENI MARTIENSSENI Matschie, 1897. (Extralimital).

1897. *Nyctinomus martiensseni* Matschie, Arch. Naturgesch. *63* (1): 84. Magrotto plantation, south-eastern Usambara Mountains, west of Tanga, north-eastern Tanganyika.

OTOMOPS MARTIENSSENI ICARUS Chubb, 1917

1917. *Otomops icarus* Chubb, Ann. Durban Mus. *1:* 433. Durban, Natal. Also recorded from Chitau, Angola by Hill & Carter (1941).

Genus **TADARIDA** Rafinesque, 1814

1814. *Tadarida* Rafinesque, Précis Som. 55. *Cephalotes teniotis* Rafinesque, from Sicily.

1818. *Nyctinomus* E. Geoffroy, Description de l'Egypte, *2:* 114. *Nyctinomus aegyptiacus* E. Geoffroy.

1842. *Mops* Lesson, Nouv. Tabl. Regn. Anim., 18. *Mops indicus* Lesson = *Molossus mops* Blainville, from Sumatra. Valid as a subgenus.

1865. *Mormopterus* Peters, Mber. Preuss. Akad. Wiss. 258. *Nyctinomus jugularis* Peters, from Madagascar = *Vespertilio acetabulosus* Hermann, from Mauritius. Valid as a subgenus.

1874. *Chaerephon* Dobson, J. Asiat. Soc. Bengal, *43*, 2: 144. *Molossus* (*Nyctinomus*) *johorensis* Dobson, from Johore, Malay States. Valid as a subgenus.

1917. *Lophomops* J. Allen, Bull. Amer. Mus. N.H. *37:* 460. *Chaerephon* (*Lophomops*) *chapini* J. Allen.

1917. *Allomops* J. Allen, *loc. cit.*, 470. *Chaerephon* (*Allomops*) *osborni* J. Allen, from the Belgian Congo.

On this genus see Tate, 1941, *Amer. Mus. Novit.*, No. 1142 and Thomas, 1913, *J. Bombay N.H. Soc.* 22: 89.

In 1951 we followed Simpson in referring *Chaerephon*, *Mormopterus* and *Mops* to *Tadarida* as subgenera.

There are apparently fifteen species of this genus in South Africa. Roberts (1951) reviewed eight of them. He shows that the name *condylura* antedates *angolensis*. We are inclined to consider his form *rhodesiae* as representing the Angolan *ansorgei*. Hill & Carter (1941) reviewed nine of the species (they retained ten, but we are inclined not to give specific rank to the form *cristatus*). We think that a species for which the first name appears to be *chapini* (to include also *shortridgei* and *lancasteri*), characterized by the long bicoloured crest in the males, is valid, and we think Roberts was wrong in making *shortridgei* a race of *limbatus*. Hill & Carter overlooked the Angolan form *T. spillmanni* Monard, which was described as near *angolensis* = *condylura*, but although approaching the latter in size appears to belong to the subgenus *Chaerephon*.

1. Only 1 upper premolar. (M 3 not very reduced; premaxillae with conspicuous emargination). *Tadarida* (*Mormopterus*) *acetabulosa*, page 70
   Normally 2 upper premolars (the small one very reduced, sometimes absent in *T. condylura* which has M 3 very reduced, more or less V-shaped). ——2

2. M 3 reduced, the cusps more or less forming a V-pattern. ——3
   M 3 less reduced, the cusps forming more than a V-pattern. ——4

3. Larger, forearm about 59–64 mm. *Tadarida* (*Mops*) *midas*, page 70
   Smaller, forearm about 43–49 mm. *Tadarida* (*Mops*) *condylura*, page 69

4. Palate normally without conspicuous emargination, but a small notch may be present which never extends back to roots of incisors. ——5
   Palate with conspicuous median emargination extending back to roots of incisors. ——8

5. Large, forearm about 46–50 mm. *Tadarida* (*Chaerephon*) *spillmanni*, page 67
   Smaller, forearm about 42 mm. and less. ——6

6. Males with long bicoloured crest. *Tadarida* (*Chaerephon*) *chapini*, page 68
   Not as just described. ——7

7. Wings dark; underparts usually darker.
   Tadarida (*Chaerephon*) *pumila*, page 67
   Wings pale; underparts usually paler.
   Tadarida (*Chaerephon*) *limbata*, page 68

8. Large species, forearm approximately 64 mm. (length of skull of type *circa* 25 mm.). *Tadarida africana*, page 66
   Smaller species, forearm about 42–51½ mm. ——9

9. Averages larger, forearm about 47–51½ mm. (Length of skull, in South Africa, about 19–21 mm.). *Tadarida aegyptiaca*, page 66
   Averages smaller, forearm about 47½ mm. and less. (Length of skull about 19 mm. and less.) ——10

10. Palatal emargination larger than diameter of canines; pelage abundant; rostrum slender. *Tadarida bocagei*, page 67
Palatal emargination smaller than diameter of canine; pelage short, scanty; rostrum broad. *Tadarida ansorgei*, page 67[1]

Subgenus *TADARIDA* Rafinesque, 1814

Tadarida africana Dobson, 1876

Transvaal Freetailed Bat. Transvaalse Losstertvlermuis

Distribution: the Transvaal, no exact locality.

Tadarida africana Dobson, 1876

1876. *Nyctinomus africanus* Dobson, Ann. Mag. N.H. *17:* 348. Transvaal.

Tadarida mastersoni Roberts, 1946

Masterson's Freetailed Bat. Mastersonse Losstertvlermuis

Distribution: Southern Rhodesia.

Tadarida mastersoni Roberts, 1946

1946. *Nyctinomus mastersoni* Roberts, Ann. Transv. Mus. *20:* 306. Chikupo Caves, Masembura Native Reserve, Bindura district (near Mazoe), north-eastern Southern Rhodesia.

Tadarida aegyptiaca E. Geoffroy, 1818

Egyptian Freetailed Bat. Egiptiese Losstertvlermuis

Distribution: Cape Province, recorded from Cape Town, Middelburg, Grahamstown, Peddie, Blythswood, King William's Town. Zululand, Natal. Angola (Quibula, Galanga, Caquindo). Fort Jameson, Northern Rhodesia. Also known from Kenya, Egypt and western India.

Tadarida aegyptiaca aegyptiaca E. Geoffroy, 1818.

1818. *Nyctinomus aegyptiacus* E. Geoffroy, Description de l'Egypte, *2:* 128. Egypt.
1826. *Dysopes geoffroyi* Temminck, Mon. Mamm. *1:* 226. Substitute for *aegyptiacus*.
1900. *Nyctinomus anchietae* Seabra, J. Sci. Math. Phys. Nat., Lisboa, *6:* 82. Quibula, western Angola.

Tadarida brunnea, Seabra, 1900 Seabra's Freetailed Bat

Distribution: Angola (Quissange). The Belgian Congo.

[1] Four other species of *Tadarida* are named from South Africa, but are not represented in the British Museum. Subgenus *Mops: T. brachyptera* appears to be smaller than the other species of the subgenus in the present region; *T. chitauensis* is, from its description, near *condylura*, but with the upper incisors closer together, and the colour different. Subgenus *Tadarida: T. mastersoni* is near *africana*, but smaller, forearm 57 mm.: *T. brunnea* is nearest *aegyptiaca* but with the skull less flattened.

TADARIDA BRUNNEA Seabra, 1900

1900. *Nyctinomus brunneus* Seabra, J. Sci. Math. Phys. Nat., Lisboa, *6:* 83. Quissange, north-east of Benguela, western Angola.

Tadarida bocagei Seabra, 1900

Bocage's Freetailed Bat. Bocagese Losstertvlermuis

Distribution: in the Cape Province, Kuruman, Louisvale (near Upington), Van Wyks Vlei, Klaver, near Lamberts Bay, Grahamstown, Aliwal North, etc. Basutoland (British Museum). Potchefstroom, Pretoria and Florida (near Johannesburg), Transvaal. Great Namaqualand and the Kaokoveld, South-West Africa. Angola (Galanga).

TADARIDA BOCAGEI Seabra, 1900

1900. *Nyctinomus bocagei* Seabra, J. Sci. Math. Phys. Nat., Lisboa, *6:* 84. Galanga (east of Hanha), western Angola.

Tadarida ansorgei Thomas, 1913 Ansorge's Freetailed Bat

Distribution: Angola (Malange), Southern Rhodesia (if *rhodesiae* is the same), the Belgian Congo, Tanganyika.

TADARIDA ANSORGEI ANSORGEI Thomas, 1913

1913. *Nyctinomus ansorgei* Thomas, Ann. Mag. N.H. *11:* 318. Malange, northern Angola.

TADARIDA (?)ANSORGEI RHODESIAE Roberts, 1946

1946. *Nyctinomus rhodesiae* Roberts, Ann. Transv. Mus. *20:* 307. Chikupo Caves, Masembura Native Reserve, Bindura district (near Mazoe), north-eastern Southern Rhodesia.

Subgenus *CHAEREPHON* Dobson, 1874

Tadarida spillmanni Monard, 1933 Spillmann's Freetailed Bat

Distribution: Southern Angola (Vila da Ponte). Northern Rhodesia (specimens in British Museum).

TADARIDA SPILLMANNI Monard, 1933

1933. *Nyctinomus spillmanni* Monard, Bull. Soc. Sci. Nat., Neuchâtel, *57:* 51. Vila da Ponte, southern central Angola.

Tadarida pumila Cretzschmar, 1830 *vel* 1831

Little Freetailed Bat. Cretzschmarse Losstertvlermuis

Distribution: Durban, Natal (specimen in British Museum). Angola (recorded from Catumbela and Cunene districts). Tanganyika, Pemba Island, Kenya, Uganda, Sudan, Eritrea; south-western Arabia.

TADARIDA PUMILA PUMILA Cretzschmar, 1830 *vel* 1831

1830 *vel* 1831. *Dysopes pumilus* Cretzschmar in Rüppell, Atlas, Reise Nördl. Afrika, Säugeth. 69, pl. 27. Massawa, Eritrea.

Tadarida limbata Peters, 1852[1]

Whitebellied Little Freetailed Bat. Kleinlosstertvlermuis

Distribution: northern Zululand, Natal; Malelane (Barberton district), eastern Transvaal; Portuguese East Africa (Tete and Mozambique Island included); Ngamiland, northern Bechuanaland; Nyasaland; Angola (Benguela, Congulu, Hanha, Loanda, Mossamedes, Quissange, etc.). Tanganyika, including Pemba and Zanzibar Islands, the Belgian Congo, Abyssinia, etc.

TADARIDA LIMBATA LIMBATA, Peters, 1852

1852. *Dysopes limbatus* Peters, Reise nach Mossambique, Säugeth. 56. Mozambique Island (15° S., 40° 42′ E.) northern Portuguese East Africa.

1852. *Dysopes dubius* Peters, *loc. cit.*, 60. Sena, south bank of Zambezi, Portuguese East Africa. Not of A. Smith, 1833.

Range: includes Angola, Tanganyika.

TADARIDA (?)LIMBATA CRISTATA J. Allen, 1917

1917. *Chaerephon* (*Lophomops*) *cristatus* J. Allen, Bull. Amer. Mus. N.H. *37:* 463. Boma, near mouth of Congo River, western Belgian Congo. Retained as a species by Hill & Carter (1941) who record it from Angola, but their characters are not convincing for a valid species.

TADARIDA LIMBATA ELPHICKI Roberts, 1926

1926. *Chaerephon pumilus elphicki* Roberts, Ann. Transv. Mus. *11:* 245. Malelane Estate, Barberton district, south-eastern Transvaal. Range includes northern Zululand, Nyasaland.

TADARIDA LIMBATA LANGI Roberts, 1932

1932. *Chaerephon* (*Lophomops*) *langi* Roberts, Ann. Transv. Mus. *15:* 17. Tsotsoroga Pan, Ngamiland, northern Bechuanaland.

Tadarida chapini J. Allen, 1917 Longcrested Freetailed Bat

Distribution: Ovamboland, South-West Africa; eastern Northern Rhodesia; Capelongo and Dundo, Angola; the Belgian Congo.

TADARIDA CHAPINI CHAPINI J. Allen, 1917. (Extralimital)

1917. *Chaerephon* (*Lophomops*) *chapini* J. Allen, Bull. Amer. Mus. N.H. *37:* 461. Faradje, north-eastern Belgian Congo.

[1] In 1951 we recorded the distribution of *T. pumila* as including Portuguese East Africa, Transvaal and Bechuanaland because we thought we could follow Shortridge (1934) who made *limbata* a race of *pumila*, which classification now seems incorrect, as the two species occur together.

TADARIDA CHAPINI SHORTRIDGEI Thomas, 1926

1926. *Chaerephon* (*Lophomops*) *shortridgei* Thomas, P.Z.S., 289. Ukualukasi, north-western Ovamboland, South-West Africa.

TADARIDA CHAPINI LANCASTERI Hayman, 1938

1938. *Chaerephon lancasteri* Hayman, Ann. Mag. N.H. *1:* 383. Lunzi River, Lundazi district, Loangwa Valley, eastern Northern Rhodesia. Also recorded from Dundo, north-eastern Angola and Mwinilunga, Northern Rhodesia.

Subgenus *MOPS* Lesson, 1842

Tadarida condylura A. Smith, 1833

Angola Freetailed Bat. Angolasse Losstertvlermuis

Distribution: the eastern Cape Province (Roberts), Natal, Zululand, Swaziland. Angola (Chitau, Mossamedes district, Cuanza River). Northern Rhodesia, Nyasaland, into Portuguese East Africa (Shire River, north of the Zambezi). Tanganyika, Ruwenzori, French Sudan, Belgian Congo, etc.

TADARIDA CONDYLURA CONDYLURA A. Smith, 1833

1833. *Nyctinomus condylurus* A. Smith, S. Afr. J. *2:* 54. "Port Natal" = Durban, Natal.

1870. *Nyctinomus angolensis* Peters, J. Sci. Math. Phys. Nat., Lisboa, (1) *3:* 124. (Quenza River = Cuanza River?), Angola.

TADARIDA CONDYLURA NIVEIVENTER Cabrera & Ruxton, 1926.

1926. *Mops angolensis niveiventer* Cabrera & Ruxton, Ann. Mag. N.H. *17 :* 594. St. Joseph de Luluabourg, southern Belgian Congo. Occurs in Northern Rhodesia.

Tadarida chitauensis Hill, 1937 Chitau Freetailed Bat

Distribution: Chitau, Central Angola.

TADARIDA CHITAUENSIS Hill, 1937.

1937. *Mops chitauensis* Hill, Amer. Mus. Novit., No. 916, 2, 3. Chitau, central Angola.

Tadarida brachyptera Peters, 1852 Whitebreasted Freetailed Bat

Distribution: Mozambique Island; Zanzibar Island, Tanganyika.

TADARIDA BRACHYPTERA Peters, 1852

1852. *Dysopes brachypterus* Peters, Reise nach Mossambique, Säugeth., 59. Island of Mozambique, 15° S., 40° 42′ E., coastal northern Portuguese East Africa.

Tadarida midas Sundevall, 1843 Sundevall's Freetailed Bat

Distribution: Senegal, Nigeria, the Sudan, Eritrea, Arabia (near northern Yemen border, B.M.), and Nyasaland (Chiromo, B.M.). Madagascar.

TADARIDA MIDAS Sundevall, 1843

1843. *Dysopes midas* Sundevall, K. Svenska Vetensk. Akad. Handl. *1842:* 207, pl. 2, fig. 7. Bahr-el-Abiad (White Nile), Sudan. Ranges southwards to Nyasaland.

Subgenus *MORMOPTERUS* Peters, 1865

Tadarida acetabulosa Hermann, 1804

Natal Wrinkle-lipped Bat. Natalse Losstertvlermuis

Distribution: near Durban, Natal; Madagascar, Mauritius.

TADARIDA ACETABULOSA ACETABULOSA Hermann, 1804. (Extralimital)

1804. *Vespertilio acetabulosus* Hermann, Obs. Zool. 19. Port Louis, Island of Mauritius.

TADARIDA (?)ACETABULOSA NATALENSIS A. Smith, 1847

(1833. *Nyctinomus dubius* A. Smith, S. African J. *2:* 54. "Between Cape Colony and Natal."[1])

1847. *Dysopes natalensis* A. Smith, Illustr. Zool. S. Africa, Mamm. pl. 49 and text. Near "Port Natal" = Durban, Natal.

FAMILY VESPERTILIONIDAE

Apparently eleven valid genera occur in South Africa.

Miller (1907) gave a key to the genera of this family, but recognized too many. Simpson (1945) has attempted some generic reduction from Miller's list, but in our opinion has gone rather too far and in the present region we follow him only in making *Rhinopterus* a subgenus of *Eptesicus* and *Scotoecus* a subgenus of *Nycticeius*, except in cases where we followed his classification in our 1951 publication. We consider *Cistugo* to be not more than a subgenus of *Myotis*. Roberts complicated the classification of the genera south of the Zambezi-Cunene by extreme oversplitting in the division of the family nearest *Eptesicus* and *Pipistrellus*, which is precisely the part of the family where any splitting is to be avoided as *Pipistrellus* itself is only retained as a genus for convenience; it is not, strictly, more than a subgenus of

[1] Roberts (1944) regarded *natalensis* as a synonym of *dubius*, but gave no convincing reason why *dubius* must necessarily be identified with *natalensis*. The 1847 figure of Smith's *Dysopes natalensis* suggests a *Mormopterus* in its clearly separated ears, but the associated tooth formula does not agree with what can be made of the poor skull figure. There are various discrepancies in the original descriptions and we are not satisfied that they are both the same animal. This bat has not been rediscovered since Smith's day. It may be that *dubius* must be discarded as not certainly identifiable.

Eptesicus which itself might be referred to *Vespertilio* Linnaeus; for discussion of this problem see Ellerman & Morrison-Scott (1951, 162). Roberts' classification of these *Eptesicus*-like bats is typical of the views of zoologists who study only one part of the world and ignore everything else outside that part.

1. Sternum short and broad, its length in middle line not twice as great as breadth of presternum; 4 or 5 ribs connected with sternum; ear slightly but evidently funnel-formed (Miller, who on account of these characters separated the genus as the type of the subfamily Kerivoulinae). Six upper and 6 lower cheek-teeth; braincase region of skull elevated.
Genus *KERIVOULA*, page 88

Sternum slender, its length in middle line more than twice as great as breadth of presternum; 6 or 7 ribs connected with sternum; ear not funnel-formed (Miller). ——2

2. Presternum with median lobe larger than body of bone; scapula with coracoids straight, directed inward; second phalanx of third finger nearly three time as long as first (Miller, who on account of these characters separated the genus as the subfamily Miniopterinae). Braincase region of skull elevated.
Genus *MINIOPTERUS*, page 86

Presternum with median lobe much smaller than body of bone; scapula with coracoid curved outward; second phalanx of third finger not specially elongated (Miller). ——3

3. Six upper and 6 lower cheekteeth. Genus *MYOTIS*, page 72
Less than 6 upper and 6 lower cheekteeth. ——4

4. Normally with 2 upper premolars (and 2 upper incisors). ——5
With 1 upper premolar. ——6

5. Fifth finger shortened, only a little longer than metacarpal of the fourth and third. Genus *NYCTALUS*,[1] page 78

Fifth finger normally not specially shortened.
Genus *PIPISTRELLUS*, page 79

6. With 1 upper incisor. ——7
Two upper incisors. ——8

7. First and second upper molars with W-pattern distorted or nearly absent.
Genus *SCOTOPHILUS*, page 85

First and second upper molars with W-pattern normal.
Genus *NYCTICEIUS*, page 83

8. Ears very enlarged, about 18 mm. and more.
Genus *LAEPHOTIS*, page 78

Ears normally less enlarged (if not, as in one case in Roberts' measurements for *Eptesicus hottentotus*, then proportionately considerably shorter). ——9

[1] Occurrence in South Africa doubtful.

9. Braincase very deep, its depth (including bullae) about equal to distance from incisors to posterior zygoma root.
Genus *GLAUCONYCTERIS*, page 82
Braincase less deep, much less than the above-quoted distance. ——10

10. Skull much flattened. Also characterized by its shortened wings.
Genus *MIMETILLUS*, page 82
Skull not specially flattened; not combining the characters of the last genus.
Genus *EPTESICUS*, page 74

Subfamily Vespertilioninae

Genus **MYOTIS** Kaup, 1829

1829. *Myotis* Kaup, Skizz. Europ. Thierw. *1:* 106. *Vespertilio myotis* Borkhausen, from Germany.
1830. *Leuconoe* Boie, Isis, Jena, 256. *Vespertilio daubentoni* Kuhl, from Germany. Valid as a subgenus.
1841. *Selysius* Bonaparte, Fauna Ital. *1:* Introd. 3. *Vespertilio mystacinus* Kuhl, from Germany. Valid as a subgenus.
1910. *Chrysopteron* Jentink, Notes Leyden Mus. *32:* 74. *Kerivoula weberi* Jentink, from Celebes. Valid as a subgenus.
1912. *Cistugo* Thomas, Ann. Mag. N.H. *10:* 205. *Cistugo seabrae* Thomas. Valid as a subgenus.

For other extralimital subgeneric names and synonyms see Ellerman & Morrison-Scott, 1951, 137–138.

We do not consider *Cistugo* as more than a subgenus of *Myotis*, from which it is supposed to differ in having glands in the wings; Roberts stated that he had not been able to see the glands in the only specimen he had examined.

For a review of Eurasian *Myotis* (and a short note on the African species) see Tate, 1941, *Bull. Amer. Mus. N.H.* 78: 537.

Tate divides this large genus into seven subgenera (apart from *Cistugo*) and refers the South African species *welwitschi* to *Chrysopteron*, *tricolor* and *bocagei* to *Selysius*. Dobson (1878) referred *M. bocagei* to the subgenus *Leuconoe* (characterized by having the feet long, considerably more than half the length of the tibia); but twelve specimens in the British Museum with foot 8–10.5 mm., tibia 17–21 mm. show that Tate was correct in referring this species to *Selysius*. (Eleven skins for *M. tricolor* with the foot 9–11 mm., the tibia 21–23 mm. show that this species, also, is rightly placed in *Selysius*). Typical *Myotis* is based on large species, forearm about 52–66 mm., with no dichromatic wing pattern, and the feet not greatly enlarged.

1. Large species, forearm about 47 mm. and more. ——2
Small species, forearm about 40 mm. and less. ——3

2. With dichromatic wing pattern. Forearm about 52–58 mm.
Myotis (*Chrysopteron*) *welwitschi*, page 73
Wings dark. Forearm about 47–51.7 mm.
Myotis (*Selysius*) *tricolor*, page 73

3. No glands on wings, so far as known. Forearm about 33–40 mm.
Myotis (*Selysius*) *bocagei*, page 73
With glands on wings. Forearm about 32.5–32.9 mm.
Myotis (*Cistugo*) *seabrai*,[1] page 74

Subgenus *SELYSIUS* Bonaparte, 1841

Myotis bocagei Peters, 1870 Rufous Mouse-eared Bat

Distribution: Northern Angola (Duque de Bragança); Nyasaland; Tanganyika, Kenya, the Cameroons.

Myotis bocagei bocagei Peters, 1870

1870. *Vespertilio bocagii* Peters, J. Sci. Math. Phys. Nat., Lisboa, (1) *3:* 125. Duque de Bragança, northern Angola.

Myotis tricolor Temminck, 1832

Cape Hairy Bat. Kaapse Langhaarvlermuis

Distribution: in the Cape Province, Cape Town, Montagu, East London, King William's Town; Estcourt and near Pietermaritzburg, Natal (B.M.); Potchefstroom district, Transvaal. Mt. Elgon, Uganda (B.M.), Kenya (Coryndon Museum), Abyssinia (B.M.).

Myotis tricolor Temminck, 1832

1832. *Vespertilio tricolor* Temminck in Smuts, Enum. Mamm. Cap., 106. Cape Town, Cape Province.

Subgenus *CHRYSOPTERON* Jentink, 1910

Myotis welwitschi Gray, 1866

Welwitsch's Bat. Welwitschse Langhaarvlermuis

Distribution: the Transvaal; near Belfast, and 50 miles from Lydenburg. Melsetter, Southern Rhodesia, Nyasaland, Angola and Tanganyika, the Congo.

Myotis welwitschi welwitschi Gray, 1866

1866. *Scotophilus welwitschii* Gray, P.Z.S., 211. Angola.

[1] There is another species of the subgenus *Cistugo* (*M. lesueuri*), which is not represented in London. The glands are said to be in a different position from those of *seabrai*, and the forearm is about 34½ mm.

Subgenus *CISTUGO* Thomas, 1912

Myotis seabrai Thomas, 1912

Angola Wing-gland Bat. Angolasse Vlerkkliervlermuis

Distribution: Mossamedes, Angola; Great Namaqualand, South-West Africa; Goodhouse (on Orange River, Little Namaqualand), Cape Province.

MYOTIS SEABRAI Thomas, 1912

1912. *Cistugo seabrae* Thomas, Ann. Mag. N.H. *10:* 205. Mossamedes, south-western Angola.

Myotis lesueuri Roberts, 1919

Lesueur's Wing-gland Bat. Lesueurse Vlerkkliervlermuis

Distribution: Paarl district, and near Citrusdal (Shortridge, 1942), both western Cape Province.

MYOTIS LESUEURI Roberts, 1919

1919. *Cistugo lesueuri* Roberts, Ann. Transv. Mus. *6:* 112. Lormarins, Franschhoek Valley, opposite Paarl, south-western Cape Province.

Genus **EPTESICUS** Rafinesque, 1820

1820. *Eptesicus* Rafinesque, Annals of Nature, 2. *Eptesicus melanops* Rafinesque = *Vespertilio fuscus* Beauvois, from North America.
1870. *Nyctiptenus* Fitzinger, S.B. Akad. Wiss. Wien., *62:* 424. *Vespertilio smithi* Wagner = *Vespertilio hottentota* A. Smith.
1906. *Rhinopterus* Miller, Proc. Biol. Soc. Washington *19:* 85. *Glauconycteris floweri* de Winton, from the Sudan. Valid as a subgenus.
1908. *Scabrifer* G. M. Allen, Bull. Mus. Comp. Zool. Harvard, *52:* 46. Substitute for *Rhinopterus*, not *Rhinoptera* Kuhl.
1926. *Neoromicia* Roberts, Ann. Transv. Mus. *11:* 245. *Eptesicus zuluensis* Roberts.

For further extralimital generic synonyms see Ellerman & Morrison-Scott, 1951.

We consider *Rhinopterus* is at most a subgenus of the present genus. The species *pusillus* and *zuluensis* were regarded as a genus "*Neoromicia*" by Roberts on account of having the cranium slightly raised above the level of the muzzle, but until every species of *Eptesicus* from Europe, Asia, Africa, Australia and America is examined it is premature to give that name even subgeneric rank.

Apparently ten valid species in South Africa, but only five of these are represented in the British Museum.

1. Large species, forearm 48–53 mm. Skull strongly built, with "helmet" formed by confluence of lambdoid and sagittal crests. *Eptesicus hottentotus*,[1] page 76
Smaller species, forearm 38 mm. and less. ——2

[1] *E. hottentotus* is the South African representative of the Holarctic *E. serotinus* group. It apparently differs from *E. serotinus* in the structure of its first upper incisor.

2. Cranial portion of skull raised above muzzle. (Forearm 29–31 mm., skull about 11½–12.8 mm., compare *E. pusillus* with forearm 26 mm., skull about 10½ mm. which also occurs in South Africa but is not authentically represented in London). *Eptesicus zuluensis*, page 77
   Cranium not, or scarcely, raised up above muzzle. ——3

3. Wings dark. *Eptesicus capensis*, page 75
   Wings pale. ——4

4. Back much darker. Forearm 27½–32 mm. *Eptesicus tenuipinnis*, page 77
   Back much paler. Forearm 36–38 mm. *Eptesicus rendalli*,[1] page 77

Subgenus *EPTESICUS* Rafinesque, 1820

Eptesicus capensis A. Smith, 1829

Cape Serotine. Kaapse Dakvlermuis

Distribution: in the Union, the Transvaal, Krugersdorp, Pietersburg, Pretoria, Johannesburg, Lydenburg, the Kruger National Park (Skukuza district, Stevenson-Hamilton), Estcourt, Zululand, Natal; Bethlehem, Vredefort, Orange Free State; Maseru, Basutoland (British Museum); in the Cape Province, Kuruman, Deelfontein, Louisvale (near Upington), Little Namaqualand (the Kamiesberg), near Lamberts Bay, east of Clanwilliam, King William's Town, Grahamstown. Portuguese East Africa (Tete); Southern Rhodesia (Bulawayo); northern Bechuanaland; "generally distributed over the whole of South-West Africa" (Shortridge). Many localities in Angola, northwards at least to Chitau; Northern Rhodesia (Broken Hill and Serenje district). Also from the Belgian Congo, Kenya and British Somaliland.

Eptesicus capensis capensis A. Smith, 1829

1829. *Vespertilio capensis* A. Smith, Zool. J. *4:* 435. "Cape." Grahamstown, eastern Cape Province, according to Roberts, 1951, 89. Range: eastern Cape Province to Transvaal.

Eptesicus capensis damarensis Noack, 1889

1889. *Vesperus damarensis* Noack, Zool. Jb. *4:* 213. Omburu and "Golabu" (Golabie), Damaraland, South-West Africa.

(1932. *Eptesicus capensis nkatiensis* Roberts, Ann. Transv. Mus. *15:* 16. Nkate, northern Bechuanaland.)

Eptesicus capensis gracilior Thomas & Schwann, 1905

1905. *Vespertilio capensis gracilior* Thomas & Schwann, P.Z.S. *1:* 257. Eshowe, Zululand, Natal. Ranges to eastern Transvaal.

[1] Five other species of *Eptesicus* occur which are not represented in London, one of which, *pusillus*, is noted in the key above, with *zuluensis*. The species *notius* belongs to the subgenus *Rhinopterus*, separated on account of having the forearm, tail and legs sprinkled with small horny outgrowths; *E. flavescens* is like *E. capensis* but averages a little larger and occurs with it, and *E. melckorum* appears to be like *flavescens* but differs in colour details; it also occurs in the same neighbourhood as *capensis* (in the Union), and averages rather larger. *E. bicolor* (Angola) is placed next to *tenuipinnis* in Hill & Carter's key, from which it differs in colour.

Eptesicus flavescens Seabra, 1900

Distribution: Angola (Chitau and Galanga).

EPTESICUS FLAVESCENS Seabra, 1900

1900. *Vesperugo* (*Vesperus*) *flavescens* Seabra, J. Sci. Math. Phys. Nat., Lisboa, *6:* 23. Galanga, north-east of Benguela, Angola.

1937. *Eptesicus capensis angolensis* Hill, Amer. Mus. Novit. No. 916, 1. Chitau, Central Angola.

Eptesicus melckorum Roberts, 1919

Melck's House Bat. Melckse Dakvlermuis

Distribution: the western Cape Province, Berg River and Riversdale district.

EPTESICUS MELCKORUM Roberts, 1919

1919. *Eptesicus melckorum* Roberts, Ann. Transv. Mus. *6:* 113. Kersfontein, Berg River, south-western Cape Province. Also known from the Riversdale district, south-western Cape Province.

Eptesicus hottentotus A. Smith, 1833

Longtailed House Bat. Langstertdakvlermuis

Distribution: the Natal Drakensberg, and in the Cape Province, Albany district, near Cape Town, near Citrusdal and Goodhouse (Orange River, Little Namaqualand). Damaraland, South-West Africa. Nyasaland.

EPTESICUS HOTTENTOTUS HOTTENTOTUS A. Smith, 1833

1833. *Vespertilio hottentota* A. Smith, S. Afr. J. *2:* 59. Uitenhage and Albany, eastern Cape Province; type locality here restricted to Uitenhage.

1840. *Vespertilio megalurus* Temminck, Mon. Mamm. *2:* 206. Interior of South Africa.

1849. *Vespertilio minutus* A. Smith, Illustr. Zool. S. Africa, Mamm. pl. 51 and text. Not of Montagu, 1808.

1855. *Vespertilio smithii* Wagner in Schreber, Säugth. Suppl. *5:* 747, footnote. South Africa. For status see Roberts (1951).

1938. *Scotophilus angusticeps* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 282. Hex River Estate, 10 miles north of Citrusdal, western Cape Province.

EPTESICUS HOTTENTOTUS PALLIDIOR Shortridge, 1942

1942. *Eptesicus megalurus pallidior* Shortridge, Ann. S. Afr. Mus. *36:* 37. Goodhouse, on Orange River, Little Namaqualand, north-western Cape Province.

EPTESICUS HOTTENTOTUS BENSONI Roberts, 1946

1946. *Eptesicus hottentotus bensoni* Roberts, Ann. Transv. Mus. *20:* 305. Ncheu, Nyasaland.

Eptesicus pusillus Leconte, 1857 Little Serotine

Distribution: recorded from Cubango, Caquindo, etc., Angola. The Belgian Congo, Tanganyika, ?Gabon.

EPTESICUS PUSILLUS Leconte, 1857

1857. *Vespertilio pusillus* Leconte, Proc. Acad. Nat. Sci. Philad. 10. "Western Africa" (probably Gabon).

1889. *Vesperugo pusillus* Noack, Zool. Jb. *4:* 216. Boma, mouth of the Congo, Belgian Congo.

Eptesicus zuluensis Roberts, 1924 Aloe Bat. Aalwynvlermuis

Distribution: Zululand, Natal and Leydsdorp, Transvaal; northern Bechuanaland, northern Kaokoveld, Okavango and western Caprivi in South-West Africa.

EPTESICUS ZULUENSIS ZULUENSIS Roberts, 1924

1924. *Eptesicus zuluensis* Roberts, Ann. Transv. Mus. *10:* 60. White Umfolosi Game Reserve, Zululand, Natal.

(1840. *Vespertilio minuta* Temminck, Mon. Mamm. *2:* 209. Cape of Good Hope. Not of Montagu, 1808.)

EPTESICUS ZULUENSIS VANSONI Roberts, 1932

1932. *Neoromicia vansoni* Roberts, Ann. Transv. Mus. *15:* 15. Zweizwe Waterhole, north of Tsotsoroga Pan, Ngamiland, northern Bechuanaland.

Eptesicus tenuipinnis Peters, 1872 White-winged Serotine

Approximate distribution: has been recorded from Angola (Cotete, Dundo). Belgian Congo, Tanganyika, Lado, etc.; the type locality was on the border of Gabon and the French Congo.

EPTESICUS TENUIPINNIS TENUIPINNIS Peters, 1872

1872. *Vesperus tenuipinnis* Peters, Mber. Preuss. Akad. Wiss., 263. Kuilu River, border of Gabon and French Congo (Noack, 1889, Zool. Jb. *4:* 218).

EPTESICUS TENUIPINNIS ATER J. Allen, 1917

1917. *Eptesicus ater* J. Allen, Bull. Amer. Mus. N.H. *37:* 443. Faradje, north-eastern Belgian Congo. Recorded by Sanborn (1950) from Dundo, north-eastern Angola.

Eptesicus rendalli Thomas, 1889 Rendall's Serotine

Distribution: Nyasaland (Shire River); Lumbo, northern Portuguese East Africa. The southern Belgian Congo, Kenya, the Sudan, westwards to Gambia.

EPTESICUS RENDALLI Thomas, 1889

1889. *Vesperugo* (*Vesperus*) *rendalli* Thomas, Ann. Mag. N.H. *3:* 362. Bathurst, Gambia.

Eptesicus bicolor Bocage, 1889 Bocage's Serotine

Distribution: Angola (Caconda).

EPTESICUS BICOLOR Bocage, 1889

1889. *Vesperus bicolor* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *1:* 5. Caconda, east of Benguela, Angola.

Subgenus *RHINOPTERUS* Miller, 1906

Eptesicus notius G. Allen, 1908 Horny-skin Bat. Growwevelvlermuis

Distribution: only known from Cape Town, South Africa.

EPTESICUS NOTIUS G. Allen, 1908

1908. *Scabrifer notius* G. Allen, Bull. Mus. Comp. Zool. Harvard, *52:* 46. Cape Town.

Genus **LAEPHOTIS** Thomas, 1901

1901. *Laephotis* Thomas, Ann. Mag. N.H. *7:* 460. *Laephotis wintoni* Thomas.

Laephotis wintoni Thomas, 1901 De Winton's Long-eared Bat

Distribution: Angola (districts of Dala and Dando). Northern Rhodesia. Kenya.

LAEPHOTIS WINTONI WINTONI Thomas, 1901. (Extralimital)

1901. *Laephotis wintoni* Thomas, Ann. Mag. N.H. *7:* 460. Kitui, 3,500 ft., Kenya.

LAEPHOTIS WINTONI ANGOLENSIS Monard, 1935

1935. *Laephotis angolensis* Monard, Arq. Mus. Bocage, *6:* 45. Chiumbe River, 15 km. west of Dala, eastern Angola. Ranges to Solwezi, Northern Rhodesia.

Genus **NYCTALUS** Bowdich, 1825

1825. *Nyctalus* Bowdich, Excursions in Madeira and Porto Santo, 36 (and footnote). *Nyctalus verrucosus* Bowdich, from Madeira.

Nyctalus noctula Schreber, 1774 Common Noctule

Distribution: has apparently been recorded from Portuguese East Africa and Algeria. Palaearctic region from England to Japan, southwards to the Malay States.

NYCTALUS NOCTULA NOCTULA Schreber, 1774

1774. *Vespertilio noctula* Schreber, Säugth. *1:* pl. 52 (text, p. 166). France.
(1852. *Vespertilio macuanus* Peters, Reise nach Mossambique, Säugeth. 61. Cabaceira Peninsula, northern Portuguese East Africa.)[1]

[1] There is no doubt that the animal described and carefully figured in detail as *macuanus* is *Nyctalus*, and the author states he collected it himself, in his house at Cabaceira. It was described as being almost identical in all respects with *N. noctula*, and the author could find only very minor differences, which he stressed must separate his animal from *noctula*, the geographical separation being so great. But the alleged differences, mainly minor size differences in skull measurements, all break down when applied to the long series of *noctula* now available. The forearm was 53 mm., the total length of the skull 19 mm.

Genus **PIPISTRELLUS** Kaup, 1829

1829. *Pipistrellus* Kaup, Skizz. Europ. Thierw. *1:* 98. *Vespertilio pipistrellus* Schreber, from France.

1838. *Romicia* Gray, Mag. Zool. Bot. *2:* 495. *Romicia calcarata* Gray = *Vespertilio kuhli* Kuhl, from Trieste.

1867. *Alobus* Peters, Mber. Preuss. Akad. Wiss. 707. *Vespertilio temmincki* Cretzschmar = *Vespertilio rüppelli* Fischer. Not of Leconte, 1856.

1875. *Scotozous* Dobson, P.Z.S., 372. *Scotozous dormeri* Dobson, from India. Valid as a subgenus.

1926. *Eptesicops* Roberts, Ann. Transv. Mus. *11:* 245. *Scotophilus rusticus* Tomes.

1946. *Vansonia* Roberts, Ann. Transv. Mus. *20:* 304. *Pipistrellus vernayi* Roberts, a race of *Vespertilio rüppelli* Fischer.

For further extralimital subgenera and synonyms see Ellerman & Morrison-Scott, 1951. For a review of the Oriental members of the genus see Tate, 1942, *Bull. Amer. Mus. N.H. 80*: 221.

For discussion of the retention of the genus *Pipistrellus*, which is not much more than a subgenus of *Eptesicus* and is also antedated by the related *Nyctalus*, see Ellerman & Morrison-Scott, 1951, 162.

Roberts referred the species *rusticus* and *fouriei* to his supposed genus "*Eptesicops*", characterized by having the skull flatter than the other species, and to this group he also referred *subtilis*, the type of which he had apparently not seen. Thomas did see it, and regarded it as allied to *P. kuhli*, of which G. Allen (whom we propose to follow) made it a race. Roberts referred *kuhli* to a genus *Romicia* which has been ignored by virtually all other authors. The species *rueppelli* is referred by some authors to the subgenus *Scotozous*.

1. Second upper incisor very reduced. ——2
   Second upper incisor not very reduced. ——3

2. First upper incisor markedly bicuspid. *Pipistrellus rueppelli*, page 81
   First upper incisor not, or scarcely, bicuspid. *Pipistrellus kuhli*, page 81

3. Braincase flatter, cranium nearly level with muzzle. *Pipistrellus rusticus*, page 80
   Braincase clearly raised up above level of muzzle. ——4

4. Smaller, skull about 11 mm. or less. *Pipistrellus culex*,[1] page 80
   Larger, skull about 11.5 mm. or more, usually more *Pipistrellus nanus*,[2] page 80

[1] *P. fouriei* seems to be a subspecies of the earlier-named *P. culex*. It is not clear why Roberts placed the former with his "*Eptesicops*" (*rusticus* group); material examined does not seem to belong there.

[2] *Pipistrellus anchietai* from Angola is not authentically represented in the British Museum. The specimens recorded by St. Leger appear to represent *P. nanus*. From descriptions, *anchietai* is near *P. rusticus*, but the skull is a little larger.

Subgenus *PIPISTRELLUS* Kaup, 1829

Pipistrellus nanus Peters, 1852 Banana Bat. Piesangvlermuis

Distribution: in the eastern Cape Province, Port St. Johns and East London; Natal, including Durban, Illovo, Malvern, etc.; Barberton district, Transvaal. Inhambane, Portuguese East Africa. Several localities in Angola (at least from Caconda northwards to Duque de Bragança), and several localities in Northern Rhodesia. Lake Ngami. Nyasaland. Further to the north, the Belgian Congo, Tanganyika, Uganda, Kenya.

Pipistrellus nanus Peters, 1852

1852. *Vespertilio nanus* Peters, Reise nach Mossambique, Säugeth. 63. Inhambane, coastal southern Portuguese East Africa.

1913. *Pipistrellus nanus australis* Roberts, Ann. Transv. Mus. *4:* 67. Port St. Johns, Pondoland, coastal eastern Cape Province.

Pipistrellus culex Thomas, 1911

Minute Pipistrelle. Fouriese Dwergvlermuis

Distribution: South-West Africa, the eastern Caprivi, Ovamboland and Grootfontein district. Capelongo, Angola. Northern Nigeria.

Pipistrellus culex culex Thomas, 1911. (Extralimital)

1911. *Pipistrellus culex* Thomas, Ann. Mag. N.H. *7:* 458. "Kabir" (Kabwir), northern Nigeria.

Pipistrellus culex fouriei Thomas, 1926

1926. *Pipistrellus fouriei* Thomas, P.Z.S. 288. Ukualukasi, north-western Ovamboland, South-West Africa.

Pipistrellus rusticus Tomes, 1861 Rusty Bat. Roeskleurvlermuis

Distribution: districts of Pretoria, Tzaneen, Hectorspruit, Transvaal; Damaraland and Grootfontein district, South-West Africa.

Pipistrellus rusticus Tomes, 1861

1861. *Scotophilus rusticus* Tomes, P.Z.S. 31, 35. No locality. Damaraland according to Roberts.

This is the type of *Eptesicops* Roberts, but until every known species of *Pipistrellus* from Europe, Asia, Africa, Australia and America has been compared it is premature to recognize it even as a subgenus.

Pipistrellus anchietai Seabra, 1900 Anchieta's Pipistrelle

Distribution: Angola (including Chitau and Humpata).

PIPISTRELLUS ANCHIETAI Seabra, 1900

1900. *Vesperugo anchieta* Seabra, J. Sci. Math. Phys. Nat., Lisboa, *6:* 26, 120. Cahata (12° 20′ S., 14° 50′ E.) western Angola.

Pipistrellus kuhli Kuhl, 1819 Kuhl's Pipistrelle. Kuhlse Vlermuis

Distribution: in the Cape Province the southern coastal belt in part (Knysna, Pirie, Port St. Johns). Zululand, and near Durban, Natal. The eastern and northern Transvaal, Wakkerstroom district, Legogot (Barberton district), Tzaneen, Zoutpansberg. Specimens in the British Museum perhaps referable to this species from Aberfeldy, Orange Free State and from Southern Rhodesia. Nyasaland. North of the limits of this work, Tanganyika, Kenya; Asben; Egypt, Algeria, Morocco; Europe south of the Baltic, Russian Turkestan, and from Arabia and Asia Minor eastwards to Kashmir and Sind, India.

PIPISTRELLUS KUHLI KUHLI Kuhl, 1819. (Extralimital).

1819. *Vespertilio kuhlii* Kuhl, Ann. Wetterau Ges. Naturk. *4,* 2: 199. Trieste, Italian-Yugoslavian border.

PIPISTRELLUS KUHLI SUBTILIS Sundevall, 1846

1846. *Vesperugo subtilis* Sundevall, Öfvers. Vetensk. Akad. Förh. Stockholm, *3:* 119. "Interior of Caffraria."

PIPISTRELLUS KUHLI BROOMI Roberts, 1948

1948. *Pipistrellus* (*Romicia*) *kuhli broomi* Roberts, Spec. Publ. Roy. Soc. S. Afr. Broom Commem. Vol. 9. Malvern, near Durban, Natal.

(Roberts proposes this name for the Union specimens formerly referred to *Pipistrellus kuhli fuscatus* Thomas, 1901, Ann. Mag. N.H. *8:* 34, Naivasha, Kenya.)

Subgenus *SCOTOZOUS* Dobson, 1875

Pipistrellus rueppelli Fischer, 1829 Rüppell's Bat. Grysbontvlermuis

Distribution: Ngamiland, Bechuanaland; Angola, recorded from Cunene River, Cubango and Duque de Bragança. Tanganyika, Belgian Congo, Uganda, Sudan; Egypt; Iraq.

PIPISTRELLUS RUEPPELLI RUEPPELLI Fischer, 1829

1829. *Vespertilio rüppellii* Fischer, Synops. Mamm., 109. Dongola, Anglo-Egyptian Sudan. Recorded by Hill & Carter from Angola.

1933. *Pipistrellus leucomelas* Monard, Bull. Soc. Sci. Nat. Neuchâtel, *57:* 47. Vila da Ponte, southern Angola.

PIPISTRELLUS RUEPPELLI VERNAYI Roberts, 1932

1932. *Pipistrellus vernayi* Roberts, Ann. Transv. Mus. *15:* 16. Maun, Ngamiland, northern Bechuanaland.

Genus **MIMETILLUS** Thomas, 1904

1904. *Mimetillus* Thomas, Abstr. P.Z.S. No. 10: 12. 1905, P.Z.S. *1904, 2:* 188. *Vesperugo moloneyi* Thomas.

Mimetillus moloneyi Thomas, 1891 Moloney's Flatheaded Bat

Distribution: Angola (Vila da Ponte, Chitau, Cahata). Ndola, Northern Rhodesia. The Belgian Congo, Nigeria, Fernando Po, Sierra Leone.

MIMETILLUS MOLONEYI MOLONEYI Thomas, 1891. (Extralimital)

1891. *Vesperugo* (*Vesperus*) *moloneyi* Thomas, Ann. Mag. N.H. *7:* 528. Lagos, southern Nigeria.

MIMETILLUS MOLONEYI THOMASI Hinton, 1920

1920. *Mimetillus thomasi* Hinton, Ann. Mag. N.H. *6:* 240. Ndola (near the Congo border) Northern Rhodesia.

MIMETILLUS MOLONEYI BERNERI Monard, 1933

1933. *Mimetillus berneri* Monard, Bull. Soc. Sci. Nat. Neuchâtel, *57:* 49. Vila da Ponte, southern Angola.

Genus **GLAUCONYCTERIS** Dobson, 1875

1875. *Glauconycteris* Dobson, P.Z.S., 383. *Kerivoula poensis* Gray.

This genus is not much more than a subgenus of *Chalinolobus* Peters, 1866 from Australia, but Miller (1907) gives a few characters in addition to the different dental formula.

Tate (1942, *Bull. Amer. Mus. N.H. 80*: 260) is not quite correct in his statement that P 2 in the Australian species *Chalinolobus rogersi* is absent (thereby weakening the main distinction between *Chalinolobus* and *Glauconycteris*). There is nothing in Thomas's original description of *C. rogersi* about the alleged lack of the small P 2, and an examination of the type skull of *rogersi* shows that it has these teeth, although small, and in three other skulls we have of the same species only one lacks the tooth. In view of the extreme shortening of the muzzle and toothrow in *Glauconycteris*, as well as its tendency to distinctive external characters such as patterns of spots on the body or reticulations of the wings, and its wide geographical separation from *Chalinolobus*, it is here retained as a valid genus.

Wings pigmented and conspicuously veined — *Glauconycteris variegata*, page 83
Wings plain. — *Glauconycteris argentata*, page 83

The first named species in this genus, *G. poensis*, is much darker dorsally than *argentata*, and is a smaller species.

Glauconycteris variegata Tomes, 1861 Butterfly Bat. Vlindervlermuis

Distribution: north-eastern Zululand; Portuguese East Africa (districts of Beira and Inhambane); South-West Africa (Ovamboland, Grootfontein district); recorded from Mupanda, southern Angola; Nyasaland. Northwards to the Belgian Congo, Uganda, Tanganyika, the Sudan and the Gold Coast.

Glauconycteris variegata variegata Tomes, 1861

1861. *Scotophilus variegatus* Tomes, P.Z.S. 36. Otjoro (in Ovamboland according to Shortridge) South-West Africa.

Glauconycteris variegata papilio Thomas, 1905

1905. *Glauconycteris papilio* Thomas, Ann. Mag. N.H. *15:* 77. Entebbe, Uganda. Ranges to northern Zululand, and north-eastern Angola.

Glauconycteris argentata Dobson, 1875 Silvered Bat

Distribution: Recorded from Dundo, north-eastern Angola (Sanborn, 1950). Tanganyika, Kenya, Belgian Congo, French Congo, Cameroons.

Glauconycteris argentata Dobson, 1875

1875. *Chalinolobus argentatus* Dobson, P.Z.S. 385. Cameroon Mountain, British Cameroons (Moreau, Hopkins & Hayman, 1946).

1889. *Chalinolobus congicus* Noack, Zool. Jb. Syst. *4:* 223. Netonna, near Banana Creek, mouth of Congo River, Belgian Congo.

Genus **NYCTICEIUS** Rafinesque, 1819

1819. *Nycticeius* Rafinesque, J. Physique, *88:* 417. *Nycticeius humeralis* Rafinesque, from North America.

1875. *Scoteinus* Dobson, P.Z.S. 371. *Nycticejus emarginatus* Dobson, thought to be from India. Valid as a subgenus.

1901. *Scotoecus* Thomas, Ann. Mag. N.H. *7:* 263. *Scotophilus albofuscus* Thomas. Valid as a subgenus.

The characters given by Thomas and Miller for *Scotoecus* seem more subgeneric than generic, and we follow Simpson in regarding *Scotoecus* as a subgenus of *Nycticeius*.

1. Palatal emargination narrow. *Nycticeius* (*Scoteinus*) *schlieffeni*, page 84
   Palatal emargination broad. ——2

2. Wings dark *Nycticeius* (*Scotoecus*) *hirundo*, page 84
   Wings light. *Nycticeius* (*Scotoecus*) *albofuscus*, page 84

Subgenus *SCOTEINUS* Dobson, 1875

Nycticeius schlieffeni Peters, 1859 Schlieffen's Bat. Kleindakvlermuis

Distribution: northern Zululand; Portuguese East Africa, including districts of Inhambane, Tete, Beira; South-West Africa, the Kaokoveld, Ovamboland, Okavango valley, eastern Caprivi; Ngamiland; Northern Rhodesia; Nyasaland. The Cunene Falls, southern Angolan border. Northwards to Tanganyika, Kenya, Abyssinia, the southern Belgian Congo, northern Sudan, Asben region; Egypt; Arabia.

Nycticeius schlieffeni schlieffeni Peters, 1859. (Extralimital)

1859. *Nycticejus schlieffenii* Peters, Mber. Preuss. Akad. Wiss., 224. Cairo, Egypt.

Nycticeius schlieffeni australis Thomas & Wroughton, 1908

1908. *Scoteinus schlieffeni australis* Thomas & Wroughton, P.Z.S., 539. Coguno (Koguno), about 75 miles south-westwards from Inhambane, southern Portuguese East Africa. Ranges to northern Zululand.

Nycticeius schlieffeni fitzsimonsi Roberts, 1932

1932. *Scoteinus schlieffeni fitzsimonsi* Roberts, Ann. Transv. Mus. *15:* 17. Tsotsoroga Pan, Ngamiland, Bechuanaland.

Subgenus *SCOTOECUS* Thomas, 1901

There appear to be two species (or groups) in this subgenus, for which the first names are respectively *albofuscus* (with light-coloured wings) and *hirundo* (with dark wings). Both groups have been recorded from the northern parts of the present region.

Nycticeius albofuscus Thomas, 1890 Light-winged Lesser House Bat

Distribution: Nyasaland; Gambia.

Nycticeius albofuscus albofuscus Thomas, 1890. (Extralimital)

1890. *Scotophilus albofuscus* Thomas, Ann. Mus. Stor. Nat. Genova, *29:* 84. Bathurst, Gambia.

Nycticeius albofuscus woodi Thomas, 1917

1917. *Scotoecus woodi* Thomas, Ann. Mag. N.H. *19:* 280. Chiromo, southern Nyasaland.

Nycticeius hirundo de Winton, 1899 Dark-winged Lesser House Bat

Distribution: recorded from Petauke, Northern Rhodesia, and the Cunene district, southern border of Angola. Kenya, Gold Coast, etc.

Nycticeius hirundo hirundo de Winton, 1899. (Extralimital)

1899. *Scotophilus hirundo* de Winton, Ann. Mag. N.H. *4:* 355. Gambaga, Gold Coast.

Nycticeius hirundo hindei Thomas, 1901

1901. *Scotoecus hindei* Thomas, Ann. Mag. N.H. *7:* 264. Kitui, 3,500 ft., Kenya. Recorded by Pitman from Petauke, Northern Rhodesia.

Nycticeius (?)hirundo albigula Thomas, 1909

1909. *Scotoecus albigula* Thomas, Ann. Mag. N.H. *4:* 544. Kirui, Mt. Elgon, 6,000 ft., Kenya. This or an allied form recorded by Monard from the Cunene district, southern Angola.

Genus **SCOTOPHILUS** Leach, 1821

1821. *Scotophilus* Leach, Trans. Linn. Soc. London, *13:* 69, 71. *Scotophilus kuhli* Leach, from an unknown locality.

1831. *Pachyotus* Gray, Zool. Misc. No. 1, 38. *Scotophilus kuhli* Leach.

The African species were compared with the Asiatic ones by Dobson (1878).

1. Very large, forearm about 85 mm. *Scotophilus gigas*, page 85
   Medium sized, forearm not over 58 mm. ——2

2. Length of the skull about 20–23 mm. *Scotophilus nigrita*, page 85
   Length of the skull about 17–19 mm. *Scotophilus viridis*, page 86

Scotophilus gigas Dobson, 1875 Giant Yellow Bat

Distribution: Nyasaland, and Southern Rhodesia (Odzi, west of Umtali) (B.M.) Nigeria, the Gold Coast.

Scotophilus gigas Dobson, 1875

1875. *Scotophilus gigas* Dobson, Ann. Mag. N.H. *16:* 122. Lagos, southern Nigeria.

Scotophilus nigrita Schreber, 1774

Yellow House Bat. Geeldakvlermuis

Distribution: in the Union, the eastern Cape Province (Grahamstown, King William's Town, Pondoland); Zululand; in the Transvaal, Pretoria, Leydsdorp, Barberton, Klein Letaba, etc. Portuguese East Africa, (districts of Beira, Inhambane, Gorongoza and Tete); Southern Rhodesia, Nyasaland, Northern Rhodesia (Fort Jameson); in South-West Africa, the Kaokoveld, Grootfontein district, western Caprivi, Ovamboland, Damaraland; Serowe, Bechuanaland; Angola (Mossamedes, Humbé and district in the south). Northwards to Tanganyika, Kenya, the Belgian Congo, the Sudan (Kordofan), and westwards to Senegal.

Scotophilus nigrita nigrita Schreber, 1774. (Extralimital)

1774. *Vespertilio nigrita* Schreber, Säugth. *1:* 171, pl. 58. Senegal.

Scotophilus nigrita dingani A. Smith, 1833

1833. *Vespertilio dinganii* A. Smith, S. Afr. J. *2:* 59. Between "Port Natal" (= Durban) and Delagoa Bay (southern Portuguese East Africa).

1852. *Nycticejus planirostris* Peters, Reise nach Mossambique, Säugeth. 65. Tete, on the Zambezi, Portuguese East Africa.

1878. *Scotophilus borbonicus* Dobson, Cat. Chiroptera B.M., 260. Not of E. Geoffroy, 1806.

Range: Natal to Nyasaland and western Transvaal.

Scotophilus nigrita herero Thomas, 1906

1906. *Scotophilus nigrita herero* Thomas, Ann. Mag. N.H. *17:* 174. Olifants Vlei, about 18° S., 17° 30′ W., apparently in Ovamboland, South-West Africa. Roberts quotes specimens from various localities in South-West Africa, also Serowe, eastern Bechuanaland and Pretoria, Transvaal. Ranges to Angola.

Scotophilus nigrita pondoensis Roberts, 1946

1946. *Scotophilus nigrita pondoensis* Roberts, Ann. Transv. Mus. *20:* 304. Port St. Johns, Pondoland, eastern Cape Province.

Scotophilus viridis Peters, 1852 Lesser Yellow Bat. Kleingeelvlermuis

Distribution: northern Zululand; Portuguese East Africa (districts of Inhambane, Beira, Tete), Ngamiland, Damaraland and the Grootfontein district in South-West Africa, Nyasaland, north-eastern Angola. Northwards to Tanganyika.

Scotophilus viridis viridis Peters, 1852

1852. *Nycticejus viridis* Peters, Reise nach Mossambique, Säugeth. 67. Island of Mozambique (north of the Zambezi), 15° S., 40° 42′ E., northern Portuguese East Africa.

Scotophilus viridis damarensis Thomas, 1906

1906. *Scotophilus damarensis* Thomas, Ann. Mag. N.H. *17:* 175. Olifants Vlei, apparently in Ovamboland, South-West Africa. (Roberts lists the type locality of this and *S. nigrita herero* as northern Damaraland but if the latitude and longitude given by Thomas are correct, it would seem to be in Ovamboland.)

Subfamily Miniopterinae

Genus **MINIOPTERUS** Bonaparte, 1837

1837. *Miniopterus* Bonaparte, Fauna Ital. *1:* fasc. 20, under *Vespertilio emarginatus*. *Vespertilio ursinii* Bonaparte = *Vespertilio schreibersii* Kuhl.

We regard the South African *natalensis* as a race of the earlier-named and ubiquitous *M. schreibersi*. Thomas and Roberts thought there were two species, a

larger one and a smaller one, occurring together in the same caves at Knysna, Cape Province (Roberts also records the smaller one from the Barberton district, Transvaal; Hewitt (1931) says it occurs from Knysna to Zululand). The differences between the two, however, are very slight; the forearm length of the smaller one, *fraterculus*, overlaps that of *schreibersi natalensis* in measurements given by Roberts, and at least the larger members of it are within the range of the forearm length for the *schreibersi* group given by Tate, 1941, *Bull. Amer. Mus. N.H. 78:* 568, who revised the Oriental members of the genus. The skull in Roberts' measurements for *schreibersi natalensis* is 14.5 mm. and more, the upper toothrow (canine—M 3) is 5.6 mm. and more; the same for *fraterculus* 14.3 mm. and less; 5.5 mm. and less. We submit that it is possible that *fraterculus* is based merely on small individuals of the local *M. schreibersi.*

Miniopterus schreibersi Kuhl, 1819

Schreiber's Bat. Schreiberse Vlermuis

Distribution: practically the whole Union (Roberts); Natal, including Zululand, Estcourt, Durban; Transvaal, including Rustenburg, Waterberg, Potchefstroom, Warmbath, Wonderfontein, Pretoria, Klein Letaba, Barberton, Tzaneen, etc. In the Cape Province, Kuruman, Little Namaqualand (north of Steinkopf), Knysna, Plettenberg Bay, Grahamstown, King William's Town, East London, etc. Has been recorded from Delagoa Bay, Portuguese East Africa; Bulawayo and Mashonaland, Southern Rhodesia; the central Kalahari and Ngamiland; in South-West Africa, the districts of Gobabis, Grootfontein, the Kaokoveld, the Etosha Pan. Angola; Golungo Alto, Vila da Ponte, etc. Northern Rhodesia, Nyasaland. North of the limits of this work, the Belgian Congo, Kenya, Tanganyika; Algeria; Europe south of the Baltic, southern Russian Turkestan, Palestine, Persia, Cyprus, Ceylon, India, Burma, China, Japan, Malay States, Sumatra, Java, Borneo, Celebes, Philippine Islands to northern Australia.

Miniopterus schreibersi schreibersi Kuhl, 1819. (Extralimital)

1819. *Vespertilio schreibersii* Kuhl, Ann. Wetterau Ges. Naturk, *4*, 2: 185. Kulmbazer Cave, mountains of southern Bannat, Hungary. Recorded from Angola by Hill & Carter.

Miniopterus schreibersi natalensis A. Smith, 1833

1833. *Vespertilio natalensis* A. Smith, S. Afr. J. *2:* 59. Natal (type locality nominated by Roberts as Durban).

1840. *Vespertilio dasythrix* Temminck, Monogr. Mamm. *2:* 268. "Interior of Caffraria."

1846. *Vespertilio scotinus* Sundevall, Öfvers. Vetensk. Akad. Förh. Stockholm, *3*: 119. "Caffraria": Roberts (1951) nominates Durban, Natal as type locality.

(1906. *Miniopterus fraterculus* Thomas & Schwann, P.Z.S. 162. Knysna, southern Cape Province. Recorded also from the Barberton district, Transvaal (Roberts). For discussion see above).

1909. *Miniopterus breyeri* Jameson, Ann. Mag. N.H. *4:* 471. Gatkoppies, Waterberg district, western Transvaal.

1927. *Miniopterus smitianus* Thomas, P.Z.S., 373. Witvlei, 40 miles west of Gobabis, eastern Damaraland, South-West Africa.

Subfamily Kerivoulinae

Genus **KERIVOULA** Gray, 1842

1842. *Kerivoula* Gray, Ann. Mag. N.H. *10:* 258. *Vespertilio pictus* Pallas, from India.
1906. *Phoniscus* Miller, Proc. Biol. Soc. Washington, *18:* 229. *Phoniscus atrox* Miller, from Sumatra. Valid as a subgenus.

Subgenus *KERIVOULA* Gray, 1842

The species *Kerivoula aerosa* Tomes, 1858, P.Z.S., 333, was based on (and is only known from) two specimens said to be from Knysna, southern coast of South Africa. Tomes later (1861, P.Z.S., 32) said that at Leyden Museum he examined a specimen of his *K. aerosa* labelled "Gorontalo" [which is in Celebes]. Roberts, (1951, 76), commented that possibly the type of *aerosa* never came from Africa. We have examined the type of *aerosa*, and certainly the proportions of its upper incisors agree more with the majority of the Oriental species, and are unlike those of the two African species here listed. On the other hand, we have also examined the Gorontalo specimen, which does not agree with the type of *aerosa*, either in size or dentition.

Length of skull 15 mm. and more; forearm 34–39 mm.
Kerivoula argentata, page 88
Length of skull 13.5 mm. and less; forearm 30–35½ mm.
Kerivoula lanosa, page 88

Kerivoula lanosa A. Smith, 1847

Lesser Woolly Bat. Kleiner Wolhaarvlermuis

Distribution: southern Cape Province, Knysna and Pirie (near King William's Town); northern Zululand, Natal; Northern Rhodesia (Ndola), Nyasaland. The southern Belgian Congo.

Kerivoula lanosa lanosa A. Smith, 1847

1847. *Vespertilio lanosus* A. Smith, Illustr. Zool. S. Afr., Mamm. pl. 50 and text. Coast 200 miles east of Cape Town, Cape Province; Knysna (Roberts).
1878. *Kerivoula brunnea* Dobson, Cat. Chiroptera B.M., 334. "South Africa or Madras."

Kerivoula lanosa lucia Hinton, 1920

1920. *Kerivoula lucia* Hinton, Ann. Mag. N.H. *6:* 240. Ndola (near the Congo border), central western Northern Rhodesia. Ranges to Nyasaland and northern Zululand.

Kerivoula argentata Tomes, 1861

Damara Woolly Bat. Damaralandse Wolhaarvlermuis

Distribution: Zululand, Natal; Ovamboland (and Damaraland according to

Roberts), South-West Africa; Boror and the lower Zambezi in Portuguese East Africa; Ndola and Fort Jameson in Northern Rhodesia; Nyasaland; Angola (between Cassange and Bihé, Cuango River, Cazendo); the southern Belgian Congo.

KERIVOULA ARGENTATA ARGENTATA Tomes, 1861

1861. *Kerivoula argentata* Tomes, P.Z.S., 32. Otjoro, Ovamboland, South-West Africa. Ranges eastwards to Nyasaland.

KERIVOULA ARGENTATA NIDICOLA Kirk, 1865

1865. *Nycticejus nidicola* Kirk, P.Z.S. *1864:* 651. Shupanga, on the Zambezi River, 18° S., Portuguese East Africa.

KERIVOULA ARGENTATA ZULUENSIS Roberts, 1924

1924. *Kerivoula nidicola zuluensis* Roberts, Ann. Transv. Mus. *10:* 61. White Umfolosi River, Zululand, Natal.

Not identified:

1832. *Vespertilio epichrysus* Temminck in Smuts, Enum. Mamm. Cap. 106. Cape Town.

1832. *Vespertilio platycephalus* Temminck in Smuts, Enum. Mamm. Cap. 107. Cape Town.

ORDER PRIMATES

(Not including Family Hominidae)

Distinguished by having the hallux or pollex, or both, opposable, the eyes set close together, the orbits ringed by bone and, in the higher members of the group, walled in behind by bone as well; most of the fingers and toes with nails; the canines are the dominant front teeth as a rule, but the dentition is not highly specialized and the diet is usually omnivorous. Size small to relatively large.

See Elliot, 1913, A Review of the Primates.

The classification of Simpson (1945) is followed here.

Generalized and small species with brain of lower type, the orbits ringed by bone but open behind; second hindtoe with claw. Family LORISIDAE (With elongated hindfeet and long tail; Subfamily Galaginae), page 90

Specialized and larger species with brain of higher type, the orbits ringed and walled in behind by bone; all the toes with nails. Family CERCOPITHECIDAE, page 93

SUB-ORDER PROSIMII

FAMILY LORISIDAE

SUBFAMILY Galaginae

Genus **GALAGO** E. Geoffroy, 1796

1796. *Galago* E. Geoffroy, Mag. Encycl. *1:* 49. *Galago senegalensis* E. Geoffroy.
1811. *Otolicnus* Illiger, Prodr. Syst. Mamm. et Avium, 74. *Lemur galago* Schreber = *Galago senegalensis* E. Geoffroy.
1812. *Macropus* G. Fischer, Mém. Soc. Nat. Moscou, *1:* 12. New name for *Galago;* not of Shaw, 1790. (The title page has "1811" but Sherborn has a note in the B.M. copy that the work was not issued until 1812 or possibly early in 1813).
1833. *Galagoides* A. Smith, S. Afr. J. *2:* 32. *Galago demidovii* Fischer (Elliot, 1913, Rev. Primates, *1:* xxix).
1836. *Chirosciurus* Gervais, Dict. Pittoresque H.N. *4:* 617. *Nom. nud.*
1857. *Hemigalago* Dahlbom, Zool. Studier, *1:* 225. *Galago demidovii* Fischer.
1859. *Otolemur* Coquerel, Rev. Zool. Paris, *11:* 458. *Otolemur agisymbanus* Coquerel (a race of *Galago crassicaudatus* E. Geoffroy). Valid as a subgenus.
1863. *Otogale* Gray, P.Z.S. 132. Type by subsequent designation *Otolicnus garnetti* Ogilby, a race of *Galago crassicaudatus* E. Geoffroy.
1863. *Callotus* Gray, P.Z.S., 132. *Callotus monteiri* Gray (a race of *Galago crassicaudatus* E. Geoffroy).
1873. *Sciurocheirus* Gray, P.Z.S. *1872:* 857. *Galago alleni* Waterhouse, from Fernando Po.

For revision of this genus see Schwarz, 1931, *Ann. Mag. N.H. 7:* 41.

Schwarz retained four species, three of which occur in the present region. *G. crassicaudatus* is widely separated morphologically from the remainder, and *Otolemur* Coquerel is available for this species. The name is regarded as a synonym of *Galago* by Schwarz (1931), G. Allen (1939), and Swynnerton & Hayman (1951) but as a full genus by Shortridge (1934), Roberts (1951) and Hill & Carter (1941). Our view is that subgeneric status is indicated.

1. Larger, total length 600 mm. and more. Adult skulls with sagittal crest. Tail thicker and bushier. Skull rather lower and rostrum strong.
Galago (*Otolemur*) *crassicaudatus*, page 92
Smaller, total length 500 mm. and less. No sagittal crest. Tail thinner, less bushy. Skull higher, rostrum weaker. ——2

2. Small species, total length 250–350 mm. Premaxillae elongated.
Galago demidovi, page 91
Larger species, total length not under 355 mm., usually 400 mm. and more. Premaxillae not elongated. *Galago senegalensis*, page 91

Subgenus *GALAGO* E. Geoffroy, 1796

Galago demidovi Fischer, 1806[1] Demidoff's Galago

Distribution: recorded from north-eastern Angola. Tropical Africa from Senegal to Uganda and Tanganyika.

Galago demidovi demidovi Fischer, 1806 (Extralimital).

1806. *Galago demidovii* Fischer, Mém. Soc. Nat. Moscou, *1:* 24. (*N.V.*) Senegal.
1815. *Otolicnus demidoffii* Illiger, Abh. Preuss. Akad. Wiss. *1804–11:* 77. Alternative for *demidovii*.

Galago demidovi phasma Cabrera & Ruxton, 1926

1926. *Galagoides demidoffi phasma* Cabrera & Ruxton, Ann. Mag. N.H. *17:* 596. St. Joseph de Luluabourg, southern Belgian Congo. Recorded from River Kamuanza, near Dundo, north-eastern Angola by Hayman (1951).

Galago senegalensis E. Geoffroy, 1796

Senegal (or Moholi) Galago, Bushbaby or Night-Ape. Nagapie

Distribution: in the Union, apparently confined to the Transvaal where it occurs from the Marico, Rustenburg and Pretoria districts to the Zoutpansberg and the Kruger National Park; Shortridge stated it had been recorded from the Vaal River, near Parys. South-West Africa; the northern districts, from northern Damaraland to the Caprivi, Grootfontein district, etc. Ngamiland, and Gaberones, Bechuanaland. Southern Rhodesia, including Bulawayo and Mazoe; Northern Rhodesia, Nyasaland. Angola (occurs locally throughout). Portuguese East Africa; districts of Beira, Gorongoza, Tete, Inhambane, Lourenço Marques and Boror (north of the Zambezi). North of the region dealt with in this work from the Belgian Congo intermittently westwards to the Gold Coast and Senegal, and most of East Africa to the Sudan and Somaliland.

Galago senegalensis senegalensis E. Geoffroy, 1796. (Extralimital).

1796. *Galago senegalensis* E. Geoffroy, Mag. Encycl. *1:* 38, 49. Senegal.

Galago senegalensis moholi A. Smith, 1836

1836. *Galago moholi* A. Smith, Rept. Exped. Expl. C. Africa, 42. Banks of Marico River, western Transvaal.
1851. *Galago conspicillatus* I. Geoffroy, C.R. Acad. Sci. Paris, *31:* 876. "Port Natal" = Durban, Natal.
1853. *Otolicnus galago* var. *australis* Wagner in Schreber, Säugth. Suppl. *5:* 158. New name for *moholi*.
1876. *Otolicnus mossambicus* Peters, Mber. Preuss. Akad. Wiss., 473, footnote. Tete, south bank of Zambezi, Portuguese East Africa.

[1]Osman Hill (1953) considers that *demidovi* should be separated generically from the other galagos, and uses the name *Galagoides*.

GALAGO SENEGALENSIS MOHOLI [*contd.*]

1907. *Galago nyasae* Elliot, Ann. Mag. N.H. *20:* 188. "Mountains south of Lake Nyasa." "Whether it was obtained in what is now the Nyasaland Protectorate or in Portuguese territory seems impossible to determine." (Moreau, Hopkins & Hayman, 1946.)

1931. *Galago moholi* var. *intontoi* Monard, Bull. Soc. Neuchâtel. Sci. Nat. *55:* 67. Type locality here designated as Rio Mbalé, Kuvangu River, 100 km. S. E. of Vila da Ponte, southern Angola.

1931. *Galago tumbolensis* Monard, *loc. cit. 55:* 68. Tumbolé River, a tributary of the Kutato, about 40 km. east of Vila da Ponte, Angola.

GALAGO SENEGALENSIS GRANTI Thomas & Wroughton, 1907

1907. *Galago granti* Thomas & Wroughton, P.Z.S. 286. Coguno, Inhambane district, southern Portuguese East Africa.

1924. *Galago mertensi* Frade, Bull. Soc. Portug. Sci. Nat. *9:* 128. Chibuto, south-west of Inhambane, southern Portuguese East Africa.

GALAGO SENEGALENSIS BRADFIELDI Roberts, 1931

1931. *Galago moholi bradfieldi* Roberts, Ann. Transv. Mus. *14:* 224. Waterberg, Damaraland, South-West Africa.

Subgenus *OTOLEMUR* Coquerel, 1859

Galago crassicaudatus E. Geoffroy, 1812

Thicktailed (or Large Grey) Bushbaby, Galago or Night-Ape. Bosnagaap

Distribution: in the Union, Natal (Zululand, Durban), Woodbush and Tzaneen, north-eastern Transvaal (Stevenson-Hamilton, *Wild Life in South Africa*, states that both species of *Galago* which occur in the Union occur in the Kruger National Park); Swaziland. Portuguese East Africa, from at least Beira and Gorongoza northwards to Quelimane (north of the Zambezi) and perhaps further. Southern Rhodesia, Salisbury included. Northern Rhodesia, where widely distributed; Nyasaland. Angola, where widely distributed. North of the limits of this work, apparently confined to the eastern side of the continent; Tanganyika, Zanzibar, Kenya and Italian Somaliland.

GALAGO CRASSICAUDATUS CRASSICAUDATUS E. Geoffroy, 1812

1812. *Galago crassicaudatus* E. Geoffroy, Ann. Mus. H.N. Paris, *19:* 166. No locality, but fixed by Thomas, 1917, *Ann. Mag. N.H. 20:* 48 as Quelimane (north of the Zambezi), eastern coast of Portuguese East Africa.

1865. *Otogale crassicaudata* var. *kirkii* Gray, P.Z.S. *1864:* 456. Quelimane, Portuguese East Africa.

Range includes Blantyre, southern Nyasaland.

GALAGO CRASSICAUDATUS GARNETTI Ogilby, 1838

1838. *Otolicnus garnettii* Ogilby, P.Z.S., 6. No locality (described from a living specimen in the Zoological Society's Gardens).

1907. *Galago zuluensis* Elliot, Ann. Mag. N.H. *20:* 186. Zululand, Natal.

Range: Zululand, Natal coastal districts, Swaziland.

GALAGO CRASSICAUDATUS MONTEIRI Gray, 1863

1863. *Callotus monteiri* Gray (ex Bartlett MS), P.Z.S. 145. Cuio Bay (south of Benguela), western Angola.

GALAGO CRASSICAUDATUS UMBROSUS Thomas, 1917

1917. *Galago crassicaudatus umbrosus* Thomas, Ann. Mag. N.H. *20:* 49. Woodbush Mountain, Tzaneen Estate, east of Pietersburg, north-eastern Transvaal.

GALAGO CRASSICAUDATUS LONNBERGI Schwarz, 1930

1930. *Galago crassicaudatus lönnbergi* Schwarz, Ann. Mag. N.H.*5:* 48. Tambarara, Gorongoza Mountains (south of the Zambezi) in western Portuguese East Africa. Range includes Beira, and westwards to Mount Selinda and Salisbury districts, Southern Rhodesia.

SUB-ORDER ANTHROPOIDEA

FAMILY CERCOPITHECIDAE

1. Stomach sacculated for leafeating diet. Thumb vestigial (which character separates the genus from its Asiatic allies). No cheekpouches. In South African species a specialized black and white colour pattern
Subfamily Colobinae: Genus *COLOBUS*, page 94
Stomach not specialized as above described. Thumb not vestigial. With cheekpouches. Subfamily Cercopithecinae——2

2. Face very long, with nostrils terminal. Large animals (the smallest skull quoted by Roberts or by Hill & Carter is 132.3 mm.). Genus *PAPIO*, page 100
Face short, with nostrils not terminal. Smaller animals (the largest skull quoted by Roberts or by Hill & Carter is 126 mm.).
Genus *CERCOPITHECUS*, page 95

In addition, it is possible that the genus *Cercocebus* E. Geoffroy, 1812 (Ann. Mus. H.N. Paris, *19:* 97, type *Cercocebus fuliginosus* E. Geoffroy = *Simia atys* Audebert) occurs in Angola or Northern Rhodesia; from the former Hill & Carter provisionally list *Cercocebus aterrimus* and from the latter Pitman provisionally lists *C. albigena johnstoni;* but so far as we are aware specimens have not yet been taken.

Subfamily Colobinae

Genus **COLOBUS** Illiger, 1811

1811. *Colobus* Illiger, Prodr. Syst. Mamm. et Avium, 69. *Simia polycomos* Schreber = *Cebus polykomos* Zimmermann.
1821. *Colobolus* Gray, London Medical Repository, *15:* 298. For *Colobus.*
1870. *Guereza* Gray, Cat. Monkeys, etc. B.M., 5, 19. *Guereza rüppelli* Gray = *Colobus guereza* Rüppell (a race of *Colobus polykomos* Zimmermann).
1887. *Procolobus* Rochebrune, Faune de la Sénégambie, Suppl. Mammifères, 95. *Colobus verus* Van Beneden (a race of *Colobus badius* Kerr).
1887. *Tropicolobus* Rochebrune, *loc. cit.* 96. *Colobus rufomitratus* Peters.
1887. *Piliocolobus* Rochebrune, *loc. cit.* 96. *Simia ferruginea* Shaw = *Colobus badius* Kerr (J. A. Allen, 1920, *J. Mamm. 1:* 97).
1887. *Stachycolobus* Rochebrune, *loc. cit.* 96. *Colobus satanus* Waterhouse.
1887. *Pterycolobus* Rochebrune, *loc. cit.* 96. *Colobus vellerosus* I. Geoffroy.
1895. *Lophocolobus* Pousargues, Bull. Mus. H.N. Paris, *1:* 98. *Colobus verus* Van Beneden.

G. Allen (1939) retains two species only in this genus, and divides them each into sections of races. One of these species is extralimital to the present region.

Colobus polykomos Zimmermann, 1780

Black and White Colobus, or Guereza Monkey

Approximate distribution: (as understood by G. Allen), Angola, Nyasaland, probably northern parts of Northern Rhodesia; further to the north, Tanganyika to Abyssinia, and the Belgian Congo westwards to Senegal.

All but one of the races here dealt with are referred to the *angolensis* section of *polykomos* by G. Allen; but Hill & Carter, and more lately Swynnerton & Hayman, give *angolensis* specific rank. The form *occidentalis* belongs to the *abyssinicus* section.

See also Schwarz, 1929, On the local races and distribution of the Black and White Colobus Monkeys, *P.Z.S.*, 585.

Colobus polykomos polykomos Zimmermann, 1780. (Extralimital).

1780. *Cebus polykomos* Zimmermann, Geogr. Gesch. *2:* 202. Sierra Leone.

Colobus polykomos angolensis Sclater, 1860

1860. *Colobus angolensis* Sclater, P.Z.S. 245. About 300 miles inland from Bembe, northern Angola.
1908. *Colobus angolensis sandbergi* Lönnberg, Ark. Zool. *4*, 15: 1. Lufizi River, junction with upper Zambezi River, eastern Angola.

Colobus polykomos palliatus Peters, 1868

1868. *Colobus palliatus* Peters, Mber. Preuss. Akad. Wiss. 637. Lower reaches of the Ruvu (or Pangani) River, north-eastern Tanganyika. Recorded by Thomas from Nyasaland.

COLOBUS POLYKOMOS OCCIDENTALIS Rochebrune, 1887

1887. *Guereza occidentalis* Rochebrune, Faune Sénégambie, Suppl. Mamm., 140. Noki, Lower Congo (on south bank, in Angolan territory). Existence in Angola doubtful as there have been no further records.

COLOBUS POLYKOMOS SHARPEI Thomas, 1902

1902. *Colobus sharpei* Thomas, P.Z.S. *1:* 118. Fort Hill (9° 43′ S., 33° 16′ E.), circa 4,000 ft., northern Nyasaland. Ranges to Northern Rhodesia and Tanganyika.

SUBFAMILY Cercopithecinae

Genus **CERCOPITHECUS** Linnaeus, 1758

1758. *Cercopithecus* ("*Cercopitheci*") Linnaeus, Syst. Nat. 10, *1:* 26. *Simia diana* Linnaeus, from West Africa. (Validated by the International Commission on Zoological Nomenclature on 26 July 1948, see Bull. Zool. Nomencl. 1950, *4:* 311.)

1771. *Cercopithecus* Brünnich, Zool. Fundamenta, 34, 40. *Simia mona* Schreber, from West Africa (Palmer, 1904). (But suppressed by International Commission on Zoological Nomenclature, see Bull. Zool. Nomencl. 1950, *4:* 311.)

1811. *Lasiopyga* Illiger, Prodr. Syst. Mamm. et Avium, 68. *Simia nictitans* Linnaeus.

1842. *Miopithecus* I. Geoffroy, C.R. Acad. Sci. Paris, *15:* 720. *Simia talapoin* Schreber.

1853. *Cercocephalus* Temminck, Esquisses Zool. Côte de Guiné, 31. *Cercocephalus cephus* Temminck = *Simia cephus* Linnaeus. *Lapsus calami* for *Cercopithecus*.

1862. *Petaurista* Reichenbach, Völlstand. Naturgesch. Affen, 105. *Simia petaurista* Schreber. Not of Link, 1795.

1862. *Diademia* Reichenbach, *loc. cit.* 107. Type fixed by Pocock, 1907, P.Z.S. 678 *as Simia leucampyx* Fischer = *Cercopithecus mitis* Wolf.

1862. *Mona* Reichenbach, *loc. cit.* 109. *Simia mona* Schreber.

1862. *Callithrix* Reichenbach, *loc. cit.* 115. *Cercopithecus callitrichus* I. Geoffroy = *Simia sabaea* Linnaeus. Not of Erxleben, 1777.

1870. *Chlorocebus* Gray, Cat. Monkeys, etc. B.M., 5, 24. Type fixed by Pocock, 1907, P.Z.S. 678 as *Simia sabaea* Linnaeus (a race of *Cercopithecus aethiops* Linnaeus).

1870. *Cynocebus* Gray, *loc. cit.* 26. *Cercopithecus cynosuros* Geoffroy (a race of *C. aethiops* Linnaeus).

1878. *Diana* Trouessart, Rev. Zool., Paris, *6:* 124. *Simia diana* Linnaeus. Not of Risso, 1826.

1897. *Rhinostictus* Trouessart, Cat. Mamm. Viv. Foss. 17. *Simia petaurista* Schreber (replaces *Petaurista* Reichenbach, preoccupied). *Simia petaurista* is a race of *C. nictitans* Linnaeus.

1897. *Otopithecus* Trouessart, *loc. cit.*, 22. Type fixed by Pocock, 1907, *P.Z.S.* 678 as *Cercopithecus pogonias* Bennett (a race of *C. mona* Schreber).

1904. *Pogonocebus* Trouessart, Cat. Mamm. Viv. Foss. Suppl. 14. Type fixed by Pocock, *loc. cit.*, as *Simia diana* Linnaeus.

1913. *Rhinostigma* Elliot, Review of Primates, Monogr. Amer. Mus. N.H. *1:* xl; *2:* 273. *Cercopithecus hamlyni* Pocock. (For comments see Pocock, 1925, Ann. Mag. N.H. *16:* 264. Elliot confused the type skull of *Cercopithecus hamlyni* with that of *Cercocebus hamlyni* Pocock.)

CERCOPITHECUS [*contd.*]

1913. *Allochrocebus* Elliot, Review of Primates, Monogr. Amer. Mus. N.H. *1:* xl; *2:* 296. *Cercopithecus l'hoesti* Sclater.
1913. *Insignicebus* Elliot, *loc. cit. Cercopithecus albogularis* Sykes (the Zanzibar race of *C. mitis* Wolf).
1913. *Melanocebus* Elliot, *loc. cit.* Substitute for *Diademia* Reichenbach.
1913. *Neocebus* Elliot, *loc. cit. Simia cephus* Linnaeus.

On this genus see:
POCOCK, 1907, *P.Z.S.* 677.
SCHWARZ, 1928, *Ann. Mag. N.H. 1:* 649.
RAVEN & HILL, 1942, Amer. Mus. Novit. *1177:* 1.

Four species occur in South Africa.

1. Small monkey, head and body about 400 mm. or less. Facial part of skull shortened (distance from front of orbit to most anterior point of premaxillary less than 40 per cent of zygomatic breadth (Hill & Carter)).
Cercopithecus talapoin, page 100
Larger monkeys. Facial part of skull longer in adults. ——2

2. A white spot on nose. *Cercopithecus nictitans*, page 99
No white spot on nose. ——3

3. Outer surface of arms black or darker than the back. Limbs and much of the tail predominantly black. *Cercopithecus mitis*, page 98
Outer surface of arms not black, usually rather paler than body. Limbs not predominantly black, tail if black then only in part, at distal end.
Cercopithecus aethiops, page 96

Cercopithecus aethiops Linnaeus, 1758 Vervet Monkey. Blouaap

Distribution: in the Union, the Transvaal; Kruger National Park where widely distributed (Punda Maria, Shingwedzi, Satara, Skukuza, Toulon,[1] etc., apparently particularly common at Pafuri (north of Punda Maria)), the adjacent portions of the eastern Transvaal (Mariepskop, etc.), and the Rustenburg district, western Transvaal. Natal, including Zululand. In the Cape Province, Port St. Johns, Albany district, Knysna, between Vryburg and Kuruman, along the Vaal River (we are told it occurs west of Kimberley), the Aughrabies Falls, Louisvale (near Upington, western Orange River), and Goodhouse (on Orange River, Little Namaqualand). Hewitt (1931) states that it "occurs commonly in bush districts near rivers throughout the coastal and adjacent region" of the eastern Cape Province. (This species seems always to occur near banks of rivers.) A monkey (of this species?) is common near Durban. South-West Africa; the districts watered by the Orange River (in the south), and the Cunene, Okavango, Chobe and Zambezi rivers (in the north). Portuguese East Africa; districts of Beira, Gorongoza, Tete, Inhambane included.

[1] Toulon is a privately-owned estate situated near but just outside the south-western borders of the Kruger National Park.

Nyasaland; Ndola, etc., Northern Rhodesia. Angola; probably along the rivers throughout Angola, but apparently rare in the western half of the country (Hill & Carter). Beyond the limits of this work, widely distributed south of the Sahara, to Senegal on the west, Darfur (Sudan) and Abyssinia on the east.

CERCOPITHECUS AETHIOPS AETHIOPS Linnaeus, 1758. (Extralimital)

1758. *Simia aethiops* Linnaeus, Syst. Nat. 10th ed. *1:* 28. "Aethiopia." Sennaar, Sudan (Schwarz, 1926).

CERCOPITHECUS AETHIOPS CYNOSUROS Scopoli, 1786

1786. *Simia cynosuros* Scopoli, Deliciae Faunae et Florae Insubricae, *1:* 44. No locality, but fixed as Banana, Lower Congo, Belgian Congo (Schwarz, 1926, Z. Säuget. *1:* 46).

1909. *Cercopithecus silaceus* Elliot, Ann. Mag. N.H. *4:* 263. South bank of the Dwanga River, Nyasaland, between 12° 35′ S. and 12° 52′ S., 32° 2′ E. and 33° 45′ E., see Moreau, Hopkins & Hayman, 1946, P.Z.S. *115:* 402.

Range also includes Angola.

CERCOPITHECUS AETHIOPS PYGERYTHRUS F. Cuvier, 1821

1821. *Simia pygerythra* F. Cuvier in Geoffroy & Cuvier, H.N. Mamm. *2:* pt. 24: "Vervet," 2. "Africa."

1811. *Cercopithecus glaucus* Lichtenstein, Reisen Südl. Africa, *1:* 645, *nom. nud.*

1822. *Cercopithecus pygerithraeus* Desmarest, Encycl. Méth. Mamm. *2:* 534. Cape of Good Hope.

1825. *Cercopithecus pusillus* Desmoulins, Dict. Class. H.N. *7:* 568. Keiskama, near Great Fish River, Albany district, eastern Cape Province.

1826. *Cercopithecus faunus* A. Smith, Descript. Cat. S. Afr. Mus. 4. Not of Linnaeus, 1766.

1829. *Simia erythropyga* G. Cuvier, Règne Anim. ed. 2, *1:* 92. New name for *pygerythrus.*

1843. *Cercopithecus lalandii* I. Geoffroy, Arch. Mus. H.N. Paris, *2:* 561. New name for *pusillus.*

Range: eastern and southern Cape Province to Natal.

CERCOPITHECUS AETHIOPS RUFOVIRIDIS I. Geoffroy, 1843

1843. *Cercopithecus rufo-viridis* I. Geoffroy, Arch. Mus. H.N. Paris, *2:* 564. "Africa."

1852. *Cercopithecus flavidus* Peters, Reise nach Mossambique, Säugeth. 3. Quitangonha, 15° S. (north of the Zambezi), Mozambique, northern Portuguese East Africa.

1907. *Cercopithecus pygerythrus whytei* Pocock, P.Z.S. 738. Mount Chiradzulu, Nyasaland. (See Moreau, Hopkins & Hayman, 1946, 402.)

CERCOPITHECUS AETHIOPS HELVESCENS Thomas, 1926

1926. *Cercopithecus pygerythrus helvescens* Thomas, P.Z.S., 286. Cunene Falls, Angolan border of extreme northern South-West Africa.

CERCOPITHECUS AETHIOPS CLOETEI Roberts, 1931

1931. *Cercopithecus aethiops cloetei* Roberts, Ann. Transv. Mus. *14:* 223. Mariepskop, Pilgrims Rest district (north-east of Lydenburg), eastern Transvaal. Range includes Zululand and western Transvaal.

CERCOPITHECUS AETHIOPS NGAMIENSIS Roberts, 1932

1932. *Cercopithecus aethiops ngamiensis* Roberts, Ann. Transv. Mus. *15:* 19. Toten-Maun Road, Ngamiland, northern Bechuanaland.

CERCOPITHECUS AETHIOPS MARJORIAE Bradfield, 1936

1936. *Cerpithecus* (*sic*) *aethiops marjoriae* Bradfield, in a privately-printed leaflet, dated Benoni, South Africa, 26 Sept. 1935. Reprinted in the Auk, *53:* 131, 1936. Zoetvlei, between Kuruman and Vryburg, northern Cape Province. The range perhaps includes the western Orange River.

Cercopithecus mitis Wolf, 1822

Samango Monkey; Diademed Monkey. Samangoaap

Distribution: in the Union, Zululand, Natal, the eastern Transvaal (Woodbush and Pilgrims Rest district), and the eastern Cape Province ("in densest forest at Pirie and in Pondoland, also at the coast near East London" (Hewitt, 1931)), Stutterheim (British Museum). Eastern parts of Southern Rhodesia; Portuguese East Africa, districts of Beira, Gorongoza, Inhambane; northern Angola; Nyasaland, northwestern Northern Rhodesia. Beyond the limits of this work, the Belgian Congo and Tanganyika to southern Abyssinia and Italian Somaliland.

CERCOPITHECUS MITIS MITIS Wolf, 1822

1822. *Cercopithecus mitis* Wolf, Abbildungen u. Beschreibungen merkwürdiger naturg. Gegenstände, *2:* 145. Schwarz (1933, Z. Säugetierk. *8:* 279) identified this description of a menagerie specimen as the Angolan form of the Diademed Monkey.

1829. *Simia leucampyx* Fischer, Synops. Mamm. 20. "In Guinea," but "perhaps, after all, Angola" (Schwarz, 1928, Ann. Mag. N.H. *1:* 653).

1848. *Cercopithecus pluto* Gray, P.Z.S. 56. Angola.

CERCOPITHECUS MITIS LABIATUS I. Geoffroy, 1843

1843. *Cercopithecus labiatus* I. Geoffroy, Arch. Mus. H.N. Paris, *2:* 555. (South) Africa.

1844. *Cercopithecus samango* Wahlberg in Sundevall, Öfvers. Vetensk. Akad. Förh. Stockholm, *1:* 160. Inland of "Port Natal" (= Durban), Natal.

1853. *Cercopithecus chimango* Temminck, Esq. Zool. Côte de Guiné, 32. Emendation.

Range: eastern Cape Province to Zululand.

CERCOPITHECUS MITIS ERYTHRARCHUS Peters, 1852

1852. *Cercopithecus erythrarchus* Peters, Reise nach Mossambique, Säugeth. 1. Inhambane, coastal southern Portuguese East Africa.

1893. *Cercopithecus stairsi* Sclater, P.Z.S. *1892:* 580. Delta of the Zambezi, Portuguese East Africa.

1900. *Cercopithecus albigularis* Sclater, Faun. S. Afr. Mammals, *1:* 6, 11. Not of Sykes, 1831.
1907. *Cercopithecus albogularis beirensis* Pocock, P.Z.S., 701. Beira, Portuguese East Africa.
1907. *Cercopithecus stairsi mossambicus* Pocock, P.Z.S., 705. Mozambique.
Range: northwards to the Zambezi, westwards to Gorongoza and Umtali, Southern Rhodesia.

Cercopithecus mitis moloneyi Sclater, 1893
1893. *Cercopithecus moloneyi* Sclater, P.Z.S., 252. Karonga, north-western shore of Lake Nyasa, 9° 56′ S., 33° 56′ E., northern Nyasaland.
1902. *Cercopithecus francescae* Thomas, Ann. Mag. N.H. *10:* 243. Near Mt. Waller, western side of Lake Nyasa, Nyasaland.
Ranges to Northern Rhodesia and south-western Tanganyika.

Cercopithecus mitis opisthostictus Sclater, 1894
1894. *Cercopithecus opisthostictus* Sclater, P.Z.S. *1893:* 725. Lake Mweru, Northern Rhodesia.

Cercopithecus mitis nyasae Schwarz, 1928
1928. *Cercopithecus leucampyx nyasae* Schwarz, Ann. Mag. N.H. *1:* 656. Fort Lister, Mlanje, extreme southern Nyasaland.

Cercopithecus mitis schwarzi Roberts, 1931
1931. *Cercopithecus leucampyx schwarzi* Roberts, Ann. Transv. Mus. *14:* 222. Marieps-kop, Pilgrims Rest district, eastern Transvaal. Range includes Woodbush, eastern Transvaal.

Cercopithecus mitis stevensoni Roberts, 1948
1948. *Cercopithecus mitis stevensoni* Roberts, Ann. Transv. Mus. *21:* 63. Mount Selinda, Melsetter district, eastern Southern Rhodesia.

Cercopithecus nictitans Linnaeus, 1766 White-nosed Monkey

Distribution: northern Angola, chiefly in heavy forests, the Mwinilunga district of Northern Rhodesia, and further to the north, from Kenya, Uganda and Tanganyika through tropical West Africa at least to Liberia.

Cercopithecus nictitans nictitans Linnaeus, 1766. (Extralimital)
1766. *Simia nictitans* Linnaeus, Syst. Nat. 12th ed. *1:* 40. "Guinea," West Africa.

Cercopithecus nictitans ascanius Audebert, 1799
1799. *Simia ascanius* Audebert, H.N. des Singes, fam. 4, sect. 2, fig. 13. "Guinée."
1845. *Cercopithecus melanogenys* Gray, Ann. Mag. N.H. *16:* 212. Western Africa; probably Angola.
1886. *Cercopithecus picturatus* Santos, J. Sci. Math. Phys. Nat. Lisboa, *11:* 98. Quipampala, 6 miles from Ambriz, northern Angola.
Range includes Angola and the Belgian Congo.

Cercopithecus talapoin Schreber, 1774 Talapoin Monkey

Distribution: northern Angola, as far south as Hanha. Belgian Congo, Cameroons.

CERCOPITHECUS TALAPOIN TALAPOIN Schreber, 1774. (Extralimital)

1774. *Simia talapoin* Schreber, Säugth. pl. 17; text, *1:* 101 (vernacular) and 186. Benito River, Spanish Guinea (Pocock).

CERCOPITHECUS TALAPOIN ANSORGEI Pocock, 1907

1907. *Cercopithecus talapoin ansorgei* Pocock, P.Z.S. 742. Cambaca (= Canhoca), Angola.

Genus **PAPIO** Müller, 1773

1762. *Papio* Brisson, Regn. Anim. 136. *Papio papio* Brisson = *Simia sphinx* Linnaeus (But of doubtful validity; see Ellerman & Morrison-Scott, 1951, 3).
1773. *Papio* Müller, Vollständ. Natursyst. *1:* 118. *Simia sphinx* Linnaeus, the West African Mandrill. (Hopwood, 1947, *P.Z.S. 117:* 533 dates this name from 1776, and fixes the type species.)
1824. *Mandrillus* Ritgen, Nat. Eintheil. Säugeth. 33 (Tafel) (*teste* Palmer.) *Simia maimon* Linnaeus and *Simia mormon* Alströmer, both of which are synonyms of *Simia sphinx* Linnaeus, according to G. Allen.
1839. *Chaeropithecus* Gervais, Dict. Pittor. H.N. *8:* 90. (Prior to 11 May.) *Simia cynocephalus* Linnaeus. Valid as a subgenus.
1839. *Choeropithecus* Blainville, Ostéogr. Mamm. *Pithecus*, 39. (14 June.) *Simia cynocephalus* Linnaeus.
1862. *Choiropithecus* Reichenbach, Vollständ. Nat. Affen, 151. *Simia porcaria* Boddaert = *Simia hamadryas ursinus* Kerr.
1862. *Drill* Reichenbach, Vollständ. Nat. Affen., 162. *Simia leucophaea* F. Cuvier, from West Africa.
1925. *Comopithecus* J. Allen, Bull. Amer. Mus. N.H. *47:* 312. *Simia hamadryas* Linnaeus. Valid as a subgenus.

The South African species both have well developed tails, and their faces are not brightly coloured (compare the typical subgenus), and both lack the heavy mantle of hair on the head and shoulders, compare subgenus *Comopithecus*.

In the majority of adult male skulls the muzzle length (front of premaxillae to back of nasals) does not reach 123 mm. (two exceptions in eight skulls).
Papio (*Chaeropithecus*) *cynocephalus*, page 101

In the majority of adult male skulls the muzzle length is not less than 123 mm. (four exceptions in 62 skulls). *Papio* (*Chaeropithecus*) *ursinus*, page 101

These two species are very difficult to distinguish; *P. cynocephalus* has priority if it is desired to merge them, but they appear to occur together in Tanganyika. Other characters given to divide the species by Roberts and by Hill & Carter appear

invalid when all available specimens are examined. A series from Tambarara, Gorongoza district, Portuguese East Africa which was referred to *cynocephalus* by Thomas & Wroughton seem to represent *P. ursinus*.

Subgenus *CHAEROPITHECUS* Gervais, 1839

Papio cynocephalus Linnaeus, 1766. Yellow Baboon. Geelbobbejaan

Distribution: Portuguese territory north of the Zambezi; apparently common in Northern Rhodesia; Nyasaland; Central Angola (Chitau, Mombolo, etc.). Further to the north, Tanganyika, Kenya, the Belgian Congo.

Papio cynocephalus cynocephalus Linnaeus, 1766

1766. *Simia cynocephalus* Linnaeus, Syst. Nat. ed. 12, *1:* 38. Africa; regarded by Anderson (1902, Zool. of Egypt, Mamm. 64) as having come from inland from Mombasa, Kenya.

1852. *Cercopithecus ochraceus* Peters, Reise nach Mossambique, Säugeth. 2. "Querimba, 10° to 13° S.", Mozambique, Portuguese East Africa.

(1928. *Papio cynocephalus jubilaeus* Schwarz, Z. Säugetierk, *3:* 211. Missale, 14° S., 33° 10′ E. "north-eastern Rhodesia" but actually in Portuguese East Africa according to Moreau, Hopkins & Hayman, 1946, 405. Roberts (1951) thought this form might be a synonym of *cynocephalus*; he states that Schwarz synonymized it with (*ursinus*) *griseipes* but was "clearly in error" in doing so.)

Range includes Tanganyika and Nyasaland. For further synonyms, either extralimital to this list or from unknown localities, see G. Allen, 1939.

Papio cynocephalus pruinosus Thomas, 1897

1897. *Papio pruinosus* Thomas, P.Z.S. *1896:* 789. Fort Johnston = Lesumbwe, Monkey Bay, southern end of Lake Nyasa, Nyasaland.

Papio cynocephalus kindae Lönnberg, 1919

1919. *Papio kindae* Lönnberg, Rev. Zool. Afr. *7:* 147. Kinda, Lulua district, Belgian Congo. Ranges into Angola.

Papio ursinus Kerr, 1792 Chacma Baboon. Kaapse Bobbejaan

Distribution: widely but sporadically distributed in suitable localities in the Union; in the Transvaal, the Kruger National Park (Punda Maria, Shingwedzi, Satara, Skukuza, Pretorius Kop districts, etc.); districts of Rustenburg, Zoutpansberg, Drakensberg, Vaal River near Potchefstroom; Zululand, Natal (probably also the Giants Castle reserve in Natal). Basutoland. In the Cape Province, the Aughrabies Falls, west of Kimberley, Little Namaqualand (the Kamiesberg and Steinkopf), north of Citrusdal, near Cape Town (Hangklip, Hout Bay, Cape Point reserve), between the Cango Caves and Oudtshoorn, the mountains west of Matjesfontein, Knysna, Queenstown, Albany, Graaff Reinet, and according to Hewitt, Middelburg and Colesberg. The British Museum has specimens from Plettenberg Bay, Kokstad and Deelfontein. Portuguese East Africa; Inhambane and Gorongoza districts. Southern

Rhodesia (Marandellas, south of Salisbury, Mt. Selinda, Roberts). Northern Bechuanaland; in South West Africa Baboons are "widely distributed over the rocky and mountainous parts . . . from the Orange River to the Cunene" (Shortridge, 1934). South-western Angola (recorded as far north as Hanha). Nyasaland. Also represented in Tanganyika, Kenya, Uganda, the Sudan, Asben, Abyssinia, etc., under the name *anubis* (or *doguera*) and subspecies.

PAPIO URSINUS URSINUS Kerr, 1792

1792. *S(imia) Cercopithecus hamadryas ursinus* Kerr, Anim. Kingd. 63. Cape of Good Hope.

1787. *Simia porcaria* Boddaert, Naturforscher. *22:* 17. Africa. Not of Brünnich, 1782.

1804. *Simia sphingiola* Hermann, Observ. Zool. *1:* 2. No locality.

1812. *Papio comatus* E. Geoffroy, Ann. Mus. H.N. Paris, *19:* 103. Cape of Good Hope. Renaming of *sphingiola.*

1826. *Cynocephalus capensis* A. Smith, Descript. Cat. S. Afr. Mus., 3. Cape of Good Hope.

Range: Cape Province from Graaff Reinet and Knysna westwards.

PAPIO URSINUS STREPITUS Elliot, 1907

1907. *Papio strepitus* Elliot, Ann. Mag. N.H. *20:* 194. Fort Johnston, southern end of Lake Nyasa, Nyasaland.

PAPIO URSINUS GRISEIPES Pocock, 1911

1911. *Papio porcarius griseipes* Pocock, Abstr. P.Z.S. No. 93: 17; P.Z.S., 558. Potchefstroom, western Transvaal (?error—see Schwarz, 1934, Ann. Mag. N.H. *14:* 260, who suggests Messina (north of the Zoutpansberg), extreme northern Transvaal).

1927. *Choiropithecus porcarius transvaalensis* Zukowsky, Carl Hagenbecks Illustrierte Tier-u. Menschenwelt (Hamburg), *2:* 57. Messina, northern Transvaal.

Range: Limpopo valley north of Zoutpansberg and Southern Rhodesia to Mount Selinda and Marandellas districts at least (Roberts).

PAPIO URSINUS RHODESIAE Haagner, 1918

1918. *Choiropithecus rhodesiae* Haagner, S. African J.N.H. *1:* 83. Locality not known; "Central Rhodesia."

PAPIO URSINUS OCCIDENTALIS Goldblatt, 1926

1926. *Papio porcarius occidentalis* Goldblatt, S. Afr. J. Sci. *23:* 782. Rustenburg, western Transvaal. (Schwarz, 1934, Ann. Mag. N.H. *14:* 259).

1932. *Papio porcarius nigripes* Roberts, Ann. Transv. Mus. *15:* 19. Magalakuin River (or Magalaqueen River) (north-west of Potgietersrust), western Transvaal.

PAPIO URSINUS ORIENTALIS Goldblatt, 1926

1926. *Papio porcarius orientalis* Goldblatt, S. Afr. J. Sci. *23:* 782. Queenstown, eastern Cape Province (Schwarz, 1934, Ann. Mag. N.H. *14:* 259). Range: eastern Cape Province (Albany, Queenstown, etc.) to Zululand and the Drakensberg.

Papio ursinus ngamiensis Roberts, 1932

1932. *Papio porcarius ngamiensis* Roberts, Ann. Transv. Mus. *15:* 18. Maun, Tamalakane River, Ngamiland, northern Bechuanaland.

Papio ursinus chobiensis Roberts, 1932

1932. *Papio porcarius chobiensis* Roberts, Ann. Transv. Mus. *15:* 18. Kabulabula, Chobe River, northern Bechuanaland.

Papio ursinus ruacana Shortridge, 1942

1942. *Papio comatus ruacana* Shortridge, Ann. S. Afr. Mus. *36:* 80. Damaraland, the Kaokoveld, and south-western Angola. Type from the Kaokoveld, northern South-West Africa, according to Roberts, 1951, 537.

ORDER PHOLIDOTA

For the continued use of Pholidota Weber, 1904, in spite of its preoccupation in the Reptilia, see Simpson (1945; 195).

Medium-sized mammals with no teeth; fingers and toes with claws, body covered with scales, eyes and ears small, zygoma imperfect, face somewhat lengthened. Appearance somewhat reptilian.

FAMILY MANIDAE

For a classification of this family and keys to all living subgenera see Pocock, 1924, The External Characters of the Pangolins (Manidae) *P.Z.S.* 707. Simpson (1945), Ellerman & Morrison-Scott (1951) and others refer all Pangolins to a single genus.

Genus **MANIS** Linnaeus, 1758

1758. *Manis* Linnaeus, Syst. Nat. 10th ed. *1:* 36. *Manis pentadactyla* Linnaeus, from Formosa.
1821. *Phataginus* Rafinesque, Ann. Sci. Phys. Brux. *7:* 214. *Manis tricuspis* Rafinesque. Valid as a subgenus.
1865. *Phatagin* Gray, P.Z.S., 363. *Manis tricuspis* Rafinesque.
1865. *Smutsia* Gray, P.Z.S., 369. *Manis temmincki* Smuts. Valid as a subgenus.
1872. *Triglochinopholis* Fitzinger, S.B. Akad. Wiss. Wien, *65*, 1: 27. *Manis tricuspis* Rafinesque.
1924. *Uromanis* Pocock, P.Z.S. 722. *Manis longicaudata* Brisson (unavailable) = *Manis tetradactyla* Linnaeus, from West Africa. Valid as a subgenus.

Tail shorter than head and body; scales larger, 40 mm. wide, or wider, in middle of the back; 4–7 scales in the median dorsal line of the tail.
Manis (*Smutsia*) *temmincki*, page 104

Tail longer than head and body; scales smaller, 20 mm. wide, or narrower, in the middle of the back; 30–33 scales in the median dorsal line of the tail.
Manis (*Phataginus*) *tricuspis*, page 104

Subgenus *SMUTSIA* Gray, 1865

For characters see Pocock (1924). There are two species in this subgenus, of which the earlier-named is the West African *Manis gigantea* Illiger, with which *M. temmincki* has sometimes been regarded as conspecific. But the latter is smaller and has 4–7 scales in the median dorsal line of the tail, as opposed to 11–15 in *M. gigantea*. For an account of other differences between the two see Frechkop, 1931, *Bull. Mus. Hist. Nat. Belg.* 7, No. 22.

Manis temmincki Smuts, 1832

Cape Pangolin (Scaly Anteater). Ietermagog

Distribution: in the Union, it is known from the Kruger National Park, Transvaal (Toulon, etc.), the Orange Free State, and the region of Upington, Cape Province. Roberts says that it has been reported from northern Zululand, and it has been recorded from as far south as Colesberg (though probably not in recent years). In South-West Africa it apparently occurs intermittently from Great Namaqualand to the Kaokoveld ("in its wide but sporadic distribution it may be compared with the Hedgehog" (Shortridge)). Angola; recent records include Chitau, Mombola, Benguela and between the Kului and Kubango Rivers. Bechuanaland, Ngamiland; Southern Rhodesia, Nyasaland and recorded from Northern Rhodesia. Beyond the limits of this work, Tanganyika where quite widely distributed, also recorded from Uganda, Kenya and the Sudan.

MANIS TEMMINCKI Smuts, 1832

1832. *Manis temminckii* Smuts, Enum. Mamm. Cap., 54. Beyond "Lataku" (or Litakun), near Kuruman, northern Cape Province.

Subgenus *PHATAGINUS* Rafinesque, 1821

Manis tricuspis Rafinesque, 1821 Tree Pangolin

Distribution: Tropical Africa from Central Angola and Uganda to Liberia.

MANIS TRICUSPIS Rafinesque, 1821

1821. *Manis tricuspis* Rafinesque, Ann. Sci. Phys. Brux. *7:* 215. West Africa ("Guinée").

1843. *Manis multiscutata* Gray, P.Z.S. 22. Western Africa.

1850. *Manis tridentata* Focillon, Rev. Zool. Paris, *2:* 472. Coast of Mozambique.

ORDER CARNIVORA

Medium-sized or relatively large mammals usually with rather long limbs, the fingers and toes with claws; relatively complex brain structure; usually 3 upper and lower incisors, and canines always present and the dominant front teeth; the main cheekteeth specialized for carnivorous diet; normally the fourth upper premolar and the first lower molar specialized as carnassial, or flesh-tearing, teeth (if not, as in *Proteles*, then the limbs relatively long).

Simpson (1945) divided living members of this order into two super-families, the Canoidea (containing the Canidae and Mustelidae), and the Feloidea (containing the Viverridae, Felidae, Protelidae and Hyaenidae). He also included the Pinnipedia in this order, but for general reasons (*vide* Ellerman & Morrison-Scott, 1951), we prefer to retain that group as a distinct order.

1. All the cheekteeth rudimentary. (Limbs long; 5 fingers and 4 toes; body striped, back maned, ears large and pointed).
   Family PROTELIDAE,[1] page 140
   The cheekteeth well developed. ——2
2. The upper carnassial (P 4) the dominant cheektooth; postero-internally to it is one very small, practically functionless molar, which may be shed. ——3
   At least one well-developed and functional upper molar. ——4
3. Face long; jaws very powerful; usually 34 teeth. Limbs long, with 4 fingers and toes. Family HYAENIDAE, page 141
   Face relatively short, usually 28 or 30 teeth. Limbs long, with 5 fingers, 4 toes.
   Family FELIDAE, page 143
4. Limbs lengthened and adapted for running; 4 toes, 4 or 5 fingers (but the pollex, when present, does not reach the ground). Skull long; molars (in South African genera) at least 2/3. Ears large and erect (80 mm. and more).
   Family CANIDAE, page 106
   Limbs not particularly adapted for running, usually rather short. Molars 2/2 or less. Ears rather short (70 mm. and less). ——5
5. Only one upper molar. In South Africa, either considerably modified for aquatic life, or with conspicuous black and white colour pattern. Bullae not divided into two compartments. Five fingers and toes.
   Family MUSTELIDAE, page 110
   Two upper molars (in South Africa). Bullae either rudimentary or divided into two compartments. Not modified for aquatic life; no black and white colour pattern. Number of fingers and toes vary, but not less than 4 of each.
   Family VIVERRIDAE, page 117

[1] Simpson (1945) referred *Proteles*, as the type of a special subfamily, to the Hyaenidae. But we do not agree with this classification. Dentally *Proteles* and the hyaenas are far apart, the teeth of the latter being amongst the strongest in the order, and those of *Proteles* being certainly the weakest; in the extreme reduction of the cheekteeth *Proteles* differs from all other Carnivora of Europe, Asia and Africa. All recent authors on African fauna are agreed in giving *Proteles* family rank; and because the genus looks like a small hyaena it does not necessarily mean that it is a hyaena. Winge (1924) thought that it was a modified mongoose (Viverridae, Herpestini).

FAMILY CANIDAE

1. Cheekteeth at full dentition 8/8 in number (7/8 in most skulls examined), the carnassial teeth scarcely differentiated. Ears much enlarged (114–135 mm. although the head and body is 580 mm. and less).
Subfamily Otocyoninae; Genus *OTOCYON*, page 106

Cheekteeth not more than 6/7, the carnassials well differentiated. Ears more moderate in size; if the ear is as much as 114 mm. (in South Africa) then the head and body is at least 749 mm. Subfamily Caninae——2

2. No pollex. Large species, skull about 180–221 mm. Ears broad and more rounded; body irregularly mottled with black or dark brown, buffy yellow and white. Skull powerful and muscularly developed, with strong sagittal crest.
Genus *LYCAON*, page 109

With a small pollex. Smaller species, skull about 175 mm. and less (in South Africa). Colour pattern different, not marked with black, yellow and white. Skull with weaker sagittal crest, less muscularly developed. ——3

3. Frontals flat, postorbital processes concave above. In South Africa (but not always so elsewhere) distinguished by smaller size, skull less than 120 mm. South African species normally with black-tipped tail, and no dark saddlepatch on the back. Genus *VULPES*, page 107

Frontals elevated, postorbital processes convex above. In South African species, skull more than 130 mm. Externally, in South Africa, distinguished from the local *Vulpes* either by white-tipped tail or by dark saddlepatch on back.
Genus *CANIS*,[1] page 108

Subfamily Otocyoninae

Genus **OTOCYON** Müller, 1836

1836. *Otocyon* Müller, Arch. Anat. Physiol. *1836:* L. *Otocyon caffer* Müller = *Canis megalotis* Desmarest.
1840. *Agriodus* H. Smith, Jardine's Nat. Library, *28:* 258. *Agriodus auritus* H. Smith = *Canis megalotis* Desmarest.

Otocyon megalotis Desmarest, 1822

Bat-eared Fox; Delalande's Fox. Draaijakkals; Bakoorjakkals

Distribution: in the Union it now appears to be rare; we are told it still occurs in the Orange Free State (near Wepener), and near Upington, northern Cape Province. Shortridge (1942) recorded it from Port Nolloth, coastal Little Namaqualand, where it was then said to be rare; other possible localities are the western Transvaal and Bushmanland. Hewitt (1931) stated "found only rarely in the eastern Karroo-Tafelberg" (= near Middelburg?) South-West Africa; Shortridge (1934) stated that

[1] Some authors have preferred to refer the Jackals to *Thos* Oken, but Pocock, Miller and other authors treat this as a synonym.

it occurs all over this territory, except perhaps along the coastal portion of the Namib desert. Southern Angola. Plentiful in Bechuanaland (Shortridge). Perhaps western Southern Rhodesia. North of the limits of this work, East Africa, where it occurs from Tanganyika northwards to the southern Sudan, Abyssinia and Somaliland.

Otocyon megalotis megalotis Desmarest, 1822

1822. *Canis megalotis* Desmarest, Enc. Méth. Mamm. Suppl., 538. Cape of Good Hope. (For date of publication see Sherborn & Woodward, 1893, P.Z.S., 584.)
1823. *Canis lalandi* Desmoulins, Dict. Class. H.N. *4:* 18. "Cafrerie" = South Africa.
1836. *Otocyon caffer* Müller, Arch. Anat. Physiol. *1836:* L. Renaming of *megalotis*.
1840. *Agriodus auritus* H. Smith, Jardine's Nat. Library, *28:* 260. Cape of Good Hope.
1924. *Otocyon steinhardti* Zukowsky, Arch. Naturgesch. *90A*, 1: 52. Goreis, Ugab region, 45 km. west of Outjo (about 20° S.), South-West Africa.

Subfamily Caninae

Genus **VULPES** Oken, 1816

1816. *Vulpes* Oken, Lehrb. Naturgesch. *3*, 2: 1033, 1034. *Vulpes communis* Oken = *Canis vulpes* Linnaeus, from Sweden.
1822. *Vulpes* Fleming, Philosophy of Zool. Edinburgh, *2:* 184. *Canis vulpes* Linnaeus.
1839. *Cynalopex* H. Smith, Jardine's Nat. Library, *25:* 222. *Canis corsac* Linnaeus, from the steppes between the Ural and Irtish rivers, western Siberia.

On the name of this genus see Ellerman & Morrison-Scott, 1951, 3. For a key to all species of the genus from Europe, Asia and Africa see Ellerman & Morrison-Scott, 1951, 223, 224. The South African species seems most closely allied to *Vulpes bengalensis* (Shaw, 1800, from India), but differs in having larger ears.

Vulpes chama A. Smith, 1833 Cape Fox. Silwerjakkals

Distribution: Roberts says this species ranges practically all over the dry areas of the west, from the inland plateau of the south to northern South-West Africa, and through the Orange Free State to Transvaal and western Southern Rhodesia, extending over the Drakensberg. Its distribution is however smaller than formerly in the Union. It is thought to be extinct in the Cape Town neighbourhood (though once ranging as far south as Caledon), and it appears to be absent from the Kruger National Park. Shortridge (1942) recorded it from near Clanwilliam, 10 miles inland from Lamberts Bay, and Port Nolloth, Little Namaqualand. The British Museum has specimens from Klipfontein, Little Namaqualand, Louisvale (near Upington), also Vredefort and Aberfeldy (near Harrismith), Orange Free State; also a skull collected many years ago at Beaufort West. Hewitt (1931) said it was comparatively rare on the eastern Karroo. We are told it still occurs near Wepener (Orange Free State). Conway, near Cradock (Shortridge, 1934). South-West Africa; widely distributed (except in the northern parts of the Grootfontein district, the

Caprivi and perhaps the coastal edge of the Namib desert (Shortridge)). Angola; the British Museum has one specimen from Elephant Bay. Possibly western Southern Rhodesia.

VULPES CHAMA A. Smith, 1833

1833. *Canis chama* A. Smith, S. Afr. J. *2:* 89. Namaqualand (and country on both sides of the Orange River).
1839. *Megalotis caama* H. Smith, Jardine's Nat. Library, *25:* 236. South Africa.
1861. *Canis variegatoides* Layard, Cat. Mamm. S. Af. Mus. (*N.V., fide* Roberts). Not of A. Smith, 1834.
1910. *Megalotis hodsoni* Noack, Zool. Anz. *35:* 461. Transvaal.[1]

Genus **CANIS** Linnaeus, 1758

1758. *Canis* Linnaeus, Syst. Nat. 10th ed. *1:* 38. *Canis familiaris* Linnaeus, the domestic Dog.
1816. *Thos* Oken, Lehrb. Naturgesch, *3,* 2: 1037. *Thos vulgaris* Oken = *Canis aureus* Linnaeus, from Persia.
1837. *Vulpicanis* Blainville, Ann. Sci. Nat. Paris, Zool. *8,* 2: 279. *Canis aureus* Linnaeus.
1869. *Simenia* Gray, P.Z.S. *1868:* 494, 506. *Canis simensis* Rüppell, from Abyssinia. Valid as a subgenus.
1906. *Lupulella* Hilzheimer, Zool. Beobachter, *47:* 363. *Canis mesomelas* Schreber.
1906. *Schaeffia* Hilzheimer, Zool. Beobachter, *47:* 364. *Canis adustus* Sundevall.

Subgenus *CANIS* Linnaeus, 1758

Tailtip white. Ears shorter, less than 100 mm. No dark saddlepatch on the back. *Canis adustus*, page 109

Tailtip dark. Ears longer, normally more than 100 mm. On the back is a dark saddlepatch. *Canis mesomelas*, page 108

See also Hollister, 1918, *Bull. U.S. Nat. Mus.* 99: 101.

Canis mesomelas Schreber, 1775 Black-backed Jackal. Rooijakkals

Distribution: still fairly widely distributed in the Union, although they are exterminated where possible outside the game reserves on account of the damage they do to livestock. Transvaal; Kruger National Park (common in the south, near Pretorius Kop, Toulon, etc.). Woodbush. In the Cape Province, De Beers (36 miles west of Kimberley), probably the Vryburg district, the Aughrabies Falls, Deelfontein, Little Namaqualand (recorded by Shortridge (1942) from the Kamiesberg), Clanwilliam district (Shortridge, 1942); the Cape Flats, near Cape Town, and possibly the Cape Point nature reserve. ?Near Bredasdorp. Hewitt (1931) said, when writing of the eastern Cape Province, "very common in most parts of our region . . . not found near Port St. Johns". It is said there are Jackals in the Addo Bush, near Port Elizabeth. Albany district (Roberts). South-West Africa; "exceedingly

[1] *Megalotis* Illiger, 1811 is a synonym of *Fennecus* Desmarest, 1804, which genus is restricted to the North African Fennec Fox.

abundant throughout South-West Africa except in the extreme north-east and the Caprivi" (Shortridge, 1934). Eastwards into the Kalahari and Ngamiland region, South-western Angola. North of the region dealt with in this work, from Tanganyika, Uganda, Kenya, Somaliland, the Sudan.

Canis mesomelas mesomelas Schreber, 1775

1775. *Canis mesomelas* Schreber, Säugth., pl. 95, text *3:* 370 (vernacular), 586 (1778). Cape of Good Hope.
1833. *Canis variegatoides* A. Smith, S. Afr. J. *2:* 87. South Africa.

Canis mesomelas arenarum Thomas, 1926

1926. *Thos mesomelas arenarum* Thomas, P.Z.S. 295. Berseba, central Great Namaqualand, South-West Africa. Ranges into Angola.

Canis mesomelas achrotes Thomas, 1926

1926. *Thos mesomelas achrotes* Thomas, P.Z.S. 295. Rooibank, Kuiseb River, near Walvis Bay, coastal South-West Africa.

Canis adustus Sundevall, 1846

Side-striped Jackal. Grysjakkals; Vaaljakkals; Witkwasjakkals

Distribution: in the Union, the Kruger National Park, Transvaal, where it is said to be commoner in the northern districts, and northern Zululand, Natal. South-West Africa; the northern parts, the Grootfontein district to the Okavango, and the Caprivi. Ngamiland, Southern Rhodesia, recorded from Portuguese East Africa. Angola, where apparently widely distributed throughout. Northern Rhodesia, Nyasaland. Northwards to Tanganyika, Uganda, Kenya, Abyssinia, the southern Sudan, and the region of the Cameroons.

Canis adustus adustus Sundevall, 1846

1846. *Canis adustus* Sundevall, Öfvers. Vetensk. Akad. Förhandl. Stockholm, *3:* 121. "Caffraria Interiore." Magaliesberg (west of Pretoria), Transvaal according to Roberts.
1895. *Canis holubi* Lorenz, Verh. Zool.-Bot. Ges. Wien, *45:* 111. Leshumo Valley, near Victoria Falls, western Matabeleland, Southern Rhodesia.
1897. *Canis wunderlichi* Noack, Zool. Anz. *20:* 519. Probably South-eastern Africa.

Genus **LYCAON** Brookes, 1827

1827. *Lycaon* Brookes in Griffith's Cuvier Anim. Kingd. *5:* 151. *Lycaon tricolor* Brookes = *Hyaena picta* Temminck.
1829. *Cynhyaena* F. Cuvier, Dict. Sci. Nat. *59:* 454. *Hyaena picta* Temminck.
1842. *Hyenoides* Boitard, le Jardin des Plantes, 215. *Hyaena picta* Temminck.
1855. *Hyaenoïdes* Gervais, H.N. Mamm. *2:* 53. For *Hyenoides*.

Simpson (1945) refers this genus, together with the Asiatic genus *Cuon*, to a subfamily Simocyoninae which contains also several fossil genera. This classification is not supported by Pocock, 1941, *2:* 146.

Lycaon pictus Temminck, 1820 Hunting Dog. Wildehond

Distribution: in the Union, the Kruger National Park, Transvaal (Punda Maria district and sometimes wandering as far as the southern borders of the reserve), and in the reserves of Zululand; often straying into the wilds of the northern Transvaal and the vicinity of the Kruger Park in the eastern Transvaal, according to Roberts. The wilder parts of Portuguese East Africa, Southern Rhodesia, northern Bechuanaland, the Kalahari desert (Roberts), and in South-West Africa "widely distributed . . . hunting packs may be met with periodically almost anywhere except in the extreme south" (Shortridge, 1934). Angola (most recent records, Chitau (1941), between Vila da Ponte and Huila, and near Lobito (1931), between Cubango and Capelongo, and Mulando (1935)). Northern Rhodesia and Nyasaland. Northwards to the Sudan and Somaliland on the east, and the Gold Coast and (if not exterminated) southern Algeria on the west.

Lycaon pictus pictus Temminck, 1820

1820. *Hyaena picta* Temminck, Ann. Gen. Sci. Phys. *3:* 54. Coast of Mozambique, Portuguese East Africa.
1822. *Hyaena venatica* Burchell, Travels in Interior S. Africa, *1:* 456. *2:* 229, 1823. North-east of Asbestos Mountains, Griqualand West, Cape Province.
1827. *Canis* (*Lycaon*) *tricolor* Brookes in Griffiths Cuvier Anim. Kingd. *5:* 151. Cape of Good Hope.
1833. *Lycaon typicus* A. Smith, S. Afr. J. *2:* 91. "Burchell's Lycaon."
1904. *Lycaon pictus zuluensis* Thomas, Ann. Mag. N.H. *14:* 98, footnote. Pongola River, Zululand, Natal.
1915. *Lycaon lalandei* Matschie, S.B. Ges. Naturf. Fr. Berlin, 310. Between Cape Town and the Great Kei River, Cape Province.
1915. *Lycaon fuchsi* Matschie, *loc. cit.* 371. Rio Cubal, Benguela, western Angola.
1915. *Lycaon cacondae* Matschie, *loc. cit.* 373. Caconda, western Angola.
1915. *Lycaon gobabis* Matschie, *loc. cit.* 373. Gobabis, eastern Damaraland, South-West Africa.
1915. *Lycaon krebsi* Matschie, *loc. cit.* 376. Near Baviaanskloof, Cape Province (near Steytlerville, in southern central Cape Province).
1915. *Lycaon windhorni* Matschie, *loc. cit.* 378. Rustenburg, western Transvaal.

FAMILY MUSTELIDAE

For the characters of *Ictonyx* and allies compared with the northern *Mustela* and other Mustelinae see Pocock, 1922, P.Z.S. 1921: 803–837, *On the external characters and classification of the Mustelidae.*

1. Highly modified for aquatic life; tail long, thick and muscular, hindfeet enlarged, much larger than forefeet; colour drab. Upper molar very large and tending to be dominant. Subfamily Lutrinae——2

Not modified for aquatic life; colour with specialized black and white pattern. Upper molar not larger than carnassial, and not tending to be dominant. ——3

2. Claws well developed. In the South African species the skull is smaller, about 94–110 mm. Postorbital processes vestigial. Genus *LUTRA*, page 115
   Nails blunt. In South African species the skull is larger, about 125–139 mm. Postorbital processes clearly developed in adult. Genus *AONYX*, page 116

3. Build heavy and appearance badger-like; claws enlarged; ears small, at most a third of the length of the hindfoot, usually less; tail short. Skull large, exceeding 120 mm. Colour normally blackish below, whitish above. Subfamily Mellivorinae; Genus *MELLIVORA*, page 114
   Build lighter, appearance weasel-like. Claws smaller; ears well over a third of the length of hindfoot. Colour different. Length of skull less than 100 mm. Subfamily Mustelinae——4

4. With 2 lower molars, and 34 teeth. Skull length exceeds 56 mm. Rather thick-furred species, with no very sharply-contrasted whitish patch on head and nape. Genus *ICTONYX*, page 111
   With normally 1 lower molar, and 28 (rarely 30) teeth. Skull length 55.3 mm. and less. Rather short-furred species, with sharply-contrasted whitish patch on nape and head. Genus *POECILOGALE*, page 113

Subfamily Mustelinae

Genus **ICTONYX** Kaup, 1835[1]

1835. *Ictonyx* Kaup, Das Thierreich, *1:* 352. *Ictonyx capensis* = *Bradypus striatus* Perry.
1838. *Rhabdogale* Wiegmann, Arch. Naturg. *4*, 1: 278, footnote. *Bradypus striatus* Perry here selected as type species.
1846. *Ictidonyx* Agassiz, Nomenclator Zool. Index. Univ. 194. Emendation of *Ictonyx*.
1936. *Ictomys* Roberts, Ann. Transv. Mus. *18:* 228. Misprint for *Ictonyx*.

Ictonyx striatus Perry, 1810 Zorilla, or Striped Polecat. Stinkmuishond

Distribution: one of the commonest of the small Carnivora in the Union. In the Transvaal, the Kruger National Park (according to Col. J. A. B. Sandenbergh), districts of Zoutpansberg, Woodbush, Pretoria, Rustenburg, Wakkerstroom; Zululand, Estcourt and Mooi River, Natal; the Orange Free State (Winburg, Aberfeldy, Vredefort, Bothaville, west of Harrismith, etc.), and in the Cape Province, Vryburg district, Upington, Little Namaqualand (Goodhouse, near Steinkopf, Port Nolloth,

[1] *Zorilla* Oken, 1816, Lehrb. Naturg. *3*, Zool. 2: xi, "*Viverra zorilla*" has been used by authors for the African Polecats; not only is it unavailable, but Howell, 1906, Proc. Biol. Soc. Washington, *19:* 46 in fixing the type species as "*Viv. zorilla*", also showed that it was indeterminable, but appeared to belong to the New World.
Zorilla I. Geoffroy, 1826 has also been referred to the African Polecats, but it is a *Spilogale* (see Ellerman & Morrison-Scott, 1953, *J. Mammal. 34:* 114).

east of Springbok, the Kamiesberg), Lamberts Bay, Citrusdal, Clanwilliam, near Paarl, Durban Road (?near Cape Town; British Museum), Knysna, King William's Town, Grahamstown, Uitenhage, Port St. Johns, near Graaff Reinet, Burghersdorp, Deelfontein, Van Wyk's Vlei, Fourteen Streams, Louisvale, etc. Swaziland. South-West Africa; apparently widely distributed, northwards to the Caprivi; Ngamiland, the Kalahari, Gaberones (south-eastern Bechuanaland). Southern Rhodesia (Salisbury, B.M.). Inhambane district, Portuguese East Africa. Probably throughout Angola (Hill & Carter). Northern Rhodesia, Nyasaland. Beyond the limits of this work, in East Africa northwards to Abyssinia and the Sudan, and also known from northern Nigeria and Senegal.

The form *kalaharicus* was regarded by Roberts as a species distinct from *striatus*. But the difference between the two appears to us to be negligible, and to consist chiefly in the colour of the tail. In *kalaharicus*, black is dominant, and in *striatus* white. We suggest that this is parallel to the phenomenon found in *Ichneumia albicauda*, in which black and white tails occur in the same region. In the Gemsbok Pan area of the Kalahari there is *Ictonyx striatus ghansiensis*, with a white tail, and also a black-tailed form which Roberts distinguished as *Ictonyx kalaharicus nigricaudus*. We regard them as being the same (see below).

Roberts also subdivided *striatus* as understood by him, as he thought that his socalled species *orangiae* and *striatus* differed in the size of their skulls, but his table of measurements shows that this is not constantly so. We consider that all these forms are conspecific.

Ictonyx striatus striatus Perry, 1810

1810. *Bradypus striatus* Perry, Arcana, or the Museum of Nat. Hist. pt. 11, pl. [41] and text. Cape of Good Hope. See Hollister, 1915, Proc. Biol. Soc. Washington, *28:* 184 on the use of this name.

1826. *Mephites capensis* A. Smith, Descr. Cat. S. Afr. Mus., 20. Cape of Good Hope.

1832. *Mustela zorilla* Smuts, Enum. Mamm. Cap., 12. Cape of Good Hope. Not *Viverra zorilla* Schreber which is a *Spilogale*.

1838. *Mephitis africana* Lichtenstein, Abh. Preuss. Akad. Wiss. *1836:* 284. "Cape of Good Hope, Senegambia, Abyssinia, Barbary."

1841. *Rhabdogale mustelina* Wagner in Schreber, Säugth. Suppl. *2:* 219. Cape of Good Hope.

1924. *Ictonyx striatus pondoensis* Roberts, Ann. Transv. Mus. *10:* 66. Port St. Johns, Pondoland, eastern Cape Province.

Range: southern Cape Province according to Roberts (who also quoted specimens from Swaziland, Harrismith and Winburg, Orange Free State).

Ictonyx striatus limpopoensis Roberts, 1917

1917. *Ictonyx capensis limpopoensis* Roberts, Ann. Transv. Mus. *5:* 265. Mooivlei, Rustenburg district, western Transvaal.

Ictonyx striatus maximus Roberts, 1924

1924. *Ictonyx striatus maximus* Roberts, Ann. Transv. Mus. *10:* 65. Wakkerstroom, south-eastern Transvaal. Ranges into Zululand, Natal.

Ictonyx striatus orangiae Roberts, 1924

1924. *Ictonyx orangiae* Roberts, Ann. Transv. Mus. *10:* 67. Angra Pequina, south of Bothaville, north-western Orange Free State.

Ictonyx striatus pretoriae Roberts, 1924

1924. *Ictonyx orangiae pretoriae* Roberts, Ann. Transv. Mus. *10:* 67. Boekenhoutfontein, Pretoria district, Transvaal.

Ictonyx striatus arenarius Roberts, 1924

1924. *Ictonyx orangiae arenarius* Roberts, Ann. Transv. Mus. *10:* 67. Lamberts Bay, western Cape Province. Range includes Klaver, Vredendal, Goodhouse, Vryburg, Louisvale, Upington, etc., western Cape Province.

Ictonyx striatus ghansiensis Roberts, 1932.

1932. *Ictonyx orangiae ghansiensis* Roberts, Ann. Transv. Mus. *15:* 8. Gemsbok Pan (Kalahari) Bechuanaland.

1932. *Ictonyx kalaharicus nigricaudus* Roberts, Ann. Transv. Mus. *15:* 9. Gemsbok Pan (Kalahari) Bechuanaland.

Ranges westwards to Gobabis, etc., in South-West Africa.

Ictonyx striatus shortridgei Roberts, 1932

1932. *Ictonyx striatus shortridgei* Roberts, Ann. Transv. Mus. *15:* 8. Maschi River, eastern Caprivi, borders of Ngamiland and South-West Africa. Range includes Angola.

Ictonyx striatus lancasteri Roberts, 1932

1932. *Ictonyx striatus lancasteri* Roberts, Ann. Transv. Mus. *15:* 8. Choma, (north-east of Victoria Falls), Northern Rhodesia.

Ictonyx striatus kalaharicus Roberts, 1932

1932. *Ictonyx kalaharicus* Roberts, Ann. Transv. Mus. *15:* 8. Kuke Pan, central Kalahari, Bechuanaland.

Ictonyx striatus giganteus Roberts, 1932.

1932. *Ictonyx kalaharicus giganteus* Roberts, Ann. Transv. Mus. *15:* 9. Shorobe, 25 miles north of Maun, Ngamiland, northern Bechuanaland.

Ictonyx striatus ovamboensis Roberts, 1951

1951. *Ictonyx kalaharicus ovamboensis* Roberts, Mammals of South Africa, 208. Oshikango, Ovamboland, South-West Africa.

Genus **POECILOGALE** Thomas, 1883

1883. *Poecilogale* Thomas, Ann. Mag. N.H. *11:* 370. *Zorilla albinucha* Gray.

Poecilogale albinucha Gray, 1864 White-naped Weasel. Slangmuishond

Distribution: in the Union it seems widely distributed in the eastern parts, but is nowhere common; recorded from Johannesburg, Wakkerstroom district and Tzaneen,

Transvaal; Natal, including Durban and Zululand; the Orange Free State (Aberfeldy, near Harrismith), and in the Cape Province, Vryburg district, Port St. Johns, Port Alfred, Pirie, Port Elizabeth, Knysna, Deelfontein, Hanover district, and Colesberg (Shortridge). Recorded from Melsetter, Southern Rhodesia and one locality (junction of Molopo and Nossob Rivers) in the Bechuanaland–South-West African border region. Sesheke district, Lake Bangweulu, etc., in Northern Rhodesia; Nyasaland. Angola, including Chitau, Capelongo, east of Dando, Caconda, Duque de Bragança, Ambaca, Quindumbo, Jinga country, Pedreira. Beyond the limits of this work, Tanganyika, Uganda and the Belgian Congo.

Poecilogale albinucha albinucha Gray, 1864

1864. *Zorilla albinucha* Gray, P.Z.S. 69. Locality unknown "but Cape of Good Hope may be assumed" (G. Allen).

1865. *Zorilla flavistriata* Bocage, P.Z.S. 402. Duque de Bragança district, northern Angola. Proposed as a substitute for *albinucha*.

1865. *Zorilla africana* Peters, P.Z.S. 400, *nomen nudum*. Golungo Alto, Angola.

Poecilogale albinucha transvaalensis Roberts, 1926

1926. *Poecilogale albinucha transvaalensis* Roberts, Ann. Transv. Mus. *11:* 247. Tzaneen, north-eastern Transvaal.

Poecilogale albinucha lebombo Roberts, 1931

1931. *Poecilogale albinucha lebombo* Roberts, Ann. Transv. Mus. *14:* 226. Ubombo, northern Zululand, Natal.

Poecilogale albinucha bechuanae Roberts, 1931

1931. *Poecilogale albinucha bechuanae* Roberts, Ann. Transv. Mus. *14:* 226. Vryburg, northern Cape Province. Also known from Randfontein (west of Johannesburg), Transvaal.

Subfamily Mellivorinae

Genus **MELLIVORA** Storr, 1780

1780. *Mellivora* Storr, Prodr. Meth. Mamm. 34 and Tab. A., Mamm. *Viverra ratel* Sparrman = *Viverra capensis* Schreber.

1836. *Ursitaxus* Hodgson, Asiat. Res. *19*, 1: 61. *Ursitaxus inauritus*, the Nepal race of *Viverra capensis* Schreber.

For other synonyms, with the same type species as *Mellivora*, see Ellerman & Morrison-Scott, 1951, 268.

Mellivora capensis Schreber, 1776 Ratel or Honey Badger. Ratel

Distribution: in the Transvaal, the Kruger National Park (including Toulon), the district of Rustenburg. In the Cape Province, near Upington, Little Namaqualand (north of Steinkopf and the Kamiesberg), Knysna, Amatola Mountains (near Grahamstown), Albany district. In South-West Africa, according to Shortridge,

evenly distributed and comparatively plentiful throughout this region, the Caprivi included, but possibly excepting the coastal edge of the Namib desert. Recorded from the Inhambane district, Portuguese East Africa, and from Southern Rhodesia and Ngamiland. Northern Rhodesia, where common, and Nyasaland. Angola; "probably sparsely but widely dispersed" (Hill & Carter), recorded from Benguela, Cassinge, Cuvelai River, Cubango Mission, etc. Beyond the limits of this work, virtually throughout East Africa, and on the western side (including the Belgian Congo) westwards to Sierra Leone, northwards to Asben and Morocco. In Asia from Arabia to Russian Turkestan, and eastwards to Nepal and India west of the Bay of Bengal (for details see Ellerman & Morrison-Scott, 1951).

MELLIVORA CAPENSIS CAPENSIS Schreber, 1776

1776. *Viverra capensis* Schreber, Säugth. pl. 125, also 1777, *3:* 450, 588. Cape of Good Hope.
1777. *Viverra ratel* Sparrman, K. Svenska Vetensk. Akad. Handl. *38:* 147. Cape of Good Hope.
1798. *Ursus mellivorus* G. Cuvier, Tabl. Élém. H.N. Anim. 112. Cape of Good Hope.
1833. *Ratellus typicus* A. Smith, S. Afr. J. *2:* 83. South Africa.

MELLIVORA CAPENSIS VERNAYI Roberts, 1932

1932. *Mellivora capensis vernayi* Roberts, Ann. Transv. Mus. *15:* 7. Kwai, Mababe Flats, Ngamiland, northern Bechuanaland. Ranges into Angola.

SUBFAMILY Lutrinae

Genus **LUTRA** Brisson, 1762

1762. *Lutra* Brisson, Regn. Anim. 13. *Mustela lutra* Linnaeus, from Sweden.
1771. *Lutra* Brünnich, Zool. Fundamenta, 34, 42. *Mustela lutra* Linnaeus. (For date of publication see Bull. Zool. Nomencl. 1950, *4:* 307).
1865. *Hydrogale* Gray, P.Z.S. 131. *Lutra maculicollis* Lichtenstein. Not of Kaup, 1829.
1921. *Hydrictis* Pocock, P.Z.S. 543. *Lutra maculicollis* Lichtenstein. Valid as a subgenus.

On the status of Brisson's names see Ellerman & Morrison-Scott, 1951, 3.

Subgenus *HYDRICTIS* Pocock, 1921

Hydrictis was separated from *Lutra* on account of details of differences in the webbing of the plantar pads, the hairiness of the rhinarium, smaller ears, shorter muzzle and mesopterygoid region. But by far the clearest character is the reduction of the postorbital processes.

Lutra maculicollis Lichtenstein, 1835 Spotted-necked Otter. Kleinotter

Distribution: in the Union, recorded from Pretoria, Wakkerstroom, etc., in the Transvaal, Natal, the Orange Free State; the eastern Cape Province (Hewitt (1931) quotes the species from the Cathcart district, and the Bushman's, Koonap and

Buffalo Rivers), Knysna, and the western Orange River (Louisvale and the Upington region). South-West Africa; the Orange, Cunene, Okavango, and rivers and swamps of the eastern Caprivi and Ngamiland. Angola (Chitau, Cunene River, Cubango River, recorded from Benguela, etc.). Southern Rhodesia (Shortridge). Common in Northern Rhodesia; Nyasaland. Beyond the limits of this work, East Africa northwards to Abyssinia and the southern Sudan, and West Africa from the Belgian Congo, Gabon, and (according to Shortridge) Liberia.

LUTRA MACULICOLLIS MACULICOLLIS Lichtenstein, 1835

1835. *Lutra maculicollis* Lichtenstein, Arch. Naturg. *1*, 1 : 89. "Am östlichen Abhange der Bambusberge, Kafferland." Bamboos Mountains, 31° 30′ S., 26° 20′ E. (= near Sterkstroom, eastern Cape Province).

1862. *Lutra grayii* Gerrard, Cat. Bones Mammalia in B.M., 101, *nom. nud.* "Port Natal" = Durban, Natal.

LUTRA MACULICOLLIS CHOBIENSIS Roberts, 1932

1932. *Lutra malculicollis* (sic) *chobiensis* Roberts, Ann. Transv. Mus. *15:* 7. Kabulabula, Chobe River, Caprivi (borders of northern Bechuanaland and South-West Africa).

Genus **AONYX** Lesson, 1827

1827. *Aonyx* Lesson, Man. Mamm. 157. *Aonyx delalandi* Lesson = *Lutra capensis* Schinz.

1860. *Anahyster* Murray, Proc. Roy. Phys. Soc. Edinburgh, *2:* 157. *Anahyster calabaricus* Murray = *Lutra capensis* Schinz.

1921. *Paraonyx* Hinton, Ann. Mag. N.H. *7:* 195. *Paraonyx philippsi* Hinton, from Uganda. Valid as a subgenus.

Subgenus *AONYX* Lesson, 1827

Aonyx capensis Schinz, 1821 Cape Clawless Otter. Groototter

Distribution: "anywhere in South Africa where there are large streams and rivers of a permanent nature and with vegetation on the banks to afford adequate shelter" (Roberts, 1951); nevertheless, records seem comparatively few. In the Union, recorded from the Transvaal, Kruger National Park, Pretoria, Mokeetsi in the north-east, White River (south of the Kruger Park). Natal. In the Cape Province, west of Upington, western Orange River (where it is stated by Shortridge to be not so common as *Lutra maculicollis*), the eastern Province (King William's Town, ?Pondoland, Grahamstown, etc. (common in most of the rivers throughout our region, Hewitt, 1931)). Elgin, western Cape Province, and possibly still occurs near Cape Town. South-West Africa; the Orange, Cunene, Okavango and rivers of the Caprivi. Angola; recorded from Chitau, but evidently rare. The Zambezi. Zomba, Nyasaland (British Museum). Northern Rhodesia, including the Bangweulu and Kafue Hook regions. In East Africa known from Abyssinia, Kenya and Tanganyika, and in West Africa from the Belgian Congo, Nigeria, Gold Coast, Liberia, Senegal.

AONYX CAPENSIS CAPENSIS Schinz, 1821

1821. *Lutra capensis* Schinz, Cuvier's Thierreich, *1:* 214. Cape of Good Hope.

1823. *Lutra inunguis* F. Cuvier, Dict. Sci. Nat. *27:* 247. Cape of Good Hope.

1827. *Aonyx delalandi* Lesson, Man. Mamm. 157. Cape of Good Hope.
1908. *Aonyx capensis angolae* Thomas, Ann. Mag. N.H. *1:* 388. Coporole (Coporolo) River, 13° S., western Angola.
1926. *Aonyx capensis coombsi* Roberts, Ann. Transv. Mus. *11:* 246. Hennops River, Pretoria, Transvaal.

FAMILY VIVERRIDAE

The characters for this family are based on those of Pocock. See particularly 1919, *Ann. Mag. N.H. 3:* 515, Classification of the Mongooses.

The genus *Nandinia* was considered a member of the Oriental subfamily Paradoxurinae by Simpson (following Gregory & Hellman); Simpson made it type of a special tribe; it was considered a distinct family, the Nandiniidae, by Pocock, 1929, *Encyclopaedia Britannica, 4:* 898. It was considered a living member of the otherwise extinct family Amphictidae (much better known as Miacidae) by Winge, 1924, *Pattedyr-Slaegter, 2:* 177. We are of opinion that it is reasonable to give this isolated genus subfamily rank.

1. Feet compressed, with short claws. No bony tube to the auditory orifice.——2
   Feet with freer digits and fossorial claws. With bony tube to auditory orifice. Subfamily Herpestinae——4

2. Bullae imperfect, the wall of its posterior portion permanently cartilaginous, the paroccipital process directed backwards away from the bullae. Feet more subplantigrade.
   Subfamily Nandiniinae; Genus *NANDINIA*, page 120
   Bullae normal, the paroccipital process not directed backwards from them. Feet more digitigrade and terrestrial. Subfamily Viverrinae——3

3. Large species, in Africa the length of the skull exceeds 140 mm. from published measurements available. Skull with strong sagittal crest.
   Genus *VIVERRA*,[1] page 120
   Small species, length of the skull 101 mm. and less. Skull with sagittal crest weak or absent. Genus *GENETTA*, page 121

[1] *Viverra* Linnaeus, 1758, antedates *Civettictis* Pocock, 1915. Hollister, 1918, regarded *Civettictis* as of subgeneric value only. Pocock separated the African species *V. civetta* from the Oriental species mainly on some external characters, and he compared *civetta* only with *zibetha*, the (Indian) type of the genus; the other Oriental species, *V. megaspila* and *V. tangalunga* had not been examined by him. He stated for *Civettictis:* "each half of the (anal) gland excavated to form a pouch communicating with the interglandular space by a constricted orifice; a small metatarsal pad above the plantar pad; carpal pad markedly bilobed; sole of foot in front and at the sides of plantar pad quite naked; claws longer, unsheathed, less retractile." And for *V. zibetha*; "Halves of the gland not so excavated; no metatarsal pad; carpal pad not so markedly bilobed; sole of foot partially or wholly hairy; claws shorter, more retractile." Pocock also stated that the prominence of the tympanic bulla and paroccipital process distinguished *Civettictis* from Oriental *Viverra*, and that the two upper molars and last lower molar are larger in *Civettictis*. In *V. zibetha*, at least, the 3rd and 4th fingers are said by Pocock to have sheaths protecting the claws. Subsequently Pocock examined specimens of *V. megaspila* Blyth from tropical Asia (for which he erected a genus *Moschothera* which has been ignored or reduced to subgeneric rank by virtually all subsequent authors) which seems to be intermediate in some ways between *Civettictis* and *Viverra*. In *Moschothera* the feet are nearly naked between the pads (as in *Civettictis*), and there are no skin lobes to protect the claws (as in *Civettictis*). We consider all the characters given for *Civettictis* at most of subgeneric value.

4. No pollex. Hindfoot with 4 digits. ——5
With a functional, clawed pollex. ——7

5. Eyes set rather close together. Face and head somewhat Lemurine. Skull very broad. Bullae very flat, almost as wide as long. Plane of base of skull forms obtuse angle with plane of palate. Foreclaws much enlarged. Back indistinctly transversely banded. Nine upper and 9 lower teeth each side. Dentition of crushing rather than sectorial type. Genus *SURICATA*, page 139

Resembling all other members of the subfamily in not combining the characters of the last genus. Head more Herpestine; bullae less flat and wide, etc. Ten upper and lower teeth each side. ——6

6. Skull much higher (its depth including the bullae about 34–35 mm.). Bullae much larger. Ear usually relatively large (over 40 mm. in B.M. material, but sometimes less than this in Roberts' measurements).
Genus *PARACYNICTIS*, page 136

Skull considerably lower (its depth including the bullae in the species inhabiting South Africa about 27.7 mm.). Bullae considerably smaller.
Genus *BDEOGALE*, page 136

7. Hindfoot with 4 digits. Skull relatively high (in this respect similar to *Paracynictis* which is, however, larger). Ear relatively large; seldom under 9 per cent of the head and body length; in B.M. material usually exceeds 10 per cent. Ten upper and lower teeth each side. Genus *CYNICTIS*, page 137

Not combining these characters. Normally with 5 digits to the hindfoot (the hallux is reduced in many species; in *Rhynchogale* and sometimes in specimens of the subgenus *Galerella*, it is practically untraceable or absent). Skull normally relatively lower. Ear normally less than 9 per cent of head and body length. ——8

8. Small species; in South Africa the skull is 53 mm. and less, generally less. Nine upper and lower teeth each side. Foreclaws medium-sized. Back not transversely banded. Genus *HELOGALE*, page 131

Larger species; published measurements show that the skull in South Africa is not under 55 mm. If there are 9 upper and lower teeth either the back is transversely banded or the foreclaws are enlarged, or the length of the skull is about 99 mm. and more. ——9

9. Foreclaws much enlarged. Nine upper and 9 lower teeth each side. Dentition more or less of the crushing type as described below for *Ichneumia* and *Rhynchogale*. Compared with those genera, the soles of the hindfeet are largely naked, and at least in South Africa the length of the skull is less than 80 mm.
Genus *MUNGOS*, page 132

Foreclaws not specially enlarged. Not combining the characters of the last genus. (Back never transversely banded). ——10

10. Dentition more of crushing type, in the upper jaw the lingual parts of crowns of M 1 and M 2 broad, the space between the inner sides of P 4 and M 1 usually appears narrower, the line of the cheekteeth forms a more even curve at junction of P 4 and M 1. (In South Africa the length of the skull in published measurements is 88 mm. and more; 10 upper and lower teeth each side; soles of hindfeet mostly hairy.) ——11

Dentition more of sectorial type, in the upper jaw the space between the lingual parts of crowns of P 4 and M 1 usually appears wider; the outer edge of P 4 forms more of an angle with that of M 1 ——12

11. The hallux is vestigial or untraceable. The last upper molar is flatcrowned. The palate does not extend so far behind the toothrows. Length of skull about 88–94 mm. Genus *RHYNCHOGALE*, page 135

The hallux is less reduced. The last upper molar is more cuspidate. The palate extends further behind the toothrows. Length of the skull usually exceeds 100 mm. (98 mm. and more in published measurements available).
Genus *ICHNEUMIA*, page 134

12. Without webs between digits 2–5 on all feet (Pocock). Normally 9 upper and lower teeth each side (but not always; the British Museum has a few specimens with 10 upper ones, the small first premolar being present). Large species, skull usually exceeds 100 mm. Colour very dark.
Genus *ATILAX*, page 130

With digits 2–5 on all feet united by webs (Pocock). More than 9 upper and 9 lower teeth in normal dentition. Not combining the characters of the last genus. Genus *HERPESTES*,[1] page 124

[1] The small species of *Herpestes* are in Africa usually called "*Myonax*" Thomas, 1928, which is antedated by *Galerella*, 1865. Neither Pocock nor Simpson gave *Galerella* generic rank, and it should be borne in mind that although the small African mongooses appear very distinct from *H. ichneumon* (the type of the genus) there are many more small species of *Herpestes* in Tropical Asia. Schwarz, 1935, Ann. Mag. N.H. *15:* 300 has already pointed out that "*Myonax*" is indistinguishable from *Galerella*. *Myonax* seems improperly diagnosed in that Thomas merely said the feet of *Galerella* differ from those of *Myonax*, but did not state how they differed, and a perusal of all the type specimens of small African mongooses in the British Museum indicates that they do not differ constantly. There is a tendency in these species for the hallux to become reduced almost to vanishing point, and it seems in some cases to be an individual character. Numerous forms of these small mongooses have been named, and the prior name seems to be *H. sanguineus* Rüppell, which antedates both the better-known South African names *cauui* and *ratlamuchi*. The type species of *Galerella* would appear to be not more than a subspecies of *ratlamuchi*, which in itself may be nothing but a reddish colour phase of *H. sanguineus*.

Subfamily Nandiniinae

Genus **NANDINIA** Gray, 1843

1843. *Nandinia* Gray, List Spec. Mamm. B.M., 54. (1865. P.Z.S. *1864:* 529). *Viverra binotata* Gray.

Nandinia binotata Gray, 1830 Two-spotted Palm Civet. Palmsiwet

Distribution: Beira district, Portuguese East Africa; Mt. Selinda, Melsetter district, eastern Southern Rhodesia; Angola, the northern parts, recorded from Chitau by Hill & Carter; Nyasaland; Northern Rhodesia (B.M.). North of the limits of this work, Kenya, Uganda, Tanganyika, the Bahr-el-Ghazal (southern Sudan), the Belgian Congo, Fernando Po, Gold Coast, etc.

Nandinia binotata binotata Gray, 1830. (Extralimital).

1830. *Viverra binotata* Gray, Spicil. Zool., 9. Fernando Po.

Nandinia binotata gerrardi Thomas, 1893

1893. *Nandinia gerrardi* Thomas, Ann. Mag. N.H. *12:* 205. Lower Shire River, southern Nyasaland. Ranges to Melsetter district, Southern Rhodesia, and eastwards towards Beira, Portuguese East Africa.

Subfamily Viverrinae

Genus **VIVERRA** Linnaeus, 1758

1758. *Viverra* Linnaeus, Syst. Nat. 10th ed. *1:* 43. *Viverra zibetha* Linnaeus, from India.

1915. *Civettictis* Pocock, P.Z.S., 134. *Viverra civetta* Schreber. Valid as a subgenus.

For discussion of the status of *Civettictis* see above, page 117, footnote.

Subgenus *CIVETTICTIS* Pocock, 1915

Viverra civetta Schreber, 1776 African Civet. Siwetkat

Distribution: in the Union, known from the Kruger National Park, and the Zoutpansberg and Rustenburg districts, Transvaal, and according to Shortridge the coastal parts of northern Zululand. Portuguese East Africa; districts of Gorongoza and Inhambane. Southern Rhodesia. Ngamiland, and the eastern Caprivi. Angola; widely distributed but relatively rare; more recent records include Hanha, and Cutato River, Central Angola. Northern Rhodesia, where said to be common; Nyasaland. North of the region dealt with in this work, East Africa northwards to the Sudan and parts of Somaliland, and West Africa from the Belgian Congo intermittently to Senegal.

VIVERRA CIVETTA CIVETTA Schreber, 1776

1776. *Viverra civetta* Schreber, Säugeth. pl. 111, text *3:* 419 (1777). French Guinea.
1891. *Viverra civetta orientalis* Matschie, Arch. Naturgesch. *57:* sect. A, pt. 1, 352. Zanzibar (Schwarz, 1934, Ann. Mag. N.H. *14:* 261). Not of Hodgson, 1842.
1929. *Civettictis civetta schwarzi* Cabrera, Mem. Soc. Esp. H.N. *16:* 36, footnote, to replace *orientalis* Matschie, preoccupied. Regarded as a valid race for the southern localities by Roberts, but a synonym of the typical race according to Swynnerton and Hayman (1951).
1933. *Viverra civetta matschiei* Pocock, J. Bombay N. H. Soc. *36:* 429 (footnote). To replace *orientalis* Matschie.

Genus **GENETTA** Oken, 1816

1816. *Genetta* Oken, Lehrb. Nat. *3*, 2: 1010. *Viverra genetta* Linnaeus.
1816. *Genetta* G. Cuvier, Règne Anim. *1:* 156. *Viverra genetta* Linnaeus. Published December, 1816, *fide* Sherborn, 1922, *Index Anim. 1801–1850*, xli.

1. Conspicuous black dorsal line of longer hairs. Spots small, or not well defined. Colour usually greyer. *Genetta genetta*, page 121
   Hairs of dorsal line not much longer than rest of back. Spots medium or large. Colour usually less grey. ——2

2. Six or 7 pale rings showing on underside of tail. Spots large. Much black on the feet. *Genetta tigrina*, page 122
   Usually 8 to 10 pale rings showing on the underside of the tail. Spots medium. Little or no black on the feet. *Genetta rubiginosa*, page 123

The above classification is based on the forms occurring in South Africa, and follows the classifications of Roberts and of Hill & Carter. These authors in each case recognized three species characterized roughly as above in South Africa, and in Angola there appears to be a geographical overlap between *rubiginosa* and a form (*angolensis*) which we suggest represents *tigrina*. Schwarz, 1930, Rev. Zool. Bot. Afr. *19*, 2: 276 retained only two species in South Africa (*genetta* and *tigrina*), and made *rubiginosa* a synonym of *tigrina*. But the material we have examined shows that in the south there seem to be three forms. Whether *rubiginosa* is a colour phase of *tigrina* we do not know; for the great individual variation in these animals see Stevenson-Hamilton, 1947, Wild Life in South Africa, 202. However, on the evidence before us we have at present no alternative to retaining three nominal species.

Genetta genetta Linnaeus, 1758

Small-spotted Genet. Kleinkolmuskejaatkat

Distribution: in the Union, Potchefstroom, Rustenburg, Pretoria, Klein Letaba and the Kruger National Park, Transvaal; in the Cape Province, near Kimberley, Kuruman, Upington, Louisvale, the Aughrabies Falls; Little Namaqualand

(Goodhouse, Port Nolloth, north of Steinkopf, the Kamiesberg); Lamberts Bay, Clanwilliam, Cape Town, Hout Bay, King William's Town, Port Elizabeth and Deelfontein. ("Fairly common throughout our region" (Hewitt, 1931, Eastern Province).) South-West Africa; throughout, including the Caprivi and the Namib desert, according to Shortridge. Bechuanaland, south-eastwards to Gaberones; Southern Rhodesia, Northern Rhodesia; Angola, where widely distributed but not common. Beyond the limits of this work, virtually throughout East Africa, westwards to Asben and Senegal; Morocco to Libya; Spain, Balearic Islands, France; Palestine, Arabia.

GENETTA GENETTA GENETTA Linnaeus, 1758. (Extralimital).

1758. *Viverra genetta* Linnaeus, Syst. Nat. 10th ed. *1:* 45. Spain.

GENETTA GENETTA FELINA Thunberg, 1811

1811. *Viverra felina* Thunberg, K. Svenska Vetensk. Akad. Handl. *32:* 165. Cape of Good Hope.

1892. *Viverra macrura* Jentink, Mus. H.N. Pays Bas Leiden, *11:* 112. (In synonymy of *felina*.)

Range: mountainous districts of Cape Province.

GENETTA GENETTA PULCHRA Matschie, 1902

1902. *Genetta pulchra* Matschie, Verh. Int. Congr. Zool. Berlin, 1901, 1139. Okavango River, northern South-West Africa.

1889. *Genetta senegalensis* Noack, Zool. Jb. *4:* 169. Not of Fischer, 1829.

1902. *Genetta bella* Matschie, Verh. Int. Congr. Zool. Berlin, 1901, 1140. Loanda (coastal north-western) Angola.

1906. *Genetta ludia* Thomas & Schwann, P.Z.S. 579. Klein Letaba (west of the Kruger National Park), north-eastern Transvaal.

Range: northern parts of the Union from the Orange and Crocodile Rivers northwards to the upper Zambezi valley, Angola and apparently Tanganyika.

GENETTA GENETTA HINTONI Schwarz, 1929

1929. *Genetta genetta hintoni* Schwarz, Ann. Mag. N.H. *3:* 47. Ndola (near the Congo border), Northern Rhodesia.

Genetta tigrina Schreber, 1776

Large-spotted Genet. Grootkolmuskejaatkat

Distribution: the southern Cape Province, Cape Town district, Rondebosch, Knysna, Cathcart district, King William's Town, Pondoland. Apparently represented in Angola (fairly common throughout western Angola, Hill & Carter; occurs with *rubiginosa* at Lobito, Chitau and Capelongo). (Beyond the limits of this work, Schwarz referred forms to *tigrina* which range from the Sudan and Abyssinia to Senegal, and southwards to Tanganyika and the Belgian Congo; but some of these may represent *rubiginosa*, which Schwarz did not recognize).

GENETTA TIGRINA TIGRINA Schreber, 1776

1776. *Viverra tigrina* Schreber, Säugth. pl. 115; text (1777) *3:* 425. Cape of Good Hope. Range includes Cape Town district eastwards to Knysna, Cathcart, etc., Cape Province.

GENETTA (?)TIGRINA ANGOLENSIS Bocage, 1882

1882. *Genetta angolensis* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *9:* 29. Caconda (south-east of Benguela), Angola.

1902. *Genetta gleimi* Matschie, Verh. Int. Congr. Zool., Berlin, 1901, 1142. Loanda, north-western Angola.

1930. "*Genetta loandae* Matschie", Schwarz, Rev. Zool. Bot. Afr. *19:* 278. (*Lapsus*).

GENETTA TIGRINA METHI Roberts, 1948

1948. *Genetta tigrina methi* Roberts, Ann. Transv. Mus. *21:* 63. Mouth of Umsigaba (?Umsikaba) River, Pondoland, eastern Cape Province.

Genetta rubiginosa Pucheran, 1855

Rusty-spotted Genet. Rooikolmuskejaatkat

Distribution: Zululand and Mt. Edgecombe (near Durban), Natal; Rustenburg, Zoutpansberg, Woodbush, Klein Letaba, the Kruger National Park (according to Stevenson-Hamilton), Transvaal; Swaziland. Portuguese East Africa, districts of Tete, Inhambane, Beira, Gorongoza, also north of the Zambezi. Southern Rhodesia. Ngamiland. In South-West Africa, near the Cunene and Okavango Rivers, and the Caprivi. Angola (recorded from Lobito, Chitau, Capelongo, Caconda, Benguela, Vila da Ponte and a few other localities). Nyasaland, Northern Rhodesia.

GENETTA RUBIGINOSA RUBIGINOSA Pucheran, 1855

1855. *Genetta rubiginosa* Pucheran, Rev. Zool. Paris, *7:* 154. Cape of Good Hope. Roberts thought it might have come from southern Bechuanaland, and regards it as a valid species, quoting specimens from Zoutpansberg and Rustenburg, Transvaal. Hill & Carter quote it from Angola. Schwarz thought it was a synonym of *tigrina.*

GENETTA (?)RUBIGINOSA MOSSAMBICA Matschie, 1902

1902. *Genetta mossambica* Matschie, Verh. Int. Congr. Zool. Berlin, 1901, 1138. Mossimboa, 11° 20′ S., 42° 22′ E., coast of Portuguese East Africa. (Type locality restricted by Moreau, Hopkins & Hayman, 1946.) Roberts considers this a distinct species.

GENETTA RUBIGINOSA ZAMBESIANA Matschie, 1902

1902. *Genetta zambesiana* Matschie, Verh. Int. Congr. Zool. Berlin, 1901, 1141. Boror, near Quelimane, north of the Zambezi, Portuguese East Africa. Also recorded from Nyasaland, and as far south as Tete on the Zambezi. Considered a synonym of *mossambica* by Schwarz, a race of *rubiginosa* by Roberts.

GENETTA RUBIGINOSA LETABAE Thomas & Schwann, 1906

1906. *Genetta letabae* Thomas & Schwann, P.Z.S., 578. Klein Letaba (west of the Kruger National Park), eastern Transvaal.

GENETTA RUBIGINOSA ZULUENSIS Roberts, 1924

1924. *Genetta rubiginosa zuluensis* Roberts, Ann. Transv. Mus. *10:* 67. White Umfolosi, Umfolosi Game Reserve, Zululand, Natal. Ranges to Mt. Edgecombe, Natal. Considered a synonym of *letabae* by Schwarz, but see Roberts (1951: 134).

GENETTA RUBIGINOSA ALBIVENTRIS Roberts, 1932

1932. *Genetta rubiginosa albiventris* Roberts, Ann. Transv. Mus. *15:* 1. Maun, Ngamiland, northern Bechuanaland.

SUBFAMILY Herpestinae

Genus **HERPESTES** Illiger, 1811

1799. *Ichneumon* Lacépède, Tabl. Div. Ord. Gen. Mamm., 7. Not of Linnaeus, 1758.

1811. *Herpertes* Illiger, Prodr. Syst. Mamm. et Avium, 135 (misprint, corrected to *Herpestes*, 302). *Viverra ichneumon* Linnaeus. (Type fixed by Anderson, 1878, Anat. Zool. Res. Exped. Yunnan, *1:* 171.)

1822. *Mangusta* Horsfield, Zool. Res. Java, unpaged, pt. 5. *Ichneumon javanicus* E. Geoffroy, from Java.

1865. *Calogale* Gray, P.Z.S. *1864:* 560. *Herpestes nepalensis* Gray = *Mangusta auropunctatus* Hodgson, from Nepal.

1865. *Galerella* Gray, P.Z.S. *1864:* 564. *Herpestes ochraceus* Gray, from Abyssinia. Valid as a subgenus.

1928. *Myonax* Thomas, Ann. Mag. N.H. *2:* 408. *Herpestes gracilis* Rüppell, the Eritrean race of *H. sanguineus* Rüppell.

For other, extralimital, generic names available, see Ellerman & Morrison-Scott, 1951, 293.

For discussion on the status of *Galerella* and its synonym *Myonax* see above page 119.

It is difficult to say how many species of *Galerella* there are in South Africa, but we are inclined to regard *pulverulentus* as possibly valid (though it must be admitted that in East Africa there are forms of *sanguineus* with an apparently equally large skull), and to regard *ratlamuchi* and allied forms as representing possible (reddish) colour-phases of *sanguineus* races.

1. Large species, with the skull length exceeding 90 mm., often exceeding 100 mm. Colour grey, with sharply contrasted black tail tip. Ten upper and 10 lower teeth each side. Bullae much more weakly developed in front than behind.
Herpestes ichneumon, page 125

Smaller species, the skull in published measurements does not exceed 73.2 mm. If the colour is grey then the black tailtip is usually indistinct or absent. In

South Africa (but not always so elsewhere within the subgenus), with 10 upper and 9 lower teeth each side. Bullae as well developed in front as they are behind. ——2

2. Normally the contrasted dark tailtip is indistinct or absent. In the Union the colour is grey (north of it blackish (?melanistic) forms occur). Averaging larger in size of skull; Roberts' measurements for males give the skull only once under 67 mm., females 63 mm. and more. (British Museum material agrees with these measurements.) *Herpestes* (*Galerella*) *pulverulentus*, page 129

With clearly contrasted black tailtip (South Africa). Colour usually reddish or yellowish. Average size not so large; Roberts' measurements for males give the skull only once over 64 mm., the females 62.5 mm. and less. (The British Museum South African skulls do not reach 67 mm.)

Herpestes (*Galerella*) *sanguineus*, page 126

Subgenus *HERPESTES* Illiger, 1811

Herpestes ichneumon Linnaeus, 1758

Egyptian Mongoose or Ichneumon. Grootgrysmuishond

Distribution: in the Union recorded from Satara (Kruger National Park), Transvaal; Natal, Zululand included, and in the Cape Province, Port St. Johns, Komgha, Pirie and Knysna. Portuguese East Africa; Inhambane district, north of Lourenço Marques, also north of the Zambezi (Boror). Southern Rhodesia, Ngamiland, and northern South-West Africa (the Okavango region and the Caprivi). Angola, where rare but widely distributed; Northern Rhodesia, southwards to the Sesheke region; Nyasaland. Beyond the limits of this work, Tanganyika, Uganda, Kenya, Southern Sudan, Abyssinia, the Belgian Congo, Nigeria; Egypt, Algeria, Morocco; Palestine; Spain.

Herpestes ichneumon ichneumon Linnaeus, 1758. (Extralimital)

1758. *Viverra ichneumon* Linnaeus, Syst. Nat. 10th ed. *1:* 43. Egypt.

Herpestes ichneumon cafer Gmelin, 1788

1788. *Viverra cafra* Gmelin, Linnaeus Syst. Nat. ed. 13, *1:* 85. Cape of Good Hope.
(1792. *Viverra nems* Kerr, Linnaeus Anim. Kingd. 160.)
1832. *Herpestes griseus* Smuts, Enum. Mamm. Cap., 19. Not of Geoffroy, 1818.
1865. *Herpestes dorsalis* Gray, P.Z.S. *1864:* 549. South Africa.

Herpestes ichneumon angolensis Bocage, 1890

1890. *Herpestes angolensis* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *2:* 32. Quissange (north-east of Benguela), western Angola.

Herpestes icheumon sabiensis Roberts, 1926

1926. *Herpestes caffer sabiensis* Roberts, Ann. Transv. Mus. *11:* 249. Sabi Game Reserve (Kruger National Park), eastern Transvaal. (Type collected at Satara, Roberts, 1951). Ranges to the Lourenço Marques district, southern Portuguese East Africa.

HERPESTES ICHNEUMON MABABIENSIS Roberts, 1932

1932. *Herpestes cafer mababiensis* Roberts, Ann. Transv. Mus. *15:* 4. Tsotsoroga Pan, Mababe Flats, Ngamiland, Bechuanaland. Ranges to Boror, northern Portuguese East Africa.

Subgenus *GALERELLA* Gray, 1865

Herpestes sanguineus Rüppell, 1836 Slender Mongoose. Rooimuishond

Distribution (as here understood): in the Union, the Transvaal; Kruger National Park (Punda Maria, etc.), near Potgietersrust, Johannesburg, Klein Letaba, Woodbush, Wakkerstroom, the Marico district, Legogot (near White River), etc. Durban, Zululand, etc., Natal. In the eastern Cape Province, Pondoland and in the north-western districts, Vryburg district, Kimberley, Upington, Louisvale. South-West Africa; according to Shortridge, occurs more or less plentifully throughout, including the Caprivi, but seems to be scarcer in Great Namaqualand, and perhaps absent from the coastal Namib desert. Ngamiland, and Gaberones, Bechuanaland. District of Tete, and Lumbo (north of the Zambezi), Portuguese East Africa. Southern Rhodesia, including Salisbury and Mount Selinda. Angola, where quite widely distributed. Nyasaland, Northern Rhodesia. Beyond the limits of this work, the greater part of Africa south of the Sahara, northwards to Asben, Senegal, the Sudan and Somaliland.

(*sanguineus* section):

(All type specimens available in London examined; named forms from the localities listed below are usually nondescript in colouring, with a black tailtip except in the northern Nigerian form *phoenicurus*.)

Range: Pondoland, Transvaal, Natal, Swaziland, South-West Africa (except the Orange River region), Ngamiland, Southern Rhodesia, Angola, Nyasaland; Tanganyika, Zanzibar, Abyssinia, Eritrea, Kenya, Sudan, Uganda, Cameroons, Northern Nigeria, Senegal.

HERPESTES SANGUINEUS SANGUINEUS Rüppell, 1836. (Extralimital)

1836. *Herpestes sanguineus* Rüppell, Neue Wirbelth. Abyssin. Pt. 7: 27. Kordofan, Sudan.

The title page bears the date 1835, but Pt. 7 was published in 1836 (Oken's *Isis, 1837:* 109). This publication date is deemed to be prior to that of *cauui* since the decision to publish Smith's report was only taken on 19 March, 1836.

HERPESTES SANGUINEUS CAUUI A. Smith, 1836

1836. *Ichneumon cauui* A. Smith, Rept. Exped. Explor. C. Africa, 42. Kurrichaine, Marico district, western Transvaal.

1865. *Calogale venatica* Gray, P.Z.S. *1864:* 563. "East Africa."

Range: southern Bechuanaland, Transvaal, Southern Rhodesia.

HERPESTES SANGUINEUS PUNCTULATUS Gray, 1849

1849. *Herpestes punctulatus* Gray, P.Z.S. 11. "Port Natal" = Durban, Natal. Ranges to Zululand and probably Swaziland.

HERPESTES SANGUINEUS ORNATUS Peters, 1852

1852. *Herpestes ornatus* Peters, Ber. Preuss. Akad. Wiss. 81. Tete, on the Zambezi, Portuguese East Africa.

HERPESTES SANGUINEUS FLAVESCENS Bocage, 1889

1889. *Herpestes gracilis* var. *flavescens* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *1:* 179. Benguela, Angola.

Hill & Carter made this a queried synonym of *bocagei*, but this name would take priority.

HERPESTES SANGUINEUS BOCAGEI Thomas & Wroughton, 1905

1905. *Herpestes bocagei* Thomas & Wroughton, Ann. Mag. N.H. *16:* 170. Caconda, Benguela, south-western Angola.

1889. *Herpestes gracilis* var. *punctulatus* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *1:* 179. Caconda, Angola. Not of Gray, 1849.

1935. *Myonax melanurus lundensis* Monard, Arq. Mus. Bocage, No. 6, 213. Chiumbé River 11° S. 20° 15′ E., Angola.

HERPESTES SANGUINEUS ZOMBAE Wroughton, 1907

1907. *Mungos melanurus zombae* Wroughton, Ann. Mag. N.H. *20:* 115. Zomba, southern Nyasaland.

HERPESTES SANGUINEUS SWINNYI Roberts, 1913

1913. *Mungos caaui* (sic) *swinnyi* Roberts, Ann. Transv. Mus. *4:* 75. Ngqeleni district (west of Port St. Johns), Pondoland, eastern Cape Province.

HERPESTES SANGUINEUS SWALIUS Thomas, 1926

1926. *Herpestes cauui swalius* Thomas, P.Z.S., 292. Great Brukaros Mountain, 3,500 ft., near Berseba, southern Great Namaqualand, South-West Africa.

HERPESTES SANGUINEUS CALDATUS Thomas, 1927

1927. *Herpestes cauui caldatus* Thomas, P.Z.S., 374. Sandfontein, Gobabis–Bechuanaland border, South-West Africa. Ranges northwards to the Waterberg district, South-West Africa.

HERPESTES SANGUINEUS KALAHARICUS Roberts, 1932

1932. *Myonax cauui kalaharicus* Roberts, Ann. Transv. Mus. *15:* 2. Gemsbok Pan, Kalahari desert, Bechuanaland.

HERPESTES SANGUINEUS KAOKOENSIS Roberts, 1932

1932. *Myonax cauui kaokoensis* Roberts, Ann. Transv. Mus. *15:* 2. Okorosave, Kaokoveld, northern South-West Africa. Ranges into southern Angola.

HERPESTES SANGUINEUS BRADFIELDI Roberts, 1932

1932. *Myonax cauui bradfieldi* Roberts, Ann. Transv. Mus. *15:* 2. Quickborn Farm, 60 miles north of Okahandja, Damaraland, South-West Africa.

HERPESTES SANGUINEUS OKAVANGENSIS Roberts, 1932

1932. *Myonax cauui okavangensis* Roberts, Ann. Transv. Mus. *15:* 3. Karakuwise, Grootfontein district, north-eastern South-West Africa.

HERPESTES SANGUINEUS KHANENSIS Roberts, 1932

1932. *Myonax cauui khanensis* Roberts, Ann. Transv. Mus. *15:* 3. Khan Mountains, east of Swakopmund, South-West Africa.

HERPESTES SANGUINEUS NGAMIENSIS Roberts, 1932

1932. *Myonax cauui ngamiensis* Roberts, Ann. Transv. Mus. *15:* 3. Maun, Ngamiland, northern Bechuanaland.

HERPESTES SANGUINEUS LANCASTERI Roberts, 1932.

1932. *Myonax cauui lancasteri* Roberts, Ann. Transv. Mus. *15:* 4. Kafue River, southern Northern Rhodesia.

HERPESTES SANGUINEUS DASILVAI Roberts, 1938

1938. *Calogale cauui dasilvai* Roberts, Ann. Transv. Mus. *19:* 235. Ondjiwa, southern Angola.

HERPESTES SANGUINEUS ERONGENSIS Roberts, 1946

1946. *Myonax cauui erongensis* Roberts, Ann. Transv. Mus. *20:* 313. Ombu Farm, Eronga Mountain, Omdaruru district, South-West Africa.

(*ratlamuchi* section):

(All type specimens available in London examined; includes forms from Tanganyika (*granti*), Abyssinia and Somaliland (*ochracea*, the type of *Galerella* and related forms), Uganda (*galbus*) and Asben (*saharae*); normally reddish in colour; with a dark tailtip except in *saharae* and *granti*.)

South African range: Western Transvaal (Vaal River region), northern Cape Province (Vryburg and Griqualand West to Upington and Louisvale, western Orange River), Portuguese East Africa, Gaberones (south-eastern Bechuanaland).

HERPESTES SANGUINEUS RATLAMUCHI A. Smith, 1836

1836. *Ichneumon ratlamuchi* A. Smith, Rept. Exped. Expl. C. Africa, 42. "Between Latakoo (near Kuruman) and the Tropic," South Africa.

1838. *Herpestes badius* A. Smith, Illustr. Zool. S. Africa, Mamm. pl. 4 and text. "Near Old Latakoo" (= Kuruman) and between that and Kurrichane.

HERPESTES SANGUINEUS AURATUS Thomas & Wroughton, 1908

1908. *Mungos auratus* Thomas & Wroughton, P.Z.S. 543. Tete, on the Zambezi, Portuguese East Africa. Ranges to Mount Selinda, Southern Rhodesia.

Herpestes sanguineus ignitus Roberts, 1913

1913. *Mungos ignitus* Roberts, Ann. Transv. Mus. *4:* 76. Malava, Boror, north of the Zambezi, Portuguese East Africa.

Herpestes sanguineus mossambicus Matschie, 1914

1914. *Calogale mossambica* Matschie, S.B. Ges. Naturf. Fr. Berlin, 438. Cabaceira, north-eastern coastal Portuguese East Africa.

Herpestes sanguineus ignitoides Roberts, 1932.

1932. *Myonax auratus ignitoides* Roberts, Ann. Transv. Mus. *15:* 2. Macequece, Portuguese East Africa. (This is south of the Zambezi, near Umtali (Southern Rhodesia).)

Herpestes sanguineus upingtoni Shortridge, 1934.

1934. *Myonax ratlamuchi upingtoni* Shortridge, Mamm. S.-W. Africa, *1:* 124, footnote. Between Upington and Louisvale, western Orange River, northern Cape Province.

Herpestes pulverulentus Wagner, 1839

Cape Grey Mongoose. Kleingrysmuishond

(Probably the form *nigratus* is a melanistic variety of this species, and probably the form *shortridgei* is an erythristic variety.)

Distribution: the Orange Free State, the Maluti Mountains in Basutoland; in the Cape Province, the Aughrabies Falls, Louisvale (near Upington), Little Namaqualand (Goodhouse, north of Steinkopf, Port Nolloth, the Kamiesberg), Klaver, Lamberts Bay, Clanwilliam, Rondebosch (near Cape Town), the Cape Point nature reserve, south of Cape Town (where it is common), Knysna, Plettenberg Bay, King William's Town, Albany, Alexandria, Grahamstown, Bathurst, Tarkastad district, Deelfontein. In South-West Africa, from Helmeringshausen (Great Namaqualand) to Damaraland, the Kaokoveld and the Cunene Falls (Angolan border), eastwards to Waterberg and Grootfontein districts.

Herpestes pulverulentus pulverulentus Wagner, 1839

1839. *Herpestes pulverulentus* Wagner, Gelehrte Anzeigen, *9:* 426. Cape of Good Hope.
1826. *Herpestes caffra* A. Smith. Descript. Cat. S. Afr. Mus. 21. Not of Gmelin, 1788.
1865. *Herpestes apiculatus* Gray, P.Z.S. *1864:* 551. Cape of Good Hope.
1919. *Mungos pulverulentus maritimus* Roberts, Ann. Transv. Mus. *6:* 114. Lamberts Bay, western Cape Province.

Range: southern Cape Province.

Herpestes pulverulentus ruddi Thomas, 1903.

1903. *Herpestes ruddi* Thomas, Ann. Mag. N.H. *12:* 465. Klipfontein (north of Steinkopf), Little Namaqualand, north-western Cape Province. Ranges into South-West Africa, and to Aughrabies Falls district.

HERPESTES PULVERULENTUS NIGRATUS Thomas, 1928

1928. *Myonax nigratus* Thomas, Ann. Mag. N.H. *2:* 408. Okorasave, northern Kaokoveld, South-West Africa. Recorded also from Windhoek, etc.

HERPESTES PULVERULENTUS SHORTRIDGEI Roberts, 1932

1932. *Myonax shortridgei* Roberts, Ann. Transv. Mus. *15:* 1. Cunene Falls, southern Angola (near South-West African border).

HERPESTES PULVERULENTUS BASUTICUS Roberts, 1936

1936. *Myonax pulverulentus basuticus* Roberts, Ann. Transv. Mus. *18:* 253. Senqunyane Valley, Maluti Mountains, western Basutoland.

Genus **ATILAX** F. Cuvier, 1826

1826. *Atilax* F. Cuvier in Geoffroy & Cuvier, H.N. Mamm. livraison 54, text on the "Vansire": 2. "The Vansire" of F. Cuvier = *Herpestes paludinosus* G. Cuvier. (See J. Allen, 1924, Bull. Amer. Mus. N.H. *47:* 171.)

1837. *Athylax* Blainville, Ann. Sci. Nat. *8:* 272. Alternative for *Atilax.*

Atilax paludinosus G. Cuvier, 1829

Water Mongoose; Marsh Mongoose. Kommetjiegatmuishond

Distribution: this species is well known in the Kruger National Park, Transvaal, and its borders (Mokeetsi, Woodbush, Tzaneen, etc.). Natal, including Mooi River and Zululand. Shortridge (1934) quotes it from the Orange Free State. In the Cape Province, they may occur in the Cape Point nature reserve (near Cape Town), and one was recently killed at Hout Bay (Dr. S. H. Skaife, *in litt*). Near Lamberts Bay; Vredendal (Roberts); Louisvale (near Upington); Kuruman, where it is (or was) rare. Knysna, King William's Town, Port Elizabeth. Recorded by Hewitt (1931) from as far inland as Burghersdorp. South-West Africa; the Orange, Cunene and Okavango Rivers and the eastern Caprivi. Northern Ngamiland, Bechuanaland. Southern Rhodesia (Shortridge). Portuguese East Africa, recorded from districts of Inhambane, Beira and Gorongoza. Angola, including the Cubango River region, Hanha, western coastal districts, Chitau, etc. Northern Rhodesia, Nyasaland. In East Africa northwards to the Sudan and Abyssinia, and in West Africa from the Belgian Congo about to Sierra Leone.

ATILAX PALUDINOSUS PALUDINOSUS G. Cuvier, 1829

(1776. *Mustela galera* Schreber, Säugth. pl. 135; text, *3:* 493 (1778). Madagascar. The name is regarded as unidentifiable (J. Allen, 1924, Bull. Amer. Mus. N.H. *47:* 163).)

(1777. *Mustela voang-shire* Zimmermann, Spec. Zool. Geogr. 487 (= *Mustela galera* Schreber according to J. A. Allen, 1902, Bull. Amer. Mus. N.H. *16:* 16. But Zimmermann, 1777, is in any case an unavailable work, see Bull. Zool. Nomencl. 1950, *4:* 547).)

1829. *Herpestes paludinosus* G. Cuvier, Règne Anim. *2*, 1: 158. Cape of Good Hope.

1829. *Mangusta urinatrix* A. Smith, Zool. J. *4:* 437. South Africa. (May, 1829.)

1841. *Herpestes atilax* Wagner in Schreber, Säugth. Suppl. *2:* 305. South Africa.
1842. *Atilax vansire* F. Cuvier in Geoffroy & Cuvier, H.N. Mamm., Table gén. 3 (naming the "Vansire", see under *Atilax* above).
1865. *Athylax paludosus* Gray, P.Z.S. *1864:* 557.

Range: Cape Province, Natal, Zululand, south-eastern Transvaal; also South-West Africa to Angola?

ATILAX PALUDINOSUS RUBELLUS Thomas & Wroughton, 1908

1908. *Mungos paludinosus rubellus* Thomas & Wroughton, P.Z.S., 166. Tambarara, Gorongoza district (south of the Zambezi), western Portuguese East Africa.

ATILAX PALUDINOSUS MORDAX Thomas, 1912

1912. *Mungos paludinosus mordax* Thomas, Ann. Mag. N.H. *10:* 588. "Rombashi River" = Mbasi Creek, 1,600 ft., north-western corner of Lake Nyasa, south-western Tanganyika (Swynnerton & Hayman, 1951). Roberts quotes specimens from Ncheu, southern Nyasaland.

ATILAX PALUDINOSUS TRANSVAALENSIS Roberts, 1933

1933. *Atilax paludinosus transvaalensis* Roberts, Ann. Transv. Mus. *15:* 266. Mokeetsi (north of Tzaneen), north-eastern Transvaal.

Genus **HELOGALE** Gray, 1862

1862. *Helogale* Gray, P.Z.S. *1861:* 308. *Herpestes parvulus* Sundevall.

Helogale parvula Sundevall, 1846 Dwarf Mongoose. Dwergmuishond

Distribution: in the Union, the Transvaal, Kruger National Park (Skukuza, Toulon and other localities), northwards to the Zoutpansberg, Klein Letaba, westwards to the Rustenburg district; Natal, Zululand included. South-West Africa; the Kaokoveld, parts of Damaraland; northern Bechuanaland, Southern Rhodesia. It occurs north of the Zambezi in Portuguese East Africa (Lumbo). Angola, fairly common throughout, at least south of the Cuanza River (Hill & Carter). Northern Rhodesia (southwards to the Sesheke-Kafue region), Nyasaland. North of the limits of this work, this or closely allied species occur in the Belgian Congo, and in East Africa northwards to Abyssinia and Somaliland.

HELOGALE PARVULA PARVULA Sundevall, 1846

1846. *Herpestes parvulus* Sundevall, Öfvers. Vetensk. Akad. Förh. Stockholm, *3:* 121. "Caffraria superiore juxta tropicum." Roberts nominated Zoutpansberg, northern Transvaal.
1906. *Helogale brunnula* Thomas & Schwann, Abstr. P.Z.S. No. 33, 10; P.Z.S., 581. Klein Letaba (west of Kruger National Park) eastern Transvaal.

Range: Natal northwards to Southern Rhodesia.

HELOGALE PARVULA UNDULATA Peters, 1852

1852. *Herpestes undulatus* Peters, Ber. Preuss. Akad. Wiss., 81. Mossimboa, 11° 20′ S., 40° 22′ E., northern coast of Portuguese East Africa. Ranges to Tanganyika. Recorded also from the Sesheke-Kafue district of Northern Rhodesia (Shortridge).

HELOGALE PARVULA VARIA Thomas, 1902

1902. *Helogale varia* Thomas, P.Z.S. *1:* 119. "Northern Nyasaland." Should be corrected to Mweru District, Northern Rhodesia (Moreau, Hopkins & Hayman, 1946). Range includes Ndola and Msofu River, Northern Rhodesia.

HELOGALE PARVULA IVORI Thomas, 1919

1919. *Helogale ivori* Thomas, Ann. Mag. N.H. *4:* 31. Lumbo, mainland opposite Mozambique Island, 15° 1′ S., 40° 40′ E., sea level, Portuguese East Africa. Recorded also from Tanganyika.

HELOGALE PARVULA RUFICEPS Kershaw, 1922

1922. *Helogale brunnula ruficeps* Kershaw, Ann. Mag. N.H. *10:* 103. Monze, 200 miles south of Ndola, Northern Rhodesia.

HELOGALE PARVULA MIMETRA Thomas, 1926

1926. *Helogale mimetra* Thomas, Ann. Mag. N.H. *17:* 183. (January, 1926.) Ganguela, Angola.

1926. *Helogale brunetta* Thomas, P.Z.S. 293. (April, 1926). Rua Cana Falls (= Cunene Falls), Cunene River, extreme southern Angola.

HELOGALE PARVULA NERO Thomas, 1928

1928. *Helogale parvula nero* Thomas, Ann. Mag. N.H. *2:* 408. (November, 1928.) Okorosave, Kaokoveld, northern South-West Africa.

1928. *Helogale bradfieldi* Roberts, Ann. Transv. Mus. *12:* 323. (December, 1928). Waterberg Police Post, Damaraland, South-West Africa.

Genus **MUNGOS** E. Geoffroy & G. Cuvier, 1795

1795. *Mungos* E. Geoffroy & G. Cuvier, Mag. Encycl. *2:* 184, 187. *Viverra mungo* Gmelin.

1825. *Crossarchus* F. Cuvier, in Geoffroy & Cuvier, H.N. Mamm. *3:* pt. 47: "Mangue," 3. *Crossarchus obscurus* F. Cuvier, from West Africa. Valid as a subgenus.

1865. *Ariela* Gray, P.Z.S. *1864:* 565. *Herpestes taenianotus* A. Smith, the Natal race of *Viverra mungo* Gmelin.

On the use of the name *Mungos* see J. Allen, 1924, Bull. Amer. Mus. N.H. *47:* 157.

It should be noted that at one time (as for instance by Hollister, 1918, and other authors) the name *Mungos* was transferred to what is now called *Herpestes*, and the

present genus was called *Crossarchus* or *Ariela*. Later, it was shown that the present genus, which is the prior name in the subfamily, was the Banded Mongoose.

We follow Hill & Carter in regarding *Crossarchus* as being congeneric with *Mungos*.

Back conspicuously transversely banded. *Mungos mungo*, page 133
Back not transversely banded. *Mungos* (*Crossarchus*) *ansorgei*,[1] page 134

Subgenus *MUNGOS* E. Geoffroy & G. Cuvier, 1795

Mungos mungo Gmelin, 1788 Banded Mongoose. Gebande Muishond

Distribution: in the Union, known from Zululand, the coast of Natal, the Kruger National Park (it is said to be common in the Skukuza district), and the Rustenburg district. Shortridge (1934) says that it occurs, as a great rarity, in the north-eastern Cape Province. Portuguese East Africa; districts of Beira, Gorongoza, Tete, Inhambane, also Lumbo (north of the Zambezi). Southern Rhodesia, Salisbury included. Ngamiland, Bechuanaland; in South-West Africa, the northern portions "from a little beyond the Tropic of Capricorn northwards to the Cunene and Okavango Rivers, and eastwards to the Bechuanaland border and through the Caprivi" (Shortridge, 1934). Angola; probably throughout, according to Hill & Carter. Northern Rhodesia, Nyasaland. North of the region dealt with in this work, in East Africa northwards to the Sudan and Somaliland, and in West Africa from the Belgian Congo to Nigeria and Portuguese Guinea.

Mungos mungo mungo Gmelin, 1788. (Extralimital)

1788. *Viverra mungo* Gmelin, Linnaeus Syst. Nat. ed. *13*, 1: 84. "Asia," but type locality fixed as Gambia, West Africa (Ogilby, 1835, P.Z.S. 101).
1823. *Herpestes fasciatus* Desmarest, Dict. Sci. Nat. *29:* 58. Renaming of *mungo*.

Mungos mungo taenianotus A. Smith, 1834

1834. *Ichneumon taenianotus* A. Smith, S. Afr. J. *2:* 114. Natal.

Mungos mungo senescens Thomas & Wroughton, 1907

1907. *Crossarchus fasciatus senescens* Thomas & Wroughton, P.Z.S. 291. Coguno, Inhambane district, southern Portuguese East Africa. Roberts quotes specimens from Beira, and from Mt. Selinda, Southern Rhodesia.

[1] The earliest name in the subgenus *Crossarchus* is *M. obscurus*, F. Cuvier, 1825, from West Africa, but the Angolan species *ansorgei* is distinct from that species and its ally, or race, *alexandri* from the Congo; it is smaller and has a shorter palate, shorter postdental palate, and shorter toothrow, as will be shown by these figures:

	Skull length	Palate	Post-dental palate	c–m2
M. obscurus	73	41	10	26.8
„	72	41	10	25.4
M. alexandri (type) ...	80	44	10	28
„ ...	85	46	11	30
M. ansorgei (type) ...	63.2	31	5	21
„ ...	64	29.4	5	21.5

MUNGOS MUNGO GRISONAX Thomas, 1926

1926. *Mungos mungo grisonax* Thomas, P.Z.S. 294. Otjumbumbi, 15 miles above Cunene Falls, northern South-West Africa (or extreme southern Angola); but Shortridge (1934) says the type came from Ekandua, north-western Ovamboland, South-West Africa.

MUNGOS MUNGO BORORENSIS Roberts, 1929

1929. *Mungos mungo bororensis* Roberts, Ann. Transv. Mus. *13:* 88. Buruma's Village, Boror, north of the Zambezi, Portuguese East Africa.

MUNGOS MUNGO ROSSI Roberts, 1929

1929. *Mungos mungo rossi* Roberts, Ann. Transv. Mus. *13:* 89. Lake Bangweulu, Northern Rhodesia.

MUNGOS MUNGO PALLIDIPES Roberts, 1929

1929. *Mungos mungo pallidipes* Roberts, Ann. Transv. Mus. *13:* 89. Mooivlei, Rustenburg district, western Transvaal.

MUNGOS MUNGO NGAMIENSIS Roberts, 1932

1932. *Mungos mungo ngamiensis* Roberts, Ann. Transv. Mus. *15:* 5. Maun, Ngamiland, northern Bechuanaland.

Subgenus *CROSSARCHUS* F. Cuvier, 1825

Mungos ansorgei Thomas, 1910 Angolan Kusimanse

Distribution: north-western Angola, and Belgian Congo (British Museum).

MUNGOS ANSORGEI Thomas, 1910

1910. *Crossarchus ansorgei* Thomas, Ann. Mag. N.H. *5:* 195. Dala Tando, north-western Angola.

Genus **ICHNEUMIA** I. Geoffroy, 1837

1835. *Lasiopus* I. Geoffroy in Gervais, Résumé des Leçons de Mamm. professées au Mus. Paris, *1:* 37. *Herpestes albicaudus* G. Cuvier. Not of Dejean, 1833.

1837. *Ichneumia* I. Geoffroy, Ann. Sci. Nat. Zool. *8:* 251. Replaces *Lasiopus*, preoccupied. *Herpestes albicaudus* G. Cuvier.

Ichneumia albicauda G. Cuvier, 1829

White-tailed Mongoose. Witstertmuishond

Distribution: it is well known in the Kruger National Park and its vicinity; Rustenburg district, western Transvaal; Natal (Zululand included), the eastern Cape Province, southwards to the districts of Albany and Alexandria. The Caprivi,

northern South-West Africa, Ngamiland, Southern Rhodesia, the Inhambane district of Portuguese East Africa. Angola; "doubtless found throughout Angola" (Hill & Carter). Northern Rhodesia, Nyasaland. North of the limits of this work, most of East Africa northwards to the Sudan and Somaliland; Belgian Congo, Nigeria, Gold Coast, Senegal. Southern Arabia.

Ichneumia albicauda albicauda G. Cuvier, 1829. (Extralimital)

1829. *Herpestes albicaudus* G. Cuvier, Règne Anim. *2*, 1 : 158. Senegal.

Ichneumia albicauda grandis Thomas, 1890

1890. *Herpestes grandis* Thomas, P.Z.S. *1889:* 622. "Believed to have been collected either on the Limpopo or in Zululand." Roberts (1951) nominates Hector-spruit (near the south-eastern border of the Kruger National Park) as the type locality.

1924. *Ichneumia grandis haagneri* Roberts, Ann. Transv. Mus. *10:* 68. Bridgewater, Rustenburg district, western Transvaal.

Ichneumia albicauda loandae Thomas, 1904

1904. *Herpestes albicaudus loandae* Thomas, Ann. Mag. N.H. *13:* 408. Pungo Andongo (south-east of Loanda), northern Angola.

Genus **RHYNCHOGALE** Thomas, 1894

1865. *Rhinogale* Gray, P.Z.S. *1864:* 573. *Rhinogale melleri* Gray. Not of Gloger, 1841.

1894. *Rhynchogale* Thomas, P.Z.S., 139. To replace *Rhinogale* Gray, preoccupied. *Rhinogale melleri* Gray.

Rhynchogale melleri Gray, 1865 Meller's Mongoose. Mellerse Muishond

Distribution: the south-eastern Transvaal, Swaziland, the Gorongoza district, Portuguese East Africa; Nyasaland, Northern Rhodesia, with a closely allied form or subspecies in Tanganyika.

Rhynchogale melleri melleri Gray, 1865

1865. *Rhinogale melleri* Gray, P.Z.S. *1864:* 575. "East Africa" = Zomba, Nyasaland (Thomas, 1894, P.Z.S., 139).

Rhynchogale melleri langi Roberts, 1938

1938. *Rhynchogale melleri langi* Roberts, Ann. Transv. Mus. *19:* 243. Ranches Limited, north-eastern Swaziland. Ranges into the adjacent parts of the Transvaal.

Genus **BDEOGALE** Peters, 1850

1850. *Bdeogale* Peters, Spenersche Z., 25 June; 1852. Mber. Preuss. Akad. Wiss. 81. *Bdeogale crassicauda* Peters (Thomas, 1882, P.Z.S. 81).
1894. *Galeriscus* Thomas, Ann. Mag. N.H. *13:* 522. *Galeriscus jacksoni* Thomas, from Kenya. Valid as a subgenus.[1]

Subgenus *BDEOGALE* Peters, 1850

Bdeogale crassicauda Peters, 1852

Bushy-tailed Mongoose; Four-toed Mongoose. Dikstertmuishond

Distribution: Portuguese East Africa, including Tete, Gorongoza district, Boror, etc.; Nyasaland; Fort Jameson, Northern Rhodesia (B.M.), northwards to Zanzibar, Tanganyika and Kenya.

BDEOGALE CRASSICAUDA CRASSICAUDA Peters, 1852

1852. *Bdeogale crassicauda* Peters, Mber. Preuss. Akad. Wiss. 81. Tete (on the Zambezi), Portuguese East Africa. (Restricted by Moreau, Hopkins & Hayman, 1946.) Recorded also from Boror, north of the Zambezi, and Gorongoza.

BDEOGALE CRASSICAUDA PUISA Peters, 1852

1852. *Bdeogale puisa* Peters, Mber. Preuss. Akad. Wiss. 82. Mossimboa, 11° 20′ S., 40° 22′ E., north-eastern coast of Portuguese East Africa. Ranges into Tanganyika.

Genus **PARACYNICTIS** Pocock, 1916

1916. *Paracynictis* Pocock, Ann. Mag. N.H. *17:* 177. *Cynictis selousi* de Winton.

We do not agree with Simpson (1945) that this genus should be merged with *Cynictis.*

Paracynictis selousi de Winton, 1896

Selous' Meerkat. Kleinwitstertmuishond

Distribution: in the Union, Zululand and the north-eastern Transvaal (Zoutpansberg, Woodbush, Mokeetsi). South-West Africa; the central and eastern Caprivi; eastern and northern Bechuanaland; Northern Rhodesia, Southern Rhodesia, Nyasaland. Angola, where Hill & Carter say that it is moderately common, and probably found throughout, south of the Congo district.

[1] The earliest name in the subgenus *Galeriscus* is *Bdeogale nigripes* Pucheran, 1855, Rev. Mag. Z. *7:* 111, Gabon. Hill & Carter (1941) include it in the Angolan mammals, but from their remarks it appears that its occurrence there is rather doubtful; "reported several times from Angola . . . possibly some of the specimens are *Paracynictis selousi,* but *Galeriscus* probably occurs in northern Angola."

Paracynictis selousi selousi de Winton, 1896

1896. *Cynictis selousi* de Winton, Ann. Mag. N.H. *18:* 469. Essex Vale (near Bulawayo), Matabeleland, western Southern Rhodesia. Ranges to Zoutpansberg, northern Transvaal (Roberts).

Paracynictis selousi sengaani Roberts, 1931

1931. *Paracynictis sengaani* Roberts, Ann. Transv. Mus. *14:* 227. Maputa, northeastern Zululand, Natal.

Paracynictis selousi ngamiensis Roberts, 1932.

1932. *Paracynictis selousi ngamiensis* Roberts, Ann. Transv. Mus. *15:* 5. 30 miles northwest of Maun, Ngamiland, northern Bechuanaland. Range (according to Roberts) Ngamiland to Ovamboland and southern Angola, probably also Northern Rhodesia and Nyasaland.

Paracynictis selousi bechuanae Roberts, 1932.

1932. *Paracynictis selousi bechuanae* Roberts, Ann. Transv. Mus. *15:* 5. Tsessebe Siding, Tati district, eastern Bechuanaland.

Genus **CYNICTIS** Ogilby, 1833

1833. *Cynictis* Ogilby, P.Z.S. 48. *Cynictis steedmanni* Ogilby = *Herpestes penicillatus* G. Cuvier.

Cynictis penicillata G. Cuvier, 1829

Red Meerkat or Bushy-tailed Meerkat; Yellow Mongoose
Geelmeerkat; Rooimeerkat

Distribution: in the Union, a large part of the Transvaal, including the Marico River, near Schweizer-Reneke, near Wolmaransstad, near Johannesburg, Pretoria, Potchefstroom, Pietersburg, Zoutpansberg, Carolina, Wakkerstroom. Newcastle, Natal (British Museum). Vredefort, Harrismith, etc., in the Orange Free State. In the Cape Province, Vryburg, Kuruman and west of it, Upington, Louisvale; in Little Namaqualand, Klipfontein (north of Steinkopf), also Bitterfontein and Nieuwerust; Klaver, Lamberts Bay; east of Ladismith, Oudtshoorn, Port Elizabeth, Uitenhage, Grahamstown, west of Queenstown, near Graaff Reinet, near Cradock, south of Richmond, Deelfontein. Tembuland (according to Hewitt). The Kalahari, and Gaberones in south-eastern Bechuanaland. South-West Africa; from Great Namaqualand to Damaraland, the Kaokoveld, western Ovamboland, and northwards into southern Angola.

It is probable that too many races are recognized in this species.

Cynictis penicillata penicillata G. Cuvier, 1829

1829. *Herpestes penicillatus* G. Cuvier, Règne Anim. ed. 2, *1:* 158. (April, 1829). Cape of Good Hope; Uitenhage, eastern Cape Province according to Roberts (1951).

CYNICTIS PENICILLATA PENICILLATA [*contd.*]

1829. *Mangusta Le Vaillantii* A. Smith, Zool. J. *4:* 437 (May, 1829). South Africa.
1833. *Cynictis steedmanni* Ogilby, P.Z.S. 49. Uitenhage, eastern Cape Province.
1834. *Cynictis typicus* A. Smith, S. Afr. J. *2:* 116. Renaming of *Le Vaillantii.*

CYNICTIS PENICILLATA OGILBYI A. Smith, 1834

1834. *Cynictis ogilbyii* A. Smith, S. Afr. J. *2:* 117. "Bushman Flat and northern parts of Graaff-Reynet district." Range: eastern Karroo and western and southern Orange Free State (Fauresmith, Rouxville).

CYNICTIS PENICILLATA LEPTURA A. Smith, 1839

1839. *Cynictis lepturus* A. Smith, Illustr. Zool. S. Africa, Mamm. pl. 17 and text. "Arid plains towards the Tropic of Capricorn"; Marico district, western Transvaal (Roberts).

CYNICTIS PENICILLATA PALLIDIOR Thomas & Schwann, 1904.

1904. *Cynictis penicillata pallidior* Thomas & Schwann, Abstr. P.Z.S. No. 2, 5; P.Z.S. *1:* 175. Klipfontein (north of Steinkopf), Little Namaqualand, north-western Cape Province. Ranges to the Olifants River, western Cape Province.

CYNICTIS PENICILLATA INTENSA Schwann, 1906

1906. *Cynictis penicillata intensa* Schwann, P.Z.S. 104. Deelfontein (north of Richmond) Cape Province. Also recorded by Roberts from the Oudtshoorn district.

CYNICTIS PENICILLATA BRACHYURA Roberts, 1924

1924. *Cynictis penicillata brachyura* Roberts, Ann. Transv. Mus. *10:* 68. Boschkop, near Johannesburg, Transvaal.

CYNICTIS PENICILLATA BRADFIELDI Roberts, 1924

1924. *Cynictis penicillata bradfieldi* Roberts, Ann. Transv. Mus. *10:* 69. Quickborn Farm, Okahandja district, Damaraland, South-West Africa.

CYNICTIS PENICILLATA CINDERELLA Thomas, 1927

1927. *Cynictis bradfieldi cinderella* Thomas, P.Z.S. 375. Ondongwa, central Ovamboland, northern South-West Africa. Ranges into Angola.

CYNICTIS PENICILLATA COOMBSI Roberts, 1929

1929. *Cynictis penicillata coombsi* Roberts, Ann. Transv. Mus. *13:* 90. Swarthoek, Zoutpansberg, northern Transvaal.

CYNICTIS PENICILLATA BECHUANAE Roberts, 1932.

1932. *Cynictis penicillata bechuanae* Roberts, Ann. Transv. Mus. *15:* 4. Gaberones, south-eastern Bechuanaland. Also recorded by Roberts from Vryburg and Fourteen Streams, northern Cape Province.

Cynictis penicillata kalaharica Roberts, 1932

1932. *Cynictis penicillata kalaharica* Roberts, Ann. Transv. Mus. *15:* 4. Kaotwe Pan, central Kalahari, Bechuanaland. Ranges northwards to Lake Ngami.

Cynictis penicillata karasensis Roberts, 1938

1938. *Cynictis penicillata karasensis* Roberts, Ann. Transv. Mus. *19:* 235. Kochena, Great Karas Mountains, Great Namaqualand, South-West Africa. Also recorded from Upington and Aughrabies Falls, north-western Cape Province.

Genus **SURICATA** Desmarest, 1804

1804. *Suricata* Desmarest, Nouv. Dict. H.N. (1) *24:* Tabl. Méth. Mamm. 15. *Suricata capensis* Desmarest = *Viverra suricatta* Schreber.
1811. *Ryzaena* Illiger, Prodr. Syst. Mamm. et Avium, 134. *Viverra tetradactyla* Pallas and *Viverra zenik* Gmelin (= *Viverra suricatta* Schreber).
1817. *Rizaena* Blainville, Nouv. Dict. H.N. *9:* 339. (No species given).
1827. *Rysaena* Lesson, Man. Mamm. 178 (*lapsus*).
1841. *Rhyzaena* Wagner in Schreber, Säugth. Suppl. *2:* 330. *Viverra tetradactyla* Pallas = *Viverra suricatta* Schreber.

Simpson makes *Suricata* the type of a special tribe, contrasted with all other Mongooses.

Suricata suricatta Schreber, 1776

Grey Meerkat; Slendertailed Meerkat; Suricate
Graatjiemeerkat; Stokstertmeerkat

Distribution: the southern Transvaal (Wakkerstroom, Pretoria districts), the Orange Free State, including Aberfeldy (near Harrismith), Vredefort district; and in the Cape Province, about 100 miles west of Kuruman, west of Kimberley (De Beers), Louisvale (near Upington), Little Namaqualand (where common, including Port Nolloth, Klipfontein (north of Steinkopf), north of Springbok, the Kamiesberg etc.), Lamberts Bay, Klaver, Vredendal, Ceres district (Shortridge, 1934); west of Graaff Reinet, Fort Beaufort, Nelspoort, between Richmond and Three Sisters, Deelfontein; recorded from Grahamstown, Uitenhage, Alexandria and according to Hewitt (1931) districts of Cradock, Aliwal North, Burghersdorp and Griqualand East. South-West Africa; southern Damaraland, eastwards to the Gobabis district. The Kalahari.

Suricata suricatta suricatta Schreber, 1776

1776. *Viverra suricatta* Schreber, Säugth. pl. 117. Cape of Good Hope (restricted to Deelfontein (north of Richmond, Cape Province) by Thomas & Schwann, 1905, P.Z.S. *1:* 133).
1777. *Viverra tetradactyla* Pallas in Schreber, Säugth. *3:* 434. Cape of Good Hope.
1786. *Mus zenik* Scopoli, Deliciae Faunae et Florae, Insubricae, *2:* 84. "In terra Hottentotarum."

SURICATA SURICATTA SURICATTA [*contd.*]

1804. *Suricata capensis* Desmarest, Nouv. Dict. H.N. (1) *24:* Tabl. Méth. Mamm. 15. Cape of Good Hope.

1819. *Surikata viverrina* Desmarest, Nouv. Dict. H.N. (2) *32:* 297. Cape of Good Hope.

1826. *Ryzaena suraktta* (sic) A. Smith, Descript. Cat. S. Afr. Mus. 32.

1834. *Rhyzaena typicus* A. Smith, S. Afr. J. *2:* 117. South Africa.

SURICATA SURICATTA HAMILTONI Thomas & Schwann, 1905

1905. *Suricata suricatta hamiltoni* Thomas & Schwann, P.Z.S. *1:* 133. Wakkerstroom, south-eastern Transvaal. Ranges to the Orange Free State (Harrismith, Fauresmith, etc.).

SURICATA SURICATTA LOPHURUS Thomas & Schwann, 1905

1905. *Suricata suricatta lophurus* Thomas & Schwann, P.Z.S. *1:* 133. Near Grahamstown, eastern Cape Province.

SURICATA SURICATTA NAMAQUENSIS Thomas & Schwann, 1905

1905. *Suricata suricatta namaquensis* Thomas & Schwann, P.Z.S. *1:* 134. Klipfontein, north of Steinkopf, Little Namaqualand, north-western Cape Province. Ranges southwards to Klaver and Vredendal.

SURICATA SURICATTA HAHNI Thomas, 1927

1927. *Suricata suricatta hahni* Thomas, P.Z.S. 376. Gobabis, eastern South-West Africa. Range includes the Kalahari.

SURICATA SURICATTA MARJORIAE Bradfield, 1936

1936. *Suricata marjoriae* Bradfield, Descr. of New Races of Kalahari Birds and Mamm. (privately printed and dated Benoni, 26 Sept. 1935). Reprinted in The Auk, *53:* 131, Jan. 1936. Saltpan, 10 miles north of Swakopmund, South-West Africa.

FAMILY PROTELIDAE

Genus **PROTELES** I. Geoffroy, 1824

1824. *Proteles* I. Geoffroy, Bull. Soc. Philom. Paris, 139. *Proteles lalandii* I. Geoffroy = *Viverra cristata* Sparrman.

1830. *Geocyon* Wagler, Naturl. Syst. Amphib., 30. *Proteles lalandii* I. Geoffroy = *Viverra cristata* Sparrman.

Proteles cristatus Sparrman, 1783 Aardwolf. Maanhaarjakkals; Erdwolf

Distribution: in the Union, known from the Kruger National Park (according to Col. J. A. B. Sandenbergh), the Pretoria district and Potchefstroom, Transvaal (specimen from the latter locality in the British Museum). Estcourt, Natal. The Orange Free State (for instance, near Wepener; and the B.M. has specimens from

Vredefort district). In the Cape Province, De Beers (36 miles west of Kimberley), Vryburg, Little Namaqualand (the Kamiesberg, near Steinkopf, Port Nolloth), Klaver, Clanwilliam; the Albany district and according to Hewitt, Pirie (near King William's Town). Other possible localities are the neighbourhood of Bredasdorp, and Graaff Reinet. Deelfontein (British Museum). South-West Africa; "widely distributed throughout South-West Africa; nowhere very abundantly. It is apparently rather scarce along the valley of the Orange River, and northwards in the neighbourhood of the Okavango and the Caprivi. I did not hear of its occurrence in the Namib coastal belt" (Shortridge, 1934). The Kalahari; Southern Rhodesia. Rare in southern Angola, records include Humpata and Capelongo. Recorded from Northern Rhodesia (Batoka Province), where not common. Beyond the limits of this work, East Africa, as far north as British Somaliland and Suakin, northern Sudan.

Proteles cristatus cristatus Sparrman, 1783

1783. *Viverra cristata* Sparrman, Resa Goda Hopps-Udden, *1:* 581. Near Little Fish River, Somerset East, eastern Cape Province.
1822. *Viverra hyenoides* Desmarest, Encycl. Méth. Mamm. 538. Cape of Good Hope.
1824. *Proteles lalandii* I. Geoffroy, Bull. Soc. Philom. Paris, 139. Near Algoa Bay, eastern Cape Province.
1833. *Proteles typicus* A. Smith, S. Afr. J. *2:* 96. Renaming of *lalandii*.

Proteles cristatus harrisoni Rothschild, 1902.

1902. *Proteles cristatus harrisoni* Rothschild, Novit. Zool. *9:* 443. Umpata (= Humpata), Mossamedes district, south-western Angola.

Proteles cristatus transvaalensis Roberts, 1932

1932. *Proteles cristata transvaalensis* Roberts, Ann. Transv. Mus. *15:* 6. Roodekuil, Pretoria district, Transvaal. Ranges to Southern Rhodesia.

Proteles cristatus canescens Shortridge & Carter, 1938

1938. *Proteles cristatus canescens* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 285. Eselfontein (Kamiesberg), Little Namaqualand, north-western Cape Province.

FAMILY HYAENIDAE

Ears pointed; back heavily maned; upper molar less reduced; body either striped or (in South African species) unicolor. Genus *HYAENA*, page 141

Ears rounded; back not maned; upper molar much reduced, often shed in adult; body spotted. Genus *CROCUTA*, page 142

Genus **HYAENA** Brisson, 1762

1762. *Hyaena* Brisson, Regn. Anim. ed. 2, 13 and 168. *Canis hyaena* Linnaeus.
1771. *Hyaena* Brünnich, Zool. Fundamenta, 34, 42, 43. *Canis hyaena* Linnaeus.

On the nomenclature of this genus see Ellerman & Morrison-Scott, 1951, 3, 4.

There are two species, only one of which occurs in South Africa. This, *H. brunnea*, is a thoroughly distinct species; the skull and teeth are larger than in *H. hyaena* and the colour and general appearance are entirely different.

Hyaena brunnea Thunberg, 1820 Brown Hyaena. Strandwolf; Strandjut

Distribution: in the Union becoming rare, but is known to occur in the Kruger National Park, Transvaal and according to Roberts in the game reserves of Zululand. Both G. Allen and Shortridge note the Upington district as a locality for this species, and Mr. Hollings, the ranger at De Beers, west of Kimberley, has informed us that occasionally one is killed there. We have heard of no other recent records from the Union. South West Africa; according to Shortridge (1934) practically the whole of the territory, being generally plentiful except in those portions of Great Namaqualand where game is scarce, and in the Caprivi. Range includes the Namib desert. The Kalahari desert. It has apparently been recorded from Portuguese East Africa and Rhodesia. Its occurrence in Angola seems very doubtful.

HYAENA BRUNNEA Thunberg, 1820.

1820. *Hyaena brunnea* Thunberg, K. Svenska Vetensk. Akad. Handl. 59. Cape of Good Hope.
1825. *Hyaena fusca* E. Geoffroy, Dict. Class. H.N. *8:* 444. No locality.
1826. *Hyaena striata* A. Smith, Descript. Cat. S. Afr. Mus. 14. Southern Africa. Not of Zimmermann, 1780.
1827. *Hyaena villosa* A. Smith, Trans. Linn. Soc. London, *15:* 461. South Africa.
1935. *Hyaena brunnea melampus* Pocock, P.Z.S. *1934:* 824. Otjitundua, central Kaokoveld, northern South-West Africa.

Genus **CROCUTA** Kaup, 1828

1828. *Crocuta* Kaup, Oken's Isis, *21:* column 1145. *Canis crocuta* Erxleben.
1829. *Crocotta* Kaup, Skizz. Europ. Thierwelt, *1:* 78. *Canis crocuta* Erxleben.

Crocuta Kaup is antedated by *Crocuta* Meigen, 1800, *Nouvelle classification des mouches à deux ailes*, 39, a name which does not appear to be in current use by entomologists. Meigen's 1800 work was declared available by Opinion No. 152 of the International Commission on Zoological Nomenclature, but it now appears (*Bull. Zool. Nomencl. 6:* 130, 1952) that this work may be suppressed.

It is to be hoped, from the mammalogist's point of view at all events, that this will be the case; if not, then *Crocotta* Kaup, 1829, would be the name of the Spotted Hyaena.

Crocuta crocuta Erxleben, 1777

Spotted Hyaena. Gevlekte Hiëna; Weerwolf

Distribution: in the Union, the Kruger National Park, Transvaal (Skukuza, Toulon and in all probability common throughout most of the reserve). The game reserves of Zululand. South-West Africa; the northern districts (rare or absent

south of the Tropic of Capricorn), including the Caprivi, the Kaokoveld, Gobabis district, Damaraland. Northern Bechuanaland; Southern Rhodesia; Portuguese East Africa (recorded from near Beira, Tete, etc.). Northern Rhodesia, Nyasaland. Angola (Hill & Carter record it from Chitau and Chimpora, southern Angola). North of the limits of this work, virtually throughout East Africa, to the Sudan and Somaliland, and from the Belgian Congo intermittently westwards to Senegal.

CROCUTA CROCUTA Erxleben, 1777

1777. *Canis crocuta* Erxleben, Syst. Regn. Anim. 578. "Guinea, Aethiopia, ad Caput bonae spei." Cabrera (1911, P.Z.S. 95) selected Senegambia.
1811. *Hyaena maculata* Thunberg, Mém. Acad. Sci. St. Pétersb. *3:* 302. South Africa.
1817. *Hyaena capensis* Desmarest, Nouv. Dict. H.N. (2) *15:* 499. Cape of Good Hope.
1817. *Hyaena rufa* Desmarest, *loc. cit.* Cape of Good Hope.
1826. *Hyaena croacuta* A. Smith, Descript. Cat. S. Afr. Mus. 12.
1827. *Hyaena encrita* A. Smith, Trans. Linn. Soc. London, *15:* 461. Misprint.
1842. *Hyaena cuvieri* Boitard, Le Jardin des Plantes, 233. Cape of Good Hope.
1900. *Hyaena* (*Crocotta*) *wissmanni* Matschie, S.B. Ges. Naturf. Fr. Berlin, 22. Epukiro, South-West Africa.
1900. *Hyaena* (*Crocotta*) *gariepensis* Matschie, *loc. cit.* 25. "In the region of the Bamboo Mountains, between the Orange and Graaff Reynett and Cradock, north of the Liqua River." The Bamboos Mountains are 31° 30′ S., 26° 20′ E. We do not know why Roberts said they were the same as the Amatola Mtns., which are between Grahamstown and Cathcart.
1904. *Hyaena weissmanni* Trouessart, Cat. Mamm. Viv. Foss. Suppl. 243.
1911. *Crocuta nyasae* Cabrera, P.Z.S. 99. Mlanje, southern Nyasaland.

FAMILY FELIDAE

1. The claws when retracted are not covered by sheaths. Body spotted; face with a dark stripe down each side of nose. Long-legged, and well adapted to running. Skull length about 146–203 mm.[1] Face short, profile of skull short and high. Hyoidean apparatus unspecialized, and resembling that of *Felis*.
Genus *ACINONYX*, page 151

The claws with sheaths to cover them when they are retracted. Profile of skull less arched. Not combining the above characters. ——2

2. Hyoidean apparatus modified by conversion of median part of suspender into a long elastic tendon. Large species, skull 175 mm. and more.
Genus *PANTHERA*, page 149

Hyoidean apparatus of normal mammalian type, the suspender consisting of a chain of bones joined end to end. Smaller species (the largest skulls (of South African species) about 150 mm.). Genus *FELIS*, page 144

[1] Measurements quoted for Felidae include all published measurements available to us from Europe, Asia and Africa.

Genus **FELIS** Linnaeus, 1758

1758. *Felis* Linnaeus, Syst. Nat. 10th ed. *1:* 41. *Felis catus* Linnaeus, the domestic Cat.
1792. *Lynx* Kerr, Anim. Kingd. Cat. Mamm. Nos. 288–299. *Felis lynx* Linnaeus, from Sweden. Valid as a subgenus.
1843. *Caracal* Gray, List Mamm. B.M. 46. *Caracal melanotis* Gray = *Felis caracal* Schreber. Valid as a subgenus.
1858. *Leptailurus* Severtzov, Rev. Zool. Paris, *10:* 389. *Felis serval* Schreber. Valid as a subgenus.
1858. *Urolynchus* Severtzov, *loc. cit.* 389. *Felis caracal* Schreber.
1864. *Serval* Brehm, Führer Z. Garten Hamburg, 6th ed. 53. *Serval maculatus* Brehm. (*N.V.*).
1866. *Galeopardus* Heuglin & Fitzinger, S.B. Akad. Wiss. Wien. *54,* 1: 557. *Felis serval* Schreber.
1894. *Servalina* Grevé, Nova Acta Leop. Carol, *63:* 76. *Felis serval* Schreber.
1926. *Microfelis* Roberts, Ann. Transv. Mus. *11:* 250. *Felis nigripes* Burchell.

For the numerous other Old World subgeneric names and synonyms see Ellerman & Morrison-Scott, 1951, 301.

1. Ear tufted; pattern tawny or reddish, unicolor. Skull about 109–150 mm.
Felis (*Caracal*) *caracal*, page 148
Ear not heavily tufted; pattern usually spotted or banded. ——2

2. Ears large and broad, 82–99 mm. long in specimens from South Africa. Limbs rather long. Body spotted. Rather large species, skull about 101–135 mm.
Felis (*Leptailurus*) *serval*, page 146
Ears smaller (published measurements and B.M. specimens from South Africa give 78 mm. and less). Limbs rather shorter. The largest recorded skull (Pocock, 1951, *Catalogue of the genus Felis*) is 112 mm., but usually the skull is below 100 mm. ——3

3. Tail less than half length of head and body. Bullae enlarged. Skull not more than 87 mm. Spotted pattern usually better developed.
Felis nigripes, page 146
Tail more than half length of head and body. Bullae less enlarged. Skull 81–112 mm. *Felis libyca*, page 144

Subgenus *FELIS* Linnaeus, 1758

We follow the classification of Pocock, 1951, *Catalogue of the genus Felis*. That author, who classified the cats of the world, regarded Roberts' supposed genus *Microfelis* as a synonym of restricted *Felis*.

Felis libyca Forster, 1780 African Wild Cat. Vaalboskat

Distribution: in the Transvaal, the Kruger National Park, near Wakkerstroom, Klein Letaba, near Pietersburg, and northwards to the Limpopo. Natal, including Estcourt and Newcastle. In the Cape Province, Fourteen Streams, Upington

district, Louisvale, Little Namaqualand (where it is common; including Klipfontein (north of Steinkopf), near Springbok, Goodhouse, the Kamiesberg), Clanwilliam, Lamberts Bay, Wolseley, Tulbagh (?the Cape Point reserve), Cape Agulhas region; Port Elizabeth, King William's Town, Albany district, Deelfontein. ("Common throughout our region" Hewitt, 1931, eastern Province.) South-West Africa; plentiful throughout, including the Namib desert and the Caprivi (Shortridge). Northern Bechuanaland, and the Kalahari. Southern Rhodesia, including Bulawayo. Inhambane district, Portuguese East Africa. Throughout Angola. Nyasaland and many parts of Northern Rhodesia (northwards to Lake Mweru, southwards to the Sesheke and Kafue districts, etc.). Beyond the limits of this work, most of East Africa, northwards to the Sudan and Somaliland, and in West Africa, Nigeria, Asben, the Belgian Congo. Morocco to Egypt; Sardinia, Corsica, Majorca; Transcaucasia, Russian and Chinese Turkestan, Persia, Afghanistan, into Arabia and the deserts of north-western India.

The species is very closely allied to the earlier-named European *F. silvestris* Schreber, 1777.

Felis libyca libyca Forster, 1780. (Extralimital)

1780. *Felis lybica* (sic) Forster in Buffon's Nat. Vierf. Thiere, *6:* 313. Gafsa, Tunis. "The original spelling of this name was adopted by Pocock and G. Allen, but we think Forster made a mistake which comes under the heading of a *lapsus*" (Ellerman & Morrison-Scott, 1951).

Felis libyca cafra Desmarest, 1822

1822. *Felis cafra* Desmarest, Encyclop. Méth. Mamm. 540. Caffraria.
1826. *Felis caffra* A. Smith, Descript. Cat. S. Afr. Mus. 10.
1824. *Felis caligata* Temminck, Mon. Mamm. *1:* 123 (in part); Smuts, 1832, Enum. Mamm. Cap. 30.
1902. *Felis lybica obscura* Anderson & de Winton, Mamm. Egypt, 175. Not of Desmarest, 1820.
1926. *Felis ocreata namaquana* Thomas, Ann. Mag. N.H. *17:* 180. Klipfontein, (north of Steinkopf), Little Namaqualand, north-western Cape Province.
1928. *Felis ocreata rusticana* Thomas, Ann. Mag. N.H. *1:* 319. Zuurbron, near Wakkerstroom, south-eastern Transvaal.

Range: the Union, where according to Pocock there is only the one valid race.

Felis libyca mellandi Schwann, 1904

1904. *Felis ocreata mellandi* Schwann, Ann. Mag. N.H. *13:* 423. Mpika, eastern Northern Rhodesia. Ranges to Nyasaland and the southern Belgian Congo.

Felis libyca griselda Thomas, 1926

1926. *Felis ocreata griselda* Thomas, Ann. Mag. N.H. *17:* 180. Fifty miles south of Dombe Grande, Benguela, south-western Angola.
1926. *Felis ocreata xanthella* Thomas, P.Z.S. 291. Ukualukasi, north-western Ovamboland, South-West Africa.
1932. *Felis ocreata vernayi* Roberts, Ann. Transv. Mus. *15:* 6. Tsotsoroga Pan, Ngamiland, northern Bechuanaland.

FELIS LIBYCA PYRRHUS Pocock, 1944

1944. *Felis libyca pyrrhus* Pocock, Ann. Mag. N.H. *11:* 131. Sogera, on the road from Bokoio to Luimbale, Benguela, about 12° S., 16° E., southern Angola.

Felis nigripes Burchell, 1823 Blackfooted Cat. Swartpootwildekat

Distribution: in the Union, recorded from Potchefstroom, western Transvaal; the Orange Free State (Vredefort Road (British Museum)), the Kuruman region, Deelfontein (north of Richmond), the Fort Beaufort and Albany districts, eastern Cape ("now very uncommon", Hewitt, 1931). South-West Africa; Damaraland, Gobabis district (but rare there), to the Kalahari.

FELIS NIGRIPES NIGRIPES Burchell, 1823

1823. *Felis nigripes* Burchell, Travels in Inter. S. Africa, *2:* 592, footnote. "Bachapin country" = near Kuruman, northern Cape Province.

FELIS NIGRIPES THOMASI Shortridge, 1931

1931. *Felis* (*Microfelis*) *nigripes thomasi* Shortridge, Rec. Albany Mus. *4:* 119. Thorn Kloof (Carlisle Bridge), Albany division (near Grahamstown), eastern Cape Province.

Subgenus *LEPTAILURUS* Severtzov, 1858

Felis serval Schreber, 1776 Serval. Tierboskat

It was thought at one time that *F. serval* and *F. brachyura* (*servalina*)[1] were two separate species. Pocock thought so in 1907, but subsequently changed his mind: "The two styles of pattern, with variations, are found practically all over Africa, south of the Sahara, frequently in the same locality. Although as lately as 1924 they were mostly regarded as of specific significance, I asserted in 1917 (*Ann. Mag. Nat. Hist. 20:* 337) that there is but one species of Serval, the so-called "servaline cats" being merely pattern-phases or mutants of the normal type. Since that date considerably more evidence in confirmation of that conclusion has come to hand" (Pocock, 1944, *Ann. Mag. N.H. 11:* 696). Pocock then used the name *Leptailurus serval brachyura* Wagner for the Sierra Leone race of the Serval.

J. A. Allen, 1924, *Bull. Amer. Mus. N.H. 47:* 265, 272, seems to have been the last strongly to support the separate species theory. His conviction was based on the fact that in his Congo collections the two forms occurred side by side but without intergradation; and he did not admit dimorphism in cats (though this is now well established in more than one species). Hill & Carter (1941: 137) admit *brachyura* as a species though they comment on the fact that Angolan skins are very variable and that the variation seems to be unconnected with geographical position.

Pitman (1934: 160) in Northern Rhodesia, found every stage of variation in size of spots between "*serval*" type and "*servalina*" type, which indicates that the Serval is not really dimorphic, but has a wide range of individual variation.

[1] *Felis brachyura* Wagner, 1841, in Schreber, Säugth. Suppl. *2:* 547. Sierra Leone.

Schouteden (1947: 185), dealing with the Belgian Congo, described the Serval as exhibiting two colour patterns, but adds that in the Lulua and Albert Park regions there is intergradation.

There seems little doubt that *brachyura* (*servalina*) is the same species as *serval*, and that the name is valid only in the sense of the Sierra Leone race of *serval*, should such be required to be distinguished.

Distribution: the western and eastern Transvaal, including the Kruger National Park and Rustenburg district; Zululand, Natal; Swaziland. Hewitt (1931) said it was then rare in the eastern Cape Province, but said it occurs at Port St. Johns and Pirie, with records from near East London and near Aliwal North. South-West Africa; the northern parts, northern and central Damaraland, eastwards to the Waterberg, Etosha Pan and Grootfontein districts, also the neighbourhood of the Okavango, and throughout the Caprivi (Shortridge, 1934). Ngamiland, northern Bechuanaland; recorded from Southern Rhodesia; Portuguese East Africa, districts of Tete, Beira, etc. Angola (probably occurs throughout, Hill & Carter). Northern Rhodesia (including Ndola and Sesheke district). Nyasaland. North of the limits of this work, much of East Africa northwards to the Sudan and Abyssinia, the Belgian Congo, westwards to Senegal and recorded from Algeria.

Felis serval serval Schreber, 1776

1776. *Felis serval* Schreber, Säugth. pl. 108 and text, *3:* 407, 1777. Cape of Good Hope.

1781. *Felis capensis* Forster, Philos. Trans. *71:* 4. Cape of Good Hope.

(1820. *Felis galeopardus* Desmarest, Ency. Méth. Mamm. 227. No locality; unidentifiable according to Allen.)

Range: Cape Province, according to Roberts.

Felis serval liposticta Pocock, 1907

1907. *Felis servalina liposticta* Pocock, P.Z.S. 666. Mombasa, Kenya.

1913. *Felis servalina larseni* Thomas, Ann. Mag. N.H. *12:* 91. Near Bembe, Congo district of northern Angola.

(This belongs to the *F. brachyura* type; see discussion above).

Felis serval beirae Wroughton, 1910

1910. *Felis capensis beirae* Wroughton, Ann. Mag. N.H. *5:* 206. Beira (south of the Zambezi), coastal Portuguese East Africa. Range: St. Lucia (Zululand) to the Zambezi.

Felis serval lonnbergi Cabrera, 1910

1897. *Felis* (*Serval*) *togoensis niger* Lönnberg, Zool. Jb. Syst. *10:* 571. Cunene River, opposite mouth of the Kakulovar, south-western Angola. Not *Felis nigra* Erxleben, 1777.

1910. *Felis serval lönnbergi* Cabrera, Bol. Soc. Esp. H.N. *10:* 427. To replace *niger* Lönnberg, preoccupied.

FELIS SERVAL HAMILTONI Roberts, 1931

1931. *Leptailurus serval hamiltoni* Roberts, Ann. Transv. Mus. *14:* 227. "'Mabbat River" (= Umbabat River, a south-western tributary of the Olifants River, in the Satara area), Kruger National Park, eastern Transvaal.

FELIS SERVAL MABABIENSIS Roberts, 1932

1932. *Leptailurus serval mababiensis* Roberts, Ann. Transv. Mus. *15:* 7. Mababe Flats, Ngamiland, northern Bechuanaland.

FELIS SERVAL ROBERTSI *nom. nov.*

1926. *Leptailurus capensis limpopoensis* Roberts, Ann. Transv. Mus. *11:* 248. Fairfield, Rustenburg district, western Transvaal. Not *Lynx caracal limpopoensis* Roberts, 1926, *loc. cit.*, described on the same page, and with line priority. If, following Simpson and others, *Caracal* and *Leptailurus* are both regarded as subgenera of *Felis*, then the name *limpopoensis* can be used only once in the latter genus, and *robertsi* is therefore proposed here to replace *Leptailurus capensis limpopoensis* Roberts.

Subgenus *CARACAL* Gray, 1843

Felis caracal Schreber, 1776 Caracal Lynx. Rooikat

Distribution: in the Union, the Kruger National Park, the Drakensberg, Zoutpansberg, etc., Transvaal. According to Mr. Hollings of De Beers Estate (36 miles west of Kimberley) it occurs there, and we are told that it has been killed at least within living memory in the Orange Free State, and might still occur there. Shortridge (1942) recorded it at Clanwilliam and Little Namaqualand (near Springbok, rare in the Kamiesberg), western Cape Province. Albany district (Roberts); Deelfontein (British Museum); Hewitt (1931) said it was not uncommon in mountainous districts of the eastern Cape Province. South-West Africa; "widely distributed throughout" (Shortridge, 1934) and extending to the Caprivi. Ngamiland. Shortridge says it has been recorded from Muncha in Portuguese East Africa. The British Museum has it from Hanha, Angola. Northern Rhodesia. Beyond the limits of this work, Tanganyika, Kenya, the Sudan, Somaliland; Asben; Morocco, Algeria, Egypt; from southern Arabia northwards into Russian Turkestan and from Palestine to the deserts of north-western India.

FELIS CARACAL CARACAL Schreber, 1776

1776. *Felis caracal* Schreber, Säugth. pl. 110; text, 1777, *3:* 413, 587. Table Mountain, Cape Town (where now extinct).
1867. *Caracal melanotis* Gray, P.Z.S. 277.
1913. *Caracal caracal nubica* Roberts, Ann. Transv. Mus. *4:* 103, *nom. nud.* Not of Fischer, 1829.
1926. *Caracal caracal coloniae* Thomas, Ann. Mag. N.H. *17:* 181. Deelfontein, north of Richmond, Cape Province.
1926. *Lynx caracal roothi* Roberts, Ann. Transv. Mus. *11:* 247. Elandshoek, Drakensberg, Barberton district, eastern Transvaal.

FELIS CARACAL LIMPOPOENSIS Roberts, 1926

1926. *Lynx caracal limpopoensis* Roberts, Ann. Transv. Mus. *11:* 248. Njellele River, north of Zoutpansberg (and near the Limpopo River), northern Transvaal. Ranges to Ngamiland.

FELIS CARACAL DAMARENSIS Roberts, 1926

1926. *Lynx caracal damarensis* Roberts, Ann. Transv. Mus. *11:* 248. Quickborn, Okahandja district, Damaraland, South-West Africa.

Not certainly identifiable: *Felis pardella* Pallas, 1784, Acta Acad. Sci. Imp. Petrop. *1781, 1*: 281. Cape of Good Hope?

Genus **PANTHERA** Oken, 1816

1816. *Panthera* Oken, Lehrb. Naturgesch, *3*, 2: 1052. *Panthera vulgaris* Oken = *Felis pardus* Linnaeus.
1816. *Tigris* Oken, *loc. cit.* 1066. *Felis tigris* Linnaeus, from Bengal. Valid as a subgenus.
1816. *Leo* Oken, *loc. cit.* 1070. *Felis leo* Linnaeus. Valid as a subgenus.
1829. *Leo* Brehm, Isis (Oken) 637. *Leo asiaticus* Brehm = *Felis leo* Linnaeus. (Type designated by Swynnerton & Hayman, 1951.)
1868. *Pardus* Fitzinger, S.B. Akad. Wiss. Wien, *58*, 1: 459. *Felis pardus* Linnaeus.
1894. *Leonina* Grevé, Nova Acta Leop. Carol. *63:* 60. *Felis leo* Linnaeus.

On the nomenclature of this genus see Ellerman & Morrison-Scott, 1951, 3 and 315.

Body spotted in adult; no tail tuft; no mane in male; averaging smaller, skull about 175–260 mm. *Panthera pardus*, page 149
Body tawny, not spotted in adult (although the young are usually spotted); end of tail tufted; normally a mane on head and neck in the male; larger on average, skull length about 253–401 mm. *Panthera* (*Leo*) *leo*, page 150

Subgenus *PANTHERA* Oken, 1816

Panthera pardus Linnaeus, 1758 Leopard. Luiperd; Afrikaanse Tier

Distribution: in the Union, the Transvaal (Kruger National Park, Shingwedzi, Toulon, and probably throughout the Reserve); Potchefstroom district (Rand Daily Mail, January, 1952). Natal, Zululand included, according to Roberts. ?Near Vryburg and north of Upington? Little Namaqualand; recorded from the Kamiesberg by Shortridge (1942); that author stated that it occurs in the Cedarberg range, western Cape Province. Inland from Cape Town (Bains Kloof, Cape Times, 1952), and perhaps the Stellenbosch region. We are told that they are occasionally killed in the Gamka district, near Oudtshoorn. Riviersonderend (near Bredasdorp) (die Landstem, July, 1952). Near Swellendam (die Landstem, October, 1952). Hewitt (1931) quoted it from Albany to Port St. Johns, but said it was rather rare in the Eastern Province. We are told that there are still a few in the mountains of Basuto-

land. South-West Africa; widely distributed over the territory according to Shortridge. ?Southern Rhodesia. The British Museum has it from Portuguese East Africa (Angoche). Common in Northern Rhodesia. Nyasaland. Angola (recent records include Chitau and (1931) Rio Mbalé, Chimporo, etc.). North of the limits of this work, nearly throughout East Africa, and from the Belgian Congo to Senegal; Morocco, Algeria, Egypt (where rare). For the Asiatic range see Ellerman & Morrison-Scott (1951); it is a very wide one, and includes roughly from Arabia, Ceylon and Java northwards to the Amur district of eastern Siberia, Tibet, Kashmir, Persia and the Caucasus.

PANTHERA PARDUS PARDUS Linnaeus, 1758

1758. *Felis pardus* Linnaeus, Syst. Nat. 10th ed. *1:* 41. Egypt.
1826. *Felis leopardus* A. Smith, Descript. Cat. S. Afr. Mus. 7. Southern Africa. Not of Schreber, 1775.
1885. *Felis leopardus* var. *melanotica* Günther, P.Z.S. 243, pl. 16. Forty miles from Grahamstown, eastern Cape Province.
1908. *Felis pardus melanosticta* Lydekker, Game Anim. Africa, 430 (error).
1932. *Panthera pardus shortridgei* Pocock, Abstr. P.Z.S. No. 347, 33; P.Z.S. 584. Gangongo, Okavango River, western Caprivi, South-West Africa.
1932. *Panthera pardus puella* Pocock, Abstr. P.Z.S. No. 347, 33; P.Z.S., 588. Okorosave, central Kaokoveld, northern South-West Africa.

Subgenus *LEO* Oken, 1816; (Brehm, 1829)

Panthera leo Linnaeus, 1758 Lion. Leeu

Distribution: in the Union survives in the Kruger National Park (Shingwedzi, Satara, Skukuza, Toulon, etc.) and in the Mkuzi reserve in Zululand (Roberts). Occasionally still occurs along the northern border of the Cape Province (for instance, near the Molopo River in the Vryburg district (Cape Times, January, 1950) and according to Shortridge (1934) periodically to within 50–100 miles north of Upington). South-West Africa; Shortridge (1934) said that lions were steadily retreating before European settlement, and occurred mainly in the north-west, north-east and eastern districts, and that in the Namib desert a certain number managed to hold their own in the more remote parts. The Kalahari, Ngamiland, Southern Rhodesia (Mashonaland, etc.), parts of Portuguese East Africa, Nyasaland, Northern Rhodesia; in Angola Hill & Carter (1941) state that they were formerly common throughout but with the destruction of the larger game they have become greatly reduced in number. Beyond the limits of this work, widely distributed south of the Sahara (where not exterminated), through most of East Africa, and from the Belgian Congo to Senegal. Also in Kathiawar, India and (doubtfully) in Persia.

PANTHERA LEO Linnaeus, 1758

1758. *Felis leo* Linnaeus, Syst. Nat. 10th ed. *1:* 41. Constantine, Algeria, where now extinct. Type locality fixed by J. Allen, 1924, Bull. Amer. Mus. N.H. *47:* 222.

1830. *Felis leo capensis* Fischer, Syn. Mamm., addenda, 365. Not of Forster, 1781.
1842. *Felis* (*Leo*) *melanochaitus* H. Smith, Jardine's Nat. Library, *35* (Introd. to Mamm.) 177. Cape of Good Hope. Spelt *melanochoetus* on pl. 10.
1914. *Felis leo bleyenberghi* Lönnberg, Rev. Zool. Afr. *3:* 273. Katanga, southern Belgian Congo.
1929. *Leo leo krugeri* Roberts, Ann. Transv. Mus. *13:* 91. Brixton, Sabi Game Reserve (Kruger National Park), eastern Transvaal.
1948. *Leo leo vernayi* Roberts, Ann. Transv. Mus. *21:* 65. Matapa Pan, near Kuke Pan, central Kalahari, Bechuanaland.

Genus **ACINONYX** Brookes, 1828

1828. *Acinonyx* Brookes, Cat. Anat. Zool. Mus. J. Brookes, 16, 33. *Acinonyx venator* Brookes = *Felis venatica* Griffith, the Indian race of *Felis jubata* Schreber.
1830. *Cynailurus* Wagner, Nat. Syst. Amphib. 30. *Felis jubata* Schreber.
1842. *Guepar* Boitard, Le Jardin des Plantes, 234. *Felis jubata* Schreber.

Acinonyx jubatus Schreber, 1775 Cheetah. Jagluiperd

Distribution: well known in the Kruger National Park, Transvaal; occurs in the game reserves of Zululand, and according to Roberts the wilder parts of Swaziland and the eastern and northern Transvaal. It is thought to be extinct elsewhere in the Union. South-West Africa; apparently more or less throughout the territory according to Shortridge (but perhaps not the coastal desert strip, and noted by that author as scarce near the Orange River, the western and south-western parts of Great Namaqualand, and the highlands of western Damaraland; range includes the Caprivi). Evidently widely distributed in Bechuanaland. Southern Rhodesia. Angola (widely distributed but rare in central and southern Angola (Hill & Carter)). Northern Rhodesia, Nyasaland. In East Africa northwards to the Sudan and Somaliland, apparently quite widely distributed. Senegal; Morocco; Egypt. Its present status in Asia is obscure, but it occurs in Russian Turkestan and Arabia.

Acinonyx jubatus jubatus Schreber, 1775

1775. *Felix jubata* Schreber, Säugth. *3:* pl. 105; text, 393 (1777). Cape of Good Hope.
1834. *Felis fearonii* A. Smith, S. Afr. J. *2:* 245. North-east of Natal.
1869. *Felis fearonis* Fitzinger, S.B. Akad. Wiss. Wien, *59*, 1: 664. Cape of Good Hope. Substitute for *fearonii*.
1877. *Felis lanea* Sclater, P.Z.S. 532. Beaufort West, western central Cape Province.
1913. *Acinonyx guttatus obergi* Hilzheimer, S.B. Ges. Naturf. Fr. Berlin, 289. Keetmanshoop, Great Namaqualand, South-West Africa.
1927. *Acinonyx rex* Pocock, Abstr. P.Z.S. No. 283, 18. P.Z.S., 250. Umvukwe Range, north-west of Salisbury, Southern Rhodesia. (Regarded by Cabrera, 1932, Mamm. de Marruecos, 191, as an individual variation of the usual type of cheetah found in Rhodesia. See also Pocock, 1939, Fauna Brit. India, Mamm. *1:* 325, who came to the same conclusion.)

ORDER PINNIPEDIA

An offshoot of the Carnivora modified for semi-marine life; mammals of large size, with short limbs in form of flippers, very short tail, ears very short or absent; no carnassial teeth.

There is only one family which habitually breeds on South African coasts, the Otariidae. Two genera of the family Phocidae from the Antarctic occasionally become stranded on the southern shores of the Cape.

The key is based on the three South African forms only.

1. The hindlimbs capable of forward rotation. In South Africa, skull with postorbital processes; normally 3 upper and 2 lower incisors; relatively smaller species, overall length of the skull approximately 280 mm.
   Family OTARIIDAE: Genus *ARCTOCEPHALUS*, page 152
   The hindlimbs not capable of forward rotation. In South African genera, skull lacks postorbital processes; less than 3 upper incisors; relatively larger species, overall length of the skull approximately 380 mm. and more.
   Family PHOCIDAE:——2

2. Much larger, overall length of the skull approximately 500 mm. Nasals very short, nasal aperture very large. Normally 2 upper 1 lower incisors. Nose of adult males produced into short tubular proboscis, capable of dilation.
   Genus *MIROUNGA*, page 153
   Medium in size, overall length of the skull approximately 380–390 mm. Nasals medium, and nasal aperture medium. Normally 2 upper and 2 lower incisors. Nose not abnormal. Genus *HYDRURGA*,[1] page 154

Simpson refers the two genera of Phocidae to two distinct subfamilies (*Mirounga* to the Cystophorinae, *Hydrurga* to the Lobodontinae).

For the characters of *Arctocephalus* compared with the other genera of Otariidae see J. A. Allen, 1880, *History of North American Pinnipeds.*

FAMILY OTARIIDAE

Genus **ARCTOCEPHALUS** F. Cuvier, 1826

1826. *Arctocephalus* F. Cuvier, Dict. Sci. Nat. *39:* 554. The type of this genus is not "*Phoca ursinus*" Linnaeus (as quoted by G. Allen and Roberts, and which is the type of the northern genus *Callorhinus*), but it is *Phoca ursina* Cuvier, 1826 (not of Linnaeus) = *Arctocephalus delalandii* Gray = *Phoca pusilla* Schreber.

1866. *Halarctus* Gill, Proc. Essex Inst. Salem, Communications, *5:* 7. *Arctocephalus delalandii* Gray = *Phoca pusilla* Schreber.

[1] Differs from *Monachus* which usually has a similar incisor formula in larger skull, much narrower zygomatic width (about 55 per cent of length of skull; in *Monachus* this width is nearly 70 per cent of the length of the skull); and much shorter postdental palate.

Arctocephalus pusillus Schreber, 1775

Cape Sea-Lion (or Fur Seal). Seeleeu; Rob

Distribution: Shortridge (1934) listed the localities of this species in some detail, which included near the Orange River mouth, the Olifants River mouth, near Saldanha Bay, Table Bay, False Bay, off the Caledon coast, Mossel Bay and Algoa Bay (he also stated they were sometimes stranded as far east as East London); and, in South-West Africa, certain islands between the Orange River mouth and Lüderitz, certain islands and rocks between Lüderitz and Walvis Bay, and northwards to Cape Cross (about 100 miles north of Walvis Bay). (The species is still well known near Cape Town, near Mossel Bay, and probably elsewhere.)

Arctocephalus pusillus Schreber, 1775

1775. *Phoca pusilla* Schreber, Säugth., pl. 85; text *3:* 314 (vernacular) and 585 (1778). Type locality presumed to be off South Africa.
1785. *Phoca parva* Boddaert, Elench. Anim. *1:* 172. "Mediterranean Sea." This is an error, since *parva* is a renaming of *pusilla.*
1811. *Phoca antarctica* Thunberg, Mém. Acad. Sci. St. Pétersb. *3:* 321, *nom. nud.*
1817. *Otaria peronii* Desmarest, Nouv. Dict. Hist. Nat. (2) *25:* 598. Cape of Good Hope.
1859. *Arctocephalus delalandii* Gray, P.Z.S. 107. Substitute for *pusilla.*
1868. *Arctocephalus nivosus* Gray, Ann. Mag. N.H. *1:* 219. Cape of Good Hope.
1868. *Arcto-cephalus schist-hyperöes* Turner, J. Anat. Physiol. *3:* 115. Cape of Good Hope.
1874. *Euotaria compressa* Gray, Handlist Seals, etc. B.M., 38. South Africa?

FAMILY PHOCIDAE

Genus **MIROUNGA** Gray, 1827

1826. *Macrorhinus* F. Cuvier, Dict. Sci. Nat. *39:* 552. *Phoca proboscidea* Péron. Not of Latreille, 1825.
1827. *Mirounga* Gray in Griffith's Cuvier Anim. Kingd. *5:* 179. *Phoca proboscidea* Péron = *Phoca leonina* Linnaeus (see Miller, 1923, List North Amer. Recent Mamm., 166).
1830. *Rhinophoca* Wagler, Naturl. Syst. Amphib. 27. *Phoca proboscidea* Péron = *Phoca leonina* Linnaeus.
1843. *Morunga* Gray, List Spec. Mamm. B.M., xxiii, 103. *M. proboscidea* = *Phoca leonina* Linnaeus.

Mirounga leonina Linnaeus, 1758 Elephant Seal

Distribution: the Antarctic; in South Africa, has occasionally been taken off the Cape coast in recent years (Simonstown, Algoa Bay and, according to Hewitt (1931), has been recorded as far east as Pondoland).

Mirounga leonina Linnaeus, 1758

1758. *Phoca leonina* Linnaeus, Syst. Nat. 10th ed. *1:* 37. Antarctic. For other, extralimital, synonyms see G. Allen (1939: 249).

Genus **HYDRURGA** Gistl, 1848

1826. *Stenorhinchus* F. Cuvier, Dict. Sci. Nat. *39:* 549. *Phoca leptonyx* Blainville. Not *Stenorhynchus* Lamarck, 1818.
1848. *Hydrurga* Gistl, Nat. Thierr., xi. For *Stenorhinchus* Cuvier, preoccupied. *Phoca leptonyx* Blainville.
1875. *Ogmorhinus* Peters, Mber. Preuss. Akad. Wiss., 393. For *Stenorhinchus* Cuvier, preoccupied.

Hydrurga leptonyx Blainville, 1820 — Leopard Seal

Distribution: the Antarctic. A specimen was taken in South Africa in 1946, about 40 miles north of East London, see Roberts (1951).

HYDRURGA LEPTONYX Blainville, 1820

1820. *Phoca leptonyx* Blainville, J. Physique, *91:* 298. Falkland Islands (east of Patagonia).

ORDER TUBULIDENTATA

Relatively large mammals with abnormal dentition; the front teeth are absent and the main cheekteeth are 3/3 rootless molars which lack enamel, in addition to which there are usually 2/2 premolars (and further premolars may be present in front of these, but if so they are vestigial). The body is nearly naked, the tail thick and rather long, the ears large, and the 4 fingers and 5 toes bear thick nails. Zygomatic arch complete. Habits subterranean, and (like the Pholidota) the diet consists of ants and termites. (The characters just outlined for the Tubulidentata are not combined elsewhere.)

FAMILY ORYCTEROPODIDAE

Genus **ORYCTEROPUS** G. Cuvier, 1798

1798. *Orycteropus* G. Cuvier, Tabl. Élém. H.N. Anim. 144. *Myrmecophaga capensis* Gmelin = *Myrmecophaga afra* Pallas.
1799. *Orycteropus* Lacépède, Tabl. Mamm. 11. *Orycteropus capensis* Gmelin = *Myrmecophaga afra* Pallas.
1803. *Orycteropus* E. Geoffroy, Bull. Soc. Philom. Paris, *1:* 102. *Myrmecophaga capensis* Gmelin = *Myrmecophaga afra* Pallas.

See Swynnerton & Hayman (1951: 336) on the above dates.

Orycteropus afer Pallas, 1766 — Aardvark or Antbear. Erdvark

Distribution: this species is probably more numerous than records show, but as it is subterranean and nocturnal it is seldom seen; it is also difficult to catch, and few specimens find their way into museums. In the Union it is known in the Kruger

National Park, Transvaal, and we are told that it still occurs in the Orange Free State. It is also thought to occur in the region of Kimberley, and westwards from Kuruman, and Roberts quotes burrows of these animals at Maputa (Zululand). Shortridge (1942) recorded the species from north of Steinkopf in Little Namaqualand. Roberts quoted specimens from Grahamstown; (Hewitt (1931) said it was widespread in the eastern Province wherever termite heaps occur). It is also likely that it occurs near Richmond, Cape Province. The British Museum has specimens from Deelfontein and near Vryburg. Shortridge says it occurs throughout South-West Africa, from Great Namaqualand northwards, except along the coastal Namib desert. Probably occurs throughout most of Angola (Hill & Carter, 1941). Northern Rhodesia and Nyasaland. (We have not seen it recorded from Southern Rhodesia nor Portuguese East Africa.) North of the limits of this work, through most of Africa south of the Sahara, and northwards to Asben, Senegal, the Sudan and British Somaliland.

Orycteropus afer afer Pallas, 1766

1766. *Myrmecophaga afra* Pallas, Misc. Zool. 64. Cape of Good Hope.
1788. *Myrmecophaga capensis* Gmelin, Linn. Syst. Nat. ed. 13, *1:* 53. Cape of Good Hope.

Orycteropus afer albicaudus Rothschild, 1907

1907. *Orycteropus afer albicaudus* Rothschild, Novit. Zool. *14:* 506. South-West Africa. (Damaraland, *fide* Roberts.)

Orycteropus afer wardi Lydekker, 1908

1908. *Orycteropus afer wardi* Lydekker, Game Animals of Africa, 467. North-Eastern Rhodesia. (North-Eastern and North-Western Rhodesia were united in 1911 as Northern Rhodesia.)

ORDER PROBOSCIDEA

Largest of living land mammals, with the limbs heavy and adapted for bearing weight, five fingers and toes; nose elongated to form a prehensile trunk. The front teeth absent except for (usually) one pair of enlarged upper incisors (tusks). Ears enlarged.

FAMILY ELEPHANTIDAE

The two living genera in this family are the Asiatic *Elephas* Linnaeus, 1758, and the African *Loxodonta*. The latter is distinguished by its much larger ears, simpler molars, differently shaped skull with less domed forehead, the presence of two "fingers" on the end of the trunk as opposed to one in the Asiatic form; the general shape of the body is also different, and in typical *africana* there are only 4 nails on the forefeet and 3 on the hind, as opposed to 5 and 3 respectively in the Asiatic elephant (but see Morrison-Scott, 1947: 521).

Genus **LOXODONTA** F. Cuvier, 1827

1827. *Loxodonta* F. Cuvier, Zool. J. *3:* 140. *Elephas capensis* F. Cuvier = *Elephas africanus* Blumenbach.

1857. *Loxodon* Falconer, Quart J. Geol. Soc. London, *13:* 315. Emendation. Not of Mueller & Henle, 1838.

Loxodonta africana Blumenbach, 1797 African Elephant. Olifant

Distribution: in the Union, the Kruger National Park (commoner north of the Olifants River; Punda Maria, Shingwedzi, Letaba, Satara and occasionally wandering southwards from the last named); the Addo Bush (near Port Elizabeth) and the Knysna forest, southern Cape Province. According to Roberts they rarely wander into Zululand. In South-West Africa, quoted by Shortridge (1934) from the Kaokoveld and the Caprivi (east of the Okavango), also as occasional migrants in the Outjo district, north-eastern and north-western Ovamboland, etc. Angola. Ngamiland, Southern Rhodesia, Portuguese East Africa, Northern Rhodesia, Nyasaland. Beyond the limits of this work, through most of East Africa to the Sudan and Somaliland (unless exterminated there) and westwards to Sierra Leone with outliers in Mauretania and Portuguese and French Guinea.

Loxodonta africana africana Blumenbach, 1797. Bush Elephant

1797. *Elephas africanus* Blumenbach, Handb. Naturgesch. ed. 5, 125. Central and Southern Africa. Orange River, South Africa nominated by Pohle, 1926, Z. Säugetierk, *1:* 63.

1798. *Elephas capensis* G. Cuvier, Tabl. Élém. H.N. Anim. 149. Orange River region, South Africa.

1907. *Elephas africanus toxotis* Lydekker, P.Z.S. 385, 388. "Mossel Bay" but actually the Addo Bush, near Port Elizabeth, eastern Cape Province.

1907. *Elephas africanus selousi* Lydekker, P.Z.S. 387 (in legend to text fig. 108, of type), 389. Mashonaland, Southern Rhodesia.

1924. *Loxodonta africana zukowskyi* Strand, Arch. Naturgesch. *90A*, 1: 68, footnote. Kaokoveld, northern South-West Africa.

1924. *Elephas africanus moçambicus* Frade, Bull. Soc. Portug. Sci. Nat. *9:* 133. Maputo, southern Portuguese East Africa.

1928. *Loxodonta africana angolensis* Frade, Titulos e Trabalhos Scientificos (Curriculum vitae), Lisboa, 16. Cunene River region, extreme southern Angola.

This form and *cyclotis* are sometimes regarded as separate species, on the ground that in areas where the Congo Forest abuts on savannah country herds of each form have been seen in the same locality, but not intermingling. But this fact is not necessarily significant since it is conceivable that herds (or large family parties) of elephants of the same form, if normally living some distance from one another, might avoid each other when their wanderings brought them to the same district.

LOXODONTA AFRICANA CYCLOTIS Matschie, 1900. Forest Elephant

1900. *Elephas cyclotis* (or *Elephas capensis cyclotis*) Matschie, S.B. Ges. Naturf. Fr. Berlin, 194. Yaunde, southern Cameroons. Range in area covered by this work: Northern Angola, in Cuanzo and Bembe districts and on the rivers Mebrige, Cuilo, Lungo, Zaza, Mococola and Cugo, also in the plateau of Mazenquelle and the plains of Suá Escomba, Zaïre, etc. (Frade, 1936).

ORDER HYRACOIDEA

Rather small mammals with 1 upper and 2 lower pairs of incisors which are enlarged, the other front teeth being absent; a considerable space between these front teeth and the cheekteeth, which in pattern are not unlike those of Rhinoceroses. Tail and ears short; 4 functional fingers and 3 toes, bearing flattened nails. (Skull and dentition of "ungulate" type rather than rodent type; palate well developed and normal, ascending ramus of mandible straight.)

FAMILY PROCAVIIDAE

See Hahn, 1934, *Z. Säuget.*, *9*: 207–358, also Ellerman & Morrison-Scott, 1951; 334.

Molars hypsodont; in fully adult skulls, in the upper jaw, the 3 molars are clearly longer than the 4 premolars. Genus *PROCAVIA*, page 157

Molars brachyodont; in fully adult skulls, in the upper jaw, the 3 molars are about equal to, or a little shorter than the 4 premolars.
Genus *DENDROHYRAX*, page 160

Genus **PROCAVIA**, Storr, 1780

1780. *Procavia* Storr, Prodr. Meth. Mamm. 40, pl. B. *Cavia capensis* Pallas.
1783. *Hyrax* Hermann, Tabl. Affin. Anim. 115. *Cavia capensis* Pallas.
1868. *Euhyrax* Gray, Ann. Mag. N.H. *1:* 46. *Hyrax habessinicus* Ehrenberg, from Abyssinia.

Procavia capensis Pallas, 1766 Dassie; Hyrax. Klipdas

Distribution: one of the commonest mammals in the Union. The Transvaal; Kruger National Park, Mokeetsi, Legogot (near White River), Wakkerstroom, Pretoria, Zoutpansberg, Rustenburg district, etc. Natal, including Newcastle, Mooi River, Pietermaritzburg and Zululand. The Orange Free State, including Fauresmith and Meadows (about 46 miles south-east of Bloemfontein). Basutoland. Cape Province; Vryburg, Kuruman, Griquatown, Upington, Louisvale, Aughrabies Falls, Little Namaqualand (north of Steinkopf, north of Springbok, the Kamiesberg, etc.), Klaver, Lamberts Bay, Clanwilliam, the Cape Point Nature Reserve, Oudtshoorn

(the Cango Caves), near George, Knysna, Albany district, Plettenberg Bay, Grahamstown, King William's Town, Mount Fletcher (Griqualand East), Pondoland, between Laingsburg and Ladismith, near Richmond, Deelfontein, Seven Weeks Poort, north of Colesberg, Graaff Reinet, where they are particularly common. Swaziland. In South-West Africa, Great Namaqualand and Damaraland northwards about to the Waterberg district (Shortridge). Western Angola, mainly in the districts near the coast. Nyasaland, the Kafue district of Northern Rhodesia. Plumtree (near Bulawayo) Southern Rhodesia (Roberts, 1951, 571). Northwards to British Somaliland, the Sudan, Asben and Senegal, also southern Egypt (B.M.), Libya, Algeria, and from southern Arabia to Syria.

PROCAVIA CAPENSIS CAPENSIS Pallas, 1766

1766. *Cavia capensis* Pallas, Zool. Misc. 30, pl. 3. Cape of Good Hope.
(1869. *Dendrohyrax semicircularis* Gray, Cat. Carnivorous, Pachyderm. and Edentate Mamm. B.M., 285. No locality.)

Range: southern Cape Province, Cape Town, Cape Agulhas, Knysna, etc.

PROCAVIA CAPENSIS WELWITSCHI Gray, 1868

1868. *Hyrax welwitschii* Gray, Ann. Mag. N.H. *1:* 43. Rocky banks of River Maiomba, Mossamedes district, south-western Angola.
(1917. *Procavia flavimaculata* Brauer, S.B. Ges. Naturf. Fr. Berlin, 303. Kaokoveld, northern South-West Africa.)

(Roberts (1951) and Shortridge (1934) listed *welwitschi* under *Heterohyrax*. But we have one of Bocage's specimens, and others labelled *welwitschi* collected by Shortridge. These are *Procavia*, the 3 upper molars being clearly longer than the 4 upper premolars. Also, the teeth increase in size regularly from the anterior ones to the posterior ones, whereas in *Dendrohyrax* (with *Heterohyrax*) they are much more of a size. Hahn (1934) and Hill & Carter (1941) treat *welwitschi* as a race of *Procavia capensis*. There is a plate by Bocage, 1889, J. Sci. Math. Phys. Nat., Lisboa, *1* (plate which goes with text on p. 186).)

PROCAVIA CAPENSIS JOHNSTONI Thomas, 1894

1894. *Procavia johnstoni* Thomas, P.Z.S., 142. Fort Lister, Nyasaland. Given specific rank by Hahn; races referred by that author to *johnstoni* are the largest in the genus, but there is individual overlap between the *johnstoni* group and the other groups regarded as species by Hahn.

PROCAVIA CAPENSIS WINDHUKI Brauer, 1914

1914. *Procavia capensis windhuki* Brauer, S.B. Ges. Naturf. Fr. Berlin, 30. Dobra and neighbouring localities near Windhoek, central South-West Africa.
1914. *Procavia capensis reuningi* Brauer, *loc. cit.* 31. Furstenwalde, Lichtenstein and neighbourhood, near Windhoek, South-West Africa. Considered a valid subspecies by Roberts (1951).
1914. *Procavia capensis waterbergensis* Brauer, *loc. cit.* 33. Waterberg, South-West Africa. Considered a valid subspecies by Roberts (1951).

PROCAVIA CAPENSIS SCHULTZEI Brauer, 1914

1914. *Procavia capensis schultzei* Brauer, S.B. Ges. Naturf. Fr. Berlin, 32. Chamis (north-east of Aus), Great Namaqualand, South-West Africa.

PROCAVIA CAPENSIS MARLOTHI Brauer, 1914

1914. *Procavia capensis marlothi* Brauer, S.B. Ges. Naturf. Fr. Berlin, 33. Kranshoek, Clanwilliam district, western Cape Province. Range: the central Karroo plateau from Clanwilliam and Vanrhynsdorp districts, north of the southern mountains, to Uitenhage, Cape Province.

PROCAVIA (?)CAPENSIS VOLKMANNI Brauer, 1914

1914. *Procavia volkmanni* Brauer, S.B. Ges. Naturf. Fr. Berlin, 35. Franzfontein, 20° S. in north-western South-West Africa.

PROCAVIA CAPENSIS NATALENSIS Roberts, 1924

1924. *Procavia capensis natalensis* Roberts, Ann. Transv. Mus. *10:* 76. Piggs Peak, Swaziland. Range includes Wakkerstroom district, south-eastern Transvaal.

PROCAVIA CAPENSIS COOMBSI Roberts, 1924

1924. *Procavia capensis coombsi* Roberts, Ann. Transv. Mus. *10:* 76. Hennops River, Pretoria, Transvaal. Range: western and north-western Transvaal, ?eastwards to Woodbush and Legogot, northwards into Southern Rhodesia.

PROCAVIA CAPENSIS CHIVERSI Roberts, 1937

1937. *Procavia capensis chiversi* Roberts, Ann. Transv. Mus. *19:* 101. Mount Fletcher, Griqualand East, eastern Cape Province.

PROCAVIA CAPENSIS ORANGIAE Roberts, 1937

1937. *Procavia capensis orangiae* Roberts, Ann. Transv. Mus. *19:* 101. Meadows (about 46 miles south-east of Bloemfontein), Orange Free State.

PROCAVIA CAPENSIS LETABAE Roberts, 1937

1937. *Procavia capensis letabae* Roberts, Ann. Transv. Mus. *19:* 102. Mokeetsi (north of Tzaneen) in the eastern Transvaal low-country.

PROCAVIA CAPENSIS ALBANIENSIS Roberts, 1946

1946. *Procavia capensis albaniensis* Roberts, Ann. Transv. Mus. *20:* 326. Fir Glen, Albany district, eastern Cape Province.

PROCAVIA CAPENSIS VANDERHORSTI Roberts, 1946

1946. *Procavia capensis vanderhorsti* Roberts, Ann. Transv. Mus. *20:* 326. Graaff Reinet, eastern Karroo, Cape Province.

PROCAVIA CAPENSIS GRIQUAE Roberts, 1946

1946. *Procavia capensis griquae* Roberts, Ann. Transv. Mus. *20:* 326. Fauresmith, western Orange Free State. Range: to Griqualand West; Hopetown, Campbell, Vryburg.

PROCAVIA CAPENSIS KLAVERENSIS Roberts, 1946

1946. *Procavia capensis klaverensis* Roberts, Ann. Transv. Mus. *20:* 327. Klaver, western Cape Province. Roberts thinks Little Namaqualand specimens may belong to this race.

Genus **DENDROHYRAX** Gray, 1868

1868. *Dendrohyrax* Gray, Ann. Mag. N.H. *1:* 48. *Hyrax arboreus* A. Smith (Sclater, 1900, Mamm. S. Africa, *1:* 310).

1868. *Heterohyrax* Gray, Ann. Mag. N.H. *1:* 50. *Dendrohyrax blainvillei* Gray = *Hyrax brucei* Gray. Valid as a subgenus.

Outer surface of parietals and intertemporal region with weak ridges closer together, or absent. Orbit usually not ringed by bone.
Dendrohyrax (*Heterohyrax*) *brucei*, page 160

Outer surface of parietals and intertemporal region with strong ridges widely separated. Orbit usually ringed by bone. *Dendrohyrax arboreus*, page 161

Other characters used by Roberts to distinguish these species, particularly the length of the diastema and the width between the incisors, seem more average than absolute. It should be noted that occasionally the orbit can be ringed by bone in *Heterohyrax* (Angola).

Subgenus *HETEROHYRAX* Gray, 1868

G. Allen, Roberts and others use *syriacus* as the first named species in this subgenus. But as we have already shown (Ellerman & Morrison-Scott, 1951: 335) *syriacus* was named from Syria, and no *Heterohyrax* occurs there, or anywhere else in Asia. The earliest named species in the subgenus *Heterohyrax* is therefore *brucei*.

Dendrohyrax brucei Gray, 1868 Yellow-spotted Dassie. Geelkoldas

Distribution: Zoutpansberg to Pilgrims Rest district, northern Transvaal, and part of the Limpopo valley; northern parts of South-West Africa (owing to authors confusing *Procavia* and *Heterohyrax* (see note under *welwitschi* above) it is a little difficult to arrive at the details of the distribution of these two species); Angola, where widely distributed in the plateau region, northwards at least to Pungo Andongo; Southern Rhodesia; Gorongoza district of Portuguese East Africa, and also north of the Zambezi; Northern Rhodesia, Nyasaland. Beyond the limits of this work, northwards to the Belgian Congo, Abyssinia and Somaliland.

DENDROHYRAX BRUCEI BRUCEI Gray, 1868. (Extralimital)

1868. *Hyrax brucei* Gray, Ann. Mag. N.H. *1:* 44. Abyssinia.

DENDROHYRAX BRUCEI BOCAGEI Gray, 1869

1869. *Hyrax bocagei* Gray, Ann. Mag. N.H. *3:* 243. Angola.

1889. *Dendrohyrax grayi* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *1:* 190. Quissange, Benguela district, western Angola.

DENDROHYRAX BRUCEI MOSSAMBICUS Peters, 1869

1869. *Hyrax mossambicus* Peters, S.B. Ges. Naturf. Fr. Berlin, 25. Cabaceira Peninsula, about 15° S. (north of the Zambezi), coastal Portuguese East Africa.

DENDROHYRAX BRUCEI RUDDI Wroughton, 1910

1910. *Procavia brucei ruddi* Wroughton, Ann. Mag. N.H. *5:* 108. Tambarara, Gorongoza Mountains, southern Portuguese East Africa.

DENDROHYRAX BRUCEI GRANTI Wroughton, 1910

1910. *Procavia brucei granti* Wroughton, Ann. Mag. N.H. *5:* 109. Woodbush, north-eastern Transvaal. Range: Zoutpansberg to Pilgrims Rest district, north-eastern Transvaal.

DENDROHYRAX BRUCEI MANNINGI Wroughton, 1910

1910. *Procavia brucei manningi* Wroughton, Ann. Mag. N.H. *5:* 109. Mlanje, southern Nyasaland.

DENDROHYRAX BRUCEI TSUMEBENSIS Roberts, 1938

1938. *Heterohyrax welwitschii tsumebensis* Roberts, Ann. Transv. Mus. *19:* 236. Guinas waterhole, west of Tsumeb (north of Grootfontein), north-eastern South-West Africa.

DENDROHYRAX BRUCEI RHODESIAE Roberts, 1946

1946. *Heterohyrax syriacus rhodesiae* Roberts, Ann. Transv. Mus. *20:* 327. Matibi district, north of Malala Drift on the Limpopo River, Southern Rhodesia. Range: the upper Limpopo valley in northern Transvaal (southwards to Waterberg district) and Southern Rhodesia.

DENDROHYRAX BRUCEI OTJIWARONGENSIS Roberts, 1946

1946. *Heterohyrax welwitschii otjiwarongensis* Roberts, Ann. Transv. Mus. *20:* 328. Tweekopjes Farm, Otjiwarongo district (south of Outjo), northern Damaraland, South-West Africa.

Subgenus *DENDROHYRAX* Gray, 1868

Dendrohyrax arboreus A. Smith, 1827 Tree-Dassie. Bosdas

Distribution: in the eastern Cape Province, Port St. Johns and Notinsila, Pondoland; King William's Town, Albany and according to Hewitt (1931) Bedford, Pirie, Alexandria, etc. Known to occur in the Natal midlands (Roberts). In South-West Africa, Shortridge quoted it from the eastern Caprivi. That author also quoted it from parts of Portuguese East Africa and Southern Rhodesia. Nyasaland; the Kafue Hook region of Northern Rhodesia (Pitman, 1934). Thence northwards to Tanganyika, Kenya and the Belgian Congo.

DENDROHYRAX ARBOREUS ARBOREUS A. Smith, 1827

1827. *Hyrax arboreus* A. Smith, Trans. Linn. Soc. London, *15:* 468. Forests, South Africa.

DENDROHYRAX ARBOREUS MIMUS Thomas, 1900

1900. *Procavia mima* Thomas, Ann. Mag. N.H. *6:* 387. Nyasa-Tanganyika plateau, northern Nyasaland.

ORDER PERISSODACTYLA

The living members of this order are large mammals superficially specialized in much the same way as the Artiodactyla (below), but are not cloven-hoofed; the fourth digits when present are shorter than the third, which are dominant. In living members of the order, none of the front teeth is much enlarged.

The two families which occur in South Africa are referred to two suborders, which are so distinct that they do not require special comparison.

Lightly-built animals; slender limbs, with 1 digit; the orbit ringed by bone, and the cheekteeth complex. In South African species the body, neck and limbs are striped. Family EQUIDAE, page 164

Heavily-built species; heavy limbs with 3 digits; the orbit not ringed by bone, and the cheekteeth relatively simple. African forms have 2 horns on the nose. Family RHINOCEROTIDAE, page 162

SUB-ORDER CERATOMORPHA

FAMILY RHINOCEROTIDAE

For key to all living members of this family see Pocock, 1945, *P.Z.S., 114:* 437. Pocock (*loc. cit.*) divided the living rhinoceroses into two subfamilies, one for the Asiatic, and one for the African forms. For our reasons for agreeing with this view, rather than that of Simpson (1945) and others, see Ellerman & Morrison-Scott (1951).

Subfamily Dicerotinae

Genus **DICEROS** Gray, 1821

1821. *Diceros* Gray, London Medical Repository, *15:* 306. *Rhinoceros bicornis* Linnaeus.
1841. *Opsiceros* Gloger, Hand-u. Hilfsbuch Naturgesch. *1:* 125 (xxxii, 1842). *Rhinoceros bicornis* Linnaeus.
1862. *Rhinaster* Gray in Gerrard, Cat. Bones Mamm. Brit. Mus. 282. *Rhinoceros bicornis* Linnaeus.

1868. *Keitloa* Gray, P.Z.S. *1867:* 1025. *Rhinoceros keitloa* A. Smith = *Rhinoceros bicornis* Linnaeus.

1868. *Ceratotherium* Gray, P.Z.S. *1867:* 1027. *Rhinoceros simus* Burchell. Valid as a subgenus.

Ceratotherium has been treated as a full genus by many authors, but we do not regard the differences between this and *Diceros* as being of more than subgeneric value.

Upper lip squared. *Diceros* (*Ceratotherium*) *simus*, page 164
Upper lip narrow, its tip prehensile. *Diceros bicornis*, page 163

Subgenus *DICEROS* Gray, 1821

Diceros bicornis Linnaeus, 1758 Black Rhinoceros. Swartrenoster

Distribution: this species is becoming rare in South Africa, and in the Union seems now to be restricted to the reserves in Zululand. (It appears to have become extinct in the Kruger National Park.) South-West Africa; Shortridge (1934) quoted the species from the Kaokoveld (where rare) and said that it occurred rarely in the Caprivi district, and as an occasional visitor in western Ovamboland. Parts of Portuguese East Africa, Southern Rhodesia and northern Bechuanaland (Roberts). Southern Angola; parts of Northern Rhodesia. Apparently has been recorded from Nyasaland. Beyond the limits of this work, occurs in most parts of East Africa, and westwards probably as far as the general neighbourhood of Lake Chad, but it is likely that it is nowhere common.

Diceros bicornis bicornis Linnaeus, 1758

1758. *Rhinoceros bicornis* Linnaeus, Syst. Nat. 10th ed. *1:* 56. "India", but Cape of Good Hope according to Thomas (1911: 144).

1803. *Rhinoceros africanus* Blumenbach, Man. Hist. Nat. *1:* 156. Cape of Good Hope.

1836. *Rhinoceros keitloa* A. Smith, Rept. Exped. Expl. Central Afr., 44. "Country north and south of Kurrichaine" (Marico district, western Transvaal).

1837. *Rhinoceros ketlǫa* A. Smith, Cat. S. Afr. Mus. 7. "180 miles N.E. of Lattakoo."

1842. *Rhinoceros bicornis* Var. B. *Rhinoceros gordoni* Lesson, Nouv. Tabl. Règne Anim. Mamm. 159, *nom. nud.*

1845. *Rhinoceros niger* Schinz, Synops. Mamm. *2:* 335. Chuntop, near Mt. Mitchell, Kuiseb district, South-West Africa (Shortridge, 1934, Mamm. S.W. Africa, *1:* 412, footnote).

1845. *Rhinoceros camperi* Schinz, *loc. cit.* Cape of Good Hope.

1898. *Rhinoceros bicornis capensis* Trouessart, Cat. Mamm. Viv. Foss. 757. Cape of Good Hope.

1922. *Opsiceros occidentalis* Zukowsky, Arch. Naturgesch. *88A*, 7: 162. Kaokoveld-Cunene region, northern South-West Africa.

1947. *Diceros bicornis punyana* Potter & Mitchell, Field, *190:* 385. Hluhluwe Game Reserve, Zululand, Natal.

Subgenus *CERATOTHERIUM* Gray, 1868

Diceros simus Burchell, 1817 White Rhinoceros. Witrenoster

Distribution: so far as is known, in South Africa the species is now confined to the game reserves in Zululand (where it is the commoner of the two species). There is another race in the region of the southern Sudan and Uganda, probably extending into the adjacent parts of the Congo.

Diceros simus simus Burchell, 1817

1817. *Rhinoceros simus* Burchell, Bull. Soc. Philom. Paris, 97. Interior of South Africa, near lat. 26° S. (near Kuruman, northern Cape Province, *fide* Shortridge, 1934).
1827. *Rhinoceros camus* (sic) Griffith, Cuvier's Anim. Kingd. *5:* 292. Southern Africa.
1827. *Rhinoceros burchellii* Lesson, Man. Mamm. 332. Substitute for *simus*.
1854. *Rhinoceros oswellii* Gray, P.Z.S. *1853:* 46. Interior of South Africa.

sub-order Hippomorpha

FAMILY EQUIDAE

Genus **EQUUS** Linnaeus, 1758

1758. *Equus* Linnaeus, Syst. Nat. 10th ed. *1:* 73. *Equus caballus* Linnaeus, the domestic Horse.
1841. *Hippotigris* H. Smith, Jardine's Naturalist's Library, *31:* 321. *Equus zebra* Linnaeus (Sclater, 1900, Mamm. of S. Africa, *1:* 282). Valid as a subgenus.
1909. *Zebra* J. Allen, Bull. Amer. Mus. N.H. *26:* 163, in legend to text-f. 7, 8. *Zebra burchelli granti* de Winton = *Equus burchelli boehmi* Matschie. Not of Shuttleworth, 1856, a mollusc.
1912. *Dolichohippus* Heller, Smiths. Misc. Coll. *60*, 8: 1. *Equus grevyi* Oustalet, from Abyssinia. Valid as a subgenus.
1934. *Quagga* Shortridge, Mamm. S.W. Africa, *1:* 397. *Quagga quagga greyi* Lydekker = *Equus quagga* Gmelin.

Pocock (1902, 1904, 1907), Shortridge (1934) and Rzasnicki (1951) considered that *E. burchelli* was conspecific with the extinct *E. quagga* Gmelin, (1788, Syst. Nat. *1:* 213, South Africa) and at first sight this seems a logical conclusion. The races of the Burchell group of Zebras show a progressive reduction of the stripes on the legs and belly from *boehmi* and *selousi* in the northern part of the range to the now extinct typical *burchelli* in the south: *quagga*, still further south, seemed merely to carry the process further. But recent investigations into the cranial characters of *quagga* tend to show that the skull is different from that of the Burchell Zebras (Lundholm, 1951) and that this difference is greater than that existing between the Burchell Zebras themselves. This in itself does not, of course, mean that the difference between the Quagga and the Burchell Zebras is necessarily of specific order, but, taken together with the evidence for *quagga* and *burchelli* having been sympatric, we are inclined to

agree with Cabrera (1936) and Allen (in Harper, 1945) in regarding *quagga* as a species on its own. The evidence just referred to is to be found in Harris (1840). Of *Equus quagga* he says "Inhabits the open plains south of the Vaal river in immense herds" (p. 5) and "although never intermixing with its own more elegant congeners (Burchell's Zebra), is almost invariably to be found ranging with the White-tailed Gnoo, and with the Ostrich, for the society of which bird, especially, it evinces the most singular predilection" (p. 7). Of *Equus burchelli* Harris says: "inhabits the plain country beyond the Gareep or Orange River, in immense herds, but is never found to the southward of that stream" (p. 17) and "occupying the same regions, and delighting in the same pastures, as the Brindled Gnoo, rarely is it to be seen unless in the companionship of that fantastic animal, whose presence would appear to be almost indispensable to its happiness" (p. 18). From this it appears that *quagga* and *burchelli* both inhabited the regions between the Vaal and the Orange River, but that they did not mix, and even that they associated with different species of Gnu (Wildebeest).

Shortridge's subgenus or genus *Quagga* is usually rejected. The two South African species of Zebra are closely related, and Roberts (1951) in dealing with the two species states "no cranial differences are indicated and those which are said to be found in the dentition are slight".

Subgenus *HIPPOTIGRIS* H. Smith, 1841

Stripes on croup form a "gridiron" pattern. A dewlap present. Ears larger.
Equus (*Hippotigris*) *zebra*, page 165

Stripes on croup not forming "gridiron" pattern. No dewlap. Ears smaller.
Equus (*Hippotigris*) *burchelli*, page 166

Equus zebra Linnaeus, 1758 Mountain Zebra. Bergkwagga

Distribution: the typical race exists in very small numbers on a private property near Cradock, and near Oudtshoorn, Cape Province. *E. z. hartmannae;* South-West Africa, the chain of arid mountains that form the eastern boundary of the sandy coastal strip known as the Namib desert (Shortridge, 1934), northwards into Angola (to about 100 miles north of Mossamedes (Shortridge)), southwards to Great Namaqualand.

Equus zebra zebra Linnaeus, 1758

1758. *Equus zebra* Linnaeus, Syst. Nat. 10th ed. *1:* 74. "In India, Africa." Type locality fixed by Roberts (1951) as Paardeberg, near Malmesbury, south-western Cape Province, where it is now extinct.

1822. *Equus montanus* Burchell, Travels in Interior S. Africa, *1:* 139. No locality, but mentions Paardeberg, near Malmesbury, south-western Cape Province, as a locality where it used to be found.

1852. *Hippotigris campestris* Gray, Cat. Mamm. Brit. Mus. pt. 3: 277. Not of H. Smith, 1841. Mountains of South Africa.

1898. *Equus indica* Trouessart, Cat. Mamm. Viv. Foss., 797.

EQUUS ZEBRA ZEBRA [*contd.*]

1905. *Equus zebra frederici* Trouessart, Cat. Mamm. Viv. Foss. Suppl. 646. Northern part of Cape Colony.

1910. *Equus wardi* Ridgeway, P.Z.S. *1909:* 799. Believed to be a menagerie hybrid between *E. zebra* and *E. burchelli chapmani.*

Present range: near Cradock and near Oudtshoorn, Cape Province.

EQUUS ZEBRA HARTMANNAE Matschie, 1898

1898. *Equus hartmannae* Matschie, S.B. Ges. Naturf. Fr. Berlin, 174. Between Hoanib and Unilab Rivers, 19° S., 13° E., Kaokoveld, northern South-West Africa.

1900. *Equus penricei* Thomas, Ann. Mag. N.H. *6:* 465. Providencia, Moninho valley, 70 km. north-east of Mossamedes, Angola.

1924. *Hippotigris hartmannae matschiei* Zukowsky, Arch. Naturgesch. *90A,* 1: 90. Namib, near Swakopmund, Damaraland, South-West Africa.

Range: South-West Africa and Angola.

Equus burchelli Gray, 1824 Burchell's Zebra. Bontkwagga

Distribution: in the Union, now apparently confined to Zululand, and the Kruger National Park, Transvaal, where it is widely distributed (Punda Maria, Shingwedzi, Letaba, Satara, Skukuza, Pretorius Kop, Toulon, etc.). Swaziland. In South-West Africa, Shortridge quoted the species from northern Damaraland, the Etosha Pan area, the Kaokoveld, Ovamboland, the Okavango region and the Caprivi. Northern Bechuanaland; Southern Rhodesia; parts of Portuguese East Africa. Southern Angola; local in Northern Rhodesia; Nyasaland. Northwards through much of East Africa, to the southern parts of the Sudan, Abyssinia and southern Somaliland.

On this species see Cabrera, 1936, *J. Mamm. 17:* 89.

We do not agree with the classification of Roberts (1951) of the Burchell zebras, and for the benefit of those who may not have access to Cabrera's revision, we include here his key to the races.

1. Legs never wholly striped; shadow stripes generally numerous. ——2
   Legs wholly striped to the hoofs; shadow stripes very few and frequently absent. ——3

2. Limbs without stripes below the elbow and stifle, a few traces of them on the hock sometimes excepted. *E. b. burchelli*
   Limbs more or less striped below elbow and stifle, but never completely so. *E. b. antiquorum*

3. Stripes and interspaces on neck and body narrow and numerous; cervical stripes 10–13, vertical stripes 4–8. *E. b. selousi*
   Stripes and interspaces on neck and body wider and less numerous; cervical stripes 7–10, vertical stripes 3–4. *E. b. boehmi*

EQUUS BURCHELLI BURCHELLI Gray, 1824

1824. *Asinus burchellii* Gray, Zool. J. *1:* 247. "The flat parts near the Cape (Burchell)." Burchell, W. J., 1825, *A list of quadrupeds brought by Mr. Burchell from Southern Africa, and presented by him to the British Museum,* says that he shot the animal which Gray used for his description at Little Klibbolikhoni Fontein (27° 50′ S., 24° 25′ E.).

1827. *Equus zebroides* Lesson, Man. Mamm. 346. Substitute for *burchelli.*

1834. *Equus festivus* Wagner, Schreber Säugth. *6:* 216. Interior of Cape of Good Hope.

1841. *Hippotigris campestris* H. Smith, Jardine's Naturalist's Library, *31:* 329. Substitute for *burchellii.*

(1878. *Equus markhami* Tichomirow, Diary of journey to west European zoological gardens (*N.V.* Rzasnicki, 1943, Zool. Gart. *15:* 54, says that this name refers to a specimen in which the stripes on the rump are broken up into spots).)

1899. *Equus burchelli typicus* Selous in Bryden, Great and Small Game of Africa, 79.

Now extinct. Former range: southern Bechuanaland and Orange River Colony (= northern Cape Province and Orange Free State).

EQUUS BURCHELLI ANTIQUORUM H. Smith, 1841. Chapman's Zebra

1841. *Hippotigris antiquorum* H. Smith, Jardine's Naturalist's Library, *31:* 327. Angola (Cabrera, 1936: 94).

1865. *Equus chapmanni* Layard, P.Z.S. 417. Between the Zambezi and Botletle Rivers, South Africa.

1897. *Equus burchelli wahlbergi* Pocock, Ann. Mag. N.H. *20:* 44. Zululand, Natal.

1897. *Equus burchelli transvaalensis* Ewart, Veterinarian (London) *70:* 622. Transvaal.

(1909. *Equus burchelli pococki* Brasil & Pennetier, Mém. Soc. Linn. de Normandie, Caen, *23:* 97, (April). Actes Mus. H.N. Rouen, *12:* 31, (December). "An almost indeterminable name, based on a museum specimen without locality. It may have been park-reared and even from parents of different subspecies" (Cabrera (1936: 98).)

1912. *Equus* (*Hippotigris*) *kaufmanni* Matschie, Deutsche Jäger-Zeitung, *59:* 120, 209. Caprivi-Zipfel, between Botletle and Zambezi Rivers, northern South-West Africa.

1924. *Hippotigris chapmani kaokensis* Zukowsky, Arch. Naturgesch. *90A,* 1: 82. Kaoko plains, near south bank of Cunene River, northern South-West Africa.

Range: from Benguela and Damaraland, across the Bechuanaland Protectorate to Transvaal and Zululand.

EQUUS BURCHELLI BOEHMI Matschie, 1892. Grant's Zebra.

1892. *Equus böhmi* Matschie, S.B. Ges. Naturf. Fr. Berlin, 131. Pangani River, north-eastern Tanganyika.

1896. *Equus burchelli crawshaii* de Winton, Ann. Mag. N.H. *17:* 319. Henga, highlands west of Lake Nyasa, Nyasaland.

1897. *Equus burchelli crawshayi* Pocock, Ann. Mag. N.H. *20:* 46. Emendation.

1898. *Equus burchelli zambeziensis* Prazak, Wild Horses, *1:* pl. 16 (*N.V.* But see Trouessart, 1898, Bull. Mus. H.N. Paris, *4:* 64, which may antedate). Barotseland, north bank of Upper Zambezi, Northern Rhodesia.

Range: from Northern Rhodesia and Nyasaland to southern Abyssinia, Somaliland and the southern Sudan.

EQUUS BURCHELLI SELOUSI Pocock, 1897

1897. *Equus burchelli selousii* Pocock, Ann. Mag. N.H. *20:* 45. Manyami River, Mashonaland, north-eastern Southern Rhodesia.

1899. *Equus* (*Hippotigris*) *foai* Prazak & Trouessart, Bull. Mus. H.N. Paris, *5:* 350. Mountainous region south of Angoniland, north bank of lower Zambezi, opposite Tete (Portuguese East Africa).

1906. *Equus annectens* Rothschild, P.Z.S. 691. Near Fort Jameson, eastern Northern Rhodesia.

1908. *Equus burchelli annectans* Lydekker, Game Animals of Africa, 58.

Range: Lower Zambezi basin, from Victoria Falls; Southern Rhodesia; Mozambique; northwards to southern Nyasaland.

ORDER ARTIODACTYLA

Medium-sized or large mammals with the dentition adapted for vegetarian diet, the fingers and toes bearing hoofs, the limbs usually lengthened and specialized either for running or bearing weight, the fourth digit being as long as the third with the weight taken equally on these two (cloven-hoofed mammals). The canines may be enlarged, but not the incisors (except in the Hippopotamus).

See particularly:

LYDEKKER, R. 1913–15, *Catalogue of Ungulate Mammals in the British Museum, 1–4.*
SCLATER & THOMAS, 1894–1900. *The Book of Antelopes, 1–4.*

Simpson (1945) classified the four South African families as follows:

Suborder: SUIFORMES
Infraorder: SUINA
Family: Suidae
Infraorder: ANCODONTA
Superfamily: Anthracotherioidea
Family: Hippopotamidae

Suborder: RUMINANTIA
Infraorder: PECORA
Superfamily: Giraffoidea
Family: Giraffidae
Superfamily: Bovoidea
Family: Bovidae

1. Lower and upper canines caniniform and enlarged; at least 1 upper incisor present; stomach simple; no horns. ——2
Lower canine incisoriform, upper canine absent; no upper incisors; stomach divided into four compartments for ruminating; male with 2 horns on head. ——3

2. Orbit ringed by bone and raised; upper canine straighter; muzzle much widened; lateral digits reach the ground. Central lower incisors enlarged and projected forwards. The typical genus very large in size, with relatively short limbs and much enlarged head. Third upper molar not enlarged.
Family HIPPOPOTAMIDAE, page 172

Orbit not ringed by bone; upper canines more or less curved; muzzle narrow; lateral digits not reaching the ground. Central lower incisors not much enlarged. Smaller animals. Third upper molar much enlarged.
Family SUIDAE, page 169

3. Lower canine bilobed. Horns, present in both sexes (in the typical subfamily), simple skin-covered bony projections. In the typical genus, neck and limbs abnormally elongated. Family GIRAFFIDAE, page 173

Lower canine not bilobed. Horns, present in male, present or absent in female, in form of nondeciduous unbranched horny sheaths supported on bony cores.
Family BOVIDAE, page 174

SUB-ORDER SUIFORMES

FAMILY SUIDAE

In adult normally less than 30 teeth; the body mainly naked except for a mane on the back; last molars much larger, and upper canines of males much enlarged and dominant. Skull much wider between the orbits. With warts on side of head and in front of eye. Orbit somewhat raised.
Genus *PHACOCHOERUS*, page 171

Normally 42 teeth; body more hairy; last molars relatively smaller and upper canines of males less dominant. No warts on side of head. Skull much narrower between the orbits. Genus *POTAMOCHOERUS*, page 169

Genus **POTAMOCHOERUS** Gray, 1854

1854. *Potamochoerus* Gray, P.Z.S. *1852:* 129, 130 (published 27th June, 1854). *Choiropotamus pictus* Gray (the Cameroons race of *Sus porcus* Linnaeus).

1843. *Koiropotamus* and *Choiropotamus* Gray, List. Mamm. B.M. xxvii and 185. *Choiropotamus africanus* Gray = *Sus koiropotamus* Desmoulins. These have been held to be homonyms of *Chaeropotamus* Desmarest, 1822, a genus of extinct ungulate from France, but according to the Commission's revised rules (August 1953) this is not the case. In view, however, of the long usage of *Potamochoerus*, we are asking the Commission to place this name on the *Official List*, and to set aside *Koiropotamus* and *Choiropotamus*.

1863. *Nyctochoerus* Heuglin, Nova Acta Leop. Carol. *30*, suppl. to sect. 2: 7. *Nyctochoerus hassama* Heuglin, the Abyssinian race of *Sus porcus* Linnaeus.

See Lönnberg, 1910, Ark. Zool. 7, 6: 1.

It is customary to regard all forms of this genus as belonging to one species. The genus is near *Sus* Linnaeus, but normally has 6 (instead of 7) lower cheekteeth, with more tendency for the ear to be tufted, and with two pairs of osseous tuberosities on and above sheaths of upper canines, which are absent in *Sus*.

Potamochoerus porcus Linnaeus, 1758

Bush-Pig; Red River Hog (West Africa). Bosvark

Distribution: in the Union survives in the Kruger National Park, Transvaal (where it is said to be quite common in the extreme north, near Pafuri), according to Roberts Zululand, and the Knysna forest and the Albany district (Fish River), eastern Cape Province. Shortridge quoted it from the eastern Caprivi in the north of South-West Africa; eastern Southern Rhodesia, parts of southern Portuguese East Africa. Northern Rhodesia (southwards to the Zambezi, Sesheke and Kafue districts), Nyasaland. Angola (recent records include Andulu, Namba and Vila da Ponte). Beyond the limits of this work, north-eastwards to Abyssinia and Italian Somaliland, westwards to the Gold Coast and Liberia (according to Ingoldby). A closely allied form occurs in Madagascar.

Potamochoerus porcus porcus Linnaeus, 1758. (Extralimital)

1758. *Sus porcus* Linnaeus, Syst. Nat. 10th ed. *1:* 50. Guinea, West Africa.

Potamochoerus porcus koiropotamus Desmoulins, 1831

1831. *Sus koiropotamus* Desmoulins, Dict. Class. H.N. *17:* pl. 146 (referred to on p. 139). South Africa (a specimen collected by Lalande).

1832. *Sus larvatus* Smuts, Enum. Mamm. Cap. 59. Not of F. Cuvier, 1822.

1868. *Sus capensis* Gray, P.Z.S., 35. South Africa.

1897. *Potamochoerus choeropotamus* Major, P.Z.S., 366. Emendation.

(1791. *Sus africanus* Schreber, Säugth. pl. 327; text, *6:* 458 (1835). No locality (Schreber left this plate without any data and Wagner included it under *Sus larvatus* (1835) in his completion of Schreber's work). Not *Sus africanus* Gmelin, 1788, which was based on a Wart Hog (*Phacochoerus*).)

Range: Cape Province.

Potamochoerus porcus johnstoni Forsyth Major, 1897

1897. *Potamochoerus johnstoni* Forsyth Major, P.Z.S., 367. Ngarawi River, Nkana, North Nyasa district, north-western Nyasaland.

Potamochoerus porcus nyasae Forsyth Major, 1897

1897. *Potamochoerus choeropotamus nyasae* Forsyth Major, P.Z.S., 367. Zomba (north-east of Blantyre), southern Nyasaland. Has been recorded from Northern Rhodesia.

Potamochoerus porcus maschona Lönnberg, 1910

1910. *Potamochoerus choeropotamus maschona* Lönnberg, Ark. Zool. 7, 6: 20. Mashonaland, Southern Rhodesia. Ranges to northern Zululand, south-eastern Transvaal, southern Portuguese East Africa, western Northern Rhodesia.

Potamochoerus porcus cottoni Pinfold, 1928

1928. *Potamochoerus choeropotamus cottoni* Pinfold, Ann. Mag. N.H. *2:* 99. Tunda (= Funda), Quanza district, north-western Angola.

In addition, Pitman (1934) queries *Potamochoerus porcus albinuchalis* (Lönnberg, 1920, Rev. Zool. Afric. 7: 245, Lake Léopold II, Belgian Congo) from Northern Rhodesia.

Genus **PHACOCHOERUS** F. Cuvier, 1826

1766. *Aper* Pallas, Misc. Zool. 16. *Aper aethiopicus* Pallas. "Although *Aper* may be regarded as merely the masculine form of *Sus*, it is perhaps here used as a distinct generic term" (G. Allen, 1939: 459).

1816. "*Phaco choerus*" G. Cuvier, Règne Anim. *1:* 236. This "name", usually misquoted as "*Phaco-choerus*" or "*Phacochoerus*", and wrongly attributed to F. Cuvier, is in current use for the Wart Hogs, and has been for a long time. But the fact is that, on page 236 of the work quoted, the Wart Hogs are termed "Les Phaco-Choeres. (Fred. Cuv.) (1)". The "1" refers to a footnote: (1) "*Phaco choerus;* cochon portant une verrue."

This is merely an etymological note by G. Cuvier, to explain to readers the derivation of his brother's term "Les Phaco-Choeres", but is in no nomenclatural sense a "name".

All this has already been pointed out by Lyon, 1915, Proc. Biol. Soc. Washington, *28:* 141, but for some reason nothing was ever done about it, and *Phacochoerus* continued to be used.

1817. *Eureodon* G. Fischer de Waldheim, Mém. Soc. Nat. Moscou, *5:* 417. *Sus aethiopicus* Linnaeus.

1820. *Phascochoeres* et *Phascochoerus* Ranzani, Elem. Zool. *2:* 536, 537.

1822. *Phascochaerus* Desmarest, Encycl. Meth. (Mamm.) 393.

1826. *Phacochoerus* F. Cuvier, Dict. Sci. Nat. *39:* 383. *Sus aethiopicus* Gmelin = *Aper aethiopicus* Pallas.

1828. *Phascochaeres* Cretzschmar, in Rüppell, Atlas, Reise nördl. Afr., Säugeth. 61.

1841. *Dinochoerus* Gloger, Hand-u. Hilfsbuch Naturgesch, *1:* 131 (xxxii, 1842). *Aper aethiopicus* Pallas.

1904. *Macrocephalus* Palmer, Index Genera Mammalium, 391 (ex Frisch, 1775, Das Natur-system Vierf. Thiere, 3 (unavailable)). *Aper aethiopicus* Pallas.

In view of the longstanding usage of the name *Phacochoerus*, we have asked the International Commission on Zoological Nomenclature to place *Phacochoerus* F. Cuvier, 1826, on the *Official List* and to reject *Eureodon*, *Aper*, and *Phascochoeres* and its variants.

See Lönnberg, 1909, P.Z.S. *1908*: 936 for review.

Phacochoerus aethiopicus Pallas, 1766 Wart Hog. Vlakvark

Distribution: in the Union, survives in the Kruger National Park, Transvaal (Shingwedzi, Letaba, Satara, Skukuza, Toulon; common south of the Olifants River), and Zululand, Natal. South-West Africa: "throughout the northern and central parts . . . and wherever there are vleis and waterholes" (Shortridge, 1934) who also quoted the species from as far south as the Maltahohe district in Great Namaqualand. Angola. Ngamiland and northern Bechuanaland. Recorded from Southern Rhodesia and Portuguese East Africa. Nyasaland, Northern Rhodesia. Further to the north, East Africa as far as the Sudan and Somaliland, and westwards to Nigeria, the Gold Coast and apparently Senegal.

Most of the subspecies of this species seem to be based on cranial characters, and as it is known that great individual variation exists in the species their status seems obscure.

PHACOCHOERUS AETHIOPICUS AETHIOPICUS Pallas, 1766

1766. *Aper aethiopicus* Pallas, Misc. Zool. 16. Cape of Good Hope.
1828. *Phacochoerus edentatus* I. Geoffroy, Dict. Class. H.N. *13:* 320. Cape of Good Hope.
1834. *Phascochaerus typicus* A. Smith, S. Afr. J. *2:* 178. Interior of Cape Colony.
1839. *Phacochoerus pallasi* van der Hoeven, Nova Acta Leop. Carol. *19:* 173. Substitute for *aethiopicus*.

The typical race is now regarded as extinct.

PHACOCHOERUS AETHIOPICUS SUNDEVALLI Lönnberg, 1908

1908. *Phacochoerus sundevallii* Lönnberg, Wiss. Ergebn. schwed. Zool. Exped. Kilimandjaro, etc. *1*, 2: 54. Natal.

PHACOCHOERUS AETHIOPICUS SHORTRIDGEI St. Leger, 1932

1932. *Phacochoerus aethiopicus shortridgei* St. Leger, Ann. Mag. N.H. *10:* 86. Numkaub, Grootfontein district, northern South-West Africa. Ranges to Angola.

FAMILY HIPPOPOTAMIDAE

Genus **HIPPOPOTAMUS** Linnaeus, 1758

1758. *Hippopotamus* Linnaeus, Syst. Nat. 10th ed. *1:* 74. *Hippopotamus amphibius* Linnaeus.

Hippopotamus amphibius Linnaeus, 1758 Hippopotamus. Seekoei

Distribution: in the Union survives in the Kruger National Park, Transvaal (Pafuri (north of Punda Maria), Letaba, near Skukuza, Crocodile Bridge, etc.) and in northern Zululand. Limpopo River, Zambezi, etc., in Portuguese East Africa (also Inhambane district, (British Museum)). Southern Rhodesia. In northern South-West Africa and adjacent territories, the Cunene, Okavango, Chobe and Zambezi rivers. Angola (recent records include Rio Mbalé district (1931) and Bihé district (1941)). Rowland Ward quoted specimens from Nyasaland and Northern Rhodesia. Beyond the limits of this work, in suitable localities northwards to Abyssinia and probably parts of the Sudan (the Nile), and from the Belgian Congo to (at least formerly) Gambia.

(Became extinct in the western Orange River in 1925 according to Shortridge, 1934.)

HIPPOPOTAMUS AMPHIBIUS AMPHIBIUS Linnaeus, 1758. (Extralimital)

1758. *Hippopotamus amphibius* Linnaeus, Syst. Nat. 10th ed. *1:* 74. Nile River.

HIPPOPOTAMUS AMPHIBIUS CAPENSIS Desmoulins, 1825

1825. *Hippopotamus capensis* Desmoulins, Dict. Class. H.N. *8:* 220. Lower Berg River (northwards from Cape Town), western Cape Province (where now extinct).
1846. *Hippopotamus australis* Duvernoy, C.R. Acad. Sci. Paris, *23:* 650. Cape of Good Hope.

1910. *Hippopotamus constrictus* Miller, Smithson. Misc. Coll. *54*, 7: 1. Angola.
1924. *Hippopotamus constrictor* Zukowsky, Arch. Naturgesch. *90A*, 1: 99. (*Lapsus* for *constrictus*).

SUB-ORDER RUMINANTIA

FAMILY GIRAFFIDAE

Two distinct living genera, referred by Simpson to two subfamilies, belong to this family. Only one of them occurs in South Africa.

SUBFAMILY Giraffinae

Genus **GIRAFFA** Brisson, 1762

1762. *Giraffa* Brisson, Regn. Anim. 12, 37. *Giraffa giraffa* Brisson = *Cervus camelopardalis* Linnaeus. On the status of Brisson's names see Ellerman & Morrison-Scott, 1951: 3.
1771. *Giraffa* Brünnich, Zool. Fundamenta, 36, 46. *Cervus camelopardalis* Linnaeus. (For date of Brünnich see Bull. Zool. Nomencl. 1950, *4:* 307.)
1784. *Camelopardalis* Schreber, Säugth. pl. 255; text, *5:* 1139 (1817). *Camelopardalis giraffa* Schreber = *Cervus camelopardalis* Linnaeus.
1816. *Orasius* Oken, Lehrb. Naturgesch, *3*, 2: 744. *Cervus camelopardalis* Linnaeus. (Unavailable.)
1848. *Trachelotherium* Gistl, Nat. Thierr., 81. New name for *Camelopardalis* Schreber.

Giraffa camelopardalis Linnaeus, 1758 Giraffe. Kameelperd; Giraf

Distribution; in the Union, survives in the Kruger National Park, Transvaal (Satara, Skukuza, Toulon, etc.; particularly common at Satara). (Col. J. A. B. Sandenbergh informs us that they have been introduced in the Hluhluwe Reserve, Zululand.) Occurs in Portuguese territory along the eastern border of the Kruger National Park. Southern Rhodesia, part. The central Kalahari (Roberts). In South-West Africa Shortridge (1934) quoted the species from northern localities, the Kaokoveld, the Grootfontein district, and the Caprivi (east of the Okavango). Roberts says that the distribution of the race *capensis* (= *giraffa*) is "in all cases only in isolated areas where certain tall acacias are found". Southern Angola. ?Rare in Northern Rhodesia. Beyond the limits of this work, northwards in East Africa about to the Sudan and Abyssinia, and from parts of the Belgian Congo to Nigeria and apparently Senegal.

On the races of the Giraffe see Lydekker, 1904, *P.Z.S. 1:* 202. It may be mentioned here that the form *reticulata* de Winton, 1899, from the Loroghi Mountains, Kenya, which is sometimes listed as a species, appears to be nothing more than a form of the one and only species *G. camelopardalis*. We have seen a photograph of a herd on the Loroghi plateau which contained both forms.

GIRAFFA CAMELOPARDALIS CAMELOPARDALIS Linnaeus, 1758. (Extralimital)
1758. *Cervus camelopardalis* Linnaeus, Syst. Nat. 10th ed. *1:* 66. Aethiopia and Sennar (Sudan).

GIRAFFA CAMELOPARDALIS GIRAFFA Boddaert, 1785

1785. *Camelopardalis giraffa* Boddaert, Elenchus Animalium, 133. Cape of Good Hope.
1842. *Camelopardalis capensis* Lesson, Nouv. Tabl. Règne Anim. Mamm. 168. Cape of Good Hope.
1896. *Giraffa camelopardalis australis* Rhoads, Proc. Acad. Nat. Sci. Philadelphia, 518. South Africa.
1904. *Giraffa camelopardalis wardi* Lydekker, P.Z.S. *1:* 221. Northern Transvaal.
1908. *Giraffa infumata* Noack, Zool. Anz. *33:* 356. Barotse, middle Zambezi region, Northern Rhodesia.
1911. *Giraffa camelopardalis thornicrofti* Lydekker, Nature, London, *87:* 484. Petauke, Eastern Province, Northern Rhodesia.

GIRAFFA CAMELOPARDALIS ANGOLENSIS Lydekker, 1903

1903. *Giraffa camelopardalis angolensis* Lydekker, Hutchinson's Anim. Life, *2:* 122; P.Z.S.*1904*, 1: 221 (1904). Cunene River, 150 miles south-west of Humbe, extreme southern Angola.

FAMILY BOVIDAE

Twenty genera occur in the present region. Simpson (1945) classified these genera as follows:[1]

Subfamily: BOVINAE
Tribe: "Strepsicerotini" = Tragelaphini.
Tragelaphus (Simpson used the name *Strepsiceros* Frisch, 1775 for this genus, but it is not available).
Taurotragus.
Tribe: Bovini.
Syncerus.

Subfamily: CEPHALOPHINAE.
Cephalophus, Sylvicapra.

Subfamily: HIPPOTRAGINAE
Tribe: Reduncini.
Kobus, Redunca, Pelea.
Tribe: Hippotragini.
Hippotragus, Oryx.
Tribe: Alcelaphini.
Damaliscus, Alcelaphus, Connochaetes.

Subfamily: ANTILOPINAE
Tribe: Neotragini.
Oreotragus, Ourebia, Raphicerus, Nesotragus, Madoqua.
Tribe: Antilopini.
Aepyceros,[2] *Antidorcas.*

[1] Simpson retained more genera than we list here.
[2] Although Simpson and others refer *Aepyceros* to the Antilopinae it seems probable that it is more nearly allied to *Kobus* and *Redunca.*

We are not convinced that Simpson's classification is a natural one, and for the present we list no subfamilies in this family.

1. Horns poorly developed, present or absent in female, relatively short, straight, spike-shaped and simple. The largest horns quoted by Rowland Ward (1935) are little over 7 inches in length, and below 8 inches. Facegland present, and preorbital pit on the skull for its reception. ——2

   Horns well developed, usually somewhat curved (but straight in *Oryx* and *Pelea*), not spikeshaped, and in measurements quoted by Rowland Ward (1935) exceed 7 inches in length (except *Redunca fulvorufula*, in which they curve forwards). ——8

2. Hoofs short, truncated, as an adaptation to rock or mountain habitat. Coat thick and coarse, almost bristly, its colour and texture distinguishable at a glance from that of the other small genera.
   Genus *OREOTRAGUS*, page 188

   Hoofs not particularly shortened; coat without the peculiarities and colour of the last genus. ——3

3. Nasals much reduced in size; nostrils large and inflated.
   Genus *MADOQUA*,[1] page 189

   Nasals and nostrils not abnormal. ——4

4. Facegland specialized, prominent, opening in long slit down the face. ——5
   Facegland less prominent and specialized, not forming long opening. ——6

5. Horns (usually absent in female) directed upwards, forming obtuse angle with plane of face. Ears long, pointed. Genus *SYLVICAPRA*, page 181

   Horns (usually present in both sexes), directed backwards in plane of face; ears medium or short, rounded. Genus *CEPHALOPHUS*, page 177

6. Normally with vacuity between premaxilla and maxilla (so in all South African skulls examined). Horns heavily ridged for much of their length.
   Genus *NESOTRAGUS*, page 187

   No vacuity between premaxilla and maxilla. Horns not ridged, or ridged more lightly and for less of their length. ——7

7. With bare patch below ear; with "knee" tufts; horns ridged at base.
   Genus *OUREBIA*, page 186

   No bare patch below ear; no "knee" tufts; horns not or little ridged at base.
   Genus *RAPHICERUS*,[2] page 183

[1] *Rhynchotragus* (characterized by the presence of a third hind lobe to the last lower molar and by the more curved premaxillae) is here considered a subgenus of *Madoqua*, following Roberts.

[2] Thomas & Schwann (1906) separated *Raphicerus melanotis* as the genus *Nototragus* on account of its retention of small lateral hoofs, its close ally *sharpei* being left in *Raphicerus* (type species *campestris*). Shortridge (1934) and Roberts (1951) agreed in regarding *sharpei* as being nearer to *melanotis* than to *campestris*, and in including the two former in *Nototragus*. But apart from some minor cranial details pointed out by Roberts and the colour of the fur there are no differences of importance between these two groups and we think it best to follow Swynnerton & Hayman (1951, 353) who synonymize *Nototragus* with *Raphicerus*.

8. Horns normally present in male only. (No faceglands.) ——9
Horns normally present and well developed in both sexes. ——13

9. Horns quite straight, medium in length ($8\frac{1}{4}$–$11\frac{1}{2}$ inches in specimens quoted by Rowland Ward (1935)).[1] Coat woolly. With footglands.
Genus *PELEA*, page 190
Horns considerably curved; not combining the characters of the last genus; footglands normally absent. ——10

10. Horns twisted in a more or less open spiral, and not heavily ringed. Usually the body has at least signs of stripes. Genus *TRAGELAPHUS*, page 206
Horns either more or less lyrate in shape, or in the form of a forwardly-directed arc of a circle, and usually ringed. Body without stripes. ——11

11. No lateral hoofs; no supraorbital pits nor lachrymal vacuities; with premaxillo-maxillary vacuity. Horns more or less lyrate; a vertical black streak on each hindquarter and white between them. Genus *AEPYCEROS*, page 195
With lateral hoofs; with supraorbital pits and lachrymal vacuities; no premaxillo-maxillary vacuity. ——12

12. Tail short and bushy; bare patch below ear; on average smaller; horns in form of forwardly-directed arc of a circle and rarely as much as 17 inches (Rowland Ward). Genus *REDUNCA*, page 191
Tail not bushy; no bare patch below ear; on average larger, in South Africa horns not under 17 inches (Rowland Ward).
Genus *KOBUS*,[2] page 192

13. Horns in the male more or less lyrate in shape, ridged and usually hooked inwards at the tips; in the female smoother, much shorter and thinner. Cheekteeth reduced, only 5 in the lower jaw, and 5 or 6 in the upper. Colour distinctive, pale sandy with black band along flank, white underparts and dark streak on face. A line of long, white, erectile hairs along the spine from the middle of the back to the tail. Facegland present and corresponding preorbital pit in the skull. Genus *ANTIDORCAS*, page 196
Little or less difference in size between the horns of males and females. Not combining the characters of the last genus, and as a general rule of larger size. ——14

14. Horns long and more or less straight (about 26–48 inches in length in species now under consideration). Colour of body pale, with whitish limbs and dark marks on the face. (No facegland.) Genus *ORYX*, page 197
Horns curved. ——15

[1] These are "record" measurements, and *Pelea* may have the horn under 7 inches in length. The genus may still be distinguished, however, from the short-horned forms listed under 2–7 above by the lack of faceglands, woolly fur, the relatively large rhinarium and the small bullae.

[2] The Lechwes are usually treated as belonging to a separate genus *Onotragus*, but the differences between them and the Kobs and the Puku (subgenus *Adenota*) do not seem to be sufficiently clear-cut to warrant subgeneric distinction. *Onotragus* is here regarded as a synonym of *Adenota*, and *Adenota* is here, following many earlier authors, regarded as a subgenus of *Kobus*.

15. Horns rising from above the orbits, and curving back. (No facegland.)
Genus *HIPPOTRAGUS*, page 198
Horns of different shape. ——16

16. Horns spirally twisted, thinner in female than male. Usually with at least traces of stripes on body. Male with dewlap, and tufted forehead. (No facegland.)
Genus *TAUROTRAGUS*, page 209
Horns not spirally twisted; colour different; not combining the characters of the last genus. ——17

17. Build massive and ox-like. Horns not ringed, in South and East Africa usually tending to meet in middle line of skull, at first directed outwards. Nasals short and broad (in Roberts figures only once over 200 mm.). Tail not very long-haired, and not nearly reaching the ground. No facegland.
Genus *SYNCERUS*, page 211
Build less massive; antelopine or almost horselike. (*Connochaetes taurinus*, which has horns of similar shape to *Syncerus*, has the nasals long and narrow (only once under 200 mm. in Roberts' figures, although all the skulls are smaller in condylobasal length than *Syncerus*) and the tail is very longhaired and nearly reaches the ground). With facegland, and at least a small pit in the skull for its reception. ——18

18. Horns smooth and curving downwards then upwards, directed either forwards or outwards. Back with mane. (Tail very long-haired, the hairs nearly reaching the ground). Genus *CONNOCHAETES*, page 204
Horns ringed and of a different shape; back without mane. ——19

19. Horns usually roughly S-shaped, and on pedicle; occiput about level with or in front of base of horns; face very long.
Genus *ALCELAPHUS*, page 202
Horns more lyrate, less specialized, not situated on pedicle; occiput behind base of horns; face rather less long. Genus *DAMALISCUS*, page 200

Genus **CEPHALOPHUS** H. Smith, 1827

1827. *Cephalophus* H. Smith, Griffith's Cuv. Anim. Kingd. *5:* 344. Type fixed as *Antilope silvicultrix* Afzelius by Sclater & Thomas, 1895, Book of Antelopes, *1:* 121.

1840. *Philantomba* Blyth in Cuvier's Anim. Kingd. 140. *Antilope philantomba* H. Smith = *Antilope maxwelli* H. Smith. (Swynnerton & Hayman (1951) dropped *Philantomba* on the ground that it was possibly not used in a generic sense, and that no type species was specified. But the name appears to us to be used in a generic sense and the type by absolute tautonomy is *philantomba.*) Valid as a subgenus.

1842. *Cephalophorus* Gray, Ann. Mag. N.H. *10:* 267. *Antilope ogilbyi* Waterhouse, from Fernando Po.

1843. *Cephalolophus* Wagner in Schreber, Säugth. Suppl. *4:* 445. Emendation.

CEPHALOPHUS [*contd.*]

1852. *Guevei* Gray, Cat. Mamm. B.M., pt. 3: 86. *Antilope maxwelli* H. Smith.
1871. *Terpone* Gray, P.Z.S., 592. *Cephalophus longiceps* Gray = *Antilope silvicultrix* Afzelius.
1872. *Potamotragus* Gray, Cat. Ruminant Mamm. B.M., 25. *Cephalophus melanoprymnus* Gray = *Antilope silvicultrix* Afzelius.
1907. *Cephalophia* Knottnerus-Meyer, Arch. Naturgesch. *73, 1:* 44. *Cephalophus ogilbyi* Waterhouse (here selected).
1907. *Cephalophidium* Knottnerus-Meyer, *loc. cit.* 45. *Cephalophus niger* Gray, from West Africa.
1907. *Cephalophella* Knottnerus-Meyer, *loc. cit.* 45. *Cephalophus callipygus* Peters, from Gabon.
1907. *Cephalophops* Knottnerus-Meyer, *loc. cit.* 46. *Cephalophus dorsalis* Gray, from Sierra Leone.
1907. *Cephalophula* Knottnerus-Meyer, *loc. cit.* 46. *Antilope doria* Ogilby = *Antilope zebra* Gray, from Sierra Leone.

1. No inguinal glands. Skull approximately 127 mm. and less.
Cephalophus (*Philantomba*) *monticola*, page 179[1]
With inguinal glands. Published measurements for the typical subgenus indicate that the skull is usually more than 130 mm. ——2

2. Large species, skull usually over 240 mm. *Cephalophus silvicultor*, page 179
Small species, skull normally under 200 mm. *Cephalophus natalensis*, page 178

Subgenus *CEPHALOPHUS* H. Smith, 1827

Cephalophus natalensis A. Smith, 1834

Red or Natal Duiker. Rooiduiker

Distribution: in the Union, Natal coastal bush (Zululand and originally named from Durban), Barberton and Legogot (near White River), south-eastern Transvaal. Portuguese East Africa, districts of Gorongoza and Inhambane, also Boror (north of the Zambezi). Nyasaland, Northern Rhodesia. Much of East Africa to the southern borders of the Sudan, and the Belgian Congo (Rowland Ward treats the East African *harveyi*, etc., as races of this species).

CEPHALOPHUS NATALENSIS NATALENSIS A. Smith, 1834

1834. *Cephalophus natalensis* A. Smith, S. Afr. J. *2:* 217. About "Port Natal" = Durban, Natal.

CEPHALOPHUS NATALENSIS HARVEYI Thomas, 1893

1893. *Cephalolophus harveyi* Thomas, Ann. Mag. N.H. *11:* 48. Kahe forest, south-east of Kilimanjaro, northern Tanganyika (Swynnerton, 1945). Occurs Nyika Plateau, Nyasaland (Loveridge *in litt*).

[1] All forms of the subgenus *Philantomba* are regarded as conspecific, and the prior name appears to be *monticola* Thunberg, 1789.

CEPHALOPHUS NATALENSIS WALKERI Thomas, 1906

1906. *Cephalophus walkeri* Thomas, Abstr. P.Z.S. No. 31: 1; P.Z.S., 464. Tuchila River, about 25 miles from Blantyre, southern Nyasaland.

(1911. *Cephalophus natalensis bradshawi* Wroughton, Ann. Mag. N.H. *8:* 277. Chiromo, Shire valley, southern Nyasaland. St. Leger, 1936, P.Z.S., 219, thought it was possible that *walkeri* is a melanistic form of *bradshawi*.)

CEPHALOPHUS NATALENSIS ROBERTSI Rothschild, 1906

1906. *Cephalophus robertsi* Rothschild, P.Z.S., 691. N. Makualand, Portuguese East Africa.

1906. *Cephalophus natalensis vassei* Trouessart, Bull. Mus. H.N. Paris, 445. Guenguère, Portuguese East Africa.

Range: Portuguese East Africa, north of the Limpopo, at least to Quelimane district.

CEPHALOPHUS NATALENSIS AMOENUS Wroughton, 1911

1911. *Cephalophus natalensis amoenus* Wroughton, Ann. Mag. N.H. *8:* 277. Legogot (13 miles from Nelspruit, north of White River), south-eastern Transvaal.

CEPHALOPHUS NATALENSIS LEBOMBO Roberts, 1936

1936. *Cephalophus natalensis lebombo* Roberts, Ann. Transv. Mus. *18:* 248. Mkusi River below Ubombo Magistracy, Zululand, Natal.

Cephalophus silvicultor Afzelius, 1815 Yellow-backed Duiker

Distribution: Central Angola and Northern Rhodesia, thence through the Belgian Congo to Sierra Leone, and recently recorded from Kenya.

CEPHALOPHUS SILVICULTOR SILVICULTOR Afzelius, 1815

1815. *Antilope silvicultrix* Afzelius, Nova Acta Soc. Sci. Upsal. *7:* 265. Sierra Leone.

1827. *Antilope sylvicultrix* Lesson, Man. Mamm. 378 (alternative spelling).

1869. *Cephalophus ruficrista* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *2:* 221. Loanda, Angola. Regarded by Hill & Carter (1941) as a valid race.

1892. *Cephalophus sylvicultor* Thomas, P.Z.S. 416 (alternative spelling).

1906. *Cephalophus coxi* Jentink, Notes Leyden Mus. *28:* 117. "North-Western Rhodesia."

1939. *Cephalophus silvicultor* G. Allen, Checklist Afr. Mamm. 488. (Afzelius seems to be using the feminine Latin adjective "silvicultrix" meaning "inhabiting woods", and we agree with using its masculine form in conjunction with the generic name *Cephalophus*.)

Subgenus *PHILANTOMBA* Blyth, 1840

We prefer to follow Hollister and other authors and regard this group as a subgenus of *Cephalophus* rather than a distinct genus.

Cephalophus monticola Thunberg, 1789. Blue Duiker. Bloubokkie

Distribution: in the Union, part of the forests of the southern Cape Province, recorded from the Outeniqua forests (Jonkersberg in the George district eastwards)

by Roberts, Knysna, and the Bathurst district (Hewitt, 1931). Zululand; Swaziland. Melsetter district of eastern Southern Rhodesia; Portuguese East Africa, districts of Beira, Gorongoza, etc. Angola; western mountainous districts. Nyasaland, Northern Rhodesia. Northwards to Kenya, and thence westwards to Senegal.

CEPHALOPHUS MONTICOLA MONTICOLA Thunberg, 1789

1789. *Capra monticola* Thunberg, Resa uti Europa, Africa, Asia, etc. *2:* 66. Lange Kloof (32° 10′ S., 20° 10′ E.) (west of Sutherland, western Cape Province). (Schwarz, 1914, *Ann. Mag. N.H.13:* 35, was responsible for a change of name: "This specific name [*caerulus*] replaces *monticola*, which, as will be shown in a subsequent paper, is a clear synonym of *Ourebia ourebi*." But later on (1920, *Zweite Deutsche Zentralafrika Expedition, 1910–11, 1:* 949) Schwarz had second thoughts and decided to retain *monticola* for the Blue Duiker after all. Admittedly Thunberg's original description is difficult, but his amplification in 1811, *K. Svenska Vetensk. Akad. Handl. 32:* 93, and plate 5, makes the position reasonably clear).

1821. *Antilope pygmea* Schinz, Cuvier's Thierreich, *1:* 393. South Coast of Africa. Not *pygmaea* Pallas, 1777 = *Neotragus pygmaeus* Linnaeus.

1827. *Antilope caerula* H. Smith, Griffith's Cuv. Anim. Kingd. *4:* 268. Galgebosch, Uitenhage district, eastern Cape Province.

1827. *Antilope perpusilla* H. Smith, *loc. cit.:* 269. "Interior of Caffraria."

1844. *Antelope minuta* Forster, Descript. Anim. 383. Forster says this is a synonym of *pygmaea* Pallas, but it cannot be since *minuta* is included in a list of animals from the Cape of Good Hope.

CEPHALOPHUS MONTICOLA BICOLOR Gray, 1863

1863. *Cephalophus bicolor* Gray, P.Z.S. *1862:* 263. "Natal." Umgoye forest, between Umlalazi and Umhlatuzi Rivers, Zululand. (See Roberts, 1951, 323.)

1869. *Cephalophus pygmaeus caffer* Fitzinger, S.B. Akad. Wiss. Wien, *59,* 1: 166. "Kaffirland"; *nom. nud.*

1922. *Cephalophus monticola ruddi* Blaine, Ann. Mag. N.H. *9:* 175. Sibedeni (= Sibudeni), N.W. Eshowe, Zululand, Natal.

CEPHALOPHUS MONTICOLA ANCHIETAE Bocage, 1879

1879. *Cephalophus anchietae* Bocage, P.Z.S. *1878:* 743. Bibala, near Capangombe, south-western Angola.

CEPHALOPHUS MONTICOLA HECKI Matschie, 1897

1897. *Cephalolophus hecki* Matschie, S.B. Ges. Naturf. Fr. Berlin, 158. Coast of Mozambique, Portuguese East Africa. Ranges southwards to Beira.

CEPHALOPHUS MONTICOLA NYASAE Thomas, 1902.

1902. *Cephalophus nyasae* Thomas, Ann. Mag. N.H. *9:* 58. Mlanje, extreme southern Nyasaland.

CEPHALOPHUS MONTICOLA DEFRIESI Rothschild, 1904

1904. *Cephalophus nyasae defriesi* Rothschild, Abstr. P.Z.S. No. 3, 9; P.Z.S. *1:* 229. "Itambe" (= Itawa), between Lakes Mweru and Tanganyika, Northern Rhodesia.

CEPHALOPHUS MONTICOLA LUDLAMI Blaine, 1922

1922. *Cephalophus monticola ludlami* Blaine, Ann. Mag. N.H. *9:* 174. Junction of Lunga with Kafue River, western Northern Rhodesia.

CEPHALOPHUS MONTICOLA FUSCICOLOR Blaine, 1922

1922. *Cephalophus monticola fuscicolor* Blaine, Ann. Mag. N.H. *9:* 175. Chirinda Forest, Melsetter district, eastern Southern Rhodesia.

Genus **SYLVICAPRA** Ogilby, 1837

1837. *Sylvicapra* Ogilby, P.Z.S. *1836:* 138. *Antilope mergens* Desmarest = *Capra grimmia* Linnaeus.

1841. *Grimmia* Laurillard in d'Orbigny's Dict. Univ. H.N. *1:* 623. *Capra grimmia* Linnaeus. (For date of publication see Sherborn & Palmer, 1899, *Ann. Mag. N.H. 3:* 350.)

1842. *Cephalophora* Gray, Ann. Mag. N.H. *10:* 266. *Cephalophora coronata* Gray, one of the western African races of *Capra grimmia* Linnaeus.

Sylvicapra grimmia Linnaeus, 1758 Grey Duiker. Duikerbok

Distribution: one of the commoner small buck in the Union; the Transvaal; Kruger National Park (Skukuza, Toulon and other districts) Wakkerstroom, Woodbush, Tzaneen, Klein Letaba, Pretoria district (Roberts), Potgietersrust, Rustenburg district, etc. Natal and Zululand. In the Cape Province, west of Kuruman, De Beers Estate (36 miles west of Kimberley), ?Vryburg district, the Aughrabies Falls, Little Namaqualand (east of the Kamiesberg (Shortridge, 1942), Port Nolloth (B.M.)), Lamberts Bay, perhaps near Cape Town, probably Bredasdorp district, Albany district and, according to Hewitt (1931), Grahamstown, Bedford, Cradock, Tarkastad, Cathcart, Port St. Johns. Other possible localities are the Addo Bush (near Port Elizabeth), near Graaff Reinet, and the mountains to the west of Matjesfontein. In South-West Africa, from Great Namaqualand northwards (Shortridge, 1934) who says the species is more numerous in the northern and north-eastern districts than in the arid regions south of the Tropic of Capricorn; the Kalahari and Ngamiland; Southern Rhodesia; in Portuguese East Africa from both sides of the Zambezi, and recorded from districts of Beira, Tete, Inhambane, etc. Angola; evidently quite widely distributed in the central parts, and recorded as far west as Hanha. Nyasaland, Northern Rhodesia. North of the limits of this work, northwards to Abyssinia and the southern Sudan, thence westwards to Senegal.

SYLVICAPRA GRIMMIA GRIMMIA Linnaeus, 1758

1758. *Capra grimmia* Linnaeus, Syst. Nat. 10th ed. *1:* 70. "Africa." Type locality fixed as Cape Town by Thomas (1911: 153).

1811. *Antilope nictitans* Thunberg, Mém. Acad. Sci. St. Pétersb. *3:* 312. Cape of Good Hope.

1816. *Antilope mergens* Desmarest, Nouv. Dict. H.N. *2:* 193. Cape of Good Hope.

1816. *Cemas cana* Oken, Lehrb. Naturgesch. 3, *2:* 743. (Unavailable.)

SYLVICAPRA GRIMMIA GRIMMIA [*contd.*]

1827. *Antilope platous* H. Smith, Griffith's Cuv. Anim. Kingd. *4:* 260. "Vicinity of the Gareep" (= Orange River).
1827. *Antilope ptoox* H. Smith, *loc. cit.* 265. Cape of Good Hope.
1836. *Antilope platyotis* Lesson, Complément de Buffon, *10:* 293. For *platous*.
1892. *Cephalolophus grimmii* Thomas, P.Z.S. 428. Emendation of *grimmia*.

Range: southern and western Cape Province.

SYLVICAPRA GRIMMIA BURCHELLI H. Smith, 1827

1827. *Antilope burchellii* H. Smith in Griffith's Cuvier Anim. Kingd. *4:* 262. "West side of Caffraria"; Zwartwater Poort near borders of Caffraria, Albany district, according to Roberts (1951). Range: eastern Cape Province, to Natal?

SYLVICAPRA GRIMMIA ORBICULARIS Peters, 1852

1852. *Antilope* (*Cephalophus*) *orbicularis* Peters, S.B. Ges. Naturf. Fr. Berlin, for 17 February, 1852 (published in the Spenersche Z. of 22 February, 1852). Plains at Sena, Tete, Macanga and Boror (16°-18° S.). Sena here selected.
1852. *Antilope altifrons* Peters, Reise nach Mossambique, Säugeth. 184. Sena and Boror, Portuguese East Africa.
1852. *Antilope ocularis* Peters, *loc. cit.* 186. Substitute for *orbicularis*.

SYLVICAPRA GRIMMIA CAFFRA Fitzinger, 1869

1869. *Sylvicapra mergens caffra* Fitzinger, S.B. Akad. Wiss. Wien. *59*, 1: 167. "Kaffirland" (probably Natal, according to Roberts).
1871. *Grimmia irrorata* Gray, P.Z.S. 590. Natal.
1926. *Sylvicapra altifrons noomei* Roberts, Ann. Transv. Mus. *11:* 263. Maputa River, extreme southern Portuguese East Africa.

Range includes Zululand, Wakkerstroom district, Klein Letaba and Woodbush, eastern Transvaal, and into Southern Rhodesia.

SYLVICAPRA GRIMMIA SPLENDIDULA Gray, 1871

1871. *Grimmia splendidula* Gray, P.Z.S. 590. St. Paul de Loanda, northern Angola (but Hill & Carter think it came from the interior).
1894. *Cephalophus grimmia flavescens* Lorenz, Ann. Naturh. Hofmus. Wien, *9:* Notizen, 60. Matabeleland, near Victoria Falls, Southern Rhodesia.
1899. *Cephalolophus leucoprosopus* Neumann, S.B. Ges. Naturf. Fr. Berlin, 18. Angola, sent from St. Paul de Loanda.
1910. "*Cephalolophus grimmii fulvescens* Lorenz", Wroughton, Ann. Mag. N.H. *4:* 274. (Error for *flavescens*.)

SYLVICAPRA GRIMMIA SHIRENSIS Wroughton, 1910

1910. *Cephalophus abyssinicus shirensis* Wroughton, Ann. Mag. N.H. *5:* 274. Zomba, southern Nyasaland.

SYLVICAPRA GRIMMIA STEINHARDTI Zukowsky, 1924.

1924. *Sylvicapra grimmia steinhardti* Zukowsky, Arch. Naturgesch, *90A*, 1: 113. Otjikuara, source of the Hoamib, South-West Africa.

1924. *Sylvicapra grimmia ugabensis* Zukowsky, *loc. cit.* 115. Goreis, 45 km. west of Outjo, northern Damaraland, South-West Africa.
1924. *Sylvicapra grimmia cunenensis* Zukowsky, *loc. cit.* 117. Otjonganga, south-east of Omuhonga mountains, northern Kaokoveld, South-West Africa.
1924. *Sylvicapra grimmia omurambae* Zukowsky, *loc. cit.* 118. Otjomikambo, on the Omuraba u'Omatako, Grootfontein district, South-West Africa.
1926. *Sylvicapra grimmia bradfieldi* Roberts, Ann. Transv. Mus. *11:* 262. Quickborn Farm, north of Okahandja, Damaraland, South-West Africa.
1942. *Sylvicapra grimmia vernayi* Hill, Amer. Mus. Novit, No. 1170. Kaotwe Pan (22° 30′ S., 23° 20′ E.), Kalahari Desert, Bechuanaland.

SYLVICAPRA GRIMMIA TRANSVAALENSIS Roberts, 1926

1926. *Sylvicapra grimmi transvaalensis* Roberts, Ann. Transv. Mus. *11:* 262. Rustenburg district, western Transvaal. Ranges into southern Bechuanaland and western Southern Rhodesia.

Genus **RAPHICERUS** H. Smith, 1827

1827. *Raphicerus* H. Smith, Griffith's Cuvier Anim. Kingd. *5:* 342. *Antilope acuticornis* Blainville = *Antilope campestris* Thunberg (Sclater & Thomas, 1896, Book of Antelopes, *2:* 33).
1846. *Rhaphocerus* Agassiz, Nomenclator Zool. Index. Univ. 321. Emendation of *Raphicerus.*
1846. *Calotragus* Sundevall, K. Svenska Vetensk. Akad. Handl. *1844:* 192. "*Calotragus tragulus* (Forster)" = *Antilope campestris* Thunberg.
1861. *Pediotragus* Fitzinger, S.B. Akad. Wiss. Wien, *42:* 396. *Antilope tragulus* Forster = *Antilope campestris* Thunberg.
1897. *Raphiceros* Thomas, P.Z.S. *1896:* 796.
1897. *Rhaphiceros* Lydekker, Zool. Record, *33*: 28.
1906. *Nototragus* Thomas & Schwann, Abstr. P.Z.S. No. 27, 10; P.Z.S. 168. *Antilope melanotis* Thunberg.
1907. *Grysbock* Knottnerus-Meyer, Arch. Naturgesch. *73*, 1: 55. *Antilope melanotis* Thunberg.
1908. *Rhaphicerus* Lönnberg, Sjöstedt's Kilimandjaro Meru Exped. Mamm. 40.

On the status of *Nototragus* see above, page 175, footnote 2.

1. Coat uniform, reddish. (No lateral hoofs; from published measurements of South African forms, ear 105–135 mm.) *Raphicerus campestris*, page 184
Coat speckled, with numerous whitish hairs interspersed amongst the reddish ones. ——2

2. Ear (from the few published measurements and skins available) 117–128 mm. With small lateral hoofs. *Raphicerus melanotis*, page 185
Ear (from the few published measurements and skins available) 84–115 mm. Normally no lateral hoofs. *Raphicerus sharpei*, page 186

Raphicerus campestris Thunberg, 1811

Steenbok (Steinbok). Vlakbokkie; Steenbok

Distribution: probably the most widely distributed member of the family in the Union. Transvaal; Kruger National Park (Punda Maria, Shingwedzi, Letaba, Satara, Skukuza, Toulon); the western Transvaal, also Klein Letaba. Natal Drakensberg, and Zululand. The British Museum has it from Vredefort district, Orange Free State. In the Cape Province, west of Kuruman, ?near Vryburg, west of Kimberley (De Beers Estate), neighbourhood of Graaff Reinet, Little Namaqualand (north of Steinkopf), near Lamberts Bay, north of Van Rhynsdorp; near Bredasdorp (the Bontebok National Park). Albany district, and according to Hewitt, districts of Cathcart, Grahamstown, Cradock, Tarkastad, Queenstown, Hanover, Colesberg, Fort Beaufort and Bedford. Deelfontein (British Museum). (It is not certain whether it occurs now near Cape Town, where the common small buck is the Grysbok.) In South-West Africa, evidently all districts from the Orange River to the Cunene, Okavango and Caprivi. Southern and south-eastern Angola. The Kalahari, Ngamiland and Gaberones in Bechuanaland. Parts of Southern Rhodesia, and west of Inhambane in Portuguese East Africa. The area between the Zambezi and Kafue Rivers in Northern Rhodesia (Shortridge). Has been recorded from Nyasaland. Northwards to Tanganyika and Kenya.

Raphicerus campestris campestris Thunberg, 1811

1811. *Antilope campestris* Thunberg, Mém. Acad. Sci. St. Pétersb. *3:* 313. Cape of Good Hope.
1812. *Antilope tragulus* Lichtenstein, Mag. Ges. Naturf. Fr. Berlin, *6:* 176. Near Cape Town.
1812. *Antilope tragulus* var. *rupestris* Lichtenstein, *loc. cit.* 177. Cape.
1812. *Antilope tragulus* var. *pallida* Lichtenstein, *loc. cit.* Cape.
1815. *Antilope capensis* Afzelius, Nova Acta Soc. Sci. Upsal. *7:* 254. Cape of Good Hope (Groene Kloof, Saldanha Bay and Cold Bokkeveld).
1815. *Antilope pediotragus* Afzelius, *loc. cit.* 260. Cape of Good Hope.
1815. *Antilope ibex* Afzelius, *loc. cit.* 263. Cape of Good Hope.
1816. *Cerophorus* (*Cervicapra*) *acuticornis* Blainville, Bull. Soc. Philom. Paris, 75, 79.
1816. *Cerophorus* (*Cervicapra*) *stenbock* Blainville, *loc. cit.* 75, *nom. nud.*
(1827. *Antilope subulata* H. Smith, Griffith's Cuv. Anim. Kingd. *4:* 253. "East Indies.")
1869. *Pediotragus tragulus grayi* Fitzinger, S.B. Akad. Wiss. Wien, *59*, 1: 163. South-West Africa. *Nom. nud.*
1900. *Pediotragus horstockii* Jentink, Notes Leyden Mus. *22:* 36. Cape of Good Hope.

Range: southern and south-western Cape Province.

Raphicerus campestris fulvorubescens Desmoulins, 1822

1822. *Antilope fulvo-rubescens* Desmoulins, Dict. Class. H.N. *1:* 446. "Plains of Caffraria."
1827. *Antilope rufescens* H. Smith, Griffith's Cuv. Anim. Kingd. *4:* 249. Cape of Good Hope.
1951. *Antilope rupescens* Roberts, Mamm. S. Africa, 341. *Lapsus* for *rufescens.*

Name revived by Roberts for eastern Cape Province specimens; Albany district to Graaff Reinet.

RAPHICERUS CAMPESTRIS KELLENI Jentink, 1900

1900. *Pediotragus kelleni* Jentink, Notes Leyden Mus. *22:* 41. Cahama, Kakulovar River, a northern tributary of the Cunene, Mossamedes, southern Angola.

1930. *Raphicerus campestris bourquii* Monard, Bull. Soc. Sci. Nat. Neuchâtel, *54:* 82. Calundungu, Angola.

RAPHICERUS CAMPESTRIS CAPRICORNIS Thomas & Schwann, 1906

1906. *Raphicerus neumanni capricornis* Thomas & Schwann, P.Z.S., 584. Klein Letaba (west of the Kruger National Park), eastern Transvaal. Range includes Southern Rhodesia, Coguno (Inhambane district), Portuguese East Africa, Zululand (Limpopo to Zambezi).

RAPHICERUS CAMPESTRIS NATALENSIS Rothschild, 1907

1907. *Rhaphiceros* (sic) *horstocki natalensis* Rothschild, P.Z.S., 237. Drakensberg, Natal.

RAPHICERUS CAMPESTRIS STEINHARDTI Zukowsky, 1924

1924. *Pediotragus kelleni steinhardti* Zukowsky, Arch. Naturgesch. *90A*, 1*:* 129. Cheiros, north-east of Franzfontein, southern Kaokoveld, South-West Africa. (G. Allen regards this and its synonyms as further synonyms of *R. c. kelleni.*)

1924. *Pediotragus kelleni cunenensis* Zukowsky, *loc. cit.* 131. Ombepera, southern Omuhonga Mountains, Kaokoveld, South-West Africa.

1924. *Pediotragus kelleni ugabensis* Zukowsky, *loc. cit.* 132. Okuvakuatjivi, near Omaruru, upper Omaruru River, Damaraland, South-West Africa.

1924. *Pediotragus kelleni hoamibensis* Strand, Arch. Naturgesch. *90A*, 1: 133, footnote. Otjonduno, near source of the Hoamib, south of Ombombo, Kaokoveld, South-West Africa.

1924. *Pediotragus kelleni zukowskyi* Strand, *loc. cit.* Bubos, 18 km. north-east of Grootfontein, South-West Africa.

RAPHICERUS CAMPESTRIS ZULUENSIS Roberts, 1946

1946. *Raphicerus campestris zuluensis* Roberts, Ann. Transv. Mus. *20:* 325. Umfolosi Game Reserve, Zululand, Natal. Ranges into the eastern Transvaal (recorded from Carolina district).

Raphicerus melanotis Thunberg, 1811 Grysbok. Grysbok

Distribution: the southern Cape Province; it is common in the Cape Point nature reserve (south of Cape Town), and on the western coast occurs (including Elgin) northwards about to the Cedarberg. It is said to occur in the Bontebok reserve near Bredasdorp, and in the Addo Bush (near Port Elizabeth) and is recorded from Knysna, Grahamstown, Alexandria and Bathurst, eastwards about to Komgha (Hewitt, 1931). There is a Grysbok reported from the Giants Castle, Natal, which may, however, be *R. sharpei.* The British Museum has skulls from Zululand (but these also may represent *sharpei*).

RAPHICERUS MELANOTIS Thunberg, 1811

1811. *Antilope melanotis* Thunberg, Mém. Acad. Sci. St. Pétersb. *3:* 312. Cape of Good Hope.
1804. *Antilope grisea* G. Cuvier, Dict. Sci. Nat. *2:* 244. Cape of Good Hope. Not of Boddaert, 1785.
1822. *Antilope rubro-albescens* Desmoulins, Dict. Class. H.N. *1:* 446. No locality.

Raphicerus sharpei Thomas, 1897 Sharpe's Grysbok. Tropiese Grysbok

Distribution: in the Union, the Transvaal; the Kruger National Park, Klein Letaba and the Rustenburg district. (?Natal; see under *R. melanotis*.) Shortridge says that it occurs in the Caprivi, on the north-eastern borders of South-West Africa. Southern Rhodesia, and recorded from Tete, Portuguese East Africa. Nyasaland and Northern Rhodesia, thence northwards to Tanganyika.

RAPHICERUS SHARPEI SHARPEI Thomas, 1897

1897. *Raphicerus sharpei* Thomas, P.Z.S. *1896:* 796. Southern Angoniland, Nyasaland.

RAPHICERUS SHARPEI COLONICUS Thomas & Schwann, 1906

1906. *Raphicerus sharpei colonicus* Thomas & Schwann, P.Z.S., 583. Klein Letaba, west of the Kruger National Park, eastern Transvaal. Range: southern part of the distribution of the species.

Genus **OUREBIA** Laurillard, 1841

1841. *Ourebia* Laurillard, D'Orbigny's Dict. Univ. H.N. *1:* 622 *Ourebia scoparia* Schreber = *Antilope ourebi* Zimmermann (Sclater & Thomas, 1896, Book of Antelopes, *2:* 13).
(For date of publication of Laurillard see Sherborn & Palmer, 1899, *Ann. Mag. N.H. 3:* 350.)
1846. *Scopophorus* Gray, Ann. Mag. N.H. *18:* 232. *Antilope ourebi* Zimmermann.
1869. *Quadriscopa* Fitzinger, S.B. Akad. Wiss. Wien, *59,* 1: 167. *Quadriscopa smithii* Fitzinger = *Antilope quadriscopa* H. Smith, the Senegal race of *A. ourebi* Zimmermann.
1899. *Oribia* Kirby in Bryden, Great and Small Game of Africa, 238.

Ourebia ourebi Zimmermann, 1783 Oribi. Oorbietjie

Distribution: in the Union Roberts (1951) gave "Uitenhage district eastwards to Natal and northwards through the grassveld districts of eastern Orange Free State, Natal, Zululand . . . Transvaal," also quoting the species from southern Portuguese East Africa, Swaziland, Southern Rhodesia to the Zambezi. But this buck is now very scarce (if it occurs at all) in the Cape Province, Orange Free State and Transvaal; at the time of writing it is absent from the Kruger National Park; Hewitt (1931) said there were then still a small number in Albany, Bathurst and Alexandria districts, and at Cathcart, but that their numbers had been sadly reduced by poachers; Shortridge (1934) said they were then tending to disappear in many parts

of South Africa. South-West Africa; the northern parts; the Caprivi, Okavango valley (very local), etc. (Shortridge, 1934). Northern Rhodesia, Nyasaland. Angola. Beyond the limits of this work, north-eastwards to the Sudan and Abyssinia, and westwards to Senegal.

OUREBIA OUREBI OUREBI Zimmermann, 1783

1783. *Antilope ourebi* Zimmermann, Geogr. Gesch. *3:* 268. Cape of Good Hope; Uitenhage district according to Roberts.
1799. *Antilope scoparia* Schreber, Säugth. pl. 261; *5:* 1244 (published 1824) (Plate 261 is sometimes dated from 1785, but Poche (1912) has shown that it was published between Easter and Michaelmas, 1799). "Cape Colony."
1799. *Antilope melanurus* Bechstein, Ubers. Vierf. Thiere, *1:* 73.
1869. *Scopophorus ourebi greyi* Fitzinger, S.B. Akad. Wiss. Wien, *59*, 1: 165. Cape of Good Hope. *Nom. nud.*

OUREBIA OUREBI HASTATA Peters, 1852

1852. *Antilope hastata* Peters, S.B. Ges. Naturf. Fr. Berlin for 17 February, 1852 (published in the Spenersche Z. for 22 February, 1852). Reise nach Mossambique, Säugeth., 188. Sena, south bank of Zambezi River, Portuguese East Africa. (Recorded from Nyasaland by Thomas (1897).)

OUREBIA OUREBI RUTILA Blaine, 1922

1922. *Ourebia rutilus* Blaine, P.Z.S., 325. Between the Quanza and Luando Rivers, central Angola.
1930. *Ourebia leucopus* Monard, Bull. Soc. Sci. Nat. Neuchâtel, *54:* 78. Chimporo, west of Caiundo, southern Angola. (Retained as a valid race by Hill & Carter (1941).)

Genus **NESOTRAGUS** Von Dueben, 1846

1846. *Nesotragus* Von Dueben in Sundevall, Öfvers. Vetensk. Akad. Förh. Stockholm, *3:* 221. *Nesotragus moschatus* Von Dueben.

Closely allied to the West African genus *Neotragus* H. Smith, 1827, and regarded as a subgenus of it by Lydekker, 1914, Cat. Ungulate Mamm. *2:* 159, who compares these two with the closely-allied genus *Hylarnus*.

The prior name in this genus is *N. moschatus*, and although it is customary to regard *N. livingstonianus* as a species, we suggest that, as there is no evidence that they occur together, and as the differences between them are not in any way marked, they might well be regarded as conspecific.

Nesotragus moschatus Von Dueben, 1846 Suni. Soenie

Distribution: Zululand; Portuguese East Africa, including Tete and Coguno (Inhambane district); Nyasaland; Northern Rhodesia; Zanzibar, Tanganyika and Kenya.

NESOTRAGUS MOSCHATUS MOSCHATUS Von Dueben, 1846. (Extralimital)

1846. *Nesotragus moschatus* Von Dueben in Sundevall, Ofvers. Vetensk. Akad. Förh. Stockholm, *3:* 221. Chapani Islet, west of Zanzibar Island.

NESOTRAGUS MOSCHATUS LIVINGSTONIANUS Kirk, 1865

1865. *Nesotragus livingstonianus* Kirk, P.Z.S. *1864:* 657. Shupanga, south bank of Zambezi, 18° 2′ S., 35° 30′ E., Portuguese East Africa. (See Moreau, Hopkins & Hayman, 1946: 436.)

NESOTRAGUS MOSCHATUS ZULUENSIS Thomas, 1898

1898. *Nesotragus livingstonianus zuluensis* Thomas, Ann. Mag. N.H. *2:* 317. Unkuja (Umkuzi) Valley, Zululand, Natal. Range: from Lake St. Lucia district, Zululand northwards to the Zambezi.

Genus **OREOTRAGUS** A. Smith, 1834

1834. *Oreotragus* A. Smith, S. Afr. J. *2:* 212. *Antilope* (*Oreotragus*) *typicus* A. Smith = *Antilope oreotragus* Zimmermann.

1841. *Oritragus* Gloger, Hand-u. Hilfsbuch Naturgesch. *1:* 154 (xxxiii, 1842). For *Oreotragus.*

Oreotragus oreotragus Zimmermann, 1783

Klipspringer. Klipbokkie; Klipspringer

Distribution: in the Union, the Kruger National Park (Punda Maria, near Skukuza), and Rustenburg district, Transvaal. Zululand (Roberts). In the Cape Province, the Aughrabies Falls, Little Namaqualand (Goodhouse, Klipfontein (near Steinkopf), the Kamiesberg), near Clanwilliam, near Elgin; Roberts quotes it from the Uitenhage district along the southern mountains of the Cape Province to the Swartberg and Doorn River (near George), Hewitt (1931) quoted it from mountainous parts of the Transkei and Cradock districts, and Shortridge (1934) said it was rare in Griqualand West. (This buck was once common in the mountains or rocky parts of the Union, but has been much shot because of the demand for its hide.) South-West Africa; in suitable (rocky) localities from Great Namaqualand and Damaraland to the Kaokoveld, east of Grootfontein, etc. (Shortridge, 1934). Western Southern Rhodesia. Recorded from northern Bechuanaland. Northern Rhodesia and Nyasaland. Southern Angola, northwards to Hanha and Bimbe. Beyond the limits of this work, East Africa northwards to the Sudan and Somaliland; also northern Nigeria.

OREOTRAGUS OREOTRAGUS OREOTRAGUS Zimmermann, 1783

1783. *Antilope oreotragus* Zimmermann, Geogr. Gesch. *3:* 269. Cape of Good Hope (the Cape Peninsula according to Roberts).

1785. *Antilope saltatrix* Boddaert, Elench. Anim. *1:* 141. Cape of Good Hope.

1802. *Antilope klippspringer* Daudin in Buffon, Hist. Nat. (Didot's ed). Quad. *14:* 183. Cape of Good Hope.

1834. *Oreotragus typicus* A. Smith, S. Afr. J. *2:* 212.
1865. *Oreotragus saltator* Kirk, P.Z.S. *1864:* 657.

Range: southern Cape Province.

Oreotragus oreotragus transvaalensis Roberts, 1917

1917. *Oreotragus oreotragus transvaalensis* Roberts, Ann. Transv. Mus. *5:* 276. Rooikrans, Rustenburg district, western Transvaal. Ranges to eastern Transvaal and Zululand.

Oreotragus oreotragus centralis Hinton, 1921

1921. *Oreotragus oreotragus centralis* Hinton, Ann. Mag. N.H. *8:* 131. Southern Chinsali district, north-eastern Northern Rhodesia.

Oreotragus oreotragus tyleri Hinton, 1921

1921. *Oreotragus oreotragus tyleri* Hinton, Ann. Mag. N.H. *8:* 131. Esquimina, south of Benguela, on the coast of Angola.
1924. *Oreotragus oreotragus cunenensis* Zukowsky, Arch. Naturgesch. *90A*, 1: 124. Kambele Falls, north bank of Cunene River, in extreme southern Angola. "Kambele Falls are at about 14° 15′ E" (Moreau, Hopkins & Hayman, 1946).
1924. *Oreotragus oreotragus steinhardti* Zukowsky, Arch. Naturgesch. *90A*, 1: 127. Otjongombe, west of Kaoko-Otavi, Kaokoveld, northern South-West Africa.

Oreotragus oreotragus stevensoni Roberts, 1946

1946. *Oreotragus oreotragus stevensoni* Roberts, Ann. Transv. Mus. *22:* 325. Matopo Hills, south of Bulawayo, western Southern Rhodesia.

Genus **MADOQUA** Ogilby, 1837

1837. *Madoqua* Ogilby, P.Z.S. *1836:* 137. *Antilope saltiana* Desmarest, from Abyssinia.
1905. *Rhynchotragus* Neumann, S.B. Ges. Naturf. Fr. Berlin, 88. *Madoqua guentheri* Thomas, from Abyssinia. Valid as a subgenus.

The difference outlined by Lydekker (1914) to separate the supposed southern species *M. damarensis* from *M. kirki* from Italian Somaliland, the "size larger" and "size smaller" given in the key, p. 183, is not apparent when all forms which he refers to *kirki* are considered, and it would seem that *kirki* and *damarensis* might well be regarded as conspecific. The former has priority.

Subgenus *RHYNCHOTRAGUS* Neumann, 1905

Madoqua kirki Günther, 1880.

(In South Africa) Damara Dikdik. Damaralandse Bloubokkie; Neusbok

Distribution: Damaraland and the Kaokoveld, to the Cunene River, South-West Africa; south-western Angola (where rare). Also Tanganyika, Kenya, Uganda, Italian Somaliland.

MADOQUA KIRKI KIRKI Günther, 1880. (Extralimital)

1880. *Neotragus kirkii* Günther, P.Z.S., 17. Brava, Italian Somaliland.

MADOQUA KIRKI DAMARENSIS Günther, 1880

1880. *Neotragus damarensis* Günther, P.Z.S., 20. Omaruru, Damaraland.

1887. *Cephalophus hemprichianus* Jentink, Notes Leyden Mus. *9:* 172. Not of Ehrenberg, 1832. Otjipompenima, Mossamedes, south-western Angola.

1913. *Rhynchotragus damarensis variani* Drake-Brockman, Ann. Mag. N.H. *12:* 481. Lobito (near Benguela, western coast) Angola.

Genus **PELEA** Gray, 1851

1851. *Pelea* Gray, P.Z.S. *1850:* 126. *Antilope capreolus* Bechstein = *Antilope capreolus* Forster.

This genus is curiously isolated, both from a geographical and a morphological point of view. Roberts (1951) who divided South African Bovidae into eleven subfamilies, referred the genus to a separate subfamily, and for authors who wish to subdivide the Bovidae into many subfamilies this is probably the correct classification.

Pelea capreolus Forster, 1790. Vaal Rhebok. Vaalribbok

Distribution: practically confined to the Union, although Shortridge quotes it from Gaberones near the Transvaal border of southern Bechuanaland. In the Cape Province, well known in the Cape Point Nature Reserve (south of Cape Town), and in the Bontebok Reserve near Bredasdorp. ?Near Elgin. Rare in mountains near Clanwilliam (mainly on private property (Shortridge)). Hewitt (1931) quoted districts of Graaff Reinet, Fort Beaufort, Bedford, Albany (and then scarce in a few other localities, Burghersdorp, Cradock, Cathcart) eastern Cape Province; the British Museum has it from Deelfontein. We are told it still occurs in the mountains of Basutoland. Roberts quoted it from the Transvaal Drakensberg, and the mountains of the Orange Free State, and said it is rare in Griqualand West. (The British Museum has it from near Wakkerstroom, south-eastern Transvaal.) Giants Castle Reserve, Natal (Shortridge, 1934, included Zululand in the range).

"It is deserving of special protection on scientific grounds, as it is one of the most peculiar antelopes of the Union, apparently not directly related to any others and a relic of the distant past" (Roberts, 1951).

PELEA CAPREOLUS Forster, 1790

1790. *Antilopa capreolus* Forster in Levaillant, Erste Reise Afrika, 71. Cape of Good Hope.

(Usually quoted as 1799. Bechstein, Uebers. Vierf. Thiere, *1:* 98.)

1822. *Antilope lanata* Desmoulins, Dict. Class. H.N. *1:* 445. Cape of Good Hope.

1823. *Antilope villosa* Burchell, Travels in Int. S. Africa, *2:* 302, footnote. Cotypes from Zoetmilks Valley, Swellendam and Mossel Bay, southern Cape Province.

Genus **REDUNCA** H. Smith, 1827

1827. *Redunca* H. Smith, Griffith's Cuvier Anim. Kingd. *5:* 337. *Antilope redunca* Pallas, from West Africa.
1816. *Cervicapra* Blainville, Bull. Soc. Philom. Paris, 75. *Antilope redunca* Pallas. Not of Sparrman, 1780.
1841. *Nagor* Laurillard in d'Orbigny's Dict. Univ. H.N. *1:* 621. *Antilope redunca* Pallas. (For date of publication see Sherborn & Palmer, 1899, *Ann. Mag. N.H. 3:* 350.)
1843. *Eleotragus* Gray, List Spec. Mamm. B.M., xxvi, 165. *Antilope isabellina* Afzelius = *Antilope arundinum* Boddaert. (Sclater & Thomas, 1897, Book of Antelopes, *2:* 155.)
1865. *Heleotragus* Kirk, P.Z.S., *1864:* 657, emendation.
1912. *Oreodorcas* Heller, Smithson. Misc. Coll. *60*, 8: 13. *Antilope fulvorufula* Afzelius.

On this genus see Blaine, 1913, Some notes on the Reedbucks, with a description of two new subspecies, *Ann. Mag. N.H. 11:* 287.

Larger, horns usually 12 inches long or over. One pair of inguinal glands (Lydekker). Shoulder height about 30–36 inches. *Redunca arundinum*, page 192
Smaller, horns about 5–9 inches long. Two pairs of inguinal glands (Lydekker). Shoulder height about 27–31 inches. *Redunca fulvorufula*, page 191

The latter is apparently rather closely allied to *Redunca redunca* Pallas, 1767, type of the genus, but differs in some colour details and usually has shorter horns; according to Lydekker also distinguished by the relatively greater interorbital width of the skull, shorter rostrum and larger orbits.

Redunca fulvorufula Afzelius, 1815 Mountain Reedbuck. Rooiribbok

Distribution: the mountains of Basutoland (where rare at present), the Orange Free State, Transvaal, Griqualand West and Zululand. We are told that it is still likely to occur in the mountains near Graaff Reinet, Middelburg and Kokstad, eastern Cape Province. (Hewitt (1931) quoted the species from several places in the Eastern Province (Albany, Alexandria, Bedford, Fort Beaufort, Cathcart and Cradock districts, and near Grahamstown).) Swaziland. Southern Rhodesia. Also in East Africa, Tanganyika, Kenya, southern Abyssinia. (The British Museum has both species of Reedbuck from Deelfontein, but it is not likely that they still occur there.)

Redunca fulvorufula fulvorufula Afzelius, 1815

1815. *Antilope fulvorufula* Afzelius, Nova Acta Soc. Sci. Upsal. *7:* 250. Eastern Cape.
1822. *Antilope lalandia* Desmoulins, Dict. Class. H.N. *1:* 445. Cape of Good Hope.
1822. *Antilope landiana* Desmarest, Encycl. Méth. Mamm. 462. Cape of Good Hope.
1846. *Cervicapra eleotragus* Sundevall, K. Svenska Vetensk. Akad. Handl. *1844:* 194. Not of Schreber, 1787. South Africa.
1890. *Cervicapra redunca* Günther, P.Z.S. 604. Not of Pallas, 1767.
1898. *Cervicapra fulvorufula subalbina* Kirby, P.Z.S. *1897:* 897. Steenkamp Mountain, 12 miles west of Kruger's Post, Lydenburg district, eastern Transvaal.

Redunca arundinum Boddaert, 1785 Reedbuck. Rietbok

Distribution: in the Union, the Kruger National Park (between Satara and Skukuza, Toulon and other localities) Klein Letaba, and Rustenburg district, Transvaal; Natal, Zululand. Hewitt (1931) stated "about 70 remain in the Komgha district" (eastern Cape Province). South-West Africa; the northern districts, Caprivi, Okavango valley and northern Ovamboland. Angola, recorded from Central districts (Chitau, Chissonque, Namba), and the Upper Cubango River in the south. Ngamiland; Southern Rhodesia. Portuguese East Africa; Inhambane, Beira, Gorongoza districts. Northern Rhodesia, Nyasaland. North of the limits of this work, Tanganyika and recorded from the Bahr-el-Ghazal, southern Sudan.

REDUNCA ARUNDINUM ARUNDINUM Boddaert, 1785

1785. *Antilope arundinum* Boddaert, Elench. Anim. *1:* 141. Cape of Good Hope. (Bathurst division according to Roberts, 1951.)
1787. *Antilope eleotragus* Schreber, Säugth. pl. 266; text (1821) *5:* 1225.
1795. *Antilope coerulescens* Link, Beytr. Naturgesch. *1*, 2: 99. *Nom. nud.*
1799. *Antilope arundinacea* Bechstein, Uebers. Vierf. Thiere, *1:* 81. 100 miles north of Cape of Good Hope.
1800. *Antilope cinerea* Bechstein, *loc. cit. 2:* 643. "Africa." (There is a *lapsus calami* earlier in the work (*1:* 80) where Bechstein refers to *oreotragus* when he clearly meant *eleotragus*.)
1815. *Antilope isabellina* Afzelius, Nova Acta Soc. Sci. Upsal. *7:* 250. Mountains, Cape of Good Hope.
1822. *Antilope oleotragus* Desmoulins, Dict. Class. H.N. *1:* 446. Reeds bordering rivers and in marshes in "Cafrerie".
1869. *Redunca isabellina multiannulata* Fitzinger, S.B. Akad. Wiss. Wien, *59*, 1: 169. "Port Natal" = Durban, Natal.
1869. *Redunca isabellina caffra* Fitzinger, *loc. cit.* "Kaffirland".
1869. *Redunca isabellina algoënsis* Fitzinger, *loc. cit.* Algoa Bay, southern Cape Province.
1900. *Cervicapra thomasinae* Sclater, P.Z.S. 429. Songwé River, 6 miles from Lake Nyasa, Nyasaland.
1910. *Cervicapra penricei* Lydekker, The Field, London, *116:* 498. Accidental renaming of *thomasinae*.

Range: the Union northwards to Nyasaland and Angola.

REDUNCA ARUNDINUM OCCIDENTALIS Rothschild, 1907

1907. *Cervicapra arundineum occidentalis* Rothschild, P.Z.S., 237. Near Fort Jameson, Eastern Province, 13° 37′ S., 32° 41′ E., Northern Rhodesia. Range includes the Bangweulu Flats, Northern Rhodesia, and Tanganyika.

Genus **KOBUS** A. Smith, 1840

1840. *Kobus* A. Smith, Illustr. Zool. S. Africa, Mamm. pt. 12, pl. 28 and text. *Antilope ellipsiprymnus* Ogilby.
1843. *Kolus* Gray, List Spec. Mamm. B.M., xxvi, 159. *Lapsus* for *Kobus*.
1847. *Adenota* Gray, List Osteol. Spec. B.M. xv, 146. *Antilope kob* Erxleben, from West Africa. Valid as a subgenus.

1866. *Hydrotragus* Fitzinger, S.B. Akad. Wiss. Wien, *54*, 1: 596. *Adenota lechè* Gray. (Sclater & Thomas, 1896, Book of Antelopes, *2:* 95 for some reason give "*Adenota kul* Heuglin" as the type species, but *lechè* Gray is the type by monotypy.)
1869. *Pseudokobus* Fitzinger, S.B. Akad. Wiss. Wien, *59*, 1: 173. *Antilope forfex* H. Smith = *Antilope kob* Erxleben.
1872. *Onotragus* Gray, Cat. Ruminant Mamm. B.M., 17. *Adenota lechè* Gray (Sclater & Thomas, 1896, Book of Antelopes, *2:* 95).
1876. *Cobus* Buckley, P.Z.S., 284. Emendation.
1913. *Onototragus* Heller, Smithson. Misc. Coll. *61*, No. 7: 12. Error for *Onotragus*.

As explained above, page 176, we consider that *Adenota* is a subgenus only of *Kobus*, and that *Onotragus* (apparently antedated by *Hydrotragus*) is a synonym of *Adenota*.

Apparently these three supposed genera will breed together in captivity (Hindle, 1951, Abstr. P.Z.S. No. 2: 8), and the differences between *Adenota* and *Onotragus*, when all forms are taken into account, seem more average than absolute.

1. No inguinal glands. Coat grizzled and harsh. Horns curved forwards (about 23–39 inches long (Rowland Ward)). Shoulder height more than 42 inches. ——2

   A single pair of inguinal pouches. Coat not grizzled, less coarse. Horns inclined to be more lyrate. Shoulder height from published measurements 41 inches and less. ——3

2. A white elliptical rumpband. *Kobus ellipsiprymnus*, page 193
   No white rumpband. *Kobus defassa*, page 194

3. Skull markedly broader in measurements given by Roberts. Average rather larger; from published measurements shoulder height about 36–41 inches, length of horn about 19–34 inches. *Kobus* (*Adenota*) *leche*, page 195
   Skull markedly narrower in measurements given by Roberts. Average rather smaller; from published measurements shoulder height about 32–40 inches, length of horn about 14–20 inches. *Kobus* (*Adenota*) *vardoni*,[1] page 194

Subgenus *KOBUS* A. Smith, 1840

Kobus ellipsiprymnus Ogilby, 1833 Waterbuck. Waterbok; Kringgat

Distribution: in the Union, survives in northern Zululand, the western Transvaal border? and the Kruger National Park (districts of Punda Maria, Shingwedzi, Letaba, Satara, Skukuza, Toulon, etc.). In South-West Africa, the northern districts (the Caprivi, east of the Okavango). Ngamiland, and according to Roberts southern Bechuanaland. Portuguese East Africa, Gorongoza district (B.M.); Southern Rhodesia; Nyasaland, Northern Rhodesia. Thence northwards to Tanganyika, Kenya and the Webi Shebeli River (southern Abyssinia or Italian Somaliland).

[1] *K. vardoni* differs from the northern and earlier-named *K. kob* by lacking the black line on the front of the forelegs.

KOBUS ELLIPSIPRYMNUS ELLIPSIPRYMNUS Ogilby, 1833

1833. *Antilope ellipsiprymnus* Ogilby, P.Z.S., 47. "25 days journey north of the Orange River between Lataku (= near Kuruman) and the west coast of Africa" (presumably on the Molopo River (Roberts)).

Kobus defassa Rüppell, 1835 [1]

Defassa or Sing-sing Waterbuck. Tropiese Waterbok

Distribution: Angola (fairly widely distributed in southern and central districts and recorded as far north as the Cuanzo River), rarely wandering into the Okavango region of extreme northern South-West Africa (for details see Shortridge, 1934). Northern Rhodesia (as far as the Sesheke district); recorded from Nyasaland.

KOBUS DEFASSA DEFASSA Rüppell, 1835. (Extralimital)

1835. *Antilope defassa* Rüppell, Neue Wirbelth. Abyssin. Pt. 1: 9. Abyssinia (about Dembea Lake and in the Kulla).

KOBUS DEFASSA CRAWSHAYI Sclater, 1894

1894. *Cobus crawshayi* Sclater, P.Z.S. *1893:* 726. Northern shore of Lake Mweru (near the Congo border) Northern Rhodesia. Ranges to Tanganyika.

KOBUS DEFASSA PENRICEI Rothschild, 1895

1895. *Cobus penricei* Rothschild, Novit. Zool. *2:* 52. Bongo, banks of the Kuvali River, 100 miles south-east of Benguela, western Angola.

Subgenus *ADENOTA* Gray, 1847

Kobus vardoni Livingstone, 1857 Puku. Poekoe

Distribution: the neighbourhood of the Victoria Falls, the junction of the Chobe and Zambezi Rivers; Northern Rhodesia, where evidently quite common, as far north as Lakes Bangweulu and Mweru, Nyasaland and into south-western Tanganyika.

(Occurrence in Angola evidently doubtful, see Hill & Carter, 1941.)

KOBUS VARDONI VARDONI Livingstone, 1857

1857. *Antilope vardonii* Livingstone, Missionary Travels and Researches in S. Afr., 256, and pl. opp. 71. Barotseland, Northern Rhodesia, at about 14° 30′ S., 23° 15′ E. (See Moreau, Hopkins & Hayman, 1946, 437.)

1899. *Cobus vardoni typicus* Selous in Bryden, Great and Small Game Africa, 294.

KOBUS VARDONI SENGANUS Sclater & Thomas, 1897

1897. *Cobus senganus* Sclater & Thomas, Book of Antelopes, *2:* 145. Asenga country, upper Luangwa River Valley, Northern Rhodesia (see Moreau, Hopkins & Hayman, 1946, 437). Ranges into Tanganyika.

[1] G.H.E. Hopkins (*in litt.*) tells us that according to V.G.L. van Someren *ellipsiprymnus* and *defassa* interbreed in Kenya, and form intermediate herds. If this is so then the latter should be regarded as a race of the former.

Kobus leche Gray, 1850 Lechwe Waterbuck. Basterwaterbok

Distribution: northern South-West Africa, the Okavango valley and the Caprivi, and adjacent parts of Angola (Cubango river region); Northern Rhodesia (Lakes Bangweulu, Mweru, Barotseland, etc.), thence into the southern Belgian Congo.

KOBUS LECHE LECHE Gray, 1850

1850. *Kobus lechè* Gray, Gleanings Menagerie Knowsley Hall, *2:* 23. "River Zoaga, lat. 21°." Botletle River, Lake Ngami, Bechuanaland.
1852. *Adenota lechèe* Gray, Cat. Mamm. B.M., pt. 3: 98.
1876. *Cobus leechi* Buckley, P.Z.S., 291.
1903. *Adenota amboellensis* Sokolowsky in Baum, Kunene-Sambesi Exped. 535. The Kubango River, between the Kueio and the Quatiri (approximately 17° S., 18° 30′ E.), southern Angola (here selected).
1907. *Cobus lechwe* Rothschild, P.Z.S. 237.
1907. *Cobus robertsi* Rothschild, P.Z.S. 237. Between Lakes Mweru and Bangweulu, Northern Rhodesia.
1912. *Onotragus lechè notatus* Matschie, Deutsche Jäger-Zeitung, *59:* 119. Caprivi Zipfel, northern South-West Africa.

KOBUS LECHE SMITHEMANI Lydekker, 1900

1900. *Cobus smithemani* Lydekker, P.Z.S., *1899:* 982. Borders of Lake Mweru, Northern Rhodesia.

Genus **AEPYCEROS** Sundevall, 1847

1847. *Aepyceros* Sundevall, K. Svenska Vetensk. Akad. Handl. *1845:* 271. *Antilope melampus* Lichtenstein.
1893 *Aepiceras* Zittel, Handb. Pal. *4*, 2: 417.

Aepyceros melampus Lichtenstein, 1812 Impala. Rooibok

Distribution: in the Union, northern Zululand, and the Kruger National Park, Transvaal (Punda Maria, Shingwedzi, Letaba, Satara, Skukuza, Pretorius Kop, Toulon; easily the commonest buck in the Reserve). South-West Africa, the Okavango district and the Caprivi, the Kaokoveld to the Cunene. Angola, northwards to Benguela. Ngamiland, and southern Bechuanaland (Roberts). Southern Rhodesia; parts of Portuguese East Africa. Nyasaland, Northern Rhodesia. North of the limits of this work, Tanganyika, Uganda, Kenya and parts of the Belgian Congo.

AEPYCEROS MELAMPUS MELAMPUS Lichtenstein, 1812

1812. *Antilope melampus* Lichtenstein, Reisen Südl. Africa, *2*, pl. 4, opposite p. 544. Mag. Ges. Naturf. Fr. Berlin, *6:* 167 (1812). Klipfontein in southern Bechuanaland. (The type locality is not Klipfontein in Little Namaqualand.) Koossi mentioned on p. 543 is evidently Kosis, east of Olifantshoek (which is south of Kuruman in the northern Cape Province, the part which used to be called British Bechuanaland).

AEPYCEROS MELAMPUS MELAMPUS [*contd.*]

1893. *Aepyceros melampus typicus* Thomas, P.Z.S. *1892:* 553.

Range: Zululand and Transvaal northwards to the Zambezi and to Ngamiland and the south-eastern corner of Angola.

AEPYCEROS MELAMPUS PETERSI Bocage, 1879.

1879. *Aepyceros petersi* Bocage, P.Z.S. *1878:* 741. Capangombe, Mossamedes district, southern Angola. Range: from the Kaokoveld to Benguela district, western Angola.

AEPYCEROS MELAMPUS JOHNSTONI Thomas, 1893

1893. *Aepyceros melampus johnstoni* Thomas, P.Z.S. *1892:* 553. Zomba, circa 3,000 ft., 15° 24′ S., 35° 17′ E., southern Nyasaland.

1894. *Aepiceros melampus holubi* Lorenz, Ann. Naturh. Hofmus. Wien, *9:* Notizen, 62. North of the Zambezi.

Genus **ANTIDORCAS** Sundevall, 1847

1847. *Antidorcas* Sundevall, K. Svenska Vetensk. Akad. Handl. *1845:* 271. *Antilope euchore* Forster = *Antilope marsupialis* Zimmermann.

This is the South African representative of the genus *Gazella*, from which it differs in having only two pairs of lower premolars, and in the specialized erectile hairs along the lower part of the spine.

Antidorcas marsupialis Zimmermann, 1780

Springbuck or Springbok. Springbok

Distribution: in the Union the species exists at present mainly on fenced farms or private property, although some of these are of very large size and the animals appear at liberty to jump the fences. There are a considerable number at De Beers estate, 36 miles west of Kimberley; near Graaff Reinet, and in the Orange Free State (north of Philippolis, the Sommerville Reserve (Winburg district)), etc. Other localities (1951) are Kruidfontein (near Nelspoort), north of Colesberg, near Hanover, and between Deelfontein and Richmond, all Cape Province. Shortridge stated that they occur in the Waterberg district, western Transvaal. They may also occur (in a wild state) along the northern central borders of the Cape Province. South-West Africa; the whole of South-West Africa except the north-eastern districts (N.E. Ovamboland, Grootfontein district and the Caprivi) (Shortridge, 1934). South-western Angola, between the Cunene River and Benguela. The Kalahari to Ngamiland (Roberts).

ANTIDORCAS MARSUPIALIS MARSUPIALIS Zimmermann, 1780

1780. *Antilope marsupialis* Zimmermann, Geogr. Gesch. *2:* 427. Cape of Good Hope.

1785. *Antilope saccata* Boddaert, Elench. Anim. *1:* 142. Cape of Good Hope.

1788. *Capra pygargus* Thunberg, Resa uti Europa, Africa, Asia, etc. *2:* 28. Cape of Good Hope.

1790. *Antilope euchore* Forster in Levaillant, Erste Reise Afrika, 159. South Africa.
1792. *Antilope saltans* Kerr, Anim. Kingd. 312. Cape of Good Hope.
1795. *Antilope saltatrix* Link, Beytr. Naturgesch, *1*, 2: 99. Not of Boddaert, 1785.
1802. *Antilope dorsata* Daudin in Buffon, Hist. Nat. (Didot's ed.) Quad. *14:* 182. Cape of Good Hope.
1802. *Antilope saliens* Daudin, *loc. cit.* 182. Cape of Good Hope.
1914. *Antidorcas marsupialis centralis* Lydekker & Blaine, Cat. Ruminant Mamm. B.M. *3:* 111, 112. Deelfontein, north of Richmond, Cape Province.

Range: the Union.

Antidorcas marsupialis angolensis Blaine, 1922

1922. *Antidorcas angolensis* Blaine, P.Z.S. 335. Coastal belt between Benguela and Mossamedes, southern Angola. Range: southwards to the Kaokoveld and northern Namib desert, South-West Africa.

Antidorcas marsupialis hofmeyri Thomas, 1926

1926. *Antidorcas angolensis hofmeyri* Thomas, P.Z.S. 311. Berseba, Great Namaqualand, South-West Africa. Range: Great Namaqualand to the Kalahari and Ngamiland.

Genus **ORYX** Blainville, 1816

1816. *Oryx* Blainville, Bull. Soc. Philom. Paris, 75. *Antilope oryx* Pallas, 1777 (not *A. oryx* Pallas, 1766, which is the Eland) = *Capra gazella* Linnaeus.
1918. *Aegoryx* Pocock, Ann. Mag. N.H. *2:* 221. *Cemas algazel* Oken = *Antilope tao* H. Smith, from the Sudan.

Oryx gazella Linnaeus, 1758

Gemsbok; Beisa Oryx (in East Africa). Gemsbok; Gensbok

Distribution: if Gemsbok still survive in the Union, they would probably be in the district of Vryburg, or along the northern central border of the Cape Province, although Roberts thought it was possible that they might exist in Bushmanland, and states that the species is given to wandering, and sometimes reappears in areas from which it had formerly disappeared. South-West Africa; recorded from all districts except the eastern Caprivi (Shortridge). The Kalahari desert (there is a Gemsbok National Park near the Nossob River region of the southern Kalahari); recorded from as far north as Ngamiland, and at least formerly to Matabeleland, Southern Rhodesia. South-western Angola, where local and rather rare. In East Africa (*O. beisa* Rüppell, 1835 is probably the same species), Tanganyika, Kenya, Abyssinia, Somaliland.

Oryx gazella gazella Linnaeus, 1758

1758. *Capra gazella* Linnaeus, Syst. Nat. 10th ed. *1:* 69. "India" (= South Africa, Thomas, 1911, P.Z.S. 152).
1766. *Antilope bezoartica* Pallas, Misc. Zool. 8. No locality.
1769. *Gazella recticornis* Pallas, Nov. Comment. Petrop. *13:* 648. Africa.

ORYX GAZELLA GAZELLA [*contd.*]

1777. *Antilope oryx* Pallas, Spic. Zool. pt. 12: 16. "Aegypti, Aethiopiae, Arabiae inquilina." Not of Pallas, 1766 which is the Eland.
1802. *Antilope pasan* Daudin in Buffon, Hist. Nat. (Didot's ed.) Quad. *14:* 182. Cape of Good Hope.
1821. *Onyx onyx* Gray, London Med. Repository, *15:* 307. (*Lapsus*).
1837. *Oryx capensis* Ogilby, P.Z.S. *1836:* 139. Substitute for *oryx* Pallas, 1777.
1921. *Oryx gazella blainei* Rothschild, Ann. Mag. N.H. *8:* 209. 20 miles inland from Elephant Bay, south of Benguela, western Angola.
1924. *Oryx aschenborni* Strand, Arch. Naturgesch. *90A, 1:* 146, footnote. Between Goshas, Kalkfontein and Arahoah, South-West Africa.

Genus **HIPPOTRAGUS** Sundevall, 1846

1822. *Egocerus* Desmarest, Encycl. Méth. Mamm. *2:* 475. *Antilope leucophaea* Pallas, 1766, the extinct Blue Buck, from the Cape Province. (Type fixed by Sclater & Thomas, 1899, Book of Antelopes, *4:* 3.)
1827. *Aegocera* Berthold in Latreille, Nat. Fam. Thierr., 61. For *Egocerus*.
1827. *Aigocerus* H. Smith, Griffith's Cuv. Anim. Kingd. *5:* 324. For *Egocerus*.
1842. *Oegocerus* Lesson, Nouv. Tabl. Règne An. Mamm. 179. For *Egocerus*.
1844. *Aegocerus* Wagner in Schreber, Säugth. Suppl. *4:* 482. For *Egocerus*.
1845. *Ozanna* Reichenbach, Vollständ. Naturgesch. Säugeth. *3:* 126. *Aigocerus niger* Harris (Sclater & Thomas, 1899, Book of Antelopes, *4:* 3).
1846. *Hippotragus* Sundevall, K. Svenska Vetensk. Akad. Handl. *1844:* 196. *Antilope leucophaea* Pallas.
1859. *Aegocoerus* Gervais, Zool. et Paléontol. Franç. 139. For *Egocerus*.

(The name *Hippotragus* Sundevall, 1846, was placed on the Official List of Generic Names by the Commission, and *Egocerus* Desmarest, 1822 and *Ozanna* Reichenbach, 1845 were suppressed—see Opinion 109. Sundevall, however, also published the name *Hippotragus* in 1845, Öfvers. Vetensk. Akad. Förh., Stockholm, *2:* 31, with *A. equina* as the type by monotypy.)

Colour black or chestnut, the underparts well defined white. Shoulder height up to about 54 inches; horns average longer (about 33–64 inches, Rowland Ward).
Hippotragus niger, page 199

Colour pale brown, the whitish of underparts less defined; shoulder height about 56–63 inches; horns average shorter, about 24¾–39 inches (R. Ward).
Hippotragus equinus, page 198.

Hippotragus equinus Desmarest, 1804 Roan Antelope. Bastergemsbok

Distribution: in the Union now survives only in the Kruger National Park, Transvaal (Shingwedzi, etc., but mainly or wholly north of the Olifants River). Roberts quoted the species from Swaziland. South-West Africa; the northern districts, northern and eastern Ovamboland, Grootfontein district, and the Caprivi. Northern Bechuanaland, Southern Rhodesia, southern Portuguese East Africa. Angola; probably throughout the interior, south of the Congo region (Hill & Carter). Northern Rhodesia, Nyasaland. Beyond the limits of this work, north-eastwards to the Sudan, and thence to Senegal.

HIPPOTRAGUS EQUINUS EQUINUS Desmarest, 1804

1804. *Antilope equina* Desmarest, Nouv. Dict. H.N. (1) *24:* 4. Locality unknown.
(1821. *Capra aethiopica* Schinz, Cuvier's Thierreich, *1:* 403. Based on "The Tackhaitse" of Daniell, 1805, African scenery and animals, pl. 24, the locality of which is given as "On the edge of the Karroo plains . . . and in the parallel of latitude under which Latakoo is situated". Roberts (1951: 303) treats this, *jubata* and *barbata*, which were founded on the same plate, as being a separate, extinct species related to the Roan and the Blue Buck.)
(1824. *Capra jubata* Goldfuss in Schreber, Säugth. pl. 287C; text *5:* 1471 (1836) (where it is treated as a synonym of *truteri*).)
(1827. *Antilope barbata* H. Smith, Griffith's Cuvier Anim. Kingd. *4:* 180. Based on Danniell's "Tackhaitse".)
1827. *Antilope aurita* H. Smith in Griffith's Cuvier Anim. Kingd. *5:* 325.
(1829. *Antilope truteri* Fischer, Synops. Mamm. 478. Renaming of *aethiopica*.)
1899. *Hippotragus equinus typicus* Sclater & Thomas, Book of Antelopes, *4:* 13.

Range: Transvaal, Rhodesia, Portuguese East Africa (part).

HIPPOTRAGUS EQUINUS COTTONI Dollman & Burlace, 1928

1928. *Hippotragus equinus cottoni* Dollman & Burlace, Rowland Ward's Records Big Game, 9th ed., 265. Cuanza River, northern Angola. Range includes Ngamiland, and according to Roberts, Beira, Portuguese East Africa.

Hippotragus niger Harris, 1838 Sable Antelope. Swartwitpens

Roberts calls this species *Ozanna grandicornis* (*Antilope grandicornis* Hermann, 1804, *Obs. Zool.* 87). This name does not seem to have been based on a Sable Antelope, and should be regarded as not certainly identifiable. Hermann gives a description of some horns which might well be Sable (curved back and measuring $2\frac{1}{2}$ feet in a straight line and $3\frac{1}{2}$ feet on the outside of the curve), but he described the body as having a white stripe round the neck, another right round the body just behind the front legs, and a third right round the body just in front of the back legs. Also there is a beard. He refers to a plate in Kolbe, 1719, *Caput Bonae Spei hodiernum*, which pictures this curious beast (but gives it straight horns about a foot long) and says that his *grandicornis* is this plate, but with the horns modified in accordance with H. Hop, 1778, *Journal d'un voyage de terre dans l'intérieur d'Afrique*, 44. But this animal is simply Kolbe's with the horns longer and curved. The white bands and the beard are still there. Roberts adopted *grandicornis* without even having seen the original description.

We see no reason to upset the name *niger* for the Sable Antelope, which name is well described in the P.Z.S. of 1838.

Distribution: in the Union survives in the Kruger National Park, Transvaal, where it is moderately widely distributed (Punda Maria, Shingwedzi, Skukuza, Toulon districts, etc.). South-West Africa; the northern portions, the Caprivi and Okavango Valley, to the north-eastern corner of the Grootfontein district (Shortridge). Ngamiland. Angola; the typical race occurs in the south-eastern corner, and *H. n. variani* between the Cuanza and Luando rivers in the north-central

region. Southern Rhodesia, Northern Rhodesia, Nyasaland, Portuguese East Africa. North of the limits of this work, Tanganyika, Kenya and Katanga, southern Belgian Congo (Shortridge).

HIPPOTRAGUS NIGER NIGER Harris, 1838

1838. *Aigocerus niger* Harris, P.Z.S., 2. Cashan Mountains, near Pretoria (Magaliesberg, west of Pretoria, according to Shortridge), Transvaal. (The animal is now extinct in the region of the type locality.)

1839. *Aigocerus harrisi* Harris, Wild Sports of Southern Africa, 264, 378. Mountain range of eastern Matabeleland, Southern Rhodesia.

1872. *Aegocerus niger* var. *kirkii* Gray, Cat. Ruminant Mamm. B.M., 35. South Africa. Batoka Hills, Livingstone Falls, Northern Rhodesia (Roberts, who regarded this form as a valid race).

1912. *Hippotragus* (*Ozanna*) *niger kaufmanni* Matschie, Deutsche Jäger-Zeitung, *59:* 119. Caprivi Zipfel, between the Chobe and Zambezi Rivers, South-West Africa.

HIPPOTRAGUS NIGER VARIANI Thomas, 1916. (Giant Sable)

1916. *Hippotragus niger variani* Thomas, Abstr. P.Z.S. No. 151, 1; P.Z.S., 300. Luando River (an eastern tributary of the Cuanza River) northern central Angola.

Genus **DAMALISCUS** Sclater & Thomas, 1894

1846. *Damalis* Gray, Ann. Mag. N.H. *18:* 233. *Damalis lunatus* Burchell (Sclater & Thomas, 1894, Book of Antelopes, *1:* 51). Not of Fabricius, 1805 (Diptera).

1894. *Damaliscus* Sclater & Thomas, Book of Antelopes, *1:* 51. *Antilope pygarga* Pallas = *Antilope dorcas* Pallas.

1912. *Beatragus* Heller, Smithson. Misc. Coll. *60*, 8: 8. *Damalis hunteri* Sclater, from Kenya. Valid as a subgenus.

Face not white; limbs dark. Larger, shoulder height about 46–48 inches.
Damaliscus lunatus, page 200

Face white; limbs partly white. Smaller, shoulder height about 40 inches or less.
Damaliscus dorcas, page 201

Subgenus *DAMALISCUS* Sclater & Thomas, 1894

For the use of the name *dorcas* in place of the more familiar *D. pygargus* see Harper, 1940, J. Mamm. *21:* 328. The Blesbok and Bontebok are here considered conspecific.

Damaliscus lunatus Burchell, 1823 Sassaby, or Tsesseby. Basterhartbees

Distribution: in the Union, survives in the Kruger National Park, Transvaal (Shingwedzi, etc.; now either confined to the region north of the Olifants River, or at least very rare to the south of it). South-West Africa; the northern parts; the

Okavango region, Grootfontein district, and the Caprivi. South-eastern Angola, where evidently not well known. Ngamiland, Southern Rhodesia, parts of Portuguese East Africa. Northern Rhodesia and Nyasaland, as far north as the southern end of Lake Tanganyika and the southern Belgian Congo. It is possible that *D. korrigum* Ogilby, 1837 (Senegal to Italian Somaliland and Tanganyika) is a further northern extension of this species.

Damaliscus lunatus lunatus Burchell, 1823

1823. *Antilope lunata* Burchell, Travels in Interior S. Africa, *2:* 334. (The title page has "1824" but, according to Sherborn, published November, 1823.) "Makkwarin River" (27° 20′ S., 24° 30′ E. on Burchell's map). Mathlowing River, a little north-east of Kuruman, northern Cape Province (Roberts, 1951), and where now extinct.

1912. *Damaliscus lunatus reclinis* Matschie, Deutsche Jäger-Zeitung, *59:* 119 (77 of reprint). Caprivi Zipfel, South-West Africa.

Damaliscus dorcas Pallas, 1766 Bontebok; Blesbok. Bontbok; Blesbok

Distribution: confined to reserves or private property in the Union. A large herd (approximately 100) exists in the Bontebok Reserve near Bredasdorp, southern Cape Province, and there are a few introduced specimens in the Cape Point Nature Reserve (south of Cape Town), in paddocks at Groote Schuur, Cape Town, and in a reserve near Lamberts Bay, western Cape Province. The Blesbok exists in the Sommerville Game Reserve in the Winburg district of the Orange Free State, and on private property north of Kroonstad, between Ventersburg and Winburg, etc., in the Orange Free State, and near Pretoria, Transvaal.

Damaliscus dorcas dorcas Pallas, 1766. Bontebok

1766. *Antilope dorcas* Pallas, Misc. Zool., 6. No locality, but nominated by Harper (1940, 329) as Caffer Kuyls River, between Mossel Bay and Swellendam, south-western Cape Province.

1767. *Antilope pygargus* Pallas, Spic. Zool. *1:* 10. Cape of Good Hope (restricted to Swart River, near Caledon, by Bigalke, 1948, J. Mammal, *29:* 442).

1773. *Capra cervicapra* Müller, Vollständ. Natursyst. *1:* 414. Not of Linnaeus, 1758.

1785. *Antilope grisea* Boddaert, Elench. Anim. *1:* 139. Cape of Good Hope.

1788. *Capra scripta* Thunberg, Resa uti Europa, Africa, Asia, etc. *2:* 50. Cape of Good Hope.

1811. *Antilope maculata* Thunberg, Mém. Acad. Sci. St. Pétersb. *3:* 315. Swellendam, Cape Province.

1823. [*Antilope*] *albifrons* Burchell, Travels in Int. South Africa, *2:* 335. Substitute for *pygargus*.

1829. *Antilope personata* Woods, Zool. J. *5:* 2. Vicinity of Cape of Good Hope.

Damaliscus dorcas phillipsi Harper, 1939. Blesbok

1840. *Gazella albifrons* Harris, Portraits of the game and wild animals of southern Africa, pl. 21 *et auctorum*. Not of Burchell, 1823.

1939. *Damaliscus phillipsi* Harper, Proc. Biol. Soc. Washington, *52:* 90. Orange Free State. (Harper also discusses the identity of *albifrons* Burchell.)

Genus **ALCELAPHUS** Blainville, 1816

1816. *Alcelaphus* Blainville, Bull. Soc. Philom. Paris, 75. *Antilope bubalis* Pallas = *Antilope buselaphus* Pallas. Type fixed by Sclater & Thomas, 1894, Book of Antelopes, *1:* 5.
1820. *Bubalis* Goldfuss, Handb. Zool. *2:* 367. *Antilope buselaphus* Pallas. (This name has been quoted as Rafinesque (1815) where it is a *nomen nudum;* Frisch (1775) an unavailable work; and Lichtenstein (1814) where it occurs in the plural only—*Bubalides.* See Lyon, 1914, *Proc. Biol. Soc. Washington, 27:* 228.)
1827. *Damalis* H. Smith, Griffith's Cuvier Anim. Kingd. *4:* 343. Not of Fabricius, 1805 (Diptera).
1827. *Acronotus* H. Smith, *loc. cit.* 346. Substitute for *Alcelaphus.*
1837. *Bubalus* Ogilby, P.Z.S. *1836:* 139. Not of H. Smith, 1827.
1912. *Sigmoceros* Heller, Smithson. Misc. Coll. *60,* 8: 4. *Antilope lichtensteinii* Peters.

Apart from *A. lichtensteini,* for which *Sigmoceros* is available if subgeneric division is required, there seem to be three main types of horn structure in the remainder of the genus, as typified respectively by the races *buselaphus, tora* and *lelwel;* G. Allen (1939) lists all named forms as races of *A. buselaphus* except the South African *caama* which apparently resembles *lelwel* except for some colour details. It seems logical, if one follows the classification of G. Allen, to make *caama* an outlying southern race of *buselaphus.*

Horn pedicle short and broad, occiput about level with base of horns; horns flat and curved inwards towards each other before being bent back. Forehead convex. *Alcelaphus lichtensteini,* page 203

Horn pedicle long, occiput in front of base of horns; and the horns not curving inwards as in the last. Forehead flat. *Alcelaphus buselaphus,* page 202

Alcelaphus buselaphus Pallas, 1766 Hartebeest. Rooihartbees

Distribution: in the Union, at De Beers Estate, 36 miles west of Kimberley. There are also said to be herds on private property at Moes Rest, New Hanover, Natal and the Buckland Downs, Harrismith district, Orange Free State. Apparently there are now no Hartebeests in the Kruger National Park, and if they survive in the Transvaal at all it would be on the western (Bechuanaland) border. Perhaps the western Molopo River region on the northern borders of the Cape Province. South-West Africa; according to Shortridge, mostly east of a diagonal line between Nakop (about 86 miles from Upington on the border, where the railway enters South-West Africa) and the Rua Cana Falls on the Cunene River in the north, but they do not occur in the northern half of Grootfontein district and along the Caprivi. Southern Angola. Northwards about to Ngamiland. North of the limits of this work, from Tanganyika to the Sudan and Somaliland, and thence westwards to Senegal.

ALCELAPHUS BUSELAPHUS BUSELAPHUS Pallas, 1766. (Extralimital)

1766. *Antilope buselaphus* Pallas, Misc. Zool. 7. Probably Morocco, where now extinct.

ALCELAPHUS BUSELAPHUS CAAMA G. Cuvier, 1804

1804. *Antilope caama* G. Cuvier, Dict. Sci. Nat. *2:* 242. Cape of Good Hope.
1785. *Antilope dorcas* Sparrman, Voyage to Cape of Good Hope (Engl. Tr.) *2:* 219. Agter Bruintjes-Hoogte (headwaters of the Little Fish River, Cape Province). Not of Pallas, 1766.
1899. *Bubalus cama* Bryden, Great and Small Game of Africa, 133.
1937. *Bubalis caama obscurus* Frechkop, Bull. Mus. H.N. Belg. *13*, 39: 11, 22. Locality unknown.

This race is now considered to be extinct.

ALCELAPHUS BUSELAPHUS SELBORNEI Lydekker, 1913

1913. *Bubalis caama selbornei* Lydekker, Abstr. P.Z.S. No. 119: 19. P.Z.S., 820. Kimberley Game Farm, the herd there having apparently been imported from the western Transvaal. Ranges northwards to Bechuanaland and South-West Africa.

ALCELAPHUS BUSELAPHUS EVALENSIS Monard, 1933.

1933. *Bubalis caama evalensis* Monard, Bull. Soc. Sci. Nat. Neuchâtel, *57:* 64. Evale, southern Angola.

Alcelaphus lichtensteini Peters, 1849

Lichtenstein's Hartebeest. Mofhartbees

Distribution: though formerly occurring in the Transvaal it is probably now extinct in the Union. Portuguese East Africa, Southern Rhodesia, Northern Rhodesia, Nyasaland and Tanganyika.

ALCELAPHUS LICHTENSTEINI Peters, 1849

1849. *Antilope lichtensteinii* Peters, S.B. Ges. Naturf. Fr. Berlin, 18 December, 1849, published in the Spenersche Z. for 23 December, 1849; 1852. Reise nach Mossambique, Säugeth. 190. Tete, Zambezi River, Portuguese East Africa.
1910. *Bubalis lichtensteini shirensis* Zukowsky, Zool. Beob. *51:* 261. Boundary between Shiré and lower Loangwa regions, Portuguese East Africa.
1910. *Bubalis lichtensteini basengae* Zukowsky, *loc. cit.* Boundary between Shiré and lower Loangwa regions, Portuguese East Africa.
1916. *Sigmoceros gorongozae* Matschie & Zukowsky, S.B. Ges. Naturf. Fr. Berlin, 196. Northern Gorongoza district, 60 km. west of Urema River, Portuguese East Africa.
1916. *Sigmoceros godonga* Matschie & Zukowsky, *loc. cit*, 197. Urema River, a branch of the Pungwe, Cheringoma district, Portuguese East Africa.
1916. *Sigmoceros inkulanondo* Matschie & Zukowsky, *loc. cit.* 197. Unzeilas Kingdom, upper Sabi, south-eastern Mashonaland, Southern Rhodesia.
1916. *Sigmoceros wiesei* Matschie & Zukowsky, *loc. cit.* 199. West of Chifumbazi, on the Luia, tributary of the Kapotche, Portuguese East Africa.
1916. *Sigmoceros senganus* Matschie & Zukowsky, *loc. cit.* 200. Mussenda Luz, on the Zambezi between the Loangwa and the Kebrabassa Falls, Portuguese East Africa.
1916. *Sigmoceros heuferi* Matschie & Zukowsky, *loc. cit.* 202, substitute for *basengae.*

ALCELAPHUS LICHTENSTEINI [*contd.*]

1916. *Sigmoceros konzi* Matschie & Zukowsky, *loc. cit.* 203. North of the middle Kafue, 50 km. south of Broken Hill, Northern Rhodesia.
1916. *Sigmoceros niediecki* Matschie & Zukowsky, *loc. cit.* 205. Not of Neumann, 1905. Baunza, north of middle Kafue, 33 km. east of where the river turns east, north of Victoria Falls, Northern Rhodesia.
1916. *Sigmoceros bangae* Matschie & Zukowsky, *loc. cit.* 206. Banga, south-east of Baunza, and north of the Kafue River, Northern Rhodesia.
1916. *Sigmoceros niedieckianus* Matschie, *loc. cit.* 295. Substitute for *niediecki*, pre-occupied.
1918. *Sigmoceros petersi* Matschie & Zukowsky, S.B. Ges. Naturf. Fr. Berlin, *1917:* 530. Near Sena, Portuguese East Africa.
1918. *Sigmoceros kangosa* Matschie & Zukowsky, *loc. cit.* 532. Makjusa's Land, north-west end of Lake Nyasa, near Ipiana, Nyasaland.
1925. *Sigmoceros rendalli* Matschie & Zukowsky, S.B. Ges. Naturf. Fr. Berlin, *1922:* 80. Kambwe, southern end of Lake Nyasa, Nyasaland.

Genus **CONNOCHAETES** Lichtenstein, 1812

1812. *Connochaetes* Lichtenstein, Mag. Ges. Naturf. Fr. Berlin, *6:* 152. *Antilope gnu* Gmelin = *Antilope gnou* Zimmermann.
1816. *Cemas* Oken, Lehrb. Naturgesch. *3*, 2: 727. *Cemas gnu* Oken = *Antilope gnou* Zimmermann (Sclater & Thomas, 1895, Book of Antelopes, *1:* 93). Unavailable.
1821. *Catablepas* Gray, London Medical Repository, *15:* 307. *Antilope gnu* Gmelin = *Antilope gnou* Zimmermann.
1827. *Catoblepas* H. Smith, Griffiths Cuvier Anim. Kingd. *4:* 366. *Antilope gnu* Gmelin = *Antilope gnou* Zimmermann.
1850. *Gorgon* Gray, Gleanings Menagerie Knowsley Hall, 20. 1851. P.Z.S. *1850:* 139. *Antilope gorgon* H. Smith = *Antilope taurina* Burchell. Valid as a subgenus.
1872. *Butragus* Gray, Cat. Ruminant Mamm. B.M., 43. *Butragus corniculatis* (Blyth MS) = *Antilope taurinus* Burchell.

Horns directed at first outwards; tail black; nasals long; forehead convex.
Connochaetes (*Gorgon*) *taurinus*, page 205
Horns directed forwards; tail white; nasals shorter; forehead flat.
Connochaetes gnou, page 204

Subgenus *CONNOCHAETES* Lichtenstein, 1812

Connochaetes gnou Zimmermann, 1780

Black Wildebeest or Whitetailed Gnu. Swartwildebees

Distribution: extinct as a wild animal; there is a moderate-sized herd in paddocks at Groote Schuur, Cape Town, and there are also said to be herds in the Sommerville Game Reserve, Winburg district, Orange Free State, near Kroonstad, Orange Free State, and on one of the farms owned by De Beers, west of Kimberley. Shortridge (1934) quoted a few introduced specimens at a farm at Colenso, Natal.

CONNOCHAETES GNOU Zimmermann, 1780[1]

1780. *Antilope gnou* Zimmermann, Geogr. Gesch. *2:* 102. Cape of Good Hope (nominated as Colesberg, Cape Province, by Harper, 1940, J. Mamm. *21:* 329).
1780. *Antilope capensis* Gatterer, Brev. Zool. *1:* 80. Cape of Good Hope.
1788. *Antilope gnu* Gmelin, Linn. Syst. Nat. ed. 13, *1:* 189.
1828. *Catablepas operculatus* Brookes, Cat. Anat. Zool. Mus. J. Brookes, 64.
1844. *Bos connochaetes* Forster, Descript. Anim. 392. Cape of Good Hope.

Subgenus *GORGON* Gray, 1850

Connochaetes taurinus Burchell, 1823

Blue Wildebeest, or Brindled Gnu. Blouwildebees

Distribution: in the Union, the Kruger National Park (Shingwedzi, Satara, Skukuza, Pretorius Kop, Toulon, etc. Very common south of the Olifants River). Zululand. Possibly the northern borders of the Cape Province (north of Vryburg? 50–100 miles north of Upington (Shortridge)). South-West Africa; Shortridge (1934) states that its distributional area is similar to that of *Alcelaphus buselaphus* (*caama*) (*q.r.*), but that it extends to the Okavango and the Caprivi; that author quoted it as far south as Great Namaqualand (Aroab district), but Roberts (1951) says that it has been exterminated in the south though still plentiful in the Etosha Pan and other districts in the north. The greater part of Bechuanaland. Southern Rhodesia, southern Portuguese East Africa. Southern Angola. Northern Rhodesia and Nyasaland. Northwards to Tanganyika and Kenya.

CONNOCHAETES TAURINUS TAURINUS Burchell, 1823

1823. *Antilope taurina* Burchell, Travels in Inter. S. Africa, *2:* 278, footnote. (The title page has "1824", but, according to Sherborn, published November, 1823.) Khosi Fountain, about 30 miles S. by W. from Kuruman, northern Cape Province.
1827. *Catoblepas gorgon* H. Smith, Griffith's Cuvier Anim. Kingd. *4:* 371. Interior of South Africa.
1872. *Gorgon fasciatus* Gray, Cat. Ruminant Mamm. B.M. 43. Substitute for *gorgon.*
1872. *Butragus corniculatus* Gray, *loc. cit.* 43. South Africa.
1893. *Catoblepas reichei* Noack, Zool. Anz. *16:* 154. Limpopo, northern Transvaal.
1925. *Connochaetes taurinus mattosi* Blaine, Ann. Mag. N.H. *15:* 129. Chiacusse, Huilla district, Cunene River, extreme southern Angola.
1933. *Connochaetes taurinus borlei* Monard, Bull. Soc. Sci. Nat. Neuchâtel, *57:* 64. Rio Mbalé, southern Angola.

CONNOCHAETES TAURINUS JOHNSTONI Sclater, 1896

1896. *Connochaetes taurinus johnstoni* Sclater, P.Z.S. 616. Mlanje Plain, southern end of Lake Shirwa, southern Nyasaland. Ranges into Tanganyika.

[1] (Zimmermann, 1777, Spec. Zool. Geograph. 372 (*Bos gnou*) is unavailable.)

CONNOCHAETES TAURINUS COOKSONI Blaine, 1914

1914. *Connochaetes taurinus cooksoni* Blaine, Ann. Mag. N.H. *13:* 337. East bank of Luanga River, Lundazi district, eastern Northern Rhodesia. (See Moreau, Hopkins & Hayman, 1946, 435.)

Genus **TRAGELAPHUS** Blainville, 1816

1815. *Strepsiceros* Rafinesque, Analyse de la Nature, 56, *nomen nudum.*[1]

1816. *Tragelaphus* Blainville, Bull. Soc. Philom. Paris, 75. *Antilope sylvatica* Sparrman (Sclater & Thomas, 1900, Book of Antelopes, *4:* 103).

1827. *Strepsiceros* H. Smith, Griffith's Cuv. Anim. Kingd. *5:* 365. *Antilope strepsiceros* Pallas. Valid as a subgenus.

1837. *Calliope* Ogilby, P.Z.S. *1836:* 138. *Antilope strepsiceros* Pallas. Not of Gould, 1836.

1872. *Hydrotragus* Gray, Cat. Ruminant Mamm. B.M., 49. *Tragelaphus spekei* Sclater. Not of Fitzinger, 1866.

1900. *Limnotragus* Sclater & Pocock in Sclater & Thomas, Book of Antelopes, *4:* 149. *Tragelaphus spekei* Sclater. (For authorship see Lydekker, 1914, Cat. Ung. Mamm. B.M. *3:* 185, footnote.)

1903. *Strepsicerastes* Knottnerus-Meyer, Arch. Naturgesch. *69*, 2, pt. 1, Jahresber. Mamm. for 1902: 113. *Strepsiceros imberbis* Blyth, from Abyssinia.

1910. *Strepsicerella* Zukowsky, Wild und Hund, *16:* No. 12, 206. (*N.V.*) *Strepsiceros imberbis* Blyth.

1912. *Ammelaphus* Heller, Smithson. Misc. Coll. *60*, 8: 15. *Strepsiceros imberbis* Blyth.

1912. *Nyala* Heller, Smithson. Misc. Coll. *60*, 8: 16. *Tragelaphus angasi* Gray.

Schwarz, Simpson and others have regarded *Strepsiceros*, *Limnotragus* and *Tragelaphus* as congeneric, and on account of some East African intermediate species this seems the correct classification. The prior name for the genus is *Tragelaphus* Blainville, 1816, as is shown in the above synonymy.

1. Hoofs elongated (over 3 inches in length). *Tragelaphus spekei*, page 208
   Hoofs not specially elongated. ——2

2. Large species, height of shoulder over 45 inches, with longer horns which have one and a half twists; males with small mane on hindneck and shoulders and fringe of hairs on throat; males usually only a little darker than females; both sexes banded with white. *Tragelaphus* (*Strepsiceros*) *strepsiceros*, page 209
   Smaller species, height at shoulder not over 45 inches, with smaller horns which have one complete twist. ——3

[1] *Strepsiceros* Frisch, 1775, has been used for the Kudu, but the work in which it is published is unavailable under the Commission's ruling (Bull. Zool. Nomencl. 1950, *4:* 549). In any case Palmer (1904) was in error in saying that the type species is *Antilope strepsiceros* Pallas; it is "*Ovis strepsiceros*", the *Zackelschaf* from Crete.

3. A mane of long hairs on neck and back, and males with fringe of hairs on throat. Males much darker than females which are more markedly banded. Shoulder height between 36 and 45 inches. Horns longer.

Tragelaphus angasi, page 208

Mane less developed, and no fringe on throat. Normally the sexual difference in colour is less marked. Shoulder height below 36 inches. Horns shorter.[1]

Tragelaphus scriptus, page 207

Subgenus *TRAGELAPHUS* Blainville, 1816

Tragelaphus scriptus Pallas, 1766 Bushbuck. Bosbok

Distribution: in the Union, the Kruger National Park (Punda Maria, Shingwedzi, Letaba, Skukuza, Toulon, etc.), probably suitable localities elsewhere in the wilder parts of the Transvaal, to the Zoutpansberg, Rustenburg district, etc. Natal, Zululand and in the Cape Province, districts of George, Knysna, the Addo Bush (near Port Elizabeth) and "in deep kloofs and dense shady forests throughout the Eastern Province" (Hewitt, 1931). Swaziland. South-West Africa; northern parts, the Okavango valley and the Caprivi. Central and southern Angola. Ngamiland. Southern Rhodesia, where evidently quite widely distributed. Portuguese East Africa, including Gorongoza district. Northern Rhodesia, Nyasaland. Beyond the limits of this work through East Africa to the southern Sudan and Abyssinia, and from the Belgian Congo westwards to Gambia.

Tragelaphus scriptus scriptus Pallas, 1766. (Extralimital)

1766. *Antilope scripta* Pallas, Misc. Zool., 8. Senegal.

Tragelaphus scriptus sylvaticus Sparrman, 1780

1780. *Antilope sylvatica* Sparrman, K. Svenska Vetensk. Akad. Handl. 197. Grootvadersbosch, Swellendam district, south-western Cape Province. Range: the Union localities listed above.

Tragelaphus scriptus roualeyni Gray, 1852

1852. *Antilopus rouàleynei* Gray, Cat. Mamm. B.M., pt. 3, Ungulata, 140. Bakalahari country, near sources of the Limpopo, Bechuanaland.

1850. *Antelopus roualeynei* Cumming, A Hunter's Life in S. Africa, *2:* 169, *nomen nudum*.

1891. *Tragelaphus scriptus roualeyni* Thomas, P.Z.S. 389. Emendation; (*roualeyni* is right since Cumming's christian name was Roualeyn).

1900. *Tragelaphus roualeyni typicus* Sclater & Thomas, Book of Antelopes, *4:* 123.

Range: North-eastern Zululand to the Limpopo and westwards up that valley to the lower Crocodile River; in Southern Rhodesia to the Melsetter district (Roberts).

[1] Horn, length on front curve, quoted by Rowland Ward; for *T. scriptus*, 10½–21¾ inches *T. angasi* 27½–31½ inches; *T. spekei* 20–36⅜ inches; *T. strepsiceros* 43–71½ inches.

TRAGELAPHUS SCRIPTUS ORNATUS Pocock, 1900.

1900. *Tragelaphus scriptus ornatus* Pocock, Ann. Mag. N.H. *5:* 94. Linyanti, swamps of the Chobe, between Lake Ngami and the Zambezi, northern Bechuanaland. Range: Ngamiland to Angola, and eastwards to Nyasaland and Mashonaland, Southern Rhodesia.

Tragelaphus spekei Sclater, 1864 [1]

Marshbuck or Sitatunga. Waterkoedoe

Distribution: South-West Africa, northern parts, the upper Okavango (west of the Kwito), the southern border of the western Caprivi, and the eastern Caprivi (Shortridge, 1934). Ngamiland. (Has been recorded from north-western Southern Rhodesia, and R. Ward quotes a specimen from Chinde, mouth of the Zambezi, Portuguese East Africa.) Angola. Northern Rhodesia (Zambezi and Kafue and their tributaries, to Lakes Bangweulu, Mweru, southern end of Lake Tanganyika, etc. (Shortridge)). Has been recorded from Nyasaland. North of the limits of this work, in suitable localities in Tanganyika, Kenya, the Belgian Congo, Uganda, the southern Sudan, Nigeria, Gambia.

TRAGELAPHUS SPEKEI SPEKEI Sclater, 1864. (Extralimital)

1864. *Tragelaphus spekii* Sclater in Spekes J. Discovery of Source of Nile, 223, footnote. Lake Lwelo, in Bukoba district (about 2° S., 30° 57′ E.), Tanganyika. See Moreau, Hopkins & Hayman, 1946, 441.

TRAGELAPHUS SPEKEI SELOUSI Rothschild, 1898

1898. *Tragelaphus selousi* Rothschild, Novit. Zool. *5:* 206. Zambezi Valley (according to Roberts, from the Lake Ngami swamps).

1861. *Tragelaphus eurycerus* Layard, Cat. Mamm. S. Afr. Mus. (*N.V.*, *fide* Roberts). Not of Ogilby, 1837

1903. *Limnotragus baumii* Sokolowsky in Baum, Kunene-Sambesi Exped. 533. Cuito (= Kwito) River, below the Longa (approximately 17° S., 20° E.), south-eastern Angola.

TRAGELAPHUS SPEKEI INORNATUS Cabrera, 1918

1918. *Limnotragus spekei inornatus* Cabrera, Bol. Soc. Esp. H.N. *18:* 276. Lake Young, eastern Northern Rhodesia.

Tragelaphus angasi Gray, 1849 Inyala; Nyala. Nyalabosbok

Distribution: the Kruger National Park, Transvaal (districts of Punda Maria and Shingwedzi; very common at Pafuri, northwards from Punda Maria; sometimes known from the southern parts of the Reserve); Zululand (St. Lucia district and according to Roberts, introduced into the Hluhluwe Game Reserve). Portuguese East Africa; Nyasaland.

TRAGELAPHUS ANGASI Gray, 1849

1849. *Tragelaphus angasii* Gray in Angas, P.Z.S. *1848:* 89. St. Lucia Bay, Zululand, Natal.

[1] This species is often separated subgenerically as *Limnotragus*, but see Hopkins, 1949, *P.Z.S. 119:* 526.

Subgenus *STREPSICEROS* H. Smith, 1827

Tragelaphus strepsiceros Pallas, 1766 Kudu. Koedoe

Distribution: in the Union, the Kruger National Park, Transvaal, where common (districts of Punda Maria, Shingwedzi, Letaba, Satara, Skukuza, Toulon, etc.). Zululand, and Giants Castle Reserve, Natal. In the Cape Province, reported to occur still in the Uitenhage district (but evidently not the Addo Bush), and on private property in the Prince Albert and Riversdale districts, and according to Hewitt (1931) the Albany district. There are a few introduced Kudu at De Beers, west of Kimberley, and, it is said, on one of the farms near Graaff Reinet. On private property in Swaziland (Roberts.) South-West Africa; recorded by Shortridge (1934) throughout South-West Africa, where suitable cover exists, except the coastal part of the Namib desert, and southwards to Warmbad; that author said that Kudu occur sparsely along the Orange River, to as far east as the Aughrabies Falls (we do not know their present status in that region). The Kalahari Gemsbok National Park? Southern Rhodesia, Portuguese East Africa, Bechuanaland. Angola, Northern Rhodesia, Nyasaland. Thence northwards to Somaliland and the Sudan, but rare in West Africa although known from the Chad Territory, French Congo.

Tragelaphus strepsiceros strepsiceros Pallas, 1766

1766. *Antilope strepsiceros* Pallas, Misc. Zool., 9. Cape of Good Hope. ("Gammafluss", Matschie, 1914.)
1834. *Strepsiceros capensis* A. Smith, S. Afr. J. *2:* 223. South Africa.
1836. *Strepsiceros koodoo* H. Smith, Jardine's Naturalists Libr. *12:* 180. "Woody parts of Caffraria and the Karoo Mountains", South Africa.
1843. *Strepsiceros kudu* Gray, List Spec. Mamm. B.M., 155.
1846. *Strepsiceros excelsus* Sundevall, K. Svenska Vetensk. Akad. Handl. *1844:* 196. Africa south of the Sahara.
1894. *Strepsiceros strepsiceros zambesiensis* Lorenz, Ann. Naturh. Hofmus. Wien. *9:* Notizen, 63. Leschumo Forest, south-eastern border of Marutseland and north-western Matabeleland.

"Lancaster writes 'This is obviously Leshuma on the old waggon road from Tati to Kasungula on the Zambezi R. at the Chobi R. mouth, about 15 miles from Kasungula (about 17° 44′ S., 25° 19′ E.) just inside the Bechuanaland Protectorate'." (Moreau, Hopkins & Hayman, 1946.)

1910. *Strepsiceros capensis typicus* Lydekker in Ward, Rec. Big Game, *6:* 319.
1914. *Strepsiceros hamiltoni* Matschie, S.B. Ges. Naturf. Fr. Berlin, 387. New name for *Damalis strepsiceros* H. Smith, not *Antilope strepsiceros* Pallas. Sources of the Gariep or Orange River.

Genus **TAUROTRAGUS** Wagner, 1855

1855. *Taurotragus* Wagner in Schreber, Säugth. Suppl. *5:* 438. *Antilope oreas* Pallas = *Antilope oryx* Pallas (1766).
1822. *Oreas* Desmarest, Encycl. Méth. Mamm. 471. *Antilope oreas* Pallas = *Antilope oryx* Pallas. Not of Hübner, 1806.

TAUROTRAGUS [*contd.*]

1850. *Euryceros* Gray, Gleanings Menagerie Knowsley Hall, *2:* 27. *Antilope eurycerus* Ogilby. Not of Lesson, 1830.
1891. *Doratoceros* Lydekker, The Field, London, *78:* 130. *Antilope triangularis* Günther = *Antilope oryx* Pallas.
1894. *Orias* Lydekker, Royal Nat. Hist. *2:* 267.
1902. *Boocercus* Thomas, Ann. Mag. N.H. *10:* 309. Renaming of *Euryceros* Gray. Valid as a subgenus.
1905. *Boocerus* Trouessart, Cat. Mamm. Viv. Foss. Suppl. 731.

Subgenus *TAUROTRAGUS* Wagner, 1855

Taurotragus oryx Pallas, 1766 Eland. Eland

Distribution: survives in the Union in the northern parts of the Kruger National Park, Transvaal (north of the Olifants River), and in the Giants Castle Reserve, Natal. (A few specimens have been reintroduced into the Cape Point reserve, south of Cape Town.) South-West Africa; according to Shortridge (1934) south about to the Tropic of Capricorn, sometimes wandering to as far south as latitude 24° S. along the Nosob River; northwards to the Caprivi, and the Kaokoveld-Ovamboland border (not occurring much to the west of a line between the Rua Cana Falls, Cunene and the Nosob River region in the south). Bechuanaland, Ngamiland, the northern Kalahari. Parts of Southern Rhodesia, and western Portuguese East Africa. Northern Rhodesia, Nyasaland. Angola. Beyond the limits of this work, Tanganyika, Kenya to the southern Sudan, with a closely-allied form (?group of subspecies) from the Bahr-el-Ghazal, Chad district, and Senegal.

TAUROTRAGUS ORYX ORYX Pallas, 1766

1766. *Antilope oryx* Pallas, Misc. Zool. 9. Cape of Good Hope.
1777. *Antilope oreas* Pallas, Spic. Zool. pt. 12: 17. Mountains of South Africa.
1792. *Bos barbatus* Kerr, Anim. Kingd., 340. "Country of the Namaques" north from the Cape of Good Hope.
1816. *Cemas alces* Oken, Lehrb. Naturgesch. *3*, 2: 735. "South Africa, especially to the east of the Cape of Good Hope." (Unavailable.)
1827. *Damalis canna* H. Smith, Griffith's Cuvier Anim. Kingd. *4:* 357. "Beyond the Gareep [= the Orange River], upon the Great Desert," South Africa. (This is the first use of the name in a technical sense; Desmarest, 1822, Enc. Méth. Mamm. *2:* 471 is a vernacular name.)
1889. *Antilope triangularis* Günther, The Field, London, *73:* 260. 1889, P.Z.S. 74. The Zambezi. Based on the abnormal horns of a female *T. oryx.*
1899. *Taurotragus oryx typicus* Selous in Bryden, Great and Small Game of Africa, 426.

TAUROTRAGUS ORYX LIVINGSTONEI Sclater, 1864

1864. *Oreas livingstonii* Sclater, P.Z.S. 105. Left bank of the Zambezi River, near the Kafue, Northern Rhodesia. (Near Sekhosi, Zambezi River, upstream from Sesheke, about 115 miles north-west of Victoria Falls, Northern Rhodesia; Harper, 1940, *J. Mamm. 21:* 331.)

1912. *Oreas oreas kaufmanni* Matschie, Deutsche Jäger-Zeitung, *58:* 119. Caprivi Zipfel, South-West Africa.
1913. *Oreas oryx niediecki* Matschie, S.B. Ges. Naturf. Fr. Berlin, 249. Banga, Kafue River (Mashukulumbwe Country), Northern Rhodesia.

Range includes Nyasaland and Angola.

Taurotragus oryx selousi Lydekker, 1910

1910. *Taurotragus oryx selousi* Lydekker in Ward, Records Big Game, *6:* 328. Rugawé Valley, Mashonaland, eastern Southern Rhodesia.

Genus **SYNCERUS** Hodgson, 1847

1847. *Syncerus* Hodgson, J. Asiat. Soc. Bengal, *16:* 709. *Bos brachyceros* Gray = *Bos nanus* Boddaert (Hollister, 1911, Proc. Biol. Soc. Washington, *24:* 192).
1872. *Planiceros* Gray, Cat. Ruminant Mamm. B.M., 10. *Bos planiceros* Blyth = *Bos nanus* Boddaert.
1872. *Synceros* Gray, *loc. cit.* 12. *Bubalus caffer* Gray = *Bos caffer* Sparrman.

Lydekker (1913) separated the Buffaloes from the typical Oxen, Yak, Bison, etc., by stating that the horns were triangular, or partly so, in section in the Buffaloes, but oval or circular in section in the Oxen. He referred all Buffaloes to *Bubalus* (which antedates *Syncerus*) and distinguished the African Buffaloes (*Syncerus*) by their large and heavily-fringed ears, their relatively shorter and broader skulls, and by the fact that the vomer is free from the palatines.

Syncerus caffer Sparrman, 1779 African Buffalo. Buffel

Distribution: in the Union survives in the Kruger National Park, Transvaal (districts of Shingwedzi, near Crocodile River in the Skukuza region where it occurs in large numbers), Toulon, etc., Zululand, and the Addo Bush (near Port Elizabeth). Portuguese East Africa, recorded from districts of Beira, Gazaland, Lourenço Marques, etc. Southern Rhodesia, Ngamiland. In South-West Africa the central and eastern Caprivi, and irregularly migratory into the extreme north-west of Grootfontein district and the north-east of Ovamboland (Shortridge). Northern Rhodesia, Nyasaland. Angola (the typical race locally south of the Cuanza River and said to be greatly reduced in number; *S. c. nanus* in the northern districts (recorded in 1935 from 150 km. east of Loanda)). Beyond the limits of this work, northwards to the Sudan and Abyssinia, westwards to Senegal.

See Christy, 1929, P.Z.S., 445 for a review of this species.

Syncerus caffer caffer Sparrman, 1779

1779. *Bos caffer* Sparrman, K. Svenska Vetensk. Akad. Handl. *40:* 79. Near Sundays River, Algoa Bay, eastern Cape of Good Hope.
1898. *Bos caffer typicus* Lydekker, Wild Oxen, Sheep and Goats of all Lands, 97.
1906. *Bubalus gariepensis* Matschie, S.B. Ges. Naturf. Fr. Berlin, 166. Liqua Valley (= Vaal River, Roberts).

SYNCERUS CAFFER CAFFER [*contd.*]

1906. *Bubalus limpopoensis* Matschie, *loc. cit.* 167. Limpopo Valley.
1906. *Bubalus wiesei* Matschie, *loc. cit.* 168. North of the Zambezi between the Loangwa and the Revugu.
1910. *Bubalus caffer cunenensis* Zukowsky, Zool. Beobachter, *51:* 266. Benguela district, Angola.
1910. *Bubalus caffer cubangensis* Zukowsky, *loc. cit.* Benguela district, Angola.
1918. *Bubalus gazae* Matschie, S.B. Ges. Naturf. Fr. Berlin, 136. Lebombo Mountains, southern Gazaland, extreme southern Portuguese East Africa.
1918. *Bubalus pungwensis* Matschie, *loc. cit.* 136. Beira, Portuguese East Africa.
1918. *Bubalus niediecki* Matschie, *loc. cit.* 138. Baunza, north of middle Kafue, about 33 km. east of where the river turns east, north of Victoria Falls, Northern Rhodesia.
1929. *Bubalus niediecus* Christy, P.Z.S. 459. (For *niediecki*.)

SYNCERUS CAFFER NANUS Boddaert, 1785. Dwarf Forest Buffalo

1785. *Bos nanus* Boddaert, Elench. Anim. *1:* 152. "Morocco" doubtless brought from Equatorial West Africa (Christy).
1827. *Bos pegasus* H. Smith, Griffith's Cuv. Anim. Kingd. *4:* 386. Angola.
1906. *Bubalus mayi* Matschie, S.B. Ges. Naturf. Fr. Berlin, 171. Bengo, Loanda, Angola.

Considered a valid species by Christy and G. Allen, a race of *caffer* by Hill & Carter.

ORDER LAGOMORPHA

Like the Rodentia (below) but jaw muscles less specialized, the masseter muscles not modifying the region of the infraorbital foramen, and the ascending ramus of the mandible is straight, not curved as in the Rodentia. Palate usually much shortened. There is a second, vestigial, upper incisor placed behind the enlarged front one. Cheekteeth rootless and simple. In South Africa (family Leporidae), medium-sized mammals combining very long ears and short tail, and skull with large postorbital processes.

FAMILY LEPORIDAE

For a comparison of all genera and species of European, Asiatic and African Leporidae see Ellerman & Morrison-Scott, *Checklist Palaearctic and Indian Mammals*, 419, key, 424.

Mesopterygoid region narrow, the width of space immediately behind palate much shorter than the least longitudinal diameter of palatal bridge (palatal bridge averages more than 140 per cent of mesopterygoid width just mentioned).
Genus *PRONOLAGUS*, page 219

Mesopterygoid region wider; the width of space immediately behind palate a little shorter than, or subequal to, but most often longer than length of palatal bridge (which averages less than 130 per cent, usually less than 120 per cent. of mesopterygoid width).
Genus *LEPUS*, page 213

Genus **LEPUS** Linnaeus, 1758

1758. *Lepus* Linnaeus, Syst. Nat. 10th ed. *1:* 57. *Lepus timidus* Linnaeus, from Sweden.
1867. *Eulagos* Gray, Ann. Mag. N.H. *20:* 222. *Lepus mediterraneus* Wagner, the Sardinia race of *Lepus capensis* Linnaeus.
1929. *Bunolagus* Thomas, P.Z.S. 109. *Lepus monticularis* Thomas.

1. Tail wholly brown. (Skull length less than 80 mm.)
Lepus monticularis, page 218
Tail normally clearly contrasted black and white above. ——2

2. Larger animals; always averaging larger in size of skull than members of the *capensis* group where the two groups occur together. South of the Sahara (in British Museum material) the occipitonasal length averages about 86 mm. and more. ——3
Smaller animals; always averaging smaller in size of skull than members of the *europaeus* group where the two groups occur together. South of the Sahara (in British Museum material) the occipitonasal length averages 85 mm. and less.[1] ——4

3. Palate usually clearly longer than mesopterygoid space immediately behind it.
Lepus whytei, page 216
Palate averages shorter than mesopterygoid space immediately behind it, or only a little longer (under 110 per cent with a few individual exceptions).
Lepus europaeus, page 216

4. Palate normally exceeds width of mesopterygoid space immediately behind it. Bullae large, their length 12.7 mm. and more. *Lepus salai*, page 215
Palate normally shorter than mesopterygoid space immediately behind it (the sole exception being *L. capensis aquilo*, Portuguese East Africa), which has distinctly smaller bullae than *salai*, their length 11.5 mm. and less (and has a smaller skull than *L. whytei*). *Lepus capensis*, page 213

Subgenus *LEPUS* Linnaeus, 1758

Lepus capensis Linnaeus, 1758

Cape Hare. Kaapse Vlakhaas; Rooipootjie

Distribution: in the Union, Transvaal; Potchefstroom, Pretoria, Pietersburg, Ermelo, Woodbush, Wakkerstroom, etc. Near Kroonstad, and other localities, Orange Free State. In the Cape Province, Vryburg, Fourteen Streams, Little

[1] It may be that Roberts measured his skulls in a slightly different way from the method which gave the above results. North of the Sahara the average minimum for *europaeus* is about 88 mm., and the average maximum for *capensis* is about 87 mm. Roberts' results agree more with these figures. Thus in his specimens of *europaeus* from the Union there is only one specimen below 89 mm., whereas in his *capensis* this figure is only exceeded in three individuals and 89.7 mm. is the maximum. Roberts' figures for *L. europaeus herero* are below the figures quoted above for *L. europaeus*, but the British Museum has nineteen skulls for this race, which give an average of 88 mm. in occipitonasal length.

Namaqualand (Steinkopf district, Port Nolloth, the Kamiesberg), near Lamberts Bay, Eendekuil, Vredendal, near Cape Town, Oudtshoorn, Albany, Calvinia, Deelfontein, Burghersdorp, Hanover, Middleburg, Graaff Reinet. (A hare occurs in the Kruger National Park (Shingwedzi, Toulon), near Wepener (Orange Free State), near Springbok (Little Namaqualand), west of Kimberley, and near Matjesfontein, but it was not ascertained whether they were *capensis* or *europaeus*.) South-West Africa; Great Namaqualand, Damaraland and the Namib desert (Shortridge (1934) said it had not been recorded north of 20° S.) The Kalahari and parts of Bechuanaland. Inhambane district, Portuguese East Africa. Reported from Northern Rhodesia. North of the limits of this work, the Belgian Congo, virtually throughout East Africa, the Gold Coast, northern Nigeria, Senegal; Morocco, Algeria, Egypt; Spain, Sardinia; much of Asia from Palestine and north-western Arabia to Kashmir, the plains of Russian Asia, and thence to Mongolia and China (mainly north of the Yangtse River) (for Asiatic details see Ellerman & Morrison-Scott, 1951).

Lepus capensis capensis Linnaeus, 1758

1758. *Lepus capensis* Linnaeus, Syst. Nat. 10th ed. *1:* 58. Cape of Good Hope.
1826. *Lepus arenarius* I. Geoffroy, Dict. Class. H.N. *9:* 383. "Dans les sables du pays des Hottentots."
1860. *Lepus capensis* var. *major* Grill, K. Svenska Vetensk. Akad. Handl. (2) *2:* No. 10, 19. Roodeval, Karroo (in Oudtshoorn district?).

The range of this race is given by Roberts as the western Cape Province from near Cape Town to the Olifants River (and eastwards to Oudtshoorn if *major* Grill is a synonym).

Lepus capensis ochropus Wagner, 1844

1844. *Lepus ochropus* Wagner in Schreber, Säugth. Suppl. *4:* 96. "Cape of Good Hope." Range: southern Transvaal (to Pretoria) and northern Orange Free State, southwards to Ventersburg and Fauresmith.

Lepus capensis centralis Thomas, 1903

1903. *Lepus capensis centralis* Thomas, Ann. Mag. N.H. *12:* 344. Deelfontein, north of Richmond, Cape Province. Range: the central Karroo, from Deelfontein to Albany district.

Lepus capensis granti Thomas & Schwann, 1904

1904. *Lepus capensis granti* Thomas & Schwann, Abstr. P.Z.S. No. 2, 6: P.Z.S. *1:* 182. Port Nolloth, Little Namaqualand. Range includes the plateau around Calvinia, western Cape Province.

Lepus capensis aquilo Thomas & Wroughton, 1907

1907. *Lepus capensis aquilo* Thomas & Wroughton, P.Z.S. 297. Coguno, Inhambane district, southern Portuguese East Africa.

Lepus capensis kalaharicus Dollman, 1910

1910. *Lepus ochropus kalaharicus* Dollman, Ann. Mag. N.H. *6:* 400. Lehutitung, Kalahari, Bechuanaland. Ranges to northern Great Namaqualand and eastern Damaraland.

Lepus capensis narranus Thomas, 1926

1926. *Lepus capensis narranus* Thomas, P.Z.S., 309. Rooibank, Kuiseb River, near Walvis Bay, South-West Africa.

Lepus capensis mandatus Thomas, 1926

1926. *Lepus capensis mandatus* Thomas, P.Z.S., 309. Berseba (north-west of Keetmanshoop), Great Namaqualand, South-West Africa.

Lepus capensis ochropoides Roberts, 1929

1929. *Lepus capensis ochropoides* Roberts, Ann. Transv. Mus. *13:* 121. Burghersdorp, eastern Cape Province.

Lepus capensis vernayi Roberts, 1932

1932. *Lepus capensis vernayi* Roberts, Ann. Transv. Mus. *15:* 13. Geluk, south-west of Kroonstad, Orange Free State. Range includes the north-western Orange Free State, to Hoopstad district.

Lepus capensis ermeloensis Roberts, 1932

1932. *Lepus capensis ermeloensis* Roberts, Ann. Transv. Mus. *15:* 14. Ermelo, south-eastern Transvaal. Range includes Carolina and Wakkerstroom districts, south-eastern Transvaal.

Lepus capensis hartensis Roberts, 1932

1932. *Lepus capensis hartensis* Roberts, Ann. Transv. Mus. *15:* 14. Fourteen Streams, Cape Province. (This locality is on the Vaal River, on the Cape Province side of the border, and near where the Transvaal, Orange Free State and Cape Province meet.) Ranges northwards to the Molopo River.

Lepus capensis bedfordi Roberts, 1932.

1932. *Lepus capensis bedfordi* Roberts, Ann. Transv. Mus. *15:* 14. Kalkbank, Pietersburg district, northern Transvaal.

Lepus capensis langi Roberts, 1932

1932. *Lepus capensis langi* Roberts, Ann. Transv. Mus. *15:* 15. Nkate River, northern Bechuanaland.

Lepus salai Jentink, 1880 Sala's Hare

Distribution: south-western desert district of Angola.

Lepus salai Jentink, 1880

1880. *Lepus salae* Jentink, Notes Leyden Mus. *2:* 57. Mossamedes, south-western coast of Angola.

Lepus whytei Thomas, 1894 Whyte's Hare

Distribution: Nyasaland; the Petauke district, Northern Rhodesia; Cabaceira, northern Portuguese East Africa; Tanganyika.

LEPUS WHYTEI Thomas, 1894

1894. *Lepus whytei* Thomas, P.Z.S. 142. Palombi River, Shirwa plain, borders of Mlanje and Zomba districts, 15° 35′ S., 35° 35′ E., *circa* 2,000 ft., southern Nyasaland.

Lepus europaeus Pallas, 1778

(In South Africa) Southern Bush or Scrub Hare. Ribbokhaas; Kolhaas

Distribution: in the Union, Transvaal; districts of Potchefstroom, Wolmaransstad, Rustenburg, Bloemhof, Klein Letaba, Sabi River, Woodbush, Barberton, Legogot (near White River), Wakkerstroom, Carolina. Natal, including Estcourt and Zululand. Rouxville, Hoopstad and other localities, Orange Free State. In the Cape Province, Vryburg, Louisvale (near Upington), Little Namaqualand (near Steinkopf, the Kamiesberg), Van Rhynsdorp, Clanwilliam, Lamberts Bay, near Cape Town, Bredasdorp, Knysna, Albany, King William's Town, Grahamstown, Uitenhage, Middelburg, Murraysburg, Deelfontein, etc. Swaziland. South-West Africa, throughout, from the Orange River to the Caprivi (Shortridge). Northern Bechuanaland, Ngamiland and Gaberones in south-eastern Bechuanaland. Southern Rhodesia, where evidently quite widely distributed. West of Beira, Portuguese East Africa. Northern Rhodesia (Sesheke district). Probably throughout most of Angola except in true desert. Beyond the limits of this work, through much of East Africa, northwards to the southern Sudan and Eritrea; Europe south of the Baltic, Britain included, Asia Minor, Persia, Palestine, Cyprus and Transuralia.

LEPUS EUROPAEUS EUROPAEUS Pallas, 1778. (Extralimital)

1778. *Lepus europaeus* Pallas, Nov. Sp. Quad. Glir. Ord. 30. Burgundy, France.

LEPUS EUROPAEUS SAXATILIS F. Cuvier, 1823

1823. *Lepus saxatilis* F. Cuvier, Dict. Sci. Nat. *26:* 309. Cape of Good Hope.

1829. *Lepus rufinucha* A. Smith, Zool. J. *4:* 440. "Rocky and mountainous situations in South Africa."

(1837. *Lepus longicaudatus* Gray, Mag. N.H.J. Zool. *1:* 586. "Magellan Land" but doubtless South Africa (G. Allen).)

1844. *Lepus fumigatus* Wagner in Schreber, Säugth. Suppl. *4:* 98. "Kaffernland."

Range, according to Roberts: Knysna to the Cape Peninsula, thence northwards to Van Rhynsdorp, Cape Province.

LEPUS EUROPAEUS ANGOLENSIS Thomas, 1904

1904. *Lepus angolensis* Thomas, Ann. Mag. N.H. *13:* 420. Ambaca, 800 m., northern Angola.

1905. *Lepus ansorgei* Thomas & Wroughton, Ann. Mag. N.H. *16:* 176. Caiala, near Bihé, central Angola.

1933. *Lepus angolensis meridionalis* Monard, Bull. Soc. Sci. Nat. Neuchâtel, *57:* 61. Rio Mbalé, Vila da Ponte, and Caquindo, all in the Kubango region, south-eastern Angola.

In 1951 we treated this as a race of *L. capensis* because the two measurable skulls in the British Museum agree in size with that species; but Hill & Carter state that the average for eleven specimens is 87 mm., so it is here transferred to *L. europaeus*.

Lepus europaeus zuluensis Thomas & Schwann, 1905

1905. *Lepus saxatilis zuluensis* Thomas & Schwann, P.Z.S. *1:* 270. Umfolosi, Zululand, Natal. The range includes eastern and northern Transvaal.

Lepus europaeus megalotis Thomas & Schwann, 1905

1905. *Lepus saxatilis megalotis* Thomas & Schwann, P.Z.S. *1:* 271. Klipfontein, north of Steinkopf, Little Namaqualand, north-western Cape Province. The range includes the Upper Karroo, as far east as Murraysburg.

Lepus europaeus micklemi Chubb, 1908

1908. *Lepus zuluensis micklemi* Chubb, Ann. Mag. N.H. *1:* 466. Bulawayo, Southern Rhodesia. Range: highlands of Southern Rhodesia from Plumtree and Wankie eastwards to the Birchenough Bridge (Melsetter district).

Lepus europaeus subrufus Roberts, 1913

1913. *Lepus zuluensis subrufus* Roberts, Ann. Transv. Mus. *4:* 100. Wakkerstroom, south-eastern Transvaal. Ranges westwards to Potchefstroom, Rustenburg, Wolmaransstad, etc., in the western Transvaal.

Lepus europaeus gungunyanae Roberts, 1914

1914. *Lepus gungunyanae* Roberts, Ann. Transv. Mus. *4:* 184. Jabwielu, between Bubye and Nuanetsi Rivers, Southern Rhodesia. Apparently based on young specimens.

Lepus europaeus aurantii Thomas & Hinton, 1923

1923. *Lepus saxatilis aurantii* Thomas & Hinton, P.Z.S. 497. Louisvale (opposite Upington, south bank of Orange River), north-western Cape Province. Ranges through Great Namaqualand to Rehoboth district, South-West Africa.

Lepus europaeus herero Thomas, 1926

1926. *Lepus capensis herero* Thomas, P.Z.S. 308 (29th April). Lukualukasi, Ovamboland, South-West Africa. Range: "Ovamboland and Kaokoveld, southwards to Eronga mountain in Omaruru district, eastwards through Grootfontein district, and southwards through the dry Kalahari Desert" (Roberts).

Lepus europaeus damarensis Roberts, 1926

1926. *Lepus zuluensis damarensis* Roberts, Ann. Transv. Mus. *11:* 262 (14th September). Quickborn, north of Okahandja, Damaraland, South-West Africa.

LEPUS EUROPAEUS CHIVERSI Roberts, 1929

1929. *Lepus saxatilis chiversi* Roberts, Ann. Transv. Mus. *13:* 119. Rouxville, southern Orange Free State.

LEPUS EUROPAEUS BECHUANAE Roberts, 1932

1932. *Lepus saxatilis bechuanae* Roberts, Ann. Transv. Mus. *15:* 12. Gaberones (near the Transvaal border) south-eastern Bechuanaland. Roberts also quoted this form from Zeerust, north-western Transvaal.

LEPUS EUROPAEUS NGAMIENSIS Roberts, 1932

1932. *Lepus saxatilis ngamiensis* Roberts, Ann. Transv. Mus. *15:* 12. Maun, Ngamiland, northern Bechuanaland.

LEPUS EUROPAEUS CHOBIENSIS Roberts, 1932

1932. *Lepus saxatilis chobiensis* Roberts, Ann. Transv. Mus. *15:* 12. Kabulabula, Chobe River, northern Bechuanaland.

LEPUS EUROPAEUS ALBANIENSIS Roberts, 1932

1932. *Lepus saxatilis albaniensis* Roberts, Ann. Transv. Mus. *15:* 12. Kleinpoort, Fish River Valley, Albany district, eastern Cape Province. Ranges to King William's Town, and inland to Middelburg, Cape Province.

LEPUS EUROPAEUS NIGRESCENS Roberts, 1932

1932. *Lepus saxatilis nigrescens* Roberts, Ann. Transv. Mus. *15:* 13. Vila Pery, west of Beira, southern Portuguese East Africa.

LEPUS EUROPAEUS KHANENSIS Roberts, 1946

1946. *Lepus saxatilis khanensis* Roberts, Ann. Transv. Mus. *20:* 324. Onguati Farm, the foot of Eronga Mountain, Khan River, near Karibib, South-West Africa.

LEPUS EUROPAEUS ORANGENSIS Kolbe, 1948

1948. *Lepus saxatilis orangensis* Kolbe, Ann. Transv. Mus. *21:* 71. Beestekraal, Hoopstad district, north-western Orange Free State.

Lepus monticularis Thomas, 1903 Bushman Hare. Vleihaas

Distribution: known from Deelfontein and the region east of Calvinia in the Karroo district of central Cape Province.

LEPUS MONTICULARIS Thomas, 1903

1903. *Lepus monticularis* Thomas, Ann. Mag. N.H. *11:* 78. Deelfontein, north of Richmond, Cape Province.

Genus **PRONOLAGUS** Lyon, 1904

1904. *Pronolagus* Lyon, Smithson. Misc. Coll. *45:* 416. *Lepus crassicaudatus* I. Geoffroy.
1932. *Poëlagus* St. Leger, P.Z.S. 119. *Lepus marjorita* St. Leger, from Uganda. Valid as a subgenus.

Roberts is of opinion that the name *crassicaudatus* Geoffroy was based on the large eastern species formerly called *P. ruddi*. This is accepted, and consequently *P. rupestris* A. Smith, 1834, seems the prior name for the smaller species.

1. Occipitonasal length of skull usually below 80 mm. (the largest skull quoted by Roberts is 84.6 mm.). (Bullae not very reduced.)
Pronolagus rupestris, page 221
Occipitonasal length rarely below 85 mm. (only one skull quoted by Roberts is under 87 mm.). ——2

2. Bullae very small; normally less than one tenth of the occipitonasal length.
Pronolagus crassicaudatus, page 219
Bullae more normal, more than one tenth of the occipitonasal length on average.
Pronolagus randensis, page 220

Subgenus *PRONOLAGUS* Lyon, 1904

Pronolagus crassicaudatus I. Geoffroy, 1832

Natal Red Hare. Natalse Rooihaas

Distribution: Natal, including Durban, Dargle, Zululand; Legogot (near White River) south-eastern Transvaal, the eastern Cape Province, Albany district, the Amatola Mountains (near Stutterheim), Griqualand East and Bathurst district.

PRONOLAGUS CRASSICAUDATUS CRASSICAUDATUS I. Geoffroy, 1832

1832. *Lepus crassicaudatus* I. Geoffroy, Mag. Zool. Paris, *2:* cl. 1, pl. 9 and text. "Port Natal" (= Durban), Natal.

PRONOLAGUS CRASSICAUDATUS RUDDI Thomas & Schwann, 1905

1905. *Pronolagus ruddi* Thomas & Schwann, Abstr. P.Z.S., No. 18, 23: P.Z.S. *1:* 272. Sibudeni (about 20 miles north-west of Eshowe), Zululand. Ranges to Legogot, south-eastern Transvaal.

PRONOLAGUS CRASSICAUDATUS KARIEGAE Hewitt, 1927

1927. *Pronolagus ruddi kariegae* Hewitt, Rec. Albany Mus. *3:* 433. Kariega River, Bathurst district, eastern Cape Province. Probable range includes Griqualand East and Albany district.

PRONOLAGUS (?) CRASSICAUDATUS BOWKERI Hewitt, 1927

1927. *Pronolagus crassicaudatus bowkeri* Hewitt, Rec. Albany Mus. *3:* 437. Gaika's Kop, Amatola Mountains, near Stutterheim, eastern Cape Province.

PRONOLAGUS CRASSICAUDATUS LEBOMBO Roberts, 1936

1936. *Pronolagus ruddi lebomboensis* Roberts, Ann. Transv. Mus. *18:* 173. Misspelling of *lebombo*, but a *nomen nudum*.

1936. *Pronolagus ruddi lebombo* Roberts, Ann. Transv. Mus. *18:* 240. Ubombo, Lebombo Mountains, north-eastern Zululand, Natal.

Pronolagus randensis Jameson, 1907

Rand Red Hare. Johannesburgse Rooihaas

Distribution: the Transvaal, from Parys (extreme northern Orange Free State) to the Zoutpansberg, including Rustenburg district, Johannesburg, Potgietersrust, etc. (There is said to be a *Pronolagus* at Shingwedzi, Kruger National Park.) North of the Union, Gaberones in south-eastern Bechuanaland; South-West Africa, from Damaraland to Grootfontein, the Kaokoveld, etc.

PRONOLAGUS RANDENSIS RANDENSIS Jameson, 1907

1907. *Pronolagus ruddi randensis* Jameson, Ann. Mag. N.H. *20:* 404. Observatory, Johannesburg, Transvaal. Range: from Parys to Pretoria and westwards to Koster, Transvaal.

PRONOLAGUS RANDENSIS POWELLI Roberts, 1924

1924. *Pronolagus randensis powelli* Roberts, Ann. Transv. Mus. *10:* 75. Rooikrans, Rustenburg district, western Transvaal. Ranges to Gaberones, south-eastern Bechuanaland.

PRONOLAGUS RANDENSIS MAKAPANI Roberts, 1924

1924. *Pronolagus randensis makapani* Roberts, Ann. Transv. Mus. *10:* 75. Makapan's Caves, near Potgietersrust, northern central Transvaal.

PRONOLAGUS RANDENSIS CAPRICORNIS Roberts, 1926

1926. *Pronolagus randensis capricornis* Roberts, Ann. Transv. Mus. *11:* 262. Newgate, on the Zoutpansberg above Wylie's Poort, northern Transvaal.

PRONOLAGUS RANDENSIS CAUCINUS Thomas, 1929

1929. *Pronolagus caucinus* Thomas, P.Z.S. 109. Karibib, 100 miles N.W. of Windhoek, South-West Africa. Ranges to Windhoek.

PRONOLAGUS RANDENSIS KOBOSENSIS Roberts, 1938

1938. *Pronolagus caucinus kobosensis* Roberts, Ann. Transv. Mus. *19:* 242. Kobos, south-west of Rehoboth, central South-West Africa.

PRONOLAGUS (?) RANDENSIS FITZSIMONSI Roberts, 1938

1938. *Pronolagus caucinus fitzsimonsi* Roberts, Ann. Transv. Mus. *19:* 242. Barby Farm, 25 miles west of Helmeringshausen, Great Namaqualand, South-West Africa.

Possibly a form of *rupestris:* based apparently on one specimen, the skull of which is smaller than is normal in *randensis*.

PRONOLAGUS RANDENSIS KAOKOENSIS Roberts, 1946

1946. *Pronolagus kobosensis kaokoensis* Roberts, Ann. Transv. Mus. *20:* 324. Kamanjab, Kaokoveld, northern South-West Africa.

Pronolagus rupestris A. Smith, 1834

Smith's Red Hare. Smithse Rooihaas

Distribution: Natal, including Ladysmith and Estcourt; the Transvaal, near Wakkerstroom; Orange Free State, Boshof, Fauresmith, etc. In the Cape Province, Vryburg, the Aughrabies Falls, Louisvale (near Upington), Little Namaqualand (near Steinkopf, Springbok, the Kamiesberg), Klaver, Van Rhynsdorp, Clanwilliam, Wolseley, Grahamstown, Rosmead (near Middelburg), Deelfontein, etc. South-West Africa; there is a specimen in London from Great Brukaros Mountain, near Berseba, Great Namaqualand. Vumba, Southern Rhodesia. Nyasaland. (A *Pronolagus* has been recorded from Northern Rhodesia.) Beyond the limits of this work Kenya (and Swynnerton & Hayman think there is a *Pronolagus* in Tanganyika).

PRONOLAGUS RUPESTRIS RUPESTRIS A. Smith, 1834

1834. *Lepus rupestris* A. Smith, S. Afr. J. *2:* 174. "South Africa, rocky situations." Locality uncertain; Roberts thinks from near Van Rhynsdorp, western Cape Province, in which case *mulleri* will probably be a synonym.

PRONOLAGUS RUPESTRIS MELANURUS Rüppell, 1842

1842. *Lepus melanurus* Rüppell. Mus. Senckenberg. *3:* 137. "Cape Colony"; type locality restricted to Klipfontein (north of Steinkopf), Little Namaqualand by Roberts, 1951.

PRONOLAGUS RUPESTRIS NYIKAE Thomas, 1902

1902. *Oryctolagus crassicaudatus nyikae* Thomas, Ann. Mag. N.H. *10:* 244. Nyika Plateau, at 7,000 ft., northern Nyasaland.

PRONOLAGUS RUPESTRIS CURRYI Thomas, 1902

1902. *Oryctolagus crassicaudatus curryi* Thomas, Ann. Mag. N.H. *10:* 245. Boshof, western Orange Free State. Range: western Orange Free State from Fauresmith and Boshof to Vryburg and probably Upington district, northern Cape Province.

PRONOLAGUS RUPESTRIS SAUNDERSIAE Hewitt, 1927

1927. *Pronolagus crassicaudatus saundersiae* Hewitt, Rec. Albany Mus. *3:* 434. Albany district, eastern Cape Province. (Roberts gives the type locality as Grahamstown, and suggests the Deelfontein specimens may belong with this race.)

PRONOLAGUS RUPESTRIS AUSTRALIS Roberts, 1933

1933. *Pronolagus crassicaudatus australis* Roberts, Ann. Transv. Mus. *15:* 270. Clanwilliam, western Cape Province. Ranges southwards to Wolseley.

PRONOLAGUS RUPESTRIS MULLERI Roberts, 1938

1938. *Pronolagus crassicaudatus mulleri* Roberts, Ann. Transv. Mus. *19:* 243. Klaver, western Cape Province.

PRONOLAGUS RUPESTRIS WHITEI Roberts, 1938

1938. *Pronolagus whitei* Roberts, Ann. Transv. Mus. *19:* 244. Vumba (south of Umtali), eastern Southern Rhodesia.

PRONOLAGUS RUPESTRIS BARRETTI Roberts, 1949

1949. *Pronolagus barretti* Roberts, Ann. Transv. Mus. *21:* 179. Near Matiwane, Ladysmith, Natal. Probably also this race ranges to Wakkerstroom district, south-eastern Transvaal.

ORDER RODENTIA

Small to medium-sized mammals with brain of rather primitive type, the first upper and lower incisors rootless and enlarged, the other front teeth being absent; a long space separates the incisors from the cheekteeth. Fingers and toes normally with claws. Palate well developed. Jaw muscles highly specialized for gnawing, the ascending ramus of the mandible not straight, the masseter muscles reaching and modifying the region of the infraorbital foramen in the skull. The pollex mostly (though not invariably) vestigial. The diet mainly vegetarian.

On this Order see:

TULLBERG, 1899, Ueber das System der Nagethiere, *Nova Acta Reg. Soc. Sci. Upsaliensis, 18,* 1.

ELLERMAN, *The Families and Genera of Living Rodents,* 1940, *1;* 1941, *2;* and 1949, *3.*

MILLER & GIDLEY, 1918, Synopsis of the supergeneric groups of Rodents, *J. Washington Acad. Sci. 8,* 13: 431.

Some previous classifications of the Rodents which occur in South Africa:

TULLBERG, 1899

Tribus: HYSTRICOGNATHI
Subtribus: BATHYERGOMORPHI
Family: Bathyergidae.
Subtribus: HYSTRICOMORPHI
Family: Hystricidae.
Family: "Aulacodidae" = Thryonomyidae.
Family: Petromyidae.

Tribus: SCIUROGNATHI
Subtribus: MYOMORPHI
Sectio: *ANOMALUROIDEA*
Family: Anomaluridae.
Family: Pedetidae.

Sectio: *MYOIDEA*
Subsectio: "*Myoxiformes*"
Family: "Myoxidae" = Muscardinidae.
Subsectio: *Muriformes*
Family: Cricetidae (but South African genus not dealt with).
Family: Muridae.
Subfamily: Murini (included *Dendromus* and *Steatomys*).
Subfamily: Otomyini.
Family: Gerbillidae.
Subtribus: SCIUROMORPHI
Family: Sciuridae.

MILLER & GIDLEY, 1918
Superfamily: SCIUROIDAE
Family: Sciuridae
Superfamily: MUROIDAE
Family: Cricetidae.
Subfamily: Cricetinae.
Subfamily: Gerbillinae.
Family: Muridae.
Subfamily: Dendromyinae.
Subfamily: Murinae.
Subfamily: Otomyinae.
Superfamily: DIPODOIDAE
Family: Graphiuridae (*Graphiurus* only).
Family: Anomaluridae.
Family: Pedetidae.
Superfamily: BATHYERGOIDAE
Family: Bathyergidae.
Superfamily: HYSTRICOIDAE
Family: Hystricidae.
Family: Petromyidae.
Family: Thryonomyidae.

ELLERMAN, 1940
HYSTRICOMORPHI
BATHYERGOMORPH SERIES
Superfamily: Bathyergoidae.
Family: Bathyergidae.
HYSTRICOMORPH SERIES
Superfamily: Hystricoidae.
Family: Echimyidae.[1]
Subfamily: Petromyinae.
Subfamily: Thryonomyinae.
Family: Hystricidae.

[1] Simpson, 1945, prefers Octodontidae for this group.

ELLERMAN, 1940 [*contd.*]

SCIUROGNATHI
- SCIUROMORPH SERIES
  - Superfamily: Sciuroidae.
    - Family: Sciuridae.
- MYOMORPH SERIES
  - Superfamily: Anomaluroidae.
    - Family: Anomaluridae.
  - Superfamily: Pedetoidae.
    - Family: Pedetidae.
  - Superfamily: Muroidae.
    - Family: Muscardinidae.
      - Subfamily: Graphiurinae.
    - Family: Muridae.
      - Subfamily: Murinae.
      - Subfamily: Dendromyinae.
      - Subfamily: Otomyinae.
      - Subfamily: Cricetinae.
      - Subfamily: Gerbillinae.

SIMPSON, 1945

Suborder: SCIUROMORPHA
- Superfamily: Sciuroidea.
  - Family: Sciuridae.

?SCIUROMORPHA *incertae sedis.*
- Superfamily: Anomaluroidea.
  - Family: Anomaluridae.

?ANOMALUROIDEA *incertae sedis.*
- Family: Pedetidae.

Suborder: MYOMORPHA
- Superfamily: Muroidea.
  - Family: Cricetinae.
    - Subfamily: Cricetinae.
    - Subfamily: Gerbillinae.
  - Family: Muridae.
    - Subfamily: Murinae.
    - Subfamily: Dendromurinae.
    - Subfamily: Otomyinae.
- Superfamily: Gliroidea.
  - Family: Gliridae.[1]
    - Subfamily: Graphiurinae.

Suborder: HYSTRICOMORPHA
- Superfamily: Hystricoidea.
  - Family: Hystricidae.

[1] Here called Muscardinidae.

Superfamily: Octodontoidea.
Family: Thryonomyidae.
Family: Petromyidae.

?HYSTRICOMORPHA *incertae sedis*.
Superfamily: Bathyergoidea.
Family: Bathyergidae.

ROBERTS, 1951

Suborder: HYSTRICOMORPHA
Family: Hystricidae.
Family: Thryonomyidae.
Family: Pedetidae.[1]
Family: Petromyidae.

Suborder: SCIUROMORPHA
Family: Sciuridae.

Suborder: DIPODOMORPHA
Family: Muscardinidae.

Suborder: BATHYERGOMORPHA
Family: Bathyergidae.
Subfamily: Bathyerginae.
Subfamily: Georychinae.

Suborder: MYOMORPHA
Family: Gerbillidae.
Family: Otomyidae.
Family: Muridae.
Subfamily: Cricetinae.
Subfamily: Saccostomurinae.
Subfamily: Cricetomyinae.
Subfamily: Dendromurinae.
Subfamily: Petromyscinae.
Subfamily: Murinae.

It is presumed that the characters given for his "suborders" are meant to be for forms south of the Zambezi-Cunene only, because north of that area his key to suborders would not hold for a moment. He has erected a subfamily for each of three aberrant Muridae, *Cricetomys*, *Saccostomus* and *Petromyscus*, but it is premature to accept classification of this nature, distinct as those three genera may be, until the whole subfamily Murinae is revised from all parts of the world.

Some American authors, and others, dislike referring the Thryonomyinae and Petromurinae to an otherwise South American family Octodontidae (or Echimyidae), on account of the fact that they feel African and South American genera cannot be closely allied. *Thryonomys* is a distinct genus and perhaps merits family rank, but the

[1] Follows Thomas, 1896 in placing Pedetidae among the Hystricomorpha (Anomaluridae not dealt with as extralimital to the region covered by him).

same cannot be said of *Petromus*, which is essentially morphologically an Octodont, and these authors usually ignore the fact that if *Petromus* is separable on a subfamily level from South American Octodontidae, it is hard to separate the South African Cricetine genus *Mystromys* even on a generic level from some South American forms which it resembles closely.

1. Lower jaw with the angular process distorted outwards by specialized limb of masseter lateralis superficialis. ——2
   Lower jaw essentially normal, not as just described. ——4

2. Infraorbital foramen not or scarcely transmitting muscle. Animals modified for subterranean life; eyes, ears and tail reduced. Cheekteeth rooted, but relatively simple. Fibula fused with tibia. Zygomatic plate below the small infraorbital foramen. Five hindtoes. Family BATHYERGIDAE, page 227
   Infraorbital foramen much enlarged for muscle transmission. Animals not modified for subterranean life. Fibula not fused with tibia. Zygomatic plate below the large infraorbital foramen, not tilted upwards. (Cheekteeth 4/4.) ——3

3. Body covered with long quills and spines, and tail with many hollow rattling quills. Bullae and paroccipital processes small. In South Africa, nasals enlarged and broadened; tail short; a long crest of hairs on the head. Cheekteeth rooted, with isolated narrow enamel folds on flat crowns in adult. Five hindtoes. Family HYSTRICIDAE, page 236
   Body not covered with spines or quills; tail normal. Either bullae or paroccipital processes enlarged. Nasals less enlarged. Cheekteeth either with thick isolated enamel folds in adult, or relatively simple in pattern. Four or 5 hindtoes. Family OCTODONTIDAE, page 237

4. Cheekteeth rootless and simple. Animal modified for bipedal saltatorial life, with long hindlimbs and tail; four hindtoes; fibula fused with tibia. Infraorbital foramen very much enlarged, the zygomatic plate below it. Skull specialized, with wide frontals, large mastoids, thickened zygomata. Cheekteeth 4/4. Family PEDETIDAE, page 251
   Cheekteeth rooted and complex. Animals not modified for bipedal saltatorial life, or less so, and with 5 hindtoes (except in the Murine genus *Malacothrix*). Not combining the characters just described. ——5

5. Infraorbital foramen not or scarcely transmitting muscle, the zygomatic plate tilted upwards. Skull with postorbital processes. Tail bushy. Fibula not fused to tibia. Cheekteeth 5/4 or 4/4, their pattern in the upper jaw typically a series of transverse ridges and with cusps at corners. Family SCIURIDAE, page 240
   Infraorbital foramen well open for muscle transmission. Skull with no postorbital processes. ——6

6. Fibula (so far as known) not fused with tibia. Animal arboreal, with (in South Africa) flying membrane attached to sides of body; underside of tail with scaly

outgrowths near base. Upper cheekteeth with wide re-entrant folds. Zygomatic plate below the infraorbital foramen. 4/4 cheekteeth. Jugal long.
Family ANOMALURIDAE, page 250

Fibula (so far as known) fused with tibia. No flying membrane, and no scaly outgrowths on underside of tail. (In the Muscardinidae, Ethiopian members of which resemble the last family in possessing 4/4 cheekteeth and a long jugal, and in having the zygomatic plate below the infraorbital foramen, the pattern of the cheekteeth is entirely different.) ——7

7. Cheekteeth (in Africa) 4/4, crown basin-shaped, usually with cusps at corners, and with weak transverse ridges. South of the Sahara the zygomatic plate is not tilted upwards, and the infraorbital foramen is not very large. Tail bushy. Jugal usually long. Bullae (African forms) large.
Family MUSCARDINIDAE, page 253

Cheekteeth not exceeding 3/3 (except in rare individual abnormalities), their pattern variable but not as just described. Zygomatic plate tilted upwards to a greater or lesser degree. Jugal usually short. Tail usually not bushy.
Family MURIDAE, page 259

FAMILY BATHYERGIDAE

Roberts (1951) divided this family into two subfamilies, restricting the typical one to *Bathyergus* and erecting a subfamily Georychinae to which he referred the other South African genera and to which *Heliophobius* would belong. There is much to be said in favour of this classification, as *Bathyergus* is a relatively generalized form, whereas the excessively long upper incisor roots of the other genera, which extend into the pterygoid region, seem unique in the Rodentia. But if subfamilies are admitted in this family then the aberrant East African *Heterocephalus* should probably be regarded as the type of a third subfamily.

1. Upper incisors heavily grooved, not extending backwards into pterygoid region. foreclaws much enlarged. Angular process of mandible much drawn backwards. Cheekteeth 4/4. Genus *BATHYERGUS*, page 228

Upper incisors not heavily grooved, extending backwards into pterygoid region. Foreclaws not much enlarged. Angular process of mandible not much drawn backwards. ——2

2. Cheekteeth at full dentition 6/6, but the teeth are usually not all in place together, the anterior premolars shed before the posterior molars are cut.
Genus *HELIOPHOBIUS*, page 228

Cheekteeth 4/4. ——3

3. Cheekteeth with one fold each side in the upper series; hindmost molar cut late in life. Black cap on head, white ring round ear, cheeks black, nose white.
Genus *GEORYCHUS*, page 229

Cheekteeth more or less simple, ringshaped in adult; hindmost molar cut earlier. Colour of face different. Genus *CRYPTOMYS*, page 230

Genus **BATHYERGUS** Illiger, 1811

1811. *Bathyergus* Illiger, Prodr. Syst. Mamm. 86. *Mus maritimus* Gmelin = *Mus suillus* Schreber.
1829. *Orycterus* F. Cuvier, Dict. Sci. Nat. *59:* 481. *Mus maritimus* Gmelin = *Mus suillus* Schreber.

All forms are here tentatively regarded as conspecific. The form *janetta* is smaller than other named races of which adults are known.

Bathyergus suillus Schreber, 1782

Cape Sand-Mole or Mole-Rat. Duinmol

Distribution: coastal districts of western Cape Province extending to both sides of the Orange River mouth. Knysna, Cape Town, Franschhoek (near Paarl), Lamberts Bay, Klaver, Little Namaqualand (the Kamiesberg, Port Nolloth), just extending into Great Namaqualand.

BATHYERGUS SUILLUS SUILLUS Schreber, 1782

1782. *Mus suillus* Schreber, Säugth. *4:* 715, pl. 204B. Cape of Good Hope.
1788. *Mus maritimus* Gmelin, Linn. Syst. Nat. ed. 13, *1:* 140. Cape of Good Hope.
1788. *Marmota africana* Thunberg, Resa uti Europa, Africa, Asia, etc. *1:* 293, 318, pl. 1. Cape of Good Hope.

BATHYERGUS SUILLUS JANETTA Thomas & Schwann, 1904

1904. *Bathyergus janetta* Thomas & Schwann, Abstr. P.Z.S. No. 2: 6; P.Z.S. *1:* 180. Port Nolloth, coastal Little Namaqualand, north-western Cape Province.

BATHYERGUS SUILLUS INTERMEDIUS Roberts, 1926

1926. *Bathyergus suillus intermedius* Roberts, Ann. Transv. Mus. *11:* 261. Klaver (northern part of Olifants River), western Cape Province.

BATHYERGUS SUILLUS INSELBERGENSIS Shortridge & Carter, 1938

1938. *Bathyergus janetta inselbergensis* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 290. Eselfontein, approximately 4,400 ft., Kamiesberg, central Little Namaqualand, north-western Cape Province.

BATHYERGUS SUILLUS PLOWESI Roberts, 1946

1946. *Bathyergus janetta plowesi* Roberts, Ann. Transv. Mus. *20:* 315. Orangemund, north of the mouth of the Orange River, Great Namaqualand, South-West Africa.

Genus **HELIOPHOBIUS** Peters, 1846

1846. *Heliophobius* Peters, Ber. Preuss. Akad. Wiss. 259. *Heliophobius argenteocinereus* Peters.
1890. *Myoscalops* Thomas, P.Z.S. 448. Proposed to replace *Heliophobius* which was thought to be preoccupied by *Heliophobus* Boisduval, 1829.

Heliophobius argenteocinereus Peters, 1846 Silvery Mole-Rat

Distribution: Tete, Portuguese East Africa; Nyasaland, Northern Rhodesia; Tanganyika, Kenya and into the Belgian Congo.

Heliophobius argenteocinereus argenteocinereus Peters, 1846

1846. *Heliophobius argenteocinereus* Peters, Ber. Preuss. Akad. Wiss. 259. Tete, on the Zambezi, Portuguese East Africa.

Heliophobius argenteocinereus robustus Thomas, 1906

1906. *Heliophobius robustus* Thomas, Ann. Mag. N.H. *17:* 179. Mpika (east of Lake Bangweulu), eastern Northern Rhodesia.

Heliophobius argenteocinereus angonicus Thomas, 1917

1917. *Heliophobius angonicus* Thomas, Ann. Mag. N.H. *20:* 314. Bua River, Central Angoniland, Nyasaland. "The Bua River rises on the watershed forming the Nyasaland–Northern Rhodesia boundary, and its course is wholly in Nyasaland. That part of the river which is in the former District of Central Angoniland is between 13° 20′ and 13° 55′ S." (Moreau, Hopkins & Hayman, 1946).

Genus **GEORYCHUS** Illiger, 1811

1811. *Georychus* Illiger, Prodr. Syst. Mamm. 87. *Mus capensis* Pallas.
1843. *Georhychus* Wagner, in Schreber, Säugth. Suppl. *3:* 369. Alternative spelling.
1844. *Fossor* Lichtenstein in Forster's Descript. Anim. (edited by Lichtenstein), 364. *Fossor leucops* Lichtenstein = *Mus capensis* Pallas.

Georychus capensis Pallas, 1779 Blesmol or Cape Mole-Rat. Blesmol

Distribution: confined to the Union, mainly to the coastal parts of Cape Province. In the Transvaal known from Belfast, and, according to Shortridge, has been taken at Nottingham Road, Natal. In the Cape Province, Port Elizabeth, Knysna, George, Cape Agulhas, Cape Town district (Hout Bay, Tokai, Rondebosch, etc.), Stellenbosch, Wolseley, the Cedarberg, Citrusdal, Nieuwoudtville. (Shortridge also quotes it from the Bathurst district.)

Georychus capensis capensis Pallas, 1779

1779. *Mus capensis* Pallas, Nov. Spec. Quad. Glir. Ord., 76, 172. Cape of Good Hope.[1]
1834. *Mus buffonii* F. Cuvier, Ann. Sci. Nat. Zool. (2) *1:* 196. Cape of Good Hope.
1844. *Fossor leucops* Lichtenstein in Forster's Descript. Anim. (ed. by Lichtenstein) 364. Cape of Good Hope.

Range: western Cape Province.

[1] For date of publication see Sherborn, 1891, Ann. Mag. N.H. *7:* 236.

GERBILLUS CAPENSIS CANESCENS Thomas & Schwann, 1906

1906. *Georychus capensis canescens* Thomas & Schwann, P.Z.S. 165. Knysna, southern Cape Province.

GERBILLUS CAPENSIS YATESI Roberts, 1913

1913. *Georychus yatesi* Roberts, Ann. Transv. Mus. *4:* 92. Belfast, eastern Transvaal.

Genus **CRYPTOMYS** Gray, 1864

1864. *Cryptomys* Gray, P.Z.S., 124. *Georychus holosericeus* Wagner.
1864. *Coetomys* Gray, P.Z.S., 125. Type here designated as *Bathyergus caecutiens* Brants.
1867. *Typhloryctes* Fitzinger, S.B. Akad. Wiss. Wien, *55*, 1 : 502. Type here designated as *Bathyergus caecutiens* Brants.

1. On average large species; head and body length 175 mm. and more, but only twice under 180 mm. in considerable series. No clear white headspot. Skull length (with incisors) in adult 45–66 mm. (the smallest specimens are from Northern Rhodesia; the species is confined to that country, Angola and the southern Congo). *Cryptomys mechowi*, page 235

   On average smaller species; head and body length only reaches 180 mm. twice in a very long series of skins, both in the form *damarensis*, which has a distinct white headspot. Greatest length of skull with incisors very rarely reaches 45 mm. (only in two races in the measurements given by Roberts, from the Union; both of these have the head and body not exceeding 164 mm.). ——2

2. On average smaller species. In the Union, where it occurs with the next, the greatest length of the male skull (including incisors) only reaches 41 mm. once (*vandami*) and rarely 40 mm. In South-West Africa, where this length may reach 43 mm. (although on average it appears to be below 40 mm.), there is always a distinct white headspot. In the Union, female skulls rarely reach 38 mm. in length. *Cryptomys hottentotus*,[1] page 231

[1] The *Cryptomys hottentotus* group is much oversplit by Roberts in South Africa. There is evidence that in the Union there are two species which may occur together in the Carolina district, the Pretoria district, at Cradock and near Bloemfontein, but the differences are average rather than absolute and difficult to define when all forms are taken into account. The specimens from the Union do not have a white headspot, except in rare individual abnormalities. In South-West Africa there is a very well-marked form *damarensis* (which antedates *holosericeus*), which always has a distinct white headspot. This form seems also to combine the size of *hottentotus* and *holosericeus* in different individuals. But the average seems nearer the former. The white headspot is known to be very variable individually in *bocagei* from Angola. Hill & Carter say it is usually present in that form, but in the British Museum it is usually absent in *bocagei* (distinct in four specimens, vestigial or absent in seventeen). In the original series of *molyneuxi* it is present; but some recently received material of this form (if rightly identified) from the Kabompo district, Northern Rhodesia, shows considerable individual variation in this character. It is present in *beirae* and *darlingi*, according to descriptions in *ovamboensis* and *zimbitiensis*, and in the type of *stellatus;* normally absent in other forms. But this character seems too individually variable to base a species (*damarensis*) on in the absence of correlated cranial characters. We therefore very tentatively define *holosericeus* as above, and restrict it to the Union (and southern Portuguese East Africa), referring the other named forms, all of which in British Museum material have the skull length less than 40 mm. except some individuals of *damarensis* as noted above, to the earliest named *hottentotus* as races. We take no responsibility for the validity of those races of Roberts which we have not placed in synonymy; where that author had several forms occurring close together we have assumed he was dealing with one individually variable form,

On average larger species (practically confined to the Union, and occurring there with the last); the greatest length of male skull is under 40 mm. only in three individuals in the British Museum (two of these, from Estcourt, Natal, may in reality represent the last species). Normally there is no white headspot. Female skull length rarely below 38 mm.

Cryptomys holosericeus, page 234

Cryptomys hottentotus Lesson, 1826

Common Mole-Rat, or Hottentot Mole-Rat Hotnotse Grysmol

Distribution: in the Union, the Transvaal, districts of Waterberg, Pretoria, Johannesburg, Carolina, Hectorspruit, Tzaneen, Woodbush, Leydsdorp, Legogot (near White River), etc. Natal, including west of Durban and Zululand. Bloemfontein district, Orange Free State. In the Cape Province, the Molopo River, Kuruman, Kimberley, Little Namaqualand (near Steinkopf, the Kamiesberg), Nieuwoudtville, many places in the western Province southwards to Paarl, Belville (near Cape Town); George, Knysna, Plettenberg Bay, Uitenhage, King William's Town, Grahamstown, near Kokstad, Cradock, Deelfontein, Matjesfontein. South-West Africa; widely distributed from about the latitudes of Rehoboth and Gobabis northwards; the Kalahari desert; most of the interior of Angola. Salisbury, Vumba, etc. Southern Rhodesia. Beira and Gorongoza districts, Portuguese East Africa. Northern Rhodesia, Nyasaland. Similar forms occur in Tanganyika, Uganda, the Belgian Congo, southern Sudan, northern Nigeria, Togoland.[1]

Cryptomys hottentotus hottentotus Lesson, 1826

1826. *Bathyergus hottentotus* Lesson, Voyage autour du monde, Zool. *1:* 166. Near Paarl (east of Cape Town), south-western Cape Province. ("Vingt lieues de la ville du Cap, près le village de la Pearl, non loin des montagnes de Drackenstein.")

1829. *Bathyergus ludwigii* A. Smith, Zool. J. *4:* 439. South Africa. Cape Town nominated by Roberts (1951, 391).

Range: western Cape Province.

Cryptomys hottentotus caecutiens Brants, 1827

1827. *Bathyergus caecutiens* Brants, Het Geslacht der Muizen, 37. Cape of Good Hope (Knysna, *fide* Roberts, 1951). Melanistic form.

1899. *Georychus exenticus* Trouessart, Cat. Mamm. Viv. Foss. 1338. Error for *caecutiens*.

1906. *Georychus hottentottus* (sic) *talpoides* Thomas & Schwann, P.Z.S., 166. Knysna, southern Cape Province.

(1924. *Cryptomys cradockensis* Roberts, Ann. Transv. Mus. *10:* 73. Cradock, eastern Cape Province. (Not melanistic).)

Range: Cradock, Grahamstown, Plettenberg Bay and Knysna (at the last locality it would appear to occur in two colour phases).

and have placed certain names in synonymy. It is even possible that there is only one very variable species in the Union. It should be borne in mind that the mammary formula is often individually variable in rodents.

[1] It should be noted that (with the exception of *Rattus natalensis* which Mr. D. H. S. Davis tells us occurs there), the small rodents of the Kruger National Park, Transvaal, are not known.

CRYPTOMYS HOTTENTOTUS DAMARENSIS Ogilby, 1838

1838. *Bathyergus damarensis* Ogilby, P.Z.S., 5. Damaraland, South-West Africa.
1898. *Georychus lugardi* de Winton, Ann. Mag. N.H. *1:* 253. Kalahari desert, between Palapye and Lake Ngami, northern Bechuanaland.
1909. *Georychus micklemi* Chubb, Ann. Mag. N.H. *3:* 35. Kataba River, Upper Zambezi, western Northern Rhodesia.

Ranges also into Southern Rhodesia (Matetsi) (Roberts), and southwards to the Molopo River.

CRYPTOMYS HOTTENTOTUS DARLINGI Thomas, 1895

1895. *Georychus darlingi* Thomas, Ann. Mag. N.H. *16:* 239. Salisbury, Southern Rhodesia. Ranges southwards to Mt. Selinda, eastern Southern Rhodesia.

CRYPTOMYS HOTTENTOTUS NIMRODI de Winton, 1897

1897. *Georychus nimrodi* de Winton, P.Z.S. *1896:* 808. Essex Farm, near Bulawayo, Matabeleland, western Southern Rhodesia. On p. 806 de Winton says "a collection of nearly 50 specimens made at Essex Vale, about 1,500 ft., near Bulawayo, Matabeleland". De Winton quotes Selous' (collector's) label as "Essex Farm, Matabeleland" but Essex Farm must be in Essex Vale since Selous' collection was made there.

CRYPTOMYS HOTTENTOTUS BOCAGEI de Winton, 1897

1897. *Georychus bocagei* de Winton, Ann. Mag. N.H. *20:* 323. Hanha, western Angola.
1933. *Georhychus* (sic) *kubangensis* Monard, Bull. Soc. Sci. Nat. Neuchâtel, *57:* 58. Type specimen not designated, probably from Rio Mbalé, southern Angola (Hill & Carter, 1941).

Said to range to the Kaokoveld, South-West Africa.

CRYPTOMYS HOTTENTOTUS WHYTEI Thomas, 1897

1897. *Georychus whytei* Thomas, P.Z.S., 432. Karonga, north-western corner of Lake Nyasa (9° 56′ S., 33° 56′ E., 1,600 ft.), northern Nyasaland.

CRYPTOMYS HOTTENTOTUS AMATUS Wroughton, 1907

1907. *Georychus amatus* Wroughton, Manchester Mem. *51*, 5: 28. Road to Chiwali's, Alala plateau, 4,000 ft. (about 13° 46′ S., 30° 5′ E., *fide* Moreau, Hopkins & Hayman), Northern Rhodesia.

CRYPTOMYS HOTTENTOTUS BEIRAE Thomas, 1908

1908. *Georychus beirae* Thomas, P.Z.S. *1907:* 780. Beira (south of the Zambezi), coastal Portuguese East Africa.

CRYPTOMYS HOTTENTOTUS MOLYNEUXI Chubb, 1908

1908. *Georychus molyneuxi* Chubb, Ann. Mag. N.H. *2:* 451. Loano valley, western Northern Rhodesia. "Loano Valley is the valley of the Lunsemfwa River, extending east from the neighbourhood of Broken Hill to the lowest reaches of the Luangwa River, in an area, that is to say, that no one inspecting the

map would call 'north-western'. Nevertheless the latter, which was just within the border of the obsolete administrative division called 'North-western Rhodesia' (see introduction), is the type-locality intended. Lancaster concurs." (Moreau, Hopkins & Hayman, 1946.)

CRYPTOMYS HOTTENTOTUS JORISSENI Jameson, 1909

1909. *Georychus jorisseni* Jameson, Ann. Mag. N.H. *4:* 466. Waynek, Waterberg district, western Transvaal. (Named after Mr. E. Jorissen of Johannesburg.)

(1924. *Cryptomys transvaalensis* Roberts, Ann. Transv. Mus. *10:* 73. Boekenhoutfontein Farm, 20 miles north of Pretoria, Transvaal.)

Range includes the Rustenburg district, western Transvaal.

CRYPTOMYS HOTTENTOTUS JAMESONI Roberts, 1913

1913. *Georychus jamesoni* Roberts, Ann. Transv. Mus. *4:* 95. Houghton Estate, near Johannesburg, Transvaal.

1913. *Georychus arenarius* Roberts, Ann. Transv. Mus. *4:* 96. Rietondale (East), Pretoria, Transvaal.

(1926. *Cryptomys montanus* Roberts, Ann. Transv. Mus. *11:* 260. Klapperkop, Pretoria, Transvaal.)

CRYPTOMYS HOTTENTOTUS KOMATIENSIS Roberts, 1917

1917. *Georychus komatiensis* Roberts, Ann. Transv. Mus. *5:* 272. Arnhemburg, Carolina, south-eastern Transvaal.

(1917. *Georychus rufulus* Roberts, Ann. Transv. Mus. *5:* 272. Tzaneen, eastern Transvaal.)

(1917. *Georychus vandami* Roberts, Ann. Transv. Mus. *5:* 273. Griffin Mine, Leydsdorp, eastern Transvaal.)

(1917. *Georychus natalensis pallidus* Roberts, Ann. Transv. Mus. *5:* 278. Manetsi River, near Malala, Zoutpansberg district, northern Transvaal. Not of Gray, 1864. (Roberts (1951) makes it a synonym of *vandami*).)

(1926. *Cryptomys melanoticus* Roberts, Ann. Transv. Mus. *11:* 260. Balloon Farm, Makoetsi River, Leydsdorp district, north-eastern Transvaal.)

(1939. *Cryptomys natalensis nemo* G. Allen, Checklist Afr. Mamm. 429. To replace *pallidus* Roberts, preoccupied.)

Range: eastern Transvaal and near Durban, Natal.

CRYPTOMYS HOTTENTOTUS STELLATUS Roberts, 1917

1917. *Georychus stellatus* Roberts, Ann. Transv. Mus. *5:* 272. Komatipoort (near the Portuguese border), eastern Transvaal.

CRYPTOMYS HOTTENTOTUS BIGALKEI Roberts, 1924

1924. *Cryptomys bigalkei* Roberts, Ann. Transv. Mus. *10:* 73. Glen, north of Bloemfontein, Orange Free State. Range: northwards to Parys, and also in the western Orange Free State.

CRYPTOMYS HOTTENTOTUS STREETERI Roberts, 1946

1946. *Cryptomys natalensis streeteri* Roberts, Ann. Transv. Mus. *20:* 316. Hectorspruit (near the southern border of the Kruger National Park) eastern Transvaal. Probable synonym of *komatiensis.*

CRYPTOMYS HOTTENTOTUS OVAMBOENSIS Roberts, 1946

1946. *Cryptomys ovamboensis* Roberts, Ann. Transv. Mus. *20:* 315. Ondongwa, Ovamboland, northern South-West Africa.

CRYPTOMYS HOTTENTOTUS ZIMBITIENSIS Roberts, 1946

1946. *Cryptomys zimbitiensis* Roberts, Ann. Transv. Mus. *20:* 315. Zimbiti, about 20 miles inland from Beira, Portuguese East Africa.

CRYPTOMYS HOTTENTOTUS ZULUENSIS Roberts, 1951

1951. *Cryptomys komatiensis zuluensis* Roberts, Mamm. S. Africa, 396. Lake St. Lucia, Zululand, Natal.

Incertae sedis:

Cryptomys albus (*Georychus albus* Roberts, 1913, Ann. Transv. Mus. *4:* 100). An albino specimen bearing a torn label with the words ". . . nberg, K.K., Jan. 1899". . . most likely Wynberg in the Cape Province.

Cryptomys holosericeus Wagner, 1843

Greater Grey Mole-Rat. Groter Grysmol

Distribution: Bloemhof, Krugersdorp, Pretoria district, Johannesburg, Wakkerstroom, Transvaal; Natal, including Estcourt, Zululand, and Howick district; Vredefort district, Bothaville, Bloemfontein district, Vet River, Modder River, etc., Orange Free State; in the Cape Province, Vryburg, Fourteen Streams, Cradock, Graaff Reinet, and Port St. Johns (Pondoland). Swaziland. Southern Portuguese East Africa. Gaberones, south-eastern Bechuanaland (Transvaal border).

CRYPTOMYS HOLOSERICEUS HOLOSERICEUS Wagner, 1843

1843. *Georhychus holosericeus* Wagner in Schreber, Säugth. Suppl. *3:* 373. Graaff Reinet district (on the eastern Karroo), Cape Province. Roberts quotes a specimen from Cradock, eastern Cape Province.

CRYPTOMYS HOLOSERICEUS NATALENSIS Roberts, 1913

1913. *Georychus natalensis* Roberts, Ann. Transv. Mus. *4:* 94. Wakkerstroom, south-eastern Transvaal. Ranges into the upland districts of Natal, Swaziland, and Carolina, eastern Transvaal.

CRYPTOMYS HOLOSERICEUS ABERRANS Roberts, 1913

1913. *Georychus aberrans* Roberts, Ann. Transv. Mus. *4:* 97. Port St. Johns, Pondoland, coastal eastern Cape Province.

CRYPTOMYS HOLOSERICEUS ANOMALUS Roberts, 1913

1913. *Georychus anomalus* Roberts, Ann. Transv. Mus. *4:* 96. Skinners Court Valley, Pretoria, Transvaal.

1913. *Georychus pretoriae* Roberts, Ann. Transv. Mus. *4:* 99. Skinners Court Valley, Pretoria, Transvaal. (An immature specimen.)

1917. *Georychus palki* Roberts, Ann. Transv. Mus. *6:* 5. Venterskroon, Vaal River, Potchefstroom district, western Transvaal.

CRYPTOMYS HOLOSERICEUS MAHALI Roberts, 1913

1913. *Georychus mahali* Roberts, Ann. Transv. Mus. *4:* 108. Rosslyn, some 5 miles along the railway line N.W. of Pretoria North, Pretoria district, Transvaal. Ranges northwards to Nylstroom, Transvaal.

CRYPTOMYS HOLOSERICEUS VRYBURGENSIS Roberts, 1917

1917. *Georychus vryburgensis* Roberts, Ann. Transv. Mus. *5:* 274. Vryburg, northern Cape Province.

CRYPTOMYS HOLOSERICEUS ORANGIAE Roberts, 1926

1926. *Cryptomys orangiae* Roberts, Ann. Transv. Mus. *11:* 259. Glen, north of Bloemfontein, Orange Free State.

CRYPTOMYS HOLOSERICEUS VETENSIS Roberts, 1926

1926. *Cryptomys vetensis* Roberts, Ann. Transv. Mus. *11:* 259. Taaiboschspruit, Vet River, northern Orange Free State. Roberts (1951) also quotes specimens from Bloemhof, western Transvaal, Fourteen Streams, northern Cape Province, and Gaberones, south-western Bechuanaland.

CRYPTOMYS HOLOSERICEUS JUNODI Roberts, 1926

1926. *Cryptomys junodi* Roberts, Ann. Transv. Mus. *11:* 260. Masiene (a little to the north of the mouth of the Limpopo River), southern Portuguese East Africa. Ranges to northern Zululand.

CRYPTOMYS HOLOSERICEUS LANGI Roberts, 1929

1929. *Cryptomys langi* Roberts, Ann. Transv. Mus. *13:* 119. Karkloof, Howick district, central Natal.

CRYPTOMYS HOLOSERICEUS VALSCHENSIS Roberts, 1946

1946. *Cryptomys holosericeus valschensis* Roberts, Ann. Transv. Mus. *20:* 316. Bothaville, northern Orange Free State.

Cryptomys mechowi Peters, 1881 — Angolan Giant Mole-Rat

Distribution: Angola (all known localities are in the northern two-thirds of Angola according to Hill & Carter) and Northern Rhodesia (Mpika, Ndola, Balovale, south of Lake Bangweulu, etc.) Katanga, southern Belgian Congo.

CRYPTOMYS MECHOWI MECHOWI Peters, 1881

1881. *Georychus mechowii* Peters, S.B. Ges. Naturf. Fr. Berlin, 133. Malange, northern Angola.

1905. *Georychus ansorgei* Thomas & Wroughton, Ann. Mag. N.H. *16:* 175. Coquema (Kukema) River, near Bihé, central Angola.

1921. *Crytomys blainei* Hinton, Ann. Mag. N.H. *7:* 372. Chisongwe, Luando River, 4,000 ft., central Angola.

CRYPTOMYS MECHOWI MELLANDI Thomas, 1906

1906. *Georychus mellandi* Thomas, Ann. Mag. N.H. *17:* 178. Mpika (between Lakes Bangweulu and Nyasa), eastern Northern Rhodesia.

FAMILY HYSTRICIDAE

Genus **HYSTRIX** Linnaeus, 1758

1758. *Hystrix* Linnaeus, Syst. Nat. 10th ed. *1:* 56. *Hystrix cristata* Linnaeus, from Italy.

Hystrix africaeaustralis differs from the related *H. cristata*[1] Linnaeus in having the nasals shorter (average about 53 per cent of the occipitonasal length), although much broadened; from *H. indica* Kerr, 1792 in having the nasals broader. The skull length is about 127–162 mm.

Subgenus *HYSTRIX* Linnaeus, 1758

Hystrix africaeaustralis Peters, 1852 Cape Porcupine. Ystervark

Distribution: in the Union, the Transvaal, Rustenburg district and the Kruger National Park (Toulon, etc.). Natal, including Estcourt and Zululand. Mr. S. Roche writes us, "I have seen porcupine quills in many places on Orange Free State farms." In the Cape Province, De Beers (36 miles west of Kimberley), near Upington, Louisvale, Little Namaqualand (near Steinkopf and the Kamiesberg), near Citrusdal, near Cape Town, Bredasdorp, Deelfontein, Knysna, Plettenberg Bay, Albany district, etc. ("widely distributed in our region but nowhere abundant", Hewitt, 1931, Eastern Province). (These animals are not very common in museums, and perhaps have a wider distribution than is here indicated.) South-West Africa; "everywhere widely distributed except possibly along the coastal edge of the Namib desert" (Shortridge, 1934). Angola; "probably throughout most of Angola" (Hill & Carter); recorded from Chitau, Benguela, Huila, Vila da Ponte, Chimporo, Humbe, Mulondo. Roberts records it from the Chobe River (northern Bechuanaland) and the Matibi district of Southern Rhodesia. Portuguese East Africa; Tete, and north of the Zambezi. Nyasaland. Northern Rhodesia ("ubiquitous, but absent from areas of swamp and marsh" (Pitman, 1934)). Northwards to Tanganyika.

[1] In B.M. material for typical *H. cristata* the nasals average 62 per cent of the occipitonasal length.

HYSTRIX AFRICAEAUSTRALIS AFRICAEAUSTRALIS Peters, 1852

1852. *Hystrix africae australis* Peters, Reise nach Mossambique, Säugeth. 170. Querimba coast (about 10°30′–12° S., 40° 30′ E., sea level), northern Portuguese East Africa. Type locality restricted by Moreau, Hopkins & Hayman, 1946.

1860. *Hystrix capensis* Grill, K. Svenska Vetensk. Akad. Handl. (2), *2:* No. 10, 19. Salt River, near Knysna, southern Cape Province.

1936. *Hystrix africae-australis zuluensis* Roberts, Ann. Transv. Mus. *18:* 240. White Umfolosi River, Zululand, Natal.

FAMILY OCTODONTIDAE

The name Echimyidae was formerly (following Miller & Gidley) used for this family by one of us (Ellerman, 1940), but Simpson (1945) although recognizing both a family Echimyidae and a family Octodontidae in his somewhat oversplit classification of the group, prefers the superfamily name Octodontoidea, and as Octodontidae was the name used by Flower & Lydekker, 1891, and other authors, we here revert to the use of that name.

Cheekteeth simplified, outer side of upper molars with one re-entrant fold. Bullae enlarged, paroccipital processes not so. Five hindtoes. Tail more or less bushy. Incisors not heavily grooved. Skull not heavily ridged.
SUBFAMILY Petromurinae: Genus *PETROMUS*, page 239

Cheekteeth complex, outer side of upper molars with more than one fold. Bullae small, paroccipital processes enlarged. Four hindtoes. Tail not bushy. Incisors thick, the upper ones heavily 3-grooved. Skull massive and powerfully ridged.
SUBFAMILY Thryonomyinae: Genus *THRYONOMYS*, page 237

For comparison with extralimital subfamilies see Ellerman, 1940, *1:* 103. *Thryonomys* is a considerably larger animal than *Petromus*.

SUBFAMILY Thryonomyinae

Genus **THRYONOMYS** Fitzinger, 1867

1827. *Aulacodus* Temminck, Mon. Mamm. *1:* 245. *Aulacodus swinderianus* Temminck. Not of Eschscholtz, 1822.

1867. *Thryonomys* Fitzinger, S.B. Akad. Wiss. Wien, *56*, 1: 141. *Aulacodus semipalmatus* Heuglin = *Aulacodus swinderianus* Temminck.

1896. *Triaulacodus* Lydekker, Geogr. Hist. Mamm. 91 and 240, footnote. Substitute for *Aulacodus*, preoccupied.

1922. *Choeromys* Thomas, Ann. Mag. N.H. *9:* 390. *Thryonomys gregorianus* Thomas.

1924. *Chaeromys* Sclater, Zool. Record, Mamm. *59:* 50. Misprint.

Skull considerably arched anteriorly. *Thryonomys swinderianus*, page 238
Skull not much arched anteriorly. *Thryonomys gregorianus*, page 238

Thryonomys swinderianus Temminck, 1827

Great Cane-Rat. Rietrot; Rietmuis

Distribution: in the Union, the Kruger National Park (Toulon and other localities) Pretoria, Woodbush, the Limpopo, Transvaal; Zululand; and parts of the eastern Cape Province westwards at least to Albany and Bathurst districts. Portuguese East Africa, districts of Beira, Gorongoza, Tete, and north of the Zambezi; Southern Rhodesia, Ngamiland and in South-West Africa, the swamps of the Okavango, the eastern Caprivi, and the reedbeds of the Upper Cunene, above the Rua Cana Falls (Shortridge, 1934). Angola ("it is an animal of the swamp and riverbank and probably occurs wherever these environments are found in Angola" (Hill & Carter)). Nyasaland, Northern Rhodesia. In East Africa northwards to Kenya, Uganda and the southern Sudan, and in West Africa from the Belgian Congo to Senegal.

THRYONOMYS SWINDERIANUS Temminck, 1827

1827. *Aulacodus swinderianus* Temminck, Mon. Mamm. *1:* 248. Sierra Leone, West Africa (Thomas, 1922, Ann. Mag. N.H. *9:* 391).

1922. *Thryonomys swinderianus variegatus* Thomas, Ann. Mag. N.H. *9:* 391. Tete, on the Zambezi, Portuguese East Africa (restricted by Roberts, 1951: 348). (Thomas quoted *Aulacodus variegatus* Peters, 1852, Reise nach Mossambique, 138, but the name was stillborn since Peters himself says that it was a name which he had in his manuscript but realized before publication that it was a synonym of *swinderianus*, in the synonymy of which he publishes it.)

1922. *Thryonomys swinderianus angolae* Thomas, Ann. Mag. N.H. *9:* 392. Junction of the Luando and Cuje rivers, northern central Angola.

Thryonomys gregorianus Thomas, 1894 Lesser Cane-Rat. Kleinrietrot

Approximate distribution: Nyasaland, Mount Selinda in eastern Southern Rhodesia; further to the north, the Belgian Congo, Kenya, Tanganyika, Uganda to Darfur (Sudan).

THRYONOMYS GREGORIANUS GREGORIANUS Thomas, 1894. (Extralimital)

1894. *Aulacodus gregorianus* Thomas, Ann. Mag. N.H. *13:* 202. Luiji Reru River (about 10–15 miles north of Fort Hall, *fide* Moreau, Hopkins & Hayman), 5,700 ft., Kikuyu Country, Kenya.

THRYONOMYS GREGORIANUS SCLATERI Thomas, 1897

1897. *Thryonomys sclateri* Thomas, P.Z.S., 432. Nyika Plateau, 6,000–7,000 ft., northern Nyasaland. Range includes Mount Selinda, eastern Southern Rhodesia. (G. Allen (1939) made this form a race of *harrisoni* which it antedates by ten years. We think it probable that all these lesser Cane-Rats belong to one species.)

SUBFAMILY Petromurinae

Genus **PETROMUS** A. Smith, 1831

1831. *Petromus* A. Smith, S. Afr. J. *1:* No. 5, 10. *Petromus typicus* A. Smith.
1834. *Petromys* A. Smith, S. Afr. J. *2:* 146. Alternative spelling of *Petromus*.

We do not agree with Simpson (1945, 99), who suggests that *Petromus* in the original publication "may well have been a misprint correctable under the Rules".

Petromus typicus A. Smith, 1831 Dassie Rat, or Rock Rat. Dassierot

Distribution: Little Namaqualand (Goodhouse, Klipfontein (north of Steinkopf), O'okiep, Springbok, the Kamiesberg, Garies, Bitterfontein), Kenhardt (British Museum) and the Aughrabies Falls district, north-western Cape Province. South-West Africa; from Great Namaqualand northwards and evidently widely distributed, northwards to the Cunene (or Rua Cana) Falls on the southern border of Angola.

There is a great number of named races based mainly on rather minor colour details. Shortridge thought that there were two species, *typicus* and *cunealis* occurring together in northern South-West Africa; although the latter averages rather larger in size of skull than *typicus*, the colour distinctions between them seem bridged by forms named as races of *typicus* and it seems doubtful if there is a real specific difference between them.

PETROMUS TYPICUS TYPICUS A. Smith, 1831

1831. *Petromus typicus* A. Smith, S. Afr. J. *1:* No. 5, 11. Mountains of Little Namaqualand.

PETROMUS TYPICUS TROPICALIS Thomas & Hinton, 1925

1925. *Petromys typicus tropicalis* Thomas & Hinton, P.Z.S., 241. Karibib (north-westwards of Windhoek), South-West Africa.

PETROMUS TYPICUS CUNEALIS Thomas, 1926

1926. *Petromys cunealis* Thomas, P.Z.S., 307. Cunene (or Rua Cana) Falls, Cunene River, extreme southern Angola. Range includes the Kaokoveld, part of Ovamboland, etc.

PETROMUS TYPICUS MARJORIAE Bradfield, 1936

1936. *Petromys typicus marjoriae* Bradfield, Descr. of new races of Kalahari Birds and Mammals (privately printed and dated Benoni, 26th September, 1935). Reprinted in The Auk, *53:* 131, 1936. Khan River (presumably west of Usakos according to Roberts), Namib desert (inland from Walvis Bay), South-West Africa.

PETROMUS TYPICUS GUINASENSIS Roberts, 1938

1938. *Petromys typicus guinasensis* Roberts, Ann. Transv. Mus. *19:* 240. Guinas Lake, Tsumeb district (north of Grootfontein), Ovamboland, South-West Africa.

PETROMUS TYPICUS WINDHOEKENSIS Roberts, 1938

1938. *Petromys typicus windhoekensis* Roberts, Ann. Transv. Mus. *19:* 240. Neudamm, Government Karakul Farm, Windhoek district, central South-West Africa.

PETROMUS TYPICUS KOBOSENSIS Roberts, 1938

1938. *Petromys typicus kobosensis* Roberts, Ann. Transv. Mus. *19:* 240. Kobos, 45 miles S.W. of Rehoboth, central South-West Africa.

PETROMUS TYPICUS BARBIENSIS Roberts, 1938

1938. *Petromys typicus barbiensis* Roberts, Ann. Transv. Mus. *19:* 241. Barby Farm, Helmeringshausen district, Great Namaqualand, South-West Africa. Roberts also refers specimens from Brukkaros Mountain, near Berseba, Great Namaqualand to this race.

PETROMUS TYPICUS AUSENSIS Roberts, 1938

1938. *Petromys typicus ausensis* Roberts, Ann. Transv. Mus. *19:* 241. Aus (on the border of the Namib desert) (inland from Lüderitz), Great Namaqualand, South-West Africa.

PETROMUS TYPICUS NAMAQUENSIS Roberts, 1938

1938. *Petromys typicus namaquensis* Roberts, Ann. Transv. Mus. *19:* 241. Fifteen miles south-west of Warmbad, southern Great Namaqualand, South-West Africa. Ranges to the Aughrabies Falls district, western Orange River.

PETROMUS TYPICUS KARASENSIS Roberts, 1946

1946. *Petromus typicus karasensis* Roberts, Ann. Transv. Mus. *20:* 314. Kochina Farm, Great Karas Mountains (north of Karasburg), south-eastern Great Namaqualand, South-West Africa.

PETROMUS TYPICUS CINNAMOMEUS Roberts, 1946

1946. *Petromus typicus cinnamomeus* Roberts, Ann. Transv. Mus. *20:* 314. Ariamsvlei, north of the Aughrabies Falls, on road from Upington to Karasburg, near the Cape Province border in South-West Africa.

FAMILY SCIURIDAE

Five genera occur in South Africa. The North American species *Sciurus carolinensis* has been introduced in the Cape Town neighbourhood.

1. Fur bristly. In the hand the middle finger (D 3) is normally dominant. A pale stripe on each side of the body. Occipitonasal length 55–62.9 mm. Lachrymal enlarged. Palate well over half the occipitonasal length (these characters are based on the South African subgenus *Geosciurus*).[1]

Genus *XERUS*, page 249

[1] The subgenus *Geosciurus* agrees with typical *Xerus* in having only 4 upper cheekteeth, but differs in possessing a flankstripe on each side, also in its more hypsodont molars and possibly larger average size. *Xerus* seems distinguishable from the Palaearctic Ground-Squirrels (*Citellus*) mainly by its enlarged lachrymals, wide frontals and bristly fur.

Fur not bristly. In the hand usually the fourth finger (D 4) is dominant (or sometimes D 3 and D 4 are about equal). Lachrymal not enlarged. Palate normally clearly less than half the occipitonasal length. Not combining the characters of the last genus. ——2

2. The infraorbital foramen does not form a canal, and is round and more open than is normal for the family. Large; occipitonasal length (in Angola) 63–67 mm.
Genus *PROTOXERUS*, page 248

The infraorbital foramen is narrow and forms a canal. Occipitonasal length (in region now under discussion) 57.4 mm. and less. ——3

3. The pattern of the cheekteeth is essentially normal, not very different from that figured by Miller, 1912, Cat. Mamm. W. Europe, 903, for *Sciurus vulgaris*.
Genus *HELIOSCIURUS*,[1] page 241

The pattern of the cheekteeth is abnormal; the molars tend to become flat-crowned, with isolated deep re-entrant folds in the adult. ——4

4. The cheekteeth more specialized, with both upper and lower molars more or less flatcrowned in the adult (as figured in Ellerman, 1940, Fam. Gen. Liv. Rodents, *1:* 411). Genus *FUNISCIURUS*, page 247

The cheekteeth less specialized; usually the lower cheekteeth are cuspidate in the adult (but the upper ones are flatcrowned).
Genus *PARAXERUS*, page 243

It should be noted that in the area now under consideration, with the single exception of *Xerus inauris*, it is normal for the orbit (measured from the lachrymal to a point on the posterior zygomatic root just after it leaves the side of the braincase) to be at least one third of the occipitonasal length, and in the majority of specimens of all species more than a third of this length. In this character the South African genera resemble the Flying-Squirrels and Palaearctic Ground-Squirrels, but are quite different from the majority of the Palaearctic and Indomalayan Tree-Squirrels (except *Lariscus hosei*). See also Ellerman, 1949, Fam. Gen. Liv. Rodents, *3:* 5.

Genus **HELIOSCIURUS** Trouessart, 1880

1880. *Heliosciurus* Trouessart, Le Naturaliste, *1:* 292. *Sciurus gambianus* Ogilby.
1916. *Aethosciurus* Thomas, Ann. Mag. N.H. *17:* 271. *Sciurus poensis* A. Smith, from Fernando Po. Valid as a subgenus.

Trouessart designated *Sciurus annulatus* Desmarest as the type. Thomas, 1898, P.Z.S. *1897:* 933, basing himself on Trouessart, and "without making prolonged nomenclatural investigations", also gave *annulatus* as the type. But Thomas later (1909, Ann. Mag. N.H. *3:* 470) rejected *annulatus*, on the grounds that the description is insufficient to identify it with the Gambian Squirrel, that the locality is unknown,

[1] *Heliosciurus* is said to differ from *Sciurus* by the complete or almost complete suppression of the baculum. In South Africa the orbit is clearly longer than in Palaearctic species of *Sciurus*.

and that the type no longer exists. Thomas thereupon selected *gambianus* as the type of *Heliosciurus*. In view of this and the fact that *gambianus* is in current use, and *annulatus* is not, we follow Thomas (1909) and have applied to the International Commission on Zoological Nomenclature for *Heliosciurus* to be placed on the Official List in this sense.

Cheekteeth 5/4. Colour above light red, with blackish central dorsal patch.
Heliosciurus (*Aethosciurus*) *lucifer*,[1] page 243
Cheekteeth 4/4. Colour different and much less striking.
Heliosciurus gambianus, page 242

Subgenus *HELIOSCIURUS* Trouessart, 1880

Heliosciurus gambianus Ogilby, 1835 Sun-Squirrel. Soneekhorinkie

On this species see Ingoldby, 1927. *Some notes on the African squirrels of the genus Heliosciurus*, P.Z.S., 471.

Distribution: Portuguese East Africa, districts of Beira, Gorongoza, also north of the Zambezi, south-eastern Southern Rhodesia, Northern Rhodesia, Nyasaland, Angola (Hill & Carter state that it is present in most of the interior savannah area, but records indicate that it is abundant only in restricted localities). North of the limits of this work, to Abyssinia and the Sudan, and thence westwards to Gambia.

Heliosciurus gambianus gambianus Ogilby, 1835. (Extralimital)

1835. *Sciurus gambianus* Ogilby, P.Z.S., 103. Gambia, probably near Fort St. Mary.

Heliosciurus gambianus mutabilis Peters, 1852

1852. *Sciurus mutabilis* Peters, Ber. Preuss. Akad. Wiss. 273; Reise nach Mossambique, Säugeth., 131. Boror, 17° S., north of the Zambezi, northern Portuguese East Africa. Also recorded from the Petauke district, Northern Rhodesia.

Heliosciurus gambianus shirensis Gray, 1867

1867. *Macroxus shirensis* Gray, Ann. Mag. N.H. *20:* 327. Shire River, southern Nyasaland.

Heliosciurus gambianus rhodesiae Wroughton, 1907

1907. *Funisciurus annulatus rhodesiae* Wroughton, Manchester Mem. *51*, 5: 15. Road to Chewalla's (= Chiwale?) "approximately 13° 46′ S., 30° 5′ E., 4,000 ft., on the path from Serenje Boma to Mkushi Boma, crossing the Alala plateau, which is in Serenje district," Northern Rhodesia. (Moreau, Hopkins & Hayman, 1946.)

[1] The colour distinguishes this species also from other species of its subgenus which were named before it.

HELIOSCIURUS GAMBIANUS BEIRAE Roberts, 1913

1913. *Heliosciurus mutabilis beirae* Roberts, Ann. Transv. Mus. *4:* 78. Zimbiti, near Beira (south of the Zambezi), Portuguese East Africa.

HELIOSCIURUS GAMBIANUS CHIRINDENSIS Roberts, 1913

1913. *Heliosciurus mutabilis chirindensis* Roberts, Ann. Transv. Mus. *4:* 78. Chirinda Forest, Melsetter district, eastern Southern Rhodesia.

HELIOSCIURUS GAMBIANUS LOANDICUS Thomas, 1923

1923. *Heliosciurus rhodesiae loandicus* Thomas, Ann. Mag. N.H. *11:* 521. N'Dalla Tando, northern Angola.

HELIOSCIURUS GAMBIANUS BRAUNI St. Leger, 1935

1935. *Heliosciurus rufobrachiatus brauni* St. Leger, Novit. Zool. *39:* 252. Fazenda Congulu, 800 m., about 65 miles east of Porto Amboin, western central Angola.

HELIOSCIURUS GAMBIANUS VUMBAE Roberts, 1937

1937. *Heliosciurus mutabilis vumbae* Roberts, Ann. Transv. Mus. *19:* 100. Vumba, near the Portuguese border, south-eastern Southern Rhodesia.

Subgenus *AETHOSCIURUS* Thomas, 1916

Heliosciurus lucifer Thomas, 1897 — Nyasa Black and Red Squirrel

Distribution: Nyasaland and Tanganyika.

HELIOSCIURUS LUCIFER Thomas, 1897

1897. *Xerus* (*Paraxerus*) *lucifer* Thomas, P.Z.S., 430. Kombe Forest, Masuku Mountains, 5,500 ft., northern Nyasaland. (On the altitude see Swynnerton & Hayman, 1951, 307.)

Genus **PARAXERUS** Forsyth Major, 1893

1893. *Paraxerus* Forsyth Major, P.Z.S., 189. *Sciurus cepapi* A. Smith (Thomas, 1898, P.Z.S. *1897:* 933).

1918. *Tamiscus* Thomas, Ann. Mag. N.H. *1:* 33. *Sciurus emini* Stuhlmann, from Uganda.

There are 5 upper cheekteeth in this genus and the related *Funisciurus*.

1. A white flankstripe each side of body. (Small species, occipitonasal in South Africa 41 mm. or less). *Paraxerus flavovittis*, page 246
   No white flankstripes. ——2

2. Tail either deep red or deep orange or with these colours in it. Underparts red or orange. (Skull length about 45–52 mm. in adult).
Paraxerus palliatus, page 245
Tail grey, drab or dull. ——3

3. Underparts without deep coloration. Skull about 39–45 mm. (rarely as much as 45 mm.) *Paraxerus cepapi*, page 244
Underparts coloured, rufous orange. Skull about 50 mm.
Paraxerus vincenti,[1] page 245

Paraxerus cepapi A. Smith, 1836 Bush Squirrel. Geelpooteekhorinkie

Distribution: in the Union, the Transvaal, Kruger National Park (Punda Maria, Shingwedzi, Satara, Skukuza, Toulon, etc.), also Klein Letaba, Olifants River, Sabi River (B.M.), and according to Roberts the Rustenburg district. Northern South-West Africa (to about 20° S. (Shortridge, 1934)), northwards to Capelongo, south-western Angola. Northern Bechuanaland; Southern Rhodesia; Portuguese East Africa, districts of Tete, Gorongoza, Beira. Nyasaland, Northern Rhodesia. North of the limits of this work, Tanganyika, the Belgian Congo, and (as nominal races of the form *ochraceus*) Kenya and Abyssinia.

Paraxerus cepapi cepapi A. Smith, 1836

1836. *Sciurus cepapi* A. Smith, Report Exped. Explor. C. Africa, 43. Marico River, Rustenburg district, western Transvaal.

1843. *Sciurus cepate* Gray, List Spec. Mamm. B.M., 140. *Lapsus* for *cepapi*. Range: the Transvaal and into the southern part of Southern Rhodesia.

Paraxerus cepapi yulei Thomas, 1902

1902. *Funisciurus yulei* Thomas, P.Z.S. *1:* 120. Mwenzo, Northern Province, north-eastern Northern Rhodesia (see Swynnerton & Hayman, 1951, 308). Ranges into Tanganyika.

Paraxerus cepapi sindi Thomas & Wroughton, 1908

1908. *Funisciurus cepapi sindi* Thomas & Wroughton, P.Z.S., 543. Tete, on the Zambezi, Portuguese East Africa.

Paraxerus cepapi soccatus Wroughton, 1909

1909. *Paraxerus cepapi soccatus* Wroughton, Ann. Mag. N.H. *3:* 515. Vwaza, Hewe River, northern Angoniland, 10° 52′ S., 33° 27′ E., northern Nyasaland.

[1] The forms "*Aethosciurus*" *vexillarius* (Kershaw, 1923, Tanganyika), *Paraxerus byatti* (Kershaw, 1923, Tanganyika) and *Paraxerus vincenti*, though unquestionably racially distinct from each other, may ultimately be united as a single species. The form *vexillarius* has priority; unfortunately no examples are known with unworn molars. *P. vincenti* is the only one which has the underparts coloured; the others are most reminiscent of *P. cepapi*, but are distinctly larger (type skull of *byatti* about 53.5 mm.).

PARAXERUS CEPAPI QUOTUS Wroughton, 1909.

1909. *Paraxerus cepapi quotus* Wroughton, Ann. Mag. N.H. *3:* 516. Katanga district, southern Belgian Congo. Recorded by Pitman from Ndola, Kafue River, etc., Northern Rhodesia.

PARAXERUS CEPAPI PHALAENA Thomas, 1926

1926. *Paraxerus cepapi phalaena* Thomas, P.Z.S. 296. The forest between Ukuambi and Ondongwa (or Ondonga), Ovamboland, South-West Africa.

PARAXERUS CEPAPI CHOBIENSIS Roberts, 1932

1932. *Paraxerus cepapi chobiensis* Roberts, Ann. Transv. Mus. *15:* 9. Kabulabula, Chobe River, northern Bechuanaland.

PARAXERUS CEPAPI MAUNENSIS Roberts, 1932

1932. *Paraxerus cepapi maunensis* Roberts, Ann. Transv. Mus. *15:* 9. Maun, Tamalakane River, Ngamiland, northern Bechuanaland.

PARAXERUS CEPAPI KALAHARICUS Roberts, 1932

1932. *Paraxerus cepapi kalaharicus* Roberts, Ann. Transv. Mus. *15:* 10. Mabeleapudi, south of Lake Ngami, northern Bechuanaland.

PARAXERUS CEPAPI TSUMEBENSIS Roberts, 1938

1938. *Paraxerus cepapi tsumebensis* Roberts, Ann. Transv. Mus. *19:* 236. Guinas waterhole, Tsumeb district (north of Grootfontein), northern South-West Africa.

PARAXERUS CEPAPI CEPAPOIDES Roberts, 1946

1946. *Paraxerus cepapi cepapoides* Roberts, Ann. Transv. Mus. *20:* 316. Zimbiti, near Beira (south of the Zambezi), Portuguese East Africa.

PARAXERUS CEPAPI BORORENSIS Roberts, 1946

1946. *Paraxerus cepapi bororensis* Roberts, Ann. Transv. Mus. *20:* 317. Namabieda, Boror, north of the Zambezi, Portuguese East Africa.

Paraxerus vincenti Hayman, 1950 Vincent's Squirrel

Distribution: Northern Portuguese East Africa.

PARAXERUS VINCENTI Hayman, 1950

1950. *Paraxerus vincenti* Hayman, Ann. Mag. N.H. *3:* 263. Namuli Mtn., 15° 21′ S., 37° 4′ E., north of the Zambezi, Portuguese East Africa.

Paraxerus palliatus Peters, 1852

South African Red Squirrel. Rooieekhorinkie

Distribution: Zululand (St. Lucia Bay and Eshowe); Portuguese East Africa, districts of Inhambane and Beira; Southern Rhodesia (Melsetter); Nyasaland; further to the north Tanganyika, Zanzibar, Kenya and Italian Somaliland.

PARAXERUS PALLIATUS PALLIATUS Peters, 1852

1852. *Sciurus palliatus* Peters, Ber. Preuss. Akad. Wiss., 273. "Quintangonha." Mainland near Mozambique Island (Moreau, Hopkins & Hayman, 1946), Portuguese East Africa.

PARAXERUS PALLIATUS ORNATUS Gray, 1864

1864. *Sciurus ornatus* Gray, P.Z.S., 13. Ngoye Forest, Eshowe district, Zululand, Natal.

PARAXERUS PALLIATUS SPONSUS Thomas & Wroughton, 1907

1907. *Funisciurus sponsus* Thomas & Wroughton, P.Z.S., 292. Coguno, Inhambane district, southern Portuguese East Africa. Ranges northwards to Beira district.

PARAXERUS PALLIATUS SWYNNERTONI Wroughton, 1908

1908. *Funisciurus palliatus swynnertoni* Wroughton, Ann. Mag. N.H. *1:* 305. Chirinda Forest, Melsetter district, eastern Southern Rhodesia.

PARAXERUS PALLIATUS BRIDGEMANI Dollman, 1914

1914. *Paraxerus bridgemani* Dollman, Ann. Mag. N.H. *14:* 152. Induk (or Indook), 700 ft., Panda, Portuguese East Africa. (Panda is a region inland from Inhambane.) Also recorded from Tanganyika.

PARAXERUS PALLIATUS AURIVENTRIS Roberts, 1926

1926. *Paraxerus cepapi auriventris* Roberts, Ann. Transv. Mus. *11:* 250. Magudi, lower Limpopo area, southern Portuguese East Africa.

PARAXERUS PALLIATUS TONGENSIS Roberts, 1931

1931. *Paraxerus sponsus tongensis* Roberts, Ann. Transv. Mus. *14:* 229. Mangusi Forest, north-eastern Zululand, Natal.

Paraxerus flavovittis Peters, 1852 — Eastern Striped Squirrel

Distribution: northern Portuguese East Africa, Tanganyika, Kenya.

PARAXERUS FLAVOVITTIS FLAVOVITTIS Peters, 1852

1852. *Sciurus flavovittis* Peters, Ber. Preuss. Akad. Wiss., 274. Mossimboa, 11° S., coast of northern Portuguese East Africa (designated by Thomas, 1919, Ann. Mag. N.H. *4:* 32).

1852. *Sciurus flavivittis* Peters, Reise nach Mossambique, Säugeth., 129. (Emendation or *lapsus.*)

PARAXERUS FLAVOVITTIS MOSSAMBICUS Thomas, 1919

1919. *Paraxerus flavivittis mossambicus* Thomas, Ann. Mag. N.H. *4:* 31. Lumbo (about 15° S.), coast of northern Portuguese East Africa.

Genus **FUNISCIURUS** Trouessart, 1880

1880. *Funisciurus* Trouessart, Le Naturaliste, *1:* 293. *Sciurus isabella* Gray, the Cameroon Mountains race of *Sciurus lemniscatus* Leconte, from Gabon.

The type species, *F. lemniscatus*, differs from the species here dealt with in its longitudinally striped back.

1. Limbs reddish. *Funisciurus pyrrhopus*, page 248
   Limbs not reddish. ——2

2. A bright whitish flankstripe on each side. *Funisciurus congicus*, page 247
   The flankstripes obsolete. *Funisciurus bayoni*,[1] page 248

Funisciurus congicus Kuhl, 1820

Western Striped Squirrel. Gestreepte Eekhorinkie

Distribution: northern South-West Africa, from Kovares (about the latitude of the Etosha Pan) and western Ovamboland (the forest belt between Ondongwa and Ukuambi) northwards (Shortridge, 1934). Western Angola, where apparently widely distributed. The Belgian Congo, Gabon.

FUNISCIURUS CONGICUS CONGICUS Kuhl, 1820

1820. *Sciurus congicus* Kuhl, Beitr. Zool. *2:* 66. "Congo." Thomas, 1916, Ann. Mag. N.H. *18:* 237, notes that Kuhl's type agrees absolutely with the form in northern Angola.
1843. *Sciurus praetextus* Wagner in Schreber, Säugth. Suppl. *3:* 216. No locality.
1904. *Funisciurus congicus olivellus* Thomas, Ann. Mag. N.H. *13:* 410. Cunga (south of Loanda) north-western Angola.

FUNISCIURUS CONGICUS FLAVINUS Thomas, 1904

1904. *Funisciurus congicus flavinus* Thomas, Ann. Mag. N.H. *13:* 411. Capangombe (near Mossamedes), south-western Angola.

FUNISCIURUS CONGICUS OENONE Thomas, 1926

1926. *Funisciurus congicus oenone* Thomas, P.Z.S., 297. Cunene (or Rua Cana) Falls, extreme southern Angola. Range includes the Kaokoveld, South-West Africa.

FUNISCIURUS CONGICUS DAMARENSIS Roberts, 1938

1938. *Heliosciurus* (sic) *congicus damarensis* Roberts, Ann. Transv. Mus. *19:* 236. Guinas waterhole, Tsumeb district (north of Grootfontein), northern South-West Africa.

[1] In a general way this may represent *F. leucogenys* Waterhouse, 1842 (Fernando Po), several forms of which are thought to occur with *pyrrhopus* in many parts of western and central Africa. But some recently received material for *bayoni* suggests that it is too small to be placed as a race of *leucogenys* (occipitonasal length 40.6–42.5 mm. in *bayoni*, (49.4 mm. in a specimen of *leucogenys* from Fernando Po)).

Funisciurus bayoni Bocage, 1890 Bayon's Squirrel

Distribution: northern Angola.

FUNISCIURUS BAYONI Bocage, 1890

1890. *Sciurus bayoni* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *2:* 3. Duque de Bragança, northern Angola. Recently recorded by Hayman from the Dundo district, north-eastern Angola (about 7° 20′ S., 20° 45′ E.).

Funisciurus pyrrhopus F. Cuvier, 1842 Red-footed Squirrel

Distribution: northern Angola; and from the Belgian Congo approximately westwards to Sierra Leone.

FUNISCIURUS PYRRHOPUS PYRRHOPUS F. Cuvier, 1842. (Extralimital)

1842. *Sciurus pyrrhopus* F. Cuvier, in Geoffroy & Cuvier, H.N. Mamm. *4:* Tab. Gén. 4. Fernando Po.

FUNISCIURUS PYRRHOPUS PEMBERTONI Thomas, 1904

1904. *Funisciurus pembertoni* Thomas, Ann. Mag. N.H. *14:* 201. Dondo, Cuanza River, north-western Angola. The type and only specimen available for examination is juvenile, and looks like an immature specimen of *F. p. akka* (de Winton, 1899, from the Belgian Congo).

Genus **PROTOXERUS** Forsyth Major, 1893

1893. *Protoxerus* Forsyth Major, P.Z.S. 189. *Sciurus stangeri* Waterhouse (Thomas, 1898, P.Z.S. *1897:* 933).

1909. *Myrsilus* Thomas, Ann. Mag. N.H. *3:* 470. *Macroxus aubinnii* Gray, from the Gold Coast. Not of Stål, 1865.

1953. *Allosciurus* Conisbee, Genera and subgenera of recent mammals, 7. Replaces *Myrsilus* Thomas. Valid as a subgenus.

Subgenus *PROTOXERUS* Forsyth Major, 1893

Protoxerus stangeri Waterhouse, 1843 African Giant Squirrel

Distribution: Northern Angola, recorded as far southwards as Hanha. North of the limits of this work, Kenya, Uganda, the Belgian Congo and thence westwards to Sierra Leone.

This species has 4 upper cheekteeth.

PROTOXERUS STANGERI STANGERI Waterhouse, 1843. (Extralimital)

1843. *Sciurus stangeri* Waterhouse, P.Z.S., *1842:* 127. Fernando Po.

PROTOXERUS STANGERI LOANDAE Thomas, 1906

1906. *Sciurus stangeri loandae* Thomas, Ann. Mag. N.H. *18:* 295. Canhoca, western Angola.

Genus **XERUS** Ehrenberg, 1833

1833. *Xerus* Ehrenberg in Hemprich & Ehrenberg, Symb. Phys. Mamm. *1:* folio ee. *Sciurus* (*Xerus*) *brachyotis* Ehrenberg = *Sciurus rutilus* Cretzschmar, from Abyssinia.
1834. *Geosciurus* A. Smith, S. Afr. J. *2:* 128. *Xerus capensis* (Kerr) = *Sciurus inauris* Zimmermann. Valid as a subgenus.
1842. *Spermosciurus* Lesson, Nouv. Tabl. Règne Anim. Mamm. 110. *Sciurus rutilus* Cretzschmar.
1909. *Euxerus* Thomas, Ann. Mag. N.H. *3:* 473. *Sciurus erythropus* Desmarest[1] probably from Senegal. Valid as a subgenus.

Subgenus *GEOSCIURUS* A. Smith, 1834

The characters of this subgenus have already been pointed out, page 240.

Orbit normally rather less than a third of the occipitonasal length. Incisors white. *Xerus* (*Geosciurus*) *inauris*, page 249
Orbit normally more than a third of the occipitonasal length. Incisors pigmented. *Xerus* (*Geosciurus*) *princeps*, page 250

Xerus inauris Zimmermann, 1780

Cape Bristly Ground Squirrel. Waaierstertmeerkat

Distribution: in the Union, the western Transvaal (near Schweizer Reneke, near Christiana); the Orange Free State, near Wepener, between Ventersburg and Winburg, Vredefort district, Renoster River district and other localities; in the Cape Province, near Vryburg, De Beers estate (west of Kimberley) where it is very common, around Kuruman, near Upington, the Aughrabies Falls, Louisvale, between Kakamas and Pofadder, west of Graaff Reinet, Cradock, Deelfontein, Victoria West, Van Wyk's Vlei, near Middelburg, Aliwal North, Burghersdorp, etc. South-West Africa; apparently locally but widely distributed; parts of Great Namaqualand, the Kalahari desert, Gobabis district, parts of Damaraland, to Ngamiland and, according to Roberts, western Southern Rhodesia.

Xerus inauris Zimmermann, 1780

1780. *Sciurus inauris* Zimmermann, Geogr. Gesch. *2:* 344. Kaffirland, 100 miles north of the Cape of Good Hope (based on Pennant).
1788. *Sciurus dschinschicus* Gmelin, Linn. Syst. Nat. ed. 13, *1:* 151. Probably from South Africa. "In Provincia Indiae Dschinschi" (based, as is Shaw's (1801) name, on the "écureuil de Gingi" of Sonnerat).
1792. *Sciurus capensis* Kerr, Anim. Kingd. 266. Karroo north of Sneeuwberg, near Graaff Reinet, eastern Cape Province.

[1] *Sciurus erythropus* Desmarest, 1817, Nouv. Dict. H. N. *10:* 110. This name has been dated from E. Geoffroy, 1803 (Cat. Mamm. Mus. H. N. Paris) but the work was never published, see I. Geoffroy, 1839, Mag. Zool. Paris, *1:* 5.

XERUS INAURIS [*contd.*]

1793. *Sciurus namaquensis* Lichtenstein, Cat. Rer. Nat. 2. Great Namaqualand, west of Fish River, South-West Africa.
1801. *Sciurus ginginianus* Shaw, Gen. Zool. *2:* 147. "Gingi, East Indies" = South Africa.
1801. *Myoxus africanus* Shaw, Gen. Zool. *2:* 172. In mountains of Sneeburgh, 800 (*sic*) miles north of Cape of Good Hope.
1817. *Sciurus albovittatus* Desmarest, Nouv. Dict. H. N. *10:* 110. "Le Cap de Bonne-Espérance", see Desmarest, 1822, Encycl. Méth., Mammalogie, 338.
1820. *Sciurus levaillantii* Kuhl, Beitr. Zool. *2:* 67. "In Africa meridionali."
1822. *Sciurus setosus* Smuts, Enum. Mamm. Cap. 33. Southern part of Cape of Good Hope.

Xerus princeps Thomas, 1929

Kaokoveld Bristly Ground Squirrel. Kaokoveld Waaierstertmeerkat

Distribution: South-West Africa, from Great Namaqualand (Berseba) and Damaraland to the Kaokoveld, and south-western Angola, whence recorded from 101 km. east of Mossamedes.

XERUS PRINCEPS Thomas, 1929

1929. *Geosciurus princeps* Thomas, P.Z.S., 106. Otjitundua, central Kaokoveld, northern South-West Africa.

FAMILY ANOMALURIDAE

Genus **ANOMALURUS** Waterhouse, 1843

1843. *Anomalurus* Waterhouse, P.Z.S. *1842:* 124. *Anomalurus fraseri* Waterhouse, the Fernando Po race of *Pteromys derbianus* Gray.
1843. *Aroaethrus* Waterhouse, *loc. cit.* Provisional substitute for *Anomalurus.*
1914. *Anomalurodon* Matschie, S.B. Ges. Naturf. Fr. Berlin, 350. *Anomalurus auzembergeri* Matschie, a probable synonym of *Pteromys* (*Anomalurus*) *peli* Schlegel & Müller, from the Gold Coast.
1914. *Anomalurella* Matschie, *loc. cit.* 351. *Anomalurus pusillus* Thomas, from the Belgian Congo.

See Rümmler, 1933, S.B. Ges. Naturf. Fr. Berlin, 389.

The correct name for the common species in this genus would appear to be *Anomalurus derbianus* Gray (December, 1842), which antedates *A. fraseri* Waterhouse (January, 1843).

Anomalurus derbianus, Gray, 1842 Common Scalytail

Distribution: north-western Angola, Northern Rhodesia, and Boror (north of the Zambezi in Portuguese East Africa (Transvaal Museum)). North of the limits of this work, Tanganyika, Uganda and thence westwards to Sierra Leone.

ANOMALURUS DERBIANUS DERBIANUS Gray, 1842. (Extralimital)

1842. *Pteromys derbianus* Gray, Ann. Mag. N.H. *10:* 262. (December, 1842.) Sierra Leone.

ANOMALURUS DERBIANUS CINEREUS Thomas, 1895

1895. *Anomalurus cinereus* Thomas, Ann. Mag. N.H. *15:* 188. Upper Rovuma River, towards Lake Nyasa, Songea district, southern Tanganyika. Specimens in the Transvaal Museum from Boror (north of the Zambezi) Portuguese East Africa.

ANOMALURUS DERBIANUS NEAVEI Dollman, 1909

1909. *Anomalurus neavei* Dollman, Ann. Mag. N.H. *3:* 351. Kambove, Katanga, southern Belgian Congo. Recorded from Ndola, Northern Rhodesia and Lunda, N. E. Angola (Hayman).

ANOMALURUS DERBIANUS JORDANI St. Leger, 1935

1935. *Anomalurus jacksoni jordani* St. Leger, Novit. Zool. *39:* 251. Congulu, inland from Porto Amboim, north-western Angola (See Hill & Carter, 1941).

FAMILY PEDETIDAE

Genus **PEDETES** Illiger, 1811

1778. *Yerbua* Forster, K. Svenska Vetensk. Akad. Handl. *39:* 108, in part. We have asked the International Commission on Zoological Nomenclature to suppress this name, since it is not in current use and antedates one of six well-known generic names, depending on which of its species is selected as being the type species.

1811. *Pedetes* Illiger, Prodr. Syst. Mamm. 81. *Dipus cafer* Gmelin = *Mus cafer* Pallas = *Yerbua capensis* Forster.

1816. *Helamys* G. Cuvier, Régne Anim., ed. 1, *1:* 202, footnote. *Mus cafer* Pallas= *Yerbua capensis* Forster.

1821. *Helamis* F. Cuvier, Dict. Sci. Nat. *20:* 341.

1843. *Pedestes* Gray, List Spec. Mamm. B.M., 130.

Pedetes capensis Forster, 1778[1] Springhaas or Spring Hare. Springhaas

Distribution: in the Union, the Transvaal (Kruger National Park, Shingwedzi, etc., Woodbush, Tzaneen, Pietersburg district), the highlands of Natal (Shortridge, 1934), the Orange Free State, including near Wepener, Vredefort district and Aberfeldy (near Harrismith), etc.; Maseru, Basutoland (British Museum); in the Cape Province, De Beers (36 miles west of Kimberley), Kuruman, Louisvale (near Upington), near Graaff Reinet, Deelfontein, Grahamstown, Albany district and Port Elizabeth according to Shortridge (1934). (Hewitt (1931) stated, "very common in sandy districts almost throughout our region (= the Eastern Province); unknown in coastal parts of the Transkei and Pondoland.") South-West Africa;

[1] *Yerbua capensis* Forster, 1778 antedates *Mus cafer* Pallas, 1779 for this species.

distributed throughout the Territory except along the coastal edge of the Namib desert and apparently scarce in central Great Namaqualand (Shortridge, 1934). Ngamiland; Southern Rhodesia (according to Shortridge); the Inhambane district of Portuguese East Africa. Apparently widely distributed in the interior of Angola (Hill & Carter). Northern Rhodesia (Sesheke district, Kafue, etc., British Museum). Beyond the limits of this work, Tanganyika and Kenya.

There seem far too many named subspecies in South Africa.

PEDETES CAPENSIS CAPENSIS Forster, 1778

1778. *Yerbua capensis* Forster, K. Svenska Vetensk. Akad. Handl. *39:* 108. Cape of Good Hope.

1779. *Mus cafer* Pallas, Nov. Spec. Quad. Glir. Ord., 87. Cape of Good Hope. (Pages 1–70 of this work were published in 1778, the rest in 1779). (Sherborn, 1891, Ann. Mag. N.H. *7:* 236.) Cape of Good Hope.

1834. *Pedetes typicus* A. Smith, S. Afr. J. *2:* 169. Eastern districts of Cape Colony. (Renaming of *capensis*).

PEDETES CAPENSIS ORANGIAE Wroughton, 1907

1907. *Pedetes cafer orangiae* Wroughton, Ann. Mag. N.H. *20:* 32. Aberfeldy district (near Harrismith), north-eastern Orange Free State.

PEDETES CAPENSIS SALINAE Wroughton, 1907

1907. *Pedetes cafer salinae* Wroughton, Ann. Mag. N.H. *20:* 32, 33. Woodbush, Pietersburg district, eastern Transvaal.

PEDETES CAPENSIS ANGOLAE Hinton, 1920

1920. *Pedetes angolae* Hinton, Ann. Mag. N.H. *6:* 102. Cholinde (= Cholende), 20 miles north-east of Bihé, central Angola.

PEDETES CAPENSIS DAMARENSIS Roberts, 1926

1926. *Pedetes caffer damarensis* Roberts, Ann. Transv. Mus. *11:* 261. Quickborn Farm, Okahandja district, Damaraland, South-West Africa. Ranges to the Gordonia district (north-western Cape Province), to Ngamiland, and has been recorded from Northern Rhodesia.

PEDETES CAPENSIS FOURIEI Roberts, 1938

1938. *Pedetes cafer fourei* Roberts, Ann. Transv. Mus. *19:* 242 and 1946, *loc. cit. 20:* 314 (described as a new subspecies in both places). Itota Pan, 40 miles south of Ondonga, Ovamboland, northern South-West Africa.

PEDETES CAPENSIS ALBANIENSIS Roberts, 1946

1946. *Pedetes cafer albaniensis* Roberts, Ann. Transv. Mus. *20:* 313. Committees Drift, Great Fish River, Albany district, south-eastern Cape Province.

FAMILY MUSCARDINIDAE

For continued use of this name instead of Gliridae for this family see Ellerman & Morrison-Scott, 1951, 541. One valid genus occurs south of the Sahara.

SUBFAMILY Graphiurinae

Genus **GRAPHIURUS** Smuts, 1832

1832. *Graphiurus* Smuts, Enum. Mamm. Cap., 32. *Graphiurus capensis* Smuts = *Sciurus ocularis* A. Smith.
1888. *Claviglis* Jentink, Notes Leyden Mus. *10:* 41. *Claviglis crassicaudatus* Jentink, from Liberia. Valid as a subgenus.
1925. *Gliriscus* Thomas & Hinton, P.Z.S., 232. *Graphiurus platyops* Thomas.
1936. *Aethoglis* G. Allen, J. Mamm. *17:* 292. *Graphiurus nagtglasii* Jentink, the Liberian race of *Graphiurus hueti* Rochebrune, from Senegal.

The subfamily Graphiurinae differs from the typical subfamily by having the zygomatic plate not tilted upwards.

On the status of *Aethoglis* see Ellerman, 1940, 606–607.

Thomas & Hinton erected a genus *Gliriscus* in 1925 for the species *G. platyops*. This was based primarily on the skull being flattened. We doubt if it is anything but a synonym of *Claviglis*. *G. platyops* is distinguishable from *G. murinus* (typical *Claviglis*) by its larger size; but Roberts has recently named a form of restricted *Claviglis* (the smaller subgenus) with a flattened skull (*schneideri*); and the form *angolensis* from Angola is the size of *platyops*, but its skull does not seem to be specially flattened. Therefore it becomes impossible to separate "*Gliriscus*" from *Claviglis* in a satisfactory manner; in fact it is by no means easy, when all forms of the genus are taken into account, to separate *G. platyops* from *G. murinus*, the differences between these two species being much less than hitherto supposed; *murinus* has priority. The only cranial difference between the two groups in Roberts' measurements, the width of the braincase (which is constantly wider in *platyops*) is not borne out in B.M. material. There seem to be two species, one on average larger and the other smaller, that occur in South Africa, sometimes together (as for instance near Pretoria, and at least in one locality in Angola).

1. Colour pattern specialized; underside of tail with striking black line running down the middle, and with white hairs each side of this. A black stripe from eye to ear. Upper premolar very small. Large species, head and body length 129–144 mm., skull length 32.8–37.1 mm. *Graphiurus ocularis*, page 259
Colour pattern less specialized; underside of tail less strikingly coloured; dark eye-ring may be present, but the general colour, including the face, much drabber. Upper premolar usually less reduced. ——2

2. Large species, length of skull 32–36.6 mm. Head and body about 130–150 mm. Hindfoot 21–22 mm. *Graphiurus* (*Claviglis*) *monardi*, page 258
   Smaller species, length of skull reaches 32 mm. in only four individuals in a considerable series (B.M., Roberts, Hill & Carter). Head and body 124 mm. and less. ——3

3. Averages larger; hindfoot 18–23 mm.; the majority of skulls exceed 29 mm. *Graphiurus* (*Claviglis*) *platyops*, page 257
   Averages smaller; hindfoot 14-20 mm. (but rarely over 18 mm. in South Africa, and only once over 19 mm. in measurements available); the majority of the skulls fail to reach 29 mm. *Graphiurus* (*Claviglis*) *murinus*, page 254

Subgenus *CLAVIGLIS* Jentink, 1888

When we read a key to the South African forms like that of Roberts (1951) which starts off "tail thickly haired" or "tail thinly haired" or "tail not so thickly or so thinly haired" it is small wonder that this author listed ten species in the *murinus* group, all of which appear to be conspecific.

Graphiurus murinus Desmarest, 1822

Forest Dormouse. Boswaaierstertmuis

Distribution: in the Union, the Transvaal, including districts of Zoutpansberg, Rustenburg, Pretoria, Klein Letaba, Tzaneen, Barberton, Hectorspruit, Wakkerstroom. Zululand, Durban and Estcourt, Natal. Leribe, Basutoland. In the Cape Province, Kuruman, the Molopo region, Pondoland (Port St. Johns and Ngqeleni), King William's Town, Grahamstown, Knysna and near George. The southern parts of Portuguese East Africa; Southern Rhodesia; the Kalahari, and south-eastern Bechuanaland (Gaberones). In South-West Africa from about the latitude of Gobabis northwards to the Caprivi. South-western and central Angola. Northern Rhodesia and Nyasaland. Beyond the limits of this work similar forms occur in East Africa northwards to the Sudan and British Somaliland, and in West Africa from the Belgian Congo to Asben and probably Senegal.

GRAPHIURUS MURINUS MURINUS Desmarest, 1822

1822. *Myoxus murinus* Desmarest, Encycl. Méth. Mamm. Suppl. 542. Cape of Good Hope.
1825. *Myoxus lalandianus* Schinz, Cuvier's Thierreich, *4:* 393. Renaming of *murinus*.
1829. *Myoxus erythrobronchus* A. Smith, Zool. J. *4:* 438. South Africa.
1842. *Myoxus cineraceus* Rüppell, Mus. Senckenberg. *3:* 136. "Port Natal"=Durban, Natal.
1845. *Myoxus cinerascens* Schinz, Synops. Mamm. *2:* 80. (Emendation).

Range: southern Cape Province to Natal.

GRAPHIURUS MURINUS MICROTIS Noack, 1887

1887. *Eliomys microtis* Noack, Z. Jahrb. *2:* 248. Mpala's, west shore of Lake Tanganyika, in Marungu, 3,900 ft. Belgian Congo. Many specimens, bearing this name in British Museum from Ndola, Northern Rhodesia and Nyasaland.

GRAPHIURUS MURINUS KELLENI Reuvens, 1890

1890. *Eliomys kelleni* Reuvens, Die Myoxidae oder Schlaefer, 35. Damaraland, South-West Africa (but Hill & Carter say it came from the interior of Mossamedes district, south-western Angola).

(1897. *Myoxus* (*Eliomys*) *nanus* de Winton, P.Z.S. *1896:* 799.Mazoe, Mashonaland, eastern Southern Rhodesia).

G. nanus recorded from Petauke by Pitman, and *G. murinus* subsp. stated to be common in huts and houses throughout Northern Rhodesia.

GRAPHIURUS MURINUS JOHNSTONI Thomas, 1898

1898. *Graphiurus johnstoni* Thomas, P.Z.S. *1897:* 934. Zomba, southern Nyasaland.

GRAPHIURUS MURINUS GRISELDA Schwann, 1906

1906. *Graphiurus griselda* Schwann, P.Z.S. 105. Kuruman, northern Cape Province. Has also been recorded from Bulawayo, Southern Rhodesia and Damaraland (but we doubt if it is distinguishable from *nanus* which Roberts makes a synonym of *kelleni*).

GRAPHIURUS MURINUS WOOSNAMI Dollman, 1910

1910. *Graphiurus woosnami* Dollman, Ann. Mag. N.H. *6:* 393. North of Okwa, Kalahari (22° 30′ S., 21° 30′ E., in Bechuanaland). Ranges in part of South-West Africa (Gobabis, Damaraland, etc.), southwards to the Molopo River.

GRAPHIURUS MURINUS ANSORGEI Dollman, 1912

1912. *Graphiurus ansorgei* Dollman, Ann. Mag. N.H. *9:* 317. Tala Kilau, 3,000 ft., Donguena, Mossamedes, south-western Angola.

GRAPHIURUS MURINUS TZANEENENSIS Roberts, 1913

1913. *Graphiurus murinus tzaneenensis* Roberts, Ann. Transv. Mus. *4:* 79. Tzaneen, eastern Transvaal. Ranges northwards to Zoutpansberg, northern Transvaal.

GRAPHIURUS MURINUS PRETORIAE Roberts, 1913

1913. *Graphiurus pretoriae* Roberts, Ann. Transv. Mus. *4:* 79. Little Wonderboom, Pretoria, Transvaal. Range includes Rustenburg district, western Transvaal and Gaberones, south-eastern Bechuanaland.

GRAPHIURUS MURINUS STREETERI Roberts, 1913

1913. *Graphiurus streeteri* Roberts, Ann. Transv. Mus. *4:* 80. Hectorspruit, near southern border of Kruger National Park, eastern Transvaal.

GRAPHIURUS MURINUS TASMANI Roberts, 1929

1929. *Claviglis tasmani* Roberts, Ann. Transv. Mus. *13:* 95. Driefontein Mission Station, near Gwelo, central Southern Rhodesia. Based on one specimen.

GRAPHIURUS MURINUS LITTORALIS Roberts, 1929

1929. *Claviglis littoralis* Roberts, Ann. Transv. Mus. *13:* 97. Masiene, a little north of the mouth of the Limpopo River, southern Portuguese East Africa. Based on one specimen.

GRAPHIURUS MURINUS VANDAMI Roberts, 1929

1929. *Claviglis vandami* Roberts, Ann. Transv. Mus. *13:* 97. Guija, lower Olifants River, southern Portuguese East Africa.

GRAPHIURUS MURINUS ALTICOLA Roberts, 1929

1929. *Claviglis alticola* Roberts, Ann. Transv. Mus. *13:* 98. "Kastrol Nek," Wakkerstroom, south-eastern Transvaal. Roberts (1951) also quoted a specimen from Leribe, Basutoland.

GRAPHIURUS MURINUS ZULUENSIS Roberts, 1931

1931. *Claviglis zuluensis* Roberts, Ann. Transv. Mus. *14:* 229. Ubombo Bush, altitude about 1,500 ft., northern Zululand, Natal. Based on one specimen.

GRAPHIURUS MURINUS CUANZENSIS Hill & Carter, 1937

1937. *Claviglis ansorgei cuanzensis* Hill & Carter, Amer. Mus. Novit. No. 913: 9. Chitau, 4,930 ft., Central Angola.

GRAPHIURUS MURINUS SELINDENSIS Roberts, 1937

1937. *Claviglis murinus selindensis* Roberts, Ann. Transv. Mus. *19:* 100. Mt. Selinda, Melsetter district, eastern Southern Rhodesia. Based on one specimen.

GRAPHIURUS MURINUS SCHNEIDERI Roberts, 1938

1938. *Claviglis schneideri* Roberts, Ann. Transv. Mus. *19:* 237. Okosongomingo, Waterberg, north-central South-West Africa. Based on one specimen, which is the size of *murinus* but has the relatively flattened skull of typical *platyops* and related forms.

GRAPHIURUS MURINUS ETOSCHAE Roberts, 1938

1938. *Claviglis woosnami etoschae* Roberts, Ann. Transv. Mus. *19:* 238. Itota Dune, 40 miles south of Ondonga, Etosha Pan district, Ovamboland, northern South-West Africa.

GRAPHIURUS MURINUS DASILVAI Roberts, 1938

1938. *Claviglis woosnami dasilvai* Roberts, Ann. Transv. Mus. *19:* 238. Ondjiwa, Southern Angola.

Graphiurus platyops Thomas, 1897

Rock Dormouse. Klipwaaierstertmuis

Distribution: in the Union, the Transvaal, including Koster, Pretoria, Woodbush, Carolina; and Little Namaqualand (north of Steinkopf and Port Nolloth). South-West Africa; mountains of Great Namaqualand, Damaraland and the Kaokoveld. Mashonaland, eastern Southern Rhodesia. Angola (common throughout the interior plateau (Hill & Carter)). Northern Rhodesia.

The forms *angolensis* and *eastwoodae* have the skull less flattened than *platyops*, *rupicola*, etc., but it seems reasonable to regard them all as conspecific.

Graphiurus platyops platyops Thomas, 1897

1897. *Graphiurus platyops* Thomas, Ann. Mag. N.H. *19:* 388. Enkeldorn (or Enkeldoorn), Mashonaland, Southern Rhodesia. April, 1897.

Graphiurus platyops angolensis de Winton, 1897

1897. *Graphiurus angolensis* de Winton, Ann. Mag. N.H. *20:* 320. Caconda (inland from Benguela), south-western Angola. September, 1897.

Graphiurus platyops eastwoodae Roberts, 1913

1913. *Graphiurus eastwoodae* Roberts, Ann. Transv. Mus. *4:* 80. Woodbush, eastern Transvaal. Range includes Transvaal localities listed above.

Graphiurus platyops rupicola Thomas & Hinton, 1925

1925. *Gliriscus rupicola* Thomas & Hinton, P.Z.S. 232. Karibib, 3,842 ft. (north-westwards from Windhoek), central South-West Africa.

Graphiurus platyops montosus Thomas & Hinton, 1925

1925. *Gliriscus rupicola montosus* Thomas & Hinton, P.Z.S. 233. Great Brukkaros Mountain, 3,600–5,000 ft., near Berseba in central Great Namaqualand, South-West Africa.

Graphiurus platyops jordani Roberts, 1929

1929. *Gliriscus angolensis jordani* Roberts, Ann. Transv. Mus. *13:* 95. Isoka, north-eastern Northern Rhodesia.

Graphiurus platyops parvulus Monard, 1933

1933. *Graphiurus parvulus* Monard, Bull. Soc. Sci. Nat. Neuchâtel, *57:* 54. Hill & Carter (1941) restricted the type locality to Vila da Ponte, southern Angola. (Other localities, Rio Mbalé and Tumbolé, southern Angola.)

Graphiurus platyops kaokoensis Roberts, 1938

1938. *Gliriscus kaokoensis* Roberts, Ann. Transv. Mus. *19:* 237. Kamanjab, Kaokoveld, northern South-West Africa.

GRAPHIURUS PLATYOPS AUSTRALIS Shortridge & Carter, 1938

1938. *Gliriscus rupicola australis* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 286. Eenriet (about 3,300 ft.), 7 miles north of Steinkopf, Little Namaqualand, north-western Cape Province. Also known from Port Nolloth, Little Namaqualand.

Graphiurus monardi St. Leger, 1936 Monard's Dormouse

Distribution: north-eastern Angola, and Mwinilunga district, Northern Rhodesia.

G. Allen (1939) listed this as a race of *hueti*. But *G. hueti* is a very well-defined species, and *G. monardi* shows no affinity with it at all, but rather appears to be a giant species in the *murinus* group. The character of the comparative shortening of the nasals in *hueti* so that they do not project behind the posterior upper edge of the maxilla is alone sufficient sharply to distinguish *hueti* from all other species in the subgenus *Claviglis*, except *crassicaudatus*. In this respect *monardi* differs markedly from *hueti*.

Skull characters:

G. hueti	*G. monardi*
Nasals parallel, not spatulate. Not extending behind posterior edge of maxillary bone.	Nasals spatulate as in *murinus*. Long, extending well behind posterior edge of maxillary bone.
Bullae short and low, length 7.5–8.4 mm.	Bullae long and well inflated, length 10.3–11 mm.
Palatal foramina shorter, 3.2–3.5 mm.	Palatal foramina longer, 4–4.6 mm.
Toothrow longer, length 5.5–5.9 mm.	Toothrow short, teeth small, length 4–4.3 mm.
Upper incisors flatfronted.	Upper incisors turned inward.

External characters:

Colour of tail; no white in a long series of skins.	Tail; much white, with conspicuous white tip in six skins known.
Hands and feet proportionately large, with long digits and big claws; hindfoot 27–30 mm., longest digit 8 mm.	Hands and feet proportionately small, with short digits and small claws; hindfoot 21–22 mm., longest digit 5.4 mm.
Forefoot 14.5–17.5 mm., longest digit 7 mm.	Forefoot 11.4–12.5 mm., longest digit 4 mm.

GRAPHIURUS MONARDI St. Leger, 1936

1936. *Claviglis monardi* St. Leger, Ann. Mag. N.H. *17:* 465. Fifteen km. above Dala, Chiumbe River, north-eastern Angola.

Subgenus *GRAPHIURUS* Smuts, 1832

Graphiurus ocularis A. Smith, 1829

Black and White Dormouse. Gemsbokmuis

Distribution: has been recorded from north-west of Zeerust, Transvaal; the Orange Free State; in the Cape Province, Little Namaqualand (Klipfontein (north of Steinkopf), the Kamiesberg), Clanwilliam, Klaver, Citrusdal. In 1948 a specimen was caught at Betty's Bay, near Hangklip, east of Cape Town. Deelfontein, Alicedale and Middelburg (Hewitt, 1931). This is a rare species in museums.

GRAPHIURUS OCULARIS A. Smith, 1829.

1829. *Sciurus ocularis* A. Smith, Zool. J. *4:* 439. (May, 1829.) Near Plettenberg Bay east of Knysna), southern Cape Province.

1832. *Graphiurus capensis* Smuts, Enum. Mamm. Cap. 32.

1834. *Graphiurus typicus* A. Smith, S. Afr. J. *2:* 145. Renaming of *ocularis*.

1838. *Graphiurus elegans* Ogilby, P.Z.S., 5. Said to be from Damaraland. Cape of Good Hope?

FAMILY MURIDAE

1. Skull specialized by enlargement of braincase and bullae, and weakening of rostrum, zygoma and mandible; upper incisors (in South African genera) usually grooved. Upper cheekteeth either biserially cuspidate or simple prismatic in pattern (cuspidate in the South African genera). Externally, mostly modified for life in plains or deserts.

SUBFAMILY Gerbillinae, page 314

Skull not specialized exactly in the manner described above; not combining these characters. If the bullae are enlarged and the incisors grooved, then the molars are a series of transverse plates. ——2

2. The upper molars with their laminae separated by folds and the cusps arranged in two longitudinal rows (in Europe, Asia and Africa).

SUBFAMILY Cricetinae, page 313

The upper molars not as just described; their laminae normally tightly packed together; the cusps when present arranged in three longitudinal rows. ——3

3. The molars simply laminate, without traces of cusps; in the upper jaw the third molar is the dominant (and most variable tooth), in the lower jaw the first molar remains dominant. SUBFAMILY Otomyinae, page 306

The molars usually cuspidate; the third upper molar is not, or scarcely, the dominant tooth. ——4

4. The inner row of cusps of the upper molars much reduced, so that there is only one functional inner cusp in the first and second upper molars.[1] M 3/3 much reduced. Except in the genus *Petromyscus*, the upper incisors are grooved.
SUBFAMILY Dendromurinae, page 296
At least two functional inner cusps in the first and second upper molars.
SUBFAMILY Murinae, page 260

SUBFAMILY Murinae

Eighteen genera in South Africa, only nine of which reach the Union.

1. Very large, head and body length 240 mm. and more, hindfoot 63 mm. and more. Tail wholly dark proximally, wholly pale distally. Cheekpouches present. The inner row of cusps of the upper molars (said by Roberts not to be homologous with those of other Murinae) is reduced, and in M 1 with wear the anterointernal cusp is transferred to the second lamina. No posterointernal cusp in M 1 and M 2. Bullae small, palatal foramina very short, far in front of the toothrows. In South Africa, skull length 65–80 mm.
Genus *CRICETOMYS*, page 295
Considerably smaller, head and body below 200 mm., hindfoot not over 43 mm. Colour of the tail different. Not combining the above cranial and dental characters. ——2

2. The foremost space between the pterygoid bones is roofed in by bone. ——3
The foremost space between the pterygoid bones is not roofed in by bone. ——4

3. Fur spiny. Upper incisors not proodont; condylobasal length shorter than occipitonasal length. Genus *ACOMYS*, page 292
Fur not spiny. Upper incisors proodont; condylobasal length at least as long as, usually longer than occipitonasal length. Genus *URANOMYS*, page 292

4. Upper cheekteeth abnormal; M 1 lacks the anterointernal cusp; the posterointernal cusp in M 1 and M 2 is well developed. Cheekpouches are present. ——5
The anterointernal cusp in M 1 is retained. Not known to possess cheekpouches, and not combining the characters as just outlined above. ——6

5. Tail short, normally less than half head and body length. Cusps of cheekteeth in adult weak or obsolete, the pattern tending to simplification. Palatal foramina long, average 20 per cent and more of occipitonasal length. (The hindfoot is short, rarely exceeding 20 mm. although the head and body usually exceeds 100 mm.) Genus *SACCOSTOMUS*, page 294

[1] Dendromurinae; the antero-internal cusp in M 1 is absent. This subfamily is perhaps of less importance than the others recognized here, and is more comparable with the divisions called "tribes" by Simpson (1945). Members of this subfamily are small mice, *Steatomys* being the only one in South Africa which may sometimes have the head and body as much as 100 mm.

Tail not reduced (in South Africa about 82 per cent of head and body). Cusps of cheekteeth in adult strong and angular, the pattern remaining complex. Palatal foramina shortened, 11 per cent of occipitonasal length (South Africa). Genus *BEAMYS*, page 294

6. Fifth finger so reduced that the manus has only three functional digits. ——7
Fifth finger clawed and not so reduced. ——8

7. Upper incisors grooved. Genus *PELOMYS*, page 289
Upper incisors plain. Genus *LEMNISCOMYS*, page 290

8. The condylobasal length is normally either approximately equal to or exceeds the occipitonasal length. ——9
The condylobasal length is shorter than the occipitonasal length. ——10

9. Occipitonasal length (South Africa) 31.5 mm. and less. Zygomatic plate with anterior border not concave. Tail relatively short, averaging about 82 per cent or less of head and body. Toothrow 6 mm. and less. M 3 small. Hindfoot 26 mm. and less. Genus *ZELOTOMYS*, page 287
Occipitonasal length 33.4 mm. and more. Zygomatic plate with anterior border concave. Frontals very constricted. Tail normally less shortened (though most often rather shorter than head and body). Toothrow 6.7 mm. and more. Hindfoot usually over 30 mm. M 3 tends to be as large as M 2. Genus *DASYMYS*, page 288

10. Upper toothrow specialized by enlargement of M 1 combined with considerable backward distortion of its anterointernal cusp combined with marked reduction of M 3. Small species (south of the Zambezi-Cunene, hindfoot 15 mm. and less, head and body 75 mm. and less in wild species native to South Africa, but in Angola larger forms occur). Occipitonasal length about 24.6 mm. at highest. Genus *MUS*, page 284
Upper toothrow not specialized exactly in the manner just described. (South of the Zambezi-Cunene, head and body at least 79 mm., hindfoot at least 16 mm., usually more.) Occipitonasal length (South Africa) 24.7 mm. and more, usually more. ——11

11. Dentition abnormal; cusps of molars unusual: uniform in size, columnar, and distinctly separated from each other (except for the outer cusps of M 3 which are more or less obliterated). Genus *OENOMYS*, page 287
Dentition less abnormal, cusps of molars not so unusual. ——12

12. Back with four dark stripes. (The manus has the 5th finger small but clawed and functional; the 5th hindtoe is relatively short.) Genus *RHABDOMYS*, page 280
Back normally unstriped. ——13

13. Palatal foramina short (in a few extralimital skulls about 15 per cent of the occipitonasal length), considerably in front of toothrows. Hindfoot long,

averages 24–26 per cent of the head and body length. Occipitonasal length usually over 40 mm. Cusps of molars obsolete.
Genus *MALACOMYS*, page 287

Palatal foramina long, very rarely under 20 per cent of the occipitonasal length, in South African species usually reaching toothrows. Hindfoot normally shorter except in *Colomys*, which has long palatal foramina as just indicated, and a smaller skull, usually about 32-35 mm., with molar cusps much more strongly marked, etc. ——14

14. Hindfoot long, about 27–29 per cent of head and body length.
Genus *COLOMYS*, page 286

Hindfoot proportionately shorter, in adult normally below a quarter of head and body length. ——15

15. Interorbital region of skull unusually broad, scarcely any interorbital constriction evident; interorbital region broader than rostrum. In South Africa tail short, roughly 54–61 per cent of head and body.
Genus *LOPHUROMYS*, page 283

Interorbital region of skull more clearly constricted. Tail not specially short, normally over three-quarters of head and body length. ——16

16. M 3 scarcely smaller than M 2. 5th toe very short, not longer than hallux. Fur grey speckled dorsally. Genus *ARVICANTHIS*, page 264

Not combining the characters just described. ——17

17. A much reduced posterointernal cusp normally present in unworn first and second upper molars. Genus *GRAMMOMYS*, page 262

Posterointernal cusp normally absent in first and second upper molars.
Genus *RATTUS*,[1] page 264

Genus **GRAMMOMYS** Thomas, 1915.

1915. *Grammomys* Thomas, Ann. Mag. N.H. 16: 150. *Mus dolichurus* Smuts.

Fifth hindtoe long, hindfoot arboreal. This genus should not be merged with *Thamnomys* Thomas, as is sometimes done; see Ellerman, 1941, *2:* 105, for details.

Tail averages about 127 per cent of head and body. Bullae large, 6.4 mm. and more (more than 20 per cent of the occipitonasal length).
Grammomys ruddi, page 263

Tail averages over 140 per cent (up to over 160 per cent) of head and body. Bullae rarely over 6 mm. (6.2 mm. and less in South Africa), about 17 per cent of the occipitonasal length. *Grammomys dolichurus*, page 263

It is necessary to note that apparently the palatal foramina in *G. ruddi* are a little shorter than is normal in these *Rattus*-like Rats (more like the subgenus *Hylomyscus;* the foramina average 21 per cent of the occipitonasal length in *ruddi;* more than 22 per cent in South African *dolichurus*).

[1] In this work, the introduced European species *Rattus rattus*, *Rattus norvegicus* and *Mus musculus* are not included.

Grammomys dolichurus Smuts, 1832 Forest Mouse. Bosmuis

Distribution: in the Union, the eastern Transvaal (Woodbush), Zululand, and Pondoland and King William's Town district, eastern Cape Province. Portuguese East Africa, including Inhambane district and Lumbo (north of the Zambezi), Southern Rhodesia, Northern Rhodesia, Nyasaland, central and northern Angola. Similar forms also occur in East Africa northwards to the Sudan and Abyssinia, and in West Africa as far as Liberia and Timbuktu.

GRAMMOMYS DOLICHURUS DOLICHURUS Smuts, 1832

1832. *Mus dolichurus* Smuts, Enum. Mamm. Cap., 38. The type locality is usually quoted as near Cape Town, where we do not think the animal occurs. A. Smith, 1834, *S. Afr. J. 2:* 156 gave Uitenhage, in the eastern Cape Province, to which the type locality is here restricted. Range: eastern Cape Province to southern Zululand.

GRAMMOMYS DOLICHURUS COMETES Thomas & Wroughton, 1908

1908. *Thamnomys cometes* Thomas & Wroughton, P.Z.S., 549. Inhambane, coastal southern Portuguese East Africa. Ranges to north-eastern Zululand.

GRAMMOMYS DOLICHURUS SURDASTER Thomas & Wroughton, 1908.

1908. *Thamnomys surdaster* Thomas & Wroughton, P.Z.S., 550. Zomba, about 3,000 ft., southern Nyasaland. Ranges to Tanganyika.

GRAMMOMYS DOLICHURUS BALIOLUS Osgood, 1910

1910. *Thamnomys baliolus* Osgood, Ann. Mag. N.H. *5:* 278. Woodbush Hills, north-east of Pietersburg, eastern Transvaal.

GRAMMOMYS DOLICHURUS TONGENSIS Roberts, 1931

1931. *Grammomys tongensis* Roberts, Ann. Transv. Mus. *14:* 234. Manaba, northern Zululand.

GRAMMOMYS DOLICHURUS ANGOLENSIS Hill & Carter, 1937

1937. *Grammomys surdaster angolensis* Hill & Carter, Amer. Mus. Novit. No. 913: 4. Chitau, 4,930 ft., central Angola.

GRAMMOMYS DOLICHURUS SILINDENSIS Roberts, 1938

1938. *Grammomys silindensis* Roberts, Ann. Transv. Mus. *19:* 245. Mount Selinda, south-eastern Southern Rhodesia.

(1938. *Grammomys vumbaensis* Roberts, *loc. cit.:* 245. Vumba (near Portuguese border) south-eastern Southern Rhodesia.)

Grammomys ruddi Thomas & Wroughton, 1908

Rudd's Forest Mouse. Ruddse Bosmuis

Distribution: Tete, Portuguese East Africa and Chiromo, southern Nyasaland.

GRAMMOMYS RUDDI Thomas & Wroughton, 1908

1908. *Thamnomys ruddi* Thomas & Wroughton, P.Z.S., 549. Tete, on the Zambezi, Portuguese East Africa.

Genus **ARVICANTHIS** Lesson, 1842

1842. *Arvicanthis* Lesson, Nouv. Tabl. Règne Anim. Mamm., 147. *Lemmus niloticus* Geoffroy = *Arvicola niloticus* Desmarest.

Arvicanthis niloticus Desmarest, 1822 Nile Rat or Kusu Rat

Distribution: Northern Rhodesia, and northwards, the greater part of East Africa, westwards to Asben and Senegal; Egypt; Arabia.

ARVICANTHIS NILOTICUS NILOTICUS Desmarest, 1822. (Extralimital)

1822. *Arvicola niloticus* Desmarest, Mammalogie, *2:* 281. Egypt.

ARVICANTHIS NILOTICUS RHODESIAE St. Leger, 1932

1932. *Arvicanthis abyssinicus rhodesiae* St. Leger, Ann. Mag. N.H. *10:* 85. Sichili River Sesheke district (near the Caprivi border) extreme southern Northern Rhodesia. Also known from Kasempa district, Northern Rhodesia (B.M.).

Genus **RATTUS** Fischer, 1803

1803. *Rattus* Fischer, Das Nationalmuseum der Naturgeschichte zu Paris, *2:* 128 (misprinted *Ruttus*). *Mus decumanus* Pallas = *Mus norvegicus* Berkenhout.
1881. *Epimys* Trouessart, Bull. Soc. Études Sci. Angers, *10:* 117. *Mus rattus* Linnaeus.
1915. *Aethomys* Thomas, Ann. Mag. N.H. *16:* 477. *Epimys hindei* Thomas, one of the Kenya races of *Epimys kaiseri* Noack. Valid as a subgenus.
1915. *Praomys* Thomas, Ann. Mag. N.H. *16:* 477. *Epimys tullbergi* Thomas, the Ashanti race of *Mus morio* Trouessart. Valid as a subgenus.
1915. *Myomys* Thomas, Ann. Mag. N.H. *16:* 477. *Epimys colonus* A. Smith = *Mus colonus* Brants, which is here regarded as not certainly identifiable.
1915. *Mastomys* Thomas, Ann. Mag. N.H. *16:* 477. *Mus coucha* A. Smith = *Mus marikquensis* A. Smith, a race of *Mus natalensis* A. Smith. Valid as a subgenus.
1920. *Thallomys* Thomas, Ann. Mag. N.H. *5:* 141. *Mus nigricauda* Thomas.
1920. *Ochromys* Thomas, Ann. Mag. N.H. *5:* 142. *Mus woosnami* Schwann.
1926. *Stochomys* Thomas, Ann. Mag. N.H. *17:* 176. *Dasymys longicaudatus* Tullberg, from the Cameroons. Valid as a subgenus.
1926. *Dephomys* Thomas, Ann. Mag. N.H. *17:* 177. *Mus defua* Miller, from Liberia.
1926. *Hylomyscus* Thomas, Ann. Mag. N.H. *17:* 178. *Epimys aeta* Thomas, the Cameroons race of *Mus carillus* Thomas. Valid as a subgenus.
1941. *Micaëlamys* Ellerman, Fam. Gen. Liv. Rodents, *2:* 170. *Mus granti* Wroughton.
1942. *Myomyscus* Shortridge, Ann. S. Afr. Mus. *36:* 93. *Mus verroxi* A. Smith.
1951. *Michaelomys* Roberts, Mamm. S. Afr., 473. Error.

For other extralimital subgeneric names and synonyms see Ellerman & Morrison-Scott, 1951.

(The introduced European *Rattus rattus* and *Rattus norvegicus* are not included.)

Discussion on African *Rattus*

In 1915 Thomas proposed four subgenera (not genera) of *Epimys*, 1881 (= *Rattus*, 1803), based upon mammary formula. These were *Aethomys*, *Praomys*, *Myomys* and *Mastomys*. *Myomys* was improperly diagnosed, in that Thomas merely said it had 10 mammae, which formula is quite common elsewhere within the genus, and it was based on *Mus colonus* Brants (see Roberts, 1951, 469, who thought *colonus* the same as *Mus verreauxi* A. Smith, whereas we hold it to be not certainly identifiable). In order to identify *Mus colonus* Brants as being one of the 10-mammate small Rats (*R. verreauxi* group), Roberts has had to shift the accepted type locality from Algoa Bay to Plettenberg Bay, and has had to alter the measurements given in the original description, stating that Brants must have measured his specimens in a different way from the method used today. According to Roberts, Brants merely said that *colonus* came from the eastern parts of Cape Colony, which would seem to be outside the distribution of *R. verreauxi* anyway. It seems that *colonus* may well be the prior name for the multimammate rats but that it would be better to regard it as not certainly identifiable, and the name "*Myomys*" as therefore having no status.

The three remaining subgenera were all given generic rank and were further split by Thomas until every valid species of *Rattus*-like rat south of the Sahara, and perhaps even some that were not valid, were given generic rank. Ellerman (1941) retained *Aethomys* and also *Thallomys* Thomas, 1920, as valid genera, but referred *Mastomys*, *Praomys* and others to *Rattus*. The erection of *Thallomys* and its retention seemed reasonable because its type species, and the western members of the genus, look very distinct from *Aethomys* as restricted (*kaiseri* group), and give the appearance of being at least a valid subgenus. But neither Thomas nor his followers in the British Museum had seen Roberts' eastern Transvaal forms of *Thallomys*, *moggi*, etc., which were not represented in the British Museum until after 1941. *R. moggi* is intermediate between the *kaiseri* group and typical *Thallomys* (*nigricauda*, etc.); it lacks the thick fur, dark hairy tail and tendency to face markings of *nigricauda* and looks very like members of the *kaiseri* group (*chrysophilus*, etc.), merely differing from them in its long fifth toe. This intermediate group of forms now seems to make *Thallomys* a synonym of *Aethomys*, which itself is not so distinct from *Rattus* that it need be given generic rank. It may be borne in mind that all these South African species are very closely allied to each other and that their characters grade into one another to a certain degree, and that in a very large group like this one will always get a certain individual overlap in characters which affect a key to the species.

Later researches lead us to the opinion that in South Africa, apart from *Hylomyscus*, here restricted to relatively small species with proportionately shorter palatal foramina than is normal in African members of the genus, there are three subgenera of *Rattus*. All members of these three subgenera have average longer palatal foramina than the Asiatic (and European) species, the subgenus *Cremnomys* excepted. These subgenera may be roughly diagnosed as follows:

AETHOMYS Thomas, 1915: (synonyms, *Thallomys* Thomas, 1920; *Ochromys* Thomas, 1920). Large rats, in adults the majority of specimens have the head and

body length 130 mm. and more.[1] Skull usually with well-marked supraorbital ridges (excepting *R. woosnami*), large bullae, heavy molars and long palatal foramina. Tail rarely more than 130 per cent of head and body, averaging less than 140 per cent; sometimes shorter than head and body. Mammae typically 4 or 6, individually in *chrysophilus* can be 8, and in *woosnami* 10. (For the individual variation in mammary formula elsewhere within the subfamily see Ellerman, 1949, Fam. Gen. Liv. Rodents, *3:* 189.)

MASTOMYS Thomas, 1915: (to include the species *R. angolensis*). Smaller species, the majority of specimens have the head and body 130 mm. and less.[2] Tail short, mostly shorter than head and body, very rarely averages only a little longer. Mammae 10 (*angolensis*), rarely 10 (a specimen of *natalensis* in the British Museum from King William's Town), more often in *natalensis* more than 12 and up to 24. Usually the skull has the supraorbital ridges rather weak, the bullae moderate in size, the palatal foramina very long, and the molars lightly built.

PRAOMYS Thomas, 1915: (synonym: *Dephomys* Thomas, 1926; to include also the species *verreauxi* and *namaquensis*, both of A. Smith). Small species, the head and body very rarely over 130 mm.[3] Tail very long, mostly averaging over 120 per cent of the head and body, and may be over 150 per cent. Mammae, where known, 4, 6 or 10 (South Africa), 4, 6, 8 or 10 north of the Zambezi-Cunene line. Skull mostly with rather weak supraorbital ridges (which may be absent) (but more marked in *R. namaquensis*); molars usually lightly built (but heavier in *namaquensis*); palatal foramina long, and bullae medium in size.

A note on the status of "*Mus*" *granti* Wroughton.

1908. *Mus granti* Wroughton, Ann. Mag. N.H. *1:* 257. Deelfontein, Cape Province.
1939. *Myomys granti* Wroughton, G. Allen, Checklist African Mamm., 406.
1941. *Rattus* (*Micaëlamys*) *granti* (Wroughton) Ellerman, Fam. Gen. Liv. Rodents, *2:* 213.
1951. *Mastomys natalensis natalensis* (part) Roberts, Mamm. S. Afr. 473.

Apparently three species of South African *Rattus* represented in the British Museum collections occur together at Deelfontein:

Rattus natalensis, molars lightly built, tail relatively short, and not black and hairy; mammae usually more than 12.

[1] In *Aethomys*, in B.M. material (205 specimens) 40 were under 130 mm. (perhaps some of them not adult). In Roberts' figures, 13 specimens in 71 were under 130 mm. In Shortridge (1934), 28 specimens out of about 204 were under 130 mm. In Hill & Carter (1941), 2 in 28 were under 130 mm.

[2] In *Mastomys*, in B.M. material (about 316 specimens), 32 reached 130 mm. In Roberts' figures, 14 specimens out of 110 reached this figure. In Shortridge (1934) 20 out of 129 skins reached 130 mm. In Hill & Carter (1941) 2 out of 11 specimens reached 130 mm.

[3] In *Praomys*, as here understood, in B.M. material (178 specimens), 2 specimens reached 130 mm. In Roberts' figures, 3 specimens out of 57 reached 130 mm. In Shortridge's figures, no specimen reached 130 mm. out of 145. In Hill & Carter (1941), one exception in 9 (*avunculus*, which seems to represent *namaquensis*).

Rattus namaquensis, molars heavily built; tail very long, black and hairy; mammae 4 or 6.
Rattus granti, molars heavily built; tail relatively short, black and hairy; mammae 10.

We are not sure that specimens subsequently collected by Shortridge and referred to *Micaëlamys granti* are authentic.

Roberts was wrong in referring *granti* to the synonymy of *Mastomys natalensis natalensis*, and he had not seen the original series on which the name was based. One of this original series is labelled as having 10 mammae. Roberts stated "its dental characters do not appear to differ very much from *Mastomys*", but actually they are much closer to those of *R. namaquensis*. It also agrees with *namaquensis* in its black, hairy tail. It differs from *R. namaquensis centralis*, with which it occurs, in darker underparts and relatively shorter tail (averaging about 107 per cent of the head and body in the original series). (As Roberts says, its measurements are those of a *Mastomys natalensis*). The suggestion we now put forward is that the original series might possibly have been hybrids between *R. natalensis* and *R. namaquensis*, both of which occur in the same locality, as it seems so precisely intermediate between them in a number of ways, and not to be known authentically from other localities than Deelfontein. Shortridge had other specimens from east of Calvinia which he identified as *granti*, but although the tail is short in the ones he sent to London, the foot is consistently larger than in the original series of *granti;* moreover one of them is labelled as having 6 mammae.

Rattus paedulcus the prior name for the species hitherto referred to *Thallomys*.

The British Museum has a syntype skull of *Rattus paedulcus* Sundevall, which name has hitherto not been certainly identified. According to descriptions the name was based on a species with the head and body 130 mm., the tail 120 mm. Our syntype skin bears no measurements, but the skull, which has the unusually large bullae characteristic of most members of the group referred by Thomas to *Thallomys*, and the shape of the hindfoot with its relatively long fifth toe enables us to suggest that *paedulcus* is in reality the prior name for the group to which *nigricauda*, *damarensis* and *moggi*, all here considered conspecific, belong. The only difficulty in adopting this classification is that according to the original description the tail (which might have been based on an incomplete specimen) is shorter than the head and body. This is rare in the *nigricauda* group, although one of Roberts' types (*molopensis*) shows the character. Probably one of the forms named as representatives of *moggi* by Roberts is in reality a synonym of *paedulcus;* in a considerable series noted in the Transvaal Museum a few have the tail a little shorter than the head and body, although the majority do not. Without direct comparison it is not possible to synonymize Roberts' names with certainty. The occipitonasal length of our syntype skull of *paedulcus* is 31 mm., length of palate from front of incisors 14.9 mm., palatal foramina 8.2 mm. (somewhat damaged), bullae 6.7 mm., upper toothrow 4.6 mm.

Status not sure:

Mus colonus Brants, 1827, Het Geslacht der Muizen, 124. Algoa Bay, south-eastern Cape Province. Possibly the prior name for *natalensis*, but here regarded as unidentifiable. See discussion, page 265.

Mus granti Wroughton, 1908, Ann. Mag. N.H. *1:* 257. Deelfontein, north of Richmond, Cape Province. For remarks on status see above, page 266.

Mus albiventer Jentink, 1909, Zool. Jahrb. Syst. *28:* 246. Mossel Bay, coast of south-western Cape Province. *Mus albiventris* Jentink, *loc. cit.*, 247. G. Allen lists it as a race of *R. chrysophilus*, but that species is not known to occur in the Cape Province.

1. Larger species, the head and body in the majority of specimens exceeds 130 mm. (see page 266, footnote). ——2

   Smaller species, the head and body in the majority of specimens is below 130 mm. (see page 266, footnote). ——6

2. Tail short, averages 85 per cent of head and body, its colour white. 10 mammae (Roberts). Supraorbital ridges of skull relatively weak.
   Rattus (*Aethomys*) *woosnami*, page 274

   The colour of the tail is different; shorter or longer than head and body, but usually longer south of the Zambezi-Cunene line (where *woosnami* is restricted). Mammae, so far as known, 4 or 6 or 8. Normally supraorbital ridges are more marked. ——3

3. Hindfoot of arboreal type, the fifth hindtoe relatively long. (See discussion on status and nomenclature, page 267).
   Rattus (*Aethomys*) *paedulcus*,[1] page 273

   Hindfoot terrestrial, fifth hindtoe relatively short. ——4

4. Tail relatively longer, normally approximately 110 per cent of head and body, often more.[2] *Rattus* (*Aethomys*) *chrysophilus*, page 271

   Tail relatively shorter, averages about 103 per cent or less of head and body, often shorter than head and body. ——5

5. Zygomatic width not under 19 mm., in South African skulls averaging 54 per cent of occipitonasal length. (Tail shorter than head and body.)
   Rattus (*Aethomys*) *nyikae*,[3] page 270

[1] The bullae usually exceed 20 per cent of the occipitonasal length in *R. paedulcus*, the race *shortridgei* excepted. This is rarely the case in related species, but exceptions can occur (*vernayi*, *hintoni*).

[2] There is little essential difference between *R. kaiseri* and *R. chrysophilus*, but there are geographical overlaps in Angola and perhaps Nyasaland between two species, a short-tailed and a long-tailed. Tentatively, *chrysophilus* is retained as the longer-tailed species (tail normally approximately 110 per cent of the head and body (109 per cent minimum); often more than 110 per cent) and *kaiseri* is used for the species with the tail averaging about 103 per cent or less, often shorter than head and body. Hollister's figures for East African races of *kaiseri* are in general agreement with this except for the race *norae* which may have to be transferred to *chrysophilus*.

[3] *R. nyikae* is better known as *walambae*; but apparently *nyikae* belongs to what has hitherto been regarded as *walambae*, and it is the prior name.

Zygomatic width rarely reaching 19 mm., but if so then averages 51 per cent, or usually less, of occipitonasal length in the forms occurring in South Africa. (Tail usually shorter than head and body in South Africa).

Rattus (*Aethomys*) *kaiseri*, page 270

6. Tail relatively short, only rarely as long as or a little longer than head and body. Mammae typically more than 10, usually in continuous series and not separated into sets. Supraorbital ridges can be present, but are often rather weak. ——7

Tail relatively considerably longer (in South Africa averaging over 120 per cent of head and body length; the lowest extralimital percentage known to us is 111 per cent). Mammae 10 or less. ——8

7. (Where it occurs with the next) either interpterygoid wider (Angola) or colour usually darker (South-West Africa).

Rattus (*Mastomys*) *angolensis*,[1] page 276

(Where it occurs with the last) either interpterygoid region relatively narrow (Angola) or colour usually paler (South-West Africa).

Rattus (*Mastomys*) *natalensis*, page 275

8. Palatal foramina very long, averaging at least 22 per cent of the occipitonasal length. ——9

Palatal foramina less elongated, averaging under 22 per cent of the occipitonasal length. ——11

9. Molars wide, the width of M 1 about 1.6–2 mm. (Mammae 4 or 6.)

Rattus (*Praomys*)[2] *namaquensis*, page 277

Molars narrower, the width of M 1 about 1.4–1.5 mm. ——10

10. Mammae 10. Tail averaging 138 per cent or more of head and body.

Rattus (*Praomys*) *verreauxi*, page 277

Mammae 6 (according to records). Tail in South African specimens (and in Hatt's figures from the Congo) averaging less than 130 per cent of head and body. *Rattus* (*Praomys*) *morio*,[3] page 279

[1] There is in Angola and South-West Africa a species (*angolensis*, with its southern race *shortridgei* which is preoccupied and here renamed *legerae*) which has usually been given specific rank on account of having 10 mammae (whereas *natalensis* is supposed to have more than 10 mammae) and which may occur with *natalensis*. It is very hard to define characters to retain *angolensis*. Hill & Carter gave a few cranial details for Angola, of which the one quoted above seems the least likely to break down through individual variation. Shortridge stated that the hindfoot of *legerae* is longer than the local *natalensis*, but this is certainly not constant. Although *natalensis* usually has more than 10 mammae this is not always the case; we have a specimen in the British Museum from King William's Town with 10 mammae.

[2] *Cremnomys* Wroughton, 1912, based on the Indian species *R. cutchicus*, antedates *Praomys* 1915 and might well be used instead of it. It is difficult in fact to suggest characters which can separate *R. cutchicus* even specifically from the much earlier named South African species *R. namaquensis*, except that when the type specimens of *R. cutchicus* and races were compared with the type specimens of *R. namaquensis* and races, the *cutchicus* group was more greyish dorsally, the *namaquensis* group generally more yellowish.

[3] Hatt (1940) thought there were two species in the *morio* group, *jacksoni* and *morio*, differing principally in the size of their ears and bullae. But a few extralimital skulls measured for both indicate that there is no difference in the size of the bullae, and there is certainly no constant difference in the size of the ear in B.M. specimens. We suggest therefore that these two are in reality conspecific.

11. Skull length (in South Africa) 26.4 mm. and less.
Rattus (*Hylomyscus*) *carillus*,[1] page 280
Occipitonasal length (type skull) 27.3 mm.
Rattus (*Hylomyscus*) *delectorum*,[2] page 279

Subgenus *AETHOMYS* Thomas, 1915

Rattus kaiseri Noack, 1887 — The Kaiser's Rat

Distribution: as here understood, central and western Angola; also the Belgian Congo, Tanganyika, Kenya, Uganda and the southern Sudan.

RATTUS KAISERI KAISERI Noack, 1887. (Extralimital)

1887. *Epimys kaiseri* Noack, Zool. Jb. Syst. *2:* 228. Qua Mpala (Marungu) southern Belgian Congo.

RATTUS KAISERI THOMASI de Winton, 1897

1897. *Mus thomasi* de Winton, Ann. Mag. N.H. *20:* 321. Galanga, western Angola. Also recorded from Chitau and Humpata, Angola.

RATTUS (?)KAISERI VERNAYI Hill & Carter, 1937

1937. *Aethomys vernayi* Hill & Carter, Amer. Mus. Novit. No. 913, 1. Chissonque, 20 km. east of Dando, central Angola.

Rattus nyikae Thomas, 1897 — Nyika Rat

Distribution: Nyasaland, Northern Rhodesia; the Belgian Congo, Tanganyika, Kenya, Uganda. (Better known as *R. walambae* and races.)

RATTUS NYIKAE NYIKAE Thomas, 1897

1897. *Mus nyikae* Thomas, P.Z.S. 431 (October, 1897). Nyika plateau, northern Nyasaland.

[1] *Hylomyscus* is retained as a subgenus because, at least in South Africa, it is the only group here referred to *Rattus* which does not have the unusually long palatal foramina which seems to divide these species from their Asiatic allies, the subgenus *Cremnomys* excepted. British Museum skulls of *H. carillus* and type specimens measurable from other parts of Africa do not exceed 25.8 mm. in length, but the subgenus does not necessarily include the larger extralimital species *denniae*, the type skull of which suggests it would be referable to *Praomys* as here understood. The skull in *Hylomyscus* as here understood seems to be smaller than that of any of the Asiatic species of *Rattus*. The first species to be named in *Hylomyscus* was *R. alleni* Waterhouse, 1838, from Fernando Po. But Hatt, 1940, *Bull. Amer Mus. N.H.* 76*:* 536, treats *carillus* as a distinct species, and uses it as the prior name for the species better known as *aeta* (Thomas, 1912), which apparently occurs with forms (*stella*, etc.) which Hatt regards as races of *alleni*. The chief distinction between these two species seems to be in the shape of the skull; the supraorbital ridges are more apparent in *carillus*, and the frontals more evenly divergent backwards. Tentatively Hatt's classification is accepted.

[2] *R. delectorum* has hitherto been grouped with *morio*, the restricted *Praomys* of Thomas. It is very little known, but the type skull seems to show that it has the relatively short foramina of the smaller species, *carillus*, etc. Further specimens are really needed to show its exact status.

RATTUS NYIKAE WALAMBAE Wroughton, 1907

1907. *Mus walambae* Wroughton, Manchester Mem. *51*, 5: 21. "Msofu River, Rhodesia." "We have not found the Msofu River named, but the type locality can be placed with certainty in Northern Rhodesia, close to 13° 30′ S., 29° E.; Walamba is a railway station about 60 miles south of Ndola and Msofu Mission is marked 30 miles east of Walamba" (Moreau, Hopkins & Hayman, 1946).

RATTUS NYIKAE HINTONI Hatt, 1934

1934. *Aethomys walambae hintoni* Hatt, Amer. Mus. Novit. No. 708: 7. Kambove, Katanga, 4,400 ft., Belgian Congo. Occurs in Northern Rhodesia (British Museum).

Rattus chrysophilus de Winton, 1897 Red Veld Rat. Rooiveldrot

Distribution: in the Union, Durban, Zululand, etc., in Natal, and in the Transvaal, Rustenburg, Pretoria, Zoutpansberg, Woodbush, Tzaneen, Klein Letaba, Legogot (near White River), Carolina, etc. Swaziland. South-West Africa; "widely distributed north of the Tropic of Capricorn" (Shortridge); parts of Bechuanaland; Southern Rhodesia (Matabeleland, Mashonaland), districts of Tete, Beira, Inhambane and Gorongoza, Portuguese East Africa. Nyasaland. Kafue and Petauke districts, etc., Northern Rhodesia. Angola, where known from several localities. Northwards to Tanganyika, the Belgian Congo and Kenya.

RATTUS CHRYSOPHILUS CHRYSOPHILUS de Winton, 1897

1897. *Mus chrysophilus* de Winton, P.Z.S. *1896:* 801. April, 1897. Mazoe, Mashonaland, eastern Southern Rhodesia. Range: various places in Southern Rhodesia, Bulawayo included (B.M.). Recorded from Gorongoza district, Portuguese East Africa.

RATTUS CHRYSOPHILUS BOCAGEI Thomas, 1904

1904. *Mus bocagei* Thomas, Ann. Mag. N.H. *13:* 416. Pungo Andongo, 1,200 m., northern Angola. Recorded by Hill & Carter from Hanha and Dala, Angola. Although the type specimen is short-tailed the majority of Hill & Carter's specimens and the majority of specimens in the British Museum appear to have the relatively longer tail of *chrysophilus*.

RATTUS CHRYSOPHILUS INEPTUS Thomas & Wroughton, 1908

1908. *Mus chrysophilus ineptus* Thomas & Wroughton, P.Z.S., 546. Tete, on the Zambezi, Portuguese East Africa.

RATTUS CHRYSOPHILUS ACTICOLA Thomas & Wroughton, 1908

1908. *Mus chrysophilus acticola* Thomas & Wroughton, P.Z.S., 547. Beira (south of the Zambezi), coastal Portuguese East Africa.

1910. *Mus chrysophilus alticola* Lydekker, Zool. Record, *1908:* Mamm. 74. Accidental renaming. Recorded also from the Inhambane district, Portuguese East Africa.

RATTUS CHRYSOPHILUS TZANEENENSIS Jameson, 1909

1909. *Mus chrysophilus tzaneenensis* Jameson, Ann. Mag. N.H. *4:* 460. Tzaneen, eastern Transvaal. Range: the low country, east of the Drakensberg escarpment, from Carolina district northwards to Zoutpansberg (Roberts).

RATTUS CHRYSOPHILUS PRETORIAE Roberts, 1913

1913. *Mus chrysophilus pretoriae* Roberts, Ann. Transv. Mus. *4:* 85. Fountains valley, Pretoria, Transvaal.

1926. *Aethomys chrysophilus magalakuini* Roberts, Ann. Transv. Mus. *11:* 254. Wilhanshohe, Magalakuin (or Magalaqueen) River, western Transvaal.

Ranges to Gaberones, south-eastern Bechuanaland.

RATTUS CHRYSOPHILUS CAPRICORNIS Roberts, 1926

1926. *Aethomys chrysophilus capricornis* Roberts, Ann. Transv. Mus. *11:* 254. Newgate, Zoutpansberg, northern Transvaal. Range: southwards on the foothills of the Drakensberg to Barberton district, eastern Transvaal.

RATTUS CHRYSOPHILUS IMAGO Thomas, 1927

1927. *Aethomys chrysophilus imago* Thomas, P.Z.S., 387. Stampriet, Gobabis district, eastern-central South-West Africa. Recorded from Mulondo, Angola, by Hill & Carter.

RATTUS CHRYSOPHILUS TONGENSIS Roberts, 1931

1931. *Aethomys chrysophilus tongensis* Roberts, Ann. Transv. Mus. *14:* 235. (Type: T.M. No. 6128 from Maṇgusi Forest, north-eastern Zululand) and described as new for a second time, 1936, Ann. Transv. Mus. *18:* 235. (Type: T.M. No. 7202 from Otobotini, northern Zululand). Range: from Durban to Portuguese East Africa, south of the Olifants River, and Swaziland.

RATTUS CHRYSOPHILUS DOLLMANI Hatt, 1934

1934. *Aethomys chrysophilus dollmani* Hatt, Amer. Mus. Novit. No. 708, 8. Upper Lufira River, Katanga, Belgian Congo. Recorded from Dundo, north-eastern Angola.

RATTUS CHRYSOPHILUS PHIPPSI Hill & Carter, 1937

1937. *Aethomys avunculus phippsi* Hill & Carter, Amer. Mus. Novit. No. 913: 3. Humpata, 6,300 ft., south-western Angola. (The form *avunculus* is here considered as the Angolan representative of *Rattus namaquensis*.)

RATTUS CHRYSOPHILUS SILINDENSIS Roberts, 1938

1938. *Aethomys silindensis* Roberts, Ann. Transv. Mus. *19:* 245. Mt. Selinda, eastern Southern Rhodesia.

RATTUS CHRYSOPHILUS FOURIEI Roberts, 1946

1946. *Aethomys chrysophilus fouriei* Roberts, Ann. Transv. Mus. *20:* 319. Oshikanga, Ovambo-Angola border.

RATTUS (?)CHRYSOPHILUS HAREI Roberts, 1946

1946. *Aethomys chrysophilus harei* Roberts, Ann. Transv. Mus. *20:* 320. Waterberg, Otjiwarongo district, northern-central South-West Africa. Perhaps a form of *R. namaquensis*, as the figures given by Roberts are too small for this species.

Rattus paedulcus Sundevall, 1846 Blacktailed Tree Rat. Swartstertrot

Distribution: in the Union, the Transvaal, districts of Rustenburg, Pretoria, Zoutpansberg, Woodbush, etc., Newcastle and Zululand, Natal; in the Cape Province, the Molopo River and the western Orange River, Upington region, Louisvale, and Goodhouse (Little Namaqualand). Swaziland. Apparently in suitable localities more or less throughout South-West Africa. In Angola most records are from the Mossamedes district, but it is recorded from Pungo Andongo in the north. Part of the Kalahari; Ngamiland. Southern Rhodesia. Northern Rhodesia, Nyasaland. North of these limits, Kenya and Tanganyika.

RATTUS PAEDULCUS PAEDULCUS Sundevall, 1846

1846. *Mus paedulcus* Sundevall, Öfvers. Vetensk. Akad. Förh. Stockholm, *3:* 120. "In Caffraria interiore, prope tropicum."

RATTUS PAEDULCUS NIGRICAUDA Thomas, 1882

1882. *Mus nigricauda* Thomas, P.Z.S., 266. Hountop (Hudup or Hutop) River, west of Gibeon, Great Namaqualand, South-West Africa.

RATTUS PAEDULCUS DAMARENSIS de Winton, 1897

1897. *Mus damarensis* de Winton, Ann. Mag. N.H. *19:* 349. Damaraland, but exact locality of the type unknown; one of the other three specimens of the same collection is endorsed Otjimbingue, Damaraland (South-West Africa).

RATTUS PAEDULCUS RHODESIAE Osgood, 1910

1910. *Mus damarensis rhodesiae* Osgood, Ann. Mag. N.H. *5:* 277. Petauke, East Loangwa district, eastern Northern Rhodesia.

RATTUS PAEDULCUS KALAHARICUS Dollman, 1911.

1911. *Epimys nigricauda kalaharicus* Dollman, Ann. Mag. N.H. *8:* 544. Molopo River, Kalahari (border of northern Cape Province and Bechuanaland). A synonym of *nigricauda, fide* Shortridge (1934).

1933. *Thallomys leuconoe molopensis* Roberts, Ann. Transv. Mus. *15:* 269. Midway between Setlagoli and the Molopo River at Pitsani location, southern Bechuanaland.

RATTUS PAEDULCUS MOGGI Roberts, 1913

1913. *Mus moggi* Roberts, Ann. Transv. Mus. *4:* 85. Zoutpan, Pretoria district, Transvaal. Ranges westwards to Gaberones, south-eastern Bechuanaland.

RATTUS PAEDULCUS ACACIAE Roberts, 1915

1915. *Mus moggi acaciae* Roberts, Ann. Transv. Mus. *5:* 120. Woodbush, eastern Transvaal. Ranges northwards to the Zoutpansberg, northern Transvaal.

RATTUS PAEDULCUS SHORTRIDGEI Thomas & Hinton, 1923

1923. *Thallomys shortridgei* Thomas & Hinton, P.Z.S., 492. Louisvale, southern bank of Orange River, near Upington, north-western Cape Province. Ranges westwards to Goodhouse, Little Namaqualand.

RATTUS PAEDULCUS NITELA Thomas & Hinton, 1923

1923. *Thallomys nitela* Thomas & Hinton, P.Z.S., 493. Bomboné, Mossamedes, 3,200 ft., south-western Angola.

RATTUS PAEDULCUS LEUCONOE Thomas, 1926

1926. *Thallomys leuconoe* Thomas, P.Z.S., 303. Osohama, Etosha Pan, Ovamboland, northern South-West Africa.

RATTUS PAEDULCUS HERERO Thomas, 1926

1926. *Thallomys herero* Thomas, P.Z.S., 303. Ondongwa (or Ondonga), Ovamboland, northern South-West Africa. Range: Kaokoveld and Cunene River areas, eastwards to Okavango and Ngamiland, reported from extreme southern Angola, northwards to Mupa.

RATTUS PAEDULCUS LEBOMBOENSIS Roberts, 1931

1931. *Thallomys moggi lebomboensis* Roberts, Ann. Transv. Mus. *14:* 234. Mkuzi River, Ubombo district, northern Zululand. Range includes northern Natal and Swaziland.

RATTUS PAEDULCUS STEVENSONI Roberts, 1933

1933. *Thallomys stevensoni* Roberts, Ann. Transv. Mus. *15:* 269. Bembesi, 30 miles north of Bulawayo, Southern Rhodesia.

RATTUS PAEDULCUS ROBERTSI *nom. nov.*

1933. *Thallomys leuconoe bradfieldi* Roberts, Ann. Transv. Mus. *15:* 268. Quickborn Farm, Okahandja district, Damaraland, South-West Africa. Evidently a doubtful form, based on an immature specimen. Not of Roberts, 1926 (a *Mastomys*).

Rattus woosnami Schwann, 1906.

Woosnam's Desert Rat. Woosnamse Bleekrot

Distribution: Kuruman and Molopo districts, northern Cape Province; Ngamiland, and Gobabis in eastern South-West Africa.

RATTUS WOOSNAMI Schwann, 1906

1906. *Mus woosnami* Schwann, P.Z.S., 108. Molopo River, border of the northern Cape Province, southern Bechuanaland.

Subgenus *MASTOMYS* Thomas, 1915

Rattus natalensis A. Smith, 1834 Multimammate Rat. Vaalveldmuis

Distribution: in the Union, the Transvaal; the Marico River, Potchefstroom, near Krugersdorp, Zoutpansberg, Potgietersrust, Pietersburg, Pretoria, Woodbush, Klein Letaba, Carolina, Legogot (near White River), the Kruger National Park (D. H. S. Davis), Wakkerstroom. Zululand, Durban, Illovo, Estcourt, etc., in Natal. In the Orange Free State, Aberfeldy (near Harrismith), Heilbron, Bothaville, Parys, etc. Maseru, Basutoland. In the Cape Province, Molopo district, Kuruman, near Louisvale, the Aughrabies Falls, Deelfontein, Port Elizabeth, King William's Town, Grahamstown, Port St. Johns, etc. Swaziland. South-West Africa; according to Shortridge, throughout the territory except the Namib desert and perhaps some of the more arid parts of Great Namaqualand. Ngamiland; several localities in Southern Rhodesia; districts of Inhambane, Beira, Tete, Gorongoza, etc., Portuguese East Africa. Apparently common in Angola. Nyasaland, Northern Rhodesia. North of the limits of this work, very widely distributed, the northern limit being roughly Abyssinia-Sudan-Asben-Morocco.

For use of the name *natalensis* see Roberts, 1944, *Bull. S. Afr. Mus. Assoc. 3:* 239.

Rattus natalensis natalensis A. Smith, 1834

1834. *Mus natalensis* A. Smith, S. Afr. J. *2:* 156. "About Port Natal" = Durban, Natal.
1834. *Mus caffer* A. Smith, *loc. cit.*, 157. "Cafferland."
1843. *Mus muscardinus* Wagner in Schreber, Säugth. Suppl. *3:* 430. Kaffraria.
1890. *Mus sp.* var *albinus* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *2:* 14. Caconda, Angola.
1890. *Mus fuscus* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *2:* 14. Huilla and Quissange, Angola. Not of Fitzinger, 1867.
1890. *Mus rufa* Bocage, *loc. cit.*, 14. Gambos and Quillenges, Angola.
1905. *Mus coucha zuluensis* Thomas & Schwann, P.Z.S. *1:* 268. Umfolosi, Zululand, Natal.
1909. *Mus illovoensis* Jentink, Zool. Jahrb. Syst. *28:* 248. Lower Illovo, Natal.
1926. *Mastomys coucha komatiensis* Roberts, Ann. Transv. Mus. *11:* 259. Arnhemburg, Komati River, Carolina district, eastern Transvaal.

Range: Roberts quotes specimens from Port St. Johns, Zululand, Natal, Swaziland, and in the eastern Transvaal from the Carolina district to Tzaneen and Zoutpansberg. The British Museum has specimens from near Wakkerstroom, Transvaal.

Rattus natalensis marikquensis A. Smith, 1836

1836. *Mus marikquensis* A. Smith, Rept. Exped. Explor. C. Africa, 43. "Country beyond Kurrichaine" (taken by Roberts as Marico River, western Transvaal).
1836. *Mus coucha* A. Smith, *loc. cit.* 43. "Between the Orange River and the Tropic"; type locality taken by Roberts as Kuruman, northern Cape Province.
1913. *Mus socialis* Roberts, Ann. Transv. Mus. *4:* 88. Wonderfontein, Potchefstroom, western Transvaal. Not of Pallas, 1773.

RATTUS NATALENSIS MARIKQUENSIS [*contd.*]

1915. *Mus breyeri* Roberts, Ann. Transv. Mus. *5:* 120. Moorddrift, near Potgietersrust, Transvaal. (Status *fide* G. Allen, 1939).

1934. *Mastomys coucha sicialis* Shortridge, Mamm. S.W. Africa, *1:* 303. (Misprint.)

Range: Roberts quotes specimens from northern Orange Free State, Pretoria, Potchefstroom, etc., in the western Transvaal, and states that it occurs in western Southern Rhodesia and the southern Kalahari.

RATTUS NATALENSIS SILACEUS Wagner, 1842

1842. *Mus silaceus* Wagner, Arch. Naturgesch. *8*, 1: 11. Cape of Good Hope. Range: Port Elizabeth and Grahamstown, Cape Province (Roberts).

RATTUS NATALENSIS MICRODON Peters, 1852

1852. *Mus microdon* Peters, Reise nach Mossambique, Säugeth. 149. Tete, on the Zambezi, Portuguese East Africa (type locality restricted by Roberts; also recorded by Peters from Boror, north of the Zambezi, Portuguese East Africa).

1914. *Mus limpopoensis* Roberts, Ann. Transv. Mus. *4:* 183. Sand River, north-eastern Transvaal.

Range: eastern Transvaal low country, southern Portuguese East Africa, eastern Southern Rhodesia, and according to Roberts to Nyasaland and Ndola in Northern Rhodesia.

RATTUS NATALENSIS BRADFIELDI Roberts, 1926

1926. *Mastomys coucha bradfieldi* Roberts, Ann. Transv. Mus. *11:* 257. Quickborn, Okahandja, Damaraland, South-West Africa.

1926. *Mastomys coucha ovamboensis* Roberts, *loc. cit.:* 258. Namutoni (Etosha Pan), Ovamboland, northern South-West Africa. Status *fide* Thomas, 1927, P.Z.S., 388.

Range: South-West Africa, and (perhaps this form) into southern Angola.

Rattus angolensis Bocage, 1890 Angola Rat

Distribution: Angola (Chitau, Luimbale, Humpata, Capangombe, Caluquembe, Pungo Andongo, Dundo, etc.), and the Okavango region of northern South-West Africa.

This species is doubtfully distinguishable from *R. natalensis*, but occurs with it.

RATTUS ANGOLENSIS ANGOLENSIS Bocage, 1890

1890. *Mus angolensis* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *2:* 12. Capangombe (near Mossamedes), south-western Angola.

RATTUS ANGOLENSIS LEGERAE *nom. nov.*

1933. *Myomys shortridgei* St. Leger, P.Z.S., 411. Okavango-Omatako junction, Grootfontein district, northern South-West Africa. Not of Thomas & Hinton, 1923 (a "*Thallomys*").

Subgenus *PRAOMYS* Thomas, 1915

Rattus verreauxi A. Smith, 1834 Verreaux's Rat. Kaapse Muis

Distribution: the south-western coastal Cape Province; Knysna, near George, Simonstown, Cape Town, Hout Bay, Paarl, Wolseley, Citrusdal, Eendekuil, Klaver. There are two specimens in the British Museum from Umfolosi, Zululand, with 10 mammae and rather long tails (head and body 108–109 mm., tail 122–123 mm.) which might possibly represent a form of this species.

RATTUS VERREAUXI A. Smith, 1834

1834. *Mus verroxii* A. Smith, S. Afr. J. *2:* 156. Near Cape Town. (Named after Verreaux).

1901. *Mus verreauxi* Sclater, Mamm. S. Africa, *2:* 45.

Rattus namaquensis A. Smith, 1834.

Namaqua Rock Rat. Namakwalandse Klipmuis

Distribution: in the Union, the Transvaal, including Pretoria, Johannesburg, Zoutpansberg, Magalaqueen River. Natal, including Utrecht and Zululand. Orange Free State (Bethulie). In the Cape Province, Vryburg, Kuruman, westwards from Upington, Louisvale, the Aughrabies Falls, the Molopo River; Bushmanland, Matjesfontein, Deelfontein, the Swartberg (Seven Weeks Poort); Little Namaqualand (Goodhouse, north of Steinkopf, the Kamiesberg, Garies), Klaver, Wolseley, near Paarl; Grahamstown, King William's Town, Lady Grey, Carnarvon, Middelburg, Aliwal North, etc. Swaziland. South-West Africa, evidently widely distributed throughout (the only districts . . . where it does not occur are the plains of Ovamboland and around the Etosha Pan, Grootfontein district . . . and the Caprivi) (Shortridge, 1934). The Kalahari, northwards to Ngamiland. Recorded from several places in Southern Rhodesia, including near Bulawayo, Salisbury, etc. Districts of Tete and Inhambane, Portuguese East Africa. Northern and western Angola.

RATTUS NAMAQUENSIS NAMAQUENSIS A. Smith, 1834

1834. *Gerbillus namaquensis* A. Smith, S. Afr. J. *2:* 160. Little Namaqualand, north-western Cape Province.

RATTUS NAMAQUENSIS LEHOCLA A. Smith, 1836

1836. *Mus lehocla* A. Smith, Report Exped. Expl. C. Africa, 43. "Latakoo" (Litakun), near Kuruman, northern Cape Province.

RATTUS NAMAQUENSIS ARBORARIUS Peters, 1852

1852. *Mus arborarius* Peters, Reise nach Mossambique, Säugeth. 152. Tete, on the Zambezi, Portuguese East Africa.

1897. *Mus auricomus* de Winton, P.Z.S. *1896:* 802. Mazoe, Mashonaland, eastern Southern Rhodesia. (Roberts makes this a synonym of *arborarius*.)

(1908. *Mus avarillus* Thomas & Wroughton, P.Z.S. 547. Tete, on the Zambezi, Portuguese East Africa. Apparently based on one specimen.)

Range includes part of the Magalaqueen River region, western Transvaal.

RATTUS NAMAQUENSIS AVUNCULUS Thomas, 1904

1904. *Mus avunculus* Thomas, Ann. Mag. N.H. *13:* 417. Pungo Andongo, northern Angola. Recorded by Hill & Carter also from Hanha and Caporolo, Angola.

RATTUS NAMAQUENSIS CENTRALIS Schwann, 1906

1906. *Mus auricomis centralis* Schwann, P.Z.S., 107. Deelfontein, north of Richmond, central Cape Province. Ranges on the Karroo to Matjesfontein, and eastwards to Aliwal North, and Bethulie, southern Orange Free State.

RATTUS NAMAQUENSIS MONTICULARIS Jameson, 1909

1909. *Mus namaquensis monticularis* Jameson, Ann. Mag. N.H. *4:* 461. Johannesburg, Transvaal. Ranges to Pretoria, Transvaal.

RATTUS NAMAQUENSIS GRAHAMI Roberts, 1915

1915. *Mus namaquensis grahami* Roberts, Ann. Transv. Mus. *5:* 118. Godwin's Kloof, Grahamstown, eastern Cape Province. Range includes the Seven Weeks Poort (between Oudtshoorn and Ladismith). A distinct, very long-tailed form.

RATTUS NAMAQUENSIS CALARIUS Thomas, 1926

1926. *Aethomys namaquensis calarius* Thomas, Ann. Mag. N.H. *17:* 184 (January). Lehutitung, Kalahari Desert, Bechuanaland. Range: Upington district to Ngamiland, Great Namaqualand and southern Damaraland, South-West Africa.

RATTUS NAMAQUENSIS SICCATUS Thomas, 1926

1926. *Aethomys namaquensis siccatus* Thomas, P.Z.S., 304 (April). Cunene (or Rua Cana) Falls, extreme southern Angola. Range includes the Kaokoveld and parts of northern South-West Africa.

RATTUS NAMAQUENSIS CAPENSIS Roberts, 1926

1926. *Praomys namaquensis capensis* Roberts, Ann. Transv. Mus. *11:* 254 (September) Lormarins, Franschhoek Valley, opposite Paarl, south-western Cape Province.

RATTUS NAMAQUENSIS KLAVERENSIS Roberts, 1926

1926. *Praomys namaquensis klaverensis* Roberts, Ann. Transv. Mus. *11:* 254. Klaver, on the Olifants River, western Cape Province.

RATTUS NAMAQUENSIS DRAKENSBERGI Roberts, 1926

1926. *Praomys namaquensis drakensbergi* Roberts, Ann. Transv. Mus. *11:* 255. Klipspruit, Utrecht, northern Natal. Ranges to Swaziland and the Lebombo Mountains, Zululand.

RATTUS NAMAQUENSIS LEHOCHLOIDES Roberts, 1926

1926. *Praomys namaquensis lehochloides* Roberts, Ann. Transv. Mus. *11:* 255. Wilhanshohe, Magalakuin (Magalaqueen) River, western Transvaal. Range: western Transvaal in Waterberg and Zoutpansberg districts.

RATTUS NAMAQUENSIS WATERBERGENSIS Roberts, 1938

1938. *Aethomys namaquensis waterbergensis* Roberts, Ann. Transv. Mus. *19:* 239, and 1946, *20:* 320 (described as a new subspecies in both places). Okosongomingo, Waterberg, in Otjiwarongo district, north central South-West Africa.

RATTUS NAMAQUENSIS NAMIBENSIS Roberts, 1946

1946. *Aethomys namaquensis namibensis* Roberts, Ann. Transv. Mus. *20:* 320. Karub, Namib desert between Usakos and Swakopmund, western South-West Africa.

Rattus morio Trouessart, 1881 Soft-furred Rat

Distribution: Dundo and Amboim, Angola (British Museum), Lwakera, Northern Rhodesia. Northwards to the Gold Coast, Liberia, the Belgian Congo, Tanganyika, Kenya, etc.

RATTUS MORIO MORIO Trouessart, 1881. (Extralimital)

1862. *Mus maura* Gray, P.Z.S., 181. Not of Waterhouse, 1839. Cameroon Mountain, Cameroons.

1881. *Mus morio* Trouessart, Bull. Soc. Études Sci. Angers, *10:* 121. Replaces *maura* Gray, preoccupied.

RATTUS MORIO TULLBERGI Thomas, 1894

1892. *Mus burtoni* Thomas, Ann. Mag. N.H. *10:* 182. Ankober River, Wasa, Ashanti, West Africa. Not of Ramsay, 1887.

1894. *Mus tullbergi* Thomas, Ann. Mag. N.H. *13:* 205. New name for *burtoni* Thomas, preoccupied. Occurs at Amboim, Angola (British Museum).

RATTUS MORIO JACKSONI de Winton, 1897

1897. *Mus jacksoni* de Winton, Ann. Mag. N.H. *20:* 318. Entebbe, Uganda. Occurs at Dundo, north-eastern Angola, and in Northern Rhodesia.

Subgenus *HYLOMYSCUS* Thomas, 1926

Rattus delectorum Thomas, 1910 Mlanje Rat

Distribution: southern Nyasaland.

RATTUS DELECTORUM Thomas, 1910

1910. *Epimys delectorum* Thomas, Ann. Mag. N.H. *6:* 430. Mlanje Plateau, 5,500 ft., southern Nyasaland.

Rattus carillus Thomas, 1904 Climbing Wood Mouse

Distribution: Angola, recorded from Pungo Andongo, Chitau and Hanha; Belgian Congo, Cameroons, Tanganyika.

Rattus carillus carillus Thomas, 1904

1904. *Mus carillus* Thomas, Ann. Mag. N.H. *13:* 418. Pungo Andongo, 1,200 m., northern Angola.

Genus **RHABDOMYS** Thomas, 1916

1916. *Rhabdomys* Thomas, Ann. Mag. N.H. *18:* 69. *Mus pumilio* Sparrman.

Rhabdomys pumilio Sparrman, 1784

Four-striped Rat. Streeprot; Streepmuis

Distribution: in the Union, the Transvaal, Bloemhof, Krugersdorp, Potchefstroom, Pretoria, Pietersburg, Woodbush, Tzaneen, Legogot (near White River), Wakkerstroom, etc. Estcourt, Zululand, etc., Natal. The Orange Free State, including Bethulie, Modder River (Abrahams Kraal), Aberfeldy (near Harrismith); Maseru, Basutoland. In the Cape Province, Fourteen Streams, Kuruman, Kimberley, Vryburg, Louisvale (near Upington); Little Namaqualand (north of Steinkopf, Goodhouse, Port Nolloth, Springbok, the Kamiesberg, Garies); Van Rhynsdorp, Lamberts Bay, Nieuwoudtville, Citrusdal, Clanwilliam; Cape Town (Kirstenbosch, Rondebosch, etc.), Elgin, Simonstown, Hermanus; Matjesfontein, Oudtshoorn, George, Knysna; Port Elizabeth, Uitenhage, Grahamstown, Pondoland; Prieska, Deelfontein, Cradock, Queenstown, east of Calvinia, Van Wyk's Vlei, etc.; one of the commonest mammals of the Union. South-West Africa; throughout, except in the north-eastern districts (eastern Ovamboland, Etosha Pan region, Grootfontein district and the Caprivi (Shortridge, 1934)). The Kalahari, and Gaberones in south-eastern Bechuanaland. Southern Rhodesia. Angola, where it apparently ranges throughout the southern and central parts. Nyasaland. North of these limits, Tanganyika, Kenya, Uganda.

Rhabdomys pumilio pumilio Sparrman, 1784

1784. *Mus pumilio* Sparrman, K. Svenska Vetensk. Akad. Handl., 236. Sitzicamma forest, on Slang Rivier, east of Knysna, southern Cape Province.

1827. *Mus pumilio* var. *major* Brants, Het Geslacht der Muizen, 105. Not of Pallas, 1779. Cape of Good Hope.

1829. *Mus lineatus* F. Cuvier in Geoffroy & Cuvier, H.N. Mamm. *4:* pt. 61: "Rat à dos rayé", 2. Renaming of *pumilio.*

1845. *Mus septemvittatus* Schinz, Synops. Mamm. *2:* 155. Cape of Good Hope.

Range: Roberts restricts this race to the southern Cape Province from the region of the type locality to Paarl district, Wolseley and Tulbagh.

RHABDOMYS PUMILIO VITTATUS Wagner, 1842

1842. *Mus vittatus* Wagner, Arch. Naturgesch. *8*, 1: 11. Cape of Good Hope.
(1827. *Mus donavani* Lesson, Man. Mamm., 268. Cape of Good Hope. Perhaps a synonym of the typical race.)
1905. *Arvicanthis pumilio meridionalis* Wroughton, Ann. Mag. N.H. *16:* 632. Tokai Retreat, Cape Town.

Roberts quotes specimens from Lamberts Bay, Matjesfontein and Oudtshoorn, Cape Province.

RHABDOMYS PUMILIO BECHUANAE Thomas, 1893

1893. *Isomys pumilio bechuanae* Thomas, P.Z.S. *1892:* 551. Originally thought to have been from Bechuanaland, but type locality later fixed as Rooibank, Walvis Bay, South-West Africa. (Shortridge, 1934: 280). Hill & Carter quote a specimen from Pico Azevedo, south-western Angola. A distinct, pale and large race.

RHABDOMYS PUMILIO DILECTUS de Winton, 1897

1897. *Arvicanthis pumilio dilectus* de Winton, P.Z.S. *1896:* 803. Mazoe, Mashonaland, eastern Southern Rhodesia. Recorded also from Matabeleland (including near Bulawayo), and the north-eastern Transvaal (Woodbush, Tzaneen).

RHABDOMYS PUMILIO CINEREUS Thomas & Schwann, 1904

1904. *Arvicanthis pumilio cinereus* Thomas & Schwann, Abstr. P.Z.S. No. 2: 5. P.Z.S., 179. Klipfontein (north of Steinkopf), Little Namaqualand, north-western Cape Province. Recorded also by Roberts from Van Rhynsdorp, Klaver and Calvinia, western Cape Province.

RHABDOMYS PUMILIO GRIQUAE Wroughton, 1905

1905. *Arvicanthis pumilio griquae* Wroughton, Ann. Mag. N.H. *16:* 632. Kuruman, northern Cape Province.
1910. *Arvicanthis pumilio deserti* Dollman, Ann. Mag. N.H. *6:* 399. Lehutitung, Kalahari, Bechuanaland.

Ranges to Upington, Mafeking, Gaberones (south-eastern Bechuanaland), etc.

RHABDOMYS PUMILIO INTERMEDIUS Wroughton, 1905

1905. *Arvicanthis pumilio intermedius* Wroughton, Ann. Mag. N.H. *16:* 635. Deelfontein, north of Richmond, Cape Province.

The following two forms recently named by Roberts are likely to be synonyms, as the characters given by Roberts for differentiating *intermedius* do not hold good in all specimens in the British Museum.

1946. *Rhabdomys pumilio cradockensis* Roberts, Ann. Transv. Mus. *20:* 323. Cradock, eastern Cape Province.
1946. *Rhabdomys pumilio algoae* Roberts, *loc. cit.*, 323. Centlivres, near Port Elizabeth, eastern Cape Province; specimens also quoted from Grahamstown, eastern Cape Province.

RHABDOMYS PUMILIO ANGOLAE Wroughton, 1905

1905. *Arvicanthis pumilio angolae* Wroughton, Ann. Mag. N.H. *16:* 636. Caconda, inland from Benguela, Angola.

RHABDOMYS PUMILIO CHAKAE Wroughton, 1905

1905. *Arvicanthis pumilio chakae* Wroughton, Ann. Mag. N.H. *16:* 636. Sibudeni, Zululand, Natal. Probable synonym of *dilectus*. Roberts says it occurs in Pondoland, eastern Cape Province.

RHABDOMYS PUMILIO MOSHESH Wroughton, 1905

1905. *Arvicanthis pumilio moshesh* Wroughton, Ann. Mag. N.H. *16:* 638. Maseru, 5,000 ft., western Basutoland. Probable synonym of *dilectus*. Roberts gives the range as including Orange Free State and Johannesburg, Pretoria, Potchefstroom, Pietersburg, etc., Transvaal.

RHABDOMYS PUMILIO NYASAE Wroughton, 1905

1905. *Arvicanthis pumilio nyasae* Wroughton, Ann. Mag. N.H. *16:* 639. Mlanje Plateau, 6,000 ft., southern Nyasaland.

RHABDOMYS PUMILIO NAMIBENSIS Roberts, 1926

1926. *Rhabdomys pumilio namibensis* Roberts, Ann. Transv. Mus. *11:* 255. Swakopmund (near Walvis Bay) South-West Africa.

In 1946 Roberts described nine more races of this species, most of which are probably of doubtful validity. Two of them are dealt with above under *intermedius*. The others are:

1946. *Rhabdomys pumilio orangiae* Roberts, Ann. Transv. Mus. *20:* 321. Goodhouse, Lower Orange River, Little Namaqualand, north-western Cape Province. Probable synonym of *cinereus*.

1946. *Rhabdomys pumilio namaquensis* Roberts, Ann. Transv. Mus. *20:* 321. Fish River, near Berseba, southern central Great Namaqualand, South-West Africa. Possible synonym of *griquae*.

1946. *Rhabdomys pumilio prieskae* Roberts, Ann. Transv. Mus. *20:* 322. Prieska, middle Orange River, northern Cape Province. Probable synonym of *orangiae*.

1946. *Rhabdomys pumilio fouriei* Roberts, Ann. Transv. Mus. *20:* 322. Ondonga, Ovamboland, South-West Africa.

1946. *Rhabdomys pumilio vaalensis* Roberts, Ann. Transv. Mus. *20:* 322. Bloemhof, Vaal River, south-western Transvaal.

1946. *Rhabdomys pumilio griquoides* Roberts, Ann. Transv. Mus. *20:* 322. Fourteen Streams, on the Vaal River, northern Cape Province. The last two probably = *griquae*.

1946. *Rhabdomys pumilio bethuliensis* Roberts, Ann. Transv. Mus. *20:* 323. Bethulie, southern Orange Free State. Probable synonym of *vittatus*, if that itself is separable from the typical race.

Genus **LOPHUROMYS** Peters, 1874

1866. *Lasiomys* Peters, Mber. Preuss. Akad. Wiss., 409. *Lasiomys afer* Peters = *Mus sikapusi* Temminck. Not of Burmeister, 1854.

1874. *Lophuromys* Peters, Mber. Preuss. Akad. Wiss., 234. *Lasiomys afer* Peters = *Mus sikapusi* Temminck. To replace *Lasiomys* Peters, preoccupied.

Fur finely speckled. — *Lophuromys flavopunctatus*, page 283
Fur dark, not speckled. — *Lophuromys sikapusi*, page 283

It is customary to recognize two species of the short-tailed group of *Lophuromys*, which may be distinguished roughly as above. They may occur together, and although some individuals have been examined which are not easily allocated to either group, for the time being we retain two species. *L. sikapusi* is the prior name in this genus, and *flavopunctatus* is the prior name for the speckled group.

Lophuromys sikapusi Temminck, 1853 — Harsh-furred Rat

Distribution: Angola, Tanganyika, Kenya, westwards to the Gold Coast.

Lophuromys sikapusi sikapusi Temminck, 1853

1853. *Mus sikapusi* Temminck, Esq. Zool. Côte de Guiné, 160. Dabacrom, Gold Coast. Occurs Angola (Duque de Bragança, Chitau).

Lophuromys flavopunctatus Thomas, 1888 — Speckled Harsh-furred Rat

Distribution: Nyasaland, Northern Rhodesia, northern Portuguese East Africa, Belgian Congo, Tanganyika, Kenya, Abyssinia.

Lophuromys flavopunctatus flavopunctatus Thomas, 1888. (Extralimital)

1888. *Lophuromys flavo-punctatus* Thomas, P.Z.S., 14, footnote. Shoa, Abyssinia (probably obtained at Ankober, about 100 miles N.E. of Addis Ababa, Thomas, 1903, P.Z.S. *1902*, 2: 314).

Lophuromys flavopunctatus aquilus True, 1892

1892. *Mus aquilus* True, Proc. U.S. Nat. Mus. *15:* 460. Mt. Kilimanjaro, 8,000 ft. Tanganyika. Occurs Nyika Plateau, northern Nyasaland, Zomba, southern Nyasaland.

Lophuromys flavopunctatus rita Dollman, 1910

1910. *Lophuromys rita* Dollman, Ann. Mag. N.H. *5:* 179. Lufupa River, Katanga, 4,000 ft., Belgian Congo. Recorded from Dundo, north-eastern Angola; also Namuli Mt., northern Portuguese East Africa, Mlanje, southern Nyasaland (B.M.).

Genus **MUS** Linnaeus, 1758

1758. *Mus* Linnaeus, Syst. Nat. 10th ed. *1:* 59. *Mus musculus* Linnaeus, from Sweden.
1837. *Leggada* Gray, Charlesworth's Mag. N.H. *1:* 586. *Mus booduga* Gray, from India.
1876. *Nannomys* Peters, Mber. Preuss. Akad. Wiss., 480. *Mus setulosus* Peters = *Mus musculoides* Temminck, from the Cameroons.
1896. *Pseudoconomys* Rhoads, Proc. Acad. Nat. Sci. Philadelphia, 531. *Mus proconodon* Rhoads, from south-eastern Abyssinia.
1925. *Hylenomys* Thomas, Ann. Mag. N.H. *15:* 667. *Hylenomys callewaerti* Thomas.

For other, extralimital, subgeneric names and synonyms see Ellerman & Morrison-Scott, 1951, 602.

The introduced European *Mus musculus* is not included: synonym: *Mus modestus* Wagner, 1842, Arch. Naturgesch. *8*, 1: 14. Cape of Good Hope.

1. Large, skull length exceeds 23 mm. *Mus callewaerti*, page 286
   Smaller, skull length below 23 mm. ——2

2. Skull length about 21-22 mm. *Mus triton*,[1] page 286
   Skull length 20 mm. at most, but less than 20 mm. in almost all individuals (Roberts gives one specimen 20.4 mm.; all other specimens noted to date below 20 mm). *Mus minutoides*, page 284

Roberts' statement that "*Leggada*" differs from *Mus* in smaller size and shorter tail is completely erroneous and based on too limited a view. Asiatic "*Leggada*" can be larger than *Mus musculus* and have the tail longer than the head and body.

Subgenus *MUS* Linnaeus, 1758

Mus minutoides A. Smith, 1834 Pygmy Mouse. Dwergmuis

Distribution: in the Union, the Transvaal, known from districts of Rustenburg, Pietersburg, Pretoria, Johannesburg, Legogot (near White River), Wakkerstroom; Zululand, Estcourt, Durban, etc., in Natal. Swaziland. In the Orange Free State,

[1] *Mus triton;* an unsatisfactory species from all points of view. Revision of the African *Mus* species is long overdue, and they should be compared in detail with the Indian ones. Thomas stated that *Mus* (*musculus*) has a short snout, and that species formerly referred to "*Leggada*" have a long snout. Whereas this is true with one exception (at least on average) in the Indian species, it does not seem to hold good in the African ones. For instance, *Mus minutoides* averages smaller in size of skull than is usual in wild races of *Mus musculus*, but the ratio of its diastema/occipitonasal length in B.M. material is the same as *musculus* (i.e. less than 25 per cent), the reverse being the case in the equally small species in India (*booduga*). *Mus triton* is nearly extralimital to this list, and cannot at the present time be worked out in detail, but the diastema in five specimens from Kenya, the Congo and Northern Rhodesia, the type included, give an average short diastema, as in *Mus musculus*, from wild races of which it does not seem easy to separate it. Hill & Carter's measurements (two specimens) do not agree with this, but should the species prove to have a longer diastema, as might be expected, then it is quite indistinguishable from the Indian *Mus cervicolor* (which antedates it by many years) and its races. Pending a general revision the question is left open. *M. callewaerti* seems to have a very short tail, only about half the head and body length, or a little less in the type, and this, together with its somewhat specialized dentition, should separate it from species of similar size in India. But it is little known. The underparts may be noted as grey in *triton*, normally white in *minutoides*.

Aberfeldy (near Harrismith), Bothaville, Heilbron, Viljoensdrift, etc. In the Cape Province, Molopo River district, Deelfontein, de Aar, Pondoland, King William's Town, Port Alfred, Port Elizabeth, Knysna, Elgin, Cape Town, Citrusdal, Wolseley, Klaver, Clanwilliam, Van Rhynsdorp, Lamberts Bay, Nieuwoudtville, Little Namaqualand (the Kamiesberg, Goodhouse). In Portuguese East Africa, Beira and Inhambane districts; Mashonaland, Southern Rhodesia; Ngamiland; in South-West Africa, widely but sparsely distributed over the central and northern parts from about the Tropic of Capricorn northwards (not met with south of Gobabis and Karibib (Shortridge, 1934)). South-western Angola, Chitau (central) and Dundo (north-eastern Angola). Nyasaland, Northern Rhodesia. North of these limits, in East Africa (usually under the name *bellus*) to Abyssinia, the Belgian Congo, Northern Nigeria, etc.

Mus minutoides minutoides A. Smith, 1834

1834. *Mus minutoides* A. Smith, S. Afr. J. *2:* 157. Cape Town.

1852. *Mus minimus* Peters, Ber. Preuss. Akad. Wiss., 274. Not of White, 1789. Tete, on the Zambezi, Portuguese East Africa (here restricted).

Range: western, southern and eastern Cape Province to Zululand.

Mus minutoides umbratus Thomas, 1910

1910. *Leggada minutoides umbrata* Thomas, Ann. Mag. N.H. *5:* 86. Wakkerstroom, 5,900 ft., south-eastern Transvaal. Ranges to Swaziland, and northwards to Pietersburg district, Transvaal.

Mus minutoides marica Thomas, 1910

1910. *Leggada bella marica* Thomas, Ann. Mag. N.H. *5:* 88. Beira, coastal Portuguese East Africa. Range: includes the low country of the eastern Transvaal, Nyasaland and Northern Rhodesia.

Mus minutoides indutus Thomas, 1910

1910. *Leggada bella induta* Thomas, Ann. Mag. N.H. *5:* 89. Molopo, west of Morokwen, extreme northern Cape Province.

1910. *Leggada deserti* Thomas, Ann. Mag. N.H. *5:* 90. Molopo, west of Morokwen, extreme northern Cape Province.

Range: the Kalahari desert from the Molopo River to Ngamiland, westwards to Ovamboland, South-West Africa; *deserti* is recorded from Capelongo, south-western Angola by Hill & Carter.

Mus minutoides neavei Thomas, 1910

1910. *Leggada neavei* Thomas, Ann. Mag. N.H. *5:* 90. Petauke, 2,400 ft., eastern Loangwa district, eastern Northern Rhodesia.

Mus minutoides sybilla Thomas, 1918

1918. *Leggada bella sybilla* Thomas, Ann. Mag. N.H. *2:* 484. Usolo River, Benguela, south-western Angola. Also recorded from Chitau, central Angola.

Mus minutoides kasaicus Cabrera, 1924

1924. *Leggada bella kasaica* Cabrera, Bol. Real Soc. Esp. H.N. Madrid, *24:* 222. St. Joseph de Luluabourg, Kasai, Belgian Congo. Recorded from Dundo, Angola by Sanborn.

Mus minutoides orangiae Roberts, 1926

1926. *Leggada orangiae* Roberts, Ann. Transv. Mus. *11:* 251. Kreusementfontein, Viljoensdrift, near Vereeniging, northern Orange Free State.

Mus minutoides valschensis Roberts, 1926

1926. *Leggada deserti valschensis* Roberts, Ann. Transv. Mus. *11:* 251. Bothaville, north-western Orange Free State.

Mus minutoides pretoriae Roberts, 1926

1926. *Leggada deserti pretoriae* Roberts, Ann. Transv. Mus. *11:* 252. Pretoria, Transvaal. Ranges to Rustenburg district, Moorddrift, Johannesburg, etc., Transvaal.

Mus triton Thomas, 1909 Larger Pygmy Mouse

For remarks on the status of this species see above, page 284, footnote.

Distribution: Chitau and Dundo, Angola, Northern Rhodesia (Solwezi), the Belgian Congo, Uganda, Tanganyika, Kenya.

Mus triton Thomas, 1909

1909. *Leggada triton* Thomas, Ann. Mag. N.H. *4:* 548. Kirui, Mt. Elgon, 6,000 ft. Kenya. Range: as above.

Mus callewaerti Thomas, 1925 Callewaert's Mouse

Distribution: recorded from Chitau and Dundo districts, Angola. Southern Belgian Congo.

Mus callewaerti Thomas, 1925

1925. *Hylenomys callewaerti* Thomas, Ann. Mag. N.H. *15:* 668. Luluabourg, Lulua River, southern Belgian Congo. Range: as above.

Genus **COLOMYS** Thomas & Wroughton, 1907

1907. *Colomys* Thomas & Wroughton, Ann. Mag. N.H. *19:* 379. *Colomys goslingi* Thomas & Wroughton.

Colomys goslingi Thomas & Wroughton, 1907 Gosling's Swamp Rat

Distribution: Dundo district, north-eastern Angola; Kenya, the Belgian Congo, the Cameroons.

COLOMYS GOSLINGI GOSLINGI Thomas & Wroughton

1907. *Colomys goslingi* Thomas & Wroughton, Ann. Mag. N.H. *19:* 380. Gambi, Uele River, Belgian Congo.

Genus **MALACOMYS** Milne-Edwards, 1877

1877. *Malacomys* Milne-Edwards, Bull. Soc. Philom. Paris, *13:* 9. *Malacomys longipes* Milne-Edwards.

Malacomys longipes Milne-Edwards, 1877 Milne-Edwards' Swamp Rat

Distribution: Dundo district, northern Angola. Belgian Congo westwards to Liberia.

MALACOMYS LONGIPES LONGIPES Milne-Edwards, 1877. (Extralimital)

1877. *Malacomys longipes* Milne-Edwards, Bull. Soc. Philom. Paris, *13:* 9. Gaboon River, West Africa.

MALACOMYS LONGIPES WILSONI Thomas, 1916

1916. *Malacomys wilsoni* Thomas, Ann. Mag. N.H. *18:* 238. Inkongo, Belgian Congo. Recorded from Dundo, Angola.

Genus **OENOMYS** Thomas, 1904

1904. *Oenomys* Thomas, Ann. Mag. N.H. *13:* 416. *Mus hypoxanthus* Pucheran.

Oenomys hypoxanthus Pucheran, 1855 Rufous-nosed Rat

Distribution: northern Angola; Uganda, Kenya, Belgian Congo, to the Gold Coast.

OENOMYS HYPOXANTHUS HYPOXANTHUS Pucheran, 1855

1855. *Mus hypoxanthus* Pucheran, Rev. Zool. Paris, *7:* 206. Gabon, West Africa. Recorded from Dundo, north-eastern Angola.

OENOMYS HYPOXANTHUS ANCHIETAE Bocage, 1890

1890. *Mus anchietae* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *2:* 11. Ambaca, northern Angola. Records also include Chitau, Dondo, Luimbale, Pungo Andongo, Mombolo.

Genus **ZELOTOMYS** Osgood, 1910

1910. *Zelotomys* Osgood, Field Mus. Publ. Zool. *10:* 7. *Mus hildegardeae* Thomas.

Zelotomys hildegardeae Thomas, 1902 Broad-headed Rat

Distribution: southern and central Angola (Chitau, Humpata, near Mupa), Northern Rhodesia; Belgian Congo, Kenya.

It is doubtful if there is more than one valid species in this genus.

ZELOTOMYS HILDEGARDEAE HILDEGARDEAE Thomas, 1902. (Extralimital)

1902. *Mus hildegardeae* Thomas, Ann. Mag. N.H. *9:* 219. Machakos, Kenya.

ZELOTOMYS HILDEGARDEAE SHORTRIDGEI Hinton, 1920

1920. *Zelotomys shortridgei* Hinton, Ann. Mag. N.H. *6:* 242. Ndola, near the Belgian Congo border, Northern Rhodesia.

ZELOTOMYS HILDEGARDEAE KUVELAIENSIS St. Leger, 1936

1936. *Zelotomys shortridgei kuvelaiensis* St. Leger, Ann. Mag. N.H. *17:* 470. Cuvelai River, 50 km. north of Mupa, southern Angola.

Genus **DASYMYS** Peters, 1875

1875. *Dasymys* Peters, Mber. Preuss. Akad. Wiss. 12. *Dasymys gueinzii* Peters = *Mus incomtus* Sundevall.

Dasymys incomtus Sundevall, 1846 African Water Rat. Waterrot

Distribution: in the Union, the Transvaal, including Pretoria, Zoutpansberg, Woodbush, Tzaneen, Hectorspruit, near Carolina, etc. Natal (Durban, Zululand). In the Cape Province, Pondoland in the south-eastern and Wolseley in the south-western coastal districts. South-West Africa; the marshes and reedbeds of the Okavango, Zambezi and Chobe rivers in the north. Eastern Southern Rhodesia (Mazoe, Melsetter). Apparently widespread in Angola, recorded as far north as Duque de Bragança. Northern Rhodesia, Nyasaland. (Shortridge mentions Portuguese East Africa, but its status there is obscure.) North of the limits of this work, on the western side from the Belgian Congo to Liberia, and on the eastern side northwards to Abyssinia and the southern Sudan.

DASYMYS INCOMTUS INCOMTUS Sundevall, 1846

1846. *Mus incomtus* Sundevall, Ofvers. Vetensk. Akad. Förh. Stockholm, *3:* 120. "E Caffraria prope Port Natal" (= Durban, Natal).

1875. *Dasymys gueinzii* Peters, Mber. Preuss. Akad. Wiss., 13. Interior of "Port Natal" (= Durban), Natal.

1897. *Dasymys incomtus fuscus* de Winton, P.Z.S. *1896:* 804. Mazoe, Mashonaland, north-eastern Southern Rhodesia.

DASYMYS INCOMTUS NUDIPES Peters, 1870

1870. *Mus* (*Isomys*) *nudipes* Peters, J. Sci. Math. Phys. Nat., Lisboa, *3:* 126. Huilla (Huila), south-western Angola.

DASYMYS INCOMTUS BENTLEYAE Thomas, 1892

1892. *Mus* (*Dasymys*) *bentleyae* Thomas, Ann. Mag. N.H. *10:* 179. Ngombi, Lower Congo, Belgian Congo. Recorded from Dundo and district, north-eastern Angola.

DASYMYS INCOMTUS CAPENSIS Roberts, 1936

1936. *Dasymys incomtus capensis* Roberts, Ann. Transv. Mus. *18:* 254. La Plisante, Wolseley, south-western Cape Province. (The type locality is between Tulbagh and Ceres, but to the south of that line.)

Genus **PELOMYS** Peters, 1852

1852. *Pelomys* Peters, Ber. Preuss. Akad. Wiss., 275. *Mus* (*Pelomys*) *fallax* Peters.
1910. *Desmomys* Thomas, Ann. Mag. N.H. *5:* 284. *Pelomys harringtoni* Thomas, from Abyssinia. Valid as a subgenus.
1924. *Komemys* de Beaux, Ann. Mus. Stor. Nat. Genova, *51:* 207. *Komemys isseli* de Beaux, from Kome Island, Lake Victoria, Uganda. Valid as a subgenus.

Subgenus *PELOMYS* Peters, 1852

1. Hindfoot 24 mm. and less. Skull length in B.M. material is 29.6 mm. and less. *Pelomys minor*, page 290

   Hindfoot 28 mm. and more. Skull length in B.M. material exceeds 31 mm. ——2

2. Teeth larger, upper toothrow (crowns) normally exceed 6 mm. (not under 6.1 mm. in B. M. material). *Pelomys fallax*, page 289

   Teeth smaller, upper toothrow (crowns) 6 mm. at highest, usually less. *Pelomys campanae*, page 290

P. campanae is very close to *P. fallax*, but occurs with it in Angola. See also Hill & Carter. These authors only give the alveoli measurement for the upper molars but from their figures it will be seen that the length of the toothrow is the clearest division between the two species. The figures given above for *P. fallax* include only interlimital specimens.

Pelomys fallax Peters, 1852

Groove-toothed Swamp Rat; Creek Rat. Tropiese Groeftandrot

Distribution: Portuguese East Africa, including districts of Beira and Gorongoza, also north of the Zambezi. Mashonaland, Southern Rhodesia. The Caprivi strip, extreme northern South-West Africa. Angola (probably distributed throughout most of Angola wherever there are streams, Hill & Carter). Nyasaland and Northern Rhodesia. Beyond the limits of this work, the Belgian Congo, Tanganyika, Kenya, Uganda.

PELOMYS FALLAX FALLAX Peters, 1852

1852. *Mus* (*Pelomys*) *fallax* Peters, Ber. Preuss. Akad. Wiss., 275. Caya district, Zambezi River and Boror, Licuare River, Portuguese East Africa, of which the first is here designated the type locality.

Pelomys fallax frater Thomas, 1904.

1904. *Pelomys frater* Thomas, Ann. Mag. N.H. *13:* 415. Duque de Bragança, northern Angola.

Pelomys fallax insignatus Osgood, 1910

1910. *Pelomys fallax insignatus* Osgood, Ann. Mag. N.H. *5:* 276. Fort Hill, northern Nyasaland.

Pelomys fallax australis Roberts, 1913

1913. *Pelomys australis* Roberts, Ann. Transv. Mus. *4:* 90. Mazambeti, Beira, coastal southern Portuguese East Africa.

Pelomys fallax rhodesiae Roberts, 1929

1929. *Pelomys fallax rhodesiae* Roberts, Ann. Transv. Mus. *13:* 118. Machile River (a northern tributary of the upper Zambezi), southern part of western Northern Rhodesia.

Pelomys fallax vumbae Roberts, 1946

1946. *Pelomys fallax vumbae* Roberts, Ann. Transv. Mus. *20:* 320. Vumba, south-eastern Southern Rhodesia.

Pelomys campanae Huet, 1888. Huet's Groove-toothed Swamp Rat

Distribution: the northern two-thirds of Angola, and the western Congo, according to Hill & Carter.

Pelomys campanae Huet, 1888.

1888. *Golunda campanae* Huet, Le Naturaliste, *10:* 143. Landana (north of the Congo mouth), Cabinda. Occurs in Angola as just noted.

Pelomys minor Cabrera & Ruxton, 1926 Lesser Creek Rat

Distribution: north-eastern Angola (Dundo and district), and the Belgian Congo.

Pelomys minor Cabrera & Ruxton, 1926

1926. *Pelomys minor* Cabrera & Ruxton, Ann. Mag. N.H. *17:* 601. St. Joseph de Luluabourg, Belgian Congo.

Genus **LEMNISCOMYS** Trouessart, 1881

1881. *Lemniscomys* Trouessart, Bull. Soc. Études Sci. d'Angers, *10*, 2: 124. *Mus barbarus* Linnaeus, from Morocco.

Back with one dark stripe. *Lemniscomys griselda*, page 291
Back with a middorsal stripe on either side of which are several rows of spots.
Lemniscomys striatus, page 291

Lemniscomys striatus Linnaeus, 1758 Spotted Grass Rat

Distribution: northern Angola, also most of East Africa northwards to the Sudan and Abyssinia, and West Africa from the Belgian Congo to Sierra Leone.

Lemniscomys striatus striatus Linnaeus, 1758

1758. *Mus striatus* Linnaeus, Syst. Nat. 10th ed., *1:* 62. "India" = Sierra Leone (Thomas, 1911, P.Z.S., 148).

1864. *Golunda pulchella* Gray, P.Z.S., 57. West Africa.

Has been recorded from Pungo Andongo, Duque de Bragança, and Jinga country, northern Angola.

Lemniscomys griselda Thomas, 1904

Single-striped Grass Rat. Eenstreepmuis

Distribution: in the Union, the Transvaal; districts of Rustenburg, Pretoria, Leydsdorp, Klein Letaba, Tzaneen, Legogot (near White River). Natal (near Durban, Zululand). Swaziland. Portuguese East Africa, districts of Inhambane, Tete, Beira, Gorongoza, etc. Southern Rhodesia (Melsetter and Bulawayo, B.M.). The central Kalahari. In South-West Africa, according to Shortridge, "widely but apparently sparsely distributed north of the Tropic of Capricorn, the southern recorded limit of its range is Sandfontein (Gobabis-Bechuanaland border)". In Angola appears quite widely distributed, from Chitau and Hanha northwards, and includes Dundo. Nyasaland, Northern Rhodesia. Beyond the limits of this work, Tanganyika, Kenya, and an outlying form in Gambia.

Lemniscomys griselda griselda Thomas, 1904

1904. *Arvicanthis dorsalis griselda* Thomas, Ann. Mag. N.H. *13:* 414. Muene Coshi, Jinga country, northern Angola.

For the use of the name *griselda* instead of *dorsalis* see Thomas, 1927, P.Z.S., 385.

Lemniscomys griselda calidior Thomas & Wrougthon, 1908

1908. *Arvicanthis dorsalis calidior* Thomas & Wroughton, P.Z.S., 545. Tambarara, Gorongoza Mountains (north-westwards from Beira), western Portuguese East Africa. Ranges to Mashonaland, Southern Rhodesia, and Beira and Inhambane, southern Portuguese East Africa.

Lemniscomys griselda spinalis Thomas, 1916

1845. *Mus dorsalis* A. Smith, Illustr. Zool. S. Africa, Mamm. pl. 46, fig. 2. "North of the Great Orange River"; western Transvaal, according to Roberts. Not of Fischer, 1814.

1916. *Lemniscomys griselda spinalis* Thomas, Ann. Mag. N.H. *18:* 69, footnote. To replace *dorsalis* A. Smith, preoccupied.

Range: Rustenburg and Pretoria districts, Transvaal, also Bulawayo, Southern Rhodesia.

LEMNISCOMYS GRISELDA SABULATUS Thomas, 1927

1927. *Lemniscomys griselda sabulata* Thomas, P.Z.S., 385. Sandfontein, Gobabis district, eastern South-West Africa.

LEMNISCOMYS GRISELDA ZULUENSIS Roberts, 1931

1931. *Lemniscomys griselda zuluensis* Roberts, Ann. Transv. Mus. *14:* 235. Manaba, north-eastern Zululand, Natal.

LEMNISCOMYS GRISELDA FITZSIMONSI Roberts, 1932

1932. *Lemniscomys griselda fitzsimonsi* Roberts, Ann. Transv. Mus. *15:* 11. Kaotwe Pan, central Kalahari, Bechuanaland.

LEMNISCOMYS GRISELDA SABIENSIS Roberts, 1946

1946. *Lemniscomys griselda sabiensis* Roberts, Ann. Transv. Mus. *20:* 321. Gravellote, Leydsdorp district, north-eastern Transvaal.

Genus **URANOMYS** Dollman, 1909

1909. *Uranomys* Dollman, Ann. Mag. N.H. *4:* 551. *Uranomys ruddi* Dollman.

Uranomys ruddi Dollman, 1909 Rudd's Rat

Distribution: Nyasaland; Kenya, Uganda, Northern Nigeria, Gold Coast, French Guinea.

URANOMYS RUDDI RUDDI Dollman, 1909. (Extralimital)

1909. *Uranomys ruddi* Dollman, Ann. Mag. N.H. *4:* 552. Kirui, Mt. Elgon, 6,000 ft., Kenya.

URANOMYS RUDDI WOODI Hinton, 1921

1921. *Uranomys woodi* Hinton, Ann. Mag. N.H. *7:* 369. Cholo (south-east of Blantyre), southern Nyasaland.

URANOMYS RUDDI TENEBROSUS Hinton, 1921

1921. *Uranomys tenebrosus* Hinton, Ann. Mag. N.H. *7:* 370. Mkhoma, Dowa district, Nyasaland (*fide* K. H. Barnard, *in litt.* The type locality given by Hinton is really the native name).

For description of another form from Likabula, foot of Mt. Mlanje, Nyasaland, see Hayman, 1953, Ann. Mag. N.H. *6:* 317.

Genus **ACOMYS** I. Geoffroy, 1838

1838. *Acomys* I. Geoffroy, Ann. Sci. Nat. Paris, Zool. *10:* 126. *Mus cahirinus* Desmarest.

A large number of species is recognized in Africa in this genus. Nearly all of them can probably be considered as subspecies of the earliest-named *A. cahirinus*,

which was based on a commensal form from Egypt. But *A. russatus* (Egypt and Arabia), *A. wilsoni* (East Africa), and *A. subspinosus* (Cape Province) seem valid.

The last is remarkable for its small teeth. It is not a common species, but a certain number of specimens have been obtained and it seems that the characters we outline for it in the key are likely to prove constant enough to justify its retention as a species.

Teeth very small; the upper toothrow known to reach 3.5 mm. in one specimen only. *Acomys subspinosus*, page 293

Teeth less reduced, the upper toothrow normally 3.7 mm. and more. *Acomys cahirinus*, page 293

Acomys cahirinus Desmarest, 1819 Common Spiny Mouse. Stekelmuis

Distribution: in the Union, the Transvaal (Magalaqueen River, Zoutpansberg, Leydsdorp district). Portuguese East Africa, districts of Tete, Beira and Gorongoza south of the Zambezi and Boror north of that river. Southern Rhodesia (near Bulawayo, Melsetter district, etc.). Nyasaland; Northern Rhodesia (Ndola, Petauke district, etc.). Beyond the limits of this work, practically the whole of East Africa; northern Nigeria, Asben; Egypt, Libya, Algeria; Crete, Cyprus, Arabia, Palestine, southern Persia, western Sind (India).

Acomys cahirinus cahirinus Desmarest, 1819. (Extralimital)

1819. *Mus cahirinus* Desmarest, Nouv. Dict. H.N. *29:* 70. Cairo, Egypt.

Acomys cahirinus spinosissimus Peters, 1852

1852. *Mus* (*Acomys*) *spinosissimus* Peters, Ber. Preuss. Akad. Wiss., 274; Reise nach Mossambique, Säugeth. 160. Tete, on the Zambezi, Portuguese East Africa (Moreau, Hopkins & Hayman, 1946).

Acomys cahirinus selousi de Winton, 1897

1897. *Acomys selousi* de Winton, P.Z.S. *1896:* 807. Essex Farm, near Bulawayo, Matabeleland, western Southern Rhodesia. Probable synonym of *spinosissimus?* Recorded by Roberts from Nyasaland, Northern Rhodesia and parts of Portuguese East Africa.

Acomys cahirinus transvaalensis Roberts, 1926

1926. *Acomys transvaalensis* Roberts, Ann. Transv. Mus. *11:* 252. Newgate Farm, Zoutpansberg, northern Transvaal. Range: Transvaal as listed above. One of the smaller races of *A. cahirinus*.

Acomys subspinosus Waterhouse, 1838

Cape Spiny Mouse. Kaapse Stekelmuis

Distribution: the south-western Cape Province; Knysna, Cape Town, Simonstown, Citrusdal, Eendekuil, Clanwilliam district.

Acomys subspinosus Waterhouse, 1838

1838. *Mus subspinosus* Waterhouse, P.Z.S. *1837:* 104. Cape of Good Hope (from Table Mountain, Cape Town, *fide* Roberts).

Genus **BEAMYS** Thomas, 1909

1909. *Beamys* Thomas, Ann. Mag. N.H. *4:* 107. *Beamys hindei* Thomas, from Kenya.

There are two species, one which is smaller, from Kenya, and the other which is larger, from Nyasaland. So far no intermediate forms are known either in size or from the intervening region.

Beamys major Dollman, 1914 Larger Longtailed Pouched Rat

Distribution: Nyasaland.

Beamys major Dollman, 1914

1914. *Beamys major* Dollman, Ann. Mag. N.H. *14:* 428. Mlanje, southern Nyasaland.

Genus **SACCOSTOMUS** Peters, 1846

1846. *Saccostomus* Peters, Ber. Preuss. Akad. Wiss. 258. *Saccostomus campestris* Peters.
1903. *Eosaccomys* Palmer, Science, *17:* 873, to replace *Saccostomus* which was supposed to be preoccupied by *Saccostoma* Fitzinger, 1843, in reptiles.

We do not think there is more than one valid species in this genus. Roberts (1951, 439) thought two occurred together in Zululand, *campestris* and *fuscus*, the latter stated to be a "much larger species" but his table of measurements does not bear this out. We think it far more probable that *fuscus*, with its synonym *mashonae* is a synonym of the typical race.

Saccostomus campestris Peters, 1846

Cape Pouched Mouse. Wangsakmuis

Distribution: in the Union, the Transvaal, near Rustenburg, Moorddrift, near Pietersburg, Zoutpansberg district, Woodbush, Hectorspruit, etc. Zululand. The Modder River region. In the Cape Province, Kuruman, Molopo district, Louisvale (near Upington), Goodhouse (on Orange River, Little Namaqualand), Cradock, Grahamstown, Port Elizabeth, and according to Hewitt (1931) Rosmead (near Middelburg), Bedford and King William's Town. South-West Africa: "Pouched Mice range throughout South-West Africa, except possibly along the coastal desert" (Shortridge, 1934). The Kalahari, Bechuanaland, to Ngamiland. Southern Rhodesia (Bulawayo district, Mashonaland, etc.). Portuguese East Africa, recorded from districts of Beira, Tete, Inhambane and Gorongoza. Nyasaland, and Northern Rhodesia. Most of the interior of Angola, south of Hanha and west of the Cubango River; also recorded from Dundo. North of the limits of this work, Tanganyika, Uganda, Kenya and according to Shortridge the southern Belgian Congo.

Far too many subspecies appear to be named.

Saccostomus campestris campestris Peters, 1846

1846. *Saccostomus campestris* Peters, Ber. Preuss. Akad. Wiss. 258. Tete, on the Zambezi, Portuguese East Africa.

1852. *Saccostomus lapidarius* Peters, Reise nach Mossambique, Säugeth., 167. Substitute for *campestris*.

(1852. *Saccostomus fuscus* Peters, Reise nach Mossambique, Säugeth., 168. Inhambane, coastal southern Portuguese East Africa.)

(1897. *Saccostomus mashonae* de Winton, P.Z.S. *1896:* 804. Mazoe, Mashonaland, eastern Southern Rhodesia. Roberts makes this a synonym of *fuscus*.)

Range: Eastern Cape Province, Zululand, Portuguese East Africa, Southern Rhodesia to Nyasaland and Northern Rhodesia.

Saccostomus campestris elegans Thomas, 1897

1897. *Saccostomus elegans* Thomas, P.Z.S., 431. Karonga, north-western corner of Lake Nyasa, Northern Nyasaland. Ranges into Tanganyika.

Saccostomus campestris anderssoni de Winton, 1898

1898. *Saccostomus anderssoni* de Winton, Ann. Mag. N.H. *2:* 6. Damaraland, South-West Africa.

(1923. *Saccostomus pagei* Thomas & Hinton, P.Z.S., 495. Lehutitung, Kalahari, Bechuanaland.)

1938. *Saccostomus anderssoni angolae* Roberts, Ann. Transv. Mus. *19:* 240. Ondjiwa, southern Angola.

Saccostomus campestris hildae Schwann, 1906

1906. *Saccostomus hildae* Schwann, P.Z.S., 110. Kuruman, northern Cape Province. Range includes near Upington (southern bank of the Orange River), Goodhouse (Little Namaqualand), and has been recorded from near Bulawayo, Southern Rhodesia.

Saccostomus campestris limpopoensis Roberts, 1914

1914. *Saccostomus limpopoensis* Roberts, Ann. Transv. Mus. *4:* 183. Sand River, Zoutpansberg district, northern Transvaal (Mapogone, Roberts, 1951, 628). Roberts also quoted a specimen from the Modder River (most of which is in the Orange Free State).

Saccostomus campestris streeteri Roberts, 1914

1914. *Saccostomus streeteri* Roberts, Ann. Transv. Mus. *4:* 183. Hectorspruit, near southern border of the Kruger National Park, eastern Transvaal. Range includes Tzaneen, Rustenburg district, Moorddrift, etc., in the Transvaal. Probable synonym of the typical race.

Genus **CRICETOMYS** Waterhouse, 1840

1840. *Cricetomys* Waterhouse, P.Z.S., 2. *Cricetomys gambianus* Waterhouse.

Cricetomys gambianus Waterhouse, 1840 African Giant Rat. Reuserot

Distribution: in the Union, Zoutpansberg district, northern Transvaal (and reported from the Hluhluwe reserve, Zululand (African Wild Life, Vol. 5, No. 3,

p. 185)). Portuguese East Africa; districts of Inhambane, Beira and Gorongoza. Melsetter district, eastern Southern Rhodesia. Angola (western Angola southwards at least to Humpata, and the regions of Chitau and Dala in the central and eastern portion). Nyasaland, Northern Rhodesia (Ndola included). North of the limits of this work, East Africa as far north as Kenya and the Sudan; and from the Belgian Congo westwards to Gambia.

CRICETOMYS GAMBIANUS GAMBIANUS Waterhouse, 1840. (Extralimital)

1840. *Cricetomys gambianus* Waterhouse, P.Z.S., 2. River Gambia, West Africa.

CRICETOMYS GAMBIANUS ANSORGEI Thomas, 1904

1904. *Cricetomys ansorgei* Thomas, Ann. Mag. N.H. *13:* 412. Pungo Andongo, northern Angola.

CRICETOMYS GAMBIANUS VIATOR Thomas, 1904

1904. *Cricetomys gambianus viator* Thomas, Ann. Mag. N.H. *13:* 413. Likangala River, Zomba district, 15° 25′ S., 35° 30′ E., southern Nyasaland.

CRICETOMYS GAMBIANUS ADVENTOR Thomas & Wroughton, 1907

1907. *Cricetomys gambianus adventor* Thomas & Wroughton, P.Z.S., 295. Coguno, Inhambane district, southern Portuguese East Africa. Ranges to Beira and the mouth of the Limpopo, southern Portuguese East Africa.

CRICETOMYS GAMBIANUS CUNCTATOR Thomas & Wroughton, 1908

1908. *Cricetomys gambianus cunctator* Thomas & Wroughton, P.Z.S., 171. Tambarara, Gorongoza district (south of the Zambezi), western Portuguese East Africa.

CRICETOMYS GAMBIANUS HAAGNERI Roberts, 1926

1926. *Cricetomys gambianus haagneri* Roberts, Ann. Transv. Mus. *11:* 252. Ten miles north of Louis Trichardt, Zoutpansberg, northern Transvaal.

CRICETOMYS GAMBIANUS VAUGHANJONESI St. Leger, 1937

1937. *Cricetomys emini vaughan-jonesi* St. Leger, Ann. Mag. N.H. *20:* 148. Balovale, upper Zambezi (above the junction of the Kabompo River with the Zambezi), western Northern Rhodesia.

CRICETOMYS GAMBIANUS SELINDENSIS Roberts, 1946

1946. *Cricetomys gambianus selindensis* Roberts, Ann. Transv. Mus. *20:* 319. Mt. Selinda, Melsetter district, eastern Southern Rhodesia.

SUBFAMILY Dendromurinae

1. Four hindtoes only, the hallux absent. Tail short, usually less than half head and body length. Ear nearly as long as, or as long as, hindfoot. (Four functional digits on forefeet.) Genus *MALACOTHRIX*, page 305

Hindfoot with 5 toes. ——2

2. Manus with 3 functional digits. Hallux lacks claw. Tail longer than head and body, prehensile. (Often or usually with mid-dorsal stripe, but according to Roberts this is sometimes less marked or absent in females and young animals.)
Genus *DENDROMUS*, page 301
Manus with 4 functional digits. Hallux clawed. No stripe on back. ——3

3. Tail short, about 60 per cent of head and body at longest, usually less. Infraorbital foramen enlarged, its outer border prominently ridged, and with large masseter knob at its lower border. Pattern of cheekteeth more distinct. Upper incisors grooved. Genus *STEATOMYS*, page 298
Tail long, minimum about 90 per cent of head and body length. Infraorbital foramen more normal, without strong masseter knob at its lower border. Cheekteeth usually with pattern obscure. Upper incisors not grooved.
Genus *PETROMYSCUS*, page 297

Genus **PETROMYSCUS** Thomas, 1926

1926. *Petromyscus* Thomas, Ann. Mag. N.H. *17:* 179. *Praomys collinus* Thomas.

P. monticularis seems to be known only by two specimens, but differs rather sharply from the other named forms and is tentatively retained as a species.

Tail shorter than head and body; ear about 11–12 mm.
Petromyscus monticularis, page 298
Tail averages longer than head and body. Ear 13 mm. and more.
Petromyscus collinus, page 297

Petromyscus collinus Thomas & Hinton, 1925

Pygmy Rock Mouse. Kleinklipmuis

Distribution: Little Namaqualand (the Kamiesberg, north of Steinkopf, Goodhouse). South-West Africa; mountains of Great Namaqualand, Damaraland, the Kaokoveld, etc., northwards to Caporolo (south of Benguela) south-western Angola.

PETROMYSCUS COLLINUS COLLINUS Thomas & Hinton, 1925

1925. *Praomys collinus* Thomas & Hinton, P.Z.S., 237. Karibib (north-west of Windhoek), Damaraland, South-West Africa.

PETROMYSCUS COLLINUS BRUCHUS Thomas & Hinton, 1925

1925. *Praomys collinus bruchus* Thomas & Hinton, P.Z.S., 238. Great Brukkaros Mountain, near Berseba, Great Namaqualand, South-West Africa.

PETROMYSCUS COLLINUS SHORTRIDGEI Thomas, 1926

1926. *Petromyscus shortridgei* Thomas, P.Z.S., 302. Cunene (or Rua Cana) Falls, extreme southern Angola. Range includes the Kaokoveld, eastwards to Tsumeb district, north to Caporolo, Angola.

PETROMYSCUS COLLINUS KAOKOENSIS Roberts, 1938

1938. *Petromyscus shortridgei kaokoensis* Roberts, Ann. Transv. Mus. *19:* 239. Kamanjab, Kaokoveld, north-western South-West Africa.

PETROMYSCUS COLLINUS BARBOURI Shortridge & Carter, 1938

1938. *Petromyscus barbouri* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 288. Witwater, Kamiesberg, 3,500–3,800 ft., Little Namaqualand, north-western Cape Province.

PETROMYSCUS COLLINUS CAPENSIS Shortridge & Carter, 1938

1938. *Petromyscus collinus capensis* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 289. Goodhouse (Raman's Drift), south bank of Orange River, Little Namaqualand, north-western Cape Province.

PETROMYSCUS COLLINUS NAMIBENSIS Roberts, 1948

1948. *Petromyscus collinus namibensis* Roberts, Ann. Transv. Mus. *21:* 65. Okombahe, lower Omaruru River, borders of the Namib desert (north of Walvis Bay), South-West Africa.

Petromyscus monticularis Thomas & Hinton, 1925

Berseba Rock Mouse. Bersebase Klipmuis

Distribution: Berseba district of Great Namaqualand, South-West Africa.

PETROMYSCUS MONTICULARIS Thomas & Hinton, 1925

1925. *Praomys monticularis* Thomas & Hinton, P.Z.S. 238. Great Brukkaros Mountain, near Berseba, Great Namaqualand, South-West Africa.

Genus **STEATOMYS** Peters, 1846

1846. *Steatomys* Peters, Ber. Preuss. Akad. Wiss., 258. *Steatomys pratensis* Peters.

Although members of this genus vary very much individually in bodily size, there seems to be fair evidence that there are two species, a larger one and a smaller one, in Angola.

Average larger; skull usually about 28 mm. and more (averages 28 mm. in Hill & Carter's measurements). *Steatomys bocagei*, page 301

Average smaller; skull usually below 27 mm. *Steatomys pratensis*, page 298

Steatomys pratensis Peters, 1846 Fat Mouse. Vetmuis

Distribution: in the Union, the Transvaal, including Randfontein (west of Johannesburg), Witwatersrand, Tzaneen, Klein Letaba, Hectorspruit, Legogot (near White River). Natal, including Blood River, Bergville, Zululand, etc. Bothaville,

Orange Free State. In the Cape Province, Mafeking; also near Cape Town, Eendekuil, Wolseley, Tulbagh, Citrusdal and Klaver. Portuguese East Africa; recorded from Tete, and Lumbo (north of the Zambezi). Southern Rhodesia (Mashonaland), Ngamiland, the Kalahari; in South-West Africa, the northern and north-eastern parts, north of the Tropic of Capricorn (Shortridge). South-western and central Angola, also recorded from Dundo. Nyasaland; common in Northern Rhodesia. North of the limits of this work, similar forms occur in the Sudan, northern Nigeria, the Belgian Congo, Tanganyika and probably Kenya.

STEATOMYS PRATENSIS PRATENSIS Peters, 1846

1846. *Steatomys pratensis* Peters, Ber. Preuss. Akad. Wiss. 258. Tete, on the Zambezi, Portuguese East Africa.

1852. *Steatomys edulis* Peters, Reise nach Mossambique, Säugeth. 163. Substitute for *pratensis*.

Ranges to Zululand, and into the Transvaal (in part), and Southern Rhodesia.

STEATOMYS PRATENSIS KREBSI Peters, 1852

1852. *Steatomys krebsii* Peters, Reise nach Mossambique, Säugeth. 165. Interior of Kaffraria. Roberts thought from Graaff Reinet, eastern Cape Province, where the species is apparently unknown, or has not subsequently been taken.

STEATOMYS PRATENSIS PENTONYX Sclater, 1899

1899. *Malacothrix pentonyx* Sclater, Ann. S. Afr. Mus. *1:* 202. Cape Flats, near Cape Town. Range: western Cape Province, northwards to Klaver.

STEATOMYS PRATENSIS MINUTUS Thomas & Wroughton, 1905

1905. *Steatomys minutus* Thomas & Wroughton, Ann. Mag. N.H. *16:* 174. Quillenges, Benguela district, south-western Angola.

STEATOMYS PRATENSIS LOVERIDGEI Thomas, 1919

1919. *Steatomys loveridgei* Thomas, Ann. Mag. N.H. *4:* 33. Lumbo, mainland opposite Mozambique Island, 15° 1′ S., 40° 40′ E., sea level, northern Portuguese East Africa. Ranges into Tanganyika.

STEATOMYS PRATENSIS SWALIUS Thomas, 1926

1926. *Steatomys swalius* Thomas, P.Z.S. 300. Ondongwa, Ovamboland, northern South-West Africa.

1926. *Steatomys swalius umbratus* Thomas, P.Z.S. 301. Cunene (or Rua Cana) Falls, extreme southern Angola.

STEATOMYS PRATENSIS ORANGIAE Roberts, 1929

1929. *Steatomys krebsi orangiae* Roberts, Ann. Transv. Mus. *13:* 116. "Angra Pequina" Farm, Bothaville district, north-western Orange Free State.

STEATOMYS PRATENSIS TRANSVAALENSIS Roberts, 1929

1929. *Steatomys krebsi transvaalensis* Roberts, Ann. Transv. Mus. *13:* 117. Witfontein, Randfontein district (west of Johannesburg), western Transvaal. Ranges to Mafeking, northern Cape Province.

STEATOMYS PRATENSIS NATALENSIS Roberts, 1929

1929. *Steatomys natalensis* Roberts, Ann. Transv. Mus. *13:* 117. Bergville (below the Drakensberg), western Natal.

STEATOMYS PRATENSIS CHIVERSI Roberts, 1931

1931. *Steatomys chiversi* Roberts, Ann. Transv. Mus. *14:* 233. Blood River, Newcastle district, northern Natal.

STEATOMYS PRATENSIS TONGENSIS Roberts, 1931

1931. *Steatomys chiversi tongensis* Roberts, Ann. Transv. Mus. *14:* 233. Manaba, northern Zululand, Natal.

STEATOMYS PRATENSIS KALAHARICUS Roberts, 1932

1932. *Steatomys krebsi kalaharicus* Roberts, Ann. Transv. Mus. *15:* 11. Twenty-five miles west of Damara Pan, central Kalahari, Bechuanaland.

STEATOMYS PRATENSIS MAUNENSIS Roberts, 1932

1932. *Steatomys pratensis maunensis* Roberts, Ann. Transv. Mus. *15:* 11. Shorobe, Maun district, Ngamiland, northern Bechuanaland.

STEATOMYS PRATENSIS KASAICUS Hatt, 1934

1934. *Steatomys pratensis kasaicus* Hatt, Amer. Mus. Novit. No. 708: 15. Luluabourg, Kasai district, southern Belgian Congo. Has been recorded from Dundo district, north-eastern Angola.

STEATOMYS PRATENSIS LEUCORHYNCHUS Hill & Carter, 1937

1937. *Steatomys minutus leucorhynchus* Hill & Carter, Amer. Mus. Novit. No. 913: 4. Capelongo, Huilla district, south-western Angola.

STEATOMYS PRATENSIS ANGOLENSIS Hill & Carter, 1937

1937. *Steatomys angolensis* Hill & Carter, Amer. Mus. Novit. No. 913: 5. Chitau, 4,930 ft., central Angola.

STEATOMYS PRATENSIS BRADLEYI Hill & Carter, 1937

1937. *Steatomys angolensis bradleyi* Hill & Carter, Amer. Mus. Novit. No. 913: 5. Humpata, 6,300 ft., Huilla district, south-western Angola.

The last two forms are little known, each apparently being based on a single specimen.

Steatomys bocagei Thomas, 1892 Bocage's Fat Mouse

Distribution: Angola, throughout most of the central interior region (Hill & Carter); records include Chitau, Caconda, Chissonque, east of Dando, Quindumbo, Bihé district, Duque de Bragança, etc.

STEATOMYS BOCAGEI Thomas, 1892

1892. *Steatomys bocagei* Thomas, Ann. Mag. N.H. *10:* 264. Caconda, east of Benguela, Angola.

Genus **DENDROMUS** A. Smith, 1829

1829. *Dendromus* A. Smith, Zool. J. *4:* 438. *Dendromus typus* A. Smith = *Mus mesomelas* Brants.
1832. *Dendromys* Smuts, Enum. Mamm. Cap., 39. Emendation.
1916. *Poemys* Thomas, Ann. Mag. N.H. *18:* 238. *Dendromus melanotis* A. Smith.
1916. *Chortomys* Thomas, Ann. Mag. N.H. *18:* 238. *Dendromus lovati* de Winton, from Abyssinia.

On this genus see Bohmann, 1942, Die Gattung *Dendromus* A. Smith, *Zool. Anz. 139:* 33.

The differences between the two species groups (*mesomelas* group and *melanotis*) of *Dendromus* seem far less than some authors, who have separated them subgenerically, would have us believe.

We follow Bohmann's classification, who recognized two species in the *mesomelas* group, a larger one and a smaller one, occurring together through most of Africa south of the Sahara, although the difference between these two species is average rather than absolute.

Bohmann called the smaller species *Dendromus pumilio* Wagner, 1841, but Wagner later stated that this name was based on a young specimen of *D. mesomelas*, and as it has no exact locality, and the description is not very helpful, we prefer to regard it as not certainly identifiable, and we adopt the next available name, *mystacalis*.

1. General colour normally grey. Fifth hindtoe with nail. (Skull small, about as in *D. mystacalis*). *Dendromus melanotis*, page 303
General colour normally brown. Fifth hindtoe with claw. ——2

2. Average larger, normally adult skulls 22 mm. and more. Hairs of underparts usually slaty at base. *Dendromus mesomelas*, page 301
Average smaller, adult skulls 21 mm. and less. Hairs of underparts either white to base or tinged with ochraceous. *Dendromus mystacalis*, page 302

Dendromus mesomelas Brants, 1827

Chestnut Tree-Mouse or Climbing Mouse. Rooiboommuis; Klimmuis

Distribution: in the Union, the eastern Transvaal (Tzaneen, Woodbush, Marieps-kop, Barberton district, near Wakkerstroom); Estcourt and Durban, Natal; in the

Cape Province, Port St. Johns and Notinsila, Pondoland; Port Alfred (Hewitt), Knysna; and in the western Province, Wolseley, Tulbagh and Eendekuil. The Okavango district of northern South-West Africa. Angola (Chitau). N. Rhodesia. To the north Tanganyika, Belgian Congo, Kenya, Abyssinia, southern Nigeria.

DENDROMUS MESOMELAS MESOMELAS Brants, 1827

1827. *Mus mesomelas* Brants, Het Geslacht der Muizen, 122. "Near Zondags River"; (Sundays River, just east of Port Elizabeth, eastern Cape Province).
1829. *Dendromus typus* A. Smith, Zool. J. *4:* 439. South Africa.
1834. *Dendromys typicus* A. Smith, S. Afr. J. *2:* 158. Renaming of *typus*.
(1841. *Dendromys pumilio* Wagner, Gelehrte Anzeigen, *12:* 437. Cape of Good Hope. (Juvenile *D. mesomelas?*).)
1913. *Dendromus longicaudatus* Roberts, Ann. Transv. Mus. *4:* 83. Tzaneen, eastern Transvaal.
1913. *Dendromus ayresi* Roberts, Ann. Transv. Mus. *4:* 83. Port St. Johns, eastern Cape Province.

Range: Union localities listed above.

DENDROMUS MESOMELAS MAJOR St. Leger, 1930

1930. *Dendromus mesomelas major* St. Leger, Ann. Mag. N.H. *6:* 622. Ssanukanu Village, Grootfontein district, northern South-West Africa.

DENDROMUS MESOMELAS VERNAYI Hill & Carter, 1937

1937. *Dendromus mesomelas vernayi* Hill & Carter, Amer. Mus. Novit. No. 913: 4. Chitau, 4,930 ft., central Angola.

Dendromus mystacalis Heuglin, 1863

Lesser Climbing Mouse. Kleinklimmuis

Distribution: in the Union, Tzaneen, eastern Transvaal, Estcourt and Zululand, Natal, in the Cape Province, Ngqeleni (Pondoland), Pirie (near King William's Town), and, according to Roberts, Knysna. Swaziland. Chirinda Forest, Southern Rhodesia. Northern Rhodesia. East Loangwa district, near the western border, northern Portuguese East Africa (British Museum). Nyasaland. Angola (as below). Further to the north, Tanganyika, Kenya, Abyssinia, the Cameroons.

DENDROMUS MYSTACALIS MYSTACALIS Heuglin, 1863. (Extralimital)

1863. *Dendromys mystacalis* Heuglin, Nova Acta Leop. Carol. *30*, 2, suppl.: 5. Bäschlo region, Abyssinia. (= Bashilo River?)

DENDROMUS MYSTACALIS MESSORIUS Thomas, 1903

1903. *Dendromys messorius* Thomas, Ann. Mag. N.H. *12:* 340. Efulen, Cameroons. Recorded from Dundo, north-eastern Angola.

Dendromus mystacalis ansorgei Thomas & Wroughton, 1905.

1905. *Dendromus ansorgei* Thomas & Wroughton, Ann. Mag. N.H. *16:* 173. Caconda, east of Benguela, Angola. Recorded also from Chitau and Caiala (Bihé district), Angola.

Dendromus mystacalis whytei Wroughton, 1909

1909. *Dendromus whytei* Wroughton, Ann. Mag. N.H. *3:* 247. Fort Hill, northern Nyasaland.

Dendromus mystacalis jamesoni Wroughton, 1909

1909. *Dendromus jamesoni* Wroughton, Ann. Mag. N.H. *3:* 247. Tzaneen, eastern Transvaal. (Originally cited as Zoutpansberg; Tzaneen is about 50 miles south-east of that range.)

1931. *Dendromus jamesoni pongolensis* Roberts, Ann. Transv. Mus. *14:* 232. Pongola River, 15 miles west of Manaba, north-eastern Zululand, Natal.

Dendromus mystacalis nyikae Wroughton, 1909

1909. *Dendromus nyikae* Wroughton, Ann. Mag. N.H. *3:* 248. Nyika Plateau, northern Nyasaland.

1916. *Dendromus nyasae* Thomas, Ann. Mag. N.H. *18:* 241. Nyika Plateau, northern Nyasaland.

(These two forms have been referred to different subgenera (!); Bohmann referred them to *melanotis*, but they seem to belong more with *mystacalis*.)

Dendromus melanotis A. Smith, 1834

Grey Pygmy Tree-Mouse. Grysboommuis; Swartoorklimmuis

Distribution: in the Union, in the Transvaal known from Pretoria, Legogot (near White River) and Wakkerstroom district. Estcourt, Durban, Mooi River, Zululand, etc., in Natal. Parys, extreme northern Orange Free State. Basutoland. In the Cape Province, Vryburg, Molopo district; Grahamstown, King William's Town, Blythswood, Port Elizabeth, Knysna, near Cape Town (Kirstenbosch, British Museum), Wolseley, Tulbagh, Citrusdal, and the Kamiesberg (Little Namaqualand). Northern South-West Africa (the Okavango, Caprivi and Ovamboland). Southern Rhodesia (eastern districts, Mazoe and Melsetter). Northern Rhodesia, Nyasaland. Angola (the south-western districts, Chitau and Golungo Alto). Thence northwards to Kenya, Abyssinia and northern Nigeria.

Dendromus melanotis melanotis A. Smith, 1834

1834. *Dendromys melanotis* A. Smith, S. Afr. J. *2:* 158. Near "Port Natal" = Durban, Natal.

1846. *Dendromys subtilis* Sundevall, Öfvers. Vetensk. Akad. Förh. Stockholm, *3:* 120. South Africa.

1927. *Dendromus melanotis basuticus* Roberts, Rec. Albany Mus. *3:* 484. Thaba Putsua Mountain, Basutoland.

DENDROMUS MELANOTIS MELANOTIS [*contd.*]

1929. *Dendromus* (*Poemys*) *melanotis chiversi* Roberts, Ann. Transv. Mus. *13:* 116. Vlakfontein, Parys district, northern Orange Free State.

1931. *Dendromus melanotis thorntoni* Roberts, Ann. Transv. Mus. *14:* 231. Port Elizabeth, eastern Cape Province.

1931. *Dendromus melanotis capensis* Roberts, Ann. Transv. Mus. *14:* 232. Wolseley, south-western Cape Province.

1938. *Poemys melanotis insignis* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 287. Not of Thomas, 1903. Eselfontein, Kamiesberg, Little Namaqualand, north-western Cape Province.

DENDROMUS MELANOTIS PECILEI Milne-Edwards, 1886.

1886. *Dendromys pecilei* Milne-Edwards, Rev. Sci. Paris, *12:* 16. "Lower Congo to Ogowe River." A specimen in B.M. bearing this name from Golungo Alto, northern Angola.

DENDROMUS MELANOTIS NIGRIFRONS True, 1892

1892. *Dendromys nigrifrons* True, Proc. U.S. Nat. Mus. *15:* 462. Mount Kilimanjaro, Tanganyika. Recorded from Northern Rhodesia by Pitman. Specimens in B. M. (Ansell).

DENDROMUS MELANOTIS VULTURNUS Thomas, 1916

1916. *Dendromus* (*Poemys*) *nigrifrons vulturnus* Thomas, Ann. Mag. N.H. *18:* 242. Chirinda Forest, Melsetter district, south-eastern Southern Rhodesia. Ranges to eastern Transvaal and north-eastern Zululand.

DENDROMUS MELANOTIS ARENARIUS Roberts, 1924

1924. *Dendromus* (*Poemys*) *arenarius* Roberts, Ann. Transv. Mus. *10:* 71. "Angra Pequina" Farm, Bothaville, north-western Orange Free State (see Roberts, 1951: 448). Ranges to Molopo River region, northern Cape Province.

DENDROMUS MELANOTIS CONCINNUS Thomas, 1926

1926. *Dendromus* (*Poemys*) *concinnus* Thomas, P.Z.S. 299. Otjumbumbi, Cunene River, extreme southern Angola. Ranges in Ovamboland, northern South-West Africa.

DENDROMUS MELANOTIS ANGOLENSIS Roberts, 1929

1929. *Dendromus* (*Poemys*) *angolensis* Roberts, Ann. Transv. Mus. *13:* 115. Mombolo (= Namba), central western Angola. Also recorded from Chitau by Hill & Carter.

DENDROMUS MELANOTIS SHORTRIDGEI St. Leger, 1930

1930. *Dendromus* (*Poemys*) *nigrifrons shortridgei* St. Leger, Ann. Mag. N.H. *6:* 622. Ssanukanu Village, Grootfontein district, northern South-West Africa.

1931. *Dendromus melanotis pretoriae* Roberts, Ann. Transv. Mus. *14:* 232. Rietondale, Pretoria, Transvaal.

Range includes Ngamiland and Okavango district.

DENDROMUS MELANOTIS LEUCOSTOMUS Monard, 1933

1933. *Dendromus leucostomus* Monard, Bull. Soc. Sci. Nat. Neuchâtel, *57:* 55. Caluquembe, western Angola.

Genus **MALACOTHRIX** Wagner, 1843

1843. *Malacothrix* Wagner, Schreber's Säugth. Suppl. *3:* 496. *Otomys typicus* A. Smith.[1]

Malacothrix typica A. Smith, 1834 Mouse Gerbil. Grootoormuis

Distribution: in the Union, the western and southern Transvaal, Krugersdorp district, Bloemhof, and Volksrust (near the Natal border). The Orange Free State (Vredefort district); Basutoland. In the Cape Province, Kimberley, Mafeking, Fourteen Streams, Molopo district; near Queenstown, Deelfontein, Vredendal, Klaver, Graaff Reinet, and (according to Shortridge) Beaufort West and Cradock. South-West Africa; Ovamboland, and Gobabis. The Kalahari. Extreme southern Angola (Mupanda).

MALACOTHRIX TYPICA TYPICA A. Smith, 1834

1834. *Otomys typicus* A. Smith, S. Afr. J. *2:* 148. Near Graaff Reinet, eastern Cape Province.

MALACOTHRIX TYPICA FRYI Roberts, 1917

1917. *Malacothrix typicus fryi* Roberts, Ann. Transv. Mus. *5:* 268. Klipriviersoog, Krugersdorp district (west of Johannesburg), Transvaal.

1951. *Malacothrix typicus harveyi* Roberts, Mamm. S. Africa, 455. ("*harveyi*" appears to be a *lapsus* for *fryi*.)

Ranges into the northern Orange Free State and to Mafeking.

MALACOTHRIX TYPICA EGERIA Thomas, 1926

1926. *Malacothrix egeria* Thomas, P.Z.S., 301. Ondongwa (Ondonga), central Ovamboland, South-West Africa. Ranges into southern Angola.

MALACOTHRIX TYPICA KALAHARICUS Roberts, 1932

1932. *Malacothrix typicus kalaharicus* Roberts, Ann. Transv. Mus. *15:* 10. Kuke Pan, central Kalahari, Bechuanaland.

MALACOTHRIX TYPICA DAMARENSIS Roberts, 1932

1932. *Malacothrix typicus damarensis* Roberts, Ann. Transv. Mus. *15:* 10. Gobabis, on western border of the Kalahari desert, eastern South-West Africa.

MALACOTHRIX TYPICA MOLOPENSIS Roberts, 1933

1933. *Malacothrix typicus molopensis* Roberts, Ann. Transv. Mus. *15:* 266. Eight miles west of Pitsani, Molopo River, in southern Bechuanaland.

[1] *Otomys* A. Smith, 1834, was not *Otomys* Cuvier, 1824. Smith used *Euryotis* for that genus.

Subfamily Otomyinae

Although much less specialized cranially and less aberrant dentally the Otomyinae seem to take the place of the Holarctic subfamily Microtinae which is absent south of the Sahara.

Bullae much enlarged (10.8 mm. minimum in adult); the basioccipital between them narrowed. Genus *PAROTOMYS*, page 312

Bullae not or less enlarged (9.5 mm. maximum), the basioccipital between them less narrowed. Genus *OTOMYS*, page 306

Genus **OTOMYS** F. Cuvier, 1824

1824. *Otomys* F. Cuvier, Dents Mamm. 168 (vernacular, 1823), 255 (scientific, 1824), pl. 60. *Euryotis irrorata* Brants.
1827. *Euryotis* Brants, Het Geslacht der Muizen, 93. *Euryotis irrorata* Brants.
1877. *Oreomys* Heuglin, Reise in Nordost-Afrika, *2:* 76. *Oreomys typus* Heuglin, from Abyssinia.
1881. *Oreinomys* Trouessart, Bull. Soc. Études Sci. Angers, *10:* 111. Substitute for *Oreomys* Heuglin, thought to be preoccupied by *Orenomys* Aymard, 1855.
1918. *Myotomys* Thomas, Ann. Mag. N.H. *2:* 204, 206. *Otomys unisulcatus* Brants = *Otomys unisulcatus* F. Cuvier.
1918. *Anchotomys* Thomas, Ann. Mag. N.H. *2:* 204, 208. *Otomys anchietae* Bocage.
1918. *Lamotomys* Thomas, Ann. Mag. N.H. *2:* 208. *Otomys laminatus* Thomas & Schwann.
1937. *Metotomys* Broom, S. Afr. J. Sci. *33:* 765. *Otomys turneri* Wroughton, a race of *Otomys sloggetti* Thomas.

F. Cuvier, 1821–1825, *Dents des Mammifères*, is an available work. *Otomys* is, however, described without mention of any species by name. *Euryotis* Brants contained only one species, *E. irrorata* and is a synonym of *Otomys* (the identity of these genera was suggested as early as 1830 by Lichtenstein in his *Darstellung Säugethiere* and recognized by Smuts, 1832, *Enumerationem Mammalium Capensium*, 45). *Otomys* has stood as a generic name for 120 years and should be placed on the official list. The type of *Otomys* was fixed by W. L. Sclater, 1899, *Ann. S. Afr. Mus. 1:* 195-198.

On this genus see Wroughton, 1906, *Notes on the genus Otomys*, *Ann. Mag. Nat. Hist.* 18: 264, and Dollman, 1915, *On the Swamp-Rats (Otomys) of East Africa. Ann. Mag. N.H. 15:* 149.

On Thomas's supposed genera and subgenera see Ellerman, 1941, *Fam. Gen. Liv. Rodents, 2:* 319–320.

1. Lamination of molars at maximum; the first lower with normally 6–7 laminae, the third upper with 9 or 10. (Upper and lower incisors well grooved). *Otomys laminatus*, page 307

Lamination of molars less marked; the first lower with 4–5, the third upper with 4–7 (South Africa, or rarely with 8 north of the region now under consideration). ——2

2. First lower molar with 5 laminae. (Upper and lower incisors grooved).
Otomys anchietai, page 308
First lower molar with 4 laminae. ——3

3. Lower incisors (as well as the upper ones) well grooved. (Third upper molar with 5–7 laminae.) ——4
Lower incisors usually plain (and the upper ones may become so). ——5

4. The width of the nasals is 6.3 mm. and less. *Otomys saundersiae*, page 310
The width of the nasals (South Africa) is 6.5 mm. and more.
Otomys irroratus,[1] page 308

5. Tail short, less than half head and body length. (Third upper molar with 4 or 5 laminae.) *Otomys sloggetti*, page 311
Tail longer, on average more than half head and body length, usually over 60 per cent of it. (Third upper molar usually with 4 laminae.)
Otomys unisulcatus, page 310

Otomys laminatus Thomas & Schwann, 1905

Laminate Vlei Rat. Bergvleimuis

Distribution: The eastern Transvaal (Mariepskop (near Lydenburg)), Natal (Dargle (near Howick) and Zululand), the eastern Cape Province, Pondoland, and the western Cape Province, near Paarl.

Otomys laminatus laminatus Thomas & Schwann, 1905

1905. *Otomys laminatus* Thomas & Schwann, Abstr. P.Z.S. No. 18: 23; P.Z.S., *1:* 267. Sibudeni, Zululand, Natal.

Otomys laminatus silberbaueri Roberts, 1919

1919. *Otomys silberbaueri* Roberts, Ann. Transv. Mus. *6:* 114. Lormarins, Franschoek Valley, opposite Paarl, south-western Cape Province.

Otomys laminatus pondoensis Roberts, 1924

1924. *Otomys* (*Lamotomys*) *laminatus pondoensis* Roberts, Ann. Transv. Mus. *10:* 71. Ngqeleni, western Pondoland, Eastern Cape Province. Probable synonym of the typical race.

Otomys laminatus mariepsi Roberts, 1929

1929. *Otomys* (*Lamotomys*) *laminatus mariepsi* Roberts, Ann. Transv. Mus. *13:* 110. Mariepskop, Lydenburg district, eastern Transvaal. Probable synonym of the typical race.

[1] We do not accept Roberts' subdivision of the *irroratus* group into two species based, apparently, on whether the nasals have or have not a sharp angle at the base of the expansion; this seems altogether too slight a character on which to base species, and as there seem no other characters or measurements which will divide his species in cases of apparent geographical overlap, we have thought it best to synonymize forms where necessary.

Otomys laminatus fannini Roberts, 1951

1951. *Lamotomys laminatus fannini* Roberts, Mamm. S. Africa, 426. Kilgobbin Farm, near Dargle Rail Station, central Natal. Probable synonym of the typical race.

Otomys anchietai Bocage, 1882 Anchieta's Swamp Rat

Distribution: Angola (according to Hill & Carter, probably restricted to the northern two-thirds of Angola and the adjacent part of the Congo). Tanganyika.

Otomys anchietai anchietai Bocage, 1882

1882. *Euryotis anchietae* Bocage, J. Sci. Phys. Math. Nat., Lisboa, *9:* 26. Caconda, east of Benguela, Angola.

Otomys irroratus Brants, 1827 Vlei Rat. Vleirot; Vleimuis

Distribution: in the Union, the Transvaal; Zoutpansberg, Pietersburg, Woodbush, Tzaneen, Klein Letaba, Lydenburg district, Wakkerstroom, Pretoria, Johannesburg, Rustenburg, Krugersdorp, Potchefstroom, etc. Natal, including Estcourt, Utrecht, Dargle district, Zululand. Orange Free State; Aberfeldy (near Harrismith), Vredefort, Kroonstad, Bethlehem, Fouriesburg, etc. Basutoland; Maseru, and Maluti Mountains. In the Cape Province, Kuruman, Vryburg, the Kamiesberg in Little Namaqualand, Citrusdal, Clanwilliam, near Lamberts Bay, Van Rhynsdorp, Tulbagh, Wolseley, Worcester, Paarl, Cape Town, Elgin, Simonstown, George, Knysna, Grahamstown, Uitenhage, King William's Town, Griqualand East, Pondoland. Inhambane district, Portuguese East Africa. Southern Rhodesia; in South-West Africa, the reedbeds and marshes of the Okavango and the rivers of the Caprivi, and in swampy sections of the Omurambe-Omatako as far south as Ssanukanu Village (Shortridge, 1934). Angola, where apparently widely distributed. Nyasaland, Northern Rhodesia. Similar forms occur northwards to Kenya and southern Nigeria.

Otomys irroratus irroratus Brants, 1827

1827. *Euryotis irrorata* Brants, Het Geslacht der Muizen, 94. Near Constantia (Cape Town district) (A. Smith, 1834).

1829. *Otomys capensis* G. Cuvier, Règne Anim. ed. *2*, *1:* 208.
(In his additions and corrections, on p. 581, Cuvier says that *capensis* is a synonym of *irrorata*).

1834. *Euryotis typicus* A. Smith, S. Afr. J. *2:* 149. Near Constantia (Cape Town district). Renaming of *irrorata*.

1842. *Otomys bisulcatus* F. Cuvier in Geoffroy & Cuvier, H.N. Mamm. *4:* Tab. Gén. 4. Namaqualand.

1842. *Euryotis obscura* Lichtenstein, Verz. Samml. Kaffernlande, 10. "Kaffirland."

Range: western and southern coastal belt of the Cape Province, eastwards to Pondoland.

OTOMYS IRRORATUS AURATUS Wroughton, 1906

1906. *Otomys irroratus auratus* Wroughton, Ann. Mag. N.H. *18:* 272. Vredefort, northern Orange Free State.

OTOMYS IRRORATUS CUPREUS Wroughton, 1906

1906. *Otomys irroratus cupreus* Wroughton, Ann. Mag. N.H. *18:* 273. Woodbush, Pietersburg district, Transvaal. (Originally given as Zoutpansberg, in error.)

OTOMYS (?)IRRORATUS ANGONIENSIS Wroughton, 1906

1906. *Otomys irroratus angoniensis* Wroughton, Ann. Mag. N.H. *18:* 274. M'Kombhuie, Angoniland, 8,000 ft., Nyasaland.

OTOMYS (?) IRRORATUS NYIKAE Wroughton, 1906

1906. *Otomys irroratus nyikae* Wroughton, Ann. Mag. N.H. *18:* 276. Nyika Plateau, 6,500 ft., northern Nyasaland.

OTOMYS IRRORATUS COENOSUS Thomas, 1918

1918. *Otomys irroratus coenosus* Thomas, Ann. Mag. N.H. *2:* 208. Kuruman, northern Cape Province.

OTOMYS IRRORATUS ROWLEYI Thomas, 1918

1918. *Otomys rowleyi* Thomas, Ann. Mag. N.H. *2:* 209. Coguno, Inhambane district, Portuguese East Africa. Roberts also quotes specimens from eastern Southern Rhodesia.

OTOMYS IRRORATUS MASHONA Thomas, 1918

1918. *Otomys mashona* Thomas, Ann. Mag. N.H. *2:* 210. Mazoe, Mashonaland, north-eastern Southern Rhodesia.

OTOMYS IRRORATUS MAXIMUS Roberts, 1924

1924. *Otomys irroratus maximus* Roberts, Ann. Transv. Mus. *10:* 70. Machile River (tributary of the Zambezi), southern part of western Northern Rhodesia. Ranges to the Okavango and Chobe rivers, and western and southern Angola.

OTOMYS IRRORATUS NATALENSIS Roberts, 1929

1929. *Otomys irroratus natalensis* Roberts, Ann. Transv. Mus. *13:* 111. Kilgobbin, Dargle district, central Natal. Range includes Wakkerstroom, south-eastern Transvaal.

OTOMYS IRRORATUS RANDENSIS Roberts, 1929

1929. *Otomys irroratus randensis* Roberts, Ann. Transv. Mus. *13:* 112. Fontainebleau, Johannesburg, Transvaal.

(1929. *Otomys tugelensis pretoriae* Roberts, Ann. Transv. Mus. *13:* 114. Fountains Valley, Pretoria, Transvaal.

Ranges to Marico district and Vryburg, northern Cape Province (*pretoriae*).)

OTOMYS IRRORATUS TUGELENSIS Roberts, 1929

1929. *Otomys tugelensis* Roberts, Ann. Transv. Mus. *13:* 113. Klipspruit, Utrecht, northern Natal. Range includes Zululand, and Carolina district, south-eastern Transvaal.

OTOMYS IRRORATUS SABIENSIS Roberts, 1929

1929. *Otomys tugelensis sabiensis* Roberts, Ann. Transv. Mus. *13:* 114. Mariepskop, Lydenburg district, eastern Transvaal.

(1946. *Otomys cupreus cupreoides* Roberts, Ann. Transv. Mus. *20:* 318. Newgate Farm, Zoutpansberg, northern Transvaal.)

OTOMYS IRRORATUS CUANZENSIS Hill & Carter, 1937

1937. *Otomys cuanzensis* Hill & Carter, Amer. Mus. Novit. No. 913: 7. Chitau, 4930 ft., central Angola. Northern Angolan records may refer to this form.

OTOMYS IRRORATUS ORIENTALIS Roberts, 1946

1946. *Otomys irroratus orientalis* Roberts, Ann. Transv. Mus. *20:* 318. Umzimkulu, Griqualand East, near the Natal border, eastern Cape Province.

Otomys saundersiae Roberts, 1929 Saunders' Vlei Rat. Kleinvleirot

Distribution: Cape Province; Grahamstown, King William's Town, near Citrusdal, Wolseley, Tulbagh, Eendekuil.

OTOMYS SAUNDERSIAE Roberts, 1929

1929. *Otomys tugelensis saundersiae* Roberts, Ann. Transv. Mus. *13:* 115. Grahamstown, eastern Cape Province.

1931. *Otomys karoensis* Roberts, Ann. Transv. Mus. *14:* 231. Tulbagh, south-western Cape Province (see Roberts, 1951, 425. "Wolseley" in the original description is an error).

Otomys unisulcatus F. Cuvier, 1829

Bush Karroo Rat. Boskarorot; Boskaromuis

Distribution: Cape Province; Little Namaqualand (Port Nolloth, north of Steinkopf, Springbok, the Kamiesberg, Garies), Vredendal (near Van Rhynsdorp), Lamberts Bay, near Clanwilliam, Saldanha Bay, east of Calvinia, Van Wyk's Vlei, Brandvlei (Bushmanland), Hanover, Cradock, Deelfontein, Albany district, Bedford, Grahamstown, Matjesfontein, Oudtshoorn, probably near Ladismith, Victoria West, and according to Shortridge, George and Port Elizabeth.

OTOMYS UNISULCATUS UNISULCATUS F. Cuvier, 1829

1829. *Otomys unisulcatus* F. Cuvier in Geoffroy & Cuvier, H.N. Mamm. *3:* livraison 60 (pl. and text on "Otomys cafré"). South Africa; type locality nominated as Matjesfontein, on the south-western Karroo, south-west of Laingsburg, Cape Province by Roberts.

Otomys unisulcatus granti Thomas, 1902

1902. *Otomys unisulcatus grantii* Thomas, Ann. Mag. N.H. *10:* 312. Deelfontein, north of Richmond, central Cape Province. Ranges to Cradock, Hanover, Oudtshoorn and Bushmanland.

Otomys unisulcatus broomi Thomas, 1902

1902. *Otomys broomi* Thomas, Ann. Mag. N.H. *10:* 313. Port Nolloth, coastal Little Namaqualand, north-western Cape Province.

Otomys unisulcatus bergensis Roberts, 1929

1929. *Myotomys unisulcatus bergensis* Roberts, Ann. Transv. Mus. *13:* 108. Lamberts Bay (west of Clanwilliam), western Cape Province.

Otomys unisulcatus albaniensis Roberts, 1946

1946. *Myotomys unisulcatus albaniensis* Roberts, Ann. Transv. Mus. *20:* 318. Kleinpoort, near Committees Drift, Albany district, south-eastern Cape Province.

Otomys sloggetti Thomas, 1902

Sloggett's Karroo Rat; Ice Rat. Sloggettse Karorot; Ysrot

Distribution: Wakkerstroom, south-eastern Transvaal; Aberfeldy (near Harrismith), Orange Free State; northern and southern Basutoland; and in the Cape Province, Deelfontein, Jamestown (south of Aliwal North), Hanover, Lady Frere (north-east of Queenstown), Beaufort West and Victoria West.

Otomys sloggetti sloggetti Thomas, 1902

1902. *Otomys sloggetti* Thomas, Ann. Mag. N.H. *10:* 311. Deelfontein, north of Richmond, central Cape Province.

Otomys sloggetti turneri Wroughton, 1907

1907. *Otomys turneri* Wroughton, Ann. Mag. N.H. *20:* 31. Aberfeldy, near Harrismith, north-eastern Orange Free State. Ranges to Wakkerstroom, south-eastern Transvaal.

Otomys sloggetti robertsi Hewitt, 1927. (Ice Rat)

1927. *Otomys robertsi* Hewitt, Rec. Albany Mus. *3:* 430. Summit of Mont-aux-Sources, 11,500 ft., borders of north-eastern Basutoland and Orange Free State. Range includes Maluti Mountains, Basutoland.

Otomys sloggetti jeppei Roberts, 1929

1929. *Myotomys sloggetti jeppei* Roberts, Ann. Transv. Mus. *13:* 109. Jamestown (south of Aliwal North), eastern Cape Province.

Otomys sloggetti basuticus Roberts, 1929

1929. *Myotomys sloggetti basuticus* Roberts, Ann. Transv. Mus. *13:* 110. Bolepeletsa, 5,800 ft., southern Basutoland (this is a small trading station between Telle Drift and Quthing, 93 miles S.E. of Wepener (Orange Free State) and 48 miles S.E. of Zastron).

Genus **PAROTOMYS** Thomas, 1918

1918. *Parotomys* Thomas, Ann. Mag. N.H. *2:* 204. *Euryotis brantsi* A. Smith.
1918. *Liotomys* Thomas, Ann. Mag. N.H. *2:* 204. *Parotomys* (*Liotomys*) *littledalei* Thomas. Valid as a subgenus.

Upper incisors grooved. Tail in British Museum material averages 59–64 per cent of head and body. *Parotomys brantsi*, page 312
Upper incisors plain. Tail in British Museum material averages 77 per cent of head and body. *Parotomys* (*Liotomys*) *littledalei*, page 313

Subgenus *PAROTOMYS* Thomas, 1918

Parotomys brantsi A. Smith, 1834 Brants' Karroo Rat. Brantse Karorot

Distribution: Cape Province; Kuruman district, Little Namaqualand (Port Nolloth, north of Steinkopf, Springbok, near the Kamiesberg, N.W. of Garies, Nieuwerust), Vredendal (near Van Rhynsdorp), Tulbagh, Matjesfontein, Oudtshoorn (*fide* D. H. S. Davis), Deelfontein, Cradock, Middelburg, Calvinia district.

Parotomys brantsi brantsi A. Smith, 1834

1834. *Euryotis brantsii* A. Smith, S. Afr. J. *2:* 150. "Common in certain places towards mouth of Orange River" (A. Smith, 1840, Illustr. Zool. S. Africa, pl. 24, text). Thomas & Schwann (1904) restrict the type locality to Port Nolloth, coastal Little Namaqualand, north-western Cape Province.

Parotomys brantsi pallida Wagner, 1841

1841. *Euryotis pallida* Wagner, Arch. Naturgesch. *7*, 1: 134. South Africa. Type locality fixed as Van Rhynsdorp (Western Cape Province) by Roberts, 1929, Ann. Transv. Mus. *13:* 108. Probable synonym of the typical race.

Parotomys brantsi rufifrons Wagner, 1843

1842. *Otomys rufifrons* Rüppell, Verz. Mus. Senckenberg, *1:* 28, *nomen nudum.*
1843. *Euryotis rufifrons* Wagner in Schreber, Säugth. Suppl. *3:* 507. Cape of Good Hope. Roberts nominates Cradock, eastern Cape Province, as type locality.

Parotomys brantsi luteolus Thomas & Schwann, 1904

1904. *Otomys brantsii luteolus* Thomas & Schwann, P.Z.S. *1:* 178. Deelfontein, north of Richmond, central Cape Province. Probable synonym of *rufifrons.*

Parotomys brantsi deserti Roberts, 1933

1933. *Parotomys brantsi deserti* Roberts, Ann. Transv. Mus. *15:* 267. Bushman Pits, Kuruman River (22° E.) northern Cape Province.

Subgenus *LIOTOMYS* Thomas, 1918

Parotomys littledalei Thomas, 1918

Littledale's Karroo Rat. Boesmanlandse Karorot; Geelbosrot

Distribution: in the Union, Little Namaqualand (Goodhouse, north of Steinkopf, Port Nolloth), Louisvale (near Upington, south bank of Orange River), Kenhardt, Calvinia, Van Wyk's Vlei, and west of the Molopo River near the South-West African border. South-West Africa; Great Namaqualand, and south-western Damaraland (near the coast).

Parotomys littledalei littledalei Thomas, 1918

1918. *Paratomys* (*Liotomys*) *littledalei* Thomas, Ann. Mag. N.H. *2:* 205. Tuin, Kenhardt, Bushmanland, north-western Cape Province.

Parotomys littledalei molopensis Roberts, 1933

1933. *Parotomys* (*Liotomys*) *littledalei molopensis* Roberts, Ann. Transv. Mus. *15:* 267. Hakscheen Pan, near Rietfontein police post, northern Cape Province (near the South-West African border).

Parotomys littledalei namibensis Roberts, 1933

1933. *Parotomys* (*Liotomys*) *littledalei namibensis* Roberts, Ann. Transv. Mus. *15:* 268. Swakopmund (near Walvis Bay), South-West Africa.

Subfamily Cricetinae

Genus **MYSTROMYS** Wagner, 1841

1841. *Mystromys* Wagner, Gelehrte Anzeigen, *12:* 434. *Mystromys albipes* Wagner = *Otomys albicaudatus* A. Smith.

This genus is separated from the Palaearctic genera *Cricetus* and immediate allies by lacking the deep pit between each pair of cusps which is characteristic of *Cricetus*, etc.; ?by the lack of cheekpouches. The skull is very constricted in the interorbital region in *Mystromys*, the tail is short (about 52 per cent of head and body length or less, but more often less than half head and body length); the head and body is about 136–184 mm. Resembles very closely the South American genus *Phyllotis* and its allies; for distinguishing characters see Ellerman (1941).

Mystromys albicaudatus A. Smith, 1834 White-tailed Rat. Witstertrot

Distribution: confined to the Union; Johannesburg, Wakkerstroom, Potchefstroom in the southern Transvaal; Estcourt, Natal; Vredefort district and Aberfeldy (near Harrismith), Orange Free State; in the Cape Province, Grahamstown, Blythswood, Griqualand East, Hanover (Shortridge, 1934), Peddie (eastern Province), and in the western coastal belt, Vredendal (near Van Rhynsdorp) and Tulbagh.

MYSTROMYS ALBICAUDATUS A. Smith, 1834

1834. *Otomys albicaudatus* A. Smith, S. Afr. J. *2:* 148. Albany district, eastern Cape Province.
(1822. *Arvicola albicaudatus* Desmarest, Ency. Méth. Mamm: 281. No locality. ?Unidentifiable.)
1841. *Mystromys albipes* Wagner, Gelehrte Anzeigen, *12:* 435. South Africa.
(1842. *Euryotis lanuginosa* Lichtenstein, Verz. Samml. Kaffernlande, 10. "Kaffirland".)
(1905. *Mystromys albicaudatus fumosus* Thomas & Schwann, P.Z.S. *1:* 137. Wakkerstroom, south-eastern Transvaal.)

SUBFAMILY Gerbillinae

1. Bullae very much enlarged (in London material averaging 39 per cent of the occipitonasal length, their length in adult specimens (not including the swollen mastoid portion) 12.9–14.4 mm.). Tail short, averages about 81 per cent at most of head and body, its length only rarely as much as 100 mm.[1]
Genus *DESMODILLUS*, page 314

Bullae less enlarged (in London material their length, not including the mastoid portion if swollen), does not reach 12 mm. and averages not more than 34 per cent of the occipitonasal length, usually less. Tail not specially shortened, longer than head and body in *Gerbillus*, and exceeds 100 mm. in *Tatera*. ——2

2. Soles of hindfeet (in South Africa) at least partly hairy. Small species, head and body length rarely reaches 110 mm. Nasals, usually proportionately shorter, reach 13 mm. only once in Roberts' measurements. Zygomatic plate less thrown forward. Genus *GERBILLUS*, page 315

Soles of hindfeet naked. Larger species, head and body in adult rarely under 120 mm. Nasals, usually proportionately longer, in adult not under 13 mm. Zygomatic plate thrown well forward. Genus *TATERA*, page 317

Genus **DESMODILLUS** Thomas & Schwann, 1904

1904. *Desmodillus* Thomas & Schwann, Abstr. P.Z.S., No. 2: 6; P.Z.S. *1:* 177. *Gerbillus auricularis* A. Smith.

Desmodillus auricularis A. Smith, 1834

Cape Short-tailed Gerbil; Namaqualand Gerbil
Kortstertnagmuis; Namakwalandse Nagmuis

Distribution: in the Union, the western Transvaal and the western Orange Free State (including near Bloemfontein); in the Cape Province, Vryburg, Kuruman, Upington, Louisvale; Little Namaqualand (Goodhouse, Port Nolloth, near Stein-

[1] *Desmodillus* was separated from the North African genus *Pachyuromys* Lataste, 1880; it is less specialized than that genus, having less enlarged bullae and a considerably longer tail.

kopf, O'okiep, the Kamiesberg), Klaver, Van Rhynsdorp, Lamberts Bay, Citrusdal, Oudtshoorn district (D. H. S. Davis), near Port Elizabeth (British Museum); Deelfontein, near Middelburg, Calvinia, Prieska, Bushmanland. South-West Africa; "widely distributed except in the north-east (the forest regions of Ovamboland, the Etosha Pan region, Grootfontein and the Caprivi") (Shortridge, 1934). Ngamiland (Roberts).

Desmodillus auricularis A. Smith, 1834

1834. *Gerbillus auricularis* A. Smith, S. Afr. J. *2:* 160. Little Namaqualand.
1838. *Gerbillus brevicaudatus* F. Cuvier, Trans. Zool. Soc. London, *2:* 144. Cape of Good Hope.
1842. *Meriones caffer* Wagner, Arch. Naturgesch. *8*, 1: 18. South Africa.
1910. *Desmodillus auricularis pudicus* Dollman, Ann. Mag. N.H. *6:* 395. Lehutitung (or Lehututu), Kalahari, Bechuanaland.

Genus **GERBILLUS** Desmarest, 1804

1804. *Gerbillus* Desmarest, Nouv. Dict. H.N. *24*, Tabl. Méth.: 22. *Gerbillus aegyptius* Desmarest = *Dipus gerbillus* Olivier.
1881. *Dipodillus* Lataste, Le Naturaliste, Paris, *1:* 506. *Gerbillus simoni* Lataste, the Algerian race of *Meriones dasyurus* Wagner, from Sinai. Valid as a subgenus.
1910. *Microdillus* Thomas, Ann. Mag. N.H. *5:* 197. *Gerbillus peeli* de Winton, from Somaliland. Valid as a subgenus.
1942. *Gerbillurus* Shortridge, Ann. S. Afr. Mus. *36*, 1: 52. *Gerbillus vallinus* Thomas. Valid as a subgenus.

Gerbillus gerbillus Olivier, 1800, antedates *Gerbillus paeba* Smith, 1834, and no characters of specific value have been found which will separate *G. paeba* and related forms from *G. gerbillus* and related forms, when all subspecies are compared.

Soles of hindfeet poorly haired. Bullae more enlarged, in London material average 34 per cent of the occipitonasal length, their length over 10 mm. Tail 124 mm. and more. *Gerbillus* (*Gerbillurus*) *vallinus*, page 317

Soles of hindfeet well haired, but usually with a bare patch. Bullae less enlarged, on average less than 30 per cent of the occipitonasal length, their length in London material not reaching 9 mm. In South Africa the tail very rarely reaches 124 mm. *Gerbillus gerbillus*, page 315

Subgenus *GERBILLUS* Desmarest, 1804

Gerbillus gerbillus Olivier, 1800

Lesser Gerbil. Kleinnagmuis; Dwerg Springhaasmuis

Distribution: in the Union, Zoutpansberg (northern Transvaal); in the Cape Province, Molopo district, Vryburg, Kuruman, near Upington; Little Namaqualand (Goodhouse, Port Nolloth, near Steinkopf, the Kamiesberg), Klaver, Van

Rhynsdorp, Nieuwoudtville, near Lamberts Bay, Citrusdal, Eendekuil; Oudtshoorn district (D. H. S. Davis), Alexandria (coastal eastern Cape Province); east of Calvinia, Middelburg, Deelfontein, Prieska, de Aar, Molteno (near Aliwal North), Colesberg. South-West Africa; apparently widely distributed north of the Tropic of Capricorn (approximately Gobabis district and Swakopmund northwards); the Kalahari and probably Gaberones district, Bechuanaland; Pico Azevedo in south-western Angola. Further to the north, the Sudan, Kenya, Asben, northern Nigeria; Algeria to Egypt, Palestine.

GERBILLUS GERBILLUS GERBILLUS Olivier, 1800. (Extralimital)

1800. *Dipus gerbillus* Olivier, Bull. Soc. Philom. Paris (Publ. "Messidor, An. VIII" = June–July, 1800) *2:* 121. Giza Province, Egypt.

GERBILLUS GERBILLUS PAEBA A. Smith, 1836

1836. *Gerbillus paeba* A. Smith, Rept. Exped. Explor. C. Africa, 43. "Country beyond Latakoo," type locality nominated by Roberts (1951) as Vryburg, northern Cape Province.

1842. *Gerbillus tenuis* A. Smith, Illustr. Zool. S. Africa, Mamm. pl. 36, fig. 2. North of "Latakoo".

Range includes the central Karroo.

GERBILLUS GERBILLUS CALIDUS Thomas, 1918

1918. *Gerbillus calidus* Thomas, Ann. Mag. N.H. *2:* 63. Molopo, west of Morokwen, extreme northern Cape Province.

GERBILLUS GERBILLUS BROOMI Thomas, 1918

1918. *Gerbillus paeba broomi* Thomas, Ann. Mag. N.H. *2:* 64. Port Nolloth, coastal Little Namaqualand, north-western Cape Province.

GERBILLUS GERBILLUS SWALIUS Thomas & Hinton, 1925

1925. *Gerbillus swalius* Thomas & Hinton, P.Z.S., 235. Karibib (north-westwards of Windhoek), South-West Africa. Ranges northwards to the Kaokoveld, eastwards to Gobabis, South-West Africa.

GERBILLUS GERBILLUS ORALIS Thomas & Hinton, 1925

1925. *Gerbillus swalius oralis* Thomas & Hinton, P.Z.S., 236. Rooibank, inland from Walvis Bay, South-West Africa.

GERBILLUS GERBILLUS LEUCANTHUS Thomas, 1927

1927. *Gerbillus swalius leucanthus* Thomas, P.Z.S., 382. Ondongwa, Ovamboland, South-West Africa.

GERBILLUS GERBILLUS COOMBSI Roberts, 1929

1929. *Gerbillus paeba coombsi* Roberts, Ann. Transv. Mus. *13:* 98. Swarthoek, near Waterpoort, Zoutpansberg, northern Transvaal.

GERBILLUS GERBILLUS KALAHARICUS Roberts, 1932

1932. *Gerbillus calidus kalaharicus* Roberts, Ann. Transv. Mus. *15:* 10. Gomodimo Pan, central Kalahari, Bechuanaland. Range: the central Kalahari, also Okahandja district, South-West Africa.

GERBILLUS GERBILLUS EXILIS Shortridge & Carter, 1938

1938. *Gerbillus paeba exilis* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 290. Paardevlei, Sundays River mouth, Alexandria district, eastern Cape Province.

GERBILLUS GERBILLUS MULLERI Roberts, 1946

1946. *Gerbillus paeba mulleri* Roberts, Ann. Transv. Mus. *20:* 317. Eendekuil (north of Piquetberg), south-western Cape Province.

GERBILLUS GERBILLUS SWAKOPENSIS Roberts, 1951

1951. *Gerbillus paeba swakopensis* Roberts, Mamm. S. Africa, 404. Swakopmund, coastal South-West Africa.

Subgenus *GERBILLURUS* Shortridge, 1942

Gerbillus vallinus Thomas, 1918 Brushtailed Gerbil. Borselstertnagmuis

Distribution: near Kenhardt (north-western Cape Province), and Great Namaqualand, northwards to Swakopmund (South-West Africa).

GERBILLUS VALLINUS Thomas, 1918

1918. *Gerbillus vallinus* Thomas, Ann. Mag. N.H. *2:* 148. Tuin, Kenhardt, Bushmanland, north-western Cape Province.

Genus **TATERA** Lataste, 1882

1882. *Tatera* Lataste, Le Naturaliste, Paris, *2:* 126. *Dipus indicus* Hardwicke, from India.
1897. *Gerbilliscus* Thomas, P.Z.S., 433. *Gerbillus boehmi* Noack. Valid as a subgenus.
1917. *Taterona* Wroughton, J. Bombay N.H. Soc. *25*, 1: 40. *Gerbillus afra* Gray.

See Davis, 1949, The affinities of the South African Gerbils of the genus *Tatera*, *P.Z.S. 118:* 1002.

1. Upper incisors faintly grooved (rarely plain), normally traces of two grooves. Skull in Southern Africa in British Museum material exceeds 40 mm. Tail long with white tip, usually tufted. *Tatera* (*Gerbilliscus*) *boehmi*, page 318
Upper incisors normally one-grooved (rarely plain in the forms *valida*, *liodon* and immediate allies). Tail not tufted. ——2

2. Average larger; fully adult skulls rarely below 40 mm. in length (in British Museum material twice in thirteen specimens). *Tatera valida*,[1] page 318
Average smaller; the majority of the skulls do not reach 40 mm. (in British Museum material, sixteen exceptions in one hundred and fifty-five specimens). *Tatera afra*,[1] page 319

Subgenus *GERBILLISCUS* Thomas, 1897

Tatera boehmi Noack, 1887 Böhm's Gerbil

Distribution: has been recorded from southern central Angola by Monard, 1935 (Hill & Carter). Serenje, Ndola, etc., in Northern Rhodesia. Northern Nyasaland. Also the Belgian Congo, Tanganyika and Kenya.

Tatera boehmi boehmi Noack, 1887

1887. *Gerbillus böhmi* Noack, Zool. Jb. Syst. *2:* 241. Qua Mpala, Marungu, southern Belgian Congo. Has been recorded from Angola, northern Nyasaland, Northern Rhodesia.

Subgenus *TATERA* Lataste, 1882

Tatera valida Bocage, 1890 Bocage's Gerbil

Distribution: Angola (northwards to Dundo district, "distributed throughout northern Angola" (Hill & Carter)), Northern Rhodesia, probably Nyasaland, if *fraterculus* is the same; Gorongoza district of Portuguese East Africa, into Southern Rhodesia. The Belgian Congo. Represented in Kenya and Uganda.

Tatera valida valida Bocage, 1890

1890. *Gerbillus validus* Bocage, J. Sci. Math. Phys. Nat., Lisboa, *2:* 6. Type locality restricted by Hill & Carter (1941) to Rio Cuando, western Angola.

Tatera valida liodon Thomas, 1902

1902. *Tatera liodon* Thomas, Ann. Mag. N.H. *9:* 441. Lake Mweru, Congo border of Northern Rhodesia.

1907. *Tatera neavei* Wroughton, Manchester Mem. *51*, 5: 18. Ndola, near Congo border, Northern Rhodesia.

[1] The African species differ from the Asiatic one in the less specialized colour of the tail (for details see Ellerman, 1941, 512).

Tatera afra is evidently the prior name for a member of this genus in Africa. There are some distinct races within the *afra* group in South Africa (*brantsi*, *schinzi*, etc.) but characters of a really specific nature seem to be absent. In Angola and Northern Rhodesia, however, the species seems to occur with another for which the prior name is evidently *valida*, and which averages larger. With reference to the above key, of the sixteen exceptions noted for *afra*, only one occurs in the region where the two species occur together. There is a distinct tendency for the incisors to lose the groove in *valida* and *liodon*; of thirteen skulls examined, four had plain incisors. The types (? and only known specimens) of *fraterculus* and *neavei* have plain incisors. The latter is currently regarded as a young specimen of *liodon*, and it may well be that *fraterculus* is also based on a young specimen of *liodon*, in which case, however, *fraterculus* takes priority. It has been found necessary provisionally to transfer the form *inclusa* to *T. valida*, as this alone of the forms south of the Zambezi-Cunene seems constantly to have the skull exceeding 40 mm. But it is not a well-known form.

TATERA VALIDA INCLUSA Thomas & Wroughton, 1908

1908. *Tatera inclusa* Thomas & Wroughton, P.Z.S., 169. Tambarara, Gorongoza district (south of the Zambezi), western Portuguese East Africa. Also recorded from Mt. Selinda, south-eastern Southern Rhodesia.

Incertae sedis:

TATERA FRATERCULUS Thomas, 1898

1898. *Gerbillus* (*Gerbilliscus*) *fraterculus* Thomas, P.Z.S., 392. Songwe, northern Nyasaland. (Possibly based on a young specimen of *T. v. liodon*, but antedates that name.)

Tatera afra Gray, 1830 Cape Greater Gerbil. Kaapse Nagmuis

Distribution: in the Union, the Transvaal; Christiana, Bloemhof, Rustenburg district, near Johannesburg, Pretoria, Nylstroom, Magaliesberg, Zoutpansberg district, Klein Letaba, Woodbush, Tzaneen, Wakkerstroom district, etc. Natal (including Dargle (near Howick) and Zululand). The Orange Free State, including Bothaville, Aberfeldy (near Harrismith), Vredefort, etc. Basutoland. In the Cape Province, the Molopo district, Kuruman, Goodhouse (northern Little Namaqualand), Louisvale (near Upington), Nieuwoudtville, Van Rhynsdorp, Lamberts Bay, the Cedarberg, Tulbagh, near Cape Town (Wynberg, etc.), Mossel Bay, Bredasdorp; Deelfontein, Molteno, Sterkstroom, Queenstown, Dordrecht, the Transkei. South-West Africa; widely distributed north of the Tropic of Capricorn (except the coastal Namib desert). Western and southern Angola. The Kalahari northwards to Ngamiland, Bechuanaland. Southern Rhodesia, where widely distributed; Portuguese East Africa, districts of Beira, Inhambane, Tete, also north of the Zambezi. Nyasaland, Northern Rhodesia. Thence apparently northwards to the southern Sudan and Senegal.

Of the earlier named races, generally the molars are wider (width of M 1 2.3–2.8 mm.) in the forms *afra*, *brantsi*, *ruddi*, *perpallida* and *mashonae*, and usually the molars are narrower (width M 1 2.2 mm. and less) in *leucogaster* (4 specimens including one from Peters' collection), *schinzi* (with "*bechuanae*"), *miliaria*, *salsa*, *panja* and *beirensis*. There is, however, considerable individual overlap between the two groups. The bullae average relatively larger in *schinzi* (and immediate allies), *griquae*, *miliaria* and *angolae* than in the other races represented in the B. M. The typical race *afra* (with its ally *gilli*) averages larger ears than the other races. In London material the most distinct form is *ruddi* from Zululand which has an unusually long tail (over 200 mm.), but Mr. D. H. S. Davis informs us that he has further material from its type locality which shows that this character is not constant.

TATERA AFRA AFRA Gray, 1830

1830. *Gerbillus afra* Gray, Spic. Zool. 10. Cape of Good Hope.

(1832. *Meriones schlegelii* Smuts, Enum. Mamm. Cap., 41. Port Elizabeth, Cape Province, where the animal probably does not occur.)

TATERA AFRA AFRA [*contd.*]

1838. *Gerbillus africanus* F. Cuvier, Trans. Zool. Soc. London, *2:* pl. 26. Renaming of *afra.*

Large-eared and broad-toothed race.

Range: the south-western Cape Province, approximately Bredasdorp to Tulbagh.

TATERA AFRA BRANTSI A. Smith, 1836

1836. *Gerbillus brantsii* A. Smith, Rept. Exped. Expl. C. Africa, 43. "Tops of hills towards sources of Caledon River" (in Basutoland, *fide* Roberts).

842. *Meriones montanus* A. Smith, Illustr. Zool. S. Africa, Mamm. pl. 36, fig. 1. "Summits of hills in the country to the north of the Orange River towards its sources."

Much like *afra* but normally with smaller ears.

Range includes the Orange Free State and the eastern Karroo, Cape Province.

TATERA AFRA MACCALINUS Sundevall, 1846

1846. *Meriones* (*Rhombomys*) *maccalinus* Sundevall, Öfvers. Vetensk. Akad. Förh. Stockholm, *3:* 120. Magaliesberg, western Transvaal.

1906. *Tatera draco* Wroughton, Ann. Mag. N.H. *17:* 479. Wakkerstroom, south-eastern Transvaal.

Probable synonym of *brantsi.*

Ranges into northern Orange Free State, Drakensberg, Griqualand East.

TATERA AFRA LEUCOGASTER Peters, 1852

1852. *Meriones leucogaster* Peters, Ber. Preuss. Akad. Wiss. 274; Reise nach Mossambique, Säugeth. 145. Mesuril and Boror, north of the Zambezi, Portuguese East Africa. Specimens from Lumbo, northern Portuguese East Africa, in British Museum.

Apparently a narrow-toothed race.

TATERA AFRA SCHINZI Noack, 1889

1889. *Gerbillus tenuis* var. *schinzi* Noack, Zool. Jb. *4:* 134. Kalahari Desert.

1906. *Tatera lobengulae bechuanae* Wroughton, Ann. Mag. N.H. *17:* 482. Molopo, border of northern Cape Province and Bechuanaland.

Near *leucogaster* but with larger bullae on average.

Range: approximately Upington and Molopo to Ngamiland, Gobabis district, Etosha Pan, Kaokoveld, Ovamboland, Cunene districts, South-West Africa.

TATERA AFRA LOBENGULAI de Winton, 1898

1898. *Gerbillus* (*Tatera*) *lobengulae* de Winton, Ann. Mag. N.H. *2:* 4. Essex Vale, Matabeleland, western Southern Rhodesia.

Probably near *brantsi;* the type specimen is broad-toothed.

TATERA AFRA RUDDI Wroughton, 1906

1906. *Tatera ruddi* Wroughton, Ann. Mag. N.H. *17:* 478. Umfolosi, Zululand, Natal.

Broad-toothed and very long-tailed form.

TATERA AFRA GRIQUAE Wroughton, 1906

1906. *Tatera lobengulae griquae* Wroughton, Ann. Mag. N.H. *17:* 483. Kuruman, northern Cape Province.

1906. *Tatera miliaria stellae* Wroughton, Ann. Mag. N.H. *17:* 485. Kuruman, northern Cape Province.

Probable synonym of *schinzi.*

TATERA AFRA MASHONAE Wroughton, 1906

1906. *Tatera lobengulae mashonae* Wroughton, Ann. Mag. N.H. *17:* 483. Mazoe, Mashonaland, eastern Southern Rhodesia. Has been recorded from Northern Rhodesia.

Evidently nearest *brantsi* (from British Museum material).

TATERA AFRA MILIARIA Wroughton, 1906

1906. *Tatera miliaria* Wroughton, Ann. Mag. N.H. *17:* 484. Deelfontein, north of Richmond, central Cape Province.

Near *schinzi;* with the relatively large bullae of that form.

TATERA AFRA SALSA Wroughton, 1906

1906. *Tatera miliaria salsa* Wroughton, Ann. Mag. N.H. *17:* 485. Klein Letaba, eastern Transvaal. Range includes Woodbush, etc., low country east of the Drakensberg, from the Letaba River to the Crocodile River (Roberts).

Probably nearest *leucogaster*, but with rather longer tail.

TATERA AFRA PANJA Wroughton, 1906

1906. *Tatera panja* Wroughton, Ann. Mag. N.H. *17:* 486. Chicosta, south bank of Zambezi, 60 miles above Tete, Portuguese East Africa.

1852. *Meriones tenuis* Peters, Reise nach Mossambique, Säugeth. 149. Tete, Portuguese East Africa. Not of A. Smith, 1842.

Near the last race, but differing in colour.

TATERA AFRA ANGOLAE Wroughton, 1906

1906. *Tatera angolae* Wroughton, Ann. Mag. N.H. *17:* 488. Fort Quilenges, southwestern Angola.

1933. *Gerbillus nigrotibialis* Monard, Bull. Soc. Sci. Nat. Neuchâtel, *57:* 54. Vila da Ponte, vicinity of Cubango, southern Angola.

Evidently related to *schinzi.*

TATERA AFRA NYASAE Wroughton, 1906

1906. *Tatera nyasae* Wroughton, Ann. Mag. N.H. *17:* 490. Mwanembe, northern Nyasaland (10° 5′ S., 33° 40′ E.) see Davis (1949: 1007, 1008).

Placed by Davis in his *schinzi* division.

TATERA AFRA SHIRENSIS Wroughton, 1906

1906. *Tatera nyasae shirensis* Wroughton, Ann. Mag. N.H. *17:* 490. "Mt. Malosa, Upper Shiré" southern Nyasaland, but Davis (1949) thinks Mt. Malosa is an error for Mt. Mlanje.

TATERA AFRA PERPALLIDA Dollman, 1910

1910. *Tatera brantsi perpallida* Dollman, Ann. Mag. N.H. *6:* 394. Eastern bank of the Tamalakan River, Ngamiland, northern Bechuanaland.

(1926. *Tatera joanae* Thomas, P.Z.S., 299. Ukuambi, Ovamboland, northern South-West Africa. Specimens also in B.M. from Sandfontein, South-West Africa.)

In British Museum material the molars average a little wider than those of *schinzi;* bullae enlarged in a similar manner.

TATERA AFRA NDOLAE Kershaw, 1922

1922. *Taterona lobengulae ndolae* Kershaw, Ann. Mag. N.H. *10:* 105. Ndola, near the Congo border, 12° 50′ S., 28° 40′ E., Northern Rhodesia.

Except for *beirensis* and perhaps *tzaneenensis* the remaining forms, mainly of Roberts, are not represented in London. Davis and also Roberts distributed most of these forms between *brantsi* and *schinzi* (but it must be borne in mind that the western *schinzi* forms usually have larger bullae than the eastern forms, which may more resemble *leucogaster*).

TATERA AFRA BREYERI Roberts, 1926

1926. *Tatera breyeri* Roberts, Ann. Transv. Mus. *11:* 250. Nylstroom, about 70 miles north of Pretoria, Transvaal.

Davis places this form in his *brantsi* division.

TATERA AFRA GILLI Roberts, 1929

1929. *Tatera afra gilli* Roberts, Ann. Transv. Mus. *13:* 100. Lamberts Bay, coast of western Cape Province. Ranges northwards to Klaver. Nearest the typical race.

TATERA AFRA NATALENSIS Roberts, 1929

1929. *Tatera natalensis* Roberts, Ann. Transv. Mus. *13:* 101. Kilgobbin, Dargle district, central Natal.

Davis places this form in his *brantsi* division.

TATERA AFRA PESTIS Roberts, 1929

1929. *Tatera lobengulae pestis* Roberts, Ann. Transv. Mus. *13:* 103. Bothaville, northern Orange Free State. Ranges to Bloemhof and Christiana districts, western Transvaal.

Davis places this form in his *schinzi* division.

TATERA AFRA MITCHELLI Roberts, 1929

1929. *Tatera lobengulae mitchelli* Roberts, Ann. Transv. Mus. *13:* 103. Wonderfontein, west of Johannesburg, Transvaal. Range: highveld from Johannesburg westwards to Zeerust district, Transvaal.

Davis places this form in his *schinzi* division.

TATERA AFRA PRETORIAE Roberts, 1929

1929. *Tatera lobengulae pretoriae* Roberts, Ann. Transv. Mus. *13:* 104. Pretoria North, Pretoria district, Transvaal. Ranges westwards to the southern part of the Rustenburg district.

Davis places this form in his *schinzi* division.

TATERA AFRA LIMPOPOENSIS Roberts, 1929

1929. *Tatera lobengulae limpopoensis* Roberts, Ann. Transv. Mus. *13:* 104. Njellele River, Zoutpansberg district, northern Transvaal. Range includes northern Rustenburg and Marico districts, also lower ground in Waterberg and Zoutpansberg districts.

Davis places this form in his *schinzi* division.

TATERA AFRA TZANEENENSIS Roberts, 1929

1929. *Tatera lobengulae tzaneenensis* Roberts, Ann. Transv. Mus. *13:* 105. Tzaneen Estates, foothills of the Drakensberg, north-eastern Transvaal.

Davis places this form in his *schinzi* division.

TATERA AFRA LITTORALIS Roberts, 1929

1929. *Tatera lobengulae littoralis* Roberts, Ann. Transv. Mus. *13:* 105. Masiene, near mouth of Limpopo River, southern Portuguese East Africa.

Davis places this form in his *schinzi* division.

TATERA AFRA BEIRENSIS Roberts, 1929

1929. *Tatera lobengulae beirensis* Roberts, Ann. Transv. Mus. *13:* 106. Six and a half miles from Beira, coast of Portuguese East Africa.

1951. *Tatera schinzi beirae* Roberts, Mamm. S. Africa, 616 (error).

Near *salsa* and *panja*, but rather larger on average or at extreme development.

TATERA AFRA TONGENSIS Roberts, 1931

1931. *Tatera ruddi tongensis* Roberts, Ann. Transv. Mus. *14:* 230. Maputa, northern Zululand, Natal.

1936. *Tatera maputa* Roberts, Ann. Transv. Mus. *18:* 238. Maputa, northern Zululand, Natal.

Davis placed this form in his *brantsi* division.

TATERA AFRA ZULUENSIS Roberts, 1931

1931. *Tatera lobengulae zuluensis* Roberts, Ann. Transv. Mus. *14:* 230. Manaba, 30 miles from Kosi Bay, northern Zululand, Natal.

Davis placed this form in his *schinzi* division.

TATERA AFRA HUMPATENSIS Hill & Carter, 1937

1937. *Taterona humpatensis* Hill & Carter, Amer. Mus. Novit. No. 913: 5. Humpata, 6,300 ft., south-western Angola.

Davis placed this form in his *brantsi* division.

TATERA AFRA NAMAQUENSIS Shortridge & Carter, 1938

1938. *Taterona brantsi namaquensis* Shortridge & Carter, Ann. S. Afr. Mus. *32:* 287. (July, 1938.) Goodhouse (Raman's Drift), south bank of Orange River, Little Namaqualand, north-western Cape Province.

TATERA AFRA WATERBERGENSIS Roberts, 1938

1938. *Tatera schinzi waterbergensis* Roberts, Ann. Transv. Mus. *19:* 239 (31st October), and 1946, *20:* 318 (described as a new subspecies in both places). Waterberg, Otjiwarongo district (20° 30′ S., 17° E.), central South-West Africa.

MARINE ORDERS

The Cetacea and Sirenia of Africa have been listed in great detail by G. Allen (1939). For the sake of completeness we include here a nominal list of forms which have been recorded from the region now under discussion. For further synonymy G. Allen should be consulted.

ORDER SIRENIA

FAMILY TRICHECHIDAE

Genus **TRICHECHUS** Linnaeus, 1758

1758. *Trichechus* Linnaeus, Syst. Nat. ed. 10, *1:* 34. *Trichechus manatus* Linnaeus, from the West Indies.

Trichechus senegalensis Link, 1795 — African Manatee

1795. *Trichechus senegalensis* Link, Beytr. Naturgesch, *1*, 2: 109. Senegal.

Distribution: western coast of Africa from Senegal to the Qwanza River, Angola, following up the larger rivers where possible (G. Allen).

FAMILY DUGONGIDAE

Genus **DUGONG** Lacépède, 1799

1799. *Dugong* Lacépède, Tabl. Mamm. 17. *Dugong indicus* Lacépède = *Trichechus dugon* Müller.

Dugong dugon Müller, 1776 — Dugong

1776. *Trichecus* (sic) *dugon* Müller, Linné's Vollständ. Natursyst. Suppl., 21. Cape of Good Hope to the Philippines.

Distribution: Portuguese East Africa to Lourenço Marques. East Africa, Madagascar, the Red Sea, Indian seas, Malaysian seas, Formosa, the Philippine Islands, northern Australia, etc., where not exterminated.

ORDER CETACEA

SUB-ORDER MYSTICETI

FAMILY BALAENOPTERIDAE

Genus **BALAENOPTERA** Lacépède, 1804

1804. *Balaenoptera* Lacépède, H.N. des Cétacés, xxxvi and 114. *Balaena rostrata* Fabricius = *Balaenoptera acutorostrata* Lacépède.
1849. *Pterobalaena* Eschricht, K. Dansk Vidensk. Selsk. Skr. *1:* 108. *Balaena physalus* Linnaeus.
1864. *Sibbaldus* Gray, P.Z.S. 222. *Sibbaldus borealis* (Gray not Lesson) = *Balaena musculus* Linnaeus.
1866. *Rudolphius* Gray, Cat. Seals, Whales B.M., ed. 2, 170. *Sibbaldius laticeps* Gray = *Balaenoptera borealis* Lesson.

Balaenoptera acutorostrata Lacépède, 1804

Little Piked Whale;. Lesser Rorqual

1804. *Balaenoptera acuto-rostrata* Lacépède, H.N. des Cétacés, xxxvii and 134. Cherbourg, France.

Distribution: Cosmopolitan. Has been stranded near Cape Town (K. H. Barnard, *in litt*).

Balaenoptera borealis Lesson, 1828 Sei Whale

1828. *Balaenoptera borealis* Lesson, H. N. Mamm. et Ois. depuis 1788, Cétacés, 342. Grömitz, Lübeck Bay, Schleswig–Holstein, Germany.

Distribution: Cosmopolitan; recorded from Cape and Natal seas.

Balaenoptera brydei Olsen, 1912 Cape Rorqual

1912. *Balaenoptera brydei* Olsen, Tidens Tegn, 12 November, 1912 (Norwegian newspaper) (*N.V.*); 1913, P.Z.S. 1074. Saldanha Bay, western Cape Province.

Distribution: South African seas, including Natal and Angola, and reported from the West Indies (Fraser in Norman & Fraser, 1937).

Balaenoptera physalus Linnaeus, 1758 Common Rorqual. Finback

1758. *Balaena physalus* Linnaeus, Syst. Nat. 10th ed. *1:* 75. European seas (Spitzbergen according to Thomas, 1911).

Distribution: Cosmopolitan; recorded from South African seas, Natal included.

Balaenoptera musculus Linnaeus, 1758 Great Blue Whale

1758. *Balaena musculus* Linnaeus, Syst. Nat. 10th ed. *1:* 76. Firth of Forth, Scotland.

Distribution: Cosmopolitan; recorded from Durban, Natal, etc.

Genus **MEGAPTERA** Gray, 1846

1846. *Megaptera* Gray, Zool. Voy. Erebus & Terror, *1:* Mamm. 16. *Balaena nodosa* Bonnaterre = *Balaena novaeangliae* Borowski.

Megaptera novaeangliae Borowski, 1781 Humpback Whale

1781. *Balaena novae angliae* Borowski, Gemeinn. Naturgesch. des Thierreichs, Berlin, *2*, 1: 21. New England coast.
1788. *Balaenoptera australis* Lesson, H.N. Mamm. et Ois. depuis 1788, 1, Cétacés, 372. Cape of Good Hope.
1829. *Balaena lalandii* Fischer, Synops. Mamm. 525. Cape of Good Hope.
1834. *Balaenoptera capensis* A. Smith, S. Afr. J. *2:* 242. Cape of Good Hope.

Distribution: Cosmopolitan, South African seas included.

FAMILY BALAENIDAE

Genus **EUBALAENA** Gray, 1864

1864. *Eubalaena* Gray, P.Z.S. 201. *Balaena australis* Desmoulins.

Eubalaena australis Desmoulins, 1822.[1] Southern Right Whale

1822. *Balaena australis* Desmoulins, Dict. Class. H.N. *2:* 161. Algoa Bay, eastern Cape Province.
1841. *Balaena mysticetus antarctica* Schlegel, Abh. aus dem Gebiete Zool. *1:* 37. Cape of Good Hope.
1864. *Hunterus temminckii* Gray, Ann. Mag. N.H. *14:* 349. Cape of Good Hope.
1866. *Hunterius temminckii* Gray, Cat. Seals, etc., B.M., ed. 2: 98.

Distribution: formerly the southern hemisphere, but now apparently approaching extinction.

Genus **CAPEREA** Gray, 1864

1864. *Caperea* Gray, P.Z.S. 202. *Balaena antipodarum* Gray = *Balaena marginata* Gray.
1870. *Neobalaena* Gray, Ann. Mag. N.H. *6:* 154. *Balaena marginata* Gray.

[1] It is customary to list three species of the genus *Eubalaena*, two of which are from the northern hemisphere, but the differences between them are very obscure. The first to be named was *E. glacialis* Borowski, 1781, from the North Sea.

Caperea marginata Gray, 1846 Pygmy Right Whale

1846. *Balaena marginata* Gray, Zool. Voy. Erebus and Terror, 48, pl. 1, fig. 1. Western Australia.

Distribution: Australia, New Zealand, South America and South Africa; occasionally taken off the coast of Cape Province (there is a specimen from Simonstown, False Bay, in the South African Museum, Cape Town).

SUB-ORDER ODONTOCETI

FAMILY PHYSETERIDAE

SUBFAMILY Kogiinae

Genus **KOGIA** Gray, 1846

1846. *Kogia* Gray, Zool. Voy. Erebus and Terror, *1*, Mamm.: 22. *Physeter breviceps* Blainville.

Kogia breviceps Blainville, 1838 Pygmy Sperm Whale

1838. *Physeter breviceps* Blainville, Ann. franç. étr. Anat. Phys. *2:* 337. Cape of Good Hope.

Distribution: South African seas, and has been recorded from all continents, but apparently nowhere very common and not in Arctic latitudes.

SUBFAMILY Physeterinae

Genus **PHYSETER** Linnaeus, 1758

1758. *Physeter* Linnaeus, Syst. Nat. 10th ed. *1:* 76. *Physeter catodon* Linnaeus.

Physeter catodon Linnaeus, 1758 Sperm Whale

1758. *Physeter catodon* Linnaeus, Shyst. Nat. 10t ed. *1:* 76. Kairston, Orkney Islands (Thomas, 1911, P.Z.S. 157).

Distribution: Cosmopolitan, but more common in tropical and subtropical seas. Has been recorded from Natal and Cape Province.

FAMILY ZIPHIIDAE

Genus **ZIPHIUS** G. Cuvier, 1823

1823. *Ziphius* G. Cuvier, Rech. Oss. Foss. *5*, 1: 350. *Ziphius cavirostris* G. Cuvier.

Ziphius cavirostris G. Cuvier, 1823 Cuvier's Beaked Whale

1823. *Ziphius cavirostris* G. Cuvier, Rech. Oss. Foss. *5*, 1: 352. Near Fos, Bouches-du-Rhône, France.

ZIPHIUS CAVIROSTRIS [*contd.*]

1864. *Ziphius indicus* Van Beneden, Mém. Couronnés et Autres Mém. Acad. Roy. Sci. Lettres et Beaux-Arts Belgiques, Bruxelles, *16:* art. 1; 23. Cape of Good Hope, probably on Indian Ocean side.

1865. *Hyperoodon capensis* Gray, P.Z.S. 359. Cape of Good Hope.

Distribution: Cape Seas; virtually cosmopolitan, has been recorded from all continents.

Genus **MESOPLODON** Gervais, 1850

1850. *Mesoplodon* Gervais, Ann. Sci. Nat. Zool. *14:* 16. *Delphinus sowerbiensis* Blainville = *Physeter bidens* Sowerby, from Scotland.

1850. *Dioplodon* Gervais, C.R. Acad. Sci. Paris, *31:* 512. *Delphinus densirostris* Blainville. Valid as a subgenus.

One South African species belongs to the typical subgenus, and two to the subgenus *Dioplodon* which is characterized by its much enlarged lower tooth. Good figures of most of the better-known species are published in Fraser, 1937, *Giant Fishes, Whales and Dolphins*, 279.

Subgenus *MESOPLODON* Gervais, 1850

Mesoplodon grayi Von Haast, 1876 — Gray's Beaked Whale

1876. *Mesoplodon grayi* von Haast, P.Z.S. 9. Waitingi beach, Chatham Islands, east of New Zealand.

Distribution: recorded from Holland, New Zealand, Australia, Patagonia; a specimen recorded in Table Bay, Cape Province, 1912

Subgenus *DIOPLODON* Gervais, 1850

Mesoplodon densirostris Blainville, 1817 — Blainville's Beaked Whale

1817. *Delphinus densirostris* Blainville, Nouv. Dict. H.N. *9:* 178. Locality unknown.

Distribution: recorded from Algoa Bay, Cape Province, also Madeira, Japan, eastern United States, northwards to Canada, Seychelles (off East Africa), Lord Howe Island (east of Australia).

Mesoplodon layardi Gray, 1865 — Strap-toothed Whale

1865. *Ziphius layardii* Gray, P.Z.S. 358. Cape of Good Hope.

Distribution: New Zealand, Australia, South Africa, the Falkland Islands (Fraser).

FAMILY DELPHINIDAE

Genus **DELPHINUS** Linnaeus, 1758

1758. *Delphinus* Linnaeus, Syst. Nat. 10th ed. *1:* 77. *Delphinus delphis* Linnaeus.

Delphinus capensis Gray, 1828 Cape Dolphin

1828. *Delphinus capensis* Gray, Spic. Zool., 2. Cape of Good Hope.

Distribution: Cape Seas; Japan (Kuroda, 1938). ?Palestine.

Delphinus delphis Linnaeus, 1758 Common Dolphin

1758. *Delphinus delphis* Linnaeus, Syst. Nat. 10th ed. *1:* 77. European seas.

Distribution: temperate and warm seas throughout the world. Has been recorded from Table Bay (see Roberts, 1951: 228).

Genus **STENELLA** Gray, 1866

1866. *Stenella* Gray, P.Z.S. 213. *Steno attenuatus* Gray.
1877. *Prodelphinus* Van Beneden & Gervais, Ost. des Cétacés, 604. Type not specified.

This genus is much in need of revision. Three species are listed by Roberts from South Africa.

Stenella longirostris Gray, 1828 Longbeaked Dolphin

1828. *Delphinus longirostris* Gray, Spic. Zool. 1. Locality unknown.

Distribution: the type skull is said to have been from the Cape of Good Hope (Roberts); has been recorded from Japan by Kuroda, and according to Roberts from Australia and near the Galapagos Islands.

Stenella styx Gray, 1846 Euphrosyne Dolphin

1846. *Delphinus styx* Gray, Zool. Voy. Erebus & Terror, *1*, Mamm.: 39, pl. 21. Western coast of Africa.
1846. *Delphinus euphrosyne* Gray, *loc. cit.*, 40, pl. 22. Locality unknown.
1868. *Clymene similis* Gray, P.Z.S. 146. Cape of Good Hope.

Distribution: has been recorded from South Africa; the Atlantic northwards to Greenland.

Stenella attenuata Gray, 1846.[1] Narrow-snouted Dolphin

1846. *Steno attenuatus* Gray, Zool. Voy. Erebus and Terror, *1:* Mamm., 44. No locality.
1865. *Steno capensis* Gray, P.Z.S. 522. Cape of Good Hope.

Distribution: includes Cape of Good Hope.

Genus **SOTALIA** Gray, 1866

1866. *Sotalia* Gray, Cat. Seals and Whales, B.M., 393, 401. *Sotalia guianensis* Van Beneden, from British Guiana.

[1] Possible synonym of *Stenella malayana* Lesson, 1826 (from between Java and Borneo).

Sotalia lentiginosa Owen, 1866 Speckled Dolphin

1866. *Delphinus* (*Steno?*) *lentiginosus* Owen, Trans. Zool. Soc. London, *6*, 1: 20. Waltair, Vizagapatam, Madras, India.

Distribution: India, Ceylon, and False Bay, western Cape Province.

Genus **STENO** Gray, 1846

1846. *Steno* Gray, Zool. Voy. Erebus & Terror, *1*, Mamm.: 43. *Delphinus rostratus* Desmarest = *Delphinus bredanensis* Lesson.

1936. *Stenopontistes* Miranda-Ribeiro, Bol. Mus. Nac. Rio de Janeiro, *12*, 1 : 19, 42. *Stenopontistes zambezicus* Miranda-Ribeiro = *Delphinus bredanensis*, Lesson.

Steno bredanensis Lesson, 1828 Rough-toothed Dolphin

1817. *Delphinus rostratus* Desmarest, Nouv. Dict. H.N. *9:* 160. Near Paimpol, France. Not of Shaw, 1801.

1828. *Delphinus bredanensis* Lesson, H.N. Mamm. et Ois. depuis 1788, Cétacés, 206. European seas.

1936. *Stenopontistes zambezicus* Miranda-Ribeiro, Bol. Mus. Nac. Rio de Janeiro, *12:* 20. Zambezi River, coast, southern East Africa.

Distribution: France, Portugal, Holland, Japan (Kuroda), Aden district, Bay of Bengal, Java, the Zambezi coast, Florida.

This species is better known under the specific name *rostratus*, which is preoccupied.

Genus **TURSIOPS** Gervais, 1855

1855. *Tursiops* Gervais, H.N. des Mamm. *2:* 323. *Delphinus truncatus* Montagu, from England.

Tursiops aduncus Ehrenberg, 1833 Red Sea Bottlenosed Dolphin

For synonymy of this species (after F. C. Fraser) see Ellerman & Morrison-Scott, 1951, 736.

1833. *Delphinus aduncus* Ehrenberg in Hemprich & Ehrenberg, Symb. Phys. Mamm. *2:* sig. k. (footnote). Belhosse Island, Red Sea.

1862. *Delphinus catalania* Gray, P.Z.S. 143. Northern coast of Australia.

Distribution: Australian and South African seas (recorded from Natal, more recently from Noordhoek, near Cape Town (K. H. Barnard, *in litt*)). Sumatra, Java, the Indian Ocean and the Red Sea.

Genus **LAGENORHYNCHUS** Gray, 1846

1846. *Lagenorhynchus* Gray, Ann. Mag. N.H. *17:* 84. *Lagenorhynchus albirostris* Gray, from England.

Lagenorhynchus obscurus Gray, 1828.[1]

Gray's Dolphin. (Porpoise in South Africa)

1828. *Delphinus* (*Grampus*) *obscurus* Gray, Spic. Zool., 2. Cape of Good Hope.
1829. *Phocaena homeii* A. Smith, Zool. J. *4:* 440. Table Bay, and seas about Cape of Good Hope.

Distribution: Cape seas, where it appears to be one of the commoner species; New Zealand; Falkland Islands. (Blanford recorded a specimen from Ceylon).

Genus **CEPHALORHYNCHUS** Gray, 1846

1846. *Cephalorhynchus* Gray, Zool. Voy. Erebus & Terror, *1*, Mamm.: 36. *Delphinus heavisidii* Gray.

Cephalorhynchus heavisidei Gray, 1828 Tonine

1828. *Delphinus* (*Grampus*) *heavisidii* Gray, Spic. Zool., 2. Cape of Good Hope.
1829. *Phocaena capensis* F. Cuvier, H.N. Mamm. livraison 58 and pl.
1836. *Delphinus cephalorhynchus* F. Cuvier, H.N. des Cétacés, 158. Cape of Good Hope.
1836. *Delphinus hastatus* F. Cuvier, *loc. cit.* 161. Cape of Good Hope.
1873. *Delphinus tridens* Van Beneden, ex Sunk MS., Bull. Acad. Roy. Sci. Lettres et Beaux-arts, Belgique, Bruxelles (2) *36:* 33. Cape Town.
1873. *Orca capensis* Van Beneden, *loc. cit.:* 37. Cape Town. Not of Gray, 1846.

Distribution: Cape seas, and according to Roberts, has been recorded from New Zealand.

Genus **PSEUDORCA** Reinhardt, 1862

1862. *Pseudorca* Reinhardt, Overs. Danske Vidensk. Selsk. Forh. 151. *Phocaena crassidens* Owen.

Pseudorca crassidens Owen, 1846 False Killer

1846. *Phocaena crassidens* Owen, British Fossil Mamm. and Birds, 516. Lincolnshire Fens, near Stamford, England (subfossil).

Distribution: Cosmopolitan. Includes Cape seas where it is periodically stranded in large numbers (as happens in many other parts of the world).

Genus **ORCINUS** Fitzinger, 1860

1860. *Orcinus* Fitzinger, Wiss. Naturg. Säugeth. *6:* 204. *Delphinus orca* Linnaeus.

On nomenclature of this genus see Ellerman & Morrison-Scott, 1951, 739.

Orcinus orca Linnaeus, 1758 Killer Whale

1758. *Delphinus orca* Linnaeus, Syst. Nat. 10th ed. *1:* 77. European seas.

[1] Possible synonym of *Lagenorhynchus cruciger;* 1824. *Delphinus cruciger* Quoy & Gaimard, Zool. Voy. Uranie: 87, pl. 11, figs. 3–4, between Cape Horn and Australia. See Bierman & Slijper, 1947, Verh. Ned. Akad. Wet. *50,* 10: 1353.

ORCINUS ORCA [*contd.*]

1846. *Orca capensis* Gray, Zool. Voy. Erebus & Terror, *1:* Mamm. 34. Cape of Good Hope.

1860. *Delphinus victorini* Grill, K. Svenska Vetensk. Akad. Handl. *2*, 10: 21. In 33° 26′ S., 6° 33′ E. (which is about 700 miles west of Cape Town).

1871. *Orca africana* Gray, Cat. Suppl. Seals and Whales, B.M., 91. Algoa Bay, eastern Cape Province.

1877. *Orca australis* Van Beneden & Gervais, Ostéogr. Cétacés, 540, pl. 47, fig. 2. Algoa Bay, eastern Cape Province.

Distribution: Cosmopolitan. Reported from various places in South African seas.

Genus **GRAMPUS** Gray, 1828

1828. *Grampus* Gray, Spic. Zool., 2. *Delphinus griseus* G. Cuvier.

1933. *Grampidelphis* Iredale & Troughton, Records Austral. Mus. *19:* 31. *Grampidelphis exilis* Iredale & Troughton, from Australia.

On nomenclature of this genus see Ellerman & Morrison-Scott, 1951, 739.

Grampus griseus G. Cuvier, 1812 — Risso's Dolphin

1812. *Delphinus griseus* G. Cuvier, Ann. Mus. H.N. Paris, *19:* 14. Brest, France.

1850. *Grampus richardsoni* Gray, Cat. Spec. Mamm. B.M. Cetacea, 85. Cape seas.

Distribution: has been recorded from the Cape seas. Europe, northwards about to the British Isles, Atlantic and Pacific United States, Australia, New Zealand, China, Japan, the Red Sea, etc.

Genus **GLOBICEPHALA** Lesson, 1828

1828. *Globicephala* Lesson, H.N. Mamm. et Ois. depuis 1788, Cétacés, 441. *Delphinus deductor* Scoresby = *Delphinus melas* Traill, from the Orkney Islands.

Dr. F. C. Fraser writes: "Smith distinguished two kinds of *Globicephala* at the Cape, the one which he called *Phocaena globiceps* is certainly *G. macrorhyncha*, the other he called *Phocaena edwardii*. *Phocaena edwardii* is described as having a white breast and belly. There is no evidence of the range of distribution of *Globicephala melaena* extending southwards beyond northern temperate waters. There is a good deal of evidence that it is replaced in warmer waters by *G. macrorhyncha*. Abundant evidence exists of a *Globicephala* species in southern colder water which is characterized by having a white breast and belly, a whitish flash on the side of the head and a grey saddle mark near the dorsal fin. Rayner distinguished this southern species as *G. leucosagmaphora*. His specimen was obtained near the Cape, about 40 miles S.S.W. The rapidity with which details of colour markings are obscured in dead dolphins is well known. The appearance of a dead *Delphinus delphis*, for instance, is strikingly different from that of the living animal. I suggest that this is sufficient explanation of the absence of mention of the light head flash and saddle-mark in Smith's description of *Phocaena edwardii*. If my suggestion is accepted then *Globicephala edwardii* must have priority and *G. leucosagmaphora* be included in the synonymy."

Globicephala macrorhyncha Gray, 1846 Indian Pilot Whale or Blackfish

1846. *Globicephalus macrorhynchus* Gray, Zool. Erebus & Terror, *1*, Mamm.: 33. "South Seas."

Recorded by A. Smith, 1834, S. Afr. J. *2:* 238 from the seas on the South-East coast of Africa as *Phocaena globiceps* Cuvier (1812, from France; a synonym of *Globicephala melaena* Traill, 1809, the Northern Blackfish).

Distribution: India, Cape of Good Hope, West Africa, Straits of Malacca, Sumatra, Java, etc.

Globicephala edwardi A. Smith, 1834 Southern Pilot Whale or Blackfish

1834. *Phocaena edwardii* A. Smith, S. Afr. J. *2:* 239. "Cast on the shore near Slangkop" (which is south of Cape Town, western Cape Province).

(1939. *Globicephala leucosagmaphora* Rayner, Ann. Mag. N.H. *4:* 543. 40 miles S.S.W. of the Cape of Good Hope).

Distribution: South African seas.

Genus **LISSODELPHIS** Gloger, 1841

1841. *Lissodelphis* Gloger, Gemeinn. Naturgesch. *1:* 169. *Delphinus peronii* Lacépède.

Lissodelphis peroni Lacépède, 1804 Southern Right Whale Dolphin

1804. *Delphinus peronii* Lacépède, H.N. des Cétacés, xliii and 316. Off the southern tip of Tasmania.

Distribution: recorded by Hamilton in the R.R.S. William Scoresby, 1927 (unpublished Discovery report) from 38° 34′ S., 8° 06′ E. Also recorded from Tasmania, New Zealand.

NEW NAMES PROPOSED IN THIS WORK.

Felis serval robertsi for *Leptailurus* (= *Felis*) *capensis limpopoensis* Roberts, 1926, not of Roberts, 1926.

Rattus paedulcus robertsi for *Thallomys* (= *Rattus*) *leuconoe bradfieldi* Roberts, 1933, not of Roberts, 1926.

Rattus angolensis legerae for *Myomys shortridgei* St. Leger, 1933, not of Thomas & Hinton, 1923.

BIBLIOGRAPHY

ALLEN, G. M. 1939. A checklist of African mammals, *Bull. Mus. Comp. Zool. Harv. 83.*

ALLEN, J. A. 1922. The American Museum Congo Expedition collection of Insectivora. *Bull. Amer. Mus. Nat. Hist. 47:* 1.

—— 1922. Sciuridae, Anomaluridae and Idiuridae collected by the American Museum Congo Expedition. *Bull. Amer. Mus. Nat. Hist. 47:* 39.

—— 1924. Carnivora collected by the American Museum Congo Expedition. *Bull. Amer. Mus. Nat. Hist. 47:* 73.

—— 1925. Primates collected by the American Museum Congo Expedition. *Bull. Amer. Mus. Nat. Hist. 47:* 283

ALLEN, J. A., LANG, H., & CHAPIN, J. P. 1917. The American Museum Congo Expedition collection of Bats. *Bull. Amer. Mus. Nat. Hist. 37:* 405.

ANDERSEN, K. 1912. *Catalogue of the Chiroptera in the collection of the British Museum, 1, Megachiroptera* (all published). London: British Museum (Natural History).

BOCAGE, J. V. B. du. 1889–1890. Mammifères d'Angola et du Congo. *J. Sci. Math. Phys. Nat., Lisboa, 1:* 1–32 and 174–185 (1889), and *2:* 1–32 (1890).

BOHMANN, L. 1942. Die Gattung *Dendromus* A. Smith. *Zool. Anz. 139:* 33.

BROOM, R. 1916. On the structure of the skull in *Chrysochloris. P.Z.S.* 449.

—— 1946. Some new and rare Golden Moles. *Ann. Transv. Mus. 20:* 329.

—— 1948. Some South African pliocene and pleistocene mammals. *Ann. Transv. Mus. 21:* 1.

—— 1950. Some further advances in our knowledge of the Cape Golden Moles. *Ann. Transv. Mus. 21:* 234.

BRYDEN, H. A. 1899. *Great and small game of Africa.* London: Rowland Ward.

BURCHELL, W. J. 1822–3. *Travels in the interior of Southern Africa.* 2 vols. (vol. 1, March 1822; vol. 2, title page has "1824" but according to Sherborn the date of publication was November, 1823). London: Longman, Hurst & Co.

CABRERA, A. 1936. Subspecific and individual variation in the Burchell zebras. *J. Mammal. 17:* 89.

CONISBEE, L. R. 1953. *A list of the names proposed for genera and subgenera of recent mammals, from the publication of T. S. Palmer's* 'Index generum mammalium', *1904 to the end of 1951.* London: British Museum (Natural History).

DAVIS D. H. S. 1949. The affinities of the South African gerbils of the genus *Tatera. P.Z.S. 118:* 1002.

DOLLMAN, J. G. 1915. On the Swamp-rats (*Otomys*) of East Africa. *Ann. Mag. N.H. 15:* 149.

—— 1915–16. On the African shrews belonging to the genus *Crocidura. Ann. Mag. N.H. 15:* 507, 562; *16:* 66, 124, 357, 506; *17:* 188.

DOLLMAN, J. G., & BURLACE, J. B. 1928. *Records of big game* (9th edition). London: Rowland Ward.

—— 1935. *Records of big game* (10th edition). London: Rowland Ward.

DUNCAN, F. MARTIN. 1937. On the dates of publication of the Society's "Proceedings" . . . and of the "Transactions". *Proc. Zool. Soc. London, 107,* Ser. A: 71.

ELLERMAN, J. R. 1940–1, 1949. *Families and genera of living rodents* (3 vols.). London: British Museum (Natural History).

ELLERMAN, J. R., & MORRISON-SCOTT, T. C. S. 1951. *Checklist of Palaearctic and Indian Mammals,* 1758–1946. London: British Museum (Natural History).

ELLIOT, D. G. 1913. *A review of the Primates* (3 vols.). New York: American Museum of Natural History.

FITZSIMONS, F. W. 1919–20. *The natural history of South Africa.* Mammals (4 vols.). London: Longmans, Green.

FLOWER, W. H., & LYDEKKER, R. 1891. *An introduction to the study of mammals, living and extinct.* London: A. & C. Black.

FRADE, F. 1933a. Éléphants du Mozambique. *Bull. Soc. Portug. Sci. Nat. 11:* 307.

—— 1933b. Éléphants d'Angola. *Bull. Soc. Portug. Sci. Nat. 11:* 319.

—— 1936. Distribution géographique des éléphants d'Afrique. *C.R. XII Int. Congr. Zool.–Lisbonne, 1935:* 1191.

FRASER, F. C. 1937. *Whales and dolphins* in Norman, J. R. and Fraser, F. C., *Giant fishes, whales and dolphins.* London: Putnam.

FRECHKOP, S. 1931. Notes sur les mammifères. VI. Quelques observations sur la classification des Pangolins (Manidae). *Bull. Mus. Hist. Nat. Belge, 7,* No. 22.

GORDON-BROWN, A. 1951. *The year book and guide to Southern Africa.* Also *The year book and guide to East Africa.* (Published annually by the Union-Castle Mail Steamship Company, and containing useful maps and geographical information.) London: Robert Hale.

HAAGNER, A. 1920. *South African mammals.* London: Witherby.

HAHN, H. 1934. Die Familie der Procaviidae. *Z. Säugetierk, 9:* 207.

HARPER, F. 1940. The nomenclature and type localities of certain Old World mammals. *J. Mammal. 21:* 191 and 322.

—— 1945. Extinct and vanishing mammals of the Old World. *Spec. Publ. Amer. Comm. Int. Wild Life Prot.* No. 12.

HARRIS, W. C. 1840–43. *Portraits of the game and wild animals of southern Africa;* (issued in 5 parts). London: W. Pickering.

HATT, R. T. 1940. Lagomorpha and Rodentia other than Sciuridae, Anomaluridae and Idiuridae, Collected by the American Museum Congo Expedition. *Bull. Amer. Mus. Nat. Hist. 76:* 457.

HAYMAN, R. W. 1951. Notes on some Angolan mammals. *Publ. Cult. Compan. Diamantes Angola, Dundo,* No. 11: 33.

HEWITT, J. 1931. *A guide to the vertebrate fauna of the Eastern Cape Province,* Part 1, Mammals and Birds. Grahamstown: Trustees of the Albany Museum.

HILL, J. E., & CARTER, T. D. 1941. The mammals of Angola, Africa. *Bull. Amer. Mus. Nat. Hist. 78:* 1.

HILL, W. C. Osman. 1953. *Primates: comparative anatomy and taxonomy. 1, Strepsirhini.* Edinburgh: University Press.

HOLLISTER, N. 1918–19, 1924. East African mammals in the United States National Museum, *Bull. U.S. Nat. Mus.* No. 99. Part 1, Insectivora, Chiroptera and Carnivora (1918). Part II, Rodentia, Lagomorpha and Tubulidentata (1919). Part III, Primates, Artiodactyla, Perissodactyla, Proboscidea and Hyracoidea (1924).

LAWRENCE, B., & LOVERIDGE, A. 1953. Zoological results of a fifth expedition to East Africa. I. Mammals from Nyasaland and Tete. *Bull. Mus. Comp. Zool. Harv. 110:* 1. (This paper, published in June, 1953, was received too late for us to incorporate its findings. The authors record three species from Nyasaland which we did not know occurred in the area we deal with: *Crocidura hildegardeae* Thomas (probably a race of *C. somalica* Thomas), *Hipposideros ruber* Noack, and *Otomys kempi* Dollman).

LUNDHOLM, B. 1951. A skull of the true Quagga (*Equus quagga*) in the collection of the Transvaal Museum. *S. Afr. J. Sci. 47:* 307.
LYDEKKER, R. 1904. On the subspecies of *Giraffa camelopardalis*. *P.Z.S. 1:* 202.
—— 1913–16. *Catalogue of the ungulate mammals in the British Museum (Natural History)* (5 vols.). London: British Museum (Natural History).
—— 1926. *The game animals of Africa.* (This is a second edition, revised by J. G. Dollman; the first edition was published in 1908.) London: Rowland Ward.
MILLER, G. S. 1907. The families and genera of bats. *Bull. U.S. Nat. Mus.* No. 57.
—— 1912. *Catalogue of the mammals of Western Europe.* London: British Museum (Natural History).
MONARD, A. 1935. Contribution à la Mammalogie d'Angola et prodrome d'une faune d'Angola. *Arch. Mus. Bocage,* No. 6.
MOREAU, R. E., HOPKINS, G. H. E. and HAYMAN, R. W. 1946. The type-localities of some African mammals. *P.Z.S. 115:* 387.
MORRISON-SCOTT, T. C. S. 1947. A revision of our knowledge of African Elephants' teeth, with notes on Forest and "Pygmy" Elephants. *P.Z.S. 117:* 505.
NICOLLS, J. A., & EGLINGTON, W. 1892. *The sportsman in South Africa.* London: British and Colonial Publications.
PALMER, T. S. 1904. Index generum mammalium. *N. Amer. Fauna,* No. 23.
PITMAN, C. R. S. 1934. *A report on a faunal survey of Northern Rhodesia.* (Check lists of the vertebrate fauna—Mammals, p. 157.) Livingstone: Government Printer.
POCHE, F. 1912. Ueber den Inhalt und die Erscheinungszeiten der einzelnen Teile, Hefte, etc., und die verschiedenen Ausgaben des Schreber'schen Säugetierwerkes (1774–1855). *Arch. Naturgesch. 77,* Band 1, Supplementheft 4: 124.
POCOCK, R. I. 1902. A new arrangement of the existing species of Equidae, with the description of a new subspecies of Zebra. *Ann. Mag. Nat. Hist. 10:* 304.
—— 1904. The Cape Colony Quaggas. *Ann. Mag. Nat. Hist. 14:* 313.
—— 1907. Notes on the Quagga and Burchell's Zebra in the Paris Museum. *Ann. Mag. Nat. Hist. 19:* 516.
—— 1907. Notes upon some African species of the genus *Felis,* based upon specimens recently exhibited in the Society's gardens. *P.Z.S.* 656.
—— 1907. A monographic revision of the monkeys of the genus *Cercopithecus.* *P.Z.S.* 677.
—— 1915. On the feet and glands and other external characters of the Viverrinae, with the description of a new genus. *P.Z.S.* 131.
—— 1917. The classification of the existing Felidae. *Ann. Mag. Nat. Hist. 20:* 329.
—— 1919. The classification of the mongooses (Mungotidae). *Ann. Mag. Nat. Hist. 3:* 515.
——1921. On the external characters of some species of Lutrinae (Otters). *P.Z.S.* 535.
—— 1922. On the external characters and classification of the Mustelidae. *P.Z.S. 1921:* 803.
—— 1924. The external characters of the pangolins (Manidae). *P.Z.S.* 707.
—— 1930. The panthers and ounces of Asia. *J. Bombay N.H. Soc. 34:* 64 and 307.
—— 1932. The leopards of Africa. *P.Z.S.* 543.
—— 1939, 1941. *The fauna of British India, including Ceylon and Burma. Mammalia* (2 vols., Primates and Carnivora only published). London: Taylor & Francis.
—— 1945. Some cranial and dental characters of the existing species of Asiatic rhinoceroses. *P.Z.S. 114:* 437.
—— 1951. *Catalogue of the genus Felis.* London: British Museum (Natural History).

RAVEN, H. C., & HILL, J. E. 1942. Notes on *Cercopithecus hamlyni* Pocock. *Amer. Mus. Novit.* No. 1177.
ROBERTS, A. 1951. *The mammals of South Africa.* Johannesburg: Trustees of "The Mammals of South Africa" Book Fund.
ROOSEVELT, T., & HELLER, E. 1915. *Life histories of African game animals.* (2 vols.). London: John Murray.
RZASNICKI, A. Zebras and quaggas. *Ann. Mus. Zool. Polon. 14:* 203.
SANBORN, C. C. 1950. Chiroptera from Dundo, Lunda, North-eastern Angola. *Pub. Cult. Compan. Diamantes Angola, Dundo,* No. 10: 51.
—— 1952. Rodents (Muridae) from Lunda district, North-eastern Angola. *Pub. Cult. Compan. Diamantes Angola, Dundo.* No. 14: 107.
ST. LEGER, J. 1931. A key to the families and genera of African rodents. *P.Z.S.* 957.
SCHOUTEDEN, H. 1944–6. De zoogdieren van Belgisch-Congo en van Ruanda-Urundi. *Ann. Mus. Congo Belge,* Zoologie, *3:* 1–576.
SCHWARZ, E. 1929. On the local races and distribution of the Black and White Colobus Monkeys. *P.Z.S.* 585.
—— 1930. Die Sammlung afrikanischer Säugetiere im Congo-Museum. Ginsterkatzen (Gattung *Genetta* Oken). *Rev. Zool. Bot. Afr. 19:* 275.
—— 1931. On the African long-tailed lemurs or galagos. *Ann. Mag. Nat. Hist. 7:* 41.
—— 1928. Notes on the Classification of the African Monkeys in the genus *Cercopithecus* Erxleben. *Ann. Mag. Nat. Hist. 1:* 649.
SCLATER, P. L., & THOMAS, O. 1894–1900. *The book of antelopes* (4 vols.). London: R. H. Porter.
SCLATER, W. L. 1900–1. *The mammals of South Africa* (2 vols.). London: R. H. Porter.
SHERBORN, C. D. 1892. On the dates of the parts, plates, and text of Schreber's "Säugethiere". *Proc. Zool. Soc. London, 1891:* 587.
SHORTRIDGE, G. C. 1934. *The mammals of South-West Africa* (2 vols.). London: Heinemann.
—— 1938. A new genus and new species and subspecies of mammals from Little Namaqualand and North-West Cape Province; and a new subspecies of *Gerbillus paeba* from the Eastern Cape Province. *Ann. S. Afr. Mus. 32:* 281.
—— 1942. Field notes on the first and second expeditions of the Cape Museums' Mammal Survey of the Cape Province; and descriptions of some new subgenera and subspecies. *Ann. S. Afr. Mus. 36:* 27.
SIMPSON, G. G. 1945. The principles of classification and a classification of mammals. *Bull. Amer. Mus. Nat. Hist. 85.*
SMITH, A. 1826. *A descriptive catalogue of the South African Museum.* Pt. 1. Mammalia. Cape Town: Bridekirk.
—— 1833–4. African Zoology: Mammalia. *S. Afr.* (*Quart.*) *J. 2* (in 8 instalments).
—— 1836. *Report of the expedition for exploring central Africa, from the Cape of Good Hope . . . 1834, under the superintendence of . . . A. Smith.* Cape Town: Government Gazette Office.
—— 1837. A catalogue of the South African Museum: now exhibiting in the Egyptian Hall, Piccadilly. London: Smith, Elder.
—— 1849 (1838–48). *Illustrations of the zoology of South Africa*—Mammalia. London: Smith, Elder.
(For dates of publication see Waterhouse, 1880, P.Z.S. 489.)

SMUTS, J. 1832. *Enumerationem mammalium capensium.* Leiden: Cyfveer.
STEVENSON-HAMILTON, J. 1947. *Wild life in South Africa.* London: Cassell.
SWYNNERTON, G. H., & HAYMAN, R. W. 1951. A checklist of the land mammals of the Tanganyika Territory and the Zanzibar Protectorate. *J. E. Afr. Nat. Hist. Soc. 20:* 274.
TATE, G. H. H. 1941. A review of the genus *Myotis* (Chiroptera) of Eurasia, with special reference to species occurring in the East Indies. *Bull. Amer. Mus. N.H. 78:* 537.
TATE, G. H. H., 1942. Review of the Vespertilionine bats, with special attention to genera and species of the Archbold collections. *Bull. Amer. Mus. N.H. 80:* 221.
THOMAS, O. 1893. On mammals from Nyassaland (*sic*). *P.Z.S. 1892:* 546.
—— 1893. On a second collection of mammals sent by Mr. H. H. Johnston, C.B., from Nyasaland. *P.Z.S.* 500.
—— 1894. On the mammals of Nyasaland: third contribution. *P.Z.S.* 136.
—— 1897. On the mammals of Nyasaland: fourth notice. *P.Z.S. 1896:* 788.
—— 1897. Exhibition of specimens and descriptions of new species of mammals from North Nyasaland, with a note on *Petrodromus. P.Z.S.* 430.
—— 1898. On the mammals obtained by Mr. A. Whyte in Nyasaland, and presented to the British Museum by Sir H. H. Johnston, K.C.B.; being a fifth contribution to the mammal-fauna of Nyasaland. *P.Z.S. 1897:* 925.
—— 1898. On a small collection of mammals obtained by Mr. Alfred Sharpe, C.B., in Nyasaland. *P.Z.S.* 391.
—— 1911. The mammals of the tenth edition of Linnaeus; an attempt to fix the types of the genera and the exact bases and localities of the species. *P.Z.S.* 120.
THOMAS, O., & WROUGHTON, R.C. 1907. The Rudd Exploration of South Africa—VII. List of Mammals obtained by Mr. Grant at Coguno, Inhambane. *P.Z.S.:* 285.
—— 1907. The Rudd Exploration of South Africa—VIII. List of Mammals obtained by Mr. Grant at Beira. *P.Z.S.:* 774.
—— 1908. The Rudd Exploration of South Africa—IX. List of Mammals obtained by Mr. Grant on the Gorongoza Mountains, Portuguese S.E. Africa. *P.Z.S.:* 164.
—— 1908. The Rudd Exploration of South Africa—X. List of Mammals obtained by Mr. Grant near Tette, Zambesia. *P.Z.S.:* 535.
TROUESSART, E. L. 1897–1905. *Catalogus mammalium tam viventium quam fossilium.* Berlin: Friedländer. (pp. 1–664 (1897), 665–1,264 (1898), 1,265–end (1899); Supplementum, pp. 1–546 (1904), 547–end (1905).)
WARD, ROWLAND. See Dollman, J. G. & Burlace, J. B.
WEBER, M. 1927–8. *Die Säugetiere* (2 vols.). Jena: G. Fischer.
WINGE, H. 1923–4. *Pattedyr-Slaegter* (3 vols.). Copenhagen: H. Hagerup. (English translation by G. M. Allen & E. Deichmann, 1941–2, Copenhagen: C. A. Reitzel.)
WROUGHTON, R. C. 1906. Notes on the genus *Otomys. Ann. Mag. N.H. 18:* 264.

INDEX

Each name is entered once only—under the genus in which it is recognized in this checklist. Names printed in capitals are those which are given full generic status. Main references are shown in bold face type.