

CHAPTER 12CRYPTOMYS DAMARENSIS (OGILBY) 1838

This species was first collected by Capt. Alexander during a journey into Damaraland on the South West African coast (probably in 1837), and was first exhibited to the Zoological Society in London on the 23rd of January 1838. At that meeting, Sir Richard Owen was in the chair and Mr. Ogilby directed the attention of the Society to the rare and new specimens contained in the collection made by Alexander, including this mole-rat (Ogilby, 1838, 5). The type specimen was subsequently purchased by the British Museum at the sale of Alexander's collection on the 8th of March 1838.

As here treated, C. damarensis is a monotypic species with a very wide geographical distribution, especially in the drier, western areas of Southern Africa.

The synonyms commonly included under C. damarensis are: C. lugardi (de Winton) and C. micklei (Chubb). At first micklei was regarded as a synonym of lugardi while Shortridge (1934, 320) provisionally listed lugardi and micklei as geographical races of damarensis. Furthermore, C. ovamboensis Roberts does not appear to warrant the species rank accorded to it by Roberts (1946, 315), and is therefore also included as a synonym. Finally, Ellerman et.al. (1953, 232) treat damarensis as a race of hottentotus, i.e. C.h.damarensis. As far as the present author is concerned, this interpretation is not accepted, /...

accepted, for C. hottentotus is morphologically and phenotypically clearly distinct from C. damarensis.

Cryptomys damarensis (Ogilby)

Bathyergus damarensis Ogilby, Proc. zool. Soc. London, p. 5, 1838. Type locality: "Damaraland", South West Africa.

Georychus lugardi de Winton, Ann. Mag. nat. Hist., 1: 253, 1898. Type locality: Kalahari desert, between Palapye and Lake Ngami, north-eastern Bechuanaland.

Georychus micklei Chubb, Ann. Mag. nat. Hist., 3: 35, 1909. Type locality: Kataba river, upper Zambezi, western Northern Rhodesia.

Cryptomys ovamboensis Roberts, Ann. Transv. Mus., 20: 315, 1946. Type locality: Ondongwa, Ovamboland, South West Africa.

Type specimen:

In the British Museum (Natural History), London.

Type locality:

Not clearly defined. Usakos, South West Africa may here be nominated as type locality.

Distribution: (Fig. 12.1).

Occurs in the Kalahari Gemsbok Park, ranging northwards and westwards to South West Africa as far north as Ovamboland. Also extends eastwards through Ngamiland and the greater portion of the Kalahari desert in Bechuanaland into Southern Rhodesia (Matetsi, Roberts, 1951, 388).

Diagnostic characters:

A large species, H.B. M = 164 mm., C.B. M = 36.2 mm. (♂♂). Usually a dark slaty grey on both dorsal/...

dorsal and ventral sides with the presence of a clear white frontal (occipital) patch. Mammae: 2 pectoral and 1 inguinal pair = 6.

Colour:

The majority of specimens are uniformly dark slaty grey in colour. Some specimens are virtually black. On the other hand, reddish-brown (Ogilby) specimens may be encountered and occasionally both the dark and brown colour phases occur simultaneously in a single burrow.

A definite white occipital patch is present in all individuals, varying in size and shape. It may be limited to the occipital region of the head, or may extend in the shape of a white stripe along the mid-dorsal and mid-ventral line.

The juvenile pelage is not markedly darker compared to adult specimens. This however, is the case in many other species.

Size:

Adult ♂♂:

H.B.	150-185 mm., M = 164 mm.
T.	23-30 mm., M = 25 mm., (15.2% of H.B.)
H.F.	26-30 mm., M = 27 mm., (16.4% of H.B.)
C.B.	32.2-44.1 mm., M = 36.2 mm.
B.C.	13.9-16.9 mm., M = 15.2 mm., (41.9% of C.B.)
I.W.	7.2-8.4 mm., M = 7.3 mm., (20.1% of C.B.)
Z.W.	23.3-33.0 mm., M = 25.0 mm., (69.0% of C.B.)
M.W.	6.9-11.1 mm., M = 7.9 mm., (21.8% of C.B.)
U.T.R.	5.2-6.7 mm., M = 5.8 mm., (16.0% of C.B.)
L.J.	20.4-28.9 mm., M = 25.4 mm., (70.1% of C.B.)
L.T.R.	5.4-6.9 mm., M = 5.9 mm., (16.2% of C.B.)

Adult/...

Adult ♀♀:

H.B.	141-164 mm., M = 151 mm.
T.	25-32 mm., M = 28 mm., (18.5% of H.B.)
H.F.	26.28 mm., M = 27 mm., (17.8% of H.B.)
C.B.	31.6-38.2 mm., M = 35.3 mm.
B.C.	14.7-15.3 mm., M = 15.0 mm., (42.4% of C.B.)
I.W.	7.6-8.5 mm., M = 8.0 mm., (22.6% of C.B.)
Z.W.	25.1-30.3 mm., M = 27.1 mm., (76.7% of C.B.)
M.W.	6.8-10.0 mm., M = 8.1 mm., (22.9% of C.B.)
U.T.R.	5.5-6.4 mm., M = 6.0 mm., (16.9% of C.B.)
L.J.	21.2-27.0 mm., M = 24.1 mm., (68.2% of C.B.)
L.T.R.	5.3-6.2 mm., M = 5.8 mm., (16.4% of C.B.)

It is clear that the ♂♂ are slightly larger than the ♀♀. When the entire range of distribution of this species is taken into consideration, no geographical variation in size becomes apparent.

Skull and dentition:

Outer edge of the infraorbital foramen thickened, reducing the size of this foramen. Facial portion broad, while the auditory bullae are rather fuller than in most other species (de Winton, 1898, 251). The coronoid process of the mandible is shorter and further from the condyle, and according to de Winton (op.cit.) the intermediate space is level (i.e. more or less horizontal).

The molars in this species was described as "large in proportion" by de Winton (op.cit.). Apart from this observation they offer no other clear diagnostic features.

Discussion:

As far as the type area and distribution of this species is concerned, the following aspects may briefly be dealt with.

As/...

As was indicated above, the type specimen was collected somewhere in Damaraland, and no specific type locality has been given for damarensis. According to Roberts (1951, 388) Alexander did not penetrate north of Damaraland proper during his explorations, and therefore the vicinity of Usakos may here be nominated as a possible type locality for this species.

Eastwards, it has been collected at Gobabis and Sandfontein, while de Winton (1898, 253) designated the area between Palapye and Lake Ngami as the type locality for lugardi. Southwards in Bechuana-land, damarensis is known to occur at Lehutitung and on the Mababe flats (Dollman, 1910, 400) as well as west of Morokwen near the Molopo river.

According to Thomas (1927, 390) it extends westwards from the Gobabis district to within 20 to 25 miles from Windhoek while its southern distribution in the vicinity of Windhoek has as yet not been determined. Thomas however states that it does not range further south than Rehoboth. On the other hand, specimens have been collected in the Republic of South Africa in the Kalahari Gemsbok Park (at Union's End, Mata Mata and Twee Rivieren) which are all localities situated further south although much deeper inland.

To the north of Usakos, mole-hills of this species have been recorded at Kalkfield, Otjivarongo and in the vicinity of the Otavi junction, the latter locality already being in the Omaheke district, outside Damaraland proper.

From these localities, it extends westwards to the Kaokoveld, being plentiful in the south and

east/...

east, particularly where the sand-plains merge into Ovamboland. It extends as far west as Zesfontein, becoming scarcer in the northern Kaokoveld (Shortridge, 1934, 321).

Thomas (1927, 390) states that they are plentiful in Ovamboland, occurring anywhere between the Cunene river and the northern edge of the Etosha pan, while they are scarce in the wooded country between Namutoni and Tsumeb (Shortridge, op.cit.).

They also range northwards from Otavi through the Grootfontein district to as far north as the banks of the Okavango river and eastwards to the Caprivi strip and Ngamiland in Bechuanaland, eventually reaching the vicinity of Matetsi (north of Wankie) in Southern Rhodesia. This seems to be their easternmost distribution limit, while specimens have also been collected in Barotseland in Northern Rhodesia.

It may thus be concluded that geographically speaking, this species has the widest distribution of all Cryptomys forms in Southern Africa.

As far as the colouration of C.damarensis is concerned, a little more should be said on the subject for it presents a rather confusing picture.

In the type specimen of C.damarensis, Ogilby (1838, 5) described the colour as a uniform reddish-brown, both above and below, with a large irregularly shaped square white patch on the occipital region. White patches are also present on each side of the neck, just below the ears, meeting on the throat which was thus covered with a dirty dunnish-white. The tail is covered with coarse reddish-brown bristles while the paws are similarly coloured/...

coloured.

Gray (1864, 125) stated the type to be a uniform grey-brown, while Sclater (1899, 228) again followed Ogilby's description. This has led to an element of doubt as to what the colour is precisely. de Winton (1898, 253) on the other hand, described the colour of the synonym lugardi as seal brown, while Thomas (1927, 389) commented that all the specimens from Sandfontein and Gobabis were a uniform dark slaty colour. Chubb (1909, 33) again described the synonymic micklemi specimens collected by Micklem from the Kataba river, Upper Zambezi, as a bluish-black, including the limbs and tail.

St.Leger (1932, 963) reported on specimens collected in north-western Damaraland by Shortridge's Sixth Percy Sladen and Kaffrarian Museum expedition. At the different localities where C.damarensis was collected the specimens were all black or darkbrown in colour. Similarly, skins from Ondongwa, (central Ovamboland) (collected by Shortridge on one of his former expeditions) were pale brown in colour while others were dark brown. St.Leger (1932, 964) thus suggested that three colour phases can be expected in C. damarensis - dark (reddish) brown, pale (seal) brown and black. Confirmation of this is afforded by a series of skins from the Molopo river which in addition to black and dark brown skins contains a skin which intergrades so perfectly between brown and pale brown specimens that it is difficult to decide to which colour phase it belongs. St.Leger furthermore commented that C. damarensis is a reddish brown species, slightly more red in colour than the paler colour phase/...

phase of lugardi while the skin of the type of micklemi is in the black colour phase.

Personally, I also had the opportunity to trap both black and pale (seal) brown specimens in a single tunnel system at Mata Mata on the western border of the Kalahari Gemsbok Park. This tends to confirm the fact that both the blacker 'micklemi' and paler 'lugardi' should be treated as synonyms, while the brown specimens also occur in a lighter or darker hue. The name damarensis was originally attached to the darker (reddish) brown specimens and in terms of priority, damarensis should thus be used.

As far as colour is concerned, it is evident that the black specimens of damarensis present a curious anomaly. Animals occurring in the dry west of Southern Africa usually present a pallid colouration while the colour usually darkens in the moister eastern areas. What specific adaptive significance can be attached to this phenotype (i.e. black specimens under desert conditions) is not clear.

Concerning the morphology of the skull, there is no character by which lugardi and micklemi differ, nor do these animals offer any points of anatomical difference compared to damarensis. Furthermore is it clear that the skulls differ greatly morphologically amongst themselves in size and detailed characters, as pointed out by St.Leger (1932, 963).

The inclusion of Cryptomys ovamboensis Roberts, as a synonym of C.damarensis in the present work needs some elucidation.

Specimens collected at Ondongwa, Ovamboland were referred to damarensis by Thomas (1926, 306), and those/...



those from elsewhere in the Kalahari to lugardi. Roberts (1951, 388) considered that the former collection represented an undescribed species "as they are by no means 'red-brown', or for that matter 'grey-brown'", as described for damarensis and lugardi respectively.

Roberts (1946, 315) described the colour of the type and five other specimens collected by himself at Ondongwa as between 'cinnamon-buff' and 'clay-colour'. The hair is short, the base light slaty grey with the tips buffy while the ventral pelage colour is slightly paler. Large white patches are present on the crowns as in C. damarensis, and it also shows the same variation in size and extent. Roberts maintains that Thomas recognised this difference in colour in the Ondongwa specimens as being distinct from specimens from the Cunene river and the Kaokoveld as well as the Kalahari desert, but still placed them as C. damarensis. Hitherto, ovamboensis is only known from the type locality.

I had access to the type specimen and the five other specimens of ovamboensis referred to above and can see no justification whatsoever, based on colour interpretation, for the specific separation of ovamboensis from damarensis. If placed among material representing the paler or darker brown colour phases of damarensis, it is barely possible to identify the Ondongwa specimens. A damarensis specimen in the pale brown colour phase, was collected by me at Mata Mata and there is no distinguishable difference (based on colour) between it and individuals from Ondongwa. The Ondongwa specimens are  
 in/...

in the light brown colour phase (cf. lugardi) and the mere fact that all six specimens from this locality shows this colouration may be ascribed to chance in the statistical sense of the word. Other localities are also known, where only the brown colour phase occurs.

As far as a comparison of size is concerned the following measurements of the type of C. ovamboensis (a fairly old ♂) and of a younger adult ♂ were compared with parameters obtained for damarensis ♂♂ in the present work. This is shown in Table 12.1.

Table 12.1: Comparison between C. ovamboensis and C. damarensis as far as H.B., T. and H.F. lengths are concerned. (♂♂).

	Type specimen ( <u>C.ovambo- ensis</u> )	Young male ( <u>C.ovambo- ensis</u> )	<u>C. damarensis</u>
H.B.	160 mm.	150 mm.	M = 164 mm.
T.	27 mm.	23 mm.	M = 25 mm.
H.F.	27 mm.	27 mm.	M = 27 mm.

From the above comparisons, it is evident that the size of ovamboensis falls well within the range of variation seen in damarensis.

Concerning the ovamboensis skull, Roberts (1951, 389) states that it appears to be the same as in C. damarensis. There seems to be no justification therefore for specific separation. Before leaving the skull, Roberts (1946, 315) also listed the width of the braincase at the posterior constriction (of the type specimen) as 7.8 mm. This value can not possibly be correct as the equivalent average value in C. damarensis specimens is 15.2 mm. (See fig. 12.2).

Finally, in view of the fact that

C./...

C.damarensis shows very little geographical variation (apart from the different colour phases and the shape and extent of the occipital patch) and seems to be a rather stable genotype ranging over an enormous portion of south-western Africa, it is not clear why, suddenly at a certain locality within its distribution range a new species should be present. According to Roberts (1951, xxix), Ovamboland has a number of recognized mammalian subspecies, but few definite species have been recorded, one of the exceptions being the presence of Cryptomys ovamboensis. As far as this mole-rat is concerned, the present author is thus not inclined to agree.

Biological:

In South West Africa, the southern limit of the red Kalahari sand, west of the railway is about the latitude of Rehoboth station which is also the southern limit of the range of C.damarensis in the Rehoboth district. This also applies to the distribution of many large bulbous plants (e.g. Pseudogaltonia) and the possibility of a correlation of distribution patterns of both animals and plants exists. Shortridge (1934, 321) states that the area south of Rehoboth (Great Namaqualand), is a 'hardveld' region "... sparsely clothed with a karroo type of vegetation, largely consisting of succulent-leaved plants".

In the Kalahari Gemsbok Park, it is known to subsist largely on the deeply rooted tubers of the gemsbok cucumber Citrullus naudinianus, constructing its tunnels past these tubers and gnawing off enough to satisfy its hunger at each visit. Roberts (1951,

388) mentions that they doubtless lay up stores of bulbs in some places, although actual proof of this is still lacking.

Much is still to be learnt about the breeding habits of this species. The only information hitherto available refers to two females collected in the Grootfontein district during the end of April, each containing five foetuses. Shortridge (1934, 325) suspects that these mole-rats have a fixed breeding season, although definite evidence is lacking.

There are six mammae present in C.damarensis while the pectoral mammae are nearly always longer (apparently more in use) than the inguinal mammae. The latter are usually undeveloped in immature breeding females and come into use with age when full litters are produced.

As far as other biological aspects are concerned, they apparently do not differ markedly compared to the other Cryptomys species. However, they are found mostly in fairly open sand plains, but do not avoid bush or thin forest as long as the soil is sandy and soft. They do not frequent rocky or stony regions, and in mountainous parts they extend along flat, sandy valleys. The distribution of local populations is thus often interrupted and disconnected (Shortridge, 1934, 321).

No further biological information, pertaining specifically to C.damarensis, is available.

Phylogenetic:

The black colour encountered in C.damarensis, a typical desert-like animal, has been referred to above as a curious anomaly, for most desert animals/...

animals are generally pallid in colouration. Roberts (1935, 192) postulated that one could only conclude that in this case the blackness of colour specific to so many animals of the Congo region has been retained in this mole-rat as a specific character, even after the animals radiated into or was overtaken by desert conditions of the present time. This retention of the black colouration would also be aided by the fossorial habits of the animal, so that its colour would not be effected by the dry conditions as in other forms. This blackness is prevalent in West African animals, including birds, mammals and lower vertebrates (Roberts 1951, xxiii). Furthermore, Roberts (1935, 192) reported that on the border of the Ngamiland swamps the multimammate mice Rattus (Mastomys) coucha are darker than in the arid parts immediately to the south, and are undoubtedly more akin to those of Angola to the north-west. It is possible therefore that C.damarensis also originated in Angola, thence radiating southwards, despite the fact that a blackish species is not yet known from Angola.

In view of its large size, C.damarensis may be considered as an evolved species. It is likely that it has certain phylogenetic affinities with C.bocagei from Angola and C.darlingi from Rhodesia when phenotypic appearance is compared.

List of localities:

Damara Pan, 2 (TM), Erongo siding (Shortridge 1934, 320), Gemsbok Park, 1 (TM), Gobabis, 5 (TM), Grootkolk, 1 (TM), Kalkfield (Shortridge, 1934, 320), Kampspanne road, 4 (TM), Kano Vley (St.Leger, 1932, 963), Karakuwissa (St.Leger, 1932,

963), Kaotwe, 1 (TM), Kuke, 1 (TM), Kovares, 1 (TM),  
 Lehutitung (Dollman, 1910, 400), Linyanti, 1 (RM),  
 Mababe flats (Roberts, 1935, 236), Mashi river (Short-  
 ridge, 1932, 320), Mata Mata, 3 (TM), Matetsi, 5  
 (RM, AM, TM), 77 miles east of Maun, 1 (TM), Molopo  
 river (Mafeking), 2 (SA), Morokwen (Shortridge,  
 1934, 320), Ngami lake (de Winton, 1898, 253),  
 Numkaub (St.Leger, 1932, 963), Oas (Thomas, 1927, 390),  
 Ondongwa, 5 (TM), Okahandja (Shortridge, 1934, 320),  
 Otavi, 1 (TM), Otjivarongo (Shortridge, 1934, 320),  
 "Ovamboland", 1 (TM), Palapye (de Winton, 1898, 253),  
 Quickborn, 3 (TM), Sandfontein, 5 (NM, AM),  
 Sebungwe, 3 (RM), Shorobe, 1 (TM), Ssanukanu village  
 (St.Leger, 1934, 963), Twee Rivieren, 2 (TM),  
 Wankie Game reserve, 2 (TM), Zesfontein (Short-  
 ridge, 1934, 320).

Extra-limital

Barotseland, 1 (RM), Balovale area, 2 (TM), Kataba  
 river (Chubb, 1909, 35), Limalunga, 3 (PE), Mongu,  
 1 (PE), Nangweshi, 3 (RM, TM), Shangombo, 1 (TM).