

CHAPTER 9BATHYERGUS JANETTA THOMAS & SCHWANN 1904

During 1903, Mr. C.H.B. Grant continued collecting natural history specimens in the Cape Colony for the British Museum. As far as that institution was concerned at that time, Namaqualand had been almost entirely neglected by collectors, with the exception of a few specimens obtained there by Dr. Andrew Smith about 1830, "... and the little set collected by Dr. R. Broom at Port Nolloth in 1897 ..., being the only mammals that the Museum has ever received from that country" (Thomas & Schwann, 1904, 172). Among the specimens collected by Grant was a bathyergid which Thomas and Schwann thought to be worthy of specific distinction, and this animal they proposed to call Bathyergus janetta.

This find was also of interest as "... being the second species of so peculiar and long known a genus as Bathyergus, otherwise confined to the Cape" (Thomas & Schwann, op.cit.). It is clearly darker in colour and smaller in size than the Cape representatives of the genus.

As here understood, Bathyergus janetta is a monotypic species, confined to the vicinity of Port Nolloth. This is in contrast to Roberts (1951, 381) who interprets this species as polytypic (i.e. recognizing B. janetta janetta, B.j. inselbergensis and B.j. plowesi as subspecies), and Ellerman et.al. (1953, 228) who consider this species to be conspecific with Bathyergus suillus.

Bathyergus/...

Bathyergus janetta Thomas & Schwann

Bathyergus janetta Thomas & Schwann, Proc. zool. Soc.

No. 1: 180, 1904. Type locality: Port Nolloth,  
Cape Province.

B. j. inselbergensis Shortridge & Carter, Ann. S.Afr.

Mus., 32: 290, 1939. Type locality: Ezel-  
fontein, Kamiesberg, Cape Province.

B.j. plowesi Roberts, Ann. Transv. Mus. 20: 4, 315,

1946. Type locality: Oranjemund, South West  
Africa.

Type specimen: British Museum (Nat.Hist.), ♀,

no.545, collected on August 3rd, 1903. Collector:  
C.H.B. Grant.

Type locality: Port Nolloth, Cape Province.

Distribution: (Fig. 9.1).

According to Thomas and Schwann

it is common on the white sands of Port Nolloth. They also occur on the Kamiesberge, approximately 120 miles south-east of Port Nolloth. Furthermore, they are known to occur at Oranjemund (i.e. just to the north of the northern bank of the mouth of the Orange river).

Diagnostic characters:

In size much smaller than B. suillus,  
H.B. M = 205 mm., C.B. M = 516 mm. (♂♂). Dorsal area, for a breadth of about 2 inches, seal-brown, contrasting markedly with the drab-grey of the shoulders and sides. Ventral surface dark. Head usually blackish. Skull pronouncedly smaller than B. suillus, less heavily ridged. Incisors grooved, not extending beyond molars.

Colour

The most conspicuous feature in B. janetta is the medium dark band which runs along the back.

Thomas/...



Thomas and Schwann have described the colour as seal-brown, covering virtually the entire dorsal area, with an average width of approximately two inches, which contrasts markedly with the drab-grey of the shoulders and sides. This drab-grey colouration does not differ materially from that seen in the Cape specimens (i.e. B. suillus). Ventrally, the fur is 'blackish-slaty' and on the whole, of a darker hue than in B. suillus. The chin area often has a sharply defined white patch. Furthermore, in contrast to B. suillus the majority of individuals show no frontal (occipital) spotting on the generally darkish coloured head: any tendency towards spotting is often represented only by a thin white stripe (line) along the top of the nose. As in B. suillus, the area round the ear is white and the brighter colour of the flanks commence just posterior to the ear. Proximally, the limbs are a dark slaty-grey while the hands and feet are usually off-white.

The fringing hairs of the tail are a dull whitish colour with the central part of the tail a pale brown.

Specimens from Kamiesberg differ from the coastal specimens in that the general colour above is silvery-grey instead of drab-grey and thus the seal-brown dorsal and occipital area tends to contrast more sharply with the flanks having an almost frosty appearance. Piebald varieties occur sporadically.

Size/...

Size:Adult ♂♂:

H.B.	170-235 mm.,	M = 205 mm.
T.	41-52 mm.,	M = 48 mm., (23.4% of H.B.)
HF.	38-43 mm.,	M = 41.0 mm., (20.0% of H.B.)
C.B.	41.1-54.8 mm.,	M = 51.6 mm.
B.C.	16.7-19.5 mm.,	M = 18.4 mm., (35.6% of C.B.)
I.C.	8.9-10.2 mm.,	M = 9.4 mm., (18.2% of C.B.)
Z.W.	26.5-37.2 mm.,	M = 31.2 mm., (60.4% of C.B.)
M.W.	8.9-12.5 mm.,	M = 10.3 mm., (19.9% of C.B.)
U.T.R.	7.5-9.1 mm.,	M = 8.2 mm., (15.8% of C.B.)
L.J.	24.8-34.6 mm.,	M = 30.3 mm., (58.7% of C.B.)
L.T.R.	8.2-9.7 mm.,	M = 8.8 mm., (17.0% of C.B.)

Adult ♀♀:

H.B.	170-206 mm.,	M = 183 mm.
T.	40-50 mm.,	M = 44 mm., (24.0% of H.B.)
H.F.	34.40 mm.,	M = 37.6 mm., (20.5% of H.B.)
C.B.	40.4-50.7 mm.,	M = 43.9 mm.
B.C.	17.2-18.8 mm.,	M = 17.9 mm., (40.7% of C.B.)
I.C.	8.8-9.6 mm.,	M = 9.2 mm., (20.9% of C.B.)
Z.W.	26.5-33.8 mm.,	M = 28.4 mm., (64.6% of C.B.)
M.W.	8.6-10.8 mm.,	M = 9.2 mm., (20.9% of C.B.)
U.T.R.	7.0-8.2 mm.,	7.6 mm., (17.3% of C.B.)
L.J.	25.4-31.6 mm.,	26.8 mm., (61.0% of C.B.)
L.T.R.	7.6-9.2 mm.,	M = 8.3 mm., (18.9% of C.B.)

A comparison between B. suillus and B. janetta shows clearly that the former is much larger than the latter species from Port Nolloth: the mean H.B. length equals 281 mm. (♂♂) in the Cape specimens in contrast to 205 mm. (♂♂) in the specimens from Port Nolloth.

As/...



As was the case in B. suillus, sexual dimorphism is also evident in B. janetta. The ♂♂ are significantly larger than the ♀♀. When five ♂♂ and 12 ♀♀ from Fort Nolloth are compared in respect of C.B. length, ♂♂ ( $M = 51.6 \text{ mm.} \pm 9.65 \text{ mm.}$ ) are significantly larger than the ♀♀ ( $M = 43.9 \text{ mm.} \pm 2.549 \text{ mm.}$ ) at the 2-1% level ( $t = 2.9$ , 15 degrees of freedom,  $P = 0.20-0.10$ ).

#### Skull and Dentition:

The skull of B. janetta appears to be less heavily ridged compared to B. suillus (Ellerman, 1940, 84). However, no further diagnostic characteristics are to be observed in the skull and dentition, apart from the fact that the M.W. compared to the B.C. width is proportionally greater in B. janetta than in B. suillus.

#### Discussion:

The two widely diverging points of view held by Ellerman et.al. (1953, 228) on the one hand, and Roberts (1951, 380, 381) on the other concerning the specific status of Bathyergus janetta is illustrated by the fact that the former regard all the forms of Bathyergus tentatively as conspecific whereas Roberts distinguishes between the species suillus and janetta. In the earlier work by Ellerman (1940, 84) the opinion was expressed that the genus contained two well-marked species, the "giant" suillus and the moderate-sized janetta.

It is therefore important to emphasize certain differences existing between suillus and janetta. Comparing B. suillus from the south with B. janetta from Fort Nolloth and vicinity, it becomes evident/...

evident that there is a definite difference in colouration: the former being drab-grey in comparison to the darker individuals with a seal-brown band on their backs in the case of the latter. Apart from differences in colour between the species they also differ greatly as far as size is concerned. The mean H.B. size of suillus (♂♂) has been found to be 281 mm. compared to 205 mm. in janetta (♂♂) from Port Nolloth. As has been stated elsewhere in the present work, linear measurements (especially as far as H.B. length, T. length and H.F. length are concerned) are often unreliable. However, the difference in size between suillus and janetta is also reflected in the mean C.B. length of the skull equalling 62.9 mm. in B. suillus and 51.6 mm. in B. janetta.

In order to provide further evidence illustrating differences which exist between B. suillus and B. janetta as far as their skulls are concerned, use was made of ratios rather than linear measurements according to the method described in Mayr, Storer and Usinger (1953, 136). Ratios are more useful as taxonomic characters than direct measurements because the variable factor of size is minimized (Mayr et.al., op.cit.).

The ratio R is calculated and expressed in the formula  $R = \frac{s (100)}{l}$ , where s = the smaller of the two values and l = the larger, thus expressing the size of the smaller value as a percentage of the larger. The ratios can be demonstrated visually in the form of scatter diagrams in which one value is plotted on the abscissa, the other on the ordinate. Using different symbols for the different species the presence/...



presence or absence of overlaps between populations can be detected quickly.

The two scatter diagrams which have been prepared for the present work, are based on skulls of ♀♀ only in view of the fact that a bigger sample of ♀ janetta individuals was available for study.

As will be seen in fig. 9.2, the ratio  $R = \frac{U.T.R.(100)}{C.B.}$  has been plotted graphically, thus expressing the length of the U.T.R. as a percentage of the C.B. length. It is clear that there is a definite difference between the two species. In B.suillus the average length of the U.T.R. = 9.6 mm., i.e. approximately 17.2% of the C.B. length, while in B. janetta the corresponding values were 7.6 mm. and 17.3% respectively.

Similarly, the ratios  $R = \frac{L.J.(100)}{C.B.}$  were determined and plotted in fig. 9.3, expressing the L.J. length as a percentage of the C.B. length. Again the differences between the two species become evident: in B. suillus the average length of the L.J. = 33.6 mm., i.e. approximately 60.2% of the C.B. length, while in B. janetta the corresponding values are 26.9 mm. and 61.4% respectively.

Statistical analysis of these scatter diagrams show that the group averages differ significantly in the two species.

Based on the results given above, I am inclined to conclude that we have here two separate species: differing in certain ratios in the skull, in overall body size and in colour. Therefore, I do not agree with Ellerman et.al. (1953) who interpret the forms suillus and janetta as conspecific.

For/...

For the purposes of this work, the two other 'accepted' subspecies, B.janetta inselbergensis and B.j.plowesi are provisionally treated as synonyms of B. janetta. Unfortunately, there is a paucity of material as far as these forms are concerned. In the case of B.janetta inselbergensis, only four specimens are known to science, while the subspecies B.j.plowesi has been defined on two specimens only.

The inselbergensis specimens were described by Shortridge and Carter (1939, 290) with type-locality Ezelfontein, near Kamiesberg in Namaqualand. The type specimen is housed in the Kaffrarian Museum, being an adult ♀, original number 977, collected on December 4th 1936 at an altitude of approximately 4,400'. Compared to the coastal individuals occurring at Port Nolloth, the general colour along the dorsal seal-brown area is a silvery-buff instead of a drab-grey in the coastal specimens. Consequently, the seal-brown dorsal and occipital areas contrast much more sharply with the flanks. According to Shortridge and Carter, this greater contrast is also seen in the dark forearms and thighs so that the flanks appear to have a frosty appearance. Other differences described by the authors, are that the dorsal tail hairs are slaty black basally instead of pale brown, with a buff-white colour terminally. The hairs on the forefeet "are whiter, less soiled looking, than in the typical janetta."

In order to evaluate the validity of the differences which exist between the inselbergensis material and the material from Port Nolloth, one is once again handicapped by the small sample in the former case. Statistically speaking, whenever a difference/...



difference exists of  $\pm 9$  S.D., it is virtually one-hundred percent sure that one is dealing with two different species. Similarly, a value of 4.5 S.D. applies to subspecific differences. The available material from Kamiesberg was compared with material from Port Nolloth for the different measurements used in the present work: in all but two measurements (i.e. U.T.R. and L.T.R.) the values for B. janetta inselbergensis fall well within the 3 S.D. ranges exhibited by B. janetta specimens from Port Nolloth (See fig. 9.4).

Eventually, some information may become available which may serve as a basis for subspecific separation of B.j.inselbergensis from B.janetta janetta. However, this will only become evident when more material from Kamiesberg is obtained. It should also be remembered that the inselbergensis material was originally described as a mountain race of B.janetta and that the find was unexpectedly interesting, the "... previously known forms being only known to occur in low-lying coastal sandplains". Consequently, they differ in their habitat which they occupy (4,000-5,000' compared to less than 1,000' above sea level) which may have induced the silvery-buff frosty colouration on the flanks. On the other hand, feet looking less soiled, is hardly a criterium for subspecific separation. The present author, on comparing the specimens from Kamiesberg to those obtained from Port Nolloth, found that phenotypically speaking, one could point to specimens from Port Nolloth which also showed a tendency for their flanks to be silvery buff. In other words, within the material from Port Nolloth, one can encounter specimens which/...

which are phenotypically virtually identical to the specimens from Kamiesberg. This observation is in direct contrast to what Roberts (1951, 381) has stated: "... the colour markings of the animal seem to indicate specific isolation of B. suillus and B. janetta." As far as size is concerned, Roberts stated that the mountain form is considerably larger than the coastal form and almost as large as B. suillus intermedius from Klaver. This larger size is apparent in all the different characteristics which were compared but these differences are not statistically acceptable. According to Roberts (1951, 381) these animals are only known from the type locality hitherto: but, he states, that they could probably be found elsewhere in the hills, e.g. between Springbok and Kamaggas, where he had seen mounds on strips of sandy ground.

Roberts (1946, 315) described Bathyergus janetta plowesi as another subspecies. The type locality was designated as Oranjemund, South West Africa (north of mouth of Orange River), the type being an immature ♀ (M<sub>2</sub> erupted but not worn), T.M. no. 9795. In addition to the type specimen, another juvenile specimen (♂) was also collected at the same place. According to Roberts, the nature and distribution of the markings of the animals are much the same as in B. j. janetta from Port Nolloth, but, instead of being seal-brown dorsally, the area from the nose to the root of the tail is dark brown, almost black. This black colouration is also seen in "... the cheeks, limbs and underparts from chin to vent, while the sides from the ears, side of neck and shoulders to upper part of thighs and side of rump are/...



are almost white, with the barest trace of, instead of being conspicuously, buffy." According to Roberts (1951, 381) if one were to allow for the difference in age (the type of plowesi being immature), it would seem to be of the same size as the typical janetta from Port Nolloth. As has been stated for B. j. inselbergensis, I feel that too little material is available for the erection of a new subspecies. Many specimens from Port Nolloth are also darker than seal-brown dorsally, i.e. which could also be called black.

For the purposes of the present work, the two subspecies inselbergensis and plowesi are both considered to be conspecific and adult individuals should be obtained which may show these forms to be well within the variation range of B. janetta. However, it is proposed not to formally sink these two subspecies, but to retain them tentatively under janetta and to call them forms in the taxonomical sense of the word as defined by Mayr, Storer and Usinger (1953, 35). Until more evidence is forthcoming, I do not think that the subspecific rank credited to inselbergensis and plowesi is justified: this is also coupled to the fact that we do not as yet know exactly what the geographical range of B. janetta is.

It is known that B. janetta occurs in the white sands in the vicinity of Port Nolloth and extends inland up to 15 or 17 miles. There after however, information peters out. Similarly, Roberts (1951, 381) only assumed that the mounds seen between Kamaggas and Springbok could have been thrown up by B. janetta occurring on the mountains at Kamiesberg. Specimens (2 only) from Oranjemund have not yielded much regarding the/...

the geographical distribution of the supposed subspecies.

Shortridge (1934, 318) states that the distribution of B. janetta could possibly include the coastal sand dunes of Little (and Great?) Namaqualand. Similarly, he quotes Berseba hottentots informing him of the existence of a large "duin mol" along the coastal sand dunes between Luderitz and the mouth of the Orange river. According to Shortridge, this information was subsequently supported by several Europeans from Luderitz. Furthermore, the occurrence of the animals is said to be scarce. From this it can also be inferred how little is known about the animals and how tentative their subspecific ranks should be regarded. It could well be that with sufficient collecting, these forms would fall within the variation range exhibited by B. janetta from Port Nolloth (as specimens from Kamiesberg and Oranjemund have done).

Biological:

In contrast to Bathyergus suillus, where some information is available about the biology of the animals, virtually nothing is known about B. janetta. However, differences are to be expected, since B. janetta occupies more diverse habitats (e.g. mountainous regions) compared to B. suillus which appears to be limited to the soft soils of river tributaries and coastal sand dunes, below 1,000' above sea level.

Phylogenetic:

It is of interest to note that the M.W., compared to the B.C. width is proportionally greater in B. janetta than it is in B. suillus. In juvenile skulls/...



skulls of bathyergids, the muzzle width is also proportionally greater than in adult specimens, where the width of the muzzle compared to the braincase width diminishes somewhat. This may be interpreted as a pedomorphic character which is still shown in B. janetta. It may be reasonable to assume from this that of the two species, B. janetta is probably the oldest phylogenetically speaking, which has given rise in the course of time to the larger and possibly more advanced B. suillus. Advanced characteristics in this instance could be coupled to the larger size attained by suillus and its greater geographical distribution.

List of localities :

Port Nolloth, 126 (KM, SA, NM, PE, TM, EM, MM),  
Ezelfontein, near Leliefontein, Kamiesberg, 4 (KM),  
Oranjemund, 2 (TM).