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REVISION OF THE SUBSPECIES OF THE LESSER BANDICOOT RAT *BANDICOTA BENGALENSIS* (GRAY) (RODENTIA : MURIDAE)

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(With 2 Tables and 5 Text-figures)

INTRODUCTION

Gray (1835, 1837) erected the species *Arvicola bengalensis* and *Mus kok* from India, and Nehring (1902) described *Nesokia gracilis* from Ceylon, but none of them compared these with each other. Thomas (1907) accommodated these species under a new genus *Gunomys* and added another species *Gunomys varius* from Penang, Malaysia, to it. Wroughton (1908) described three more species, *Gunomys wardi*, *Gunomys lordi* and *Gunomys sindicus* from Kashmir, Maharashtra and Sind respectively, on the basis of the texture of fur. Later, he (1919) gave a key for the identification of all the above mentioned species. Ellerman (1941) considered these as mere subspecies of *Bandicota bengalensis* (Gray). Subsequently he (1947, 1963) distinguished *varius* from all other subspecies by its larger size (Occipitonasal length over 44 mm.), and *wardi* in having longer and softer fur. Further, he synonymized *lordi* and *sindicus* with *kok* and differentiated the latter from *bengalensis* and *gracilis* on the length of tooth-row (over 7 mm. *vs.* under 7 mm.), and *bengalensis* from *gracilis* on the relative length of the tail (more than 80% *vs.* less than 80% of Head and Body length).

While cataloguing the collections of rodents in the Zoological Survey of India, we have come across several specimens of *Bandicota bengalensis* from different accepted subspecific zones, which according to the extant literature, cannot be distinguished from one another. An assessment of their taxonomic status was, therefore, felt necessary.

All measurements are in millimetres and have been taken after Ellerman (1963). For statistical analysis, the external and cranial measurements given by him have also been incorporated. Population-range diagrams (Text-figs. 1-5) for different external and cranial measurements have been prepared according to the methods of Dice and Leraas (1936) and Hubbs and Perlmutter (1942). The length of each ordinate represents the extremes of each set of measurements

and a central crossbar the mean; a narrow shaded rectangle represents a distance equal to one standard deviation from the mean on each side of the mean, while the broad rectangle represents a distance equal to twice the standard error of the mean on each side of the mean.

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OBSERVATION AND DISCUSSION

Colour.—The colour in *Bandicota bengalensis* ranges dorsally from dark brown to blackish, occasionally with pale brown or reddish hue and ventrally from dark gray to whitish. Tail in most of the specimens is dark throughout but sometimes paler below.

A detailed study of coloration of specimens of this species from different areas reveals that there is no significant difference in colour as it varies much individually, irrespective of localities.

Nature of fur.—The fur in specimens of *wardi* from Kashmir and Himachal Pradesh is long, thick and soft and with a silky lustre as against short and harsh in other subspecies. However, in one male specimen collected in October from Chamba, Himachal Pradesh

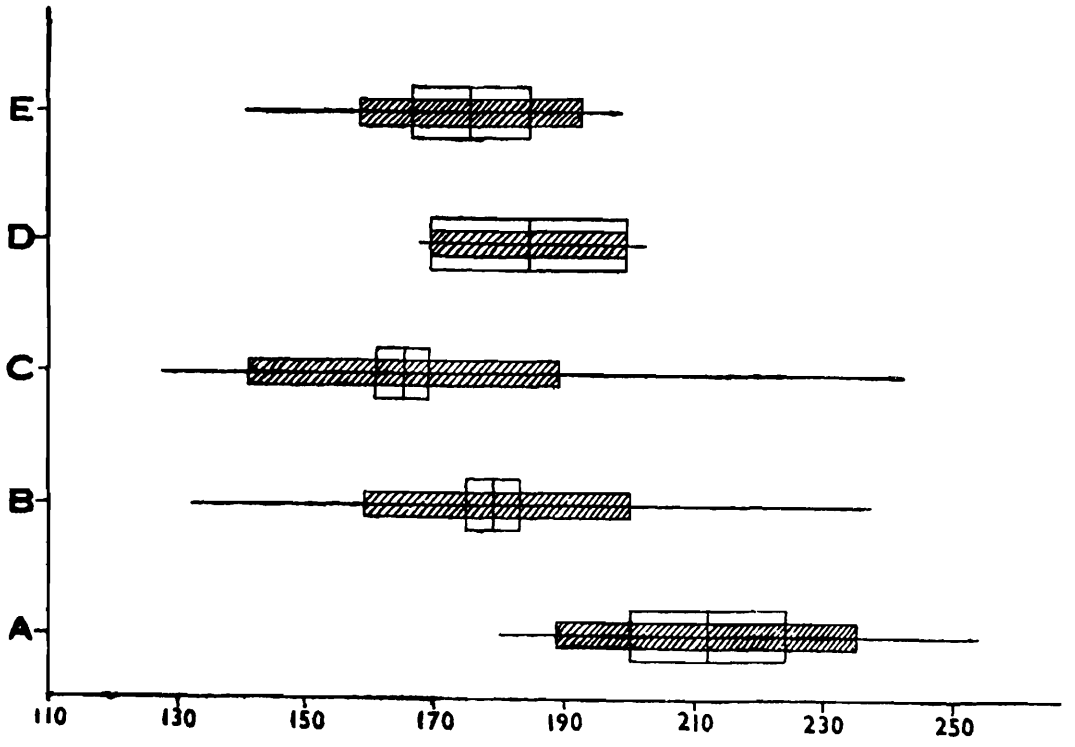
Table 1.—External measurements of different subspecies of *Bandicota bengalensis* (Gray).

Name of Subspecies	No. of ex.	Head & Body	Tail	Tail as % of HB	Hind foot	Ear
Bandicota b. bengalensis	115	132—237 (179)*	99—202 (148)	68—98% (82%)	29—39 (33.0)	18—25 (21.7))
Bandicota b. kok	106	128—243 (165)	100—217 (149)	62—103% (85%)	27—44 (33.5)	18—25) (22)
Bandicota b. wardi	14	140—198 (175)	108—162 (141)	67—93% (81%)	32—37 (35)	18—25 (22)
Bandicota b. gracilis	5	167—202 (184)	121—170 (140)	72—84% (78%)	28—35 (32)	19—23 (21)
Bandicota b. varius	14	180—255 (212)	135—205 (172)	65—96% (80%)	34—43 (39)	20—25 (23)

* Figures in parentheses indicate mean values

(*alt* 610 metres) it is coarse and not very dense. It appears to be in moulting stage. On the other hand, in a few winter specimens of *bengalensis* and *kok*, the fur is soft but can easily be distinguished from that of *wardi* in being shorter, less dense and lacking the silky lustre.

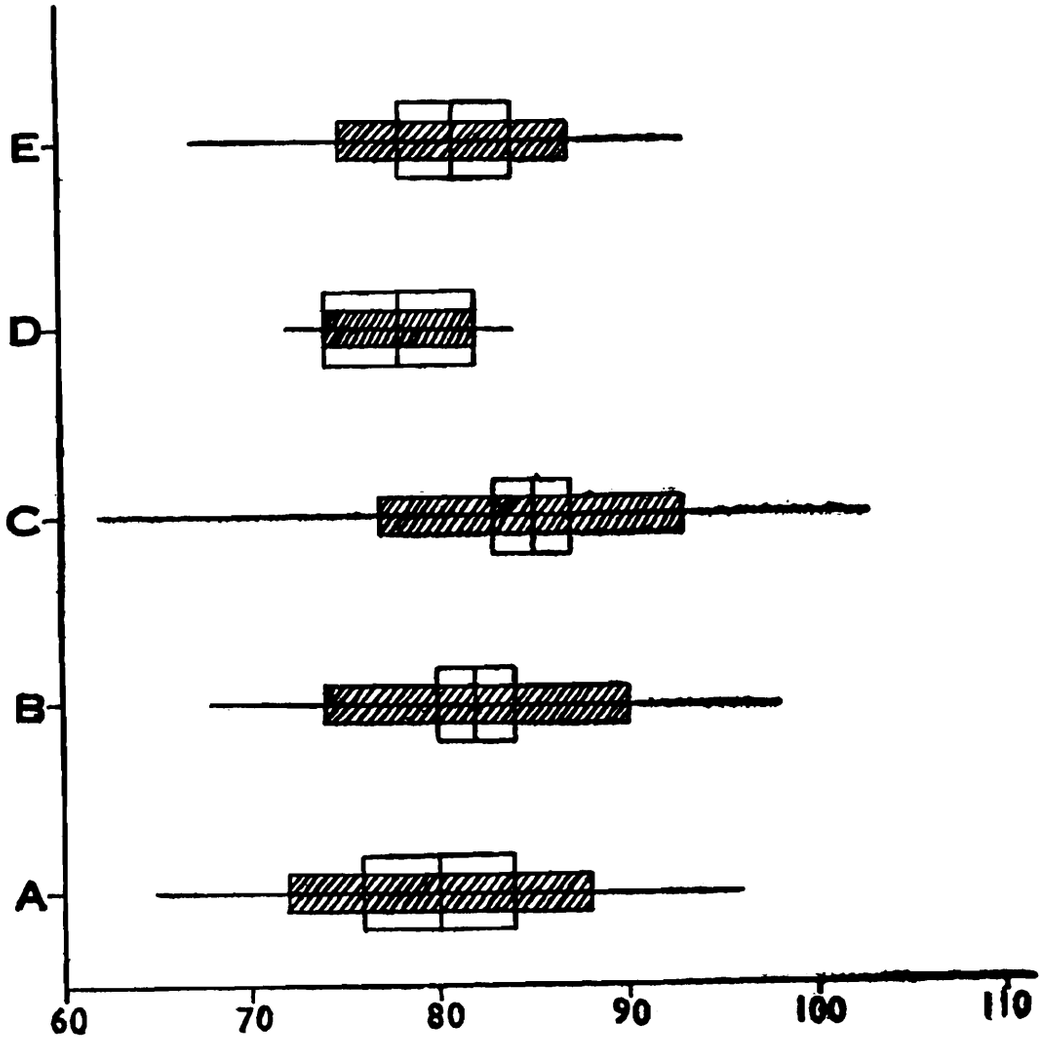
Size.—An analysis of the various measurements of the body and skull from different subspecific zones reveals that there is no significant difference between them either in the length of Head and Body or in the length of tail in relation to Head and Body (Text-figs. 1



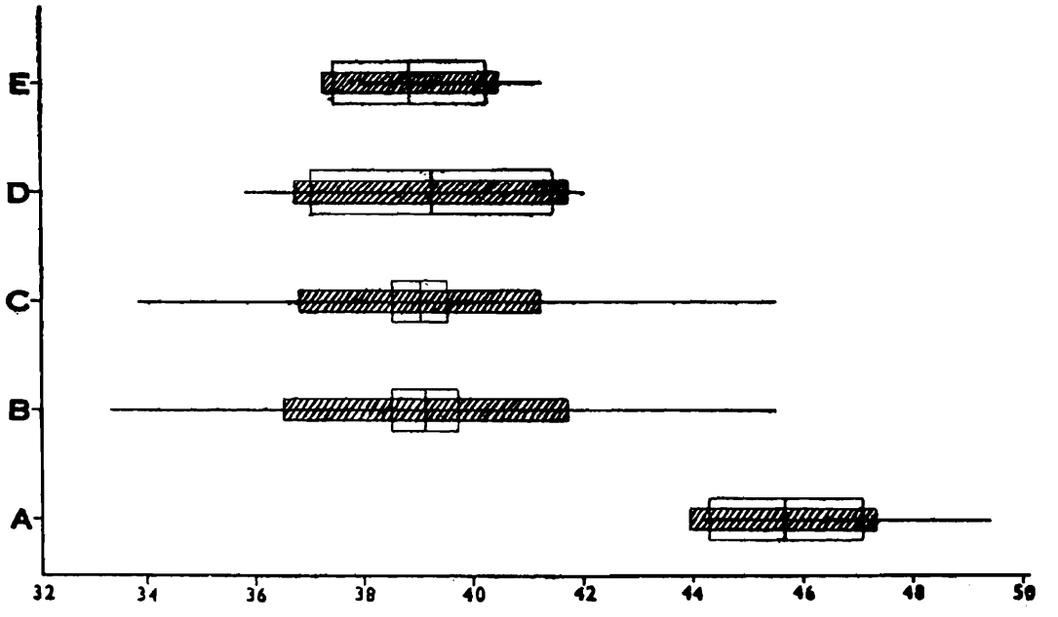
Text-fig. 1.—Graphic representation of Head and Body length in five subspecies of *Bandicota bengalensis* (Gray). A, *B. b. varius* ; B, *B. b. bengalensis* ; C, *B. b. kok* ; D, *B. b. gracilis* ; and E, *B. b. wardi.*

and 2, table 1), contrary to that mentioned by Wroughton (1919) and Ellerman (1963). However, the specimens of *varius* have a tendency of being larger in the Head and Body length. This tendency is clearly reflected in the length of its skull. The occipito-nasal length (Text-fig. 3, table 2) in this subspecies ranges from 44.2 to 49.4 mm. as against less than this in other subspecies (exceptions being three out of 156 skulls, where it reaches 45 mm.).

Tooth-row.—Ellerman (1963) separated *kok* from *bengalensis* and *gracilis* on the basis of its longer tooth-row (over 7 mm *vs.* below 7 mm). An analysis of the length of tooth-row in all the subspecies

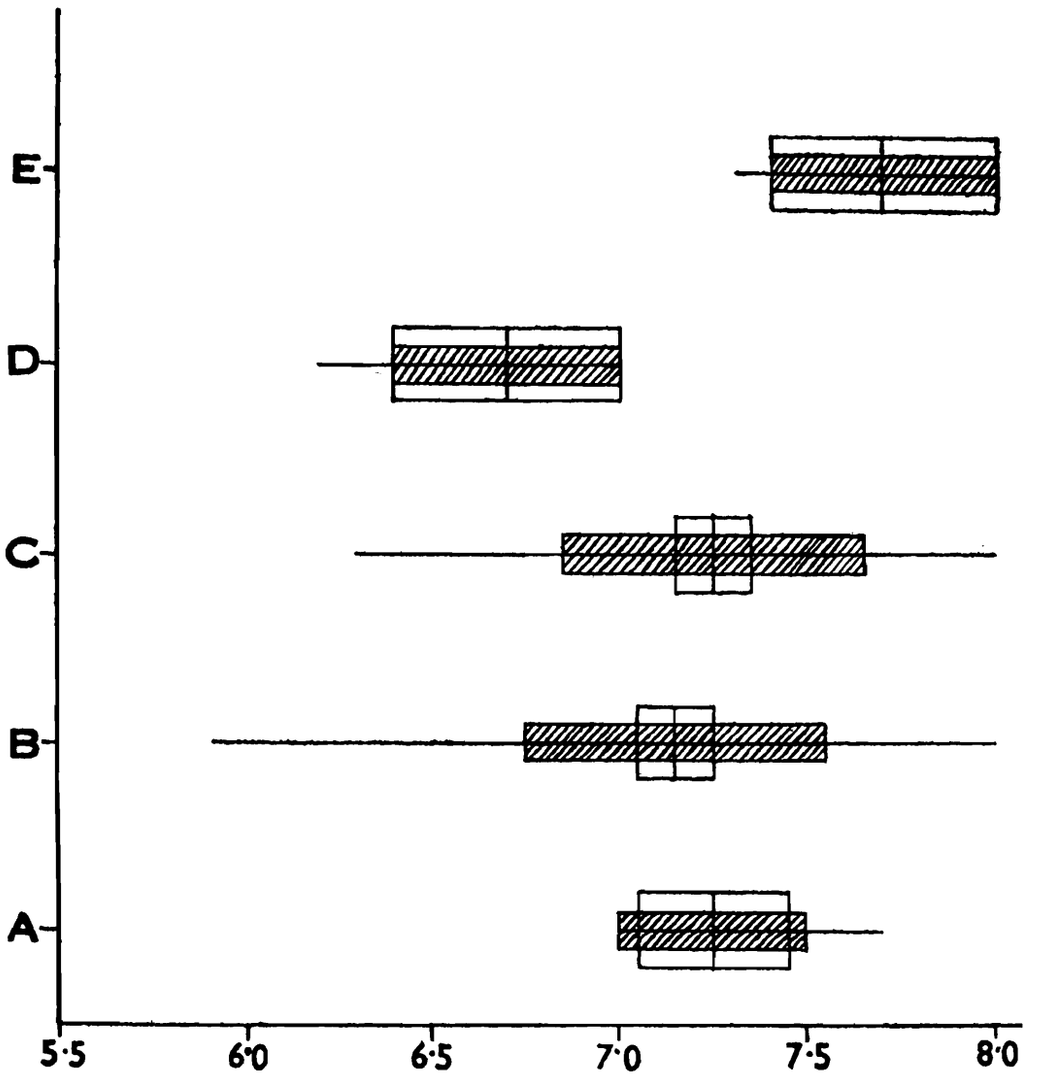


Text-fig. 2.—Graphic representation of the length of tail as percentage of Head and Body length in five subspecies of *Bandicota bengalensis* (Gray). A, *B. b. varius* ; B, *B. b. bengalensis* ; C, *B. b. kok*. D, *B. b. gracilis* ; and E, *B. b. wardi.*



Text-fig. 3.—Graphic representation of occipitonasal length of skull in five subspecies of *Bandicota bengalensis* (Gray). A, *B. b. varius* ; B, *B. b. bengalensis* ; C, *B. b. kok* ; D, *B. b. gracilis* ; and E, *B. b. wardi.*

(Text-fig.4) shows that there is no significant difference between them in absolute measurements. However, when considered in relation

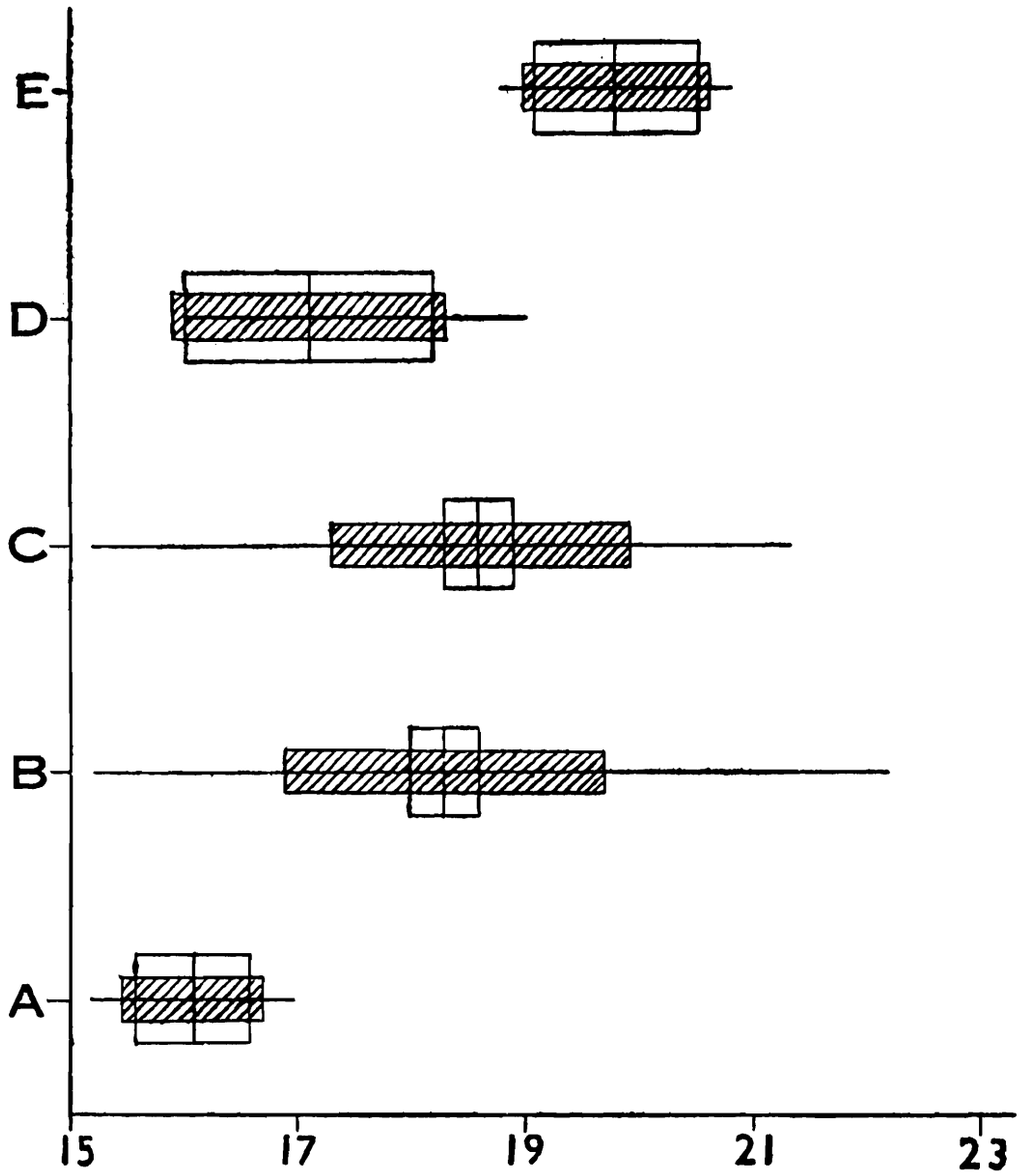


Text-fig. 4.—Graphic representation of the length of tooth-row in five subspecies of *Bandicota bengalensis* (Gray). A, *B. b. varius* ; B, *B. b. bengalensis* ; C, *B. b. kok* ; D, *B. b. gracilis* ; and E, *B. b. wardi.*

to occipitonasal length of the skull, it is slightly smaller in *varius* than in *bengalensis*, *kok* and *wardi*, but intermediate between the two in *gracilis* (Text-fig. 5, Table 2).

Thus, the separation of *bengalensis* from *kok* on the basis of the length of tooth-row, and from *gracilis* on the relative length of tail, is not justified.

We would, therefore, treat *Bandicota bengalensis kok* (Gray) and *Bandicota bengalensis gracilis* (Nehring) as synonyms of *Bandicota bengalensis bengalensis* (Gray).



Text-fig. 5.—Graphic representation of the length of tooth-row as percentage of occipitonasal length of skull in five subspecies of *Bandicota bengalensis* (Gray). A, *B.b. varius* ; *B*, *B.b. bengalensis* ; C, *B.b. kok* ; D, *B. b. gracilis* ; and E, *B. b. wardi.*

A key to the subspecies of *Bandicota bengalensis*, as recognized by us, is given below.

1(2).	Fur long, dense with a silky lustre	*B. b. wardi*
2(1).	Fur short, less dense and lacking silky lustre	3
3(4).	Occipitonasal length more than 44 mm.	*B. b. varius*
4(3).	Occipitonasal length less than 44 mm.	*B. b. bengalensis*

Table 2.—Some cranial measurements of different subspecies of *Bandicota bengalensis* (Gray).

Name of subspecies	No. of ex.	Occipito-nasal	Tooth-row	Tooth-row as % of ONL
Bandicota b. bengalensis	73	33.3—45.5 (39.1)*	5.9—8.0 (7.15)	15.2—22.2% (18.3%)
Bandicota b. kok	73	33.8—45.5 (39.0)	6.3—8.0 (7.25)	15.2—21.3% (18.6%)
Bandicota b. wardi	5	37.9—41.2 (38.8)	7.3—8.0 (7.7)	18.8—20.8% (19.8%)
Bandicota b. gracilis	5	35.8—42.0 (39.2)	6.2—7.0 (6.7)	16.2—19% (17.1%)
Bandicota b. varius	6	44.2—49.4 (45.65)	7.0—7.7 (7.25)	15.2—17% (16.1%)

* Figures in parentheses indicate mean values.

SUMMARY

The paper deals with the taxonomic revision of the subspecies of the Lesser Bandicoot Rat, *Bandicota bengalensis* (Gray).

From a detailed study of coloration, nature of fur and external and cranial measurements of all the five subspecies of *B. bengalensis*, it appears that *B. b. kok* and *B. b. gracilis* are nothing but synonyms of *B. b. bengalensis*. However, *B. b. wardi* and *B. b. varius* stand valid. Former can be differentiated from the nominate subspecies on the texture of fur, and the latter by its larger skull.

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