

ON A COLLECTION OF RATS AND SHREWS FROM
THE DUTCH EAST INDIAN ISLANDS

by

OLDFIELD THOMAS,

British Museum.

I owe to the kindness of Dr. K. W. DAMMERMAN the opportunity of examining a large number of Rats and Shrews which have been accumulated in the Zoological Museum at Buitenzorg. These have mostly been obtained by various Dutch officials in connection with the study of plague, and as a consequence they are usually the species which occur in and around the various ports and principal towns, these being in the case of the rats generally members of the *Rattus rattus* group and may for the present be set aside under the provisional name of *Rattus neglectus*, JENT. There are also a number referable to the *Rattus concolor* group, of which the archipelago representatives have generally been called *R. ephippium*, JENT. And there are, of course, some *Mus musculus*. Of none of these would a list be worth publication.

But among the others there are many of interest, and a list of them with localities and notes, may be of value to mammalogists.

The majority of the new species have already been described in the Annals and Magazine of Natural History for March, 1921.

1. *Lenomys meyeri*, JENT.
♂ 1.2. Amoerang, N. Celebes.
2. *Rattus xanthurus*, GRAY.
♂ 3. Menado.
♂ 4.5.6. Amoerang.
3. *Rattus dominator*, THOS.
♀ 7. Menado, leg. MOHARI.
4. *Rattus marmosurus*, THOS.
♂ 8. Toradjalanden, Mamasa, Celebes.

The study of the additional material of this interesting group of rats with white-ended tails has resulted in the description of three new species, of which *Rattus dominator* is the finest. The original specimens were collected by Dr. CHARLES HOSE in 1895, and he gives me the following note on their place of capture:

"I found a large rock basin on the top of the mountain in which, water had collected to the depth of three or four feet and decided to

camp there for several days. The top of the mountain was covered with small forest trees, and the usual undergrowth which, owing to the fact that they were able to get water, many small mammals had taken advantage of."

The species of the group found in N. Celebes are now four in number, namely

Rattus dominator, THOS.

Largest. Skull about 56 mm. in total length. Fur without specially elongated piles. Incisors opisthodont. Skull with long tapering nasals, projected zygomatic plate and short palatal foramina.

Rattus xanthurus, GRAY.

Rather smaller. Skull about 50 mm. in length. Back with elongated piles. Incisors orthodont. Skull with heavy supraorbital ridges, little projected zygomatic plate, and large palatal foramina.

Rattus celebensis, GRAY.

Size as last. Fur comparatively short, without longer piles. Skull with light ridges, short zygomatic plate and small palatal foramina.

Rattus marmosurus, THOS.

Again smaller. Skull 45 mm. Fur very long and trespassing on to the base of the tail. Ridges of medium development; zygomatic plate short; palatal foramina large; molars small.

A fifth species with a white-ended tail is *Rattus callitrichus*, JENT., but this does not appear to belong to quite the same group. Its fur is soft, and more like that of *Rattus fratorum*. Length of skull about 50 mm. Bullæ small, much smaller than in the *xanthurus* group.

5. *Rattus dammermani*, THOS.

A large harsh-furred rat of the *rattus-neglectus* group. Mammæ 3—3=12.

Size about as large as in *R. mülleri*. Fur exceedingly poor, harsh, and thin, with hardly any underfur, the chief part of the pelage formed by the numerous narrow spinous hairs. General colour above rufous-brown, the spiny hairs whitish at base, with dark brown tips. Under surface dull whitish, fairly sharply defined, the hairs light to their bases; middle line of chest faintly darker. Limbs more reddish brown, hands and feet whitish. Tail long, short-haired, uniformly brown. Mammæ 3—3=12.

Skull strongly built, elongate, with long narrow nasals, strongly developed supra-orbital ridges, which sweep evenly round to the outer corners of the interparietal without forming any postorbital process or angle. Zygomatic plate strongly convex. Palatal foramina long, reaching past the level of the front root of *m*¹. Bullæ fairly large. Incisors orthodont. Molars proportionally small.

Dimensions of the type (measured on a stuffed specimen):—

Head and body 206 mm.; tail 252; hind foot 43; ear (no doubt shrunk) 17.

Skull: greatest length 50; condylo-incisive length 48; zygomatic breadth 25; nasals 19.7; interorbital breadth 7.3; breadth across parietal ridges 15.8; zygomatic plate 6; palatilar length 24; palatal foramina 9.1; postforaminal palate 10.1; upper molar series 8.

Hab. (of type). Wadjo, N. Celebes, at the N.W. corner of the Gulf of Tomini.

Type. Adult female. B. M. no. 21.2.9.7. Original number 105. Collected 12th April, 1915, by the Dutch Controleur. Presented by the Buitenzorg Museum. One specimen. (Ann. and Mag. of Nat. Hist. Ser. 9, Vol. VII, March 1921, p. 247.)

This fine rat is named after Dr. DAMMERMAN, to whose kindness I owe the opportunity of working out this interesting Archipelago collection. The species has some resemblance to *R. mülleri*, JENT. but would appear to be really a large member of the *R. rattus-neglectus* group. Its mammae are 3—3=12 in number, while *R. mülleri* has only 2—2=8.

6. *Rattus pesticolus*, THOS.

A dwarf member of the *rattus-neglectus* group.

Size very small, hardly greater than in the *concolor* group. Fur thin and coarse, not definitely spinous. General colour above dull reddish brown, sides rather greyer, under surface sharply defined white, the hairs on the throat with grey bases. Hands and feet white. Tail of medium length, thinly haired, light brown, almost white basally. Mammae 3—3=12.

Skull conspicuously smaller in all dimensions than in *neglectus*, but of about the same general proportions. Supraorbital beads distinct; no postorbital projections. Palatal foramina to the level of the front root of *m*¹. Bullæ of normal size.

Dimensions of the type (measured on a stuffed specimen):—

Head and body 151 mm.; tail 148; hind foot 30; ear (no doubt shrunk) 13.

Skull: greatest length 37.5; condylo-incisive length 36; zygomatic breadth 18; nasals 13; breadth across parietal ridges 14; palatilar length 18.5; palatal foramina 7.4; upper molar series 6.5.

Hab. Menado, Celebes.

Type. Adult female, B. M. no. 21.2.9.11. Temporary number 16. Collected 1908 by Mohari. One specimen.

This pygmy member of the *rattus-neglectus* group is an island analogue of the small S.-Indian *R. r. wroughtoni* and *R. kandianus*, but* seems to deserve a special specific name.

(Ann. and Mag. of Nat. Hist. Ser. 9, Vol. VII, March 1921, p. 248.)

7. *Rattus mordax*, THOS.

♂ 18. N. New Guinea.

8. *Rattus fratrorum*, THOS.

♂ 10. Amoerang, N. Celebes.

♀ 9. Menado, Leg. MOHARI.

9. *Rattus chrysocomus*, HOFFM.

♀ 11. Juv. 31. Toradjalanden, Mamasa.

In his large paper on the mammals of Celebes (Abh. Mus. Dresden. VII No. 7. p. 24, 1899.) Dr. A. B. MEYER has placed both *chrysocomus* and *fratrorum* as synonyms of *R. callitrichus*, JENT., but all these are perfectly distinct, differing considerably in size and having quite appreciable diagnostic skull characters.

10. *Rattus hellwaldi*, JENT.

♂ 13. Menado, N. Celebes. Leg. MOHARI.

♂ 12. 14. Amoerang, N. Celebes.

11. *Rattus musschenbroeki*, JENT.

♂ 15. Menado. Leg. MOHARI.

12. *Uromys talaudium*, THOS.

A beautiful ochraceous species, barely less vivid than *U. fulgens*.

Size about as in *fulgens*. General colour above rich ochraceous, below sharply contrasted white, the hairs white to their bases. Body-fur extending on to base of tail for more than half an inch. Hands and feet white. Tail long, nearly as long as in *fulgens*, uniformly pale brown.

Skull about the same size as in *fulgens*, but not so heavily built, less convex above, with narrower interorbital space, narrower brain-case, and longer, less open palatal foramina. Palate slightly broader, the two molar series less strictly parallel, more divergent behind.

Dimensions of the type (measured on a skin):—

Head and body 145 mm.; tail imperfect (in another similar-sized specimen 190); hind foot 31.

Skull: greatest length 39.5; condylo-basal length 37.8; zygomatic breadth 21; nasals 13; interorbital breadth 6.2; palatilar length 18.4; palatal foramina 6.3; breadth across outside m^2 8.8; upper molar series 7.3.

Hab. Talaud Islands, between Gilolo and Mindanao. Type from Liroeng.

Type. Adult female. B.M. no. 21. 2. 9. 3. Temporary number 24. Taken by the Controleur 13th April, 1916. Presented by the Buitenzorg Museum.

(Ann. and Mag. of Nat. Hist. Ser. 9, Vol. VII, March 1921, p. 248.)

The discovery of two species of *Uromys* in the Talaud Islands greatly extends the known range of the genus, the nearest localities to this as yet reported being the Obi Islands and Salawatti. No doubt the group will prove also to occur in Gilolo.

The present species is shown by its long tail to be an arboreal animal, and I have little doubt that, like *U. fulgens*, which it nearly resembles, it purchases safety from predaceous birds by its striking resemblance in colour to the mantle of the large species of *Pteropus*.

Local observations are needed for the confirmation or disproof of this theory, which was advanced on the description of *U. fulgens*.

13. *Uromys caurinus*, sp. n.

♂ 23, ♀ 40.98 (juv). Talaud Islands.

A medium sized short tailed species of the *U. bruijnii* group. Size about as in the larger ordinary species of *Uromys*, exclusive of the giant species; build robust. General colour above near cinnamon brown, paler on the sides. Undersurface white, the hairs white to the roots; on the belly the white only covers a breadth of about an inch, but is broader on the chest and inguinal region. Ears as usual short. Hands and feet whitish above, inner side of limbs white. Tail shorter than head and body, pale brown throughout.

Skull stoutly built, with well marked divergent supraorbital ridges. Nasals extending well behind the anterior corner of the orbits. Palatal foramina quite short, much shorter than in the Ceram species. Molars stout and heavy. Posterior edge of palate level with the front of m^3 . Bullae small.

Dimensions of the type, measured on the remade skin:— Head and body 176 mm.; Tail 137 mm.; Hindfoot 30 mm.; ear 15 mm.; Skull greatest length 39 mm.; condylo-incisive length 37.2; zygomatic breadth 30.2; interorbital breadth 6.7; breadth of brain case between parietal ridges 14.8; palatilar length 17.8; palatal foramina 5.4×2.6 ; breadth of mesopterygoid fossa 3.2; upper molar series 8.

Hab. as above.

Type. Old female. B.M. No. 21. 2. 9. 2. Temporary number 40.

This species is one of the normal short tailed species allied to *U. bruijnii*, *lorenzi*, etc., but does not agree in shape of skull with any known form.

The occurrence of the genus *Uromys* so near to Mindanao has induced me to compare it with the Philippine genus *Apomys*. I find it to be undoubtedly very nearly allied, but it may apparently be distinguished from the latter by its more completely hairless tail, stouter feet, its less elongated muzzle and more projected zygomatic plate. Whether these characters will prove to be constant throughout all the species of both genera remains to be seen. The structure of the molars is quite the same in both, as is the shortening of the palatal foramina.

Of the Shrews I have found it impracticable at present to make any definite determinations, except in the case of one single Water Shrew from Sumatra, which is not only a new species, but has enabled me to describe a new genus, *Crossogale*.

Crossogale, gen. nov.

Nearly allied to *Chimarrogale*.

Shape of skull comparatively normal, the brain-case not excessively broadened and flattened. Anterior incisors as broad terminally as proximally, the internal accessory notch and cusp much more developed, so that the two incisor-tips are some way apart. In *Chimarrogale* these teeth are sharply pointed, the accessory cusp is reduced, and the two tips are comparatively close together.

Range of genus. E. Indian Archipelago, instead of Himalayas, China, and Japan.

Genotype. *Crossogale phæura* (*Chimarrogale phæura*, Thos.).

14. *Crossogale sumatrana*, THOS.

Coloured like *C. phæura* of Borneo, but size greater.

Fur, as usual in water-shrews, soft and velvety, hairs of back about 7 mm. in length. Colour above uniform sooty grey, the hair-tips black; a few longer white-tipped piles on the rump. Under surface dull brownish. Hands whitish, the swimming-fringes dark brown. Feet mostly whitish, but their outer border and the swimming-fringe brown. Tail uniformly dark brown throughout.

Skull shaped about as in *C. phæura*, but much larger and heavier.

Anterior incisors larger and stronger than in *phæura*, the characteristic internal terminal cusp strongly developed, and the main outer points well separated.

Hab. Sumatra. Type from Pager Alam, (Palembang Highlands).

Type. Old specimen (probably male). B. M. no. 21. 2. 9. 1. Temporary number 169. Collected 28th November, 1918. Presented by the Buitenzorg Museum. One specimen only.

The characters of this shrew, agreeing closely as they do with those of the Bornean form, and standing out in marked contrast to those of the four known Continental species, appear to render it advisable to separate generically from each other the water-shrews of the two regions.

(Ann. and Mag. of Nat. Hist. Ser. 9, Vol. VII. March 1921, p. 243.)

Mr. H. C. ROBINSON, of Kuala Lumpur, who has instigated such extensive collecting in the Malay Peninsula, tells me that although every effort has been made to trap water-shrews, nothing of the sort has been found in the area he is concerned with. So that there would seem to be a complete geographical gap between the ranges of *Chimarrogale* and what I have now called *Crossogale*.

The broadened anterior incisors of *Crossogale* are modified to form together a double-pointed fish-catching weapon curiously similar in appearance and function to that of the fish-eating rats (*Ichthyomys* and allies), where the widely separated outer corners of the incisors make two prongs, of obvious use in the capture of small fish.

On the other hand the front incisors of *Chimarrogale* are each tapered and pointed, and close together, so that the pair form a comparatively simple gaff.