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| Bull. Inst. r. Sci. nat. Belg. Bull. K. Belg. Inst. Nat. Wet. | Bruxelles Brussel | 31-III-1979 |
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MURIDAE COLLECTED IN IRIAN JAYA, INDONESIA

PAR

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A scientific expedition organized by the « Fonds Léopold III pour l'Exploration et la Conservation de la Nature », and led by its President H. M. King LEOPOLD, studied several aspects of the fauna and the flora of Irian Jaya between March 14th and May 26th, 1973. The present paper deals with the rodents collected during this expedition.

The itinerary and dates of the expedition are the following :

| | | |
|-------------------------|---------------------|--------------------------|
| Sentani | 14 March - 2 April | savanna |
| Wamena-Jiwika-Napua ... | 3 April - 19 April | forest and grass savanna |
| Merauke | 20 April | savanna |
| Kurik | 22 April - 25 April | savanna |
| Tembagapura | 27 April - 6 May | mountain forest |
| Enarotali | 7 May - 11 May | deforested area |
| Manokwari | 12 May - 22 May | secondary forest |
| Djajapura | 22 May - 26 May | |

Thirteen species of Muridae have been captured :

| | |
|---|---|
| <i>Rattus rattus</i> (L.) | <i>Rattus omichlodes</i> sp. n. |
| <i>Rattus exulans browni</i> (ALSTON) | <i>Pogonomys sylvestris</i> THOMAS |
| <i>Rattus sordidus gestroi</i> (THOMAS) | <i>Melomys rubex</i> THOMAS |
| <i>Rattus</i> cfr. <i>ratticolor</i> | <i>Melomys platyops fuscus</i> RÜMMER |
| <i>Rattus verecundus</i> (THOMAS) | <i>Melomys levipes mollis</i> (THOMAS) |
| <i>Rattus niobe haymani</i> ELLERMAN | <i>Melomys lutillus frigidicola</i> TATE |
| <i>Rattus richardsoni</i> TATE | <i>Melomys lutillus muscalis</i> (THOMAS) |

Rattus rattus (L.)

Eighteen specimens were collected : Sentani : 4, in savanna together with *Rattus exulans*; Wamena : 13; Manokwari : 2. All represent the *alexandrinus* phenotype. The presence of this species in Wamena must be rather recent; it was not mentioned by TATE (1951) from the Balim valley.

Rattus exulans browni (ALSTON)

Sixty four specimens captured at Sentani and one only at Manokwari. The mean external dimensions are : head and body length : 122.4 mm; tail length : 115.0 mm; hindfoot length : 22.8 mm; the proportions are thus : tail/head and body : 93.9 %; hindfoot/head and body : 18.6 %.

This species is extremely common in secondary grass at Sentani; 63 specimens have been caught inside a surface of 2 Hectares, mainly in high grass, but also in old abandoned orchards. The species seems to be less abundant in Manokwari. No melanistic specimens have been seen among them.

The main interest of *R. exulans* in the whole of New Guinea is its distribution limited to the northern coastal areas, extending eastwards and South to Port Moresby. The species is apparently absent from the whole of the South coast, West of Port Moresby; in this last region, MENZIES (1972) showed that the species is poorly represented : 1 out of 377 rodents. There is so far no good explanation for this absence on the South coast. The

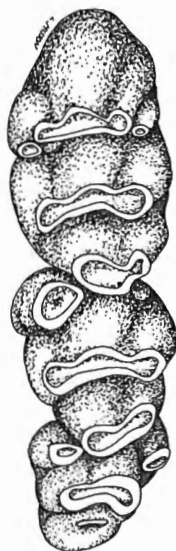


Fig. 1. — Upper molars of *Rattus exulans browni* showing additional conules near t1 and t3.

grassy areas near Merauke for instance should suit it well. There is no better explanation for the absence of *R. exulans* from continental Australia.

It is also lacking so far in altitude, from the Balim valley and from Enarotali, though it is known from an altitude of 1,800 m near Mt Hagen (*R.e. praecelsus*).

As already noted by TATE (1935), the form *browni* shows a tendency to develop accessory cusps on the molars (see fig. 1); this occurs also on several other Muridae, but it is seldom so obvious.

Rattus sordidus gestroi (THOMAS)

R. gestroi was first included into *R. sordidus* by ELLERMAN (1949, p. 67) and later by LAURIE & HILL (1954); TATE (1951) considered it as a distinct species. The race *aramia*, which I have not seen, seems to be very doubtful.

This species is well characterized in Irian by its yellowish belly with gray base of hairs; its relatively short tail and by mammae 3 : 3 = 12. The skull shows large bullae and long slit-like palatal foramina. The incisors, on the specimens seen, show a very weak depression on anterior surface, though not a groove.

Two specimens were captured at Kurik, North of Merauke in the grassy bush forest.

Rattus niobe haymani ELLERMAN

Thirty seven specimens were captured between 2,400 m and 3,400 m, all on the South slopes of Mt Karstens, above and near Tembagapura and Ertsberg. This is by far the commonest species at higher levels; it is well adapted to the biotopes to be found there, from deep montane forest with fallen trees and heavy mosses, to forest openings and even to the lower levels of alpine meadows. The populations seem dense and the capture rate was around one capture out of ten traps.

These specimens are darker than two specimens from Mt Wilhelmina (*R. niobe arrogans*) from the American Museum of Natural History, captured at 3,850 m. The type locality of *R. niobe haymani* is Camp n° 9, Upper Utakwa (Otakwa) river. This point lies approximatively at less than 20 km S. E. of Tembagapura.

Mean external measurements of 37 specimens :

| | |
|-------------------------------|--------------------|
| head and body length | 133.1 mm (120-156) |
| tail length | 123.7 mm (96-142) |
| hindfoot length | 30.7 mm (29- 33) |
| tail/head and body | 93 % |
| hindfoot/head and body | 23 % |
| mammae | 1 : 2 = 6 |

Skull measurements :

(SL : skull greatest length; M¹M³ : length of molar row; P.F. : length of palatal foramina; O.C. width of interorbital constriction).

| No | SL (in mm) | M ¹ M ³ (in mm) | P.F. (in mm) | O.C. (in mm) |
|-----|---------------|--|-----------------|-----------------|
| 000 | 33.1 | 5.5 | 5.1 | 6.9 |
| 310 | — | 5.9 | 4.5 | — |
| 311 | 33.1 | 5.5 | 4.9 | 6.2 |
| 312 | 34.2 | 5.5 | 4.3 | 6.8 |
| 313 | 31.8 | 5.8 | 4.1 | — |
| 315 | 33.7 | 5.6 | 4.9 | 6.8 |
| 317 | — | 5.9 | 5.1 | 6.9 |
| 318 | — | 6.9 | 4.1 | 7.0 |
| 319 | — | 5.5 | 4.9 | 6.2 |
| 320 | — | 5.7 | 5.1 | — |
| 329 | 34.1 | 6.0 | 5.1 | 6.5 |
| 330 | 32.1 | 5.5 | 5.0 | 6.2 |
| 332 | — | 5.3 | 5.3 | 6.5 |
| 333 | — | 5.2 | 5.3 | 6.1 |
| 335 | — | 5.6 | 5.7 | 6.1 |
| 336 | 33.1 | 5.6 | — | 5.1 |
| 337 | 34.2 | 6.0 | 5.2 | 6.1 |
| 338 | 33.6 | 5.8 | 5.2 | 6.1 |
| 340 | — | 5.5 | 4.5 | — |
| 349 | — | 6.0 | 6.1 | — |
| 350 | — | 5.3 | 4.9 | 6.1 |
| 356 | 32.9 | 5.2 | 5.2 | 6.0 |
| 357 | 33.9 | 5.8 | 4.7 | 6.2 |

Mean measurements and proportions :

| | | |
|--------------------------------------|--------|-----------------------|
| skull length | | 33.3 mm (31.8 - 34.2) |
| molar row | | 5.6 mm (5.2 - 6.0) |
| palatal foramina | | 4.9 mm (4.1 - 6.1) |
| interorbital constriction | | 6.3 mm (5.1 - 7.0) |
| interorbital width/skull length | ... | 18.6 % |
| molar row length/skull length | ... | 16.8 % |
| palatal foramina length/skull length | ... | 14.7 % |

One lactating female was captured on May 6th; she was accompanied by two large young (head and body : 83 and 84 mm), which were caught in the same trap. This species is strictly nocturnal in this region; this was shown by the fact that the pelage of all the captured specimens was dry, while the rain falls continuously between 9 a.m. and midnight.

Rattus richardsoni TATE

Six specimens were captured near Ertsberg, between 3,350 m and 3,400 m. These specimens agree rather well with two specimens from Lake

Habbema preserved in the American Museum of Natural History (n° 150704 and 151148); the belly of the Ertsberg specimens is somewhat more buffy. The specimens collected by the ARCHBOLD expedition were also captured at high altitude, between 3,225 and 4,040 m.

In the Ertsberg area, South side of Mt Karstens, *R. richardsoni* was captured in open areas above tree line and in the extreme upper fringe of the montane forest. It certainly represents a high mountain species, adapted to the conditions prevailing at the upper limit of the forest, with small bushes and grass. The specimens were captured together with *R. niobe* and with the new species *R. omichlodes*; this last species does not enter the upper limits of the montane forest, while *R. niobe* is typically a species of this montane forest, and can be captured also occasionally just above it.

External measurements (HB : head and body length; T : tail length; HF : hindfoot length).

| N° | HB | T | HF | Altitude |
|-----|-----|-----|----|----------|
| 301 | 148 | 125 | 37 | 3,400 m |
| 302 | 140 | 130 | 34 | 3,400 m |
| 303 | 156 | 130 | 39 | 3,400 m |
| 308 | 132 | 111 | 35 | 3,400 m |
| 309 | 146 | 130 | 38 | 3,400 m |
| 314 | 144 | 136 | 38 | 3,350 m |

Tail length / head and body length : 88 %.

Hindfoot length / head and body length : 25.5 %.

| N° | Total length (in mm) | Molar row | Palatal foramina | Interorbital constriction |
|-----|----------------------|-----------|------------------|---------------------------|
| 301 | 30.8 | 6.0 | 6.6 | 6.0 |
| 302 | — | 6.0 | 6.2 | 6.5 |
| 303 | — | 6.2 | 7.1 | 6.1 |
| 309 | — | 5.6 | — | — |
| 314 | 36.1 | 6.1 | 6.1 | 6.2 |

TATE (1951, p. 342) emphasises on the similar aspect of *R. richardsoni* and *Melomys levipes lanosus*; on the Ertsberg mountain, *R. richardsoni* and *Melomys levipes mollis* are also very similar; the belly is buffy on *R. richardsoni*, but whitish on *M. levipes*; they are otherwise very much alike.

Rattus omichlodes sp. n.

Holotype n° 306 deposited at the National Biological Institute, Bogor, Indonesia; collected at Ertsberg (04°04'S; 137°07'E), alt. 3,400 m by X. MISONNE, April 29th, 1973.

Paratypes n° 305 deposited at Bogor, and n°s 307, 996, 997, 998, 999, deposited in the collections of the Institut royal des Sciences naturelles de Belgique, all collected at Ertsberg on 29 and 30 April 1973.

The name is derived from $\omega\mu\chi\lambda\omicron\delta\eta\varsigma$ (« fogbound, living in the fog »).

A medium sized rat belonging to the *niobe-richardsoni-verecundus* group, brown above and below, with short tail and dark fingers.

Description of the type. — Dorsal pelage dense and soft; the hairs are light grey with terminal part brown (Brussel's Brown of Ridgway, or 4/4 Hue 5YR of Munsell) with mixed black guard hairs. The belly is a little lighter with gray based hairs. The tail is well haired, short, unicoloured. The fingers of fore- and hindfeet are gray like the tail. The first finger, without the claw, does not reach the base of the second.

The skull has a well developed braincase; the rostrum is not elongated and the interorbital region is not beaded. The palatal foramina do not, or just, reach the molar level.

Comparisons. — The species must be compared with *R. niobe* and *R. richardsoni*; it is evidently related to both. *R. niobe* and *R. richardsoni* are dark rats, of a similar shade on the back, which becomes paler on the sides on *richardsoni*, less so on *niobe*, while *omichlodes* is distinctly browner. The belly is darker on *niobe* and similar on *richardsoni* and *omichlodes*, a little lighter than on *niobe*. The hindfeet are dark on proximal end and white on distal end on *niobe*. They are whitish, or yellowish on *richardsoni*, while they are dark on distal end on *omichlodes*.

The skulls of the three species show also differences; seen from above, the skull of *richardsoni* which is larger, has stronger interorbital constriction, the sides of which are beaded. They are little, or not, beaded on *niobe* and not at all on *omichlodes*. The nasal bones reach the level of the zygomatic plate on *richardsoni* and *niobe*, while they reach farther behind on *omichlodes*.

The measurements of the five skulls of *R. omichlodes* are the following :

| No | Total length | Palatal foramina | Molar row | Interorbital constriction |
|------|--------------|------------------|-----------|---------------------------|
| Type | — | 4.7 | 5.0 | 5.7 |
| 305 | — | 5.4 | 5.1 | — |
| 997 | 34 | 5.2 | 6.0 | 6.0 |
| 999 | — | 5.2 | 5.2 | 6.1 |
| 061 | — | 5.4 | 5.2 | 5.9 |

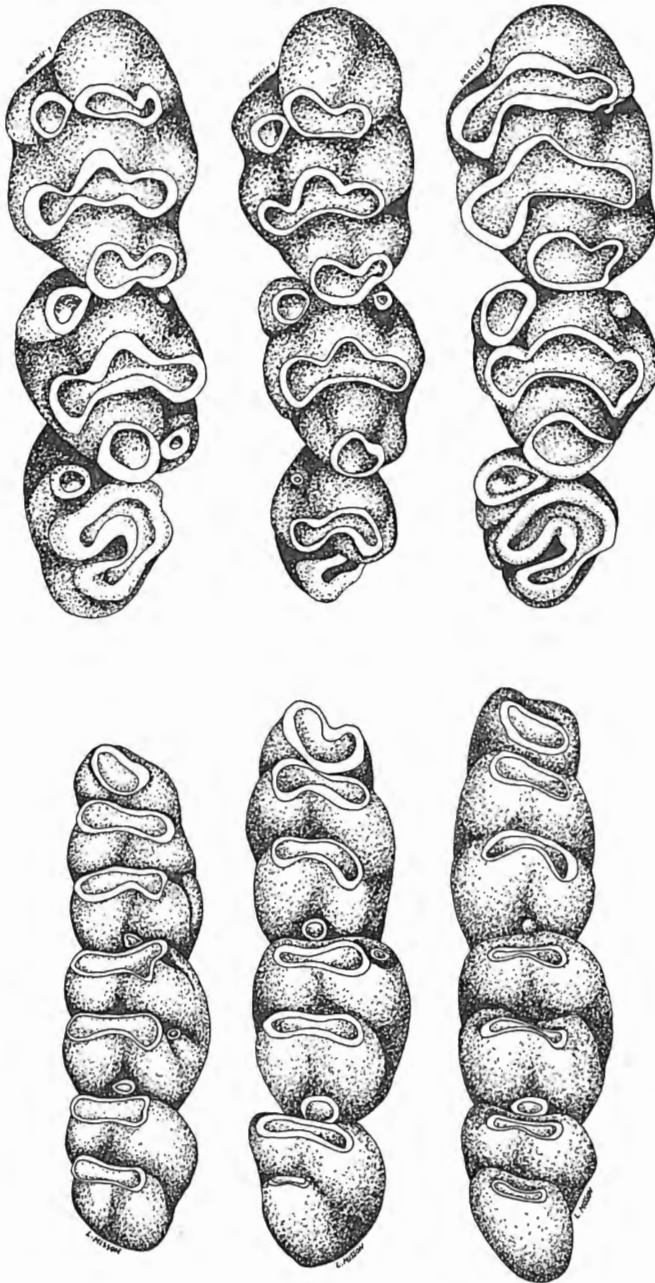


Fig. 2 & 3. — Upper and lower molars of *Rattus richardsoni* (left), *Rattus omichlodes* (centre) and *Rattus niobe* (right).

Comparisons of the relative proportions of the few available specimens are as follows :

| | <i>R. richardsoni</i> | <i>R. niobe</i> | <i>R. omichlodes</i> | <i>R. verecundus</i> |
|--|-----------------------|-----------------|----------------------|----------------------|
| Interorbital constriction/ skull total length ... | 16.1 % | 18 % | 18 % | 18 % |
| Length of bullae / skull length | 15 % | 17 % | 21 % | 15 % |
| Molars length / skull length | 16 % | 17.2 % | 17 % | 18.8 % |
| Palatal foramina length | 6 mm | 4 mm | 6 mm | 6 mm |

The figures are approximate, as only a few specimens have been measured.

Molars. — *R. richardsoni*, *R. niobe* and *R. omichlodes* have t1 of M¹ low placed and rather well separated from t2; t3 is weak and at the same level as t2 on the three species. On M², t9 is weak on *niobe* and *omichlodes*, stronger on *richardsoni*. M³ is very similar on the three species.

The relative size of the molars compared with the length of M² (M² = 100) is as follows :

| | <i>R. richardsoni</i> | <i>R. niobe</i> | <i>R. omichlodes</i> | <i>R. verecundus</i> |
|--|-----------------------|-----------------|----------------------|----------------------|
| M ¹ | 144 | 146 | 166 | 161 |
| M ² | 100 | 100 | 100 | 100 |
| M ³ | 66 | 66 | 60 | 77 |
| Width of M ¹ / length of M ¹ | 62 % | 67 % | 56 % | 59 % |

It may be seen that *R. omichlodes* has narrower molars, longer M¹ and shorter M³ than the other species relatively. *R. niobe* also shows a long M¹, but a much longer M³ than the others.

The lower molars seem less different. On M₁, the posterior cingulum (Z) is often joined by a crest to the postero-external cone (Td) on *niobe*, but not on *richardsoni* nor on *omichlodes*. On M₂, the antero-external cone (Sv) is low on *omichlodes*, higher on the two others.

The external measurements, taken from a few specimens only, may give some indications :

| | No of specimens | Head and body (in mm) | Tail | Hindfoot |
|------------------------------|--------------------|--------------------------------|-------|----------|
| <i>R. niobe</i> | 34 | 133.1 | 123.7 | 30.7 |
| <i>R. richardsoni</i> | 6 | 144.3 | 127.0 | 36.8 |
| <i>R. omichlodes</i> | 7 | 124.7 | 83.5 | 28.5 |

The proportions of tail length/head and body length are 93 % for *R. niobe*, 88 % for *R. richardsoni* and 67 % for *R. omichlodes*. The proportions of hindfoot length/head and body length for the same species are respectively 23 %, 26 % and 23 %.

The biotope of the three species show some differences; *R. niobe* is evidently a montane forest species reaching the uppermost level of the forest, possibly also invading the lowest limits of alpine prairies. It is certainly the species showing the widest ecological possibilities. *R. richardsoni* seems to be much more restricted and lives above treeline, mainly under small bushes. *R. omichlodes* is possibly still more restricted and lives in shallow marshes with high grass and small bushes, above treeline. The seven specimens obtained were all captured in a small marsh and none was obtained from the surrounding grass and bush areas.

Rattus verecundus (THOMAS)

One specimen only was obtained (n° 360, Enarotali, alt. 1,700 m, young female). This specimen agrees with specimens of *R. v. unicolor* (RÜMMLER) preserved in the collections of the Leiden Museum; like some of these, it has white spots on the ventral side; this character seems to occur mainly on young specimens.

Measurements. — Head and body : 118 mm; tail 104 mm; hindfoot : 28 mm; total length of skull : 32.9 mm; length of palatal foramina : 6.0 mm; molar series : 6.2 mm; width of interorbital constriction : 6.0 mm; bullae : 5.0 mm.

This species belongs most certainly to the group which includes the species *niobe*, *richardsoni* and *omichlodes*. They have in common rather rounded braincase, sloping zygoma, mesopterygoid fossa behind molar level. The skull of *verecundus* is more strongly built and the molars are heavier; the palatal foramina penetrate slightly between the molars; M^3 is larger; the palate is broader between the molars.

Rattus cfr. *ratticolor*

The type of *Rattus ratticolor* (JENTINK) comes from Camp VAN WEEL, at the junction of Lorenz and Reiger rivers (04°54'S; 138°45'E), dense forest. Our specimens have been captured at Agats (05°34'E; 138°05'E), 105 km SW from Camp VAN WEEL. Five adults and 17 young are preserved. The measurements of the three adults are the following :

Head and body. — 160, 135, 134 mm; tail 160, 156, 145 mm; hindfoot : 34, 31, 30 mm.

The skin of the type of *R. ratticolor* is much darker, dark gray with black guards hairs, while our specimens are reddish brown. The tail of *ratticolor* shows larger scales and the distal half is white, both characters different on the specimens from Agats with smaller scales and uniform tail colour.

The skulls of the Agats specimens agree well with the skull of the type of *ratticolor*, which is broken. On both, the palatal foramina are long and narrow; the molars of *ratticolor* have a length of 7 mm, those of the Agats specimens vary from 6.1 to 7.1 mm.

Compared with the type of *Rattus ringens* (PETERS & DORIA) the skull of the type of *ratticolor* and those of the specimens from Agats are smaller, more lightly built; the palatal foramina are shorter on *ringens*; the molars of *ringens* are stronger with t3 of M¹ set much more backwards. The type of *ringens* is an old specimen with a broken skull. There is another specimen in the collections of the Museum of Genoa, n° CE 3244a from Wokan, Aru islands, identified as « *Uromys* », which is quite similar to the type of *ringens* and in good condition; I have not seen the skin.

The specimens of Agats are, on the whole, much closer to the type of *ratticolor* than to the type of *ringens*; except for the colour, they are in my opinion similar to *ratticolor*.

Skull measurements of adult specimens from Agats :

| No | Skull length (in mm) | Palatal foramina | Molar row | Interorbital constriction |
|----|----------------------|------------------|-----------|---------------------------|
| A | 33.0 | 6.1 | 6.1 | 5.5 |
| A1 | 35.5 | 6.8 | 6.8 | 5.8 |
| A2 | 35.5 | 6.5 | 6.5 | 6.0 |
| A3 | 39.5 | 7.1 | 7.1 | 6.4 |
| U | 39.2 | 7.0 | 7.9 | 5.8 |

Pogonomys sylvestris THOMAS

Medium-sized species with hairs gray at the base on the belly. One specimen only was captured : mile 64 on the road to Tembagapura, alt. 2,460 m, 6 May 1973.

Head and body. — 118 mm; tail : 164 mm; hindfoot : 24 mm; mammae : 1 : 2 = 6.

This specimen was caught in montane forest among fallen trees and mosses, together with *Melomys rubex* and *Rattus niobe*.

Melomys platyops fuscus RÜMMLER

Twelve specimens, all from Sentani-Kamiri. *M. platyops* and *M. rubex* have been compared recently by MENZIES (1974), who emphasises on the inner cusp of M^3 , present on *platyops* and absent on *rubex*; on the differences of the tail scales, more or less square on *platyops*. There are other differences, the most evident being the shape of the zygoma, sloping backwards on *rubex*, as already noted by TATE (1951), and more or less straight on *platyops*. The skull measurements of the coloured specimens of the collected specimens are the following :

| No | Skull length (in mm) | Molar row | Palatal foramina | Interorbital constriction |
|-----|----------------------|-----------|------------------|---------------------------|
| 914 | 35.0 | 6.5 | 5.0 | 5.9 |
| 930 | 31.8 | 6.8 | 4.0 | 6.0 |
| 931 | 35.0 | 6.9 | 4.2 | 6.1 |
| 932 | 32.0 | 6.1 | 4.5 | 5.9 |
| 933 | 35.0 | 6.9 | 4.1 | 6.1 |
| 955 | 36.7 | 6.9 | 4.9 | 6.4 |
| 957 | 36.5 | 6.2 | 4.2 | 6.1 |
| 960 | 29.9 | 6.3 | 4.5 | 5.5 |
| 967 | 32.5 | 6.5 | 4.2 | 5.9 |
| 969 | — | 7.0 | 4.2 | 5.7 |
| 982 | 30.0 | 6.2 | 4.0 | 5.0 |
| 983 | — | 6.2 | 4.1 | — |

Melomys platyops is rather easy to identify : a lowland species, tail scales with one hair, belly with hairs gray at the base; hindfoot 27-30 (23-30 according to TATE, 1951); yellow incisors, zygoma straight, tail shorter than head and body.

The habitat of *M. platyops* at Sentani is restricted to small woods, limit of forest, old orchards of guava-trees. One specimen only was captured in *Imperata*-grass, 50 m from the forest limits; this secondary savanna close to the wood limits was densely populated with *Rattus exulans* and some *Rattus rattus*.

Melomys rubex rubex THOMAS

Eight specimens only were captured on the South slopes of Mt Karstens : at Ertsberg, 2,700 m, and at Tembagapura, road mile 64, alt. 2,400-2,460 m. This species resembles much *M. platyops*; the fur is somewhat longer; the belly has gray-based hairs; hindfoot length is 26-31 mm. According to MENZIES (1974), the tail length is equal to head and body length, but this does not seem to be always the case. Tail scales with one hair; incisors yellow, zygoma sloping backwards; t1 lacking on M³; mammae 0 : 2 = 4.

The skull measurements are as follows :

| No | Skull length | Molar series (in mm) | Palatal foramina | Interorbital constriction |
|---------|--------------|----------------------|------------------|---------------------------|
| 321 | — | 6.1 | 4.0 | 5.2 |
| 322 | — | 6.5 | 4.0 | 5.9 |
| 323 | 35.0 | 6.9 | 4.2 | 6.0 |
| 343 | — | 7.0 | — | — |
| 345 | — | 6.2 | 4.3 | 6.0 |
| 347 juv | — | — | 4.5 | 5.5 |
| 348 juv | 27.0 | — | 3.5 | 5.1 |
| 358 | 39.0 | 6.1 | 4.9 | 6.0 |

The external measurements are the following : head and body : 112.2 mm (84-129), tail : 113.8 (96-132); hindfoot : 29.2 (27-31); the mean proportion tail/head and body is 101 % and the proportion hindfoot : head and body is 26 %.

Melomys rubex is a mountain species; no specimen was captured above treeline; it seems to live in the same biotope as *Melomys levipes* and *Rattus niobe*, among rocks, fallen trees and deep mosses. No specimen

was captured in the Balim valley (Wamena, Jiwika, Napua, between 1,500 and 2,400 m).

Melomys levipes mollis (THOMAS)

Four specimens were caught on the southern slopes of Mt Karstens, between 2,400 and 2,500 m; these specimens represent the form *mollis*, the type of which was collected at Camp Padang, on the Utakwa (= Otakwa) river. This point is located about 25 km SE only from our capture point.

A large species with long pelage; the belly is dull white with gray-based hairs; the feet are white with darker hairs externally. One hair only per tail scale. On the skull, the back of the palate reaches the middle of M^3 ; the zygoma slopes backwards.

M. l. mollis resembles externally very much *M. l. lanosus* living on the northern slopes of the central chain. The tail seems to be different, with small scales and one hair per scale on *mollis*, and large scales with three hairs per scale on *lanosus*. This character of one or three hairs per scale is puzzling: it could be sufficient to separate *mollis* and *lanosus* into two different species, but they seem really to belong to the same species. The hindfeet also differ, with the fingers 1 and 5 shorter on *lanosus*, longer on *mollis*. There are some differences on the skull: the zygomatic place is broader on *mollis*, the palatal foramina a little longer, the palate broader between the molars, and the mesoptergoid fossa broader.

External measurements :

| No | Head and body | Tail | Hindfoot | Sex |
|-----|---------------|------|----------|-----|
| 341 | 140 | 130 | 35 | ♂ |
| 342 | 148 | 132 | 34 | ♂ |
| 344 | 142 | 130 | 35 | ♂ |
| 346 | 155 | 130 | 36 | ♀ |

Skull measurements :

| No | Skull length | Molar series | Palatal foramina | Interorbital constriction |
|-----|--------------|--------------|------------------|---------------------------|
| 342 | — | 7.2 | 5.5 7. | 7.3 |
| 344 | 38.9 | 7.6 | 5.8 7.2 | 7.2 |
| 346 | 34.5 | 6.5 | 5.3 | 7.3 |

The specimens were captured together with *Melomys rubex* and *Rattus niobe* in montane forest, among fallen trees and deep mosses.

Melomys lutillus (THOMAS)

Melomys lutillus is a white, or creamy bellied species with three hairs on tail scales. Five specimens were captured : four in the Balim river valley (Wamena, 2; Jiwika, 2) which represent *M. l. frigidicola* TATE, and one from Kurik, North of Merauke, which seems to represent *M. l. muscalis* (THOMAS). However, comparison of this specimen with the type of *M. l. lutillus* does not show, in my opinion, significant differences, and the form *muscalis* is probably doubtfully distinct, as already said by TATE (1951).

On the other hand, *M. l. frigidicola* is a larger form with longer fur; close comparison between representatives of this form and the only specimen of « *muscalis* » in our possession shows differences : fur brighter and feet darker on *frigidicola*, probably also longer palatal foramina; the relation length of palatal foramina/skull length gives 15.5 % for *muscalis* and 16.5-18.1 % for *frigidicola*. The relation width of interorbital constriction/skull length is 17.9 % for *muscalis* and 15.0-16.0 % for *frigidicola*; these differences are possibly not significant and should be examined on larger series. The skull measurements are the following :

| N° | Skull length (in mm) | Molar series | Palatal foramina | Interorbital constriction | Sex | Locality |
|------------------------|----------------------|--------------|------------------|---------------------------|-----|-----------------|
| <i>frigidicola</i> 986 | 30.2 | 5.9 | 5.5 | 4.6 | ♂ | Wamena, 1,600 m |
| <i>frigidicola</i> 988 | 30.2 | 5.9 | 5.0 | 4.7 | ♂ | Wamena, 1,600 m |
| <i>frigidicola</i> 989 | 30.0 | 5.5 | 4.9 | 4.8 | ♀ | Jiwika, 1610 m |
| <i>frigidicola</i> 990 | 28.0 | 6.0 | 4.8 | 4.2 | ♀ | Jiwika, 1610 m |
| <i>muscalis</i> 995 | 26.8 | 5.0 | 3.9 | 4.8 | ♂ | Kurik, 10 m |

External measurements :

| N° | Head and body (in mm) | Tail | Hindfoot |
|------------------------|-----------------------|------|----------|
| <i>frigidicola</i> 986 | 135 | 122 | 27 |
| <i>frigidicola</i> 988 | 125 | 115 | 27 |
| <i>frigidicola</i> 989 | 109 | 112 | 25 |
| <i>frigidicola</i> 990 | 101 | 100 | 25 |
| <i>muscalis</i> 995 | 97 | 101 | 24 |

Despite of intensive trapping, no specimen of this species was caught at Sentani, type locality of *M. l. hintoni* RÜMMLER. The specimens from Wamena were captured in secondary savanna, those from Jiwika in savanna and inside a sweet potato field; the specimen from Kurik comes from secondary savanna.

Biotopes:

Very little has been published on the biology of New Guinea Muridae; scarce notes on altitudes are given by TATE (1951) and the only paper giving actual ecological data is MENZIES (1972) for the region around Port Moresby. The whole of the island is covered most of all by a forest : rain forest and montane forest, and in the South, woodland. Savannas cover limited areas on the northern coasts, more extensive in the southern parts. Enormous marshes extend in the Idenburg valley and North of Merauke. Alpine prairies prevail above 3,500 m, that is on rather limited areas.

Savannas. — Few Murids are savanna dwellers in New Guinea; the most evident is *Rattus sordidus*, a common species in the southern savannas, and to a lesser extent *Melomys lutillus*, possibly linked to southern woodlands, this last term covering areas more or less open with small trees, bushes and grass cover on the ground. The form *frigidicola* is to be found in the savannas of the Balim river, but these savannas are probably man made. In the Northern savannas, *Rattus exulans*, an introduced species, is common. There are possibly other species, such as *Melomys moncktoni* for instance, which might be adapted to savannas or light woodland.

Rain forest. — Most of New Guinea Muridae are rain- or montane forest inhabitants. Among the species I captured, *Melomys platyops* is a species of lowland forest, living probably more in the forest openings or close to the edges than inside dense rain forest. *Rattus* cfr. *ratticolor* is an inhabitant of the rain forest of the southern lowlands.

Montane forest including middle altitude forest down to 1,500 m a probably a biotope into which live most of the Muridae of New Guinea, *Melomys levipes* and *Rattus verecundus* live on the lower levels; *Rattus niobe* is very typical of the upper levels, together with *Pogonomys sylvestris*, *Melomys rubex* and *Melomys levipes*. These upper slopes are the rainiest parts of New Guinea.

Alpine prairies. — Above the montane forest, two species are to be found : *Rattus richardsoni* and *R. omichlodes*, this last species being possibly an inhabitant of the small shallow marshes inside the alpine prairies; other species such as *Mallomys rothschildi* is known to up to 3,800 m at least, but this species is also found at lower levels.

The densities of the species living at high altitudes (above 2,500 m) seem rather high; although we have so far no sufficient data to provide with a numerical evaluation of these densities, it appears from the capture

data that the results of trapping at high altitude are around 18 %, while they are around 4 % in the rain forest near Sentani.

ACKNOWLEDGEMENTS

I wish to thank here Dr. G. MUSSER, American Museum of Natural History for the loan of specimens from the Archbold collections; Dr. C. SMEENK, Rijksmuseum van Natuurlijke Historie, Leiden, for his kind help while visiting his collections, and Dr. L. CAPOCACCI, Museo Civico di Storia Naturale, Genoa, for the loan of the type of *Rattus ringens* and other specimens.

Collecting localities :

| | | | | | |
|-----------|---------|----------|-------------|---------|----------|
| Agats | 05°34'S | 138°05'E | Merauke | 08°30'S | 140°24'E |
| Enarotali | 03°55'S | 136°23'E | Sentani | 02°36'S | 140°37'E |
| Ertsberg | 04°04'S | 137°07'E | Tembagapura | 04°09'S | 137°06'E |
| Kurik | 08°20'S | 140°15'E | Wamena | 04°07'S | 138°56'E |
| Manokwari | 00°52'S | 134°05'E | | | |

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