KARAM CLASSIFICATION OF MARSUPIALS AND RODENTS—Pt. 2

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5.4 *Striped Possums*

5.4.1 *Blc*, a taxon in the *kmn* class, is, according to informants' statements, applied to both species of New Guinea striped possums, *Dactylonax palpator* and *Dactylopsila trivirgata*. However, the upper Kaironk people are not very familiar with *Dactylopsila*, which is generally found at lower altitudes, whereas *Dactylonax* appears to be a fairly common, if very elusive, creature of the high altitude forest. A hunter obtained one specimen for us, shooting it at night while it was feeding on grubs in a *panpan* Ficus tree at about 8,000 ft. We have also seen several tails of *Dactylonax* set on thin canes and used as head-dress ornaments.

Blc is identified by its striped markings and very long fingers. It is said to have its lair in hollows in trees, and to feed on *splep* (small wood-boring insect larvae) and other grubs and insects found under the bark of trees and in timber.

Extensive shredding of the rotten trunks of fallen Pandanus palms in forest at about 8,000 ft was pointed out as the work of *blc*.

Blc, more than any other kind of *kmn*, is associated by Karam with witchcraft. One way of alluding to the movements of a witch (*koyb*) is to say that a *blc* was seen in such-and-such places. This may be both because of the elusive habits of this creature and because of its distinctive black-and-white markings: one of the birds most frequently associated with witchcraft is *jjgayaŋ*, the Magpie-lark (*Pomareopsis*), which shares both these characters.

Like cassowaries and *madaw* cuscus, *blc* may not be killed or eaten by persons who are handling or approaching growing taro crops.

There is a folk-tale which explains why *blc* has long fingers and the cuscuses have short ones. Once upon a time (according to Gi's version) *madaw* and *atwak* had long fingers like *blc*. *Blc* found a tree full of *kaŋ* (edible wood-boring grubs) and left it, thinking he would return and eat the grubs later. But *madaw* and *atwak* came and ate the grubs. *Blc* was cross. He went to *madaw* and *atwak* and clenched his fingers, saying: "Look, I've cut off my fingers, why don't you do likewise?". So they did. Then *blc* stretched his fingers out and said: "I was deceiving you — but you have many kinds of food and I have only one — why do you steal the kind that belongs to me?"

5.5 *Sugar Gliders*

5.5.1 *Aymows* or *kajben* are, from evidence of informants' descriptions and of four specimens examined, terms applied to the sugar-glider, *Petaurus breviceps*. As the only mammal with a gliding membrane present in New Guinea this species is very easily distinguished from all other local fauna. The distinctive call is also well known to Karam. However, according to Gi, there are two kinds of *aymows*, the same in their appearance but one, found in garden areas and at lower altitudes being smaller than the other, found in the forest, which is as large as *ymgenm* (*?Pogonomys mollipilosus*, see 5.11.5). It is just possible that Gi was thinking of quite a different small marsupial, the feather-tail, *Distoechurus pennatus*, which has been recorded from other localities in the Highlands.[44]

A minority of informants considers *aymows* to be in the taxon *as* rather than *kmn*. It is of interest in this connection that four of the five specimens obtained (a female with three young) were caught in a hole in a tree by a teen-age girl, which suggests that this nest was at no great distance from the ground. The fifth specimen was accidentally killed when trapped in the upper part of a tree felled during a hunt for *ymdŋ* possums.

5.6 *Bandicoots*

There is no Karam taxon equivalent to Pidgin *mumut* "bandicoot", though informants clearly recognise the similarities between certain animals of this group with which they are familiar. However, we have recorded no small bandicoot species in the Kaironk region. If any of these are present, they are not related by Karam to the large species in the genera *Peroryctes* and *Echymipera*, which fall in the *kmn* class. For one instance in which what was probably a large bandicoot was classified as a *swatg*, the taxon normally applied to Native Cats, see 5.7.1.

5.6.1 *Wgy*, *wenem* or *amlgn* (no folk-etymologies or homonyms are recorded for the first two names but the third is said to mean "digger" or "scrabbler") is, on the evidence of 10 specimens obtained or examined, the Long-tailed Bandicoot, *Peroryctes longicauda*, which appears to be not uncommon at all altitudes,

44. Laurie 1952: 276.

in forest and bush-fallow, in the upper Kaironk Valley. According to Wpc, *wgy* makes its nest of a heap of leaves at the base of a tree-fern or in some similar situation, and the adult male lives alone while female and young occupy a separate nest. Its principal diet is said to be earth-worms. Of specimens examined, all but one were captured in nests (four of these by women), the exception being caught in a springe set in its run.

5.6.2 *Pakam* (the name said to mean "it strikes": it is also used for a tobacco (*cgoy*) variety with leaves said to resemble in shape the animal's snout) is said to be very similar to *wgy* but larger and found both in the local mountain forest (though rarely) and in more open country at lower altitudes. Like *wgy* it is said to be *gs* "brown" or "grey" in colour, but to lack the dorsal stripe characteristic of *wgy*. Presumably this creature is *Peroryctes raffrayanus*.

5.6.3 *Yaked* is described as a large terrestrial pouched animal found at lower altitudes in the Jimi and Asai valleys. Gi describes it as being like a big *wgy* with light-coloured fur. Possibly this is an *Echymipera* species. Mandibles of *E. clara* were obtained from hunters at Dr G. Jackson's camp among the Yhal Kopon of the lower Kaironk Valley, while *E. rufescens* was in hunters' trophy material collected by C. J. Healey on the Simbai-Jimi Divide.

5.6.4 *Cemen* is also said to be a large *wgy*-like creature, but with a black (or dark) fur-less human-like skin, found at lower altitudes in the Jimi Valley. Karam labourers employed in the construction of the new airfield at Sangapi (at the head of the Wulimer Valley, west of the Kaironk) are said to have encountered them there. Informants are so vague about this creature that it might equally well be an echidna as a large bandicoot.

5.7 *Native Cat*

The only fairly large carnivorous marsupial present in New Guinea is so different in appearance from any other New Guinea mammal that there can be little confusion over its identity. It is a *kmn*, though Karam note the morphological similarities between this species and the other much smaller dasyurids present which fall in the *as* group (see 5.10.2).

5.7.1 *Swatg* (the name means, appropriately, "it bites on top") is, from informants' accounts, the Native Cat, *Satanellus albopunctatus*. It is said to be present, but not common, both in the forest and in the cultivation zone. Characters mentioned were its spotted markings and its bloodthirsty habits. It is said sometimes to kill young pigs by leaping on their backs and biting into their necks.

According to Majnep, there are two kinds of *swatg*. His view is based on an incident when he was a boy and staying with his father's kin at Womk in a settlement at about 5,200 ft. One night, a dog brought into the house an animal which was considerably larger than the ordinary *swatg*, was brown in colour and lacked spots, and had a short tail like that of a pig. It seems likely that the animal was a bandicoot.

5.8 *Water-rats*

Two species of aquatic rats are known to be present in the upper Kaironk Valley, *Hydromys habbema* and *Crossomys monktoni*. It is possible that a third species, *Hydromys chrysogaster*, is also present in the lower section of the valley, as it occurs widely in New Guinea and has been obtained at equivalent altitudes in other parts of the Highlands. These three species are all in the sub-family *Hydromyinae*, which, however, also includes several genera of non-aquatic rats. (See 5.9.7 and 5.11.3 below).

5.8.1 *Kwypep*, a taxon of the *kmn* class, is applied to all aquatic rats even though two obviously different kinds are recognised. Informants living in the Ced Valley

at about 6,000 ft described one kind as having very soft fur, like *aymows* (*Petaurus breviceps*) and peculiar feet (*tob adk*): it was said to feed on tadpoles and to move up into the Ced at the season when there were many tadpoles there. The other kind, with more ordinary fur and feet, was found also at higher altitudes, and is said sometimes to wander some distance from water. These two creatures are obviously *Crossomys monktoni* and *Hydromys habbema* respectively. Our one specimen of *Crossomys* was caught by a teen-age boy in the Ced stream at about 5,400 ft and our example of *H. habbema* was caught by a woman in a stream in the upper Aunjang Valley at 7,500 ft. The Karam are not alone in comparing *Crossomys* to the Sugar-glider: the Kyaka Enga of the Baiyer Valley call this water-rat *ipwe-kapyaka* "water sugar-glider".

5.9 *Large non-aquatic rodents*

This group, all members of which fall in the *kmn* class, includes species of at least six genera (*Macruromys*, *Anisomys*, *Hyomys*, *Mallomys*, *Uromys* and *Parahydromys*) which attain a head plus body length exceeding 220mm. It is possible that the rare species *Xenuromys barbatus*, which is in the same size range, is also present. There would appear to be a fairly notable break in size between these creatures and the largest locally recorded *Pogonomys*, *Melomys*, *Pogonomelomys* and *Rattus* species, none of which is known to exceed 210 mm in maximum head and body length and which fall in the Karam *as* and *kopyak* major taxa (see 5.11).

Five of these genera (*Anisomys*, *Hyomys*, *Mallomys*, *Uromys* and *Xenuromys*) are "giant rats" in European popular usage. Neither these giant rats nor the rather wider group we consider in this section have any phylogenetic unity. Certain of the genera are less closely related to each other than they are to other genera which include much smaller rats. And, as with the smaller rats, they include both arboreal and essentially terrestrial species.

We have recorded nine Karam terminal taxa applied to non-aquatic rodents in this size range, but unfortunately our limited collecting has enabled us to provide confident zoological identifications for only two of these, and tentative identifications for five others.

Although Karam have no intermediate taxon applying to this group collectively, they readily relate most of its members. Thus, if asked to describe any particular secondary taxon, they most often spontaneously do so by comparing it with one or more of the others in the group. The other groups which contain taxa spontaneously compared by Karam to certain of the giant rats are the bandicoots and certain of the smaller rodents falling in the *as* major taxon, notably *mwg* (5.11.4), and *twm-kas* (5.11.9).

5.9.1 *Mosak* or *alon* are names applied to both an intermediate and a terminal taxon. While the terminal taxon certainly applies to a distinctive form of the largest of the giant rats, (*Mallomys rothschildi*), it is probable that the intermediate taxon is also exclusively applied to this species.

5.9.1.1 *Mosak* (ii) (i.e. the terminal taxon) is recognised by its size, shape and distinctive long black fur. It is said to be largely arboreal and forest-dwelling, and to have its lair either in holes in trees or, less often, in the ground. Two of the three specimens obtained were captured in holes in trees, in one case approximately 40 ft from the ground; the third was discovered feeding on climbing-bamboo shoots on the ground and chased up into a tree, where it was shot. All three were captured in forest at about 8,000 ft.

The animal has very sharp teeth, and extracting it from its lair can result in nasty lacerations of the hands for the hunter. The lower incisors, left in the half-mandible, are used to engrave decorations on arrow shafts.

Mosak is said to eat leaves and fruit, including the fruit of the *jjb aydk* epiphytic forest orchid. The dung is said to be large, like that of a pig.

5.9.1.2 *Mosak kloy* "light-coloured *mosak*" or *mosak wlm-ket* "terrestrial *mosak*" is said to be very similar to the ordinary *mosak* except, as its names imply, that it is light grey rather than black in coloration and is found on the ground and in garden areas as well as in forest. Outside the forest, it is said to occupy an underground burrow, but in the forest it is sometimes found in holes in trees.

Authors describing *Mallomys rothschildi* note a considerable variation in texture and colouring of coat, and there is also some disagreement between mammalogists who have collected it as to whether it is essentially arboreal or terrestrial[45]. While it is possible that *mosak lwm-ket* is an animal of a different genus, this seems unlikely in that all other large rodent species we have recorded which might be likened to *Mallomys* can more readily be ascribed to other Karam taxa. Also, our sole specimen of *mosak lwm-ket*, a mandible obtained from an animal killed by a dog, is identified as *Mallomys rothschildi*.

5.9.2 *Mwmk* can with some confidence be identified as *Hyomys* goliath, of which we obtained one specimen killed by a dog in forest by the upper Ced stream, probably above 7,000 ft. It had previously been described to us, accurately, as an animal very similar to *mosak* but with rather different tail and teeth, its lower incisors being likened to finger-nails. *Hyomys* has, in fact, notably broader incisors than *Mallomys*. It is said to be speckled dark and light in colour, and to be found both in forests and in garden and grassland areas. Its nest is likened to that the of the Long-tailed Bandicoot (*Peroryctes longicauda*) and said to be a bulky assemblage of leaves located at the base of a tree-fern, under the roots of a tree, under a fallen log or in rocks. Its normal food is said to be *Miscanthus* cane, bamboo shoots and tree-fruits, but it also takes taro, sweet-potato, *Setaria* shoots and green vegetables in gardens.

Ytben described how his dog caught a juvenile animal which he thought at first was a *mosak*. However, on sniffing it he knew that it was a *mwmk*, and when, with the dog's aid, he eventually tracked and killed its mother, it was indeed a *mwmk*.

Mwmk are said to be captured in dry-season fire-drives, when *Miscanthus* cane is burnt off.

5.9.3 *Abpen* (the name means "it goes both ways" or "dodger") is said to be somewhat smaller than *mosak*, but as big as a *skoyd* possum (5.3.3) or *gwdl-ws* giant rat (5.9.6), lacking a pouch, and with fur similar to that of *mosak* but *gs* "brown" in colour. It is said to make leaf-lined nests in holes, generally high up in trees, where several animals may be found together. *Abpen* choose hollow-trunked trees for their lairs, so that they have a number of escape holes. The name refers to the remarkable agility of the creature, both in the tree and on the ground, and its capacity for eluding hunters by dropping out of a tree from quite considerable heights, but landing on its feet and dodging past those waiting below. Food is said to include nuts and shoots of *alŋaw* Pandanus, the fruit of *kabaŋm* (*Freycinettia* sp.) and of the *sapol* (*Macaranga* sp.). We are in doubt as to whether this taxon applies to *Uromys anak*, of which we have obtained mandibles from hunters' collections, or *Macruromys major*, which appears in owl pellets. The *as* rat *mwg* (5.11.4) is said in some cases to grow into *abpen*. Early taxonomists lumped *Melomys* and *Uromys* in a single genus, which might lend support to the *Uromys anak* identification for *abpen*, but unfortunately we do not know how far behavioural similarities between the genera which

45. Walker 1968: 11, 956; H. Van Deusen, personal communication; J. Hope, personal communication.

might be noticed by Karam correlate with the anatomical similarities (in tail-scale patterns and dentition) which are not noted by Karam but which were used by zoologists.

5.9.4 *Malek* or *maklek* are said by some to be synonyms for *mosak* (5.9.1). However, the majority view is that this is a different animal, common at lower altitudes, but sometimes found in residual bush and garden areas by the Kaironk River up to an altitude of about 5,300 ft. Gi describes *maklek* as being more like *abpen* than *mosak*. Men of Kaytog and Womk (where it is more plentiful) described it as a gregarious arboreal feeder, taking particularly acorns and the hard-seeded red fruit of wild pandanus. One way of obtaining it was to sit at night under fruiting *sawan* and *jjak* pandanus palms and shoot the animals as they came to feed. If *abpen* is *Uromys anak* (see 5.9.3) it could perhaps be that *maklek* is *U. caudimaculatus*, as this second species has been obtained in the Highlands but is generally found at lower altitudes than *U. anak*.

5.9.5 *Kejŋ* is said to be smaller than *abpen* and *mwmk*, but to be essentially similar to *mosak* and *mwmk* in appearance, with teeth more like those of *mosak* than like those of *abpen*. It is said to be terrestrial, and found in forest. Depending on the correct identification of *abpen*, this might be either *Macruromys major* or *Uromys anak*. We incline to the view that *kejŋ* is *M. major*, both for the reason given above and because *U. anak* is known to be arboreal, whereas very little appears to be known of the habits of *Macruromys*.

5.9.6 *Gwdy-ws* (K) or *gwdl-ws* (G) (*gwdy* or *gwdl* is a nut-bearing Pandanus species found in forest or near the forest edge between approx. 6,000 and 7,500 ft.) On the evidence of a single specimen collected (caught by hand in forest at 7,800 ft), this would appear to be the giant rat *Anisomys imitator*. This identification is supported by informants' statements that this creature feeds on Pandanus nuts, and on the kernels of other forest nuts (e.g. *Elaeocarpus* spp.), some of which are encased in very hard shells: authors have speculated on the diet of *Anisomys*, and the very powerful incisors and small delicate molars had led to the suggestion that this species feeds on hard shelled nuts with soft kernels[46]. It is also said by Karam to enter gardens and attack taro and maize: and sometimes to be found in streams.

5.9.7 *Godmwg* (no folk-etymology is recorded, but *god* is "wasting" or "emaciation"; *mwg* is a smaller rat (*as*) taxon — see 5.11.4) is said to be an animal similar in size and general appearance to *gwdy-ws*, but marked off from this and all the other taxa applied to giant rats by swelling of the throat or neck. Possibly cheek-pouches are referred to here. It is said to be found both in the mountain forest and in stream-side vegetation in the garden zone, and, like the bandicoot *wgy* (*Peroryctes longicauda-* 5.6.1) to be exclusively terrestrial and to feed on worms and insects. We obtained no specimens, but are inclined to identify this creature as the large hydromyine rat *Parahydromys asper* of which we found evidence in owl pellets and also a single mandible in hunters' trophy materials.

5.9.8 *Kabkal*. We have only two references to this term. Bysky of Kaytog gave it as a synonym for *maklek* (5.9.4). Wpc, however, said that *maklek* and *kabkal* were different categories of Kopon (middle and lower Kaironk Valley and adjacent areas) animals. He described *kabkal* as an arboreal and, as far as he knew, pouchless *kmn* as big as a *gdl-ws* (*? Anisomys* — 5.9.6) which is found in bush in the lower Kaironk Valley and which formerly occurred as far up as the junction of the Ced brook and the Kaironk River (5,200 ft) though it had not been seen locally for many years. He said its fur was like that of *abpen* or *gdl-ws*, or in some parts like that of the big *pakam* bandicoot.

46. Walker 1968 (II): 942.

5.10 *Small marsupials*

Small rat- or mouse-sized marsupials are included, together with the majority of small rodents, in the primary taxon *as*. Those recorded fall in two terminal taxa, one applied to the pygmy possums (*Cercartetus*), the other to the small dasyurids (*Antechinus*, *Phascolosorex*). Although, in practice, individual pygmy possums are in some cases identified by names normally applied to rodents, informants are fairly unanimous that only the two taxa here listed have pouches.

5.10.1 *Swmswm* (*swm* = (i) "blossom"; (ii) "white or greyish-white in colour, as the hair of an old man") was applied to 11 out of 15 specimens collected of the pygmy possum, *Cercartetus caudatus*. These came from forest and bush fallow (in which they appear to be fairly common) between 6,000 and 8,300 ft. Thirteen, including two batches of four animals each and one of three, were obtained by Karam from nests in tree-fern, *Piperaceae* shrubs or *Miscanthus* cane, or hollows in tree-ferns: two were caught in our traps set on arboreal run-ways. *Swmswm* are said to have a distinctive sweet odour. For comparisons with superficially similar rodent taxa see 5.11.8 and 5.11.9 below.

5.10.2 *Aln* are described as small pouched animals with long snouts and teeth like *swatg* (Native Cat, *Satanellus*, 5.7.1). They are said to make their nests in holes in forest trees, to hunt on and under the ground, or under leaf-mold, for earth-worms and insects, but also to eat flowers (nectar) and fruit of *Freycinettia* climbing Pandanus, and flowers of other Pandanus species. They are also said to be less exclusively nocturnal than most other small mammals. Two specimens collected were a *Phascolosorex caudatus* shot by Bulmer as it ran up the trunk of a *Nothofagus* tree in forest at 8,000 ft; and an *Antechinus melanurus*, shot on the ground by a Karam hunter in forest at about 7,800 ft. Two other *aln* were pursued by groups of Karam hunters in our presence, but both showed remarkable agility, in trees and on the ground, and escaped, one of them by disappearing eventually under roots in the forest floor. Informants recognise that some *aln* have dorsal stripes (e.g. *Phascolosorex*), while others do not (e.g. *Antechinus*), but they appear to attach no special significance to this. It is likely that other species of small dasyurids are also present in the Kaironk forests.

In one instance, a long-snouted rat (*Rattus verecundus*) which we trapped was identified as an *aln*.

Aln are said by some informants to grow into *swatg* native cats, by others to grow into *skoyd* and *ymdŋ* ring-tail possums (6.3).

5.11 *Small Rodents*

This is a most confusing group, both in terms of zoological identifications and in terms of Karam taxonomy. We have collected 13 species (2 of these in owl pellets only) and there are without doubt others that we have not obtained, and we have recorded 12 Karam terminal taxa. Three terminal taxa fall in the primary taxon *kopyak* "unclean rats"; the remainder, together with the two taxa applied to small marsupials, fall in the primary taxon *as*, which also includes frogs. Faced with difficulties of discriminating taxa which are identical or near-identical in superficial morphological characters, Karam state explicitly that they take into account the location in which a creature was obtained and, particularly, the kind of nest or burrow it came from. But this apart, they do not appear to be as consistent in their use of morphological criteria for discriminating small mammal taxa as they are, for example, in discriminating frogs or birds. Two reasons may be suggested to account for this. One is that the creatures that they have the greatest opportunity to observe, the *Rattus* species which abound in and around their homesteads, they treat with disdain and disgust. Though they kill them when opportunity presents itself, they do not eat them and are not predisposed

to observe them carefully. The second reason is that they hardly ever bother to trap even those kinds of small mammals which they do eat. They hunt them casually when they are clearing bush-fallow for new gardens. But the only form of systematic hunting of these creatures is when women and girls search for nests and burrows in bush-fallow or forest, and this is not on the whole at any very great distance from their homes. Thus, the animals they acquire and observe closely are in no sense proportionately representative of the total range of small mammal populations present in their territory. Some common species they scarcely handle or observe at all because their nests or burrows are not in readily accessible places.

Of the four species caught in the largest numbers in traps set by the authors in the forest and at the forest edge (*Rattus niobe*, *R. verecundus*, *Melomys levipes* and *M. platyops*), only five examples (two *R. niobe*, two *R. verecundus* and one *M. levipes*) were obtained for us by Karam. Conversely, we caught in our traps no examples of *Pogonomys sylvestris* and *P. mollipilosus*, two species which are frequently caught by local women, digging up their burrows (see Table 3).

Morphological characters taken into account by Karam include overall size, colour and quality of fur, shape of snout, size of ears, length of whiskers and colour of teeth. They take no note of details of dentition and not much note of length or of conformation or colour of tail, which provide important key characters to the mammalogist. They have perhaps some justification for disregarding tails, as a fair proportion of *Rattus* specimens we examined had damaged tails.

5.11.1 *Kopyak* (G) or *kwpyak* (K) is applied both to the primary taxon which may be glossed "unclean rats" and to an unmarked secondary taxon within this which contrasts with *gwlbodw* "large unclean rats" (5.11.1.1) and *walcogon* "small unclean rats" (5.11.1.2).

The primary taxon is applied to all rats of genus *Rattus* which are found in or near homesteads and, somewhat randomly, to identical or similar creatures found in other locations, particularly if the precise circumstances of their capture are unknown. Much the most common rat in Karam houses is *Rattus exulans*, which appears to be largely commensal with man. All our specimens were obtained in the cultivation and grassland zone below 6,500 ft, except for three crania obtained in Sooty Owl pellets (see Footnote 16). Two other *Rattus* species come close to Karam houses, but we have no direct evidence that they enter them. *R. niobe*, a small normally dark-greyish rat, is one of the most widespread mammals in the Kaironk region. It was the animal most frequently caught in our traps in forest at altitudes up to 8,500 ft and was also found to be very common in *Phragmites* reed beds adjoining the Simbai airstrip at 5,600 ft and in *Miscanthus* and *Phragmites* on the banks of the Kaironk River at 5,200 ft. The relatively large *R. ruber* is common in gardens and bush-fallow, sometimes very close to houses, and probably enters houses occasionally. We did not obtain any in forest above 7,500 ft. The fourth and most distinctive species, the long-snouted *R. verecundus*, was trapped in wet *Phragmites* and *Miscanthus* beds and near streams in bush-fallow and forest, between 5,500 and 7,500 ft.

All examples of *R. exulans*, *R. niobe* and *R. ruber* known to have been caught in or near homesteads were identified as *kopyak*, *gwlbodw* or *walcogon*, as also were two of the *R. verecundus* caught in the cultivation zone. However, the *R. niobe* caught in the forest were *katgn* or *sjaŋ*; *R. ruber* from gardens or bush-fallow were alternatively identified as *kopyak* or *katgn*; and the great majority of *R. verecundus*, most of which were obtained at considerable distances from homesteads, was *sjaŋ*.

Kopyak are described as virtually omnivorous, though feeding particularly on sweet-potato, taro and other human foodstuffs, and, indeed, our trapping

records indicate that all four species of *Rattus* readily accept either animal or vegetable bait. But it is their alleged taste for faeces and other dirt and rubbish, and their habit of attacking human corpses in the exposed graves, which are cited as an explanation for the prohibition on their use as food. In fact, *kopyak* caught at a respectable distance from homesteads are said occasionally to be eaten by old women and by children.

5.11.1.1 *Gwlbodw* (the same term can be applied to an encircling barricade or fortification round a homestead or homestead cluster) is a taxon sometimes applied to large *kopyak*. The only specimens collected which were spontaneously identified as this were two *Rattus ruber*, one a juvenile kept as a pet whose rapid growth-rate led informants to express the view that he would grow into a very large *kopyak* indeed.[47] According to Gi, *gwlbodw* are found at the edge of gardens, at stream-sides and in the bush-fallow, but do not come into houses. In these respects his statements apply well to *R. ruber*. We are unable to verify his further statement that *gwlbodw*'s burrows are short, with a single main entrance but also a much narrower separate passage to the surface, which he interpreted as a ventilation tunnel. One burrow of *R. ruber* excavated in Bulmer's presence, in *Miscanthus* cane at a stream side at 5,200 ft, had at least two entrance or exit passages of three feet or more in length connecting not only with the current grass-lined nest but also with an old nest and what appeared to be a fairly large unlined chamber, perhaps 18″ × 9″ × 9″, which may possibly have been a natural formation.

5.11.1.2 *Walcogon* (no folk-etymology or homonyms were recorded, but the name may possibly mean "squeaker", from *wal* "cry, shriek, squeak") are distinguished from other *kopyak* by smaller size and shorter fur. Although in practice this taxon was applied to immature and juvenile *R. exulans*, and to animals of the same species heard squeaking in houses, informants generally drew a distinction between *walcogon* and *kopyak n̄ik* "*kopyak* young", this suggesting that ideally a different species was being referred to. The only *Rattus* species which we have recorded which is smaller than *exulans* is *niobe*, and we have no evidence of this animal entering houses.

5.11.2 *Katgn* (no folk-etymology was recorded, but the name is possibly related to *kat* "stealthily" or "with intent to steal") are said by some informants to be identical in appearance with *kopyak*, but to be found in forest and bush-fallow. Others say that they grow rather larger than *kopyak* and have more reddish fur. This might lead one to equate *katgn* with *R. ruber*, but for the fact that *katgn* are generally agreed to be particularly numerous in high-altitude forest, and we have no evidence of *R. ruber* occurring above 7,400 ft. In contrast, *R. niobe*, the smallest of the four locally identified species of this genus, is very common in forest up to 8,500 ft, and 20 out of 28 identifications of newly killed specimens obtained there of this species were *katgn*, as also were 2 of *Melomys lorentzi*, one from our traps and one obtained by a Karam hunter.

Women told I. Riebe that *katgn* made a U-shaped burrow with two entrances, in contrast to *kopyak* and *walcogon*, which make short, simple holes.

Katgn are said to feed in trees and shrubs as well as on the ground, and to eat PIPERACEAE and other fruit and seeds, and garden produce. Men do not normally eat *katgn*, though women and children do.

47. This animal illustrates the problems in using colour-pattern in identifying small rodents. Until approximately 3½ months old he was very dark grey-brown on upper surface and only slightly less dark on under-surface, with no white or rufous marks. He then began developing an almost white under-surface and pronounced rufous markings on sides, especially sides of neck and throat. By seven months he had acquired normal adult markings of *R. ruber*, with greyish-white under-surface, and rufous lateral markings.

5.11.3 *Sjaŋ* is generally agreed to be a creature marked by a long snout and jaw, and rather large ears. Some say that it grows as large or larger than *kopyak* and *katgn*, and that it can, in fact, be classed as a *kmn* rather than as an *as*. Gi said it was like a *ymganm* (*Pogonomys mollipilosus* etc., 5.11.5), but with a larger head. Women told I. Riebe that it was very similar to *katgn*, but could be distinguished from this by the fact that it made a chambered burrow with a single entrance hole.

In our January 1972 field work we obtained 20 specimens of *R. verecundus*, which contrasts markedly with the other local *Rattus* species in its long narrow snout. Seventeen of these were identified as *sjaŋ*, two as *kopyak* and one as *aln*. Seven out of 28 identifications of *R. niobe* trapped in the forest during our 1968 trip were given by Wpc or by women who visited our camp as *sjaŋ*. However, they were not consistent in this and identified other apparently morphologically identical examples of the same species as *katgn*. When making the *sjaŋ* identifications, they turned specimens over and examined the underside of snout and jaw, commenting on the length of this.

Although *R. verecundus* seems to fit the specifications of *sjaŋ* better than any other species we have so far collected, it is possible that one or more of the smaller hydromyine rats which we have not obtained but which are probably present in the area are also placed in this taxon.

As with *katgn*, men do not normally eat *sjaŋ*.

Sjaŋ are said in some cases to grow into *mosak lwm-ket* giant rats (5.9.1.2).

5.11.4 *Mwg* (no folk-etymology or homonyms were recorded) is described as a creature about the size of a large *kopyak* or *katgn*, rather similar to these in appearance but normally dark on the upper-surface and pale underneath, with a subterranean burrow and restricted to the forest. It contrasts with *ymgenm* (which is notable for its white belly) in size, *mwg* being the larger. *Mwg* feed on *alŋaw* nuts. Thus, the same animal is said as *mwg* providently to plant nut palms for itself to feed on in its later transformation.

Six out of eight specimens of *Melomys lorentzi*[48] we trapped at high altitudes in the forest were identified as *mwg*, and one each as *katgn* and *ymgenm*. One specimen of this species obtained by a Karam hunter was identified as a possible *katgn*.

5.11.5 *Ymgenm* (K) or *ymganm* (G) (no folk-etymology or homonyms were recorded) or *beŋ-twd* "white-belly" may be regarded as the "type-species" of the "genus" *as*. It is the taxon which Karam normally name first if asked to list the *as* mammals, and is the one in which they seem to show the most interest. To understand the complexities of the accounts Karam give of the superficial characters and behaviour of this animal it is necessary to note that they believe that some *ymgenm* eventually grow into *skoyd* ring-tail possums (5.3.3).

Ymgenm are said normally to be medium-sized, rather smaller than large *katgn* or *mwg*, with short, soft brown fur and a distinctive white belly. *Ymgenm* of this "normal" appearance feed arboreally and on the ground, but make nests in burrows under the ground which are notable in that they have three entrance tunnels, one of which is generally very cleverly concealed and acts as an escape-way. The nest-chamber is said to be lined with leaves, including foliage of a large *? Alpinia* sp. which is named *ymgenm-tob* "*ymgenm-leg*". These "normal" *ymgenm* are distinguished by some informants as *ymgenm yb* "true" or "typical" *ymgenm*.

Some *ymgenm* are said, however, to lack the distinctive white belly, to grow somewhat larger, and to dwell not in underground nests but in holes in trees

48. In referring our specimens to *lorentzi* rather than *levipes* we follow Ziegler (1971).

and tree-ferns. These are individuals which are turning into *skoyd* possums, and are sometimes distinguished as *ymgenm at-ket* "*ymgenm* haunting-on-top".

Ymgenm are said to be present both in forest and in bush-fallow.

The white-bellied underground-nesting *ymgenm* would appear to correspond to the handsome medium-sized prehensile-tailed rat, *Pogonomys mollipilosus*, of which we obtained three specimens dug up from burrows in bush-fallow by women. This taxon was also applied to one specimen of *Melomys ? rufescens* and two of *Melomys lorentzi* (one specifically identified as *ymgenm at-ket*) both similar-sized white-bellied rats which, however, lack the long prehensile tail of *Pogonomys*; and to the only specimen of *Pogonomelomys sevia* obtained from Karam, caught in a hole in a tree at 7,000 ft. This last species lacks the white undersurface of *Pogonomys mollipilosus*, but is a reddish-brown rat of similar size, and has a prehensile tail. It is thus tempting to identify *Pogonomelomys sevia* as *ymgenm at-ket* as also the species in the *P. mayeri* group known to us only from owl pellets.

A further possibility is that *Melomys lutillus*, represented in our collections only by material from owl pellets, is also identified as *ymgenm*. It is normally white-bellied and, on Australian evidence,[49] makes nests of grass and leaves above ground, in tall grass. This could be a *ymgenm* turning into a *skoyd* in an appropriate fashion, as the smaller ring-tail possums placed in the *skoyd* taxon make nests in the foliage of trees. However, it is also possible that *M. lutillus* is included in *alks* (see 5.11.8 below).

5.11.6 *Gtkep* or *mes* (*gtkep* may be glossed "that which severs". Both terms are also used for the plant *Timonius* sp., which starts as an epiphytic vine but eventually strangles its host and replaces it as a tree) are described as small, short-nosed and brown in colour, generally with light yellow or golden-brown coloured bellies. They are said to feed mainly arboreally, but to live in underground colonies containing sometimes up to 15 or more adults and young, and to be present both in bush-fallow and forest, and in surviving bush along the river banks. This taxon appears to correspond best to the small prehensile-tailed rat, *Pogonomys sylvestris*, of which 25 out of 26 examples collected were obtained for us by women from burrows in bush-fallow. However, the small brown bush rat, *Melomys platyops*, of which we obtained 15 examples in traps set in the forest and bush-fallow, was also consistently placed in this taxon.

5.11.7 *Moys* (no folk-etymology or homonyms were recorded) was stated by our Gobnem informants, all of whom were male, to be the Simbai dialect equivalent of *gtkep* or *mes* (5.11.6). However, Kaironk women told I. Riebe that these terms applied to contrasting taxa. *Moys* were said to be found in the same places as *gtkep* and to be of similar size and general shape, but to have white rather than golden-yellow under-surfaces, shorter ears and shorter tails. Also, their burrows were shorter. If these discriminations are accepted, they would perhaps restrict *gtkep* to *Pogonomys sylvestris* and place *Melomys platyops* and possibly the other small *Melomys* species in *moys*.

5.11.8 *Alks* (no folk-etymology or homonyms were recorded) is described as small, short-snouted, and brown in colour, with a reddish- or yellowish-brown under-surface, and is said to make a nest in tree-ferns and other low trees, shrubs, *Miscanthus* cane or, most characteristically, in *Phragmites* reeds. It is found mainly at lower altitudes, in bush-fallow or in streamside vegetation.

Of specimens collected, one was a *Melomys rufescens* trapped in a PIPERACEAE bush at the edge of a *Phragmites* reed bed at 5,400 ft; one was a *Pogonomys sylvestris* obtained in an unusual location, in a hollow tree-fern at 6,400 ft, and

49. Ride 1970: 156.

two were pygmy possums (*Cercartetus caudatus*), which are normally identified as *swmswm* (5.10.1). While *Melomys rufescens* seems the only plausible identification of these three, it is not known if this species nests in foliage or underground, whereas *M. lutillus*, for which we have no identifications, is known to be an above-ground nester (5.11.5). Thus, *alks* may include both these species, and the nests attributed to it may be specifically those of *M. lutillus*. This seems probable as both are short-snouted white-bellied rats.

5.11.9 *Twm-kas* (*twm* is the generic term for skink lizards, *kas* means "hair" or "fur"; "hairy skink" is an appropriate name for this very agile little creature) is described as small, with big, blunt snout, long whiskers, big ears and long tail. It is confined to forest areas and makes nests in *alŋaw* Pandanus. This description fits well the arboreal mouse, *Lorentzimys nouhuysi*, of which we obtained two specimens in traps set on arboreal runs in the forest and two caught escaping from a nest in a Pandanus. It was also applied to the pygmy possums, *Cercartetus* we trapped in similar locations to the *Lorentzimys*, but normally identified as *swmswm* (10.1). *Lorentzimys* and *Cercartetus* are superficially similar; but informants' categorical statements that *twm-kas* lack pouches whereas *swmswm* possess these mean that there can be no question as to the proper application of these two taxa.

A creature which Karam liken to *twm-kas* in appearance is the very much larger *mwmk* (5.9.2), the giant rat *Hyomys goliath*.

5.11.10 *Mmeyk* (no folk-etymology or homonyms were recorded) is said by some informants to be the name for a rather unfamiliar kind of small *as* creature, which they could not describe in detail. Others said it was a variant name for *mwmk* (5.9.2), the giant rat (*kmn*) taxon which has already been discussed.

6. NOMENCLATURE AND TAXONOMY

Karam nomenclature applied to marsupials and rodents follows the same principles as have already been described for frogs[50]. Names may consist of one, two or three terms. The three primary taxa are designated by unitary lexemes. Secondary taxa are also designated by unitary lexemes, but in all but one case may optionally be designated by bi-segmental composite lexemes through inclusion of the primary taxon name. Thus:

madaw = *kmn madaw*
aln = *as aln*

The exception is the unmarked secondary taxon *kopyak* (ii), i.e. "unclean rats other than *gwlbodw* and *walcogon* (large and small unclean rats respectively)". It may be noted in this context that though the designations *kopyak gwlbodw* and *kopyak walcogon* are permissible, they are not normal usage, whereas it is quite normal to incorporate the primary taxa names *kmn* and *as* in the designations for secondary taxa in these groups.

There are no recorded tertiary taxa among *as* mammals or *kopyak*, with the possible exception of *ymgenm yb* and *ymgenm at-ket* (5.11.5). The two pairs of tertiary taxa recorded in the *kmn* group are interesting in that one member of one pair can be designated only by bisegmental or tri-segmental composite lexemes, whereas the other presents the further option of designation by a unitary lexeme. Thus:

Kmn mosak lwm-ket (or *kloy*) = *mosak lwm-ket* (or *kloy*) (5.9.1.1). N.B. *lwm-ket* and *kloy* are adjectival forms which cannot by themselves designate mammal taxa.

50. Bulmer and Tyler 1968: 347–9.

Kmn mosak yb = *mosak yb* = *mosak* (5.9.1). N.B. *yb* = "true" or "name" and its inclusion is optional vs. unmarked use of the term it qualifies.

Kmn skoyd yb = *skoyd yb* = *skoyd* (5.3.3).

Kmn skoyd modaybn̄ = *skoyd modaybn̄* = *kmn modaybn̄* = *modaybn̄* (5.3.3.1).

Thus, among *kmn* mammals, 27 out of 30 terminal taxa (all 26 secondary and 1 out of 4 tertiary taxa) can be designated unambiguously by unitary lexemes, 2 (umarked tertiary taxa) may be designated ambiguously by unitary lexemes, and 1 tertiary taxon must obligatorily be designated by a bi-segmental composite lexeme. Of the three terminal taxa of *kopyak*, two can be unambiguously designated by unitary lexemes, the other, normally an unmarked taxon, is ambiguously designated by a unitary lexeme. Of the 12 terminal taxa (10 secondary and 2 tertiary taxa) of *as* mammals, all 10 secondary taxa can be unambiguously designated by unitary lexemes, whereas neither of the tertiary taxa can.

In all cases but 6, the 45 Karam terminal taxa applied to marsupials and rodents, regardless of whether they are at the secondary or tertiary level and of the nomenclatural forms applied to them, appear to be species-like units in that they are minimal units recognised which may be distinguished by multiple contrasts in morphology and behaviour[51]. The possible exceptions are the cuscus taxa *takp* (5.2.4) and *aklaŋ* (5.2.5) which appear to contrast only in colour of pelt, though the species *Phalanger maculatus* to which these two taxa apply is unfamiliar in the wild state to our informants, so they may reasonably assume that there are other morphological or behavioural differences between the categories they recognise; the sub-categories of *ymgenm* (5.11.5) which are seen as different stages of a transformational series; and the taxa *kwypep* "water-rats" (5.8) and *blc* "striped possums" (5.4) where informants are generally aware that in each case two forms are present which contrast considerably in appearance and habitat, though they do not separately name these.

6.1 *Relationship of nomenclature to taxonomy*

While it is premature to attempt general statements about the relationship of nomenclature to taxonomy in Karam ethnozoology at large before detailed information on birds, reptiles and invertebrates is presented, the evidence from studies of frogs and mammals, taken together, suggests that three features of nomenclatural or formal taxonomic status are all reasonably good indicators of the status of a taxon as a *specieme* or species-like unit, i.e. as a minimal natural unit recognised to contrast with all other units by multiple characters of appearance and behaviour.[52] These are:

1. Being a terminal taxon. Fifty-three out of 66 t.t.s. applied to marsupials, rodents and locally-present frogs represent speciemes. Only one out of eight non-terminal taxa represents a specieme. Conversely, 56 out of 57 lexically recognised speciemes are represented by t.t.s.; six out of six variants occur as t.t.s.
2. Being designated by a unitary lexeme. Fifty-seven out of 69 units permissibly designated by unitary lexemes are speciemes (5 of which are unmarked secondary or tertiary taxa). Only one out of six forms for which it is obligatory to use composite lexemes is unambiguously a specieme. Conversely, 56 out of 57 lexically recognised speciemes may be designated by unitary lexemes, and 1 is obligatorily designed by a composite lexeme. Three out of six variants may be designated by unitary lexemes: two of these are the questionable cases of the non-local cuscus taxa referred to above); three are obligatorily designated by composite lexemes.
3. Being located at the secondary taxonomic level. Fifty out of 59 secondary taxa are speciemes. Seven out of 14 tertiary taxa represent speciemes. Conversely, 50 out of 57 speciemes fall at the secondary level, and 7 at the tertiary level. Two out of six variants fall at the secondary level (both questionable cases), and four at the tertiary level.

In sum, 65 labelled and unlabelled speciemes of smaller mammals and frogs have been noted: 57 of these are labelled, and of these 49 are simultaneously terminal secondary taxa and designated by a unitary lexeme. However, there are also six terminal secondary taxa designated by unitary lexemes which are not speciemes; of these, two contain recognised but unnamed speciemes, two are applied to recognised life stages of the same frog species, and two apparently apply to variants, i.e. the cuscus taxa discriminated by colour alone.

Thus, the above criteria, neither singly nor in combination, provide a fully adequate guide to the conceptual status of the taxa concerned.

6.2 *Use of synonyms*

As compared with the other primary taxa applied to vertebrate animals, the taxon *kmn* is remarkable for the proportion of lower-order taxa it contains for which two or more commonly used and generally accepted synonyms are available.

TABLE 4: NUMBER OF AGREED SYNONYMS FOR KARAM TAXA APPLIED TO MAMMALS, BIRDS AND FROGS.

No. of Synonyms	No. of Taxa[1]			
	kmn (mammals)	*as* (mammals)	*as* (frogs)[2]	*yakt* (flying birds and bats)[3]
None	18	10	19	132
One	9	1	3	15
Two	2	0	1	3
Total	29	11	23	150

Notes:

1. Terminal taxa which have trinomial names the third element of which is an adjectival qualifier, e.g. (*kmn*) mosak *lwm-ket* "ground-haunting *mosak*" and (*kmn*) *mosak kloy* "white *mosak*" are excluded from this list. Phonological variations of the same term are also excluded, e.g. *malek* and *maklek*, *gwdy-ws* (K) and *gwdl-ws* (G)
2. From Bulmer and Tyler (1968).
3. From unpublished draft MSS. on Karam knowledge and classification of birds.

Kmn taxa to which synonyms are applied include all the larger arboreal mammals which are locally present and regularly hunted (cuscuses, ring-tail possums, and the giant rat *Mallomys rothschildi*) plus the commonest of the bandicoots (*Peroryctes longicauda*) and the two taxa applied to non-local cuscuses, fur of which is imported for personal decoration. Interestingly, synonyms are used for the common but economically and cosmologically insignificant Sugar Glider (*aymows*, *kajben*), but not for the cosmologically very significant Striped Possum (*blc*). There are no recorded synonyms for the

51. cf. Bulmer and Tyler 1968: 349–50, 372–3; Bulmer 1970: 1088–9.
52. Bulmer and Tyler 1968: 372–3.

wallabies, one of which (*sgaw*) includes two species which are locally present but rare, tree-kangaroo, bandicoots other than *wgy* (*P. longicauda*), water-rats or giant rats other than *Mallomys*.

Of the *as* mammals, the only one for which there is an agreed synonym is *Pogonomys sylvestris*. Here it may be significant that the same pair of names, *gtkep* and *mes* are also applied to the strangling-tree, *Timonius* sp. (see 5.11.6).

It is also of interest that only 3 out of 24 names which occur as synonyms for *kmn* taxa are clearly motivated, i.e. have obvious etymologies (*yng-twd* "white-tail" for *maygot* cuscuses; *pŋl-mdep* "in a fixed position it stops" for the *wcm* ringtail and *amlgan* "scrabbler" for the *wgy* bandicoot). Three out of 18 names for *kmn* taxa which lack synonyms are similarly motivated (*swatg* "it bites on top" for the native cat; *abpen* "dodger" for the giant rat *Uromys*; *gwdy-ws* "Pandanus — *?*", for the giant rat *Anisomys*).

While an obviously motivated name may or may not have any antiquity, unmotivated names, at least for locally-present fauna for which loan-words are unlikely to be used, may, in general, be assumed to be of long standing. Thus we may assume that the provision of synonyms for the larger local arboreal game mammals is long-established as well as well-established.

Synonyms for *kmn* mammals may be contrasted with those for smaller mammals, frogs and birds, not only in their numerical proportion, but in their concentration among economically valued forest species. Among birds, for example, synonyms appear relatively randomly: the names for many economically very valuable taxa lack synonyms, whereas a few quite unimportant kinds possess them.

We can only offer tentative explanations for this pattern. It may simply reflect the past — and to some extent continuing — economic significance of the creatures concerned, and the interest in them that this generates, but it seems more likely that it is related to ritual prohibitions on the use of their normal "first" names either when hunting them or when performing hunting magic, about which we have little information. Kiyas says that it relates on the one hand to the extent to which mammal names are used for human personal names, so that alternatives are desirable for the use of affines and cross-cousins; and on the other hand to the prohibition on use of everyday vocabulary during the Pandanus-harvest and hunting season, when the alternative so-called "Pandanus language" (*alŋaw mnm*) has to be used [53]

7. PROBLEMS IN INTERPRETATION

Compared with the ways in which Karam identify and classify most other animals, their treatment of marsupials and rodents is unusual in three respects. Firstly, there appears to be a rather high degree of inconsistency in their identifications of smaller mammals, including some of the common species. Secondly, a degree of marginal overlap occurs between the major taxa *kmn*, *as* and *kopyak*, which we have not recorded in respect of any other vertebrate groups except snakes and other large reptiles, very few of which are present in the upper Kaironk Valley and are familiar to our informants. Thirdly, Karam assert that certain mammal taxa contain individuals which in time grow into members of other taxa, in ways which conflict with objective biological reality. Though not unique in Karam biological lore (they also believe that worms grow into snakes which grow into eels, and that males of the Lesser Sicklebill Bird of Paradise grow in time into males of the Greater Sicklebill),[54] these beliefs are somewhat

53. Bulmer 1967: 12, 15.
54. See Bulmer 1968b: 629–33, 634.

surprising among a people who are, in general, very accurate and observant field naturalists.

7.1 *Inconsistencies in Identifications*

Table 5 sets out identifications provided for specimens collected or examined of the small marsupials and rodents listed in 5.10 and 5.11.

It will be apparent from discussion in sections 2 and 5 that many of these creatures are difficult for the biologist to identify to the specific and even to the generic level, if superficial morphological characteristics alone are taken into account, so it is not surprising that Karam appear to have difficulty with them. Further, the fact that no one eats certain categories of rats, and that men hardly ever trap any small marsupials and rodents and hunt for them only in a desultory way, is also relevant. Our study is weak in that we do not have a long enough series of individual identifications to be fully confident of the general pattern these present. Specifically, despite the help of Miss Riebe, we have not done anything like sufficient questioning of women, who may be expected to be more expert than men in their knowledge of these groups.

7.2 *Marginal overlap between the taxa* kmn, as *and* kopyak

The overlap between *kmn* and *as* is of a different order from that between *as* and *kopyak*. In the former case, some informants say that the taxa *aymows* (Sugar-Glider), *swmswm* (Pygmy Possum) and *sjaŋ* (*Rattus verecundus* and possibly other rodent spp.) can be considered as either *kmn* or *as*, while others assign them exclusively to one or other of these taxa. In the latter case, there is no suggestion that any terminal taxon can be treated as either *as* or *kopyak*, but some informants say explicitly that morphologically identical individual animals are identified as *kopyak* or as *as katgn*, depending on the circumstances of their capture; others disagree and say that there are morphological differences between the two.

In the case of the *kmn*/*as* overlap we would suggest that culinary convenience is possibly the most relevant explanation. Though we have no observation of this happening, there are presumably times when it is quite inconvenient to cook single small or very small mammals ritually, and it is simplest to consider them as *as*; at other times, when they form part of a larger bag, it may be appropriate to cook them ceremonially and treat them as *kmn*.

The same type of argument may also be used in partial explanation of the overlap of *kopyak* and *as*. If one wishes to eat an example of *Rattus niobe* or *Rattus ruber* found in a "clean" location, it is presumably less prejudicial to identify it as *katgn* than to identify it as *kopyak*. But another factor influencing these alternative identifications must be that, although *R. ruber* and *R. niobe* do not apparently enter houses, they are found sufficiently near to homesteads and graves, and are morphologically sufficiently similar to the other rats of genus *Rattus* which do enter homesteads, to be rather readily confused with these.

7.3 *Transformations between taxa*

The most puzzling feature of Karam classification of marsupials and rodents is their belief that animals in certain taxa, while reproducing after their kind, also include individuals which grow and change into quite different kinds of animals, which also, however, reproduce after their kind. These beliefs are puzzling because they relate to fairly common kinds of creatures, and their biological invalidity stands out in marked contrast to the generally very accurate biological lore of the Karam.

TABLE 5: KARAM IDENTIFICATIONS OF SMALL MARSUPIALS AND RODENTS[1]

SPECIES	Karam Taxa	*aln*	*swmswm twm-kas*	*alks*	*gtkep*	*ymgenm*	*kopyak*	*walcogon gwlbodw*	*katgn*	*sjanj*	*mwg*	Totals
Antechinus melanurus		1	—	—	—	—	—	—	—	—	—	1
Phascolosorex dorsalis		1	—	—	—	—	—	—	—	—	—	1
Cercartetus caudatus		—	11	2	—	—	—	—	—	—	—	15
Lorentzimys nouhuysi		—	4	—	—	—	—	—	—	—	—	4
Pogonomys sylvestris		—	—	1	25	—	—	—	—	—	—	26
Pogonomys mollipilosus		—	—	—	—	3	—	—	—	—	—	3
Rattus exulans		—	—	—	—	—	11	4	—	—	—	15
Rattus ruber		—	—	—	—	—	7	—	—	1	—	10
Rattus verecundus		1	—	—	—	—	2	—	2	17	*	22
Rattus niobe		*	—	—	—	—	9	1	—	7	—	38
Melomys lorentzi		—	—	—	—	—	*	—	—	*	6	10
Melomys platyops		—	—	—	—	—	2	—	—	—	—	15
Melomys rufescens		—	—	—	—	—	*	—	—	—	—	3
Pogonomelomys sevia		—	—	1	1	1	—	—	—	—	—	1
TOTALS		3	11	6	4	44	7	29	5	2	22	25	6	164

Notes:

1. Figures represent one identification per live or recently killed specimen. Where different informants offered more than one identification but consensus was eventually reached, the consensus identification is counted. Where no consensus was reached, a somewhat arbitrary decision was taken as to the most reliable identification in terms of the skills of informants and extent of their knowledge of the circumstances of the animal's capture. Asterisks indicate alternative identifications for specimens counted in other columns.

Informants are not in complete agreement about the full list of such transmutations, but all believe in at least some of the following:

1. *as ymgenm* (tree rats, *Pogonomys mollipilosus*, and certain other small rodents) grow into *kmn skoyd* (ring-tail possums, *Pseudocheirus forbesi* and *P. ? meyeri*) and *ymdŋ* (ring-tail possum, *P. cupreus*).
2. *as aln* (small dasyurids, inc. *Phascolosorex* and *Antechinus*) grow either into *kmn swatg* (Native Cat, *Satanellus*) or *kmn skoyd* and *kmn ymdŋ* (ring-tail possums).
3. *as sjaŋ* (*Rattus verecundus* and possibly other small rodent sp. or spp.) grows into *kmn mosak lwm-ket* (giant rat sp.), which may in turn grow into *mosak* (*yb*) (*Mallomys rothschildi*).
4. *as mwg* (bush rat, *Melomys levipes*) grows into *kmn abpen* (giant rat, possibly *Uromys anak*).
5. *kmn skoyd* (ring-tail possums, *Pseudocheirus forbesi* and *P. ? meyeri*) grow into *kmn maygot* (silky cuscus, *Phalanger vestitus*).
6. *kmn wcm* (ring-tail possum, *Pseudocheirus corinnae*) grows into *kmn maygot* and *kmn atwak* (silky cuscuses, *Phalanger vestitus*).

As we have argued elsewhere,[55] at least four factors probably have to be taken into account in interpreting these beliefs. The first is that there are at least some obvious morphological and behavioural characters shared by taxa which are linked in this way. If we are right in identifying *abpen* as *Uromys anak*, the relationship between *mwg* and *abpen* would be the most notable example of this. The two genera are fairly similar in general appearance and behaviour, but are marked off notably by the difference in size. It is possible that immature *abpen* are indeed very similar to *mwg*, though we have no evidence on this point. The fact that the two creatures share the same habitat and to some extent the same food, Pandanus nuts (see 5.11.4), so that the smaller is alleged to plant the nuts from which palms grow which will provide food for the larger, ties them together very neatly.

More difficult to explain are the cases where, although two creatures share certain very distinctive features, they are grossly different in others. Examples of this are *as aln*, the small dasyurid marsupials, which share arboreal agility, possession of a pouch, and, in some cases, possession of a dark dorsal stripe, with the ring-tail possums into which they are supposed to grow. At the same time, informants point to the distinctive snout and dentition of the small dasyurids, which mark them off very clearly from the possums. On the other hand, similarities in snout and dentition are shared by *aln* and *swatg* (the Native Cat), which other informants say they turn into: but in this case the body markings of the two taxa are grossly different, *swatg* being very distinctively spotted. Against this, it might be argued that Karam observe many cases where young animals have very different markings from adults, two of the most obvious being pigs and cassowaries.

The second factor relevant to these beliefs is that certain of the taxa concerned include zoological species which are variable in colour or markings. Examples are the ring-tail possums, where presence of a dark dorsal stripe, of white or noticeably light yellowish-brown areas on the undersurface, and of white tip to tail, are variable characters, sometimes in two or more species which are normally placed in different Karam taxa.

It would thus appear to be quite possible to meet locally atypical individuals of one species which would in certain characters correspond rather well to typical local members of another species, and these could encourage belief in

55. Bulmer 1968b: 634–6.

transformations between them. Further, the variation in colour of undersurface and tail-tip facilitates belief in transformations of *skoyd* and *wcm* possums into *maygot* and *atwak* cuscuses (*Phalanger vestitus*), for which a white undersurface and light-coloured tip to tail are well-marked characters.

The third factor is that at least two of the smaller (*as*) taxa include more than one species, and, of the species included, one may have markings which are shared by the linked larger (*kmn*) taxon, whereas others do not. Thus, what may be regarded as the "type" species for *ymgenm* is *Pogonomys mollipilosus*. This has a very well marked white undersurface, which in discussion is the character most frequently referred to, and nests in an underground burrow. However, at least one of the morphologically somewhat similar prehensile-tailed rat, *Pogonomys sevia*, has a brown or grey belly and may nest above the ground. The only specimen obtained was explained as *aymgenm* that would change into a *skoyd*, the ring-tail possum taxon which includes both white and grey bellied examples, and which makes arboreal nests (see 5.11.5).

As we have already noted, many of the animals concerned are difficult to observe, and some groups of species are very difficult to tell apart on superficial morphological characters alone. It may possibly be argued that, where insufficient information is available for a biologically fully adequate taxonomy, the Karam solution of identifying less familiar forms as transitions between established taxa can be seen as a fairly rational taxonomic economy.

The fourth factor we would suggest is the same one that we invoked to account for marginal overlap of major taxa, namely that culinary and dietary regulations lead to a certain amount of taxonomic casuistry, to situations where it is convenient to have the option of deciding that a creature is either a young *kmn* and therefore to be cooked ritually or a mature *as*, in which case it need not be.

However, with regard to this particular problem, the authors must admit that there could be further factors of a different order, involving ritual or quasi-totemic information which they have failed to obtain, and which indeed may no longer be available with the groups among whom they worked. Karam are such interested and "rational" naturalists that one is led to suspect that there is, or has been in the past, some rather compelling ideological motivation for a set of beliefs which, if not entirely unnatural and bizarre, are at least scarcely necessary to account for the facts of nature as the Karam observe them.

8. ACKNOWLEDGEMENTS

Menzies' field work in 1968 and Saem Majnep's field work in 1971–2 were made possible by a grant-in-aid from the Wenner-Gren Foundation. Bulmer's field studies between 1960 and 1972 were variously supported by the New Zealand University Research Grants Committee, the U.S. Department of Health, Education and Welfare (MH 07957-01), the New Zealand Golden Kiwi Lotteries Fund Scientific Research Committee, the University of Papua and New Guinea and the Wenner-Gren Foundation. The assistance of all these institutions is gratefully acknowledged.

We thank Miss Inge Riebe for interviewing women on our behalf; Dr A. K. Pawley for assistance with orthographic and etymological problems; Dr Graham Jackson for information concerning mammals in the lower Kaironk Valley; Mr C. J. Healey for information about mammals on the Simbai-Jimi Divide; Mr Basil Marlow of the Australian Museum Sydney, Mr Graeme George of the T.P.N.G. Department of Agriculture, Stock and Fisheries, Dr Hobart Van Deusen of the American Museum of Natural History, New York, and Mr John Edwards Hill of the British Museum, London, for identification of specimens; Dr Jeanette Hope of the Australian National University and Mr Graeme George

for information and for helpful comments on an earlier draft of this paper; Messrs Gavin Carter, Ivan Smitmanus and Peter Kraehenbuhl, Patrol Officers, Simbai, and the staff of the Anglican Mission, Simbai, for their most cordial hospitality and assistance in many material ways with our field work; and our field assistants, especially Majnep, Smiy, Wod and Bos of Gobnem, John Kiyas of Kaironk, and Councillor Simon Peter Gi of Skow, for all their patient help.

9. INDEX TO KARAM TAXA APPLIED TO MARSUPIALS AND RODENTS

Note: Italicised numbers refer to sections where main account of taxon is presented.

mosak lwm-ket	*5.9.1.2*, 5.11.3, 6.1, 7.3
moys	*5.11.7*
mwg	5.9.4, *5.11.4*, 5.11.5, 7.3
mwmk	*5.9.2*, 5.9.5, 5.11.9, 5.11.10
pakam	*5.6.2*, 5.9.8
pŋl-mdep	*5.3.2*, 6.2
sby	*5.2.6*
sgaw	*5.1.1*, 5.1.2, 6.2
sjaŋ	5.8, 5.11.1, *5.11.3*, 7.2, 7.3
skoyd	5.2.1, 5.2.3, 5.3.2, *5.3.3*, 5.3.3.1, 5.9.4, 5.10.2, 5.11.5, 6.1, 7.3
swatg	*5.7.1*, 5.10.2, 6.2, 7.3
swmswm	*5.10.1*, 5.11.8, 5.11.9, 7.2
takp	*5.2.4*, 5.2.5, 6.1
twm-kas	4.1.3, *5.11.9*
walcogon	5.11.1, 5.11.1.1, *5.11.1.2*, 5.11.2, 6.1
wcm	5.2.1, *5.2.3*, 5.3.3, 6.2, 7.3
weñem	*5.6.1*
wgy	*5.6.1*, 5.6.2, 5.6.3, 5.6.4, 5.9.7, 6.2
wlpog	*5.3.2*
yaked	5.6.3
ymdŋ	5.2.1, *5.3.1*, 5.3.2, 5.3.3, 5.10.2, 7.3
ymganm	5.5.1, 5.11.3, 5.11.4, *5.11.5*, 7.3
ymgenm	*5.11.5*
ymgenm at-ket	*5.11.5*
yng-twd	*5.2.3*, 6.2

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