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THE TAXONOMIC ASSOCIATION OF *MUS FABERI* JENTINK WITH *RATTUS XANTHURUS* (GRAY), A SPECIES KNOWN ONLY FROM CELEBES (RODENTIA: MURIDAE)

by

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Over 60 named forms of *Rattus* are recorded from Celebes (Laurie & Hill, 1954). Some of these names were first proposed in the 1800's. The taxa they represent were sometimes based on only one specimen and were often poorly diagnosed. Consequently, the taxonomic status of the names has been unclear. Such names are stumbling blocks to accurate identification and sound classification of the species of *Rattus* which occur on Celebes. *Mus faberi*, named and described by F. A. Jentink in 1883, is a classic example. The name represents a taxon based on a single specimen. The original description of that specimen was short and vague. No other specimens have ever been allocated to *M. faberi* in the mammalogical literature and the taxonomic status of the name has remained obscure since Jentink proposed it.

I had the opportunity of examining the holotype of *M. faberi* during a recent visit to the Rijksmuseum van Natuurlijke Historie in Leiden. Results of that study are offered in the present paper wherein *M. faberi* is associated with *Rattus xanthurus*.

ABBREVIATIONS AND METHODS

The specimens discussed in this paper are in the collections of the American Museum of Natural History (A.M.N.H.), the British Museum (Natural History) (B.M.), the Rijksmuseum van Natuurlijke Historie (R.M.N.H.), the personal collection of H. J. V. Sody (these specimens are housed in the Rijksmuseum van Natuurlijke Historie and will be indicated as "Sody No."), and the United States National Museum of the Smithsonian Institution

(U.S.N.M.). Measurements of the length of the head and body and the length of the tail are those of the collectors and were taken from labels attached to study skins. I measured the length of the hind foot of all the specimens, as well as the length of the tail of some of the mounted individuals. Those specimens were originally mounted in a life-like pose and the tail of each was dried in a curved position. To measure the length of the tail of these specimens I placed a piece of string along the curves of each tail, marked the string where it equalled the end of the tail, then measured the resulting length of string with a ruler.

Cranial measurements were taken with dial calipers graduated to tenths of millimeters. The limits of most of these measurements are explained elsewhere (Musser, 1970). I measured the greatest length and the greatest breadth of each tooth with the dial calipers under a dissecting microscope.

Latitudes and longitudes for the localities mentioned in this report were taken from a gazetteer of Celebes (No. 5) issued by the Hydrographic Office of the United States Navy Department (H. O. Pub. No. 885, second edition, July, 1944).

THE IDENTITY AND ALLOCATION OF *MUS FABERI*

The name, *Mus faberi*, is based on one specimen. That individual was part of a collection of mammals made by F. von Faber in northern Celebes and western Sumatra. F. A. Jentink relates that Von Faber's collection was turned over to him by "The Committee of the International Colonial Exhibition at Amsterdam" with the request that he "subject the collection to a systematic review" (1883: 170). The results of Jentink's study appeared as "Note XVI" in the "Notes from the Leyden Museum," published in 1883. *Mus faberi* was the only taxon named and described in that paper; Jentink's original description of it is short and vague (p. 176):

"Upperparts of head and body and outside of legs slaty-colored, darker on the back; muzzle, a circle round the eyes and front of ears light brown. Underparts of head and body and inside of legs pure white. Tail whitish.

"Cutting-teeth yellow-orange, not grooved.

"All the hairs are very soft to the touch, on the back a few longer bristles are to be found." Jentink's measurements of the length of the head and body, length of the tail (which is incomplete), length of the hind foot, and the distance between the incisors and the first upper molar are 206 mm, 175 mm, 35 mm, and 11 mm, respectively.

The specimen was obtained from northern Celebes; according to Jentink, all of Von Faber's specimens from that region were obtained from the vicinity of "Amoerang" (spelled Amurang on recent maps), a coastal town

located in northeastern Celebes ($1^{\circ} 11' N$, $124^{\circ} 34' E$). F. von Faber obtained six other specimens of rats from the same region. Jentink identified five of these as "*Mus xanthurus*" and one as "*Echiothrix leucura*."

Besides the holotype, no other specimens have ever been referred to *M. faberi* in the literature on mammals since Jentink's description was published. This is not surprising because Jentink's description of *M. faberi* is so obscure that it is virtually impossible to identify specimens from it with any certainty that those specimens and the holotype of *M. faberi* represent the same species. Thus, the name, *faberi*, has persisted in the mammalogical literature only in check-lists, and its identity, like its original description, has remained obscure through the years from 1883 to 1970.

Five years after the name *faberi* was proposed, Jentink listed it as specimen "*a*" in his "Catalogue Systématique des Mammifères" with this entry (1888: 66): "Individu adulte monté, type de l'espèce. Célèbes, Ménado. Des collections de M. F. von Faber, 1883. (Cr. *a* du Cat. Ost.)." Here Jentink lists Menado as the origin of the specimen rather than Amurang. Menado is a major seaport located north of Amurang on the same coast.

In 1894, in a report on "Süsswasser-Fische" of the Indonesian Archipelago, Max Weber published a list of the land mammals then known to occur on Celebes. This list included "*Mus faberi* Jent." (p. 474).

Three years later, in 1897, E. L. Trouessart listed the name, *faberi*, as No. 2682 in his "Catalogus Mammalium tam Viventium quam Fossilium" (p. 472). Trouessart kept the name in the genus *Mus* and listed it under his subdivision, *Epimys*, of that genus, a name he had proposed in 1881. To my knowledge, Trouessart was the first to associate *M. faberi* with species in *Epimys*, a taxon that would later be raised to generic rank and supplanted by the name *Rattus*.

Seven years later, in the "Quinquennale Supplementum" to his "Catalogus Mammalium," Trouessart listed Jentink's name *faberi* as No. 3651 (1904: 372), again in the genus *Mus* and again under his subdivision *Epimys*, but also within a new category, the section "*Imperator (Mures majores)*." This category was comprised of seven other names besides that of *faberi*: *goliath*, *armandvillei*, *barbatus*, *lepturus*, *imperator*, *rex*, and *nativitatis*. The name *goliath* is currently allocated to the genus *Hyomys* (Laurie & Hill, 1954), *armandvillei* refers to a species of *Papagomys* (Sody, 1941; Hooijer, 1957), *barbatus* is associated with the genus *Xenuromys* (Tate, 1951), *imperator* and *rex* are names of taxa in the genus *Uromys* (Laurie & Hill, 1954), *lepturus* is associated with the genus *Maxomys* (Misonne, 1969), and only the names *nativitatis* and *faberi* are currently regarded as forms of the genus *Rattus* (Ellerman, 1949; Laurie & Hill, 1954). In listing *M. faberi* along

with these seven other forms, Trouessart implied that all eight were more closely related to one another than to the other taxa he included within *Mus*. Trouessart apparently was the only person who explicitly associated *M. faberi* with other named forms of rats. Authors whose checklists were published during the last 40 years, however, certainly did not share Trouessart's opinion.

In the "Families and Genera of Living Rodents," published in 1941, J. R. Ellerman listed the name *faberi* as a species of the genus *Rattus*; *faberi* was one of five named forms within *Rattus* which Ellerman did not allocate to any of the groups within the genus that he recognized in his classification (p. 214). When his revised classification of *Rattus* was published in 1949, Ellerman apparently did not have new information regarding the taxonomic status of *R. faberi* for he listed it, along with two other names, at the end of his classification as *Incertae sedis* (p. 79).

The most recent list of mammals of Celebes and one that is still the standard reference work for the "Land Mammals of New Guinea, Celebes and adjacent Islands" is that by E. M. O. Laurie & J. E. Hill, published in 1954. Those authors also associated the name *faberi* with *Rattus* and listed the species as *Incertae sedis*.

There is no indication in the literature that any of the persons who authored the various lists discussed above actually ever examined the holotype of *M. faberi*. I know of one person, however, who did study the holotype. In the summer of 1937, George H. H. Tate visited the Rijksmuseum van Natuurlijke Historie in Leiden and there examined the holotype of *M. faberi* and photographed its skull. His unpublished notes and photographic prints are in the files of the Department of Mammalogy at the American Museum of Natural History in New York. Tate's description of the skin and skull is terse, and even after examining the holotype he was uncertain of its identity. At the end of his notes Tate indicated that the animal was apparently related to *Rattus hoffmanni*, but he inserted, probably as an afterthought, the statement, "or to *celebensis* proper?" In an early attempt to determine the taxonomic status of *M. faberi*, I examined Tate's notes and his photographic prints, but could not identify the type-specimen or properly allocate the name from these sources.

During the fall and winter months of 1969, I was able to examine the holotype of *M. faberi* at the Rijksmuseum van Natuurlijke Historie in Leiden. This specimen has been registered in the collection of the museum as No. 18300. It consists of a mounted skin, and a skull which was extracted from the skin sometime during the late 1800's. The specimen is a juvenile, and a very young one. I could not determine its sex.

The skin is mounted in a life-like pose. The vertebrae are still inside the

dry skin of the tail and the tip of the tail is missing. The specimen is in juvenal pelage. The underfur of the upper parts is dense, short (10-12 mm long over the back), and has a woolly texture. Long, thin, guard hairs (their lengths reach 25-30 mm) are conspicuously scattered throughout the underfur over the back and rump. The color of the head and body is brownish-gray; a combination of two color tones: mouse-gray and pale, reddish-brown; the latter is an alteration of the original color and is common in pelage of old, mounted specimens. The pelage of the underparts is white, but dusty; the underparts were probably pure white when the specimen was originally mounted. The hairs of the underparts are soft and fine, and the pelage has a slight silky texture; this fine, short, and somewhat silky coat is typical of juvenal pelage.

F. A. Jentink described the tail as being "whitish" and it certainly appeared so when I first examined the holotype. The whitish tone, however, was due to a whitish-gray mixture of fine powder and dirt which originally covered all surfaces of the tail. I brushed the tail as thoroughly as was possible without damaging it and was able to remove most of the powder and dirt. The tail is actually bicolored. It's basal one-third is pigmented with brown. The terminal three-fourths of the tail is whitish-buff; this tone is a discoloration and the distal part was probably white or whitish-gray in life. The demarcation between the basal brown segment of the tail and the distal, whitish portion is abrupt, conspicuous, and real; it is not an artifact of preservation or discoloration.

Because of the position in which the skin was prepared, I could measure accurately only the length of the hind foot (including the claws) and the length of the tail. The measurements of these elements are 38 mm and 165 mm, respectively.

The skull is that of a juvenile and consists of cranium and both mandibles. The mandibles are complete but most of the brain case, the zygomatic arches, and the anterior portions of the nasals and rostrum are missing. All the molars have erupted above the alveoli, but the third pairs of upper and lower molars had not yet reached their full height when the animal was killed. There is only slight wear on the first and second molars and the third molars are unworn. Measurements of 11 cranial dimensions and 7 dental dimensions of the holotype are listed in Table 1.

The holotype of *M. faberi* is not an example of either *Rattus hoffmanni* or *R. celebensis* as Tate suspected, nor does it represent a species that is closely related to any of the named forms with which Trouessart associated it in 1904. It's external dimensions, bicolored tail, and cranial and dental features are unlike specimens of *R. hoffmanni*, a species that is much

TABLE I

External and cranial measurements (in millimeters) of specimens of
Mus faberi and *Rattus xanthurus*.

	<i>Mus faberi</i> (holotype)	<i>Rattus xanthurus</i> Immatures					Adults (Ranges; number of specimens in parentheses; see text for registration nos.)
	R.M.N.H. No. 18300	R.M.N.H. No. 18318	R.M.N.H. No. 18313	R.M.N.H. No. 21051	U.S.N.M. No. 217795		
Length of tail	165	190	206	255	270	280-343	(5)
Length of hind foot	38	39	40	43	43	45-48	(7)
Rows of scales on tail (per centimeter)	13	13	13	14	11	8-10	(9)
Length of underfur	10-12	12-15	15-17	15-20	15-20	15-25	(10)
Length of guard hairs	up to 30	up to 40	up to 34	up to 45	up to 45	60-95	(10)
Interorbital breadth	5.7	6.3	6.1	6.3	5.9	6.0-7.5	(12)
Breadth of zygomatic plate	3.2	3.1	3.8	3.3	3.7	4.0-5.2	(12)
Depth of zygomatic notch	1.3	1.1	1.5	1.1	1.1	1.1-2.4	(12)
Length of diastema	10.3	10.5	10.7	10.4	11.6	13.5-16.0	(11)
Palatilar length	17.6	18.8	18.9	19.1	19.5	21.7-25.1	(10)
Palatal length	20.0	20.9	21.1	21.2	22.3	24.5-28.2	(10)
Length of incisive foramina	6.9	6.9	7.3	7.2	8.4	9.1-10.7	(12)
Breadth across incisive foramina	2.6	2.9	2.5	3.0	3.1	3.4-4.1	(11)
Length of palatal bridge	7.1	8.3	8.1	7.8	7.7	8.5-9.6	(11)
Breadth of palatal bridge at M ¹	3.2	2.9	3.0	3.4	3.3	3.7-4.4	(10)
Breadth of mesopterygoid fossa	3.0	2.9	2.8	2.9	3.2	3.4-4.5	(10)
Alveolar length of M ^{1.3}	7.7	8.5	8.4	8.4	7.7	8.2-8.8	(11)
Length of M ¹	3.6	3.8	3.7	3.8	3.5	3.4-3.8	(10)
Breadth of M ¹	2.4	2.6	2.6	2.1	2.3	2.5-2.7	(10)
Length of M ²	2.3	2.6	2.6	2.5	2.2	2.4-2.6	(9)
Breadth of M ²	2.3	2.6	2.6	2.3	2.3	2.4-2.6	(9)
Length of M ³	1.9	2.1	2.1	2.1	2.0	1.9-2.2	(9)
Breadth of M ³	1.9	2.0	2.1	2.1	1.8	1.9-2.1	(9)

smaller in body size; that has a monocolored, brown tail; and one that in cranial and dental characteristics is more like the house rats, *R. rattus*. The holotype of *M. faberi* is a juvenile of one of the six, large-bodied species of *Rattus* known from northeastern Celebes that have bicolored tails, tails in which the basal portion is brown and the distal portion is whitish; namely, *R. callitrichus* (Jentink, 1879), *R. taerae* (Sody, 1932), *R. dominator* (Thomas, 1921a), *R. celebensis* (Gray, 1867), *R. marmosurus* (Thomas, 1921a),

and *R. xanthurus* (Gray, 1867). I have studied nearly all representatives of the six species that are housed in collections of museums. Most of these specimens range in age from young to old adults; juvenile examples make up a small proportion of the samples of each species. There are enough juveniles, however, to indicate that the holotype of *M. faberi* is distinguishable from five of the species — either on the basis of size, features of pelage, skull, or teeth, or on a combination of these — and that it is a juvenile example of *R. xanthurus*.

The holotype of *M. faberi* is morphologically unlike juveniles of either *R. callitrichus* or *R. taerae*. Of the few specimens of these two species from northeastern Celebes that are available for study, I have seen only one juvenile of *R. callitrichus* (R.M.N.H. No. 21277) and one of *R. taerae* (Sody No. P. 87). Juveniles of these two species resemble each other in features of pelage. Both have dark, bluish-gray upper parts and dark gray underparts; the demarcation in color between the two surfaces is gradual. The guard hairs are inconspicuous and short relative to length of the underfur (the guard hairs are 8-10 mm longer than the underfur). The holotype of *M. faberi* has grayish brown upper parts that are sharply demarcated from white underparts. The guard hairs are conspicuous and long in that specimen (18-20 mm longer than the underfur). There are many cranial and dental features that distinguish skulls and teeth of the two species, but the most conspicuous are the sizes of the teeth. The tooththrows of *R. callitrichus* and *R. taerae* are long and the first upper molars of each are large. For example, alveolar lengths of the maxillary tooththrows in *R. callitrichus* and *R. taerae* are 9.7 mm and 9.3 mm, respectively; the tooththrow of *M. faberi* is 7.7 mm long. The lengths of the first upper molars of *R. callitrichus* and *R. taerae* are 4.8 mm and 4.4 mm; their breadths measure 3.1 mm and 2.7 mm, respectively. The first upper molar of *M. faberi* is 3.6 mm long and 2.4 mm wide.

There are many more juveniles of *R. dominator* in collections. Such specimens are distinguishable from *M. faberi* in size and features of pelage, skull, and teeth. Juveniles of *R. dominator* of comparable age are larger than the holotype of *M. faberi* (length of the hind foot always exceeds 40 mm in *R. dominator*, for example). The pelage of their upper parts is longer and thicker, and the guard hairs are inconspicuous and short relative to length of the underfur (guard hairs extend an average of 10 mm beyond the underfur). In each juvenile of *R. dominator*, the incisive foramina are short relative to length of the diastema and their posterior margins are located well in front of the anterior alveolar margins of the upper pair of first molars. The bony palatal bridge is conspicuously longer than the tooth-

rows, and its posterior edge lies several millimeters behind the posterior alveolar margins of the upper third molars. The teeth of *R. dominator* are large (the length of the first molar always exceeds 4.0 mm; its breadth usually exceeds 3.0 mm), the toothrows long (all are greater than 9 mm in length), and the incisors are strongly ophisodont. In the holotype of *M. faberi* the incisive foramina are both actually longer and longer relative to length of the diastema, and their posterior margins extend beyond the anterior alveolar margins of the upper third molars; the palatal bridge is shorter than the toothrows, and its posterior edge is situated anterior to the alveolar margins of the third upper molars; the maxillary teeth are smaller and the toothrows much shorter (Table 1); and the incisors are orthodont rather than ophisodont.

Juveniles of *R. celebensis*, like those of *R. dominator*, are more common in collections than are juveniles of *R. callitrichus* and *R. taerae*. Pelage of the upper parts of juvenal *R. celebensis* is short, dense, and compact. The guard hairs are short and inconspicuous. Most of them are about the same height as the underfur but some extend 4-6 mm beyond it. These features of the pelage are characteristic of both juveniles and adults; specimens of *R. celebensis* are easily distinguished by these traits from examples of all other species of large-bodied rats with bicolored tails that occur in northeastern Celebes. Juveniles of *R. celebensis* have underparts that are cream or yellowish-white — a conspicuous contrast to the white underparts of *M. faberi*. *Rattus celebensis* can also be distinguished from *M. faberi* by its palatal region and teeth. Juvenal examples of *R. celebensis* have shorter (relative to length of diastema) incisive foramina than *M. faberi*; their posterior margins lie in front of the anterior alveolar margins of the first upper molars, instead of extending well behind such margins as seen in *M. faberi*. The bony palatal bridge in each specimen of *R. celebensis* is always longer than the maxillary toothrows (the opposite occurs in *M. faberi*), and its posterior edge usually lies behind the posterior alveolar margins of the upper third molars. The toothrows of *R. celebensis* are longer (they are always greater than 8.0 mm, and usually exceed 8.5 mm) than those of *M. faberi* (see Table 1), and the individual teeth are larger (lengths of the first upper molars always exceed 4.0 mm, and their breadths are greater than 2.7 mm in all the specimens I have measured).

Of the six species, *R. marmosurus* and *R. xanthurus* are the most similar to *M. faberi* in features of pelage, skull, and teeth. *Rattus marmosurus* and *R. xanthurus* are morphologically similar and occur sympatrically in northeastern Celebes. J. R. Ellerman (1949) incorrectly listed the name *marmosurus* as a subspecies of *R. xanthurus*, but *R. marmosurus* is a distinctive

and valid species as pointed out by Oldfield Thomas (1921a, 1921b), its describer, and later authors (Tate, 1936; Sody, 1941; and Misonne, 1969). Specimens of *R. marmosurus* differ from *R. xanthurus* in their grayer upper parts, longer, softer, and thicker underfur, and much shorter guard hairs. Skulls of adult *R. marmosurus* are always much smaller than those of adult *R. xanthurus*. Younger specimens of *R. xanthurus*, however, may be similar to *R. marmosurus* in size, but the two species can always be distinguished on size of the teeth. For example, the alveolar lengths of the maxillary toothrows range from 7.7 mm to 8.8 mm in 11 adults of *R. xanthurus* that I measured, while this dimension ranged from 6.7 mm to 7.6 mm in 18 juveniles and adults of *R. marmosurus*.

Unfortunately, there are few juvenile examples of *R. marmosurus* in collections of museums. Of the 20 specimens I have examined that were obtained in northeastern Celebes, only two are juveniles: one is in the collection at Leiden (R.M.N.H. No. 18319) and the other is at Washington (U.S.N.M. No. 217792). Pelage of the upper parts of these two specimens is quite different from *M. faberi*; the underfur is thicker and longer (20-25 mm) and the guard hairs reach 35-40 mm in length. The skulls of both juveniles are similar to that of the holotype of *M. faberi* in size, but their teeth are significantly smaller. The alveolar lengths of the maxillary toothrows and the lengths of the first upper molars in the two juveniles are 7.1 mm and 3.3 mm, respectively. The measurements of equivalent dimensions in *M. faberi* are 7.7 mm and 3.6 mm. Dimensions of the teeth of *M. faberi* match those of young *R. xanthurus* and not those of juvenile, or adult, *R. marmosurus*.

Features of the skull and teeth of *M. faberi* are clearly those of a juvenile example of *R. xanthurus* and the characteristics of the pelage of *M. faberi* represent juvenile pelage of *R. xanthurus*. Measurements of the holotype of *M. faberi* are listed in Table 1. There they are compared with measurements from 16 specimens of *R. xanthurus*: 12 good adults and four younger individuals. All these specimens were originally obtained from northeastern Celebes; their geographic origins and registration numbers are listed below.

Kakas (1° 10' N, 124° 52' E): R.M.N.H. No. 18313.

Koeala Prang: U.S.N.M. No. 217795.

Langowan (1° 09' N, 124° 49' E): R.M.N.H. Nos. 18310, 18311, and 18318.

Menado (1° 30' N, 124° 50' E): B.M. No. 21.2.9.6.

Roeroekan (1° 21' N, 124° 52' E): A.M.N.H. Nos. 101249, 101250, 101251, and 101256; B.M. No. 97.1.2.23.

Toemaratas (1° 09' N, 124° 48' E): R.M.N.H. Nos. 21050 and 21051.

Tomohon (1° 19' N, 124° 49' E): B.M. No. 99.10.1.8.

Tondano (1° 18' N, 124° 53' E): B.M. No. 60.8.26.16 (holotype).

Warembongan (1° 25' N, 124° 54' E): R.M.N.H. No. 2799.

The holotype of *M. faberi* is the only specimen listed in the table that is in juvenile pelage. The twelve oldest individuals are in full adult pelage. The other four specimens, R.M.N.H. Nos. 18300, 18318, 18313, and U.S.N.M. No. 217795, are intermediate in age, size, and features of the pelage between the juvenile and the twelve adults. The pelage of these four specimens is more like the adults than the juvenile, however, and they may represent either a subadult phase or a phase that is typical of very young adults, individuals that have just completed the molt from juvenal to adult pelage. Although I have examined most of the specimens of *R. xanthurus* that are in collections of museums, I have not found any examples with pelage that falls between the three grades mentioned here. Nevertheless, the long, blackish, guard hairs which are distributed over the back and rump of each specimen are a conspicuous feature of the pelage of *R. xanthurus*. These hairs reach lengths that are three to four times as long as the underfur. The juvenile pelage of *M. faberi* is also characterized by comparable long guard hairs.

Although the skull of the holotype of *M. faberi* is incomplete, the morphological features of the intact segment, namely the portion anterior to the brain case, clearly resembles skulls of *R. xanthurus*. The palatal region is distinctive. In specimens of *R. xanthurus* the incisive foramina are long and their posterior margins usually extend beyond the anterior alveolar margins of the first upper molars. The bony palatal bridge is shorter than the maxillary toothrows in young individuals, but its length is equal to or slightly longer than the toothrows in adults. The posterior edge of the bridge varies in position from a point just anterior to the posterior alveolar margins of the third upper molars to one slightly posterior to those margins. These features are illustrated in an excellent drawing of a skull of *R. xanthurus* that was published in G. H. H. Tate's report on Indo-Australian Muridae (1936: 561). The morphology of the palatal region seen in the holotype of *M. faberi* closely resembles the structural shape that is typical of *R. xanthurus*. In fact, the observed morphological differences seen between the holotype and R.M.N.H. No 18318, the youngest specimen of *R. xanthurus* listed in Table 1, are clearly differences due to age and individual variation.

In dental topography the teeth of *M. faberi* are closely similar to those of *R. xanthurus*. The characteristic features of the upper and lower molars of an adult specimen of *R. xanthurus* have been described and illustrated in a report on African and Indo-Australian Muridae by X. Misonne (1969: 142, pl. 17). The structure of the teeth observed in *M. faberi* is essentially an unworn version of that seen in Misonne's illustration and in the specimens of *R. xanthurus* which I have examined. Dimensions of the teeth of *M. faberi* are also similar to those of *R. xanthurus*. The length of the toothrows of the

holotype, as well as the dimensions of each individual tooth, fall within the range of variation seen in the sample of *R. xanthurus* at hand (Table 1).

The holotype of *M. faberi* was obtained from an area in which *R. xanthurus* must be, or at least was, a common part of the rodent fauna if the samples preserved in museums are any indication of its abundance. I have examined over 25 specimens of *R. xanthurus*, and most of these were obtained in northeastern Celebes, between 1° and 2° North Latitude, the region in which Amurang, the type-locality of *M. faberi*, is located. In fact, among the specimens that F. von Faber obtained from Amurang were five rats which Jentink identified as *R. xanthurus*. When his "Catalogue Systématique des Mammifères" was published in 1888, however, Jentink did not indicate that any of the specimens of *R. xanthurus* received from Von Faber were in the museum at Leiden. Jentink listed 11 specimens of what he had identified as *R. xanthurus*, but these were all obtained by S. C. I. W. van Musschenbroek from Kakas and Langowan. When I was working at Leiden, I could only find one of Von Faber's specimens that Jentink had identified as *R. xanthurus*. It is R.M.N.H. No. 18320 and was collected in "N. Celebes" in 1883. This specimen is one of the five reported by Jentink in 1883, and it is an example of *R. xanthurus*. Two of the other four specimens are in the British Museum (Natural History). These are Nos. 91.11.3.4 and 91.11.3.5. Both are from "N. Celebes" and both were originally in the collection at the Rijksmuseum van Natuurlijke Historie. The collection in the British Museum also contains two other specimens of *R. xanthurus* that were originally obtained from Amurang. Both are adults and both were formerly in the collection of the Buitenzorg Museum (now the Museum Zoologicum Bogoriense, Bogor, Indonesia). I have been unable to locate the other two specimens obtained by F. von Faber and identified as *R. xanthurus* by F. A. Jentink.

The identity and allocation of *M. faberi* is clear. The name is based on a single specimen that was obtained from northeastern Celebes. Morphological characteristics of that specimen are those of a juvenile example of *R. xanthurus*. Furthermore, the holotype was collected in a region where *R. xanthurus* occurs. In my opinion, *Mus faberi* Jentink, 1883, should be considered a subjective synonym of *Mus xanthura* Gray, 1867, a taxon currently, and correctly regarded as *Rattus xanthurus* (see Tate, 1936; Laurie & Hill, 1954; and Misonne, 1969).

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