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A New Species of *Microgale* (Insectivora: Tenrecidae) from Eastern Madagascar with an Unusual Dentition

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ABSTRACT

A new species of *Microgale* (shrew-tenrec), showing a unique suite of dental characters, is described from primary rainforest in eastern Madagascar. Morphological comparisons are made with other members of the genus, in particular with

Microgale dobsoni and *Microgale thomasi*, which are representatives of two subgroups that show the greatest affinity to the new species. Possible relationships with other members of the genus are discussed.

INTRODUCTION

The recent revision of *Microgale* by MacPhee (1987) sounded a cautionary note about the indiscriminate naming of supposedly new taxa, without careful consideration of the wide intraspecific variability in morphology and notable dimorphism between the deciduous and permanent dentition. His careful descriptions of dental variation and rigorous observations enabled the redefini-

tion and reduction of more than half of the named forms. So in view of these remarks, it may seem ironic that yet another new species, the third in five years, is being described. However, nine specimens of the new form are available, including adults of both sexes and two juveniles, allowing some observations on age-related changes in the dentition. The new species exhibits distinctive mor-

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phological characteristics and the anterior dentition is unique in several features.

MATERIALS AND METHODS

A collection of small mammals, including several species of *Microgale*, was made by Christopher Raxworthy in the Mantady National Park, Madagascar. This collection, including four specimens whose uniqueness had already been recognized, was brought to The Natural History Museum [BM(NH)] for identification. Five additional specimens of the new form from the same collection were subsequently borrowed from The University of Michigan Museum of Zoology. Comparisons were made between specimens of the new form and specimens in the reference collection of the BM(NH), and with descriptions in the literature.

Measurements were taken with dial calipers and are given in millimeters. The dental nomenclature follows that of Butler (1937), Mills (1966), Swindler (1976), Butler and Greenwood (1979), and MacPhee (1987). Institutional abbreviations used are BM(NH), British Museum (Natural History) [now The Natural History Museum] and UMMZ, The University of Michigan Museum of Zoology. Anatomical abbreviations are GCL, greatest cranial length and HB, head and body length.

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I am grateful to Christopher Raxworthy who collected and donated the specimens to the museum. He also arranged the loan of specimens from The University of Michigan Museum of Zoology and my thanks also go to the staff of the University Museum who kindly organized this loan. I am indebted to Ross MacPhee, American Museum of Natural History, for his helpful comments and criticism of the manuscript; his detailed knowledge of the genus is particularly valuable. I am grateful to John E. Hill for reading and evaluating the manuscript and giving particularly close scrutiny to aspects of nomenclature and systematics. Rainer Hutterer of the Museum Alexander Koenig, Bonn, and Iain Bishop of The Natural History Museum, kindly read the manuscript and made constructive comments.

SYSTEMATIC SECTION

Microgale soricoides, new species

HOLOTYPE: BM(NH) 91.565, collector's number RAN 37861, adult male, in alcohol, skull extracted. Collected 13 April 1991 by Christopher Raxworthy from Mantady National Park, ca. 15 km north of Perinet, Madagascar, 18°51'S, 48°27'E, in primary rainforest, between 1100 and 1150 elevation.

PARATYPES: BM(NH) 91.562, collector's number RAN 37752, juvenile male, collected 10 April 1991; BM(NH) 91.563, collector's number RAN 37758, adult female, collected 10 April 1991; BM(NH) 91.564, collector's number RAN 37857, adult male, collected 13 April 1991; UMMZ, collector's number RAN 37725, adult male; UMMZ 167278, collector's number RAN 37744, adult female; UMMZ, collector's number RAN 37754, adult male; UMMZ collector's number RAN 37761, adult female; UMMZ, collector's number RAN 37791, juvenile ? male. All with the same collection data as the holotype.

DISTRIBUTION: Known only from the type locality.

ETYMOLOGY: The name is derived from *sorex*, Latin for a shrew-mouse, with the suffix *-oides*, from the Greek *εἶδος*, meaning shape or form. The name refers to the similarity in general body form to shrews (Soricidae), common to all shrew-tenrecs but, in particular, to the first upper and lower incisors which closely resemble those of soricid genera such as *Suncus* and *Crociodura*.

DIAGNOSIS: Slightly smaller than *M. thomasi* Major, 1896a, but with a longer tail relative to head and body length. Premaxilla large relative to maxilla. First upper incisor (I1) robust, and markedly proodont. The first two lower incisors (i1 and i2) are robust and markedly procumbent; i2 is smaller than i1 but larger than the lower canine. The first upper and lower premolars (P2 and p2) are very small and have a single root. The first upper and lower deciduous incisors (dI1 and di1) are larger than the second upper and lower deciduous incisors (dI2 and di2).

DESCRIPTION: Medium size and robust in external appearance with the tail subequal to or longer than the head and body. External measurements follow; those of the holotype

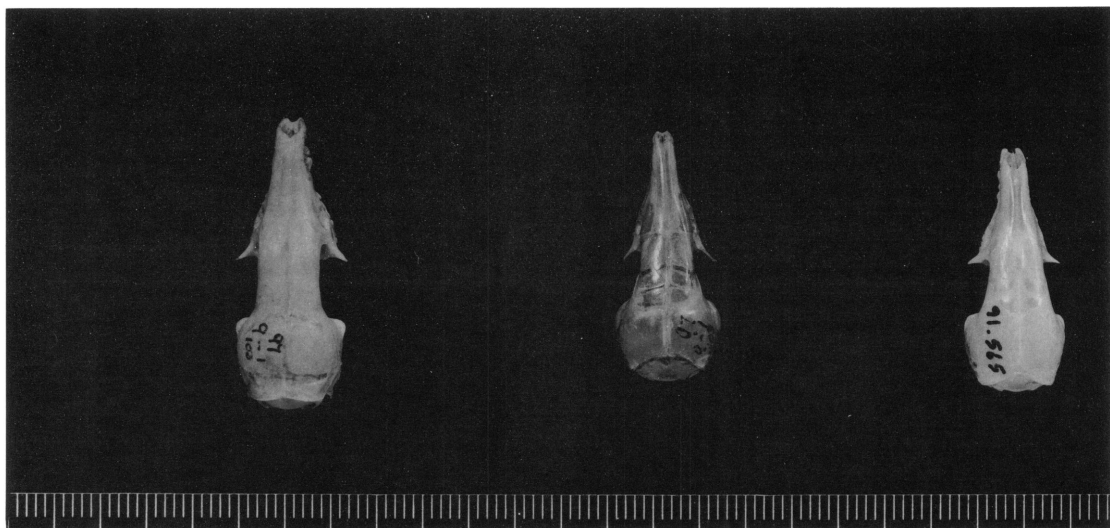


Fig. 1. Dorsal view of cranium from left to right of *M. dobsoni*, *M. thomasi*, and *M. soricoides*.

are given in parentheses: head and body length 77.0–85.5 (83.1), mean 80.8, SD 3.05; tail length 79.5–87.9 (84.2), mean 84.3, SD 2.72; hindfoot length 16.7–18.5 (18.2), mean 17.4, SD 0.65; ear length 12.0–16.0 (14.8), mean 14.6, SD 1.36; ratio of tail to head and body length 0.95–1.13 (1.01), mean 1.04, SD 0.06. The dorsal pelage is soft in texture, brown and slightly grizzled in appearance, and interspersed with slightly longer, black guard hairs; individual hairs are gray for seven-eighths of their length with bright buffy brown tips. The ventral pelage is buffy brown, the hairs gray basally with light buff, or in some individuals, reddish buff tips. The dorsal color of the pelage intergrades with that of the venter. The dorsal surface of the fore- and hindfeet is buffy brown with paler digits. The tail is gray brown above, lighter below, markedly bicolored in some specimens; the tail tip is white in some specimens.

The skull is medium in size but moderately robust (see figs. 1–4); the premaxilla is larger relative to the maxilla than in all other species of *Microgale*; the rostrum is broad and only moderately elongated; the zygomatic plate is broad and the zygomatic process of the maxilla is flared at ca. 90° to the main axis of the skull; the braincase is deep, domed, and broad; the occipital region is small; the squamosal region is slightly inflated yet the angular superior articular facets are clearly vis-

ible in dorsal view; the mandible is moderately robust with a deep, broad coronoid process, the anterior face of which is convex; the angle between the dorsal articular facet and the coronoid process is subacute and the posterior face of the coronoid process is slightly convex; the mental foramen lies below the posterior portion of p3. The dentition is illustrated in figures 5–7. Small interproximal diastemata are present between all the anterior upper teeth from the first incisor (I1) to the third premolar (P4). The first upper incisor (I1) is robust and markedly procumbent, the principal anterior cusp is procumbent, the posterior cusp (distostyle) is large and a well-marked lingual cingulum is present, the lingual surface of both cusps is concave. The second upper incisor (I2) is robust, subequal in height to the canine, a minute anterior accessory cusp is linked to the small distostyle by the buccal cingulum and a prominent anterolingual accessory cusp is present on the lingual cingulum. The third upper incisor (I3) is small and subequal in crown height to the distostyle of I2. The upper canine (C) is moderately robust, with a small anterior accessory cusp and distostyle and well-marked buccal and lingual cingula. The first upper premolar (P2) is very small and has a single root; there is no anterior accessory cusp and only a very indistinct distostyle. The second upper premolar (P3) has



Fig. 2. Ventral view of cranium from left to right of *M. dobsoni*, *M. thomasi*, and *M. soricoides*.

a small mesostyle and very small but well-marked anterior and posterior ectostyles. The anterior ectostyle of the third upper premolar (P4) is well defined but narrow and low, the posterior ectostyle is well marked, and the lingual shelf is bicuspid. The robust upper molars are similar to those of other members of the genus.

The first lower incisor (i1) is robust, larger than the other incisors and the canine, markedly procumbent, and elongated along the main axis of the tooth (alveolar to crown height); the anterolingual face of the tooth is convex; the posterior surface is concave; a posterolingual ridge is present but the posterior accessory cusp (hypoconulid) is very small; the buccal surfaces of both incisors lie close together for most of their length so that both teeth together are scoop shaped. The second lower incisor (i2) is also robust, markedly procumbent, and elongated along its main axis; it is larger than the third lower incisor (i3) and the canine, the hypoconulid is well developed. The third lower incisor is small, procumbent, and posteriorly broadened so that it is subtriangular in occlusal view, with a small hypoconulid and well-developed buccal and lingual cingula. The lower canine (c) is slightly procumbent, with no anterior accessory cusp, a small hypoconulid, and well-defined buccal and lingual cingula. The first lower premolar (p2) is very small,

subequal in crown height to the distostyle of the canine, with a low hypoconulid and a single root; in occlusal view it is subtriangular in shape, with well-developed buccal and lingual cingula, and is smaller but similar in appearance to i3. The second lower premolar (p3) is approximately two-thirds the height of the third lower premolar (p4) and has a small but well-marked paraconid. The third lower premolar and the first two lower molars (m1 and m2) are similar to those of other species of *Microgale*. The talonid basin of the third lower molar (m3) is reduced; an entoconid ridge is present but the entoconid and the posterolingual ridge are very reduced.

COMPARISON WITH OTHER SPECIES: *M. soricoides* is larger (HB 77.0–85.5, GCL 25.8–26.7) than many species of *Microgale* (HB < 76, GCL < 24.5), overlapping in external but not cranial size with larger specimens of *M. cowani* Thomas, 1882 (HB 66–83, GCL < 23.5). It falls into the lower part of the size range of *M. thomasi* Major, 1896a (HB 82–105, GCL 26.7, 27.0), is slightly smaller than *M. gracilis* (Major, 1896a) (HB 91–100, GCL 29.6), and considerably smaller than *M. dryas* (Jenkins, 1992), *M. dobsoni* Thomas, 1884, and *M. talazaci* Major, 1896a (HB > 98, GCL > 29.4). [Data from BM(NH) specimens, see also table 1, and MacPhee, 1987, table 2.] The tail of *M. soricoides* is equal to or slightly longer than head and body length,

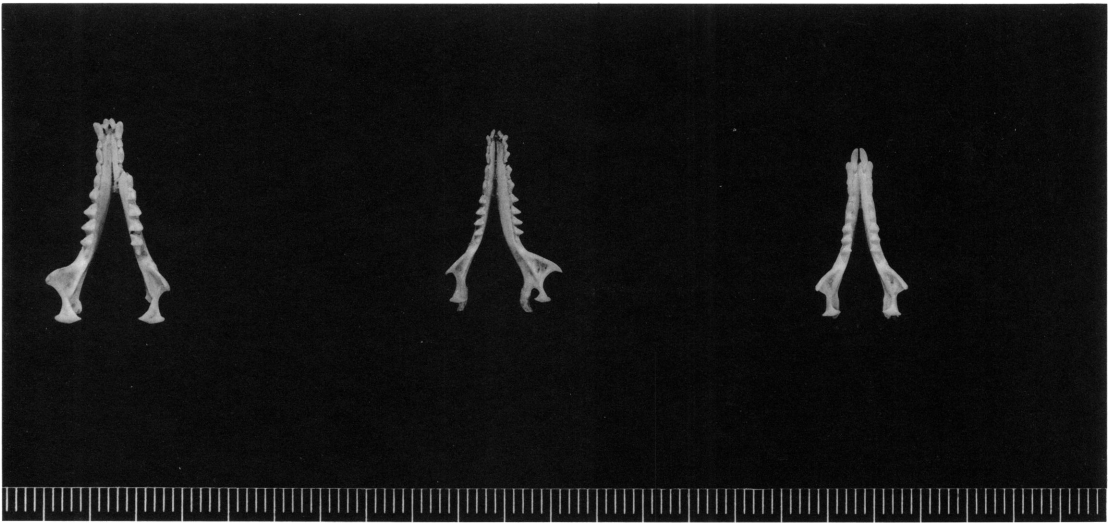


Fig. 3. Occlusal view of mandible from left to right of *M. dobsoni*, *M. thomasi*, and *M. soricoides*.

as in *M. dobsoni* and *M. talazaci* but unlike *M. thomasi*, *M. dryas*, and *M. gracilis* in which the tail is shorter than head and body.

In morphology, the new species shows some similarities to representatives from two different groups: *M. thomasi* from the *cowani* cluster and *M. dobsoni* from the *dobsoni* cluster. Detailed comparisons with these two species are given below and comparisons with other species are also included where relevant.

Although *M. soricoides* shows some affinities to *M. dobsoni*, the skull is considerably larger and more robust (see figs. 1–4 and table 1). *M. soricoides* differs from *M. dobsoni* in

the following proportions: the premaxilla is longer relative to the maxilla; the rostrum is longer relative to upper tooththrow length; the interorbital region increases in size gradually from anterior to posterior, whereas in *M. dobsoni* the interorbital region is parallel sided; the braincase is broader, deeper, and longer relative to skull length than in *M. dobsoni*; an occipital crest is present in *M. soricoides* but prominent in *M. dobsoni*. In profile the skull of *M. soricoides* slopes gradually from the shallow rostrum to the domed braincase, while in *M. dobsoni* the profile is sinuous, the rostrum is deep anteriorly, slightly deeper posteriorly, the interorbital region inflated to

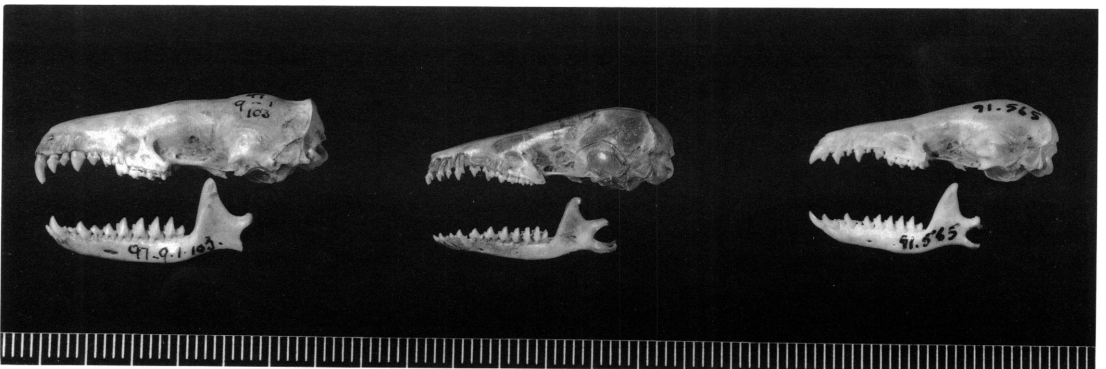


Fig. 4. Left lateral view of cranium and mandible from left to right of *M. dobsoni*, *M. thomasi*, and *M. soricoides*.

TABLE 1
Morphological Comparison of *M. soricoides*, *M. thomasi*, and *M. dobsoni*

	<i>soricoides</i>	<i>thomasi</i>	<i>dobsoni</i>
Head and body length	77.0–85.5	91, 97	98–113
Mean	80.8		105.3
SD	3.05		4.47
N	9		10
Ratio of tail to head and body length	0.95–1.13	0.66, 0.68	0.82–1.03
Mean	1.04		0.92
SD	0.06		0.06
N	9		10
Condylolincisive length	25.1–26.7	25.9, 26.8	30.0–32.7
Mean	25.72		31.45
SD	0.5		0.82
N	8		10
Upper toothrow length	12.1–13.0	12.5, 13.1	14.8–16.1
Mean	12.58		15.45
SD	0.32		0.43
N	8		10
Ratio of anterior teeth (I1–P3) to upper toothrow length	0.55–0.57	0.50, 0.53	0.49–0.52
Mean	0.56		0.51
SD	1.01		0.95
N	5		10
Braincase breadth	10.8–11.8	11.4, 11.5	10.9–12.0
Mean	11.09		11.45
SD	0.29		0.30
N	8		10
Ratio of braincase breadth to condylolincisive length	0.42–0.44	0.43, 0.44	0.35–0.38
Mean	0.43		0.36
SD	0.89		0.82
N	8		10
Height of i1	3.02–3.48	1.21	1.70–2.40
Mean	3.2		2.18
SD	0.14		0.20
N	8		9
Ratio of height of i1 to mandibular toothrow length	0.23–0.3	0.09	0.12–0.16
Mean	0.26		0.15
SD	0.02		1.37
N	8		9
Buccal × crown length of p2	0.25–0.42	1.08	0.91–1.44
Mean	0.32		1.15
SD	0.05		0.16
N	7		8
Ratio of p2:p3	0.20–0.26	0.71	0.51–0.66
Mean	0.23		0.57
SD	0.02		4.72
N	7		7

a greater or lesser extent, and the braincase is slightly rounded and dips toward the prominent occipital crest.

The skull of *M. soricoides* is most similar in size and general appearance to that of *M. thomasi* but differs in the following details (see figs. 1–4, and table 1): the premaxilla is longer and the rostrum is longer and slightly broader than that of *M. thomasi*; the zygomatic plate is broader and the zygomatic process of the maxilla is acutely angled away from the maxilla, while it is only slightly angled away from the main axis of the maxilla in *M. thomasi*; the braincase of *M. thomasi* is slightly more rounded in appearance due to the swollen squamosal region, which almost completely obscures the rounded superior articular facets in dorsal view, whereas in *M. soricoides* the squamosal region is slightly inflated and the angular superior facets are evident from above; the braincase of *M. soricoides* is slightly deeper relative to breadth than that of *M. thomasi* (ratio of braincase height to breadth 0.66 in *M. thomasi*, 0.67–0.70 in *M. soricoides*); the mandible of *M. soricoides* is shorter but slightly more robust than that of *M. thomasi* and there is a considerable difference in the morphology of the ascending ramus in the two species; the coronid process is deeper, the anterior face is convex, the posterior face slightly concave, and the angle with the dorsal articular facet is subacute in *M. soricoides*, while in *M. thomasi* the anterior face of the coronid process is straighter, and the posterior face is concave and forms a shallow curve with the dorsal articular facet; the mental foramen is positioned below the posterior portion of p2 in *M. thomasi* but below the posterior portion of p3 in *M. soricoides*.

The dentition of *M. soricoides* is very distinctive. In particular the morphology of I1, i1, i2, P2, and p2 is unlike that of any other member of the genus (see figs. 5–7). The relative proportions of the anterior teeth are also remarkably different in the three groups, as shown in the accompanying comparison.

<i>M. soricoides</i>	I1 >>	I2 >>>	I3	I2sub =	C
<i>M. thomasi</i>	I1 >	I2 >	I3	I2 <	C
<i>M. dobsoni</i>	I1 >>	I2 >	I3	I2 <	C
<i>M. soricoides</i>	i1 >>	i2 >>	i3	i2 >	c
<i>M. thomasi</i>	i1sub =	i2 >	i3	i2 <	c
<i>M. dobsoni</i>	i1 <<	i2 >>>	i3	i2 >	c

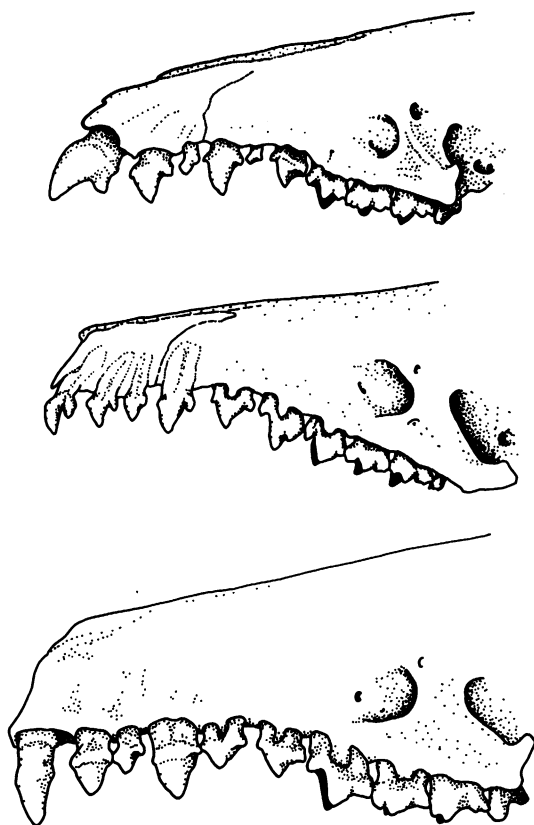


Fig. 5. Left lateral view of maxillary dentition of *M. soricoides*, top, *M. thomasi*, middle, and *M. dobsoni*, bottom. Scale = 1 mm.

Upper incisors: The robust, proodont I1 of *M. soricoides*, which has a prominent, well-developed distostyle greater than three-quarters of the height of the principal cusp, is totally unlike that of any other species of *Microgale*. I1 of *M. thomasi* is slender and scarcely proodont, with a prominent but slender distostyle less than half the height of the principal cusp; this tooth is moderately robust but orthodont in *M. dobsoni* and the distostyle is small and insignificant. I2 is dissimilar to that of other species of *Microgale*, in that it is robust and subequal in size to the upper canine; in morphology, because accessory cusps are well developed, this tooth resembles the condition in the *longicaudata* Thomas, 1882, and *cowani* clusters, although *M. thomasi*, in which I2 is slender and lacks an anterior accessory cusp, is dissimilar at this locus. I2 in *M. dobsoni* is a robust tooth but is smaller than the upper canine and a

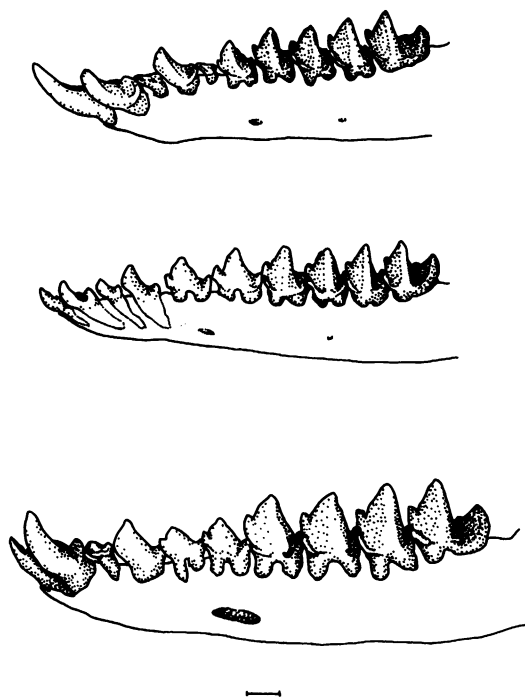


Fig. 6. Left lateral view of mandibular dentition of *M. soricoides*, top, *M. thomasi*, middle, and *M. dobsoni*, bottom. Scale = 1 mm.

small anterior cusp is present. In its size relative to the other incisors and canine, I3 of *M. soricoides* is smaller than in any other species of *Microgale*; in crown height I3 is subequal to the distostyle of I2, whereas in *M. thomasi* it is more than half the height of I2 and in *M. dobsoni* it is moderately robust and approximately half the height of that tooth.

Upper canine: As in many members of the *longicaudata* and *cowani* clusters, an anterior accessory cusp is present on the upper canine of *M. soricoides*, although this cusp is reduced in *M. thomasi* and the distostyle is more prominent. The upper canine of *M. dobsoni* is much more robust than that of *M. soricoides* and the anterior accessory cusp and distostyle are very reduced.

Upper premolars: P2 of *M. soricoides* is unique in its very small size, lack of accessory cusps, and single root. In comparison, other species of *Microgale* have a larger, double-rooted P2 with accessory cusps. P3 of *M. soricoides* is similar to members of the *cowani* cluster, including *M. thomasi*, in having a

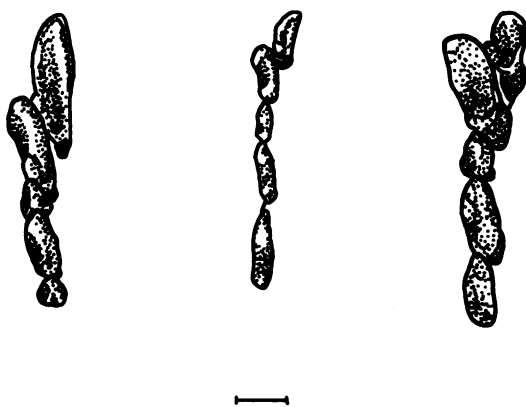


Fig. 7. Occlusal view of anterior mandibular dentition (i1-p2) from left to right of *M. soricoides*, *M. thomasi*, and *M. dobsoni*. Scale = 1 mm.

small but well-marked mesostyle and a well-defined anterior ectostyle, although the anterior and posterior ectostyles in *M. soricoides* are very small. In *M. soricoides*, P4 has a well-marked posterior ectostyle and the lingual shelf is bicuspid, in contrast to (1) *M. thomasi* in which there is no obvious posterior ectostyle or distostyle and the lingual shelf is unicuspid, and (2) *M. dobsoni* in which the posterior ectostyle is indistinguishable from the low distostyle and the lingual shelf is also unicuspid.

Upper molars: The upper molars in *M. soricoides* are similar to those of other species of *Microgale*.

As in the maxillary toothrow, the anterior teeth of the mandibular toothrow of *M. soricoides* are more dissimilar to those of the other species of *Microgale* than are the posterior teeth.

Lower incisors: The first lower incisor (i1) is unlike that of any other species of *Microgale*; it is markedly procumbent, robust, and much larger than the other lower incisors and the canine; the hypoconulid is very small. In *M. thomasi*, i1 is procumbent and small, but broad and spatulate in shape and the hypoconulid is well defined; i1 of *M. dobsoni* is only slightly procumbent, small, yet broad in appearance due to the buccolateral position of the hypoconulid. In *M. soricoides*, i2 is robust and larger than the canine as in *M. dobsoni* and *M. talazaci* but unlike any other species of *Microgale*, in which i2 is smaller than the canine. However, i2 of *M. soricoides*

is markedly procumbent, has a large hypoconulid, is smaller than i1 and larger than i3; it is unlike that of *M. dobsoni* and *M. talazaci* in which i2 is larger than the other lower incisors and the canine, is slightly procumbent, and has a small hypoconulid. In *M. thomasi* i2 is procumbent, subequal in size to i1, larger than i3 and smaller than the canine, and has a moderately large hypoconulid. Its i3 is subtriangular in occlusal view, with a low hypoconulid and is similar in appearance and morphology to the suboval i3 of *M. dobsoni* but unlike the slender tooth of *M. thomasi* which has a small but well-defined hypoconulid and no buccal or lingual cingula.

Lower canine: The lower canine of *M. soricoides* has no anterior accessory cusp, a small hypoconulid, and well-defined buccal and lingual cingula. That of *M. thomasi* also has no anterior accessory cusp, a well-developed hypoconulid, but no cingula. *M. dobsoni* differs in showing a small anterior accessory cusp high on the principal cusp, a poorly developed hypoconulid, a poorly defined lingual cingulum, but no buccal cingulum.

Lower premolars: In *M. soricoides* p2 is smaller relative to the rest of the toothrow than that of any other species of *Microgale*; in addition this tooth has a single root as in *M. pusilla* Major, 1896b, but unlike any other member of the genus. It has no anterior accessory cusp (paraconid) and the hypoconid is low, as in *M. pusilla*, unlike other species of *Microgale* which have anterior and posterior accessory cusps at this locus, consisting of a very small paraconid and small hypoconid in *M. dobsoni* and small but prominent anterior and posterior accessory cusps in *M. thomasi*. In *M. dobsoni* p2 is small, being approximately half the height of the lower canine but is larger and taller than the canine in *M. thomasi*. The second lower premolar (p3) is lower than the paraconid of p4 in *M. dobsoni*, approximately two-thirds the height of the protoconid of p4 in *M. soricoides* but scarcely lower than the protoconid of p4 in *M. thomasi*; a small but well-marked paraconid is present in *M. soricoides*, a prominent paraconid is present in *M. thomasi*, while in *M. dobsoni* the paraconid is small and positioned high on the protoconid. The morphology of p4 is similar in *M. soricoides* and

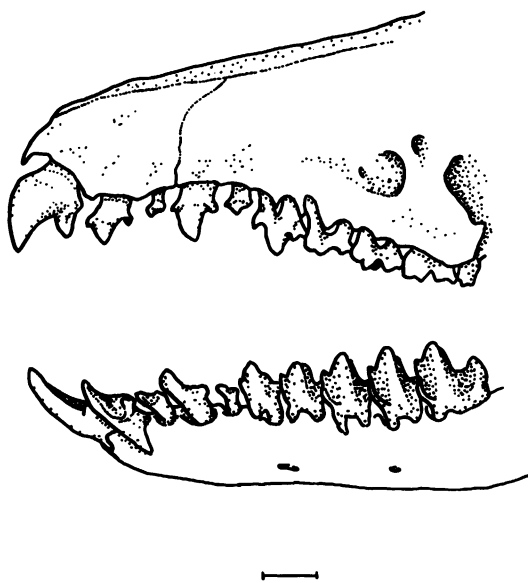


Fig. 8. Left lateral view of maxillary and mandibular juvenile dentition of *M. soricoides*. Scale = 1 mm.

M. thomasi but *M. dobsoni* differs from both in the high position of the paraconid, which is higher than the protoconid of p3 in contrast to the other two species in which the paraconid is much lower.

Lower molars: The morphology of m1 and m2 is similar in all species of *Microgale*. Although the trigonid of m3 is also similar, the talonid of this tooth differs in all three species: in *M. thomasi* it is moderately well developed, with a prominent hypoconid and hypoconulid, a well-marked entoconid ridge, but no entoconid. In *M. soricoides* the talonid is reduced, the hypoconid is very low, the hypoconulid prominent, and the entoconid ridge and entoconid are poorly defined. The talonid is further reduced in *M. dobsoni*, the hypoconid is poorly defined, the hypoconulid prominent, the entoconid ridge very reduced and the entoconid absent.

Deciduous dentition: The two juveniles of *M. soricoides* are at different stages of development: in one specimen most of the permanent dentition is fully or partially erupted, with the exception of the upper and lower second premolars (dp3 and dp3) but the other specimen is younger, the molars and the upper and lower third incisors are permanent, but the remainder of the dentition is deciduous (see fig. 8). The two specimens are there-

fore considered to represent, respectively, Stage 3 and Stage 1 of the eruption sequence outlined by MacPhee (1987: 13). On the basis of these two specimens, there is no apparent variation in this species from the eruption sequence shown by other species of *Microgale*. In basic principles the deciduous dentition is similar to that of other species of *Microgale* (see MacPhee, 1987) in that the deciduous incisors and canines are smaller than their permanent counterparts and the buccal aspect of the deciduous upper third premolar (dP4) is molariform. However, there are a few significant differences in the new species. MacPhee (1987: 20) observed that in all clusters the deciduous second upper incisor (dI2) is at least the equal of the deciduous first upper incisor (dI1) in crown length, however in *M. soricoides* dI2 is shorter than dI1 in crown length. Similarly, although MacPhee (p. 18) observed that the deciduous and permanent second incisors are always the largest mandibular incisors within their respective dentitions, *M. soricoides* is again exceptional, since dI1 is larger than dI2. The deciduous and permanent first upper premolars (dP2 and P2) are similar in size in members of the *cowani* cluster but in the *dobsoni* cluster, dP2 is markedly smaller than P2; in *M. soricoides* dP2 is slightly larger than P2.

DISCUSSION

Species included in the genus *Microgale* show considerable interspecific variation, to the extent that until relatively recently this group was divided into four distinct genera, *Microgale*, *Leptogale*, *Nesogale*, and *Paramicrogale*. However, during the last two decades the four genera were successively subsumed into *Microgale* (see Heim de Balsac, 1972; Honacki et al., 1982; Corbet and Hill, 1986, 1991). In his revision of the genus, MacPhee (1987) confirmed that only one genus was valid and recognized only 10 of the 21 nominal species then listed. He separated these species into "clusters" on the basis of morphological features, while emphasizing that this was a phenetic arrangement which should not be regarded as representing supraspecific

groupings. Nevertheless this has proved to be a convenient system for subdividing the genus and the same terminology is adopted here.

MacPhee considered that only a few distinct lineages occur within *Microgale* and that it was unlikely that new adaptive forms would be discovered. Indeed, although two new species, *M. pulla* Jenkins, 1988, and *M. dryas* Jenkins, 1992, were described shortly after the revision, both showed affinity to species in the *cowani* cluster and were assigned to this subgroup. In contrast, the distinctive features exhibited by *M. soricoides* prevent ready assignment to any of the existing clusters. The new species shows the greatest degree of resemblance in craniodental features to members of the *cowani* cluster, in particular to the similarly sized *M. thomasi*. In general body proportions, such as the relative length of tail to head and body, and in some dental proportions but not morphology, *M. soricoides* resembles the *dobsoni* cluster. In dental morphology *M. soricoides* also shares a few features with members of the *gracilis* and *pusilla* clusters. However, the unique dental features exhibited by the new species suggest that while it is unlikely to represent a new adaptive form, it may well have different feeding habits, and certainly appears to represent a different "cluster." In the absence of field data about *M. soricoides*, no speculation about its ecology or behavior is feasible.

Two other species of *Microgale*, *M. longicaudata* and *M. principula* Thomas, 1926, were collected from the same locality as the new species. While the range of these two species was known to overlap, this is the first indication that they are definitely sympatric. Several authors have previously discussed the status of these two species, Heim de Balsac (1972) considering that *M. principula* was merely a subspecies of *M. longicaudata*, while MacPhee (1987) retained both as valid species. Four specimens of *M. longicaudata* and two of *M. principula* were collected from the same trap lines at Mantady; the specimens may be clearly separated by external morphology into two distinct forms and study of their craniodental morphology confirms that they are unquestionably distinct species.

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