

= *Microgale macpheei* =

Microgale macpheei is an extinct shrew tenrec from southeastern Madagascar . It is known only from two partial skulls found in Andrahomana cave , which radiocarbon dating of associated rodent remains suggests are about 2000 years old . It is the only known recently extinct tenrec . First described in 2007 , it is most similar to the smaller *Microgale brevicaudata* of northern and western Madagascar . *M. macpheei* has a broad rostrum (front part of the skull) and , like *M. brevicaudata* , lacks a diastema (gap) between the premolars . A number of details of tooth morphology are characteristic of *M. macpheei* .

= = Taxonomy = =

Remains of shrew tenrecs (*Microgale*) were found during expeditions to the cave of Andrahomana in southeastern Madagascar , led by David Burney in 2000 and 2003 . The *Microgale* material was described as a new species , *M. macpheei* , in 2007 by Steven Goodman , Natalie Vasey , and Burney . The species was named after Ross MacPhee in honor of his contributions to knowledge of the genus *Microgale* and the paleontology of Madagascar . Goodman and colleagues considered the living *Microgale brevicaudata* from northern and western Madagascar to be the closest relative of *M. macpheei* ; some populations of this tenrec have since been separated into a different species , *M. grandidieri* . The common name " MacPhee 's shrew tenrec " has been proposed for *M. macpheei* . The genus of *M. macpheei* , *Microgale* , includes more than 20 species and is the largest of the tenrec family , which includes a variety of other Madagascan mammals .

= = Description = =

Microgale macpheei is known from two specimens : a damaged cranium (skull without mandibles , or lower jaws) lacking the back part (the parietal bones and further back) as well as the incisors , canines , and second premolars ; and another damaged cranium lacking the same parts as well as the left toothrow . Both show no evidence of ongoing tooth replacement , indicating that the permanent dentition is complete . *M. macpheei* was larger in most measurements than *M. brevicaudata* , but because of small samples , some differences are not statistically significant . The length of the bony palate in the two specimens of *M. macpheei* is 9 @. @ 4 and 9 @. @ 7 mm , compared to 7 @. @ 1 to 9 @. @ 0 mm in eight adult *M. brevicaudata* . In both specimens , the length of the molar row is 3 @. @ 0 mm , compared to 2 @. @ 4 to 2 @. @ 8 mm in the sample of *M. brevicaudata* .

The rostrum (front part of the skull) is short and blunt in both *M. macpheei* and *M. brevicaudata* , contrasting with the condition in other *Microgale* , but the rostrum of *M. brevicaudata* is distinctly more tapered at the front , whereas that of *M. macpheei* is more blunt at the front . Unlike other *Microgale* , *M. brevicaudata* and *M. macpheei* lack gaps (diastemata) between the premolars . *M. macpheei* had larger , more robust teeth than *M. brevicaudata* . In both species , the mesiostyle and distostyle , two crests , on the fourth premolar (P4) and the molars are reduced relative to the condition in other *Microgale* . *M. macpheei* lacks an extension of the protocone cusp on the lingual (inner) side of the third upper premolar (P3) and P4 , present in *M. brevicaudata* , and has the paracone cusp on P4 less well @-@ developed . On the other hand , the front part of the ectostyle crest on P4 is larger . The relative lengths of some of the crests on the two last molars also differ between the two species .

= = Distribution and ecology = =

Microgale macpheei is known only from the cave of Andrahomana . Its past presence there , like that of the extinct rodent *Hypogeomys australis* , suggests formerly more mesic (wet) conditions around the cave , which is currently in a dry area . In addition to *M. macpheei* , three other tenrecs have been described from subfossil material , but none are currently recognized as valid species ;

thus , *M. macpheei* is at present the only known Recently extinct tenrec species . However , there is a remnant patch of mesic forest near Andrahomana , where a population of *M. macpheei* may survive . Although no radiocarbon dating has been carried out on *M. macpheei* remains , bones of the rodent *Macrotarsomys petteri* from layers in the same cave deposit bracketing those where *M. macpheei* was found yield dates of around 2480 and 1760 Before Present .