

= *Brachytarsomys mahajambaensis* =

*Brachytarsomys mahajambaensis* is an extinct rodent from northwestern Madagascar . It is known from nine isolated molars found in several sites during field work that started in 2001 . First described in 2010 , it is placed in the genus *Brachytarsomys* together with two larger living species , which may differ in some details of molar morphology . The presence of *B. mahajambaensis* , a rare element in the local rodent fauna , suggests that the region was previously more humid .

= = Taxonomy = =

Remains of *Brachytarsomys mahajambaensis* were found during fieldwork in northwestern Madagascar that started in 2001 . The species was described in a 2010 paper by Pierre Mein and colleagues , together with another extinct rodent , *Nesomys narindaensis* . The specific name , *mahajambaensis* , refers to Mahajamba Bay , which is close to the places where the species has been found . It is placed in the genus *Brachytarsomys* , together with two larger living species , *B. albicauda* and *B. villosa* . *Brachytarsomys* is classified in the exclusively Madagascan subfamily *Nesomyinae* of the family *Nesomyidae* , which includes various African rodents .

= = Description = =

*Brachytarsomys mahajambaensis* is known from nine isolated molars , including two first upper molars ( M1 ) , one of which is broken , two second upper molars ( M2 ) , one M3 , two second lower molars ( m2 ) , and two m3 . It is generally similar to the other two species , but smaller . There are a few differences in molar structure , which may not hold in larger samples .

Both the M1 and M2 have flat crowns . The M1 is convex on the lingual ( inner ) side and concave on the outer side , rendering it kidney @-@ shaped . The anterocone , the cusp at the front of the tooth , appears not to be divided in two , as it is in living *Brachytarsomys* . It is narrowly connected to the protocone , another cusp behind it on the labial side , which is connected in the same way to the paracone . This linguallly located cusp displays a broader connection to the hypocone on the labial side , which is isolated from the metacone linguallly behind it . The metacone is broadly connected to another labial cusp behind it , referred to as the " post @-@ hypocone " , which it is expected to fuse to with increasing wear . Behind this pair of cusps , a small posteroloph ( a crest at the back of the tooth ) is present . In general , the back part of the tooth is more highly developed than in *B. albicauda* . The anterolingual cingulum on the M2 , a crest on the front lingual corner , is absent or very small ; it is well @-@ developed in *B. albicauda* . The cusps form three transverse crests , with the labial cusp behind the lingual one . In one specimen , the second and third lophs are weakly connected . The posteroloph is more highly developed than on the M1 . The M3 also has three such crests , which display narrow connections along the length of the tooth . In the first crest , the two cusps are about next to each other , but in the second one , the hypocone ( on the labial side ) is a bit behind the paracone . The post @-@ hypocone and the metacone , in the third crest , are joined at the back . There are three roots , two at the front and one at the back , on the M1 and M2 ; the roots are missing from the only known M3 .

The m1 is unknown . In m2 , there are two well @-@ developed transverse crests and one smaller one behind them . The first one consists of two cusps , the anteroconid ( labial ) and the metaconid ( lingual ) and the second one joins the protoconid at the labial side with the entoconid at the lingual side . The second crest is weakly joined to the third one , which joins the hypoconid at the labial side to the posteroconid at the back . In one specimen , a cingulum ( ridge ) is present at the back of the tooth and a small cusp , the ectostylid , is also present . The m3 becomes narrower towards the back , rendering its form triangular , and contains three crests . The first one again consists of the anteroconid and the metaconid and the second of the protoconid and the entoconid . The third is smaller and consists of the hypoconid with the posteroconid in one specimen , but in the other the posteroconid is reduced to a narrow crest , the posterolophid . Unlike in *B. albicauda* , the hypoconid remains separate from the posterolophid and is not fused to it . Both m2 and m3 have two roots .

## = = Distribution and ecology = =

Teeth of *Brachytarsomys mahajambaensis* have been found at the sites of Antsingiavo , Belobaka , and Ambatomainity in northwestern Madagascar , which are late Pleistocene ( 126 @,@ 000 to 10 @,@ 000 years ago ) and Holocene ( less than 10 @,@ 000 years ago ) in age . *Brachytarsomys* is a rare element of the rodent fauna , which is dominated by multiple species of *Eliurus* and *Macrotarsomys* . Modern *Brachytarsomys* are large rats that live in trees and eat fruits at middle to high altitudes . The modern , dry environment in northwestern Madagascar is decidedly inhospitable to these animals , and they no longer occur there ; the former presence of *B. mahajambaensis* could indicate that the region was more humid in the past .