= Hadropithecus =

Hadropithecus is a medium @-@ sized , extinct genus of lemur , or strepsirrhine primate , from Madagascar that includes a single species , Hadropithecus stenognathus . Due to its rarity and lack of sufficient skeletal remains , it is one of the least understood of the extinct lemurs . Both it and Archaeolemur are collectively known as " monkey lemurs " or " baboon lemurs " due to body plans and dentition that suggest a terrestrial lifestyle and a diet similar to that of modern baboons . Hadropithecus had extended molars and a short , powerful jaw , suggesting that it was both a grazer and a seed predator .

The monkey lemurs are considered to be most closely related to the living indriids and the recently extinct sloth lemurs , although recent finds had caused some dispute over a possible closer relation to living lemurids . Genetic tests , however , have reaffirmed the previously presumed relationship . Hadropithecus lived in open habitat in the Central Plateau , South , and Southwest regions of Madagascar . It is known only from subfossil or recent remains and is considered to be a modern form of Malagasy lemur . It died out around 444 ? 772 CE , shortly after the arrival of humans on the island .

= = Etymology = =

The common names that Hadropithecus shares with Archaeolemur , " monkey lemurs " and " baboon lemurs " , come from their dental and locomotor adaptations , which resemble that of modern African baboons . The genus Hadropithecus is derived from the Greek words ????? , hadros , meaning " stout " or " large " , and ??????? , pithekos , meaning " ape " . The species name derives from the Greek root ?????- , steno- , meaning " narrow " , and ?????? , gnathos , meaning " jaw " or " mouth " .

= = Classification and phylogeny = =

Hadropithecus stenognathus is classified as the sole member of the genus Hadropithecus and belongs to the family Archaeolemuridae . This family in turn belongs to the infraorder Lemuriformes , which includes all the Malagasy lemurs . The species was formally described in 1899 from a mandible (lower jaw) found at Andrahomana cave in southeastern Madagascar by paleontologist Ludwig Lorenz von Liburnau , who thought it represented an ape . A year later , Lorenz von Liburnau also described Pithecodon sikorae based on photographs of a skull , which upon further review turned out to be a juvenile version of Hadropithecus stenognathus . In a publication from 1902 , he declared that Hadrophithecus stenognathus was not an ape , but a lemur . Over 100 years later , the rarity of its skeletal remains has made this species one of the least understood species of subfossil lemur .

Based on similarities in their skull and teeth , it was later thought that monkey lemurs (Hadropithecus and Archaeolemur) were a sister group to the living indriids and the recently extinct sloth lemurs (family Palaeopropithecidae) . However , there was some debate over whether the monkey lemurs or the sloth lemurs were more closely related to today 's indriids . The monkey lemurs had skulls that more closely resembled the indriids , but their teeth were very specialized and unlike those of the indriids . The sloth lemurs , on the other hand , had teeth like the indriids , but very specialized skulls . The matter was settled with the discovery of new skeletons of Babakotia and Mesopropithecus , two genera of sloth lemur , both of which had indriid @-@ like skulls and teeth . More recently , postcranial remains of Hadropithecus found in the early 2000s prompted the suggestion that the monkey lemurs were more closely related to the lemurids . However , DNA sequencing has reaffirmed the sister group status of the monkey lemurs to indriids and sloth lemurs .

= = Anatomy and physiology = =

Hadropithecus stenognathus has been estimated to have weighed between 27 and 35 kg (60 and 77 lb) and to have been roughly as large as Archaeolemur , although more gracile . Newer subfossil finds , however , suggest that Hadropithecus may have been more robust , and more like a gorilla than a baboon . It may also have been less agile than Old World monkeys . Both lemurs were quadrupedal (walked on four legs) . There is no evidence of cursoriality (adaptations specifically for running) in either species , and although Hadropithecus could have climbed trees , it lacked adaptations for leaping or suspension .

Although fewer postcranial remains have been discovered for Hadropithecus than for Archaeolemur , what has been found indicates that both were adapted for a terrestrial or semi @-@ terrestrial lifestyle , an unusual trait for lemurs . Both genera had short limbs and a powerful build . Due to its specialized dentition and likely diet , Hadropithecus is thought to have been the more terrestrial of the two , since Archaeolemur may have sent more time foraging and sleeping in the trees . Both genera also have shortened hands and feet , an adaptation for walking on the ground .

The face of Hadropithecus was shortened and adapted to heavy stress from chewing . The monkey lemurs had highly specialized teeth , but Hadropithecus went further by specializing in strong grinding . It had expanded molars that wore down quickly , much like those of ungulates , and its posterior premolars acted like molars to extend the grinding surface . It also had a robust mandible to facilitate crushing hard objects . Even the strepsirrhine toothcomb was reduced in this species . Its dental formula was 2 @.@ 1 @.@ 3 @.@ 31 @.@ 1 @.@ 3 @.@ 3 × 2 = 34

The skulls of both Hadropithecus and Archaeolemur indicate that monkey lemurs had relatively large brains compared to the other subfossil lemurs , with Hadropithecus having an estimated endocranial volume of 115 ml .

= = Ecology = =

Like all other lemurs , Hadropithecus was endemic to Madagascar . Because it died out only recently and is only known from subfossil remains , it is considered to be a modern form of Malagasy lemur . It once ranged across the Central Plateau , South , and Southwest regions of Madagascar . Within its original range , there were few other lemurs to overlap its ecological niche , and it has been shown to be the only subfossil lemur to consume both C3 and C4 (or CAM) plants , an indication that it lived in more open habitats and had a varied diet . Its physiology and dentition suggest that it may have been much like the Gelada Baboon in locomotion and diet , acting as a manual grazer (picking grass with the hands) since its teeth were well @-@ adapted for grinding either grass or seeds . Microwear patterns on its teeth , as well as its overly large molars , indicate it processed hard objects like nuts or seeds , making it a seed predator . More recent microwear analysis suggests differences between Gelada Baboons and Hadropithecus , indicating that this extinct lemur may not have been a grazer , but strictly a hard object processor .

= = Extinction = =

Because of the low number of subfossil finds , Hadropithecus is thought to have been rare , and it died out sooner than its sister taxon , Archaeolemur . Both disappeared shortly after the arrival of humans to the island , but being a large , specialized , terrestrial grazer , Hadropithecus would have faced more pressure from domestic livestock , introduced pigs , and spreading human populations than its more generalized cousin . The last known record was radiocarbon dated to around 444 ? 772 CE .