= Carletonomys =

Carletonomys cailoi is an extinct rodent from the Pleistocene of Buenos Aires Province , Argentina . Although known only from a single maxilla (upper jaw) with the first molar , its features are so distinctive that it is placed in its own genus , Carletonomys . Discovered in 1998 and formally described in 2008 , it is part of a well @-@ defined group of oryzomyine rodents that also includes Holochilus , Noronhomys , Lundomys , and Pseudoryzomys . This group is characterized by progressive semiaquatic specializations and a reduction in the complexity of molar morphology .

The single known molar is high @-@ crowned (hypsodont) and flat @-@ crowned (planar) and is distinctive in lacking the ridge that connects the front to the middle part of the molar , the anterior mure , and in the configuration of another ridge , the mesoloph . Carletonomys was probably herbivorous and lived in a wet habitat .

= = Taxonomy = =

Carletonomys cailoi was discovered in 1998 in a silt deposit in San Cayetano Partido , southeastern Buenos Aires Province . The stratigraphic context suggests this locality is slightly over 1 million years old (Ensenadan South American Land Mammal Age) , making Carletonomys the oldest known oryzomyine . The single known specimen is now in the collections of the Museo de La Plata . It was initially referred to the genus Noronhomys , which is currently known only from the island of Fernando de Noronha off northeastern Brazil , but in 2008 Argentinean mammalogist Ulyses Pardiñas established it as the holotype of a new genus and species of rodent in a publication in the Journal of Mammalogy . The generic name , Carletonomys , combines the name of American mammalogist Michael Carleton with the Ancient Greek ??? mys " mouse " and the specific name , cailoi , honors Argentinean biologist Carlos " Cailo " Galliari .

The fossil has a number of features that suggest a relation to a group of oryzomyine rodents that includes the South American marsh rat Holochilus , its living relatives Lundomys and Pseudoryzomys , and the extinct Noronhomys and Holochilus primigenus . They share high @-@ crowned (hypsodont) molars and several simplifications of molar morphology , as well as other features that cannot be assessed in Carletonomys , which indicate specializations towards a semiaquatic lifestyle . It shows the most similarity to Noronhomys and Holochilus , so much so that Pardiñas considered placing it in either of these two genera , but its distinctive morphological features justify placement in a separate genus .

This group of genera encompasses only a small part of the diversity of the tribe Oryzomyini , a group of over a hundred species distributed mainly in South America , including nearby islands such as the Galápagos Islands and some of the Antilles . Oryzomyini is one of several tribes recognized within the subfamily Sigmodontinae , which encompasses hundreds of species found across South America and into southern North America . Sigmodontinae itself is the largest subfamily of the family Cricetidae , other members of which include voles , lemmings , hamsters , and deermice , all mainly from Eurasia and North America .

= = Description = =

The holotype is a right maxilla (upper jaw) with the upper first molar (M1) in it . It is broken off behind the M1 , but much of the front part is preserved , including the zygomatic plate , the flattened front portion of the zygomatic arch (cheekbone) . The M1 is moderately worn , indicating that it is from an adult individual . With an M1 length of 3 @.@ 59 mm and width of 2 @.@ 53 mm , C. cailoi was one of the largest oryzomyines known , rivaled only by Lundomys and the extinct Antillean Megalomys and " Ekbletomys " . The height of the M1 is 1 @.@ 37 mm and it has four roots , including a large one in front , another large one on the inner (lingual) side , and two smaller ones on the outer (labial) side . The presence of a second labial root is a variable character among oryzomyines , occurring among others in Holochilus and Pseudoryzomys but not in Lundomys . The maxilla itself shows few significant characters . The back margin of the incisive foramen , which

perforates the palate between the upper incisors and the molars , is not visible , suggesting that the foramen was short , as in Holochilus . The configuration of the zygomatic plate shows features that distinguish C. cailoi from some of its relatives .

The molar is plane and hypsodont : the crowns are relatively high and the main cusps are about as high as the other parts of the crown , as they are in Holochilus . Most other oryzomyines have bunodont and brachydont molars , in which the crowns are lower and the cusps are higher than the rest of the crown . As in closely related species , the front part of the molar is relatively simple , lacking an anteroloph , an additional ridge that is well @-@ developed in most oryzomyines . A shallow anteromedian flexus is present , superficially dividing the front cusp (anterocone) . Uniquely , the anterior mure , which connects the anterocone to the rest of the crown , is absent ; although this structure is sometimes missing in young individuals of other oryzomyines , it usually develops as a result of wear in adults . The two cusps on the middle part of the molar , the paracone and the protocone , are broadly connected . The median mure , which connects the middle to the back pair of cusps , is attached to the back of the paracone . A complete mesoloph is present , descending from the median mure slightly behind the paracone . The configuration of the paracone ? median mure ? mesoloph complex is unique to Carletonomys . The two posterior cusps , the hypocone and the metacone , are connected at the back margin of the molar . Unlike in most oryzomyines , no posteroflexus is present , so that the metacone is situated directly at the back margin .

= = Ecology = =

Carletonomys was found in association with remains of several other animals , including fishes , chelid turtles , frogs , birds , armadillos , and several rodents , including Reithrodon auritus , the coypu (Myocastor) , both of which still live in the area , the extinct echimyid Dicolpomys , and unidentified caviids and octodontids . C. cailoi probably lived in a wetland habitat under relatively warm and moist climatic conditions . Although the limited material known permits few inferences as to the animal 's natural history , it likely fed on hard plant material , as do related , morphologically similar extant species .