

= *Akodon caenosus* =

Akodon caenosus is a rodent in the genus *Akodon* found in northwestern Argentina and south @-@ central Bolivia . Since its description in 1918 , it has been alternatively classified as a separate species or a subspecies of *Akodon lutescens* (formerly *Akodon puer*) . The species *Akodon aliquantulus* , described from some very small Argentine specimens in 1999 , is now recognized as a synonym of *A. caenosus* .

Akodon caenosus is very small , averaging 19 @.@ 3 g (0 @.@ 68 oz) in weight , and variable in coloration , but generally brown . The underparts are sharply different in color from the upperparts . The skull has a short rostrum (front part) , broad interorbital region (between the eyes) , and narrow braincase . The karyotype includes 34 chromosomes . *A. caenosus* mostly occurs in Yungas vegetation and breeds mainly during the winter . It shares its range with many other sigmodontine rodents , including three other species of *Akodon* .

= = Taxonomy = =

E. Budin collected the first specimen of the species on August 21 , 1917 , in Jujuy Province , northwestern Argentina , and the next year Oldfield Thomas used the animal as the holotype of a new subspecies of *Akodon puer* , a Bolivian species . He described the new subspecies *Akodon puer caenosus* as darker and duller in color than the Bolivian form , but otherwise identical . In 1920 , Thomas recognized additional differences between the two after examining more specimens and classified the Argentine form as a separate species , *Akodon caenosus* . Most subsequent authors followed this arrangement , but since the 1980s some have placed the form (now spelled *caenosus*) in *A. puer* again . In 1990 , Philip Myers and others reviewed the *Akodon boliviensis* group , which includes *A. puer* and *A. caenosus* , and again considered *caenosus* as a subspecies of *puer* . They retained *caenosus* as a separate subspecific name for the Argentine populations of *puer* because of its small size , dark fur , and distinctive karyotype . Myers and colleagues had included the name *lutescens* J.A. Allen , 1901 , as a subspecies of *Akodon puer* Thomas , 1902 , and in 1997 Sydney Anderson noted that the older name *lutescens* should instead be used for the species because of the Principle of Priority ; therefore , he utilized the combination *Akodon lutescens caenosus* for the Argentine subspecies . Through the 1990s and 2000s , authors continued to differ on the classification of *caenosus* as either a full species or a subspecies of *puer* (= *lutescens*) .

Two small *Akodon* collected in 1993 in Tucumán Province , northwestern Argentina , were given the name *Akodon diminutus* in 1994 , but that name is a *nomen nudum* and therefore not available for use under the International Code of Zoological Nomenclature . In 1999 , Mónica Díaz and others described these animals more fully as a new species , *Akodon aliquantulus* , which they considered closely related to *A. puer caenosus* . The specific name means " how little " or " how few " in Latin and refers to the small size of the species and the small sample Díaz and colleagues could use . In the 2005 third edition of *Mammal Species of the World* , Guy Musser and Michael Carleton termed the differentiation between *A. aliquantulus* and *A. lutescens* (= *puer*) " unimpressive " and recommended further taxonomic research . Common names proposed for *A. aliquantulus* include " Diminutive Akodont " and " Tucumán Grass Mouse " .

In 2010 , Pablo Jayat and colleagues reviewed the members of the *Akodon boliviensis* group in Argentina . On the basis of sequences from the mitochondrial cytochrome b gene , they found *A. caenosus* to be closest to *A. lutescens* and *A. subfuscus* , forming a clade that was the sister group to a clade of the remaining species in the *A. boliviensis* group ? *A. boliviensis* , *A. spegazzinii* , *A. sylvanus* , and *A. polopi* . They classified *A. caenosus* as a species separate from *A. lutescens* because the two forms did not form a single clade (*A. caenosus* was instead closer to *A. subfuscus*) , and because the difference between the cytochrome b sequences of *A. lutescens* and *A. caenosus* was relatively high at 3 @.@ 5 % . *A. aliquantulus* was reduced to a synonym of *A. caenosus* , because they found no substantial morphometrical differentiation between the two and could not replicate the characters Díaz and colleagues had noted as diagnostic for *A. aliquantulus* .

= = Description = =

Akodon caenosus is the smallest of the Argentine members of the *A. boliviensis* group ? indeed , among the smallest of all species of *Akodon* . The upperparts are uniformly colored , but their tone is variable : generally ochraceous brown , but approaching yellow , red , or olivaceous in some individuals . Reddish tones occur mostly in lactating females . High @-@ altitude animals are generally lighter , but there is also conspicuous variation within populations . The ears are similar to the upperparts , but some individuals have the sides more rich and clear in color . The underparts are clearly different in color , varying from light gray to yellowish or reddish . There are yellowish rings around the eyes , which are more highly developed in high @-@ altitude populations . There are white to yellowish hairs on the fore- and hindfeet . The tail is variably covered with hair and is dark brown above and white to buffy below .

In the skull , the rostrum (front part) is short , the interorbital region (between the eyes) is broad and hourglass @-@ shaped , and the braincase is small . The zygomatic plate , the flattened front part of the zygomatic arch , is narrow , with poorly developed zygomatic notches at their front , but there is considerable variation in the features of the plate . The incisive foramina (openings in the front part of the palate) extend back to between the first molars . The mesopterygoid fossa , the openings behind the bony palate , is very narrow . In the mandible (lower jaw) , the masseteric ridges , which anchor some of the chewing muscles , extend to near the front margin of the first molar . The capsular process , a raising in the back part of the mandibular bone that accommodates the root of the incisor , is poorly developed . The upper incisors are orthodont (with the chewing edge in the horizontal plane) to slightly opisthodont (with the chewing edge inclined backwards) . The molars show some accessory crests and other features , such as the anteroloph on the first upper molar and the mesoloph on the first and second upper molar .