

= *Transandinomys talamancae* =

*Transandinomys talamancae* is a rodent in the genus *Transandinomys* that occurs from Costa Rica to southwestern Ecuador and northern Venezuela . Its habitat consists of lowland forests up to 1 @, @ 525 m ( 5 @, @ 003 ft ) above sea level . With a body mass of 38 to 74 g ( 1 @. @ 3 to 2 @. @ 6 oz ) , it is a medium @-@ sized rice rat . The fur is soft and is reddish to brownish on the upperparts and white to buff on the underparts . The tail is dark brown above and lighter below and the ears and feet are long . The vibrissae ( whiskers ) are very long . In the skull , the rostrum ( front part ) is long and the braincase is low . The number of chromosomes varies from 34 to 54 .

The species was first described in 1891 by Joel Asaph Allen and thereafter a variety of names , now considered synonyms , were applied to local populations . It was lumped into a widespread species " *Oryzomys capito* " ( now *Hylaeamys megacephalus* ) from the 1960s till the 1980s and the current allocation of synonyms dates only from 1998 . It was placed in the genus *Oryzomys* until 2006 , as *Oryzomys talamancae* , but is not closely related to the type species of that genus and was therefore moved to a separate genus *Transandinomys* in 2006 . It shares this genus with *Transandinomys bolivaris* , which has even longer vibrissae ; the two overlap broadly in distribution and are morphologically similar .

Active during the night , *Transandinomys talamancae* lives on the ground and eats plants and insects . Males move more and have larger home ranges than females . It breeds throughout the year , but few individuals survive for more than a year . After a gestation period of about 28 days , two to five young are born , which reach sexual maturity within two months . A variety of parasites occur on this species . Widespread and common , it is of no conservation concern .

= = Taxonomy = =

In 1891 , Joel Asaph Allen was the first to scientifically describe *Transandinomys talamancae* , when he named *Oryzomys talamancae* from a specimen from Talamanca , Costa Rica . He placed it in the genus *Oryzomys* , then more broadly defined than it is now , and compared it to both the marsh rice rat ( *O. palustris* ) and to *O. laticeps* . Several other names that are now recognized as synonyms of *Transandinomys talamancae* were introduced in the following years . In 1899 , Allen described *Oryzomys mollipilosus* , *O. magdalenae* , and *O. villosus* from Magdalena Department , Colombia . Oldfield Thomas added *O. sylvaticus* from Santa Rosa , Ecuador in 1900 and *O. panamensis* from Panama City , Panama , in 1901 . In the same year , Wirt Robinson and Markus Lyon named *Oryzomys medius* from near La Guaira , Venezuela . Allen added *O. carrikeri* from Talamanca , Costa Rica , in 1908 .

Edward Alphonso Goldman revised North American *Oryzomys* in 1918 . He placed both *panamensis* and *carrikeri* as synonyms of *Oryzomys talamancae* and mentioned *O. mollipilosus* and *O. medius* as closely related species . *O. talamancae* was the only member of its own species group , which Goldman regarded as closest to *Oryzomys bombycinus* ( = *Transandinomys bolivaris* ) . In 1960 , Philip Hershkovitz listed *talamancae* , *medius* , *magdalenae* , *sylvaticus* , and *mollipilosus* among the many synonyms of " *Oryzomys laticeps* " , a name later replaced by " *Oryzomys capito* " . The species remained lumped under *Oryzomys capito* until 1983 , when Alfred Gardner again listed it as a valid species , an action more fully documented by Guy Musser and Marina Williams in 1985 . Musser and Williams also found that the holotype of *Oryzomys villosus* , the affinities of which had been disputed , in fact consisted of a skin of *O. talamancae* and a skull of the *Oryzomys albigularis* group ( equivalent to the current genus *Nephelomys* ) . They restricted the name to the skin , making *villosus* a synonym of *O. talamancae* . They also examined the holotypes of *panamensis* , *carrikeri* , *mollipilosus* , *medius* , and *magdalenae* and identified them as examples of *Oryzomys talamancae* . Additionally , they included *sylvaticus* and *Oryzomys castaneus* J.A. Allen , 1901 , from Ecuador as synonyms , but without examining the holotypes . Musser and colleagues reviewed the group again in 1998 and confirmed that *sylvaticus* represents *Oryzomys talamancae* ; however , they found that *castaneus* was in fact an example of *Oryzomys bolivaris* ( the current *Transandinomys bolivaris* ) .

In 2006 , Marcelo Weksler published a phylogenetic analysis of Oryzomyini ( " rice rats " ) , the tribe to which *Oryzomys* is allocated , using morphological data and DNA sequences from the IRBP gene . His results showed species of *Oryzomys* dispersed across Oryzomyini and suggested that most species in the genus should be allocated to new genera . *Oryzomys talamancae* was also included ; it appeared within " clade B " , together with other species formerly associated with *Oryzomys capito* . Some analyses placed it closest to species now placed in *Euryoryzomys* or *Nephelomys* , but with low support . Later in the same year , he , together with Alexandre Percequillo and Robert Voss , named ten new genera for species previously placed in *Oryzomys* , including *Transandinomys* , which has *Oryzomys talamancae* ( now *Transandinomys talamancae* ) as its type species . They also included *Oryzomys bolivaris* , which was not included in Weksler 's phylogenetic study , in this new genus . The two species are morphologically similar , but Weksler and colleagues could identify only one synapomorphy ( shared @-@ derived trait ) for them : very long superciliary vibrissae ( vibrissae , or whiskers , above the eyes ) . *Transandinomys* is one of about 30 genera in Oryzomyini , a diverse assemblage of American rodents of over a hundred species , and on higher taxonomic levels in the subfamily Sigmodontinae of family Cricetidae , along with hundreds of other species of mainly small rodents .

Several common names have been proposed for *Transandinomys talamancae* , including " Talamanca Rice Rat " , " Transandean *Oryzomys* " , and " Talamancan Rice Rat " .

#### = = Description = =

*Transandinomys talamancae* is a medium @-@ sized , brightly colored rice rat . It is similar to *T. bolivaris* and the two are often confused . They are about as large , but in *T. talamancae* the tail is longer and the hindfeet shorter . Both species share uniquely long vibrissae , with both the mystacial ( above the mouth ) and superciliary vibrissae extending to or beyond the back margin of the ears when laid back against the head , but those in *T. bolivaris* are substantially longer . *H. alfaroi* , a widespread species ranging from Mexico to Ecuador , is also similar . It is smaller and darker , but young adult *T. talamancae* are similar in color to adult *H. alfaroi* and often misidentified . *Hylaeamys megacephalus* , with which *T. talamancae* was synonymized for some decades , is similar in body size , but is not known to overlap with *T. talamancae* in range .

The fur is short , dense and soft in *Transandinomys talamancae* ; in *T. bolivaris* , it is longer and even more soft and dense . The color of the upperparts varies from reddish to brownish , becoming lighter towards the sides and the cheeks . The underparts are white to buff , with the bases of the hairs plumbeous ( lead @-@ colored ) . The fur of *T. bolivaris* is darker : dark brown above and dark gray below . *H. megacephalus* also has darker fur . Juveniles have thin , gray fur , which is molted into the dark brown subadult fur when the animal is about 35 to 40 days old . This fur is replaced by the bright adult fur at age 49 to 56 days . Juveniles are never blackish as in *T. bolivaris* . The ears are dark brown , large , and densely covered with very small hairs .

The sparsely haired tail is about as long as the head and body . It is dark brown above and lighter below . In contrast , the tail of *H. megacephalus* has little to no difference in color between the upper and lower surface . In 2006 , Weksler and colleagues noted tail coloration as a difference between the two species of *Transandinomys* ( bicolored in *T. talamancae* and unicolored in *T. bolivaris* ) , but in their 1998 study , Musser and colleagues could not find differences in tail coloration between their Panamanian samples of the two species .

The hindfeet are long and have the three central digits longer than the two outer ones . They are white to pale yellow above , where the foot is covered with hairs , which are longer than in *T. bolivaris* . The digits of the hindfeet are surrounded by ungual tufts of silvery hair that are longer than the claws themselves . The claws are short and sharp . Parts of the sole are covered by indistinct scales ( squamae ) , which are usually entirely absent in *T. bolivaris* . The pads are moderately large .

The length of the head and body is 105 to 151 mm ( 4 @.@ 1 to 5 @.@ 9 in ) , tail length 105 to 152 mm ( 4 @.@ 1 to 6 @.@ 0 in ) , hindfoot length 26 to 32 mm ( 1 @.@ 0 to 1 @.@ 3 in ) , ear length 17 to 24 mm ( 0 @.@ 67 to 0 @.@ 94 in ) , and body mass 38 to 74 g ( 1 @.@ 3 to 2 @.@ 6

oz ) . As in most oryzomyines , females have eight mammae . There are 12 thoracic vertebra with associated ribs , 7 lumbar , and 29 caudals ; a pair of supernumerary ( additional ) ribs is occasionally present .

#### == Skull and teeth ==

The skull has a long rostrum ( front part ) , broad interorbital region ( between the eyes ) , and low braincase . It differs from that of *T. bolivaris* in various proportions , which are more apparent in adults than in juveniles . The skull of *H. megacephalus* is distinctly larger . The zygomatic plate is broad and includes a well developed zygomatic notch at its front . Its back margin is level with the front of the first upper molar . The zygomatic arch ( cheekbone ) is heavy . The nasal and premaxillary bones extend about as far backward . The interorbital region is narrowest toward the front and shows weak beading at its margins ; *T. bolivaris* is similar , but has stronger beading and *H. megacephalus* entirely lacks the beading . The parietal bone is usually limited to the roof of the braincase and does not extend to its side , as it does in most *T. bolivaris* . The interparietal bone , part of the roof of the braincase , is large .

The incisive foramina ( openings in the front part of the palate ) are short and do not reach between the first molars ; they are longer in *H. alfaroi* . The bony palate is long and extends beyond the end of the molar row and the back margin of the maxillary bones . The posterolateral palatal pits , which perforate the palate near the third molars , are small , and may or may not be recessed into a fossa . The sphenopalatine vacuities ( openings in the roof of the mesopterygoid fossa , behind the palate ) are also small , as are the auditory bullae . As in most oryzomyines , the subsquamosal fenestra , an opening at the back of the skull , is present . The pattern of grooves and foramina ( openings ) in the skull indicates that the circulation of the arteries of the head in *T. talamancae* follows the primitive pattern , as in most similar species but unlike in *Hylaeamys* .

The mandible ( lower jaw ) is less robust than in *T. bolivaris* . The coronoid process ( a process in the back part of the bone ) is small and the capsular process , which houses the root of the lower incisor , are small . The mental foramen , located in the diastema between the lower incisor and the first molar , opens towards the side , as usual in oryzomyines . The upper and lower masseteric ridges , which anchor some of the chewing muscles , do not join into a single crest and extend forward to below the first molar .

The upper incisor is opisthodont , with the cutting edge oriented backward . As usual in oryzomyines , the molars are brachydont ( low crowned ) and bunodont ( with the cusps higher than the connecting crests ) . The first upper molar is narrower than in *T. bolivaris* . As in this species , but unlike in many other rice rats , including *H. alfaroi* and *E. nitidus* , the mesoflexus on the second upper molar , which separates the paracone ( one of the main cusps ) from the mesoloph ( an accessory crest ) , is not divided in two by an enamel bridge . The hypoflexid on the second lower molar , the main valley between the cusps , is very long , extending more than halfway across the tooth ; in this trait , the species is again similar to *T. bolivaris* but unlike *H. alfaroi* . Each of the upper molars has three roots ( two at the labial , or outer , side and one at the lingual , or inner , side ) and each of the lowers has two ( one at the front and one at the back ) ; *T. talamancae* lacks the additional small roots that are present in various other oryzomyines , including species of *Euryoryzomys* , *Nephelomys* , and *Handleyomys* .

#### == Male reproductive anatomy ==

As is characteristic of Sigmodontinae , *Transandinomys talamancae* has a complex penis , with the distal ( far ) end of the baculum ( penis bone ) ending in a structure consisting of three digits . As in most oryzomyines , the central digit is larger than the two at the sides . The outer surface of the penis is mostly covered by small spines , but there is a broad band of nonspinous tissue .

Some features of the accessory glands in the male genital region vary among oryzomyines . In *Transandinomys talamancae* , a single pair of preputial glands is present at the penis . As is usual for sigmodontines , there are two pairs of ventral prostate glands and a single pair of anterior and

dorsal prostate glands . Part of the end of the vesicular gland is irregularly folded , not smooth as in most oryzomyines .

= = = Karyotype = = =