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Thylamys venustus, otherwise known as the buffbellied fat-tailed mouse opossum, is a species of nocturnal

opossum that belongs to the family didelphidae which



photographed by Patt Riquelme.

fossil records show seems to have originated fourteen million years ago. (Gardner 2005)There Is not much known about this species, but there are many sister species in the genus thylamys with very similar physical and habitual similarities. (Comar 2012)

Discription:

The physical characteristics complement the name given. It has a very fattened tail that stores the fat for this animal and tends to vary on size based on the scarcity or abundance of food available during each season. (IUCN) It is a marsupial, though the female T. venustus does not have a pouch to carry her young in which is common for other marsupials. The young opossum cling to their mother's abdomens instead of residing in a pouch after birth. (IUCN) This tricolored species has dark dorsal fur, pale lateral fur, and a grayish ventral region. (IUCN) There are many similarities to its sister species the Thylamys sponsorius including a tail that is much longer than its body.

Environment:

The T. venustus currently is only found to reside in and around low to mid elevation areas of the Andes Mountains in Peru, Brazil, Chile, Bolivia, and Argentina. (Comar 2012) These regions range in environment from transitional and humid forests, brushlands, riverbank chaparral, and agricultural claimed areas.(IUCN) The tropical forests that these opossums reside in tend to have a very high level of biodiversity. (Comar 2012) Because the T. venustus has such a wide ranged habitat there are many overlapping habitats in the genus thylamys. This means that the sister species of mouse opossum also share some of the same territories as the T. venustus harmoniously.

Ecology:

The T. venustus is said to relate to other thylamys mouse opossum species by being omnivorous but primarily an insectivore. It likely consumes insects, occasionally small vertebrates, fruit, seeds, leaves, and carrion. (Palma 1997) Because the species is nocturnal and inconspicuous it is well adapted to avoiding predators, but because of this no concrete information is known about natural predators of the species. (IUCN) This could amplify the assumption that the T. venustus' size and the fact that it is active nocturnally is the ultimate defense against predators. This brings us to the role that it plays on the ecosystem in the Andes mountain range. Because of its eating habits the species is a predator to many arthropod species and small invertebrates including birds and small mammals. (Giarla, et al., 2010) A decline in the population of the T. venustus could cause an unwanted abundance of these insects. Another important role the T. venustus plays in the ecosystem of its habitat is the fact that it is a host to many specific types of tapeworms and other parasites that are specific to the mid to low altitude range of which the species currently resides. (Giarla, et al., 2010) There has been a new species of tapeworm found that occurs solely in the thylamys genus. (Giarla, et al., 2010)

Population trends:

Coutrney Comar wrote a report about the effects of climate change on population size of the T. venustus from the Pleistocene era (2 million years ago - 10,000 years ago) and the Holocene era (10,000 years ago – present) based on fossil records found. There is not much currently known about the current population of the T. venustus, so this report about the effects of climate change on populations offer the most insight to learning about the population as a whole. She hypothesized that as climate changes the populations would adjust their habitats instead of adapting to the change. (Comar 2012) What she found however is that the population stayed constant throughout the change in climate instead of decreasing or changing location like Comar hypothesized. This suggests that the thylamys venustus is highly adaptable to climate change. This also means that the increase of development of land for agricultural purposes could pose a threat to populations that natural climate change did not do because of unwillingness to easily change location. One main reason that the T. venustus adapted so well could be because of their need to avoid relocation. It was an adapt or die situation.

Geographical Range:

The geographical range for the T. venustus is located exclusively in South America mainly in Peru, Brazil, Chile, Argentina, and Bolivia. (Comar 2012) Their habitats are distributed at low to mid-elevations in the Andes from Central Bolivia southward into Northern Argentina. (IUCN) These habitats include tropical and temperate locations, such as lowland savannas, mid-altitude cloud forests, and high deserts. (Comar 2012) Because the T. venustus is endemic to the Andes Mountain range, increase in human population and agricultural production can be a major threat to the species and even genus as a whole because of reduction of



This map indicates the locations of different species in the thylamys genus including the T. Venustus. This also shows the elevations in which each species primarily resides.(Comar 2012)

Historically the habitat of the T. venustus has steadily moved south into cooler regions of south America due to increase temperature and climate change. (Comar 2012) Since the peak of the ice age in the last years of the Pleistocene era, the climate has become steadily warmer. (Comar 2012) This increase in temperature can change the natural habitats of the T. venustus, make them a less hospitable place to live, and decrease survivability. This results in the T. venustus moving its habitat southward slowly in order to find cooler ideal climates.

Protection status:

IUCN also classifies this species as data deficient. This is a category applied by the IUCN, other agencies, and individuals to a species when the available information is not sufficient for a proper assessment of conservation status to be made (IUCN) This can coincide with the threatened species because the lack of sightings for a DD (data deficient) species could mean that the population is indeed threatened. It is not surprising that the population size and legal status has little information for the same reason that it is so good at evading predators. Because it is small and nocturnal it is possible that it is skilled at evading conservation biologists as well as potential threats.

There is not much that is well known about the thylamys venustus, however there have been documentation of interesting characteristics that the species displays. When it comes to communication the thylamys venustus has interesting ways of making its presence known. The primary form of communication that this species uses is olfactory sense communication. (EOL) Palma reports that the olfactory and visual regions of another Thylamys species' brain are especially well developed. A reason for this development in olfactory could be for mothers to communicate to their young in the same way that other small nocturnal animals rely on olfactory in that way.



Schematic representation of a parasagittal section through part of the head of a mouse depicting the different olfactory receptors and their projections to the bulbs. Http://www.frontiersin.org/Journal/10.3389/neuro.05.022.2009/full

The young of the T. venustus are highly altricial which requires the mother to nurse. (Palma 1997) The mother T. venustus likely raises the young from birth until they are suitable to survive on their own in the wild.

Threats:

There are no known serious natural threats to the T. venustus. This is not surprising due to the fact that there is not much known about the population size. Because of the inconspicuous nature of this species it is hard to record the presence of predators. There is, however, another potentially major threat to the T. venustus, which includes habitat loss due to agricultural increase in the local human population. This is a major threat to many species all over the world, and is almost unavoidable due to the increase in the world's human population. Another threat includes the climate change due to global warming as recorded by Comar. The results of her research showed that climate change has little to no impact on the population size at this time, but is something that should be watched in the future.

There is possible chances for renewed abundance in the T. venustus if the conditions of which are included in the habitat are restored to ideality. Because this species stores excess fat in its tail, it would be safe to assume that the more species that are found with fat tails are doing well in their habitats. If there was a way to increase the food supply then the T. venustus would be more incline to reproduce and thrive.

Conservation:

There are no current major conservation efforts in effect specifically for the T. venustus, however, the habitat range of this species overlaps several protected areas. (IUCN) This means that by default this species' habitat is being protected, at least in part, by means of other species protection. This is good

news because it means that the funds that are being used to conserve its natural habitat in part for any other species are being used as well to protect the T. venustus as well. If the protection of the habitat for the T. venustus continues there should not be any reason to activate conservation efforts for the T. venustus specifically at this time. If there is any evidence from further investigation of the endangerment of the species then the conservation should look into further protection.

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