Supplement S3

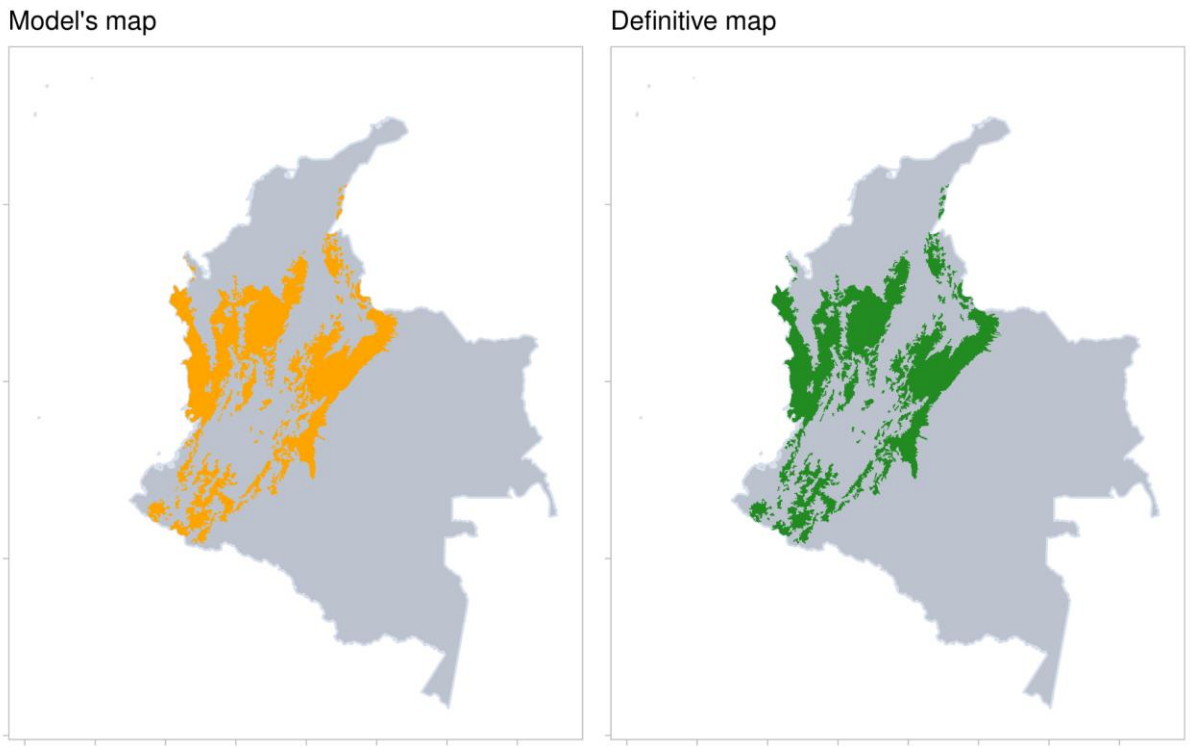
Gonzalez et al. 2022. Updated distribution and conservation perspectives of marmosine opossums from Colombia.

SUPPLEMENT S3: FINAL POTENTIAL RANGES AND GEOGRAPHICAL BARRIERS

In this work, we call geographical barriers to the set of physical elements present in the environment that due to their characteristics represent changes to areas, such that they can be considered as limiting the dispersion of a given species. In this sense, Andean Cordilleras can be a limit for lowland species, drastic depressions of a Cordillera can be a limit for Andean species, for example.

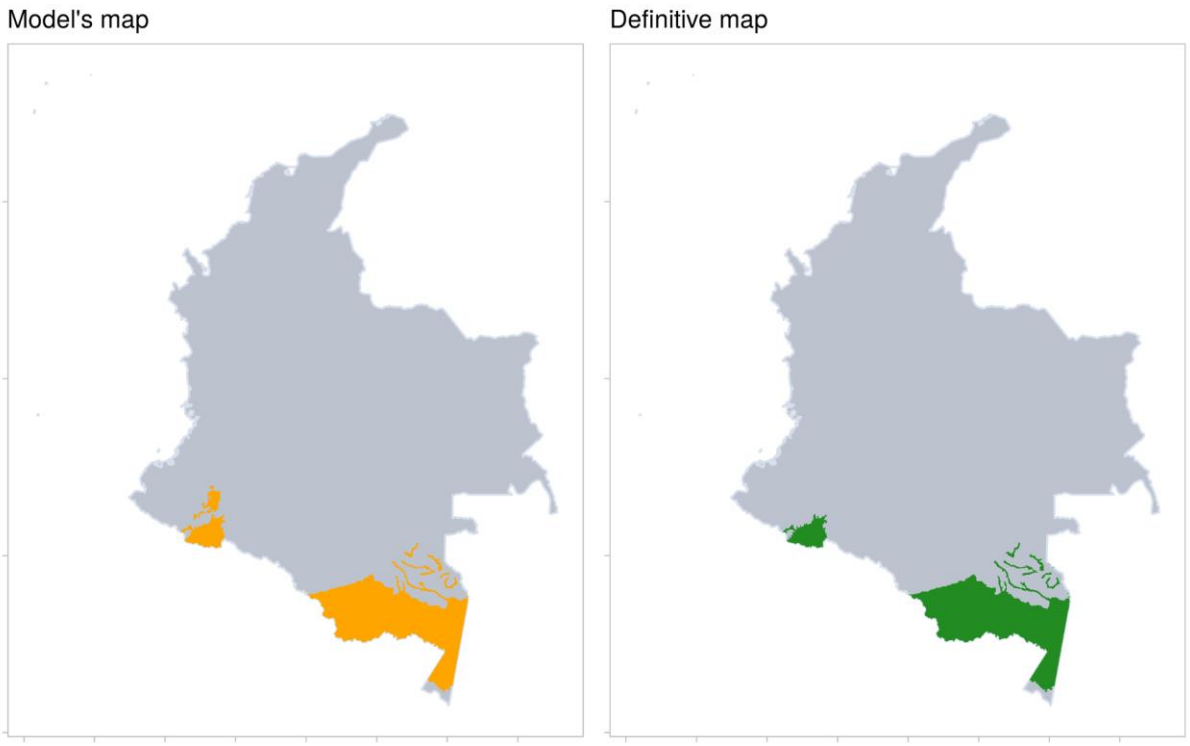
Final species' potential ranges of Marmosini were estimated based on Maxent models. However, these models represent predicted areas based on niche estimates for each species (Peterson and Soberón 2012) but due to different reasons, the real distribution of species can be truncated or not follow strictly with climate to the species niche. We considered known geographical barriers that occur in Colombia and have been tested (Hazzi et al. 2018), and that we considered, based on species' ecological information, represent barriers to species' distribution. Following, we present the final potential range as estimated from the model (orange-left) and, when deemed necessary, the final potential range truncated by the geographical barriers (green-right) and the proposed explanation to it, with species in alphabetical order. Final potential ranges are available for download at: https://zenodo.org/record/4813016#.YMoPxXVKj0o.

Marmosa alstoni



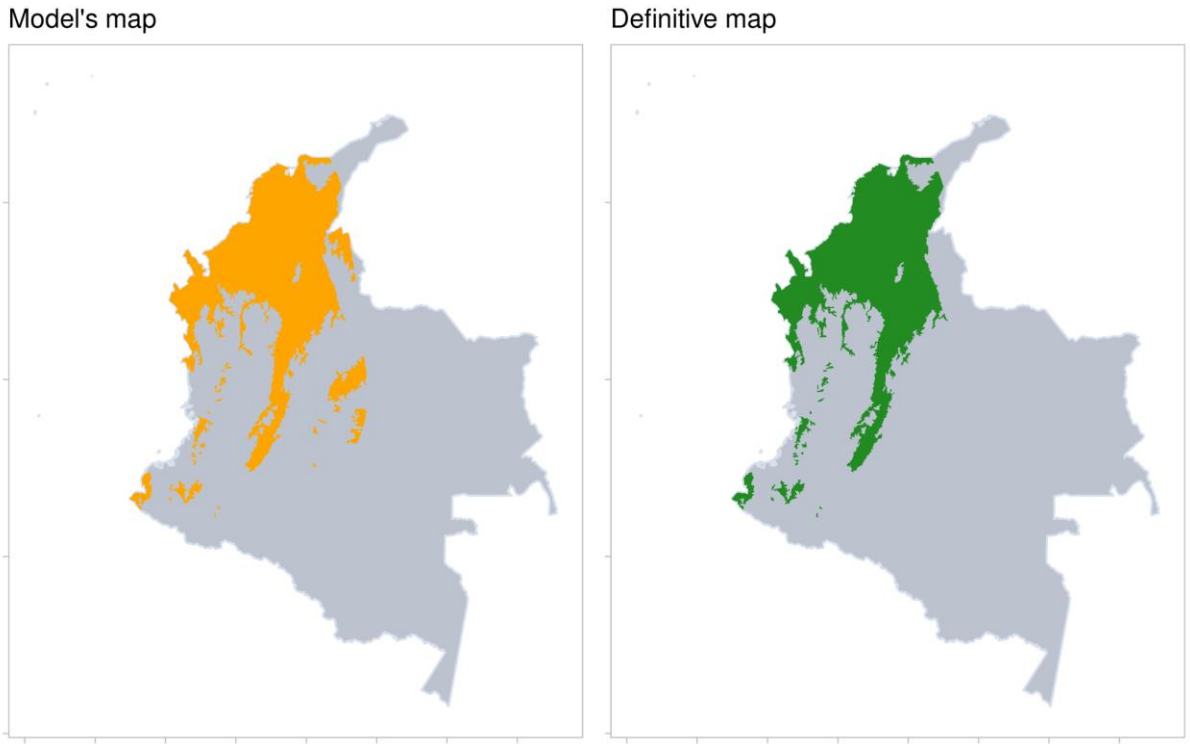
We did not modify the ENM map.

Marmosa germana



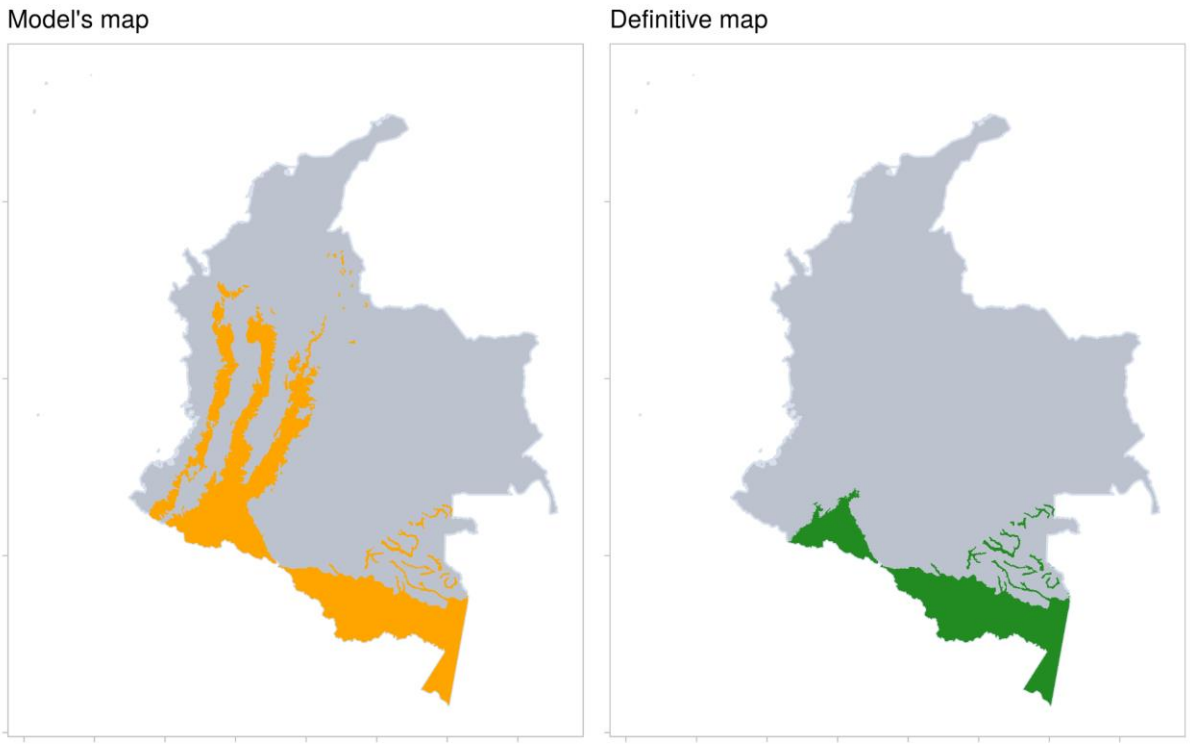
Based on the recent description of this species (Voss and Giarla, 2021), we eliminated areas predicted at high elevations of the Andes (> 1000 m), northwest of the Nudo de los Pastos.

Marmosa isthmica



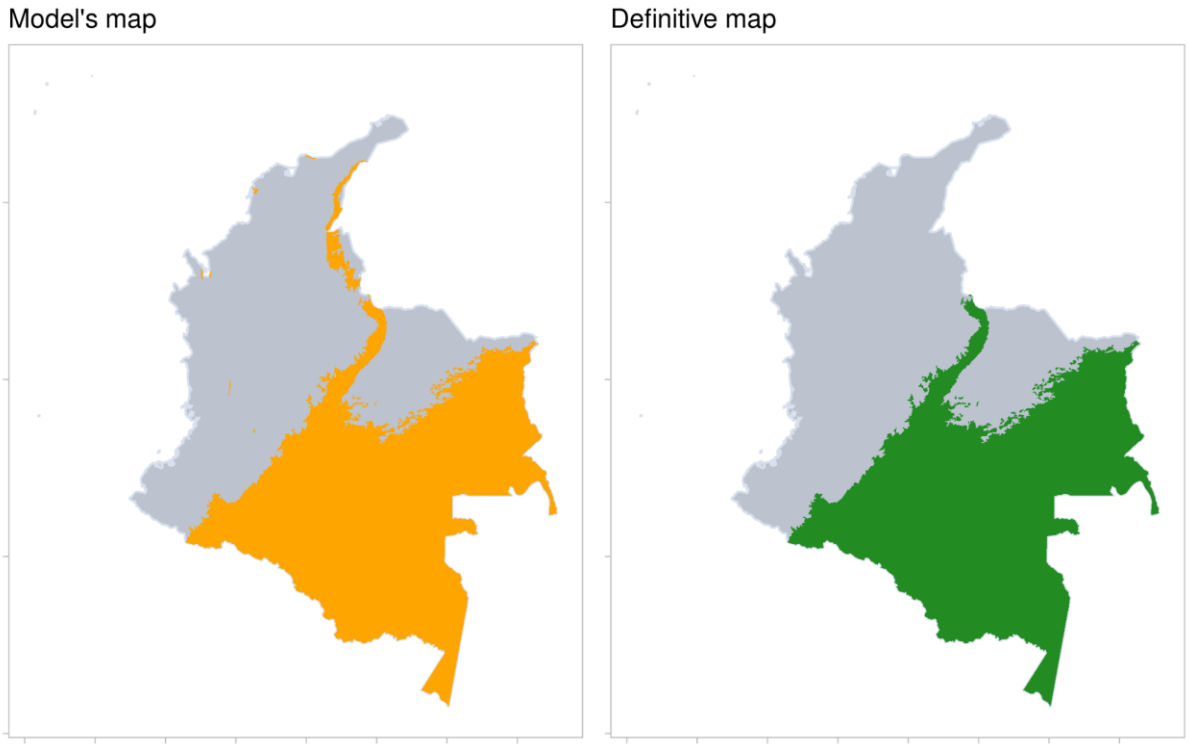
Based on the recorded localities, this species is restricted to lowlands from Pacific and inter-Andean valleys. Therefore, all the projected areas east of the Eastern Cordillera and in the Guajira region were deleted.

Marmosa jansae



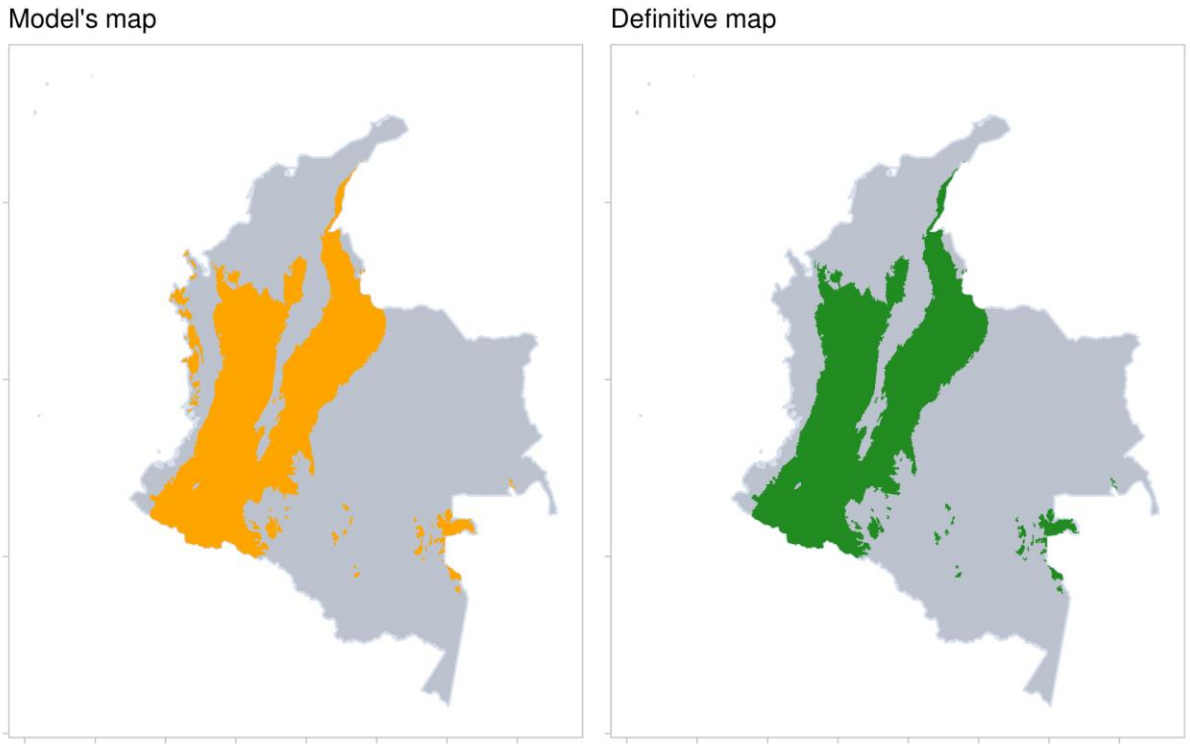
As for *M. germana*, and based on its recent description (Voss and Giarla, 2021), we eliminated areas predicted of high elevation, by clipping the prediction at its western distribution by an elevation of 1000 m.

Marmosa lepida



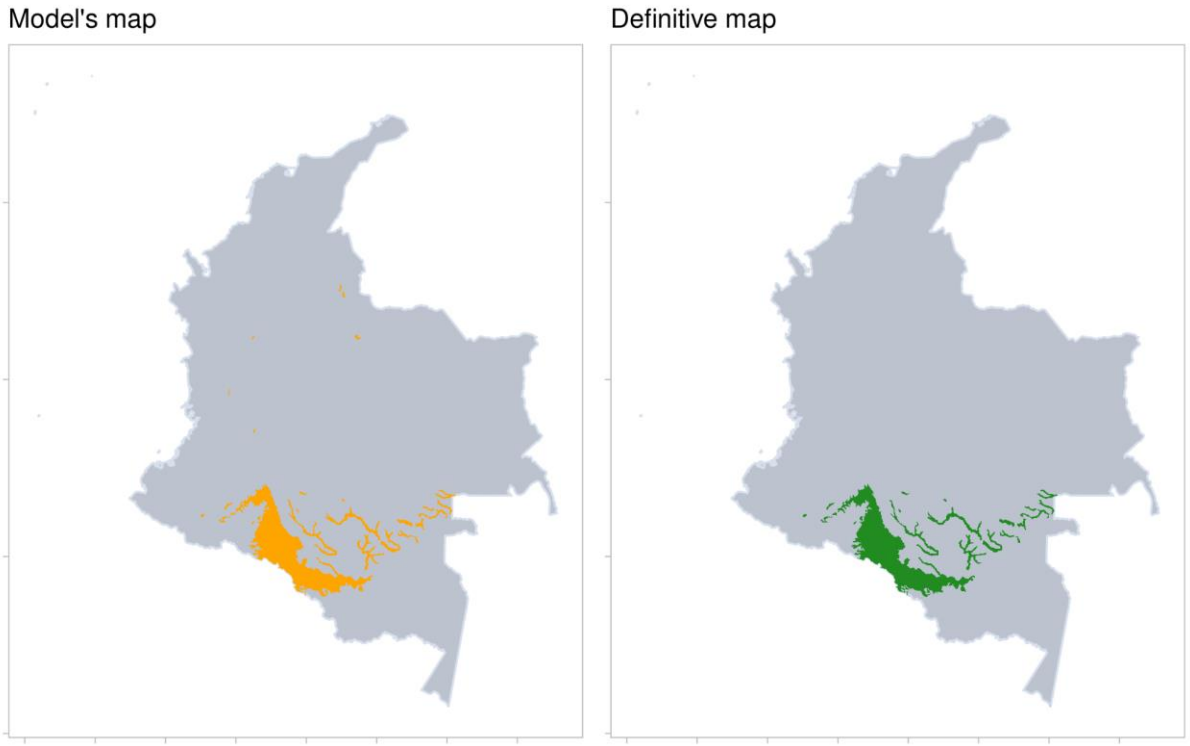
This species is hypothesized to have a Cis-Andean distribution (Gutiérrez et al., 2010), so we deleted all trans-Andean predicted distribution. Note that the northern (top of the figure) distribution was eliminated, in predicted areas north of the East Cordillera at the Táchira depression. Although this could be a passage between areas, there is no current evidence for the species north of this pass.

Marmosa phaea



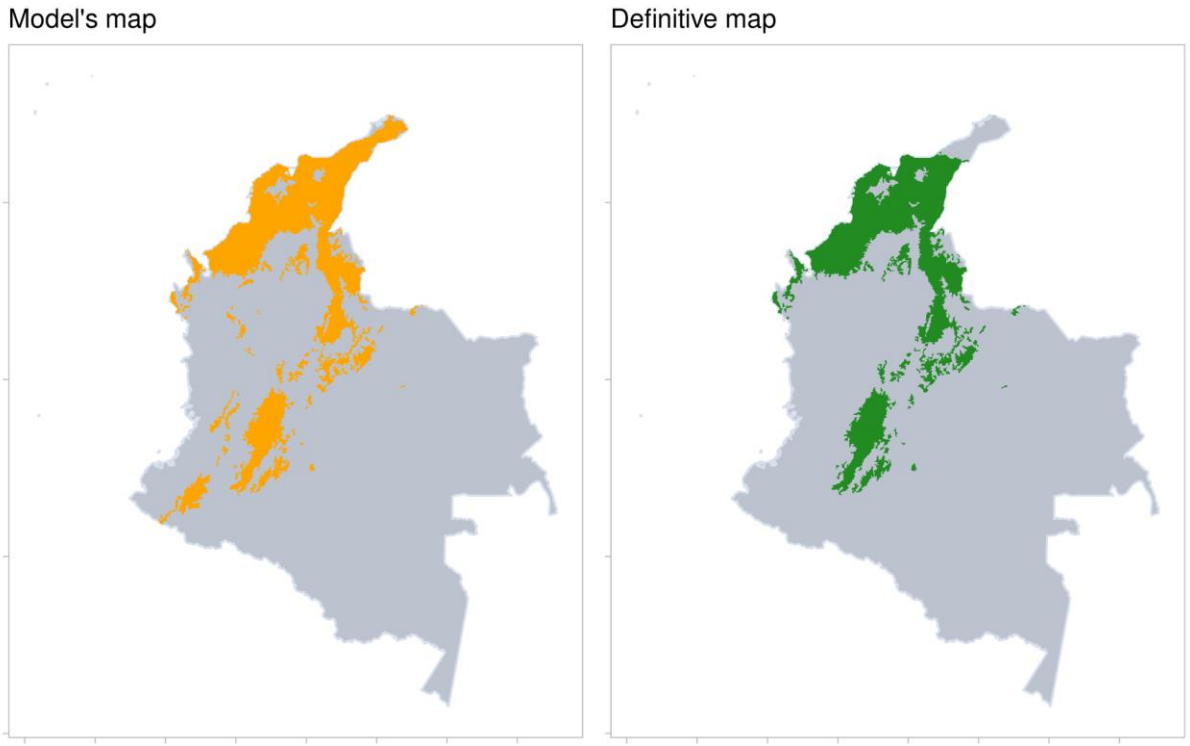
Due to the known localities for this species, we deemed unlikely for it to occur in the Pacific region, west of the Andes. Therefore, this predicted area was eliminated.

Marmosa regina



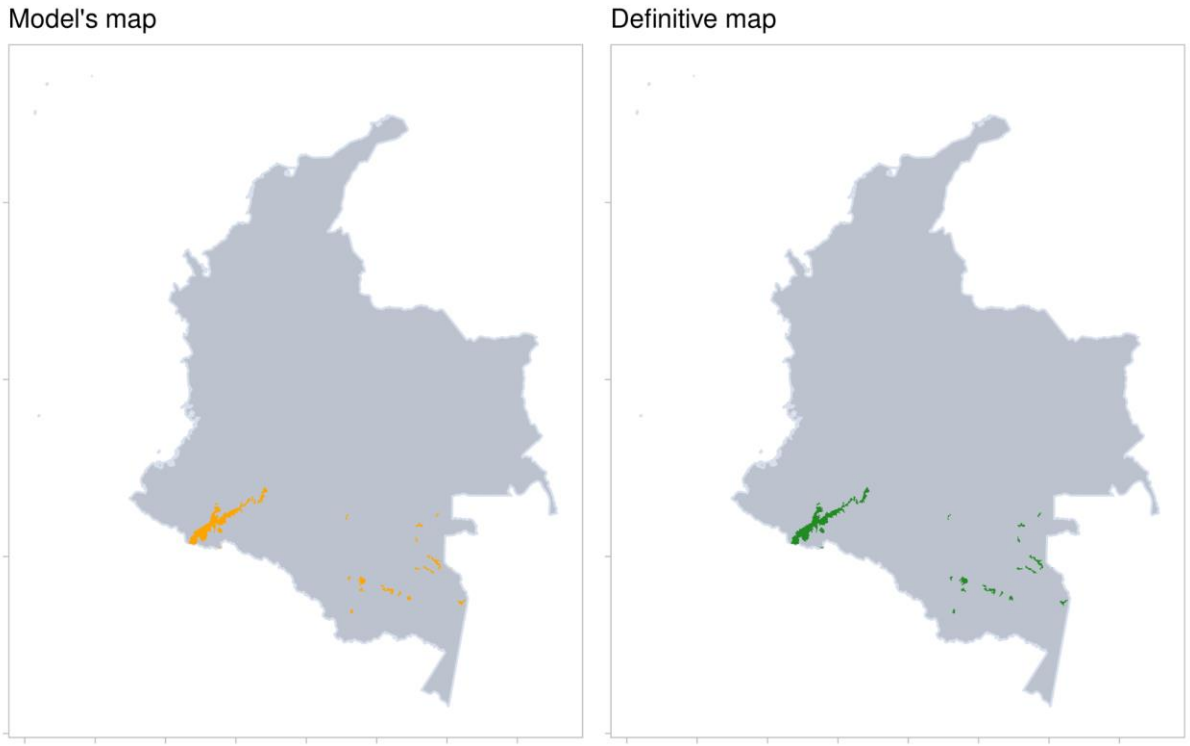
We eliminated only those small predicted areas north and northwest of the Amazon that are unlikely to be part of this species distribution, based on the species' current known localities.

Marmosa robinsoni



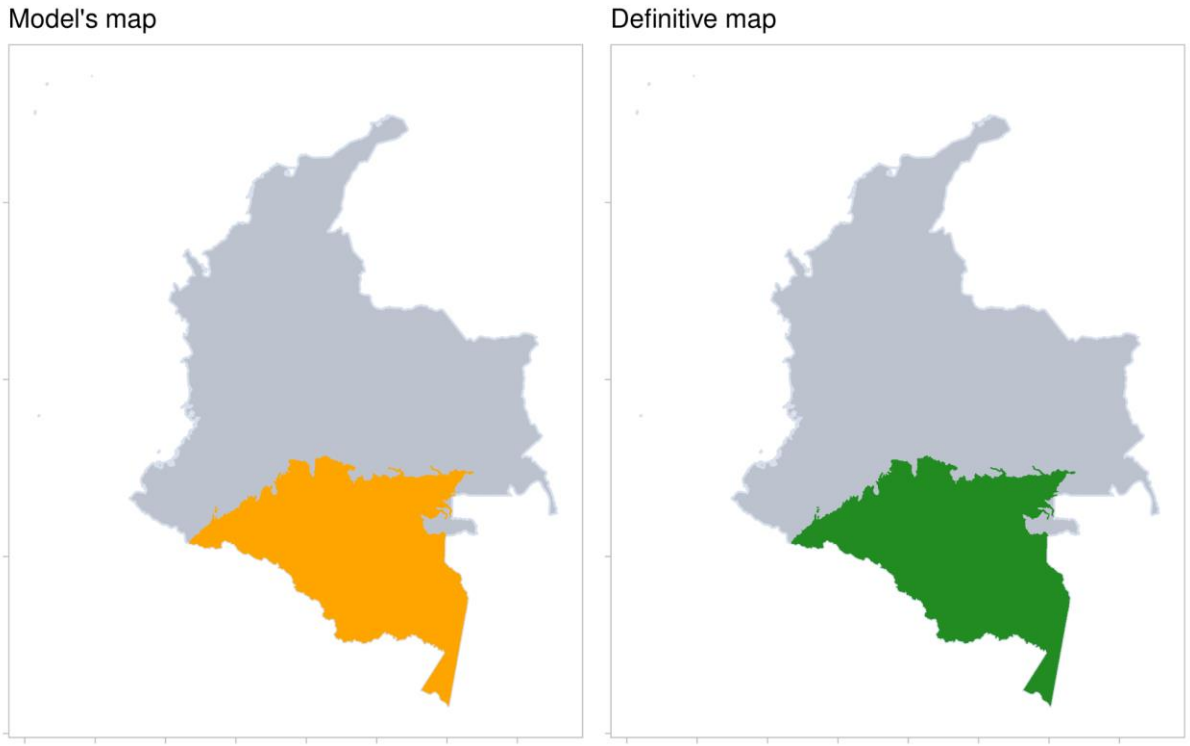
Based on the current species known localities (Gutiérrez et al., 2014), this species is mainly distributed in the Magdalena river valley and the slopes of the cordilleras that face it. Consequently, we eliminated predicted areas at mid and low elevations in the Cauca valley, west of the Central Andes and from Amazon-Llanos transition.

Marmosa rubra



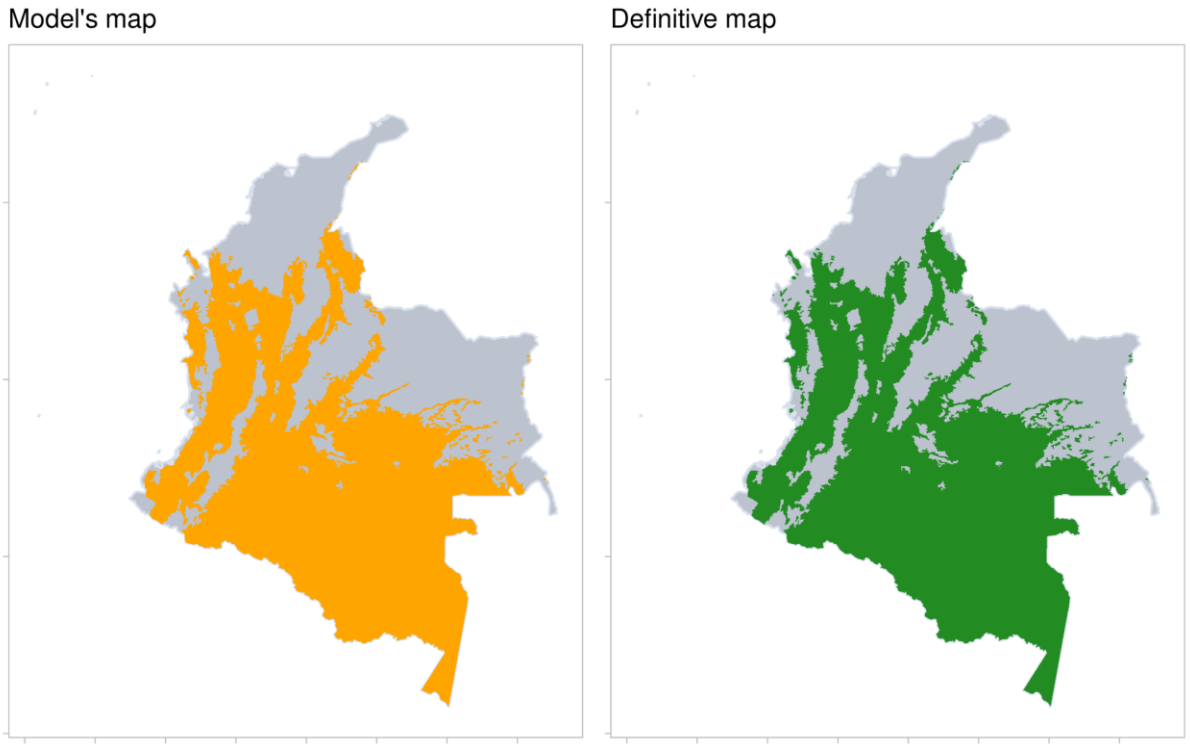
We did not modify the ENM map.

Marmosa rutteri



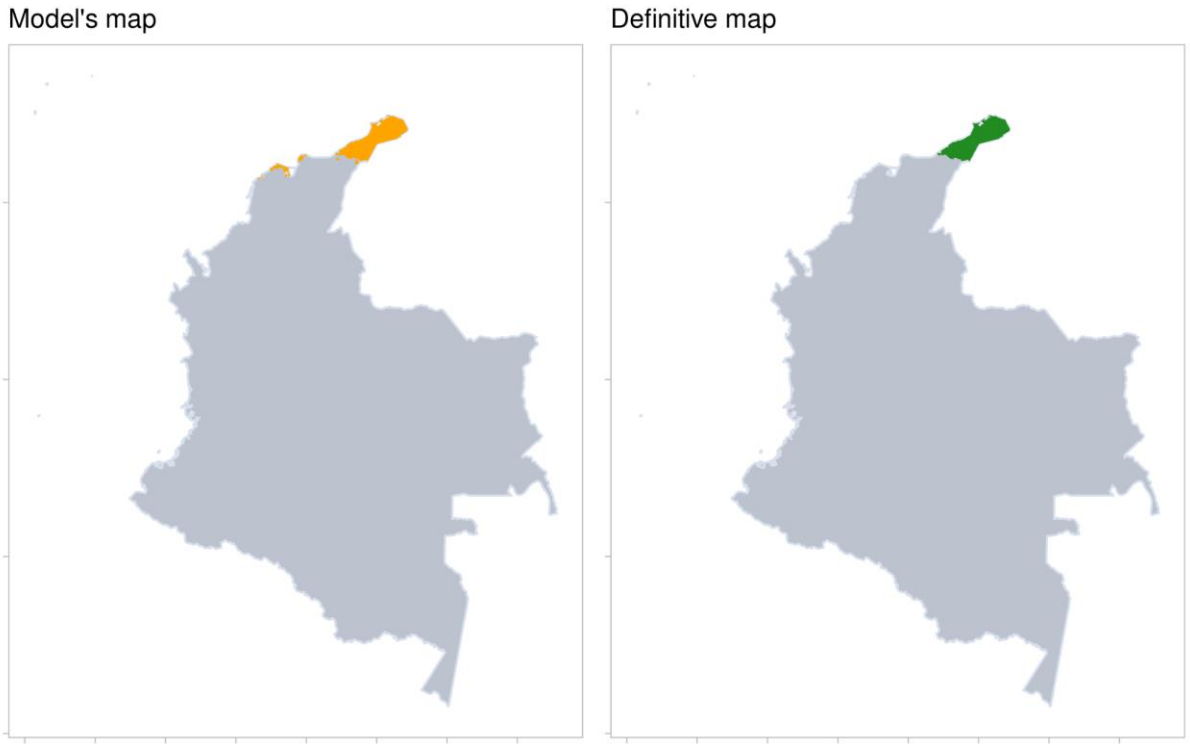
We did not modify the ENM map.

Marmosa waterhousei



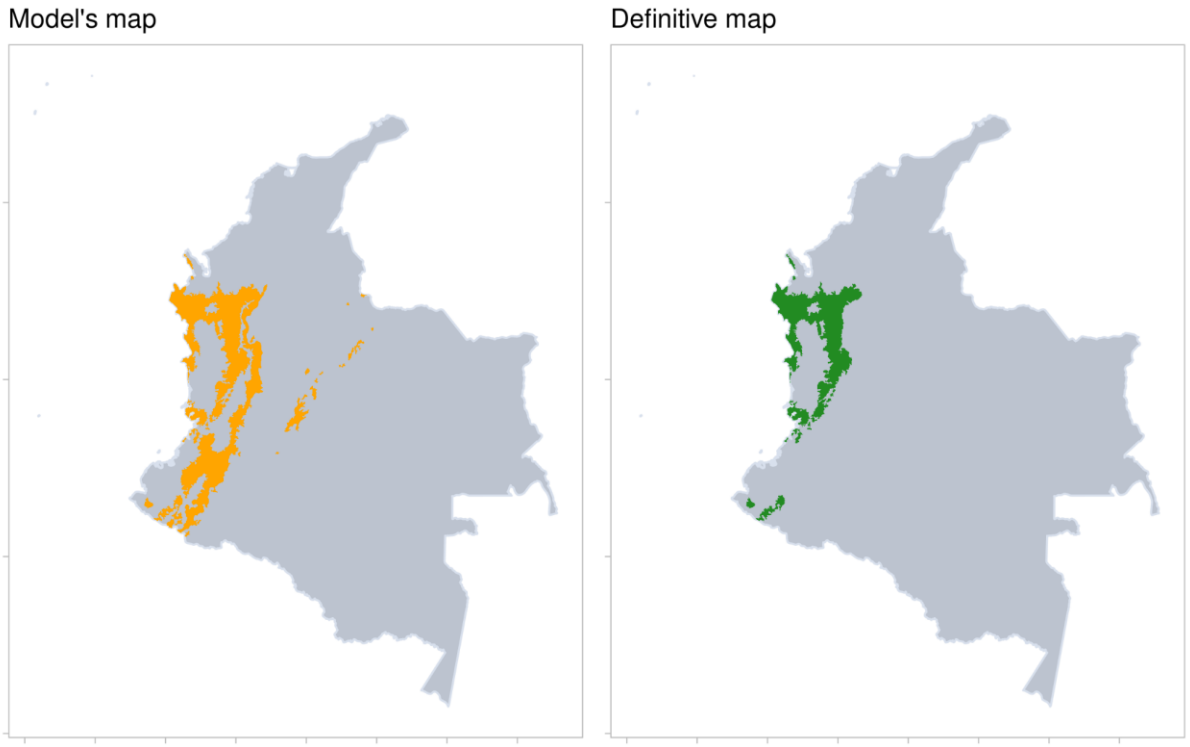
We did not modify the ENM map.

Marmosa xerophila



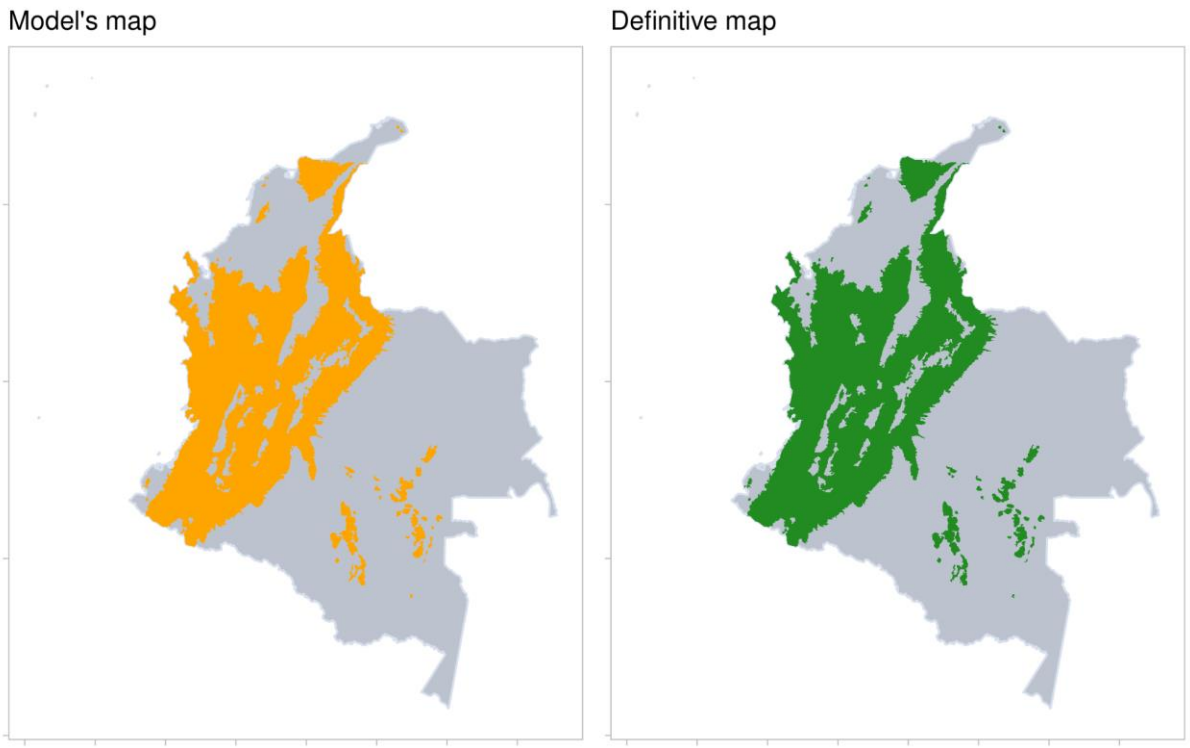
Based on previous studies (Gutiérrez et al., 2014), locality records and this report, we truncated the distribution of this species to the northern limit of *M. robinsoni*, excluding only areas near Ciénaga Grande de Santa Marta, west of Sierra Nevada de Santa Marta.

Marmosa zeledoni



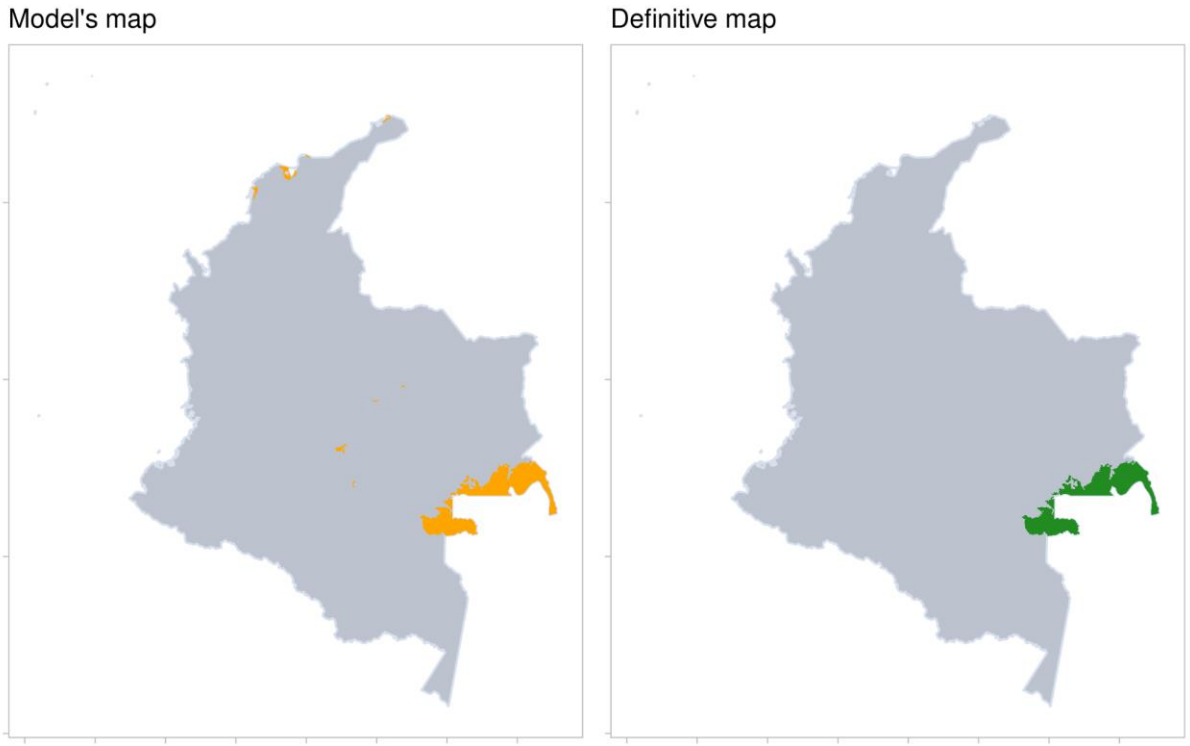
Based on the localities where this species is known to occur, it is likely to be restricted to Pacific regions of Colombia. We eliminated predicted areas east of the Central Andes. At the northeastern side of the predicted area, we used the Cauca river to set the limit of what to keep (west) and what to delete (east).

Monodelphis adusta



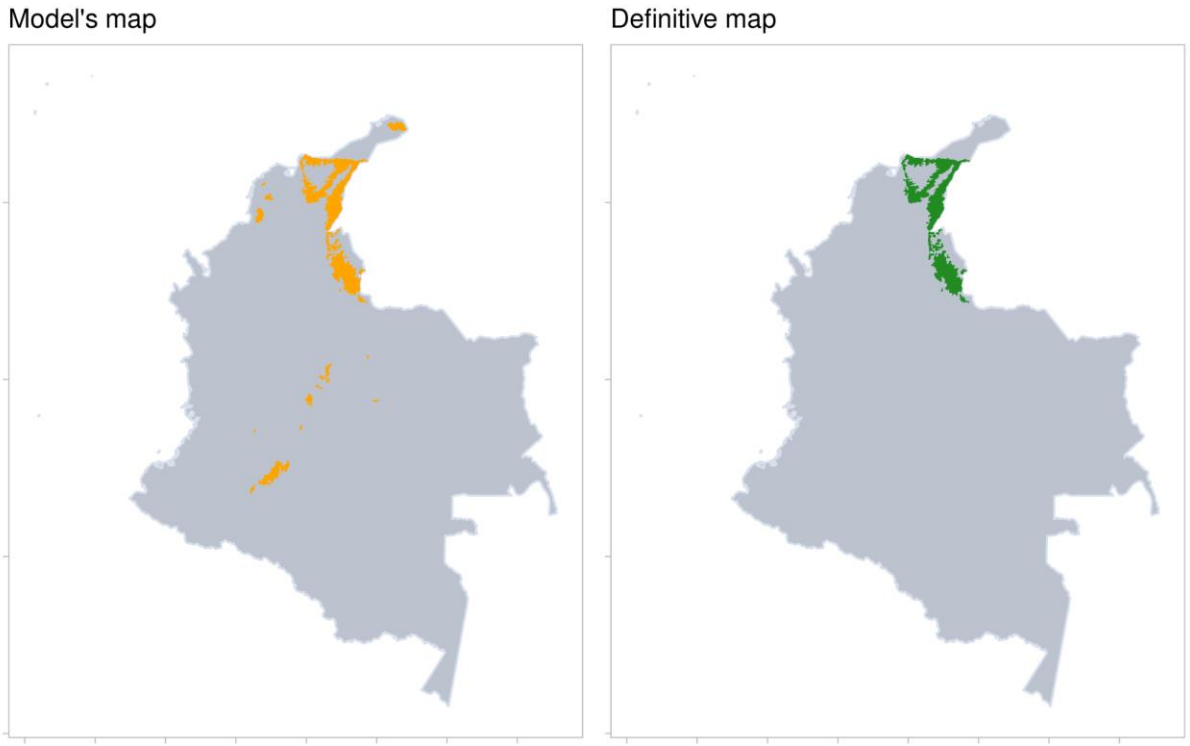
We did not modify the ENM map.

Monodelphis brevicaudata



Based on known localities, we eliminated the predicted areas at the center and north of the country and around the Meta river.

Monodelphis palliolata



We eliminated areas south of the Tachira depression, and west of the Sierra Nevada de Santa Marta. Additionally, this species was predicted to occur on the Serranía de Macuira, north of the country in the Guajira region. However, there is no evidence of this species this far north.

LITERATURE CITED

Gutiérrez E.E., Boria R.A., Anderson R.P., 2014. Can biotic interactions cause allopatry? Niche models, competition, and distributions of South American mouse opossums. Ecography 37(8): 741–753. doi:10.1111/ecog.00620.

Gutiérrez E.E., Jansa S.A., Voss R.S., 2010. Molecular Systematics of Mouse Opossums (Didelphidae: *Marmosa*): Assessing Species Limits using Mitochondrial DNA Sequences, with Comments on Phylogenetic Relationships and Biogeography. Am. Mus. Novit. 2010(3692): 1. doi:10.1206/708.1.

Hazzi N.A., Moreno J.S., Ortiz-Movliav C., Palacio R.D., 2018. Biogeographic regions and events of isolation and diversification of the endemic biota of the tropical Andes. Proc. Natl. Acad. Sci. 115(31): 7985–7990. doi:10.1073/pnas.1803908115.

IUCN, 2021. The IUCN Red List of Threatened Species. Version 2021-1. https://www.iucnredlist.org. [01 May 2021].

Peterson A.T., Soberón J., 2012. Species Distribution Modeling and Ecological Niche Modeling: Getting the Concepts Right. Nat. Conserv. 10(2): 102–107. doi:10.4322/natcon.2012.019.

Voss R.S., Giarla T.C., 2021. A Revision of the Didelphid Marsupial Genus *Marmosa* Part 3. A New Species from Western Amazonia, with Redescriptions of *M. perplexa* Anthony, 1922, and *M. germana* Thomas, 1904. Am. Mus. Novit. 2021(3969). doi:10.1206/3969.1.