

ONLINE RESOURCES

TITLE: DISTRIBUTION AND CONSERVATION OF THE SPECIES OF MARMOSINI (DIDELPHIMORPHIA, DIDELPHIDAE) FROM COLOMBIA

JOURNAL: BIODIVERSITY AND CONSERVATION

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ONLINE RESOURCE 1: EXAMPLE OF THE DIFFERENT MODELING AREAS USED IN THE STUDY

Example of two methods for estimating modeling areas (area M): a simple approach where point localities are buffered by $\sim 330 \text{ km}^2$ generating a minimum convex polygon of the buffers (left), and ecoregion-derived area where a minimum convex polygon from the localities is buffered by $\sim 55 \text{ km}^2$ and overlapped to ecoregions (right). Note how the ecoregion-derived method represent natural continuous areas while the simple approach delimits the model area arbitrarily (Fig. S1).

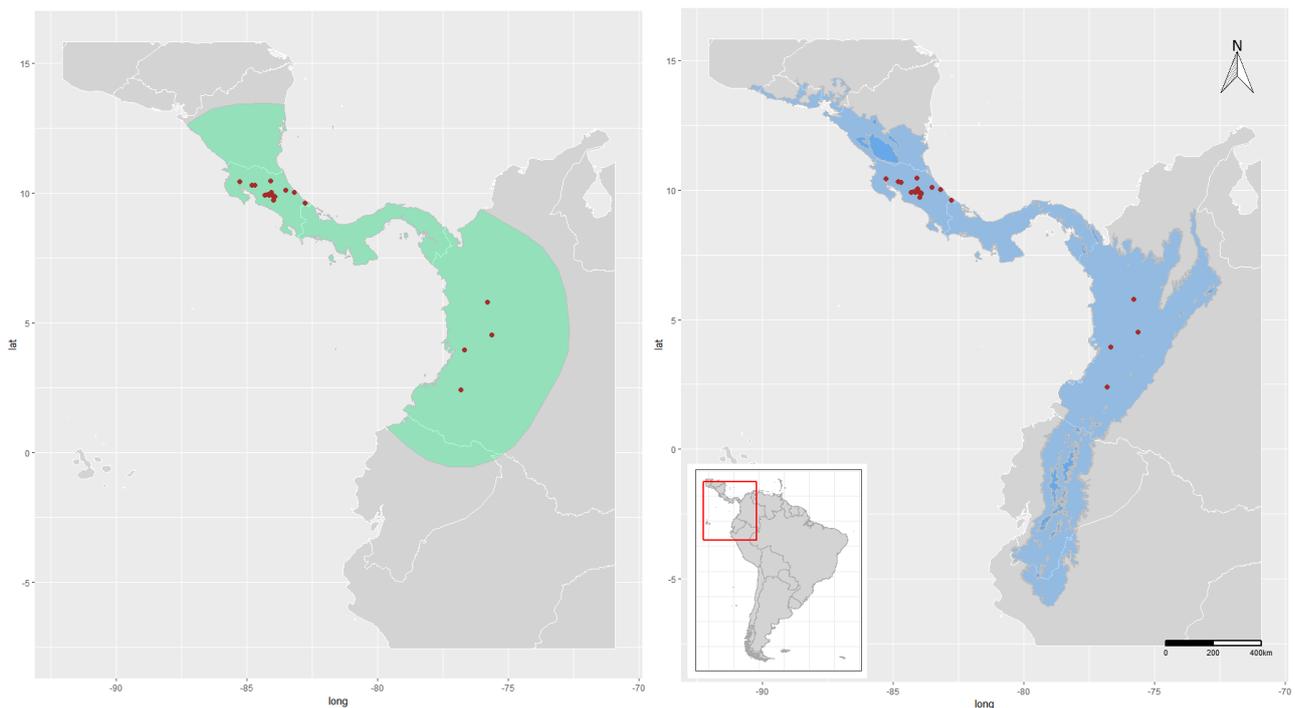


Figure S1. Two modeling areas for MaxEnt models of *Marmosa alstoni*. Simple buffer-derived area (left) represents a common practice in MaxEnt models, while ecoregion-derived area (right) represent an alternative to the latter method.

ONLINE RESOURCE 2: EVALUATION METRICS FOR THE UPPER QUARTILE OF THE AVERAGE TEST

AUC OF ALL MODELS

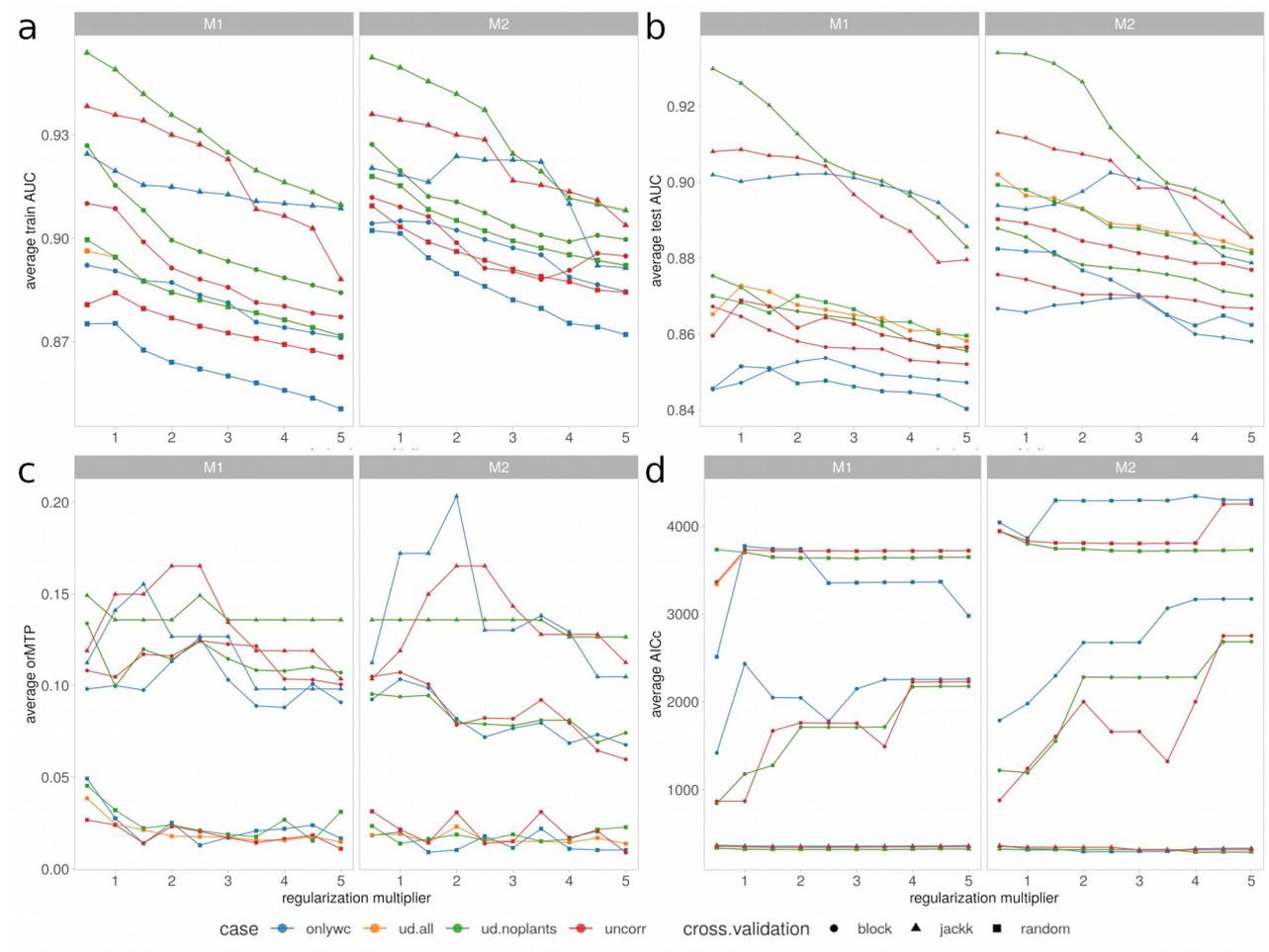


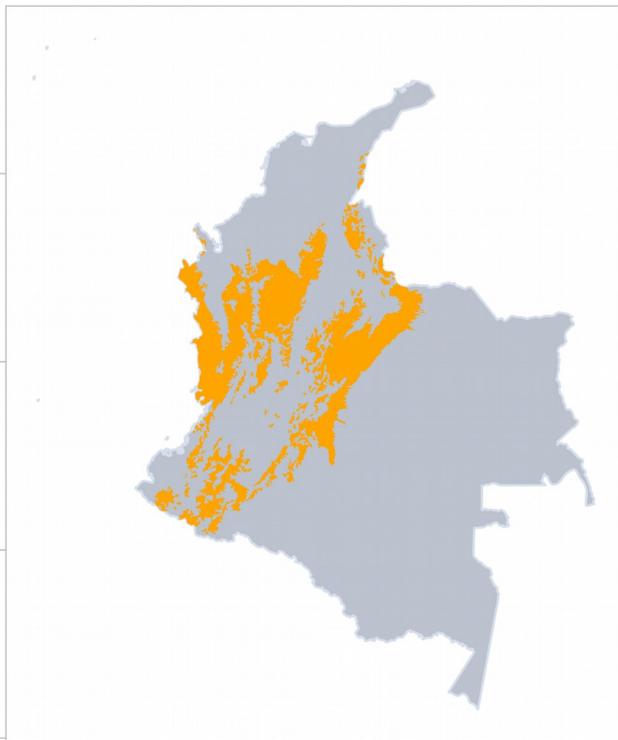
Figure S2. Performance metrics of MaxEnt models for the Marmosini species of Colombia contrasting between two modeling areas. M1 refers to a buffer-derived area and M2 to an ecoregion-derived area. Graphics are based on the models that are among the upper quartile of the test AUC metric, and show the mean value among grouped results based on predictors scenarios (case) and cross-validation regarding train AUC (a), test AUC (b), orMTP (c), and AICc (d).

ONLINE RESOURCE 3: FINAL RANGES AND GEOGRAPHICAL BARRIERS USED FOR FINAL MAPS OF MARMOSINI SPECIES OF COLOMBIA

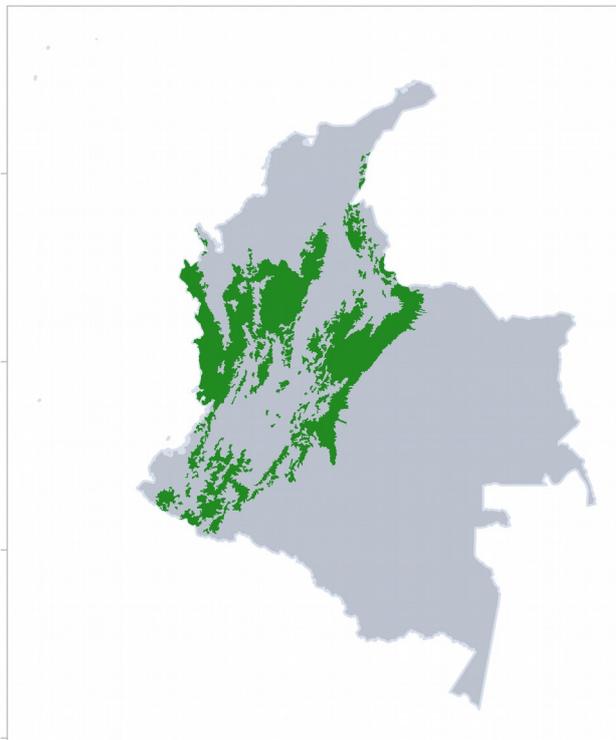
In this work we call geographical barriers the set of physical elements present in the environment that due to their characteristics represent changes in a certain area, such that they can be considered as limiting the dispersion of a giving species. In this sense, Andean Cordilleras can be a limit for lowland species, drastic depressions of a Cordillera can be a limit for Andean species, for example. Final ranges of species 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, base on species' ecological information, represent barriers to species' distribution. Following, we present the final range as estimated from the model (orange-left) and, when deemed necessary, the final range truncated by the geographical barriers (green-right) and the proposed explanation to it, with species in alphabetical order.

Marmosa alstoni

Model's map

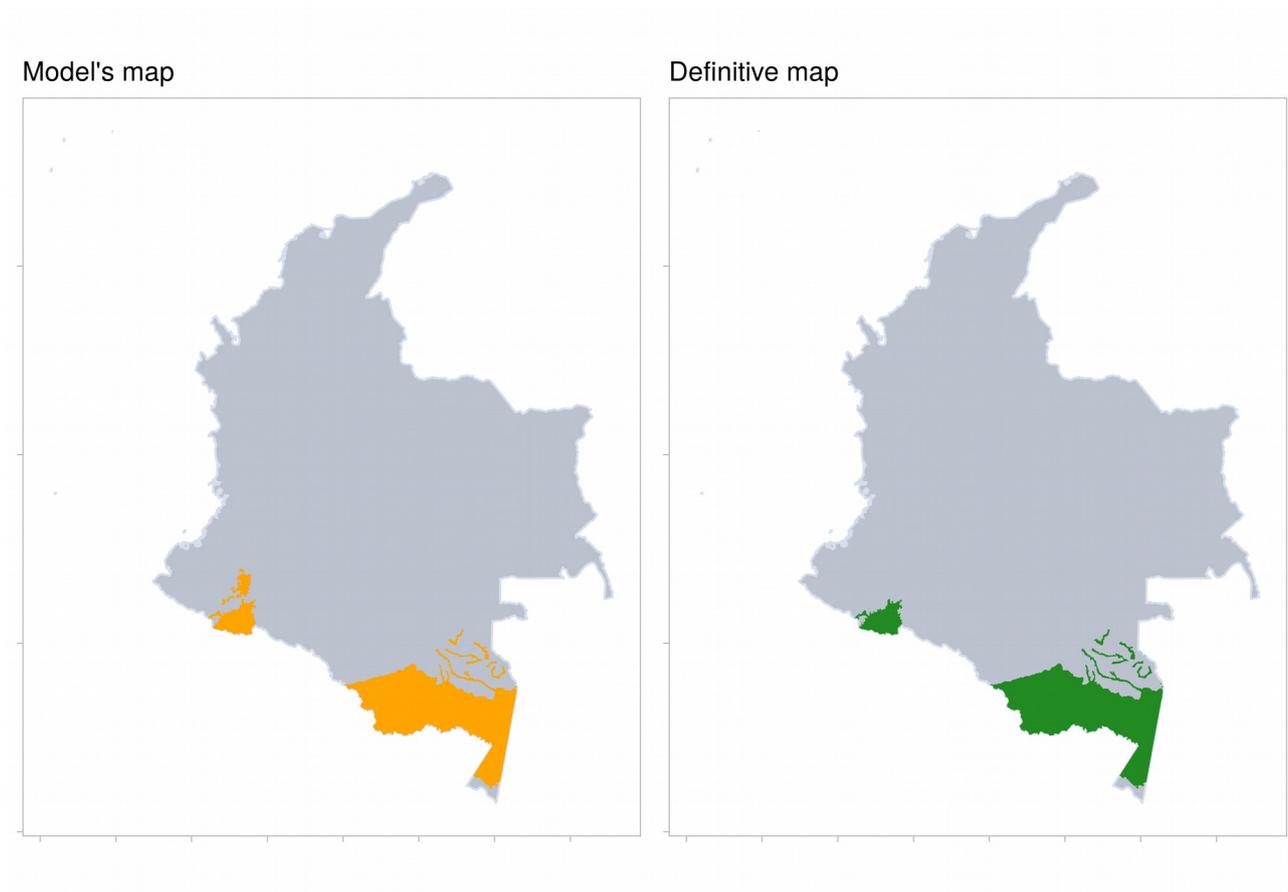


Definitive map



We didn't modify the ENM map.

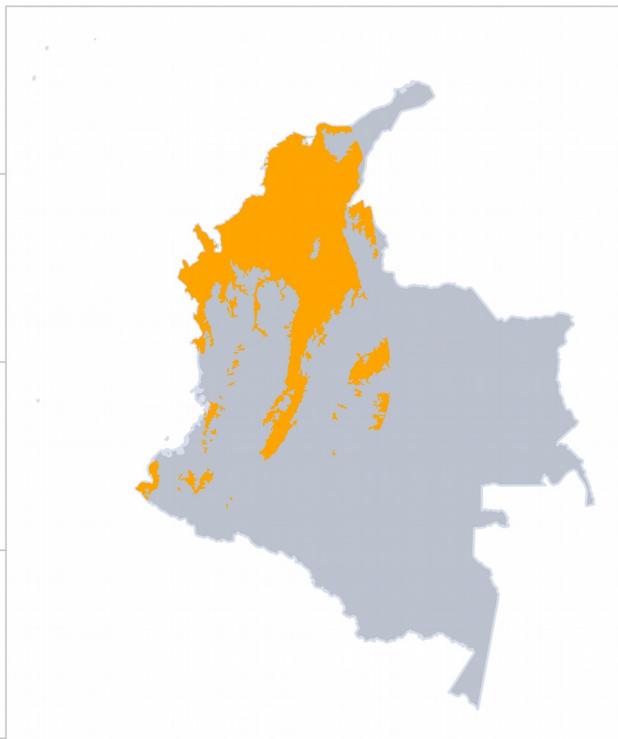
Marmosa germana



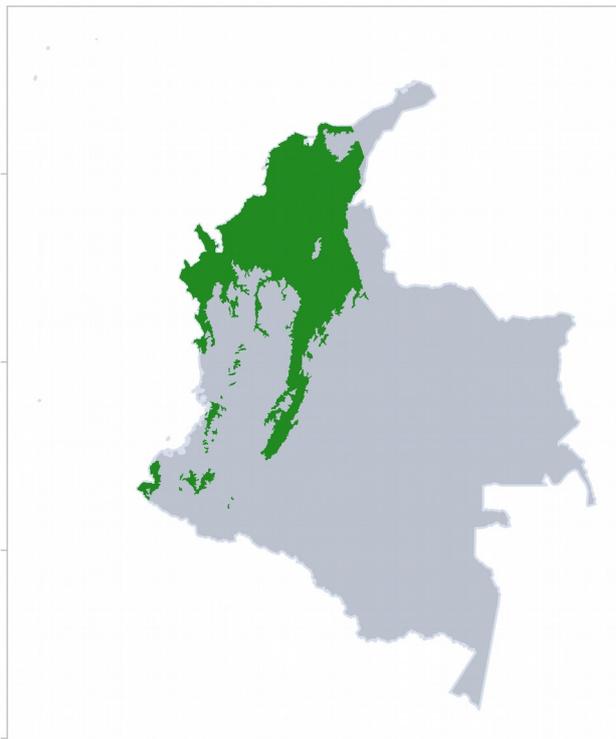
Based on the recent description of this species (Voss and Giarla 2021), we eliminated areas predicted of high elevations of the Andes, northwest of the Nudo de los Pastos.

Marmosa isthmica

Model's map



Definitive map



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 were deleted.

Marmosa jansae

Model's map



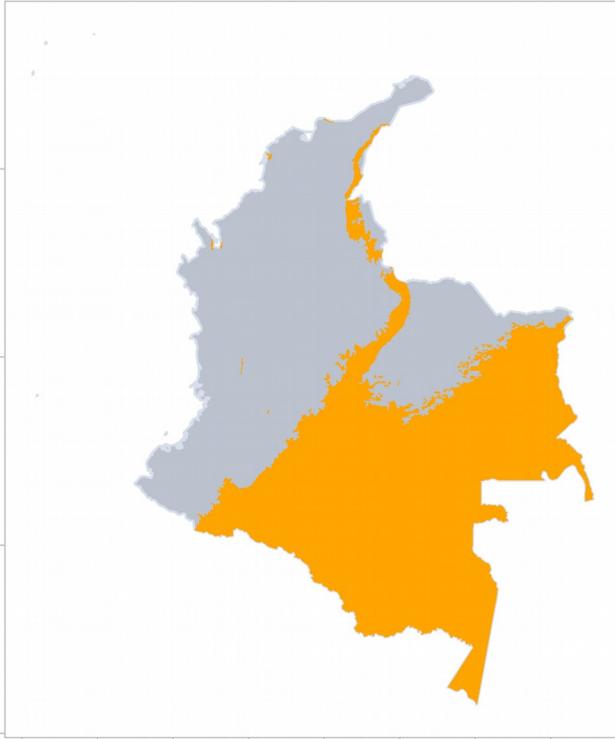
Definitive map



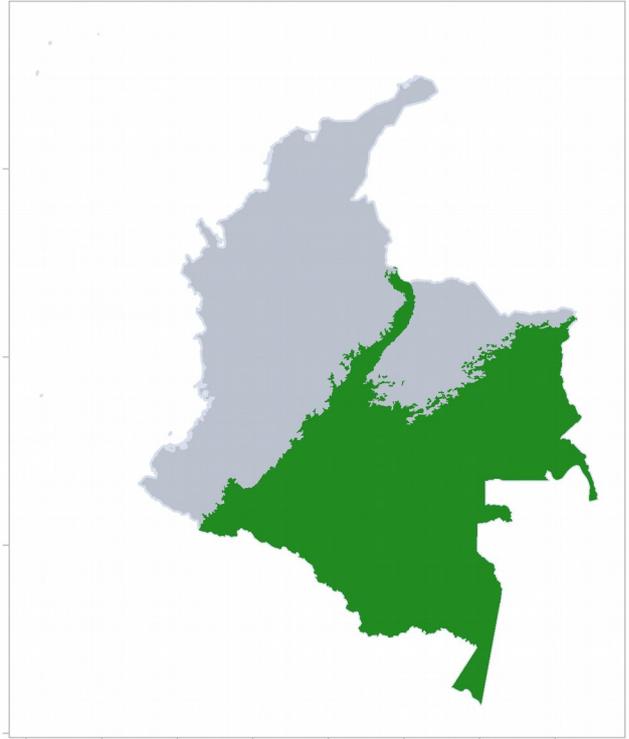
As for *M. germana*, and based on its recent description (Voss and Giarla 2021), we eliminated areas predicted of high elevation, by clipping the prediction at its western distribution by an elevation of 1000 m.

Marmosa lepida

Model's map



Definitive map



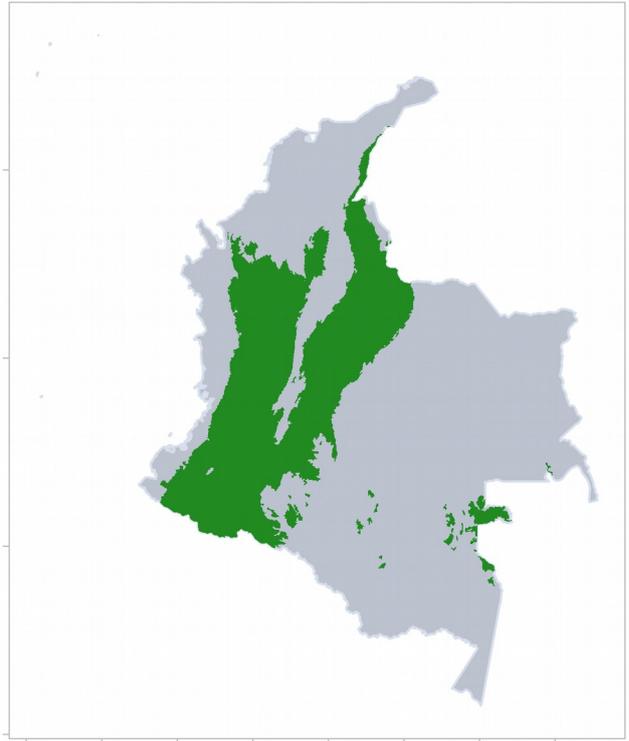
This species is hypothesized to have a Cis-Andean distribution (Gutiérrez et al. 2010), so we deleted all trans-Andean predicted distribution. Note that the northern (top of the figure) distribution was eliminated, in predicted areas north the East Cordillera at the Táchira depression. Although this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

Marmosa phaea

Model's map



Definitive map



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

Marmosa regina

Model's map



Definitive map



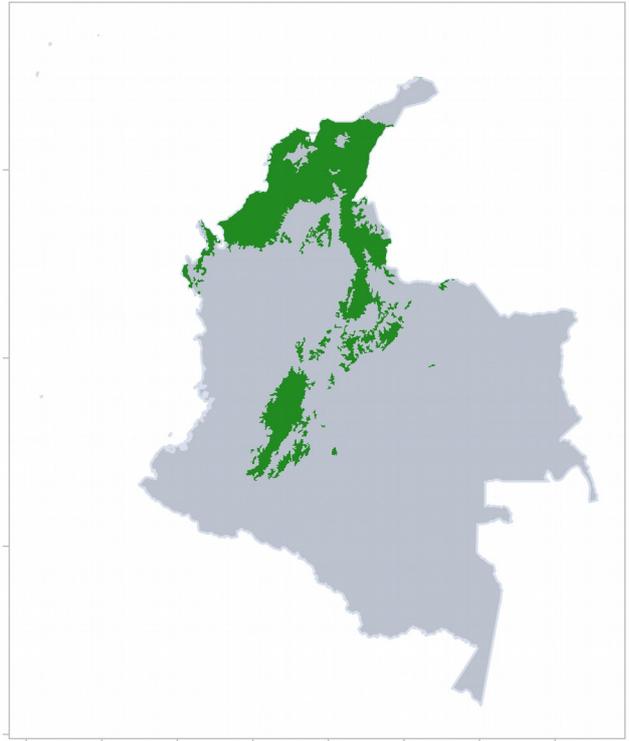
We eliminated only those small predicted areas north and northwest of the Amazon that are unlikely to be part of this species distribution, based on the species current known localities.

Marmosa robinsoni

Model's map



Definitive map



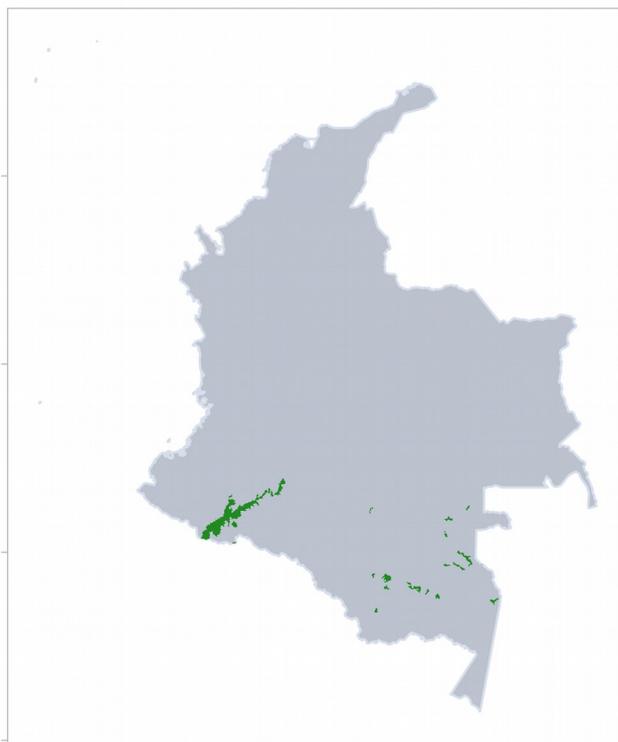
Based on the current species known localities (Gutiérrez et al. 2014), this species is mainly distributed in the Magdalena river valley and the slopes of the cordilleras that face it. Consequently, we eliminated predicted areas at mid and low elevations in the Cauca valley, west of the Central Andes.

Marmosa rubra

Model's map



Definitive map



We didn't modify the ENM map.

Marmosa rutteri

Model's map



Definitive map



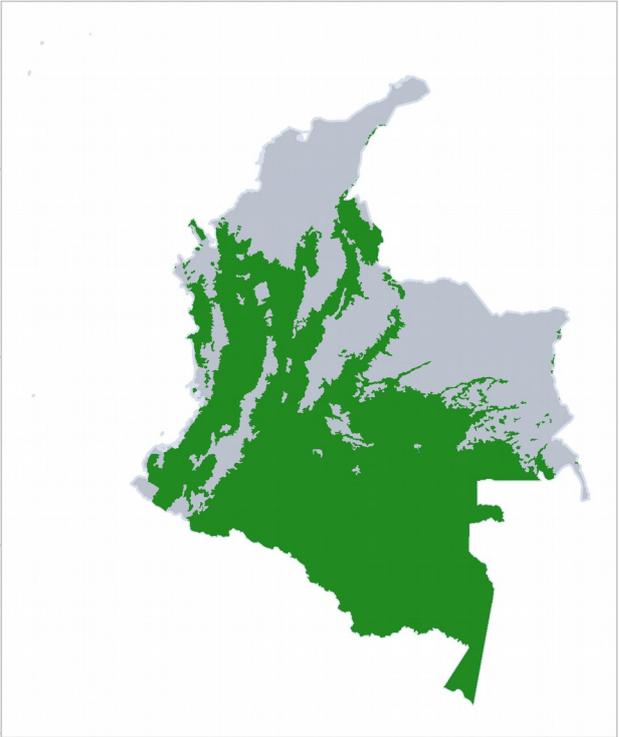
We didn't modify the ENM map.

Marmosa waterhousei

Model's map



Definitive map



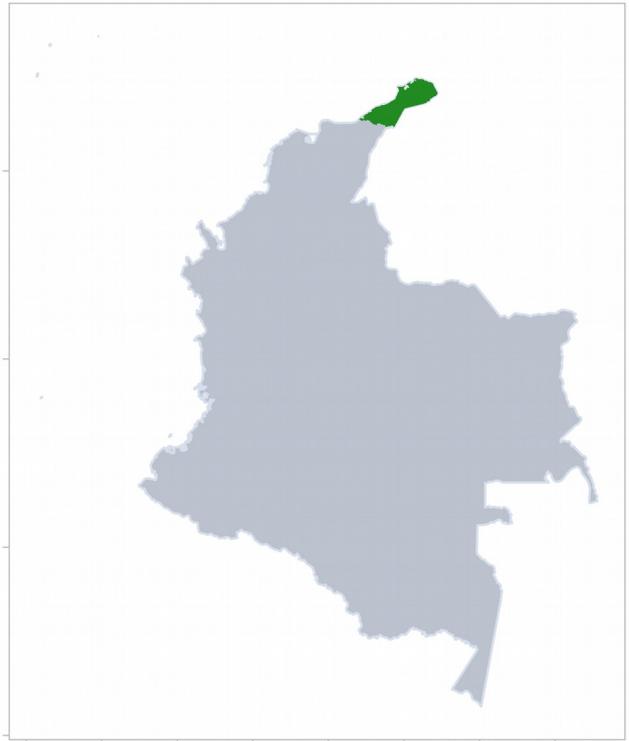
We didn't modify the ENM map.

Marmosa xerophila

Model's map



Definitive map



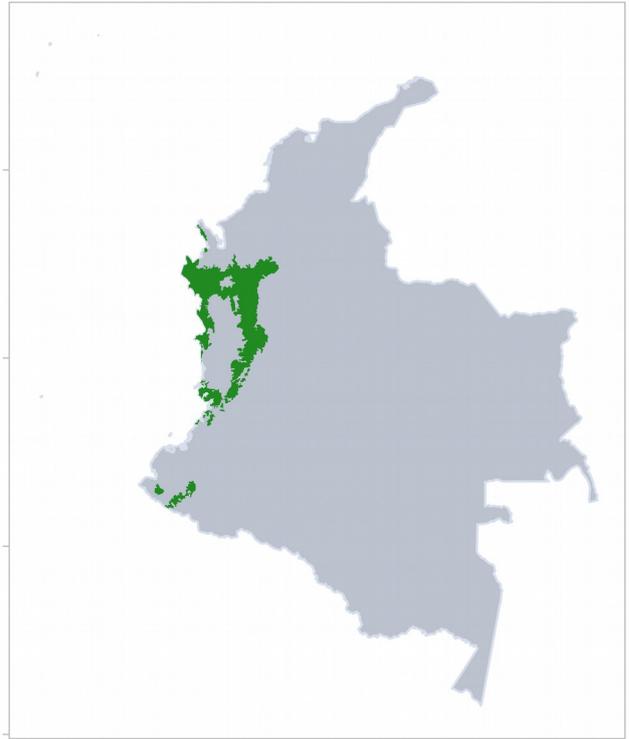
Based on previous studies (Gutiérrez et al., 2014), locality records and this report, we truncated the distribution of this species to the northern limit of *M. robinsoni*, excluding only areas near Ciénaga Grande de Santa Marta, west of Sierra Nevada de Santa Marta.

Marmosa zeledoni

Model's map



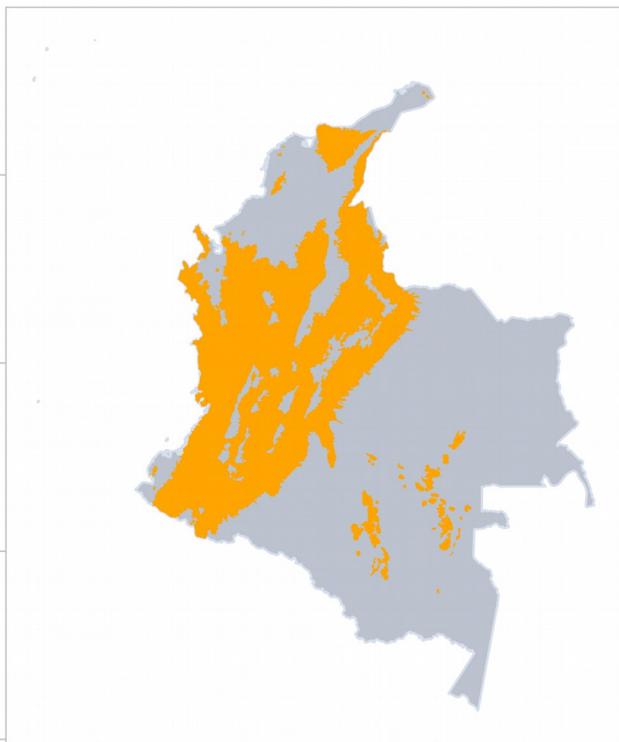
Definitive map



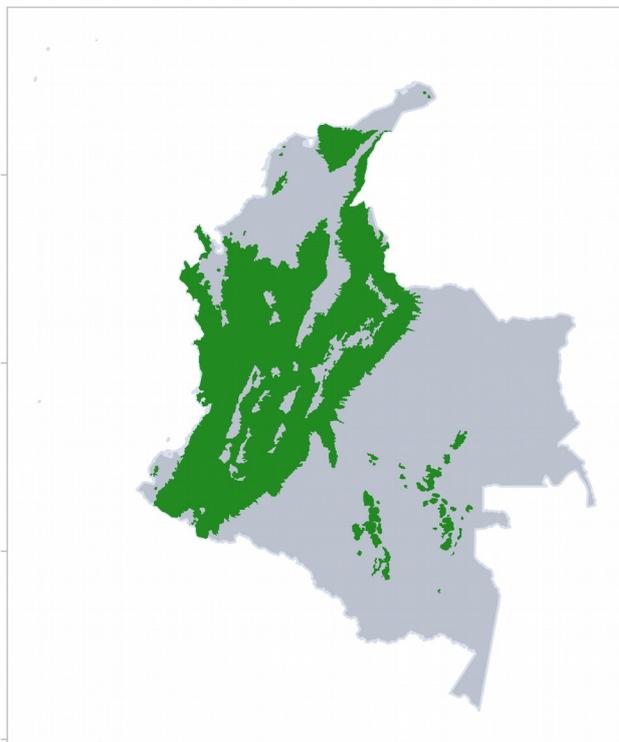
Based on the localities where this species is known to occur, it is likely to be restricted to Pacific regions of Colombia. We eliminated predicted areas east of Central Andes. At the northeastern side of the predicted area, we used the Cauca river to set the limit of what to keep (west) and what to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

Monodelphis adusta

Model's map



Definitive map



We didn't modify the ENM map.

Monodelphis breviceaudata

Model's map



Definitive map



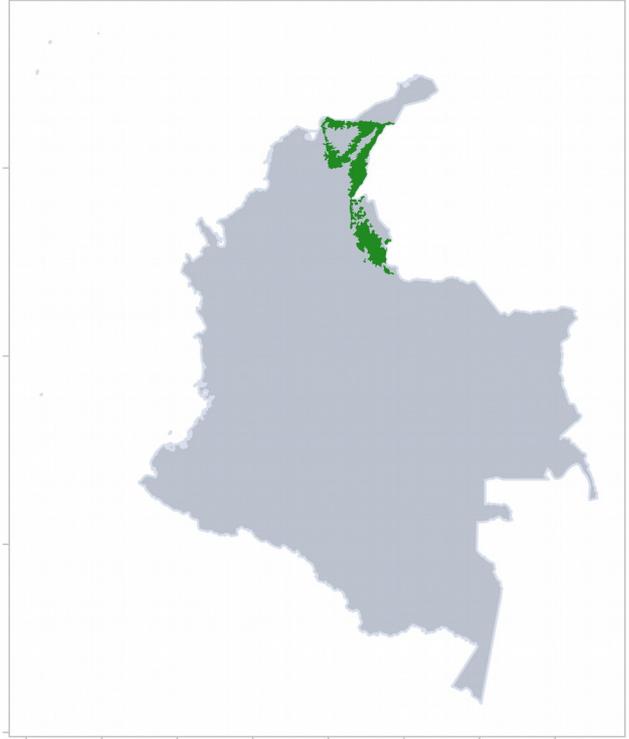
Based on known localities, we eliminated those small predicted areas at the center and north of the country.

Monodelphis palliolata

Model's map



Definitive map



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.

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