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Amazon nut (Bertholletia excelsa) distribution modeling for conservation and planting support in the Pan-Amazon: Anthropogenic pressures and environmental perception in the Acará municipality, State of Pará, Brazil

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Anthropogenic disturbances and climate change have direct consequences on the biodiversity in Amazon Rainforest. Amazon nut (Bertholetia excelsa Bonpl.) is a native species from amazon, and has been severely threatened because of human interest on its timber and seeds. Amazon nut trees also have a substantial ecological and social role, both at regional, national level in the Brazil, as well as in other countries of Pan-Amazon. Despite its unquestionable importance, it is in the threatened species lists of Brazil's Ministry of the Environment and is classified as vulnerability by the IUCN. Ecological modelling offers additional information about current distribution of species and allow us to identify which factors influence theirs distribution and persistence in face the recent land use change. In this study we aimed: a) build habitat suitability models to predict the current Amazon nut distribution in the Pan-Amazon, and b) identify factors that affect the present distribution of that species in Acará - Pará, Brazil. We use two methods: habitat suitability modelling through MAXENT and semi-structured interviews in group with local social agents. We obtained 2403 records of Amazon nut native tree. The points highly autocorrelated were removed using the SDMtoolbox, with a minimum distance between them of 35km. This allowed us to avoid biased datasets, because of unequal sampling effort across the study area. The habitat suitability map was built using 338 points and 16 environmental variables. Based on interviews with stakeholders who lives and work in Acará, we checked two threats for the species: isolation within agricultural crops and pasture lands and low income obtained by traditional communities, which leads them to choose other crops more profitable. Considering the modelling results and the importance of communities' perception, we can understand and develop strategies to strengthen conservations action and local development through public policies in the Amazon.

Keywords: Ecological modelling, environmental perception, conservation