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### NICHE ANALYSIS AND DISTRIBUTION PATTERNS OF *Melipona scutellaris* Latreille, 1811 USING ECOLOGICAL NICHE MODELING

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Ecological niche modeling has been used to build predictive species distribution maps and to provide quantitative information about species habitat preferences. This study aimed to evaluate climatically suitable areas for *Melipona scutellaris* Latreille, 1811 and quantify the characteristics of the habitats available to the species. Distribution maps were built with an algorithm that estimates the cumulative probability of maximum entropy based on species occurrence records and environmental data implemented in the software MaxEnt. A total of 117 occurrence records were obtained from literature and online databases. Elevation data and nineteen bioclimatic variables derived from monthly measurements of temperature and precipitation were employed as environmental layers. Fifteen models were built using different MaxEnt configurations and the best model was selected using the Corrected Akaike Information Criterion. The Area Under the Curve (AUC) was used to assess model performance. A rough estimate of the geographical range of *M. scutellaris* was produced by creating buffers of 30 km around the occurrence records. Additionally, the distribution map of *M. scutellaris* was intersected with Federal Conservation Units (UCs) and Land Cover maps (LC). The final MaxEnt model presented AUC value higher than 0.90, indicating high performance. Our findings show that *M. scutellaris* is distributed in the northeastern region of Brazil, mainly in areas of Atlantic forest. Moreover, we verified that 70.4% of the suitable habitats had already been occupied by *M. scutellaris*. Further, we observed that only 1.5% of the estimated suitable areas are within UCs and approximately 2.0% of these units encompass the occupied range of *M. scutellaris*. Also, about 77.4% of the estimated suitable habitats are in agricultural areas. Therefore, *M. scutellaris* presents a considerable vulnerability, since the UCs have shown insufficient efficacy and the majority of its distribution range are in agricultural areas where pesticides are commonly used.

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