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### PREDICTING THE IMPACTS OF CLIMATE CHANGE ON *Melipona subnitida* Ducke, 1910 (HYMENOPTERA, APIDAE)

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Climate change is one of the most important factors affecting species distribution and causing biodiversity loss. In recent years, populations of pollinating bees have been declining in different parts of the world, causing a great concern for the conservation of this group. The aim of this study was to evaluate the effects of climate change on the geographic distribution of *Melipona subnitida* Ducke, 1910. Overall, 15 models were built using different MaxEnt configurations. MaxEnt is a machine learning algorithm that estimates the cumulative probability of maximum entropy based on species occurrence records and environmental data. A total of 55 occurrence records were obtained for *M. subnitida* from literature and online databases. Elevation data and nineteen bioclimatic variables derived from monthly measurements of temperature and precipitation were employed as environmental layers. The best model selected using the Corrected Akaike Information Criterion was projected to 2050 and 2070 using two different scenarios of climate change (RCP 4.5 and RCP 8.5). The Area Under the Curve (AUC) was used to assess model performance. All MaxEnt models presented AUC values higher than 0.90, indicating high performance. The annual temperature range (Bio7) was the bioclimatic variable that contributed most to the final model (64.4%). The areas predicted as suitable for *M. subnitida* increased in the different scenarios of climatic changes evaluated. In 2050 an increase of 14.53% and 23.53% was predicted for the scenarios RCP 4.5 and RCP 8.5, respectively. By 2070, the increase was of 18.36% and 31.24% for the scenarios RCP 4.5 and RCP 8.5 respectively. Studies using ecological niche modeling approaches have found that climate change might affect the distribution of different species, either by reducing or increasing their geographic range. Our results show an increase in the areas considered climatic suitable for *M. subnitida* as a consequence of climate change.

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