Proposed title: Projected impacts of climate change on the distribution and habitat suitability of woodpeckers in Luzon, Philippines

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ABSTRACT

The impacts of anthropogenic climate change are expected to affect biodiversity through the shift in the suitable habitats of species. Of particular concern for conservation efforts are threatened species with a narrow niche such as woodpeckers. Woodpeckers are primary cavity nesters capable of excavating their own cavities and nesting holes. They play a multitude of ecological roles including wood decomposition, insect regulation, and cavity extraction. The latter is critical for secondary cavity nesters that rely on woodpeckers for the holes they excavate. Woodpeckers are highly associated with their forest environments and are known as indicators of forest structure, secondary cavity nester population, and overall bird diversity. In the Philippines, 11 species of woodpeckers are found, four of which are both endemic and threatened. There is a paucity of research on the distribution and ecology of Philippine woodpecker species, which becomes even more urgent as climate change becomes an additional threat to species extinction. Although a protected area system is instituted in the country, its effectiveness in reducing the number of threatened species is not apparent. Furthermore, the integrity of these protected areas is expected to be influenced by climate change, and in extension, the species present in it. This study will focus on determining the potential distribution of the six woodpeckers found in Luzon, Philippines under current and future bioclimatic conditions using MaxEnt, a species distribution modelling algorithm. Specifically, this study aims to: (a) investigate whether the existing protected areas in the country are suitable habitats for the six woodpeckers under current climatic conditions, (b) determine whether the existing protected areas in the country will remain suitable habitats for the six woodpeckers under climate change scenarios, and (c) assess the predictive power of MaxEnt in modelling the distribution of the six woodpeckers. The results of this study will be vital in establishing conservation actions for the selected woodpeckers in the Philippines and in building a more climate-resilient protected area system in the country.

Keywords: woodpeckers, species distribution modelling, MaxEnt, climate change