

FEATURE ARTICLES

CLIMATE CHANGE EFFECTS ON NEOTROPICAL MANAKIN DIVERSITY BASED ON ECOLOGICAL NICHE MODELING

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Abstract. Assessing the nature and magnitude of potential effects of climate change on populations is important to anticipating effects on species diversity for conservation planning. We used ecological niche modeling to predict present and future distributions of 49 species of manakins (Pipridae) and allies. Predictions for present-day distributions were highly coincident with independent test data, suggesting good predictive ability. Assuming no dispersal, projections of potential distributions under four scenarios of climate change predicted that 20% of manakin species would likely go extinct from their current ranges, and that distributions would in general be reduced and fragmented, regardless of the area of present-day potential distribution or rarity. Predicted changes in potential distributions, spatial configuration of suitable habitats, and geographic position of species ranges were more dramatic for species inhabiting flatlands than for montane species. These results are an example of how ecological niche modeling techniques can anticipate the nature and magnitude of changes in biodiversity in response to climate change.

Key words: *climate change, conservation, ecological niche, geographic distribution, manakin.*