ABSTRACT

Modelling the Impact of Climate Change
on a Dry Forest Fauna

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Shifts in climate ultimately cause shifts in distribution and abundance of living organisms, and potentially even extinction. Bioclimatic modelling has only been done minimally for the vulnerable Caribbean region, though it is a biodiversity hotspot, due to data availability and island sizes. Using the Hellshire Hills protected area in Jamaica, which is one of the best preserved dry forests in the region and habitat to a number of endemic plant and animal species, a simple model was developed to project future abundance of arthropods and lizards based on current sensitivities to climate variables. Both climate and interspecies relationships were used to formulate predictive equations that were in turn used in the creation of the simple model. The validation process showed that, even for a small population, there was reasonable skill in predicting its annual variability. Future climate of the Hellshire Hills was also assessed using projections from a regional climate model (RCM). Results of the project can be used to identify the vulnerability of the study site to the effects of shifting climate and, by extension, its conservation needs.

Keywords: Kimberly Stephenson; climate change; biodiversity; bioclimatic modelling; Caribbean.