



## **Modelling the Impact of Climate Change on a Caribbean Dry Forest Fauna**

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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. This study focussed on producing a working model to project future abundance of arthropods and small vertebrates in a small forest on a small island, which could then be applied to other small systems. 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. Climate and interspecies relationships were implemented to formulate predictive equations that were in turn used in the creation of the simple model via generalized linear mixed modelling in R statistical software. Rainfall was found to be a stronger influence on abundance than temperature, and predator-prey relationships were also evident. The final model, having been built on historical abundance and climate, was able to use only climate model data as input for future projections. The validation process showed that, even for a small population, there was reasonable skill in predicting annual variability. Results of this study can be used to identify the vulnerability of small protected areas to the effects of shifting climate and, by extension, their conservation needs.