

ABSTRACT

Ecological Studies of Forest Mammals in the West Indies, with a focus on
Trinidad.

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A nested, spatial-hierarchical approach is used to examine the composition of forest mammal communities in the Caribbean, and to interpret it against a background of human exploitation, with emphasis on smaller-scale processes on Trinidad. Large-scale, species-area patterns for mammals throughout the Caribbean are described through biogeographic analyses which included continental island data and fossil data, and were tested for non-equilibrium processes. Inclusion of species only known from Amerindian middens and Pleistocene fossil records increased correlation between species-richness and area, but not as significantly as reported by Morgan and Woods in 1986. Analysis suggested that Caribbean mammals verified two of four predictions of non-equilibrium in insular faunas, described by Lawlor in 1986.

Medium-scale mammal community processes are examined on Trinidad using country-wide hunting data to construct catch-effort analyses for five species. Four years of hunter-reported catch data revealed steep declines in hunter success for all species and comparison of rates of take with sustainable harvest

estimates revealed all species were over-harvested. Strategies for controlling over-harvest were compared and a system of limiting hunter effort through reducing the length of the hunting season by sixty-six percent was recommended.

Small-scale study of the forest mammal community at Trinity Hills Wildlife Sanctuary, Trinidad, involved comparison of sampling efficiency of four techniques: live trapping, automatic cameras, strip transects and indices. Live trapping was the least effective technique, with strip transects and indices the most effective. Most mammals were detected at densities at least 10 times lower than reported for other Latin American sites. Over-exploitation and related cascading effects are suggested as responsible for ineffectiveness of certain sample techniques and the observed mammal densities.

This hierarchical approach suggests that anthropomorphic impacts on the mammalian community can be discerned at all scales of this study, from the level of the constraint envelope to the finest scales of community interaction.