DETERMINANTS OF SPECIES DIVERSITY AND OCCUPANCY OF LIZARD FAUNA IN THE REMAINING FOREST PATCHES OF CAVITE, LUZON ISLAND, PHILIPPINES

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TABLE OF CONTENTS

LIST OF PLATES

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

ABSTRACT

This study examines the influence of species diversity, geographic and temporal distribution and habitat parameters on lizard communities. The sampling sites were the remaining forest patches in the province of Cavite, Luzon, Philippines. Four forest types and grassland from the six remaining forest patches were investigated using strip transects (100m X 10m) positioned randomly to represent different habitat types. Twenty-five habitat covariables recorded from 840 sampling points were used to assess lizard distribution, habitat types, and establish species habitat association from January 2010 to December 2010. Surveys recorded 29 lizard species with 58% endemics. Three species with vulnerable (VU -IUCN 2011) were observed (*Varanus olivaceus, Hydrosaurus pustulatus* and *Pseudogekko brevipes*) and 5 species with range extensions were documented (*Brachymeles talinis, Brachymeles boulengeri, Eutropis cumingi, Pseudogekko brevipes* and *Varanus olivaceus*). Cluster analysis produced two main clusters. Cluster one was composed of species with broad area and habitat distribution associated more with disturbed habitats. Cluster two was composed of species with preference for forests, mostly composed of disturbance sensitive Philippine endemics. A total of 174 tree species belonging to 48 families were identified from the area studied. High tree species richness was observed from Mts. Palaypalay/Mataas na Gulod Protected Landscape, Evercrest and Kabangaan. Principal Component Analysis (PCA) reduced 25 habitat covariables to four main factors accounting for 50.4 % variability. Factor one (26.8% variation) is described as an axis associated with overstorey characteristics. Factor two (10.7% variation) is described as an axis associated with understorey characteristics. Factor three (7.1% variation) is described as an axis associated with litter depth and humus cover. Factor four (5.7% variation) is described as an axis associated with recent evidence of natural or anthropogenic disturbance as evinced by the strong positive loading of number of fallen logs and tree stumps. Canonical Correspondence Analysis (CCA) established species-habitat association expressed as niche width (as a factor of habitat preferences) and position, i.e., ordination on vertical stratification gradient of a forest from overstorey to understorey and forest to non-forest habitat gradient. Estimated detection probabilities accommodated variations in habitat covariables association. Probability of detection for majority of species were linked with microclimate factors specifying warm and humid habitats. Detection probability values were higher with species associated with disturbed habitat and lower for disturbance sensitive species. Proportion area occupied (PAO) can be used as indicator of lizard vulnerability to forest area reduction. The negative effect of forest area reduction is more pronounced among forest-restricted species with high PAO than species with low PAO. Findings in habitat characterization and species association convey deteriorating habitat conditions. Serious attention should be given in intensifying conservation efforts within Mts. Palaypalay/Mataas Na Gulod Protected Landscape. Further, conservation efforts should be initiated in areas with forests outside the protected area to protect and conserve the diverse faunal and floral elements associated with these habitats.