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ISLAND BIOGEOGRAPHY:

A STUDY OF HABITAT ISLANDS OF MOUNTAIN BEECH FOREST

(Nothofagus solandri, var. cliffortioides)

IN TONGARIRO NATIONAL PARK

Moyra Seden

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## Abstract.

MacArthur and Wilson's (1967) model for island biogeography is examined, particularly with regard to the proposed species-area relationship. The first chapter includes a consideration of the theoretical background.

Nine habitat islands and corresponding mainland regions of similar area were selected. All the sites possess a canopy of mountain beech trees, (Nothofagus solandri var. cliffortioides), and are located in the western segment of Tongariro National Park. Plants and litter animals were sampled from within these sites to determine the possible relationship between species and area.

Forest plant species numbers as well as proportions, assessed using a modification of the Point-centred quarter method, revealed a statistically significant species-area relationship.

Litter Crustacea collected in one thousandth of a square metre core samples, and removed from cores by wet extraction, show a gradation in habitat preference, hence a species-area relationship cannot be determined.

A wide range of animals collected in pitfall traps appear also not to produce a significant species-area relationship. Possible reasons for the obscurity of such a relationship are considered.

An overall assessment of the information gathered in the light of island biogeographic theory is presented, and some more recent thought on the causal explanations for the species-area relationship are discussed.

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