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Seasonal and Altitudinal Variations in Diet and Abundance of the European Hare (*Lepus europaeus Pallas*) in Tongariro National Park, New Zealand.

A thesis presented in partial fulfilment of the requirements for the degree of Master of Science in Zoology at Massey University.

Rosemary Sylvia Claire Horne

February 1979.

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To Tony,

with gratitude and love.

Frontispiece: Captive hare (*Lepus europaeus*).

ABSTRACT

The seasonal and altitudinal variations in diet and abundance of European hares (Lepus europaeus) in Tongariro National Park was studied from May 1977 to May 1978.

The main study area situated on the northern slopes of Mt. Ruapehu, adjacent to the Bruce Road, extended from 900 m to 1600 m a.s.l. A secondary study area established on the south-western slopes, adjacent to the Ohakune Mountain Road, extended from 700 m to 1500 m a.s.l. Transects were established altitudinally at 100 m intervals.

Dietary analysis was undertaken by identification of plant cuticles found within fresh faeces, collected monthly from the area surround each transect. Cuticle analysis results were supplemented by feeding using captive hares, direct field observations of browsed plant species and pellet samples from other areas within the Park.

Relationships between seasonal and altitudinal variations in chemical composition and availability of plant species are discussed with reference to dietary changes.

Faecal pellet density estimates were made along each transect, defecation rates of captives were determined and the affects of various factors on decomposition rate of pellets is discussed. Results of these three sections are combined to give an estimate of hare abundance.

Conclusions are drawn as to the importance of various factors in determining the diet of hares within the Park.

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My mother patiently corrected and typed the initial draft and Mrs. B. Billington typed the final manuscript. Finally, a special thanks to Tony for his patience and assistance throughout this study, which carried it through to completion.

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