

ECOLOGY OF THE LIZARD, CTENOTUS TAENIOLATUS:
INTERACTION OF LIFE HISTORY, ENERGY STORAGE
AND TAIL AUTOTOMY.

by

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PREFACE

I certify that the substance of this thesis has not already been submitted for any other degree and is not being submitted currently for any other degree.

I certify that the work for this study was carried out solely by the candidate. All assistance received in the preparation of the thesis and all sources used have been acknowledged herein.



Janet A. Taylor

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ABSTRACT

A study of the ecology of the lizard, Ctenotus taeniolatus was conducted in the New England Tablelands of NSW, Australia from 1979 to 1982. The two aims of the study were firstly to answer specific questions relating to the life history of Ctenotus taeniolatus, and secondly to investigate the significance of the tail, the principal energy storage organ, to that life history.

Consequently, questions concerning aspects of habitat selection, food and feeding behaviour, growth, reproduction and energy storage of C.taeniolatus were posed and produced the following results.

(i) Lizards used rocks as refuges, where they dug burrows, the shape and depth of which were found to be independent of season or lizard sex.

(ii) Lizards were found to be insectivorous, using both sit-and-wait and active foraging feeding behaviours. Adults and juveniles exhibited these behaviours in different ratios.

(iii) Lizards hatched at 33 mm SVL and were found to grow to maximum sizes of 75 mm (female) and 70 mm (male), reaching sexual maturity at 52 mm (female) and 43 mm (male), when they were likely to be 2 or perhaps 1 year old. Growth rates and associated growth models are presented.

(iv) Females were found to be oviparous, laying 1 to 7 eggs each summer. Spermatogenesis, ovulation and mating all occurred in spring. Clutch size was found to be related to body size.

(v) Lizards stored lipid in the general carcass and tail but possessed no abdominal fat bodies. Carcass lipid remained unchanged throughout the year, while tail lipid showed a distinct seasonal cycle in females, males and juveniles with low points occurring at the end of winter and after mating and ovulation. Liver weights, and glycogen and lipid content of the liver also showed seasonal cycles.

Further, questions about the significance of the tail to C.taeniolatus produced the following results.

(i) Lizards were found to store all of their usable lipids in the tail.

(ii) Lipid stores in the tail were found, theoretically and experimentally, to be necessary for survival overwinter and for reproduction.

(iii) At most 60% of lizards autotomised the tail.

(iv) Lipids within the tail were found to be stored mainly in the proximal end, which only 20% of lizards were found to lose during autotomy.

Taken together these results indicated that, because of the practise of economy of autotomy, the probability of lizards being adversely effected by autotomy was very small.