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NOTES ON FEEDING BEHAVIOR OF *ATLANTICUS TESTACEUS*[1] (ORTHOPTERA: TETTIGONIIDAE)

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INTRODUCTION

The Biology and Feeding behavior of *Atlanticus testaceus* (scudder) has received considerable attention by Gangwere (1966, 1967). While studying summer feeding of the adult *Atlanticus testaceus* in a Northern Michigan Jack Pine forest on the seeds of *Melampyrum lineare* Desr. (Scrophulariaceae), some new observations which supplement published information were made by the author.

MATERIALS AND METHODS

Adult males and females were hand collected from the forest floor between the hours of 10:00 PM and 12:00 midnight during the months of August and early September. They were placed in plastic containers overnight. The next day accumulated feces were taken from the containers and placed in 95% ethyl alcohol for later examination.

RESULTS

Observations made during the early part of the study showed both immature females and males actively feeding on the vegetative portions of *Melampyrum* night after night. Gut analysis supported this feeding preference. Also, when males were placed in a cage with dead leaves, they would feed upon them from time to time. *Melampyrum* seeds did not make up a significant part of the animal's diet. *Melampyrum* seeds were found in 5% of the feces and when present, made up less than 50% of the feces; rarely more.

In late summer the adult female and male diets were greatly different. Feces collected from females consisted of 85% insect parts, 13% sand and about 2% unknown materials. This unknown material for the most part consisted of various green plant tissues.

The male feces on the other hand consisted of 21% insect parts, 23% sand, 50% dead oak leaves and less than 1% unknown. It is interesting that nearly 75% of the male *Atlanticus* diet consisted of dead leaves and sand. Some fecal pellets were nearly 100% sand. This suggests that assimilation of protein is much reduced in the male as compared to the female. Van der Drift (1964) found that the millipede *Chromatoiulus projectus* (Verh.) consumed only 11.2% of the oak leaves that were passed through the gut, and that assimilation was limited to easily decomposable carbohydrates.

The observed dietary difference may reflect behavioral differences of the two sexes. Mature males spend late summer nights singing while perched on shrubs or lower tree branches. On the other hand, females appear to spend this time foraging over the leaves of various plants. This is supported by observations to the effect that females are very commonly found on the lower leaves of white oak at night. Further, much of the female diet was made up of small insects such as aphids.

The foregoing observations suggest that both sexes decrease the amount of green plant tissue in their diet as they reach maturity. Females become increasingly predatory late in the summer and feed almost exclusively on insects during egg laying periods.

Two reasons perhaps explain the large amount of sand in the diet. The research area itself was very sandy. Sand may be taken in unintentionally with other food, a fact which would account for the larger amount of sand along with the leaf litter diet of adult males, or males ingest more sand because it is needed in the crop to aid in the break-up of the dry leaves.

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SUMMARY

Adult feeding behavior differs between seasons of the year and between males and females. During the first part of the summer the immature male and female diets consist of green plant material, almost exclusively *Malampyrum* leaves and stems. During the second part of the summer most of the adult male diet consists of a low protein food. At this state, the female is highly predatory on other arthropods. Thus, a wide difference in feeding habits occurs in adult animals during the mating and egg-laying season. This appears to be a result of behavioral differences of the two sexes at this time of the year and is probably related to nutritional requirements.

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