

Effects of Environmental Variables on Some Physiological
Responses of Microtus montanus under Natural Conditions

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Project Number 173

The aims of this study were essentially the same as those described in the report on this project for the summer of 1969. In brief, between May and August, 1972, several physiological parameters were examined in the montane vole (Microtus montanus) under natural conditions. The physiological responses of these rodents are being correlated with seasonal changes in several environmental variables. The collection of data was essentially the same as outlined in the 1969 report.

Field observations

Field observations at the Research Station were carried out over two study periods: spring (May-June) and summer (July-August). A fall study period planned for October had to be cancelled when the field vehicle was demolished in a freak accident. It also left the principal investigator slightly incapacitated which accounts for the tardiness and brevity of this report.

A. Spring study period (May-June)

Throughout 1971 Microtus populations had increased well above the immediate post-crash levels of 1970. Surprisingly, the density of the Microtus population during the spring 1972 period was far below the expected levels. This might be attributed partly to periods of unusually inclement spring weather in 1972. The small sample of Microtus collected indicated that reproductive activity in these rodents had started at approximately the same time as in the spring of 1971. However, mean litter size was smaller than that recorded in the spring of 1971.

B. Summer study period (July and August)

Population density of Microtus had increased significantly over the levels observed in the spring of 1972 and over the summer levels of 1971. Voles no longer occurred in small isolated pockets within the habitat. Rather, they could be found relatively uniformly distributed throughout the meadows. Sign (cuttings, droppings) was very common.

Litter sizes were determined on the basis of embryo counts and/or placental scars. Mean litter size had increased over that observed in 1972.

In sharp contrast to 1970 no weasels entered traps set for Microtus in 1971. During the present study period long-tailed weasels (Mustela frenata) were trapped on a number of occasions. However, no short-tailed weasels (M. erminea) were captured in the study area during 1972.

Materials collected in the field are currently being processed at the Department of Biology, Louisiana State University in New Orleans. The analysis of the data is incomplete at the present.

Note: During the summer of 1972 an unusual naturally occurring mutation was discovered in the Uinta ground squirrel, Spermophilus armatus. The mutation, reported in several other species of rodents, is a simple Mendelian recessive character known as pink-eyed dilution (p). It is characterized by a loss of melanin from both the fur and the eyes. The mutant ground squirrel, trapped in Jackson Hole, had pinkish ivory pelage and pink eyes. This mutation has never been reported in any ground squirrel.

Acknowledgments

I wish to thank Janet R. Smith and J. Ed Hall, Louisiana State University in New Orleans, for their help during various phases of the study. This study was made possible by a grant-in-aid from the New York Zoological Society whose financial support is hereby gratefully acknowledged.