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The primary interest of the experiment centers in the comparative lengths of larval and pupal periods in the controlled situations at Chicago and Moran altitudes. These preliminary results indicate that there may be a lengthening of the larval and pupal periods associated with factors other than temperature.

These tests suggest that it may be useful to explore the life cycles of the invertebrates more fully with respect to altitude. Not only may some light be thrown on the question of whether altitude can act in a limiting fashion but the markedly different response of larvae and pupae suggests that a start can be made toward explaining the mechanisms involved.

Supported by New York Zoological Society.

Environment in Relation to Numbers, Kinds, and Morphology  
of Soil and Root Inhabiting Nematodes

W. F. Mai  
Cornell University  
Project Number 91

Soil and root inhabiting nematodes are becoming increasingly more important in our agricultural economy. At present little is known concerning their host ranges or other ecological relationships. The area surrounding the Jackson Hole Biological Laboratory is an excellent environment for making certain studies in this general field, especially those involving marked altitude and moisture changes within a relatively short distance. It is hoped that results obtained from these studies will supplement results obtained from laboratory, greenhouse, and field experiments being conducted on this same general subject at Cornell University.

During the past summer 66 soil samples and 66 root samples were collected in the Jackson Hole area. The sampling sites varied from 6,200 to 10,500 feet in elevation. With respect to degree of moisture these sites varied from marshy locations near the Snake River to areas receiving only sufficient moisture to support sage brush. Root samples were taken from 26 different kinds of plants, varying in type from large trees to small herbaceous annuals.

Nematodes were separated from roots by an incubation procedure and from soil by means of the Baerman funnel technique. After examining the recovered nematodes with a stereoscopic microscope they were killed by gentle heat and preserved in five per cent formalin.

During the winter months representative individuals will be mounted on slides and identified to species, using an oil immersion lens. An attempt will be made to correlate nematode species with location and with plant species. Individuals apparently belonging



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to the same nematode species but found under widely different environmental conditions or in or near the roots of widely divergent plant species will be examined carefully for morphological and anatomical variation.

From the examination under the stereoscopic microscope of nematodes recovered from the different samples it was evident that individuals from at least 12 genera were present. Substantial numbers of nematodes were obtained from a few of the samples.

Supported by New York Zoological Society.

Life History of Microtus richardsoni macropus  
Norman C. Negus  
Tulane University  
Project Number 87

A short time during September was spent in collecting additional reproductive and pelage data for the life history study of Microtus richardsoni macropus. Also live specimens were collected and sent to Dr. Robert Matthey, University de Lausanne, Lausanne, Switzerland for his use in behavior and chromosome studies.

Ecology of Ants in Jackson Hole, Wyoming  
Gerald and Coral Scherba  
Chico State College, California  
Project Number 80

The investigation of ant ecology in the Jackson Hole, Wyoming area has been concerned with three problems: the altitudinal distribution of ant species; the analysis of a Big Sagebrush ant population; and a description of a unique ant population on Moose Island, in the Snake River.

1. During 1957 about 200 specimens were collected from canyons in the Grand Teton Mountains at different elevations above 9,000 feet. This brings the total number of specimens to about 1300, which when determined will provide information on the distribution of ants at increasing altitudes in western Wyoming.

2. On the Big Sagebrush ant population, two suggestions arose from the 1956 data. One, that lack of available nesting sites may be an important factor limiting population density and two, that the foraging activity of different species may occur at different times during the day, and hence, competition between the fifteen coexisting species would be reduced.