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This summer Dr. Elliott Maynard was also engaged in research work at the Jackson Hole Biological Research Station, studying Collembola (springtails). This afforded an excellent opportunity to investigate the alpine springtails of the Tetons, for he agreed to process samples of moss and dirt in his Berlese Funnels and identify the springtails extracted. From the samples collected above 10,500 feet he found at least seventeen kinds of Collembola, including seven species believed to be previously undescribed. Moss collected just below the summit of The Grand (at 13,700 feet) was devoid of springtails, but just four days later I returned during a violent rainstorm, collected wet moss from that same crack in the rock, and Dr. Maynard obtained more than 100 Collembola from this second sample. Apparently these tiny insects retreat deep into the cracks during dry periods but quickly move into the moss as soon as it gets wet.

Further details concerning these and many other alpine observations are now being prepared for future publication, but will gladly be made available to interested persons, upon request.

Supported by the New York Zoological Society.

Population Estimate of Brook Trout in the Third Creek Area
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Project Number 114

This project was undertaken during July and August, 1961, to provide supplementary data to previous studies of the Third Creek fishery and to provide additional data to that already collected for various brook trout populations in the Rocky Mountains. From July 28 to August 28 the following data were collected.

I. Population Estimate; Mark and Recapture Method

Brook trout were electro-fished at Glade Creek, Teton County, marked by fin clipping and introduced into the largest beaver pond (Station III) on Third Creek. Additional fish were caught, marked, and introduced into the pond from lower Third Creek. A total of 103 fish were introduced.

Subsequently, the pond was fished by means of gill nets over a period of seven days. Gill nets used were: 1) 200 ft. graduated mesh (3/4 in. to 2 in.), 2) 100 ft. small mesh. The 200 foot net was set a total of five times, while the 100 foot small mesh net was used once. Gill netting was terminated when the catch became small; the last set took only eight trout. Total take of fish was 55 (20 marked, 35 unmarked). Initial calculations estimate the original population at 180+ fish. In addition, over 100 Utah suckers were gill netted and removed.

One 200 foot graduated gill net was placed in a pond (Station II) above the former in an effort to ascertain the nature of its fish population. Five brook trout between 13 and 17 inches were taken, indicating

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that its population is composed of old fish which are probably not reproducing.

II. Rate of Exploitation

Apparently the largest pond on Third Creek experienced very light fishing pressure during the latter part of the summer, 1961. A mailbox posted near the pond failed to record a single fisherman response. Less than 200 fish would not be expected to produce a high yield. During the three previous fishing seasons fishing pressure and success were apparently relatively greater.

III. Age-Growth Determination

Scale samples for age-growth analysis were taken from all fish native to Third Creek that were caught in the course of the mark and recapture program. These scales have yet to be analyzed.

IV. Stomach Content Analysis

Stomach samples were taken from all trout native to Third Creek that were taken during the gill netting. Contents of these stomachs were determined. Midge larvae, cladocerans, snails, and freshwater shrimp were present in greatest proportions.

A complete analysis of data collected during this study will be forthcoming.

Supported by the New York Zoological Society.

Comparative Ethology of Digger Wasps of the Subfamily Nyssoninae

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Project Number 115

This research is part of a long-term project in which it is hoped to make a detailed comparison of the behavior of as many species as possible of the subfamily Nyssoninae, in the hope of drawing deductions regarding the evolution of specific behavioral components in this complex.

Bembix amoena is a species of particular interest, since it is structurally one of the more primitive members of the genus. This species is widely distributed west of the Rockies, occurring chiefly at moderate altitudes and in areas of bare, coarse, gravelly soil. I did not locate any colonies at Jackson Hole, but I found it nesting in many places in Yellowstone, all of them near areas of thermal activity. Apparently the species finds the pulverized limestone and geyserite around such areas particularly suitable for nesting; possibly it is able to flourish at these altitudes (6800-7500 feet) because of the warming effect of the hot springs and geysers.