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Higher up on the walls of the canyons black-rosey finches were definitely nesting in great abundance. Two pairs of pipits (American) frequented opposite sides of the lake and by the severe disturbance created by a visit to certain areas, one can quite confidently surmise that they were nesting close by. The ouzel seen frequently feeding in the chief inlet, the red-shafted flicker observed on July 26, and the red-cross-bills noted higher on the divides may or may not have been nesting. Two female ducks, a harlequin and a Barrow's goldeneye, frequented the outlet all summer but showed no signs of young. A buteo, probably Swainson's hawk, usually soared over the divides and only occasionally came down into the canyon. On July 10th an osprey chanced into the area but was never seen again--as was a black and white warbler which visited camp on the 23rd.

One particularly interesting discovery was the sighting of a small flock of red polls feeding in the evergreens on the margin of Upper Basin.

The hermit thrush and woodpeckers common further down in the canyon were conspicuously absent. Hummingbirds were frequently sighted but none were identified except a female broad-tail and no attempts were made to determine if they were nesting.

Rodent Population Studies in Jackson Hole, Wyoming
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Project Number 110

During the summer of 1960, an attempt was made to evaluate reproduction in populations of Microtus montanus in relation to the growing season of the primary food plants. Extensive sampling of the populations was undertaken during July and August. A live-trapping unit was established in which all animals were marked and released. Females captured in this unit were X-rayed in the laboratory to obtain live embryo counts before release back into the unit. In this way we hoped to follow reproductive regimes in individuals through the season. Eventual failure of the X-ray apparatus precluded successful completion of this program. Samples of bluegrass (Poa pratensis) were collected at intervals throughout the study for chemical analysis in the laboratory during the fall and winter months. Known-age litters of young Microtus montanus were born and reared in the laboratory to obtain growth rate curves. Growth rates were determined up to 6 weeks of age. From these data approximate age determination was possible for most young animals taken during the summer.

Microtine populations were at very low density in Jackson Hole during 1960. Initial random sampling methods produced poor results. It was only after sampling failures that we discovered a successful

sampling method. We found that the voles were clumped in small colonies in the most favorable parts of the habitat. Extensive areas between colonies were completely devoid of voles. This area occupied by a vole colony averaged about 30 feet in diameter. More than 100 feet of unoccupied habitat often separated one colony from another. By trapping only in colony sites we were able to collect substantial samples for laboratory examination. A sample of about 220 Microtus montanus was thus obtained during July and August.

So restricted and discrete were the colonies of Microtus, that an attempt was made to evaluate the population composition in several colonies by trapping them constantly for several weeks. The results demonstrated that in every case a colony consisted of one large pair of adults, presumably animals that overwintered from last year, plus from one to three generations of young animals, all occupying the same runway system. Densities within colony areas thus approximated the general density conditions of a peak year. The strong colonial habit of Microtus in time of low population density must become an important factor when dealing with problems of population fluctuations, particularly if density-dependent stress due to contact is to be considered.

Embryo counts from adult and subadult females were grouped separately. For preliminary evaluation of the embryo counts, data from both age groups were further grouped into two samples. The first sample for each group included all data collected up to July 25, which was the approximate date of fruiting of most bluegrass in the area, and thus signified the end of the primary vegetative growth period for that important food species. The second sample included all embryo counts collected from July 26 to August 25 inclusive.

No difference was noted in the average embryo counts of subadult females during the two periods (5.1). However, a striking difference in average embryo count was observed in data from 42 adults. During the first period of sampling embryo counts averaged 6.9 per female, while for the second period after fruiting, the average number of embryos per adult female was 5.4. These data will be further analyzed and compared with grass analysis results as well as corpora lutea counts from all ovaries, which are to be sectioned and stained in the laboratory.

Assisted by Edwin Gould, Tulane University.
Supported by the New York Zoological Society.