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SOCIAL DYNAMICS OF THE MONTANE VOLE, MICROTUS MONTANUS,
AND THEIR POPULATION CONSEQUENCES

November 1976

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The social structure of a mammalian species is a basic feature of its life history. Although a knowledge of the social system is a prerequisite to understanding various reproductive and endocrinologic phenomena seen by other workers studying Microtus, Mus, and Peromyscus in the laboratory, behavior and sociality of Microtus in the field have been overlooked because they are difficult to study and because emphasis in microtine research has been placed on the microtine population "cycle."

There are two primary areas of interest in my work: the description of the social system and how it changes with changing density; and the documentation of the initiation and cessation of breeding seasonally and of the reproductive parameters which I believe are related to the social environment. Other aspects of the biology of M. montanus concurrently being investigated are survivorship, scent gland development, and patterns of cranial and dental variation. Population trends in M. longicaudus are being monitored, as is reproduction in the shorttail weasel (Mustela erminea).

During September and October M. montanus was sampled at seven sites. Microtus longicaudus was sampled at four sites in the vicinity of the Research Station and at one location in Bridger-Teton National Forest. A small sample of female weasels was made in November.

Microtus montanus was also removal trapped from four gridded areas. The largest of these two grids differed dramatically in the numbers of animals present. In one grid (204 stations) eight voles were trapped in the first two days. In the other grid (196 stations) 376 voles were trapped in the first two days. In the first instance the vole population has shown a decline over a period of at least two years, whereas in the second area the population has remained high.

Additional observations of dyadic encounters between field-trapped voles were made in the laboratory.

A small group of voles was brought back to the laboratory colony. Two albino M. montanus were trapped in 1976, and the genetic basis for this pelage variation is now being worked out in the laboratory.

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Work done in GTNP and supportive projects:

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- Jannett, F. J., Jr. 1975. The "hip glands" of Microtus pennsylvanicus and M. longicaudus (Rodentia: Muridae), voles "without" hip glands. *Systematic Zoology*, 24: 171-175.
- _____. Dosage response of the vesicular, preputial, anal, and hip glands of the male vole, Microtus montanus (Rodentia: Muridae), to testosterone propionate. Manuscript.
- _____. Prenatal and postnatal growth and development and the developmental molts of Microtus montanus nanus in the laboratory. In preparation.
- _____. Changes in the corpora and uteri of female voles, Microtus montanus, following parturition. In preparation.
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- _____ and _____. Convergent evolution in the behavior of a shrew and a rodent. Manuscript.
- Jannett, J. Z. The response of the flank glands and drum-marking of Arvicola richardsoni (Rodentia: Muridae) to castration, ovariectomy, and testosterone administration. Manuscript.