

Rodent Population Study on a Small Island of the Snake River  
Oxbow, Grand Teton National Park  
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A two-month (3 July to 4 September) field study was conducted to determine the population and reproductive statuses of the small mammals on a 2.8 acre island of the Snake River oxbow. It was felt that the population would be semi-isolated and thus minimally influenced by emigration to and immigration from surrounding areas.

Sherman live traps were used in a capture-recapture campaign to monitor the individual histories of the animals captured. Each mammal captured was toe-clipped for later identification. A grid was established with grid lines spaced at 66-ft. intervals. A total of 33 live traps were stationed at grid intersections or along grid lines midway between the intersections. These were left set both during daylight hours and overnight. Overnight sets were limited to approximately 5-day intervals throughout the study to reduce cold stress in animals which were held overnight in the uninsulated metal traps. Dates and locations of captures and recaptured were recorded.

Two major vegetation types occurred on the island: a north, west, and south periphery region of heavy grass and sedge ground cover with scattered willows; and an interior and east periphery region of cottonwood and lodgepole pine forest with sparse understory. Forest vegetation covered slightly over half the island.

A total of 121 small mammals were captured during the 2-month period: 99 Microtus pennsylvanicus?; 10 Peromyscus maniculatus; 2 Microtus longicaudus; 1 Zapus princeps; 2 Tamiasciurus hudsonicus; 1 Sorex cinereus?; 2 Thomomys talpoides; 1 Spermophilus armatus; and 3 Mustela erminea. Trap mortality consisted of five Microtus. Post-mortem examination showed that all five animals were Microtus pennsylvanicus. Microtus montanus were thus not shown to inhabit the island. Eutamias spp. were totally absent though the forested portion of the island represented habitat similar to that inhabited by Eutamias spp. on the mainland. Only one Zapus princeps capture occurred during the study. One capture of Spermophilus armatus was made. Apparently the animal was a transient since it was never captured or observed on any other occasion. Suitable habitat for this species was not present on the island.

The trapable Peromyscus maniculatus population remained constant at 7 individuals until the first week of August when 3 juveniles were captured. Thereafter a deer mouse population of 10 persisted. A family (1 female and 5 young) of Tamiasciurus hudsonicus nested in a hollow cottonwood tree on the island. Two of the young were captured and toe-clipped.

Of the 99 Microtus (pennsylvanicus?) captured, 14 were adult males, 24 were adult females, 41 were juvenile males, and 20 were juvenile females. Few individuals were recaptured over a period exceeding four weeks. Previously untrapped juveniles were recruited into the trapable population throughout the study period, though the two-week period from 20 July to 2 August showed the heaviest influx of juveniles. The number of newly-captured juveniles (12 and 15 respectively) in each of these weeks was more than double that for any other week.

Two males and one female Mustela erminea were captured on the following dates: 28 July, 4 August, 6 August, and 11 August. The female was captured on three separate occasions.

The known Microtus (pennsylvanicus?) population can be divided into two time periods: Period I from 6 July to 2 August, and Period II from 3 August to 6 September. The Period II population averaged roughly 50% of that during Period I. The Microtus (pennsylvanicus?) population decline corresponded with the appearance of the weasels in the trapping results, suggesting predator-prey interaction. Apparently the weasels did not significantly affect the Peromyscus population.

The amount of small mammal immigration to and emigration from the island was not determined. It was felt that the weasels deserted the island soon after the time of their captures since no further dramatic changes occurred in the Microtus (pennsylvanicus?) population after the weasels were encountered.

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