

SMALL MAMMAL COMPONENT OF HABITAT TYPES IN THEODORE ROOSEVELT NATIONAL PARK. — The aim of this study was to relate small mammal distribution to specific plant associations found within the Park. Habitat types were classified by the canopy-coverage method (Daubenmire, Northwest Sci. 33: 43-64, 1968). The following habitat types (h. t.) were sampled: *Stipa comata* — *Carex filifolia* h. t., *Agropyron smithii* — *Carex filifolia* h. t., *Andropogon scoparius* — *Carex filifolia* h. t., *Artemisia cana* — *Agropyron smithii* h. t., *Symphoricarpos occidentalis* h. t., *Juniperus scopulorum* — *Oryzopsis micrantha* h. t., *Fraxinus pennsylvanica* — *Prunus virginiana* h. t., and *Fraxinus pennsylvanica* — *Symphoricarpos occidentalis* h. t. (Hansen, An ecological study of the vegetation of Theodore Roosevelt National Park, M. A. Thesis, University of South Dakota, Vermillion, 1980). Thirty sites were sampled for small mammals during the summer of 1978. Trapping grids were placed in representative stands. A trapping grid consisted of five traplines of ten trap stations each, the lines and stations placed five meters apart. A trapping period consisted of three consecutive 24 hr periods. The Shannon Function, $H' = -\sum p_i \log_e p_i$, (MacArthur, Biol. Rev. 40: 510-533, 1965) was used to calculate species diversity and habitat breadth (Willson, Ecology 55: 1017-1029, 1974). A total of 4500 trap-days yielded 102 specimens of six species of small mammals. The prairie vole (*Microtus ochrogaster*) was captured in all the habitat types trapped except the *F. pennsylvanica* — *P. virginiana* habitat type. It was the only species captured in the *A. smithii* — *C. filifolia* habitat type and was most common in the *A. cana* — *A. smithii* habitat type. The meadow vole (*Microtus pennsylvanicus*) was captured in four habitat types dominated by shrubs or trees (*Symphoricarpos*, *Artemisia*, *Fraxinus*) and was absent from those dominated by grasses. This species was most common in the *A. cana* — *A. smithii* habitat type. The deer mouse (*Peromyscus maniculatus*) was captured in habitat types dominated by *Andropogon*, *Juniperus*, *Symphoricarpos*, and *Fraxinus* and was most common in the *J. scopulorum* — *O. micrantha* and *F. pennsylvanica* — *S. occidentalis* habitat types. The white-footed mouse (*Peromyscus leucopus*) was captured in habitat types similar to those of the deer mouse and was also most common in *J. scopulorum* — *O. micrantha* and *F. pennsylvanica* — *S. occidentalis* habitat types. The least chipmunk (*Eutamias minimus*) was captured in habitat types dominated by *Artemisia*, *Juniperus* and *Fraxinus* and was most common in the *F. pennsylvanica* — *P. virginiana* habitat type. Two specimens of the thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*) were captured, one each in the *S. comata* — *C. filifolia* and *A. cana* — *A. smithii* habitat types. No small mammal species was restricted to a single habitat type. Indices of habitat breadth indicated that the prairie vole and the deer mouse occupied a wide range of habitats or were more equally abundant in those habitats where they occurred. The meadow vole, the white-footed mouse, the least chipmunk, and the thirteen-lined ground squirrel were most restricted to some habitat type. Indices of small mammal diversity were lowest in habitat types dominated by grasses (*Stipa*, *Agropyron*, *Andropogon*) and higher in habitat types dominated by shrubs and trees

(*Artemisia*, *Symphoricarpos*, *Juniperus*, *Fraxinus*). Small mammal diversity was highest in the *F. pennsylvanica* – *S. occidentalis* habitat type. The higher diversity indices in this habitat type may result from greater habitat diversity, allowing for greater partitioning of food resources (Miller and Getz, *Can. J. Zool.* 55: 806-814, 1977). This study was supported by National Park Service Grants #CX-1200-B030 and #CX-1200-B037. — R. B. Hopkins, *Biology Dept., Univ. S. Dak., Vermillion, SD 57069. Present address: Zoology Dept., N. Dak. St. Univ., Fargo, ND 58105.*