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1976

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Walker, Jerry A., "Relative Abundance And Habitat Preference Of Some Small Mammals In Southeastern Nebraska" (1976). *Transactions of the Nebraska Academy of Sciences and Affiliated Societies*. 417.  
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RELATIVE ABUNDANCE AND HABITAT PREFERENCE OF SOME  
SMALL MAMMALS IN SOUTHEASTERN NEBRASKA

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ABSTRACT

Several small mammal species collected from southern Lancaster and northeastern Saline Counties, Nebraska showed variations in relative abundance and habitat preference from that recorded in the literature. The masked shrew (*Sorex cinereus*) was found in riparian and upland communities. The western harvest mouse (*Reithrodontomys megalotis*) (60 per cent of all captures) was the most abundant species in the area. The meadow vole (*Microtus pennsylvanicus*) occurred in perennial grass upland areas, and the prairie vole (*Microtus ochrogaster*) was found in annual grass and forb habitats. One species of vole was found to seldomly frequent the other's habitat.

INTRODUCTION

The small mammal fauna in this study was collected from southern Lancaster and northeastern Saline Counties, Nebraska. Most of the information was from a seven-acre tract on the Reller Natural History Research Area 2 mi. S. of Martell, Nebraska that was studied intensively from June 1971 through August 1972.

Mammal names agree with Jones (1964) and plant names follow Fernald (1950) and Hitchcock and Chase (1950).

Mammal specimens are at the Natural Science Division at Doane College, Crete, Nebraska and at the State Museum, University of Nebraska, Lincoln.

HABITATS AND SMALL MAMMALS OF THE RELLER AREA

Habitats of the seven-acre tract were divided into (1) an abandoned field cropped last in the summer of 1970 and dominated by Japanese brome (*Bromus japonicus*), red clover (*Trifolium pratense*), and numerous annual forbs, (2) a fence row supporting tree and shrub growth and ground cover varying from sparse to dense stands of smooth brome (*Bromus inermis*), and (3) a pasture with little bluestem (*Andropogon scoparius*), Kentucky bluegrass (*Poa pratensis*), smooth brome, with moderate numbers of forbs in contrast to the abandoned field, and shrubs with snowberry (*Symphoricarpos* spp.) and Arkansas rose (*Rosa Arkansana*) most abundant.

Small mammals captured with Museum Special traps on the Reller Area in order of abundance were the western harvest mouse (*Reithrodontomys megalotis*), meadow vole (*Microtus pennsylvanicus*), white-footed mouse (*Peromyscus leucopus*), deer mouse (*Peromyscus maniculatus*), short-tailed

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Table 1. Seasonal small mammal captures and trap nights on the Reller Tract.  
Species names are abbreviated.

	R mc g	M penn	P leuc	P man	B brev	S cin	M och	Z hud	P his	M mus	S tri	Trap nights
June through Aug. 1971	70	1	9	10	5	0	3	3	2	1	0	783
Sept. through Nov. 1971	27	10	10	1	8	5	2	2	0	1	0	853
Dec. 1971 through Feb. 1972	42	6	14	5	2	6	1	0	0	0	0	868
March through May 1972	34	6	6	1	1	3	0	0	0	0	1	886
June through Aug. 1972	74	23	6	7	1	1	2	0	0	0	0	787
Total	247	46	45	24	17	15	8	5	2	2	1	4197

shrew (*Blarina brevicauda*), masked shrew (*Sorex cinereus*), prairie vole (*Microtus ochrogaster*), jumping mouse (*Zapus hudsonius*), hispid pocket mouse (*Perognathus hispidus*), house mouse (*Mus musculus*), and the thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*). Table 1 shows seasonal captures of each species and total trap nights. From the table one can interpret the relative abundance of each species and the time of year certain species were likely to be captured.

**SPECIES ACCOUNTS**

Masked Shrew (*Sorex cinereus*)

Twenty-three specimens of the masked shrew were collected from three localities in Saline and Lancaster Counties. Fifteen specimens were captured on the Reller Area occurring in upland little bluestem and Kentucky bluegrass habitats. One specimen was caught 1 mi. N. of Martell in upland native grass planted habitat composed primarily of little bluestem and Indian grass (*Sorghastrum nutans*) on land surrounding the Salt Valley Watershed District Dam 17A. Seven masked shrews have been taken on the Doane College campus, Crete, Nebraska. Six were captured in a riparian community of deciduous trees and one was taken in a pine plantation with trees standing

approximately 35 feet.

Jones (1964) gave the range and habitat of the masked shrew as northern Nebraska south to the Platte River in marshy areas and lush riparian associations. Choate and Genoways (1966) were the first to report the masked shrew in Saline County. Jones (1964) suggested that the least shrew (*Cryptotis parva*) was an upland species and documented its occurrence in southeastern Nebraska. In this study the masked shrew instead of the least shrew inhabited riparian and upland habitats. The masked shrew captures in Lancaster and Saline Counties revealed that the masked shrew was well-established in a variety of habitats in southeastern Nebraska.

#### Western Harvest Mouse (*Reithrodontomys megalotis*)

This species comprised 60 per cent of all species captured on the Reller Tract. It was caught in all habitats. The relative abundance was greatest in the abandoned field. Similar habitats for the western harvest mouse have been noted by Andersen and Fleharty (1969), Jones (1964), and Whitaker and Mumford (1972).

Beckwith (1954) stated that the deer mouse was the most abundant small mammal in early seral stages of secondary succession in Michigan. Pearson (1959) noted that the white-footed mouse occupied these seral stages in New Jersey. This study indicated that the western harvest mouse was the most abundant species in these seral stages in Nebraska. The western harvest mouse fed on seeds, insects, and tender shoots of grasses in a study in Indiana (Whitaker and Mumford, 1972). These authors found the western harvest mouse invading a rye field where its diet consisted primarily of rye seeds and the green sprouts of the germinating rye seed. A comparable food source occurred on the Reller Tract with Japanese brome seeds being produced in large quantities in the summer. These seeds germinated throughout the winter and spring in the abandoned field and provided an abundant food source for the western harvest mouse.

#### Deer Mouse (*Peromyscus maniculatus*)

The deer mouse was captured only in the abandoned field and pasture. It was not high in relative abundance in any of the samples. Jones' (1964) statement that the deer mouse was the most abundant mammal species in Nebraska was not reflected in samples in this study.

Prairie Vole (*Microtus ochrogaster*) and Meadow Vole (*Microtus pennsylvanicus*)

The prairie vole and meadow vole were in different habitats on the Reller

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Tract. The prairie vole was found in the abandoned field while the meadow vole was in the more dense grasses of the pasture. Studies by Genoways and Choate (1970), Getz (1970), Jameson (1947), Martin (1956), and Zimmerman (1965) gave similar habitats for the two species. Jones (1964) stated that meadow vole was associated with permanent water in Nebraska. One prairie vole was collected in upland prairie habitat where 45 meadow voles were collected, and one meadow vole was taken in the abandoned field where seven prairie voles were collected on the Reller Tract.

### Other Species

Distributions, relative abundances, and habitats of other small mammal species encountered in this study agreed with Jones (1964).

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