

Final Report of Research

Status of Small Mammal  
Species Reaching Distributional Limits  
in Southern and Western Minnesota

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During the period from 2 August-4 September 1982, small mammals were collected at 15 localities in southern and western Minnesota (see Appendix I). Several individual traplines were set at each locality, resulting in a total trapping effort of 4,974 trapnights (=1 trap set for 1 night). A total of 672 individual small mammals representing 14 species was captured. Of these, 219 specimens were preserved and are on deposit in the permanent research collection of mammals in the Bell Museum of Natural History (Appendix II).

Because money to pay salaries for student assistants was not available in the budget, two student volunteers, John Brennan and David Tallman, conducted most of the field work. Elmer Birney, principal investigator, worked with the assistants at the first two localities to instruct them in basic field techniques. At each locality the general area was studied carefully to assess the variety of habitats available, especially those that the seven target species are known to occupy. Traps were then set in all habitats, with most being placed in those in which target species might be expected. These seven target species were: 1) Cryptotis parva (least shrew); 2) Spermophilus richardsoni (Richardson's ground squirrel); 3) Perognathus flavescens (plains pocket mouse); 4) Reithrodontomys megalotis (western harvest mouse); 5) Onychomys leucogaster (northern grasshopper mouse); 6) Microtus ochrogaster (prairie vole); and 7) Microtus pinetorum (woodland vole). Thomomys talpoides (northern pocket gopher) was included in the original request, but was excluded by mutual agreement of the Principal Investigator and Ms. Lee Pfannmuller of the DNR Non-game Wildlife Program because its known occurrence in Minnesota is in the extreme northwestern corner. To reduce travel expense and to spend more time trapping the southwestern grassland, the trip to northwestern Minnesota was rescheduled to the southwestern area.

In addition to the summary results listed by species in Appendix II, specific results for each habitat trapped at each locality are presented individually in Appendix III.

As can be seen, Onychomys leucogaster and Microtus ochrogaster were the only species from the priority list that were trapped. A juvenile male O. leucogaster was captured in a museum special at Kilen Woods State Park, SE 1/4, NW 1/4, sec. 17, T103N, R35W, Jackson Co., Minnesota, on 29 August 1982. Two specimens of M. ochrogaster, both subadult females, were captured in museum specials at the Hokah Prairie, SE 1/4, NE 1/4, sec. 1, T103N, R5W, Houston Co., Minnesota, on 9 August 1982. In addition, a colony of Spermophilus richardsonii was observed at Hole in the Mountain Prairie, SW 1/4, SW 1/4, sec. 20, T109N, R45W, Lincoln Co., Minnesota, on 2 September. Rat traps set for this species were disturbed, apparently by the ground squirrels and by a badger (Taxidea taxus) that was active in the area. No specimen was taken, but unequivocal identification of S. richardsonii was possible from the observations.

Given the failure to detect some species and the success at trapping others, little is possible regarding assessing the status of the rare and uncommon small mammals that reach their distributional limits in the southern and western portions of Minnesota. Nevertheless, the following general impressions, based in part on the field work reported herein, other trapping records over the past decade, the biology of these species, and recent records in neighboring states, may be of some use.

Given that Cryptotis parva has not been detected in the state for nearly 70 years, and then only just inside the state boundary at a locality now greatly disturbed by human habitation, we probably should not devote additional resources to the management or study of this species in Minnesota. However, given the more recent records in adjacent Wisconsin and Iowa and the small size and secretive nature of this tiny shrew, one or more viable populations easily could remain in the state. Any shrews captured in southeastern Minnesota should be carefully identified. On the one hand, Cryptotis could be rediscovered in Minnesota at any time, and on the other the species may have been extirpated long ago.

Spermophilus richardsonii now seems to be firmly established over much of western Minnesota. The species is quite successful in moderately and perhaps even some heavily-grazed pastures, and appears to be a well established component of our state's mammalian fauna.

Perognathus flavescens appears to be fairly widespread, but nowhere common in Minnesota. This species merits special watching by field personnel, and every specimen collected should be preserved. This species would be a high priority for ecological study in the state when new populations are located.

Reithrodontomys megalotis is known from many localities in Minnesota, including some specimens taken in recent years. The species is nowhere known to be common in the state, but does sometimes build up moderately high populations in some arid, ungrazed areas elsewhere. Populations of this species detected anywhere within the state should be monitored by regular live trapping or at least periodic snap trapping.

Onychomys leucogaster appears to be a fairly widespread species in the grassland portion of Minnesota, but probably never builds up large populations in the marginal habitat that Minnesota provides for the species.

Microtus ochrogaster is a species that once was apparently widespread and common in Minnesota. Plowing and grazing of the prairie portions of the state have severely restricted the habitat available to this vole. The species should be carefully studied and possibly provided with one or more large areas of carefully managed grassland habitat.

Microtus pinetorum is basically a woodland species. It is known to become fairly common in some managed areas, especially orchards. However, it is not known to reach high densities in undisturbed forests, where it usually is found in low numbers. In southeastern Minnesota, where two specimens of the species have been captured, there are both woodlands and orchards that appear to provide habitat for the species. In the orchards sampled, we trapped large numbers of

Blarina brevicauda, Microtus pennsylvanicus, and Zapus hudsonius, but no M. pinetorum. In this habitat, it appears that M. pennsylvanicus is occupying the "microtine niche," but it is not clear if M. pennsylvanicus is excluding M. pinetorum or if M. pinetorum simply is not present in the area today and thus the resources in this habitat fall to its congener. In the deciduous woods at both Homer and O. L. Kipp State Park, the ground is honeycombed by shallow subterranean runways that appear to have been made by a small mammal. I have often trapped M. pinetorum from similar runways in similar habitat in Kansas, Missouri, and Illinois. In Minnesota, these runways yielded large numbers of Peromyscus leucopus and Blarina brevicauda. I observed this same phenomena in Houston County in 1972, and am currently entertaining the hypothesis that M. pinetorum exists in Minnesota on a regular basis. Perhaps it usually exists here only in low numbers, possibly owing to a combination of ecological factors such as marginal habitat and predation on nestings by Blarina brevicauda. On occasion, however, I suspect that sizable populations of M. pinetorum do build up and dig and renew the extensive honeycombs of runways, then, for one reason or another, these populations decrease and are again held at low numbers for many years by some factors, possibly competition and/or predation, associated with one or both of the two species that so extensively use these burrow systems.

Appendix I - Itinerary

Date	Localities and legal descriptions of traplines
2 August	HOMER--Winona Co. R6W, T106N: sec. 4; NE $\frac{1}{4}$ of NW $\frac{1}{4}$ .
3-6 August	O. L. KIPP STATE PARK--Winona Co. R5W, T106N: sec. 34; NW $\frac{1}{4}$ of NE $\frac{1}{4}$ , SW $\frac{1}{4}$ of NE $\frac{1}{4}$ : sec. 35; SW $\frac{1}{4}$ of NE $\frac{1}{4}$ , SE $\frac{1}{4}$ of SE $\frac{1}{4}$ .
7 August	LA CRESCENT--Houston Co. R4W, T104N: sec. 4; NE $\frac{1}{4}$ of SE $\frac{1}{4}$ .
8 August	HOKAH--Houston Co. R5W, T103N: sec. 1; NE $\frac{1}{4}$ of NE $\frac{1}{4}$ , SE $\frac{1}{4}$ of NE $\frac{1}{4}$ .
9-12 August	BEAVER CREEK STATE PARK--Houston Co. R6W, T102N: sec. 5; SW $\frac{1}{4}$ of SW $\frac{1}{4}$ : sec. 17; NE $\frac{1}{4}$ of NW $\frac{1}{4}$ , SW $\frac{1}{4}$ of NE $\frac{1}{4}$ , SW $\frac{1}{4}$ of SW $\frac{1}{4}$ , NE $\frac{1}{4}$ of SE $\frac{1}{4}$ .
17-18 August	WHITEWATER WILDLIFE MANAGEMENT AREA--Winona Co. R10W, T108N: sec. 2; SW $\frac{1}{4}$ of NE $\frac{1}{4}$ , SE $\frac{1}{4}$ of SW $\frac{1}{4}$ : sec. 11; SW $\frac{1}{4}$ of NW $\frac{1}{4}$ : sec. 15; SE $\frac{1}{4}$ of NE $\frac{1}{4}$ .
19 August	WHITEWATER STATE PARK--Winona Co. R10W, T107N: sec. 17; NE $\frac{1}{4}$ of SE $\frac{1}{4}$ : sec. 20; NE $\frac{1}{4}$ of SW $\frac{1}{4}$ .
20-22 August	WILD INDIGO SCIENTIFIC AND NATURAL AREA--Mower Co. R18W, T103N: sec. 24; NE $\frac{1}{4}$ of NW $\frac{1}{4}$ . R17W, T103N: sec. 11; SE $\frac{1}{4}$ of SE $\frac{1}{4}$ : sec. 12; SE $\frac{1}{4}$ of SE $\frac{1}{4}$ : sec. 13; NE $\frac{1}{4}$ of NE $\frac{1}{4}$ : sec. 17; SE $\frac{1}{4}$ of NE $\frac{1}{4}$ : sec. 7; SW $\frac{1}{4}$ of SW $\frac{1}{4}$ : sec. 16; SE $\frac{1}{4}$ of NE $\frac{1}{4}$ .
27 August	WALNUT LAKE WILDLIFE MANAGEMENT AREA--Faribault Co. R25W, T102N: sec. 1; NE $\frac{1}{4}$ of SE $\frac{1}{4}$ , SE $\frac{1}{4}$ of SE $\frac{1}{4}$ .
28-29 August	KILEN WOODS STATE PARK--Jackson Co. R35W, T103N: sec. 17; NW $\frac{1}{4}$ of NE $\frac{1}{4}$ ; NW $\frac{1}{4}$ of SE $\frac{1}{4}$ , NE $\frac{1}{4}$ of SW $\frac{1}{4}$ .
30-31 August	BLUE MOUNDS STATE PARK--Rock. Co. R45W, T103N: sec. 24; NE $\frac{1}{4}$ of NW $\frac{1}{4}$ , SE $\frac{1}{4}$ of NW $\frac{1}{4}$ .
1 September	SPLIT ROCK CREEK STATE PARK--Pipestone Co. R46W, T105N: sec. 15; NW $\frac{1}{4}$ of NW $\frac{1}{4}$ , SW $\frac{1}{4}$ of SW $\frac{1}{4}$ .
2 September	HOLE IN THE MOUNTAIN PRAIRIE--Lincoln Co. R45W, T109N: sec. 19; SE $\frac{1}{4}$ of SE $\frac{1}{4}$ : sec. 20; SW $\frac{1}{4}$ of SW $\frac{1}{4}$ .
3 September	HIGH POINT LAKE WILDLIFE MANAGEMENT AREA--Lyon Co. R43W, T111N: sec. 36; SW $\frac{1}{4}$ of SW $\frac{1}{4}$ , SE $\frac{1}{4}$ of SW $\frac{1}{4}$ . R43W, T111N: sec. 1; NW $\frac{1}{4}$ of NW $\frac{1}{4}$ , NE $\frac{1}{4}$ of NW $\frac{1}{4}$ .
4 September	CAMDEN STATE PARK--Lyon Co. R42W, T110N: sec. 5; NW $\frac{1}{4}$ of NW $\frac{1}{4}$ : sec. 8; NE $\frac{1}{4}$ of SE $\frac{1}{4}$ .

Date	Localities and legal descriptions of traplines
5 September	SIOUX NATIONAL WILDLIFE MANAGEMENT AREA--Yellow Medicine Co. R46W, T114N: sec. 17; NE $\frac{1}{4}$ of NW $\frac{1}{4}$ , SW $\frac{1}{4}$ of SW $\frac{1}{4}$ .
6 September	LAC QUI PARLE STATE PARK--Lac Qui Parle Co. R42W, T118N: sec. 14; NE $\frac{1}{4}$ of SW $\frac{1}{4}$ : sec. 23; NE $\frac{1}{4}$ of NW $\frac{1}{4}$ .
7 September	HASTAD WATERFOWL PRODUCTION AREA--Lac Qui Parle Co. R43W, T119N: sec. 5; SE $\frac{1}{4}$ of SW $\frac{1}{4}$ .
	HEGLUND WATERFOWL PRODUCTION AREA--LacQui Parle Co. R43W, T119N: sec. 4; SW $\frac{1}{4}$ of SE $\frac{1}{4}$ .
8 September	VICTORY WILDLIFE MANAGEMENT AREA--Big Stone Co. R45W, T122N: sec. 31; SE $\frac{1}{4}$ of SW $\frac{1}{4}$ , NE $\frac{1}{4}$ of SE $\frac{1}{4}$ .

Appendix II--Trapping effort summary sheet

Trapping effort (trapnights):

Museum specials 4,974  
 Sherman live traps 207  
 Pitfalls 152  
 Rat traps 14  
 Gopher traps 4  
 Mole traps 8

Species captured	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	55	22	0	11	22
<u>Blarina brevicauda</u>	143	38	0	7	98
* <u>Myotis lucifugus</u>	3	3	0	0	0
* <u>Lasiurus borealis</u>	3	3	0	0	0
<u>Spermophilus tridecemlineatus</u>	3	2	0	0	1
<u>Tamias striatus</u>	3	3	0	0	0
<u>Geomys bursarius</u>	4	3	0	1	0
<u>Peromyscus leucopus</u>	150	26	2	6	116
<u>Peromyscus maniculatus</u>	13	12	0	1	0
<u>Onychomys leucogaster</u>	1	1	0	0	0
<u>Microtus ochrogaster</u>	2	2	0	0	0
<u>Microtus pennsylvanicus</u>	216	37	1	3	175
<u>Mus musculus</u>	3	1	0	1	1
<u>Zapus hudsonius</u>	73	29	0	4	40

\*Captured in a net

Appendix III--Trap success by locality

Locality: Homer

Dates: 2 August 1982

Habitats trapped: 1) grassy apple orchard  
2) wooded, deciduous bank

Trapping effort (trapnights):

Museum specials 170  
 Sherman live traps 0  
 Pitfalls 0  
 Rat traps 0  
 Gopher traps 0  
 Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Blarina brevicauda</u>	2	3	1	0	2	0
<u>Microtus pennsylvanicus</u>	1,2	3	2	0	0	1
<u>Peromyscus leucopus</u>	2	8	3	1	0	4

Locality: O. L. Kipp State Park

Dates: 3-6 August 1982

Habitats trapped: 1) deciduous wooded bank at about a 40° incline  
2) meadow with moderate to tall mixed grass  
3) mixed grass near a small pond  
4) flat, deciduous forest  
5) open meadow near some apple trees  
6) meadow with deciduous trees and a few planted conifers  
7) dry, relatively bare hill with short grass and shrubs

Trapping effort (trapnights):

Museum specials 724  
Sherman live traps 207  
Pitfalls 72  
Rat traps 0  
Gopher traps 1  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	1,2	5	3	0	2	0
<u>Blarina brevicauda</u>	1,2,6	7	3	0	1	3
* <u>Myotis lucifugus</u>	3	3	3	0	0	0
* <u>Lasiurus borealis</u>	3	3	3	0	0	0
<u>Spermophilus tridecemlineatus</u>	6	1	1	0	0	0
<u>Geomys bursarius</u>	6	1	1	0	0	0
<u>Peromyscus leucopus</u>	1,4,7	28	4	0	3	21
<u>Microtus pennsylvanicus</u>	3	3	2	0	0	1
<u>Zapus hudsonius</u>	2	8	4	0	3	1

\*Captured in a net set over the small pond in habitat 3 above.

Locality: La Crescent

Dates: 7 August 1982

Habitats trapped: 1) Heavily overgrown apple orchard on the side of a hill

Trapping effort (trapnights):

Museum specials 200  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	1	1	1	0	0	0
<u>Blarina brevicauda</u>	1	7	2	0	0	5
<u>Peromyscus leucopus</u>	1	3	1	0	0	2
<u>Microtus pennsylvanicus</u>	1	8	2	0	0	6
<u>Zapus hudsonius</u>	1	10	2	0	0	8

Locality: Hokah

Dates: 8 August 1982

Habitats trapped: 1) Hokah prairie, consisting of dry and mixed grass with a few deciduous trees

Trapping effort (trapnights):

Museum specials 200  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Peromyscus leucopus</u>	1	8	2	0	0	6
<u>Microtus ochrogaster</u>	1	2	2	0	0	0
<u>Microtus pennsylvanicus</u>	1	2	0	0	0	2
<u>Zapus hudsonius</u>	1	2	1	0	0	1

Locality: Beaver Creek State Park

Dates: 9-12 August 1982

Habitats trapped: 1) mowed grass lawn  
2) wooded deciduous hill  
3) flat deciduous forest  
4) flat, damp, and thinly wooded deciduous forest  
5) prairie near a cow pasture  
6) tall grass/gravel near a creek  
7) flat meadow on a flood plain

Trapping effort (trapnights):

Museum specials 540  
Sherman live traps 0  
Pitfalls 40  
Rat traps 2  
Gopher traps 0  
Mole traps 8

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	5,7	3	2	0	1	0
<u>Blarina brevicauda</u>	2,3,4,7	26	3	0	2	21
<u>Tamias striatus</u>	3,4	3	3	0	0	0
<u>Peromyscus leucopus</u>	2,3,4,6,7	22	4	0	0	18
<u>Microtus pennsylvanicus</u>	5,6,7	37	3	0	0	34
<u>Zapus hudsonius</u>	3,5,6,7	4	2	0	1	1

Locality: Whitewater Wildlife Management Area

Dates: 17-18 August 1982

Habitats trapped: 1) damp, marshy grassland  
2) grassy deciduous forest  
3) dry meadow with tall grasses  
4) thinly vegetated deciduous forest

Trapping effort (trapnights):

Museum specials 360  
Sherman live traps 0  
Pitfalls 40  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	1,2,4	7	4	0	0	3
<u>Blarina brevicauda</u>	1,2,3,4	17	4	0	2	11
<u>Peromyscus leucopus</u>	2,4	17	1	1	1	14
<u>Microtus pennsylvanicus</u>	1,2,3,4	21	3	0	2	16
<u>Zapus hudsonius</u>	1,2,3	5	3	0	0	2

Locality: Whitewater State Park

Dates: 19 August 1982

Habitats trapped: 1) tall grassland with appreciable goldenrod and thistles  
2) moderately tall grassland

Trapping effort (trapnights):

Museum specials 180  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Blarina brevicauda</u>	1,2	7	2	0	0	5
<u>Peromyscus leucopus</u>	1	1	0	0	1	0
<u>Microtus pennsylvanicus</u>	1,2	49	2	0	0	47
<u>Zapus hudsonius</u>	2	3	1	0	0	2

Locality: Wild Indigo Scientific and Natural Area

Dates: 20-22 August 1982

Habitats trapped: 1) moderate to tall grassland along an old railroad bed;  
much goldenrod

Trapping effort (trapnights):

Museum specials 480  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 2  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	1	6	3	0	1	2
<u>Blarina brevicauda</u>	1	40	6	0	0	34
<u>Geomys bursarius</u>	1	2	1	0	1	0
<u>Peromyscus leucopus</u>	1	3	2	0	0	0
<u>Microtus pennsylvanicus</u>	1	5	2	0	0	3
<u>Zapus hudsonius</u>	1	6	2	0	0	4

Locality: Walnut Lake Wildlife Management Area

Dates: 27 August 1982

Habitats trapped: 1) low, wet meadow  
2) damp meadow with some small sedges

Trapping effort (trapnights):

Museum specials 160  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	1,2	7	1	0	1	5
<u>Blarina brevicauda</u>	1,2	5	2	0	0	3
<u>Peromyscus leucopus</u>	1,2	5	1	0	1	3
<u>Microtus pennsylvanicus</u>	1,2	9	2	0	0	7
<u>Zapus hudsonius</u>	1,2	5	2	0	0	3

Locality: Kilen Woods State Park

Dates: 28-29 August 1982

Habitats trapped: 1) short grassland that had been burned within past year  
2) hilly oak savannah

Trapping effort (trapnights):

Museum specials 360  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	1,2	2	0	0	2	0
<u>Blarina brevicauda</u>	1,2	12	4	0	0	8
<u>Peromyscus leucopus</u>	1,2	34	4	0	0	30
<u>Peromyscus maniculatus</u>	1	1	1	0	0	0
<u>Onychomys leucogaster</u>	1	1	1	0	0	0
<u>Microtus pennsylvanicus</u>	1,2	12	3	0	0	9
<u>Mus musculus</u>	2	1	0	0	1	0
<u>Zapus hudsonius</u>	2	2	2	0	0	0

Locality: Blue Mounds State Park

Dates: 30-31 August 1982

Habitats trapped: 1) native prairie on shallow soil with large protruding rocks  
2) damp grassland with interspersed trees, near a creek and a lake

Trapping effort (trapnights):

Museum specials 320  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Blarina brevicauda</u>	2	3	1	0	0	2
<u>Peromyscus leucopus</u>	2	1	1	0	0	0
<u>Microtus pennsylvanicus</u> 1,2		3	2	0	0	1

Locality: Split Rock Creek State Park

Dates: 1 September 1982

Habitats trapped: 1) dense, moderately tall grassland near a deciduous forest

Trapping effort (trapnights):

Museum specials 160  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

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Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Blarina brevicauda</u>	1	2	1	0	0	1
<u>Peromyscus leucopus</u>	1	3	2	0	0	1
<u>Microtus pennsylvanicus</u>	1	14	2	0	0	12
<u>Mus musculus</u>	1	2	1	0	0	1
<u>Zapus hudsonius</u>	1	4	2	0	0	2

Locality: Hole in the Mountain Prairie

Dates: 2 September 1982

Habitats trapped: 1) native prairie on rolling hills

Trapping effort (trapnights):

Museum specials 160  
Sherman live traps 0  
Pitfalls 0  
Rat traps 12  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	1	5	2	0	0	3
<u>Blarina brevicauda</u>	1	1	1	0	0	0
<u>Peromyscus leucopus</u>	1	4	0	0	0	4
<u>Peromyscus maniculatus</u>	1	2	2	0	0	0
<u>Microtus pennsylvanicus</u>	1	9	2	0	0	7
<u>Zapus hudsonius</u>	1	1	0	0	0	0

Locality: High Point Lake Wildlife Management Area

Dates: 3 September 1982

Habitats trapped: 1) hilly prairie near a marsh  
2) hilly prairie

Trapping effort (trapnights):

Museum specials 160  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	1,2	2	1	0	1	0
<u>Blarina brevicauda</u>	1,2	4	3	0	0	1
<u>Peromyscus maniculatus</u>	1,2	3	2	0	1	0
<u>Microtus pennsylvanicus</u>	1,2	2	1	0	1	0
<u>Zapus hudsonius</u>	1	1	1	0	0	0

Locality: Camden State Park

Dates: 4 September 1982

Habitats trapped: 1) prairie near a row of fruit trees  
2) prairie near a deciduous forest

Trapping effort (trapnights):

Museum specials 160  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 1  
Mole traps 0

<u>Species captured</u>	<u>Habitats</u>	<u>Total</u>	<u>Skin &amp; skull</u>	<u>Skull only</u>	<u>Fluid preserved</u>	<u>Not saved</u>
<u>Sorex cinereus</u>	1,2	2	0	0	2	0
<u>Blarina brevicauda</u>	1	3	1	0	0	2
<u>Geomys bursarius</u>	1	1	0	0	0	0
<u>Peromyscus leucopus</u>	1	2	0	0	1	1
<u>Peromyscus maniculatus</u>	2	1	1	0	0	0
<u>Microtus pennsylvanicus</u>	1,2	10	2	0	0	8
<u>Zapus hudsonius</u>	1,2	6	2	0	0	4

Locality: Sioux Nation Wildlife Management Area

Dates: 5 September 1982

Habitats trapped: 1) hilly prairie

Trapping effort (trapnights):

Museum specials 160  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	1	3	1	0	0	2
<u>Blarina brevicauda</u>	1	2	1	0	0	1
<u>Spermophilus tridecemlineatus</u>	1	2	1	0	0	1
<u>Peromyscus leucopus</u>	1	10	0	0	0	10
<u>Peromyscus maniculatus</u>	1	2	2	0	0	0
<u>Microtus pennsylvanicus</u>	1	3	1	1	0	1
<u>Zapus hudsonius</u>	1	5	1	0	0	4

Locality: Lac Qui Parle State Park

Dates: 6 September 1982

Habitats trapped: 1) grassy meadow near a deciduous forest  
2) meadow and thin brush near a deciduous forest

Trapping effort (trapnights):

Museum specials 160  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	2	1	1	0	0	0
<u>Peromyscus leucopus</u>	2	1	0	0	0	1
<u>Peromyscus maniculatus</u>	2	1	1	0	0	0
<u>Microtus pennsylvanicus</u>	1,2	12	2	0	0	10
<u>Zapus hudsonius</u>	1,2	5	2	0	0	3

Locality: Hastad Waterfowl Production Area

Dates: 7 September 1982

Habitats trapped: 1) native prairie on high ground

Trapping effort (trapnights):

Museum specials 80  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	1	5	1	0	0	4
<u>Blarina brevicauda</u>	1	2	1	0	0	1
<u>Peromyscus maniculatus</u>	1	1	1	0	0	0
<u>Microtus pennsylvanicus</u>	1	3	1	0	0	2
<u>Zapus hudsonius</u>	1	6	1	0	0	5

Locality: Heglund Waterfowl Production Area

Dates: 7 September 1982

Habitats trapped: 1) native prairie on high ground

Trapping effort (trapnights):

Museum specials 80  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	1	2	1	0	0	1
<u>Microtus pennsylvanicus</u>	1	9	1	0	0	8

Locality: Victory Wildlife Management Area

Dates: 8 September 1982

Habitats trapped: 1) flat, native prairie  
2) hilly, native prairie on high ground

Trapping effort (trapnights):

Museum specials 160  
Sherman live traps 0  
Pitfalls 0  
Rat traps 0  
Gopher traps 0  
Mole traps 0

Species captured	Habitats	Total	Skin & skull	Skull only	Fluid preserved	Not saved
<u>Sorex cinereus</u>	1,2	4	1	0	1	2
<u>Blarina brevicauda</u>	1,2	2	2	0	0	0
<u>Peromyscus leucopus</u>	2	1	0	0	0	1
<u>Peromyscus maniculatus</u>	1,2	2	2	0	0	0
<u>Microtus pennsylvanicus</u>	1,2	2	2	0	0	0
<u>Zapus hudsonius</u>	2	1	1	0	0	0