

Thunder Basin National Grassland

A prairie dog habitat management plan was completed for the grasslands in 1981. Prairie dog retention areas in selected locations, mostly inside the Rosecrans Area, were designed to protect up to 2,187 ha (5,400 ac) of habitat for black-footed ferrets (U.S. Forest Service 1981). Although this site is currently ranked number 4 in Wyoming, a habitat evaluation was conducted in 1990 to assess the future potential of the site for ferret reintroduction. Nineteen black-tailed prairie dog towns totaling 2,234 ha (5,520 ac) of federal grassland were sampled.

This included 913 ha (2,256 ac) of prairie dog habitat designated as retention area where no control takes place and 1,321 ha (3,264 ac) of habitat which is periodically controlled (approximately every third year). An additional 905 ha (2,236 ac) of habitat was used in the black-footed ferret rating projection since it occurs on federal lands which are continuous with towns on state or private land. The Rosecrans, as a management area, is rated separately from the rest of the federal grasslands. Since it and scattered retention areas are the only secure habitat, no attempt was made to rate the entire complex.

Most of the scattered retention areas are not part of a functional complex as defined by the 7 km (4.3 mi) Rule (Biggins et al. 1989), and some federal lands inside Rosecrans are not secure habitat, therefore the retention hectareage is the only habitat which should be considered when ranking this site and evaluating its potential to meet ferret reintroduction objectives. Table 3 shows the results of the 1990 evaluation.

Small Mammal Abundance Survey (Shirley Basin)

The species and distribution of small mammals on and adjacent to the black-footed ferret reintroduction site will be important in terms of the spread of diseases, such as plague, and in assessing the availability of an alternate prey base for ferrets.

During July 1990, 18 small mammal traplines were set immediately adjacent to prairie dog towns in the 4 predominant habitat types in Shirley Basin. Six transects were set in greasewood habitat, 6 in big sagebrush habitat, 4 in saltbush/sagebrush habitat, and 2 in birdsfoot sagebrush habitat. The number of transects in each type corresponded roughly to the abundance of the respective habitats in Shirley Basin. Each linear transect consisted of 30 trap stations with 1 Sherman Live trap, 1 museum special snap trap, and 2 mouse snap traps per station. Five pitfall traps were set parallel to the trapline.

A total of 498 small mammals were captured in 9,000 trap nights. Table 5 shows the species captured in the respective habitats in the study area.

Greasewood was the most productive habitat in terms of total capture, as 46.8 animals were captured/transect and a total of 5 species were taken. Birdsfoot sage had 28.5 (3 species), saltbush 17.3 (45 species), and big sagebrush 15.2 (5 species) animals/ transect. The frequency of occurrence of all nongame mammals captured is shown in Table 6.

The deer mouse was the most common animal and accounted for 86% of all captures. Deer mice made up 92% of all captures in greasewood, 71% in big sagebrush, 81% in saltbush, and 88% in birdsfoot sage. The greasewood habitat type occurs primarily along stream drainages, which probably accounts for its higher productivity in terms of biomass and species diversity.

The northern grasshopper mouse and, to a lesser extent, the deer mouse are the primary species which may be plague vectors but their relationship to plague in Shirley Basin is currently unknown. More research, including collection of fleas from small mammals, is planned in 1991.

Sylvatic Plague

Plague was present in 1987 in several areas, including north of Shirley Basin Reservoir and south of Highway 77 3.2 km (2 mi) from where 77 meets Highway 487). In 1990, we sampled for the presence of plague by collecting fleas from burrows on 43 1 km (0.6 mi) kilometer transects. Transects were marked with numbered metal tags at the beginning and end for future

TABLE 5. SMALL MAMMALS CAPTURED DURING 9,000 TRAP NIGHTS IN SHIRLEY BASIN IN 1990.

NUMBER TRANSECTS	HABITAT TYPE	NORTHERN GRASSHOPPER MOUSE	LONG- TAILED WEASEL	DEER MOUSE	LEAST CHIPMUNK	THIRTEEN- LINED GROUND SQUIRREL	DWARP SHREW	PLAINS POCKET MOUSE	TOTAL
6	Greasewood	4	-	259	15	1	2	-	281
6	Big Sagebrush	5	1	65	3	17	-	-	91
4	Saltbush	6	-	56	-	6	-	1	69
2	Birdsfoot Sagebrush	2	-	50	-	5	-	-	57

TOTAL		17	1	430	18	29	2	1	498

TABLE 6. FREQUENCY OF OCCURRENCE OF NONGAME MAMMAL SPECIES CAPTURED ON 18 TRAPLINES IN SHIRLEY BASIN IN 1990.

SPECIES	NUMBER OF TRAPLINES RECORDING SPECIES	NUMBER TRAPPED	PERCENT OF TOTAL	NUMBER CAPTURED/ 100 TRAP NIGHTS
Deer Mouse	18	430	86	4.78
Thirteen-lined Ground Squirrel	9	29	6	.32
Northern Grasshopper Mouse	9	17	3	.19
Least Chipmunk	7	18	4	.20
Dwarf Shrew	2	2	<1	.02
Long-tailed Weasel	1	1	<1	.01
Plains Pocket Mouse	1	1	<1	.01

TOTAL		498		