Black-Tailed Prairie Dog Population Survey – 2012 Report
Fort Niobrara National Wildlife Refuge
July 30, 2012
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OBJECTIVE: To monitor trends in abundance and distribution of black-tailed prairie dogs on Fort Niobrara National Wildlife Refuge.

METHODS: Annual black-tailed prairie dog population surveys are conducted after young-of-the-year prairie dogs have emerged from their burrows and yearlings have dispersed (mid-June to late August). Areas with active prairie dog burrows/mounds are mapped using a GPS unit and the data off-loaded into ArcGIS documenting current year distribution of prairie dogs. Visual counts of prairie dogs are then conducted in a minimum of 4 grids located within active areas of the main prairie dog town to estimate prairie dog abundance. Grids (30m wide by 150 m long, or .45ha) are located each year to sample a range of population densities (2 grids low-medium density; 2 grids medium-high density) and situated such that good sight lines exist throughout the grid (i.e., avoid areas with hills or depressions, excessively tall vegetation, or looking into the morning sun). Fluorescent orange flags are placed every 15 meters to identify the perimeter and center line of the grid resulting in two count lanes. Prairie dogs within each grid are counted 3 consecutive days. Observations are made from approximately 8:30-11:30 a.m. with two observers each visiting two grids per day. For each grid, an observer is stationed in the bed of a pickup truck approximately 60m from the grid's middle flag line, where the entire grid can be observed with binoculars. After a 15-minute waiting period, the observer counts all prairie dogs within the grid at 5 minute intervals for 45 minutes resulting in 10 counts per day. Various sources suggest the high count represents approximately 85% of the population, with 15% underground; therefore, the high count for each grid is then corrected by multiplying by 1.15. Prairie dog numbers are estimated by multiplying the total number of active prairie dog acres on the refuge by the average density estimate derived from corrected visual counts.

Methods derived from: Severson, Kieth E. and Glenn E. Plumb. 1999. Comparison of methods to estimate population densities of black-tailed prairie dogs. Wildlife Society Bulletin. 26(4):859-866.

RESULTS:
One prairie dog town totaling 66 acres was mapped in July 2012 on Fort Niobrara which is an increase form 64.51 of 1.49 acres from 2011 (Figure 1). The main prairie dog town surrounding the headquarters area expanded slightly while the town in the wilderness area was inactive.

Population density surveys were conducted July 16-18, 2012 by biological technicians M. Irvine, D. Bloemer and refuge biologist K.McPeak. Raw and corrected densities of prairie dogs for the 6 sampling grids are listed in Table 1. The density of prairie dogs on Fort Niobrara ranged from 11/acre in low density habitat to 41/acre in high density

habitat. Extrapolating the mean density figure from this survey, the refuge population in 2010 is estimated at 2000 prairie dogs which is an increase of 642 from 2011 (Table 2).

Figure 1. Location of active prairie dog towns 2011 and 2012.

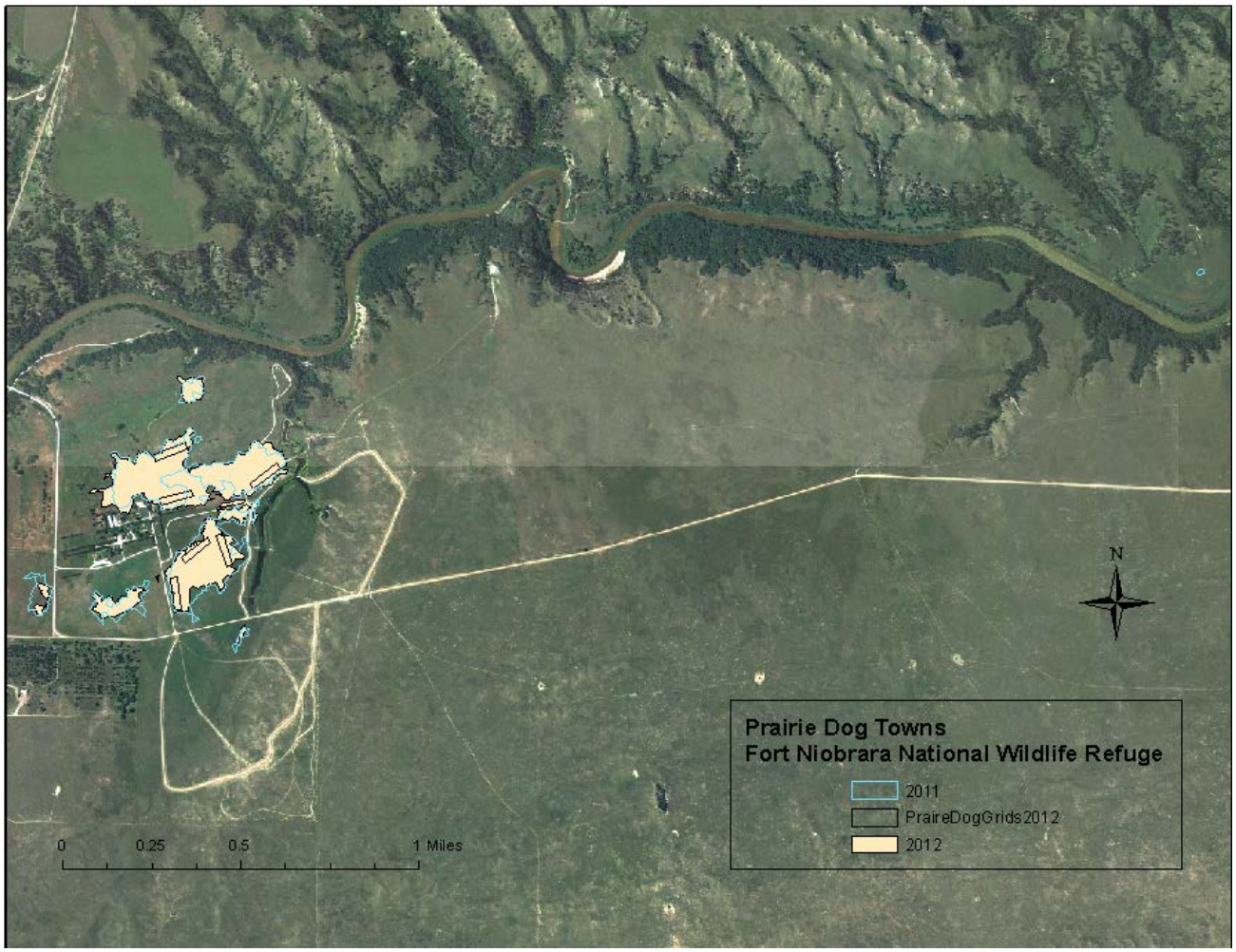

Table 1. Results of 2012 prairie dog density survey.

Survey Grid	High Count of Prairie Dogs Observed	PDs per Hectare	PDs per Acre	PDs perAcre corrected for 85% factor
West Exhibition	12	26	11	14
East Exhibition	24	52.8	22	28
North Exhibition (diagonal)	16	35	14	18
Bunkhouse	46	101	41	53
Store Yard	30	66	27	35
Corrals	30	66	27	35

* Mean PDs per acre corrected = 30

DISCUSSION:

The population of black-tailed prairie dogs on Fort Niobrara NWR appear to be on a steady decline in numbers. Natural mortality factors that may have influenced population numbers include badgers and disease (several dogs observed loosing hair). In the survey conducted in 2011 there were major decreases in numbers from 2010. This may have been from natural mortality as listed previously or it may have been a result of high levels of precipitation, in which a similar observation was made in 2008. The estimated population made in 2012 may have been skewed because of weather conditions. The first two survey days were extremely hot and dry as it had been for weeks; therefore there were few prairie dogs above ground. While the night before the third survey day, it rained causing a cool morning. There were significantly higher counts of prairie dogs observed leading one to think that there were more than 85% of the prairie dogs visible. If this is true, then the population did not grow as much as it appears. However, it would be likely that the town grew some as a result of dry weather conditions. Also in 2012, Special Projects Coordinater R. Klataske from the Kansas Audubon Society was approved to capture 100 prairie dogs from Fort Niobrara. They were captured by spraying foam from the fire engines down the burrows in the horse pasture. The majority of his 100 prairie dogs captured appeared to be juveniles that had been born in the current year of 2012.

Continued monitoring of prairie dog abundance and distribution should result in a better understanding of population trends for this species of management concern. If animals are observed exhibiting hair loss or some other abnormality, samples will be collected and the cause determined with assistance from the Wildlife Health Office in Bozeman, MT. Spatial data for prairie dogs are located on the GIS computer in the Fort Niobrara NWR folder (R:\Fort Niobrara NWR\Prairie Dogs).

Figure 2. Location of active prairie dog towns 2006 - 2012.

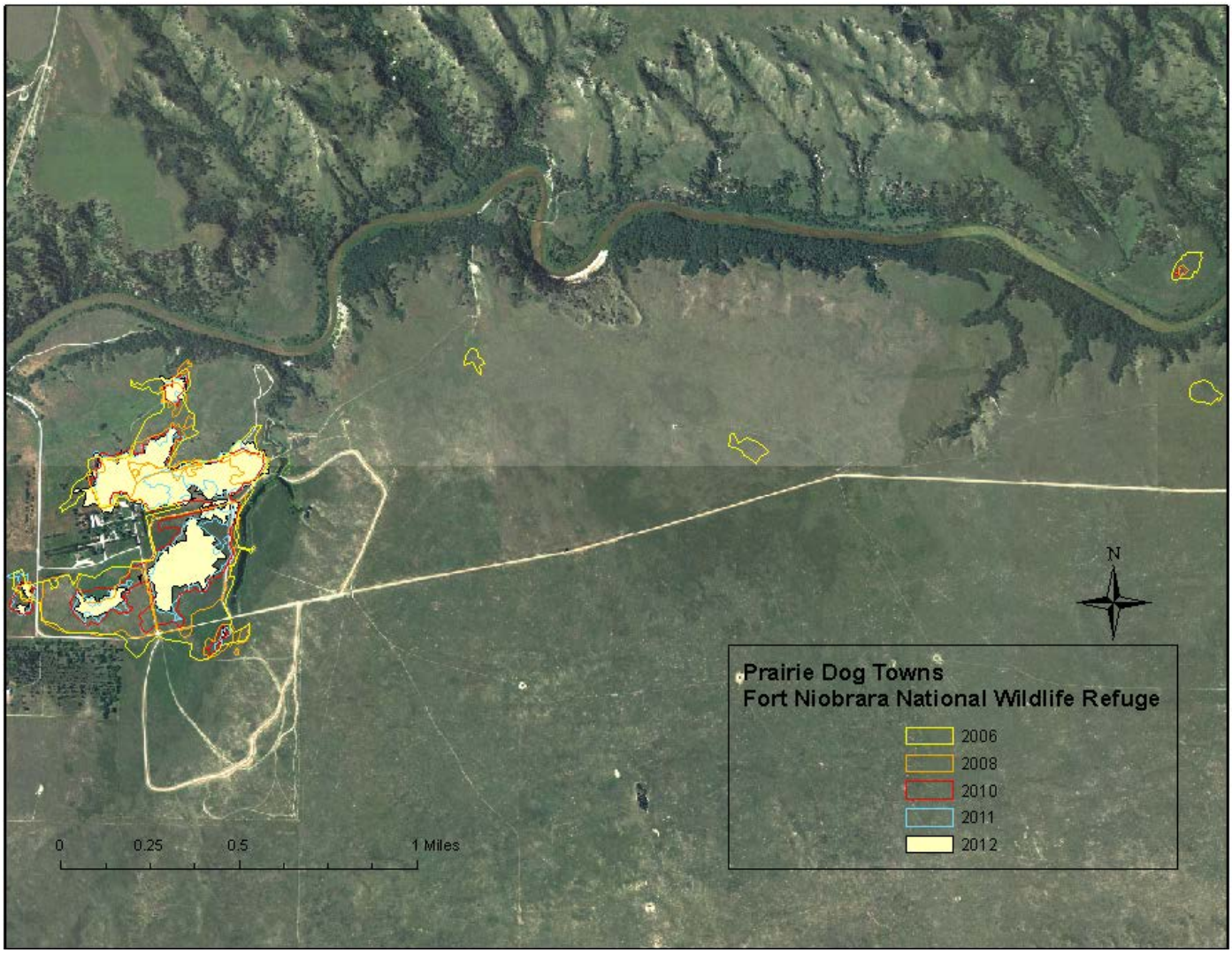

Table 2. Prairie dog population survey results 2002 – 2012.

Year	Total PD Acres	#PD per Acre Corrected		Estimated PD Population
		Range	Mean	
2012	66	11-41	30	2000
2011	64.51	14-29	21	1358
2010	90	13-47	31	2800
2009	82	24-39	32	2600
2008	103	9-16	13	1300
2007	160			
2006	167			
2005	~175 (no survey)			
2004	163			
2003	95	15-46	29	2800
2002	56			
1999	~23			