



Black-tailed Prairie Dog Monitoring at Scotts Bluff National Monument: Annual Status Report 2007

Natural Resource Technical Report NPS/HTLN/NRTR—2007/032



ON THE COVER

Black-tailed prairie dog (*Cynomys ludovicianus*)

Photo from The Heartland Inventory and Monitoring Network and Prairie Cluster Prototype Monitoring Program files.

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Natural Resource Technical Report NPS/HTLN/NRTR—2007/032

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September 2007

U.S. Department of the Interior
National Park Service
Natural Resource Program Center
Fort Collins, Colorado

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Please cite this publication as:

Peitz, D. G., and J. T. Cribbs. 2007. Black-tailed Prairie Dog Monitoring at Scotts Bluff National Monument: Annual Status Report 2007. Natural Resource Technical Report NPS/HTLN/NRTR—2007/032. National Park Service, Fort Collins, Colorado.

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Executive Summary

Using methodologies outlined by Plumb et al. (2001), black-tailed prairie dog populations were monitored for the 13th consecutive year on Scotts Bluff National Monument, Nebraska. The estimated density of black-tailed prairie dogs on the main colony reached its lowest level since monitoring began in 1995. The 2007 density estimate (8.1 individuals/ha) was approximately 35 % of the average estimates for the past 13 years. However, with the exception of density estimates in 1996 and 2005, our estimated density falls within the confidence limits of other annual estimates. The 2007 prairie dog population of 147 individuals on the main colony was 271 individuals less than the 2006 population estimate and 143 individuals below the thirteen-year average (1995-2007) of 290 individuals. Both the population for the colony north of the canal (174 individuals) and the one in the Saddle Rock Unit (58 individuals) were above their four-year averages (2004-2007) of 122 and 33 individuals, respectively. While the overall shape and cohesiveness of the main colony in 2007 was similar to 2006, the number of hectares occupied declined. The black-tailed prairie dog population north of the canal and the one in the Saddle Rock Unit increased in density and area occupied, as well as in population size. In 2007, the combined colonies occupy 3.42% of the monument's 698-ha of grassland. The presence of sylvatic plague was not observed in the black-tailed prairie dog colonies at Scotts Bluff National Monument in 2007. However, badger, known prairie dog predators were observed on the main colony. Burrowing owls were not observed during black-tailed prairie dog surveys in 2007.

Acknowledgements

We would like to thank the staff at Scotts Bluff National Monument for assisting us with our monitoring. We would especially like to thank Bob Manasek for his assistance with setting up observation stands and for monitoring the colony for the presence of sylvatic plague throughout the year.

Introduction

Background

Black-tailed prairie dog (*Cynomys ludovicianus*) historically occupied over 404,700 hectares of short- and mixed-grass prairie in 11 western states (National Wildlife Federation 2000a). Currently, less than 2 % of this area is occupied. The dramatic decline in black-tailed prairie dog habitat and abundance is the result of changing land use patterns, habitat fragmentation, disease, shooting, and poisoning (U.S. Fish and Wildlife Service 2000). Sylvatic plague (*Yersinia pestis*), introduced from Europe and first identified in prairie dog populations in the mid-1930's (Hubbard 1947), is capable of causing massive die-offs in a population (Barnes 1993, Cully 1993). In addition, the required eradication of the species on both private and public lands at the expense of the landowner was the norm in most states (Desmond et al. 2000). This requirement for eradication of black-tailed prairie dog was relaxed in some states when, in 2000, the United States Fish and Wildlife Services ruled the species warranted listing as threatened under the Endangered Species Act (U.S. Fish and Wildlife Service 2000). Black-tailed prairie dog has since been removed as a candidate for protection under the Endangered Species Act (U.S. Fish and Wildlife Service 2004) and widespread control of prairie dogs through shooting and

poisoning continues. However, during the 4 ½ years that the black-tailed prairie dog warranted listing as a threatened species, considerable effort and resources were invested by federal, state and tribal agencies, private landowners and conservation organizations to better understand the status of the species and design and implement conservation strategies to reduce threats to the species.

Species dependent on the black-tailed prairie dog for food or habitat include the burrowing owl (*Athene cunicularia*), mountain plover (*Charadrius montana*), swift fox (*Vulpes velox*) and ferruginous hawk (*Buteo regalis*) (Aschwandten 2001, National Wildlife Federation 2000b). These species are candidates or potential candidates for listing as threatened under the Endangered Species Act. Once believed to be the most endangered mammal in North America, the black-footed ferret (*Mustela nigripes*), is completely dependent on the prairie dog for its survival (Aschwandten 2001, National Wildlife Federation 2000b).

Initially, concerns for the recovery of the black-footed ferret to stable numbers prompted state and federal agencies, including the National Park Service, to identify lands within the historic range of the black-tailed prairie dog that still host prairie dog populations and to monitor these populations as potential reintroduction sites for the ferret. Eight of the 30 national parks or monuments within the historic range of the black-tailed prairie dog still have active colonies (Badland's National Park, SD; Bent's Old Fort National Historic Site, CO; Devil's Tower National Monument, WY; Fort Larned National Historic Site, KS; Sand Creek Massacre National Historic Site, CO; Scotts Bluff National Monument, NE; Theodore Roosevelt National Park, ND; and Wind Cave National Park, SD). Concern for the recovery of the black-tailed prairie dog itself has given an even greater impetus to monitoring their populations.

Black-tailed prairie dog monitoring at Scotts Bluff National Monument, Nebraska centers on a colony established from vagrant individuals in 1981. Prairie dogs had been absent from the monument since 1944. Colony size, population densities and estimates of overall abundance of prairie dogs on the monument from 1981-1994 are given in Table 1. The rapid and sustained decline in prairie dog numbers between 1988 and 1995 could be the result of several factors including illegal shooting or poisoning, poor winter survival, predation, or sylvatic plague (Knowles 1998). In 2003, two additional colonies established on the monument, both are monitored as well.

For the period 1995-1999, black-tailed prairie dog populations on the monument were monitored through a joint effort of the Heartland Network Inventory and Monitoring Program, formerly the Prairie Cluster Prototype Long-Term Ecological Monitoring Program and the Northern Prairie Wildlife Research Center, Biological Resources Division of the United States Geological Survey. A peer-reviewed monitoring protocol was the result of this endeavor (Plumb et al. 2001). Monument personnel and Heartland Network Inventory and Monitoring Program staff continue annual prairie dog monitoring. This report describes monitoring results for 2007.

Table 1. Annual colony size, population density and number of individual black-tailed prairie dogs (*Cynomys ludovicianus*) at Scotts Bluff National Monument, Nebraska – Main Colony, between colony reestablishment and 1994. Sources of annual data are indicated.

Year	Area (ha)	Density (individuals/ha)	Population Size	Source
1981	Colony Reestablishment in Scott's Bluff National Monument			
1982	--	--	--	None
1983	1.0	76.5	75	Franklin 1984
1984	1.3	30.5	40	Franklin 1984
1985	--	--	107	Cox and Franklin 1989
1986	5.8	34.7	200	Cox and Franklin 1989
1987	5.1	58.9	303	Cox and Franklin 1989
1988	3.4	64.6	219	Cox and Franklin 1989
1989	--	--	62	Monument Personnel unpub.
1990	--	--	62	Monument Personnel unpub.
1991	--	--	27	Monument Personnel unpub.
1992	--	--	--	None
1993	--	--	45	Monument Personnel unpub.
1994	--	--	--	None

Objectives

The objectives of black-tailed prairie dog monitoring at Scotts Bluff National Monument are to: 1) estimate black-tailed prairie dog population abundance; 2) map the size and location of black-tailed prairie dog colonies; and 3) determine through observation if sylvatic plague is present in any of the black-tailed prairie dog colonies.

Methods

Black-tailed Prairie Dog Density and Abundance

Plumb et al. (2001) detail the current monitoring methods used to estimate black-tailed prairie dog densities, abundance and colony sizes. To facilitate a more accurate observation of black-tailed prairie dog on the main colony, three observers conducted surveys. Eight replicate counts, with 15-minute intervals between the start of each replicate were made from each observation point. Counts were conducted on three consecutive days, July 24, 25, and 26. Using landscape features, sections of the colony were defined for survey from each observation point in an effort to minimize counting individuals twice during a replicate. Observation points were placed in eastern, central, and southern locations on the colony to best facilitate the observation of black-tailed prairie dog (Figure 1). Counts from each observation point were synchronized so that a colony wide estimate could be derived. Daily replicate counts from each observation point were combined in order to calculate estimates of population density and size. Surveys were conducted between 6:45am – 8:45am on mornings with little or no precipitation. Population surveys of the Saddle Rock Unit colony and the colony north of the canal were conducted concurrently with the main colony counts.

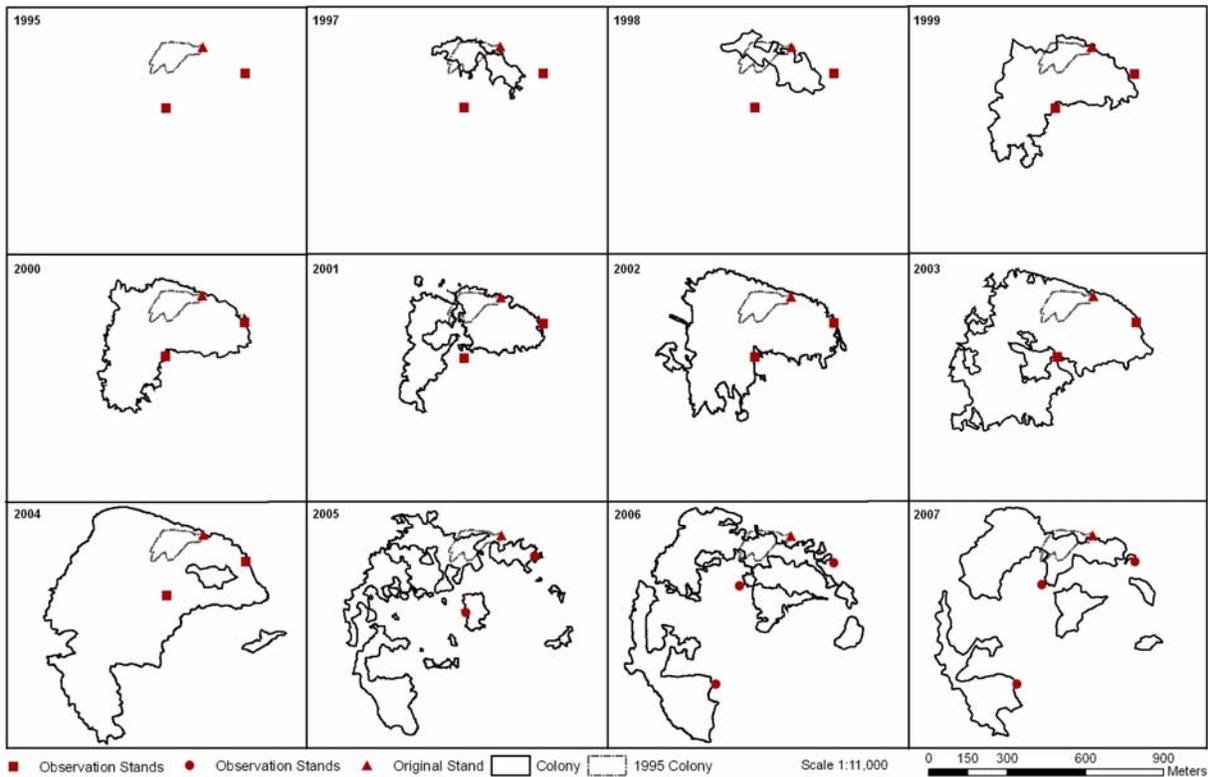


Figure 1. Black-tailed prairie dog (*Cynomys ludovicianus*) colony sizes and shapes at Scotts Bluff National Monument, Nebraska – Main Colony, years 1995 to 2007, exception 1996. The colony size and shape was roughly the same for 1995 and 1996. The colony boundary for 1995 is shown on all years as a reference. Squares and circles symbolize the location of observation points. Triangles symbolize the location of the original 1995 observation point.

Using the combined visual count data, two calculations were made to estimate annual black-tailed prairie dog density and abundance within the main colony. Similar estimates were also calculated for the colony north of the canal and the Saddle Rock Unit colony. Estimated density (P) is derived from the linear relationship described by Severson and Plumb (1998): $Density (P) = [(Y / Sp) - 3.04] / 0.40$, where Y is the maximum count of individuals in a replicate over the three day survey period and Sp is the total area sampled. Density is calculated from the maximum count of individuals in a replicate and colony size, adjusted for the probability of not observing all individuals during the count. The adjustment coefficient is based on mark-recapture data (Severson and Plumb 1998). The maximum count (out of 24) is used because it is significantly correlated with prairie dog abundance as determined by mark-recapture data. (See Morrison (2004) for an explanation regarding how density is estimated and how the equations were derived). Abundance (T) = (Sc)(P), where Sc is the total colony size in hectares and P the estimated density per hectare.

A 95 % confidence limit (interval) was calculated for density and abundance using the following formulas:

$$\begin{aligned} \text{Density lower limit, } P &= P - 1.96 [\text{SE}(P)] \\ \text{Density upper limit, } P &= P + 1.96 [\text{SE}(P)] \\ \text{Abundance lower limit, } T &= T - 1.96 [\text{SE}(T)] \\ \text{Abundance upper limit, } T &= T + 1.96 [\text{SE}(T)] \end{aligned}$$

Where SE is the standard error for Estimated Density (P) and Abundance (T), respectively. Standard error (SE) is derived by first calculating Variance (P) = $66 + 0.025 (P - 18.4)^2$ for Density (P) or Variance (T) = $66 + 0.025 (T - 18.4)^2$ for Abundance (T) and then calculating SE (P or T) = $\sqrt{\text{Variance (P or T)}}$ (Plumb et. al. 2001). Means with overlapping confidence limits are not significantly different.

To help explain annual variations in the black-tailed prairie dog populations, precipitation data was obtained from the National Weather Service, station 257665 at Scotts Bluff, Nebraska regional airport. Precipitation influences the amount of forage produced, which in turn influences the amount of area required by black-tailed prairie dogs for foraging. Larger foraging areas are required in dry years compared to wet years.

Black-tailed Prairie Dog Colony Mapping

Boundaries of the black-tailed prairie dog colonies were delineated using a Global Positioning System (GPS) in conjunction with a PC-based Geographic Information System, ArcGISv.9TM. Colony boundaries were determined by following active clip lines when discernable or mapping the area within five meters of active burrows when it was not. Very little active clip line was discernable in 2007. Burrows were classified as active if burrow openings were greater than 7-cm in diameter and fresh scat was observed within 0.5-m of the opening. Burrows were not classified as active if there were spider webs across an opening or unclipped vegetation growing in or around the opening (Biggins et. al. 1993, Desmond et. al. 2000). Colored pin flags were used to mark the perimeter of each colony prior to GPS mapping. Boundaries were walked in their entirety in order to close each colony polygon.

Sylvatic Plague Surveillance

Park personnel monitored sylvatic plague presence within the black-tailed prairie dog colonies at Scotts Bluff National Monument throughout the year. An observation of a substantial unexplained die-off in the population during the year will alert park personnel to the potential of a sylvatic plague outbreak. If a sylvatic plague outbreak were suspected, appropriate authorities will be notified to verify the presence or absence of sylvatic plague.

Results

Black-tailed Prairie Dog Density and Abundance

Results of black-tailed prairie dog monitoring on the main colony at Scotts Bluff National Monument between 1995 and 2007 are given in Table 2 and Figures 2 and 3. The density of black-tailed prairie dog on the main colony in 2007 was 8.1 individuals/ha, a decline of 12.2 individuals/ha from 2006 and lower than the thirteen-year average (1995-2007) of 23.4

individuals/ha (Figure 2). However, our estimated density falls within the confidence limits of most annual estimated densities except for years 1996 and 2005. Density estimates for the colony north of the canal and the one in the Saddle Rock Unit were 70.6 individuals/ha and 17.6 individuals/ha, respectively (Table 3 and 4). Density estimates for the colony north of the canal was greater than in 2006 but similar to 2004 and 2005 estimates. Density estimates for the Saddle Rock Unit colony was greater than in 2004, less than in 2005, but similar to 2006 estimates.

Population size in 2007 for the main colony was estimated at 147 individuals, a decline of 271 individuals from 2006 (Figure 3). The estimated black-tailed prairie dog population size was 143 individuals below the thirteen-year average (1995-2007) of 290 individuals. The estimated populations for the colony north of the canal and the one in the Saddle Rock Unit were 174 and 58 individuals, respectively (Table 3 and 4). The estimated population size of the colony north of the canal was 52 individuals above the four-year average (2004-2007) of 122 individuals. The estimated population size of the Saddle Rock Unit colony was 25 individuals above the four-year average (2004-2007) of 33 individuals.

Table 2. Annual colony size (95% CI), population density (95% CI) and number of individual black-tailed prairie dogs (*Cynomys ludovicianus*) at Scotts Bluff National Monument, Nebraska - Main Colony, between 1995 and 2007.

Year	Area (ha)	Density (individuals/ha)	Population Size
1995	1.4	12.0 (-4.1 - 28.1)	17 (1.1 - 32.9)
1996	1.4	53.0 (33.9 - 72.3)	74 (50.5 - 97.5)
1997	2.6	28.9 (12.7 - 45.2)	75 (51.3 - 98.7)
1998	3.3	22.7 (6.7 - 38.7)	75 (51.3 - 98.7)
1999	10.5	16.7 (0.8 - 32.6)	175 (123.9 - 226.1)
2000	16.2	9.2 (-7.0 - 25.4)	149 (105.5 - 192.5)
2001	10.9	23.4 (7.4 - 39.4)	255 (179.7 - 329.6)
2002	20.0	19.0 (3.1 - 34.9)	381 (267.5 - 494.5)
2003	25.2	31.8 (15.4 - 48.3)	802 (558.7 - 1045.5)
2004	36.7	14.4 (-1.5 - 30.4)	530 (370.7 - 689.4)
2005	14.9	44.9 (26.9 - 62.8)	671 (467.9 - 873.5)
2006	20.6	20.3 (4.4 - 36.2)	418 (293.4 - 543.4)
2007	18.1	8.1 (-8.1 - 24.4)	147 (104.2 - 190.2)

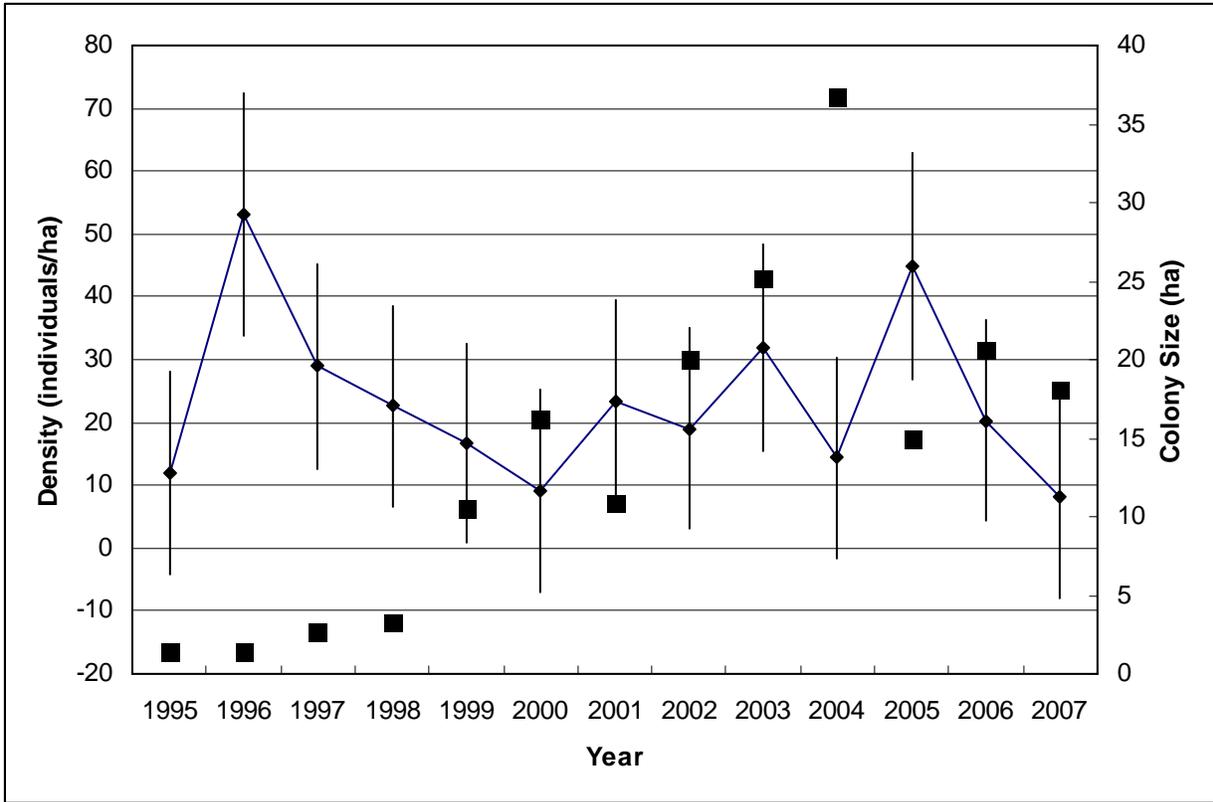


Figure 2. Annual estimates of black-tailed prairie dog densities (*Cynomys ludovicianus*) at Scotts Bluff National Monument, Nebraska – Main Colony, years 1995 to 2007. Error bars at each annual density estimate represent a calculated confidence limit for that year. Years with widely overlapping confidence limits about their density estimate are not significantly different. Squares represent the main colony size for each year.

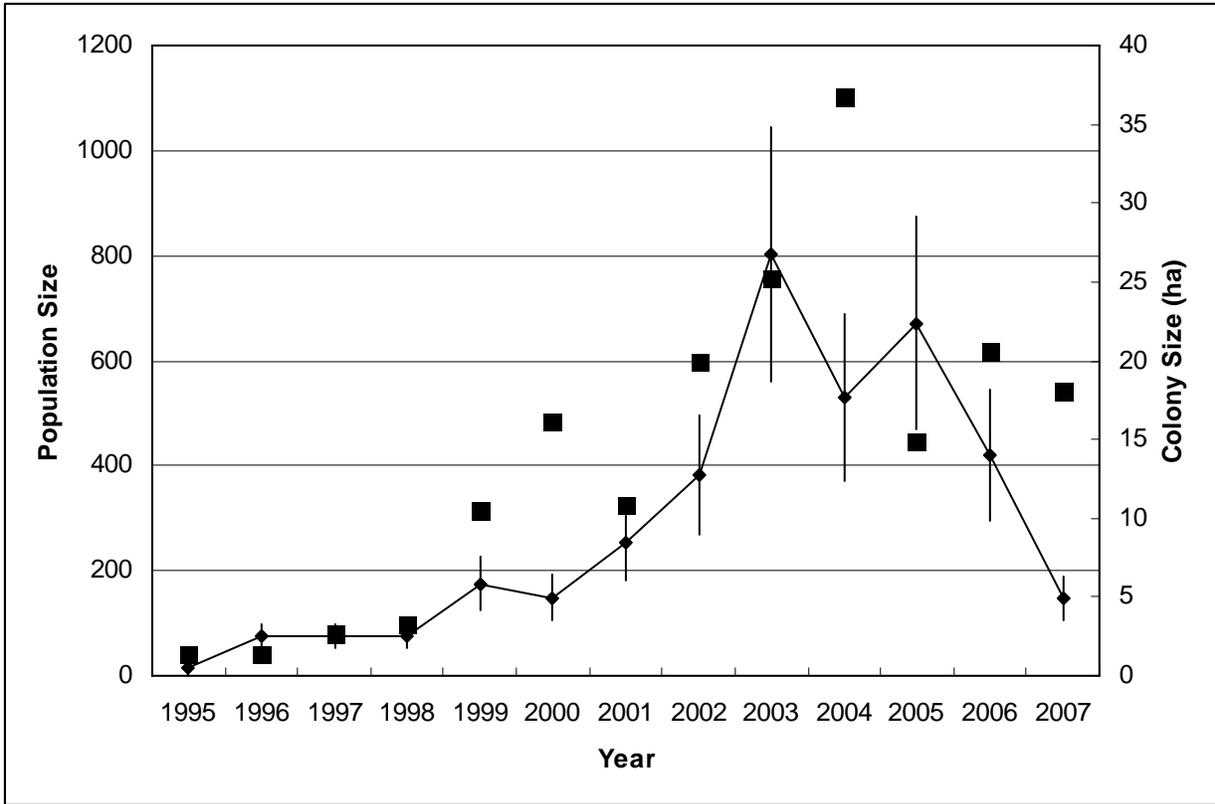


Figure 3. Annual estimates of black-tailed prairie dog population sizes (*Cynomys ludovicianus*) at Scotts Bluff National Monument, Nebraska – Main Colony, years 1995 to 2007. Bars at each annual population estimate represent a calculated confidence limit for that year. Years with widely overlapping confidence limits about their population estimate are not significantly different. Squares represent the main colony size for each year.

Table 3. Annual colony size (95% CI), population density (95% CI) and number of individual black-tailed prairie dogs (*Cynomys ludovicianus*) at Scotts Bluff National Monument, Nebraska - North Colony, between 2003 and 2007.

Year	Area (ha)	Density (individuals/ha)	Population Size
2003	1.7	--	--
2004	2.1	76.9 (52.8 - 101.0)	163 (116.0 - 211.6)
2005	1.0	81.0 (55.8 - 106.1)	78 (53.4 - 102.0)
2006	2.1	34.1 (17.4 - 50.7)	72 (48.6 - 94.4)
2007	2.5	70.6 (47.9 - 93.4)	174 (123.1 - 224.5)

Table 4. Annual colony size (95% CI), population density (95% CI) and number of individual black-tailed prairie dogs (*Cynomys ludovicianus*) at Scotts Bluff National Monument, Nebraska - Saddle Rock Unit colony, between 2003 and 2007.

Year	Area (ha)	Density (individuals/ha)	Population Size
2003	1.2	--	--
2004	1.1	13.2 (-2.8 - 29.2)	14 (-1.7 - 30.3)
2005	0.3	108.7 (76.5 - 140.9)	30 (14.0 - 46.7)
2006	1.7	17.4 (1.47 - 33.3)	30 (13.3 - 45.9)
2007	3.3	17.6 (1.6 - 33.5)	58 (37.5 - 77.6)

Black-tailed Prairie Dog Colony Mapping

Figure 1 contains maps showing changes in the location and extent of the main black-tailed prairie dog colony at Scotts Bluff National Monument between 1995 and 2007. The main colony encompassed 18.1 ha in 2007, representing a decline in size of 2.5 ha from 2006 (Table 2). The shape of the main colony has remained somewhat similar to previous years, a crescent. The 2007 colony size was 4.1 ha larger than the thirteen-year average of 14.0 ha.

The two additional black-tailed prairie dog colonies at Scotts Bluff National Monument were mapped in 2007, as well (Figure 4). Mapping of the colony north of the canal revealed it to be 2.5 ha in size (Table 3), an increase of 0.4 ha in size over 2006. The 2007 colony was 0.6 ha larger than the five-year average of 1.9 ha. This colony borders private lands on its north and west side which has restricted expansion in those directions. However, several individuals and active burrows were observed on the neighboring private lands. Individuals observed were not counted, nor their burrows mapped in 2007. The colony located in the Saddle Rock Unit area was 3.3 ha in size, representing an increase in size of 1.6 ha from 2006 (Table 4). The 2007 colony was 1.8 ha larger than its five-year average of 1.5 ha.

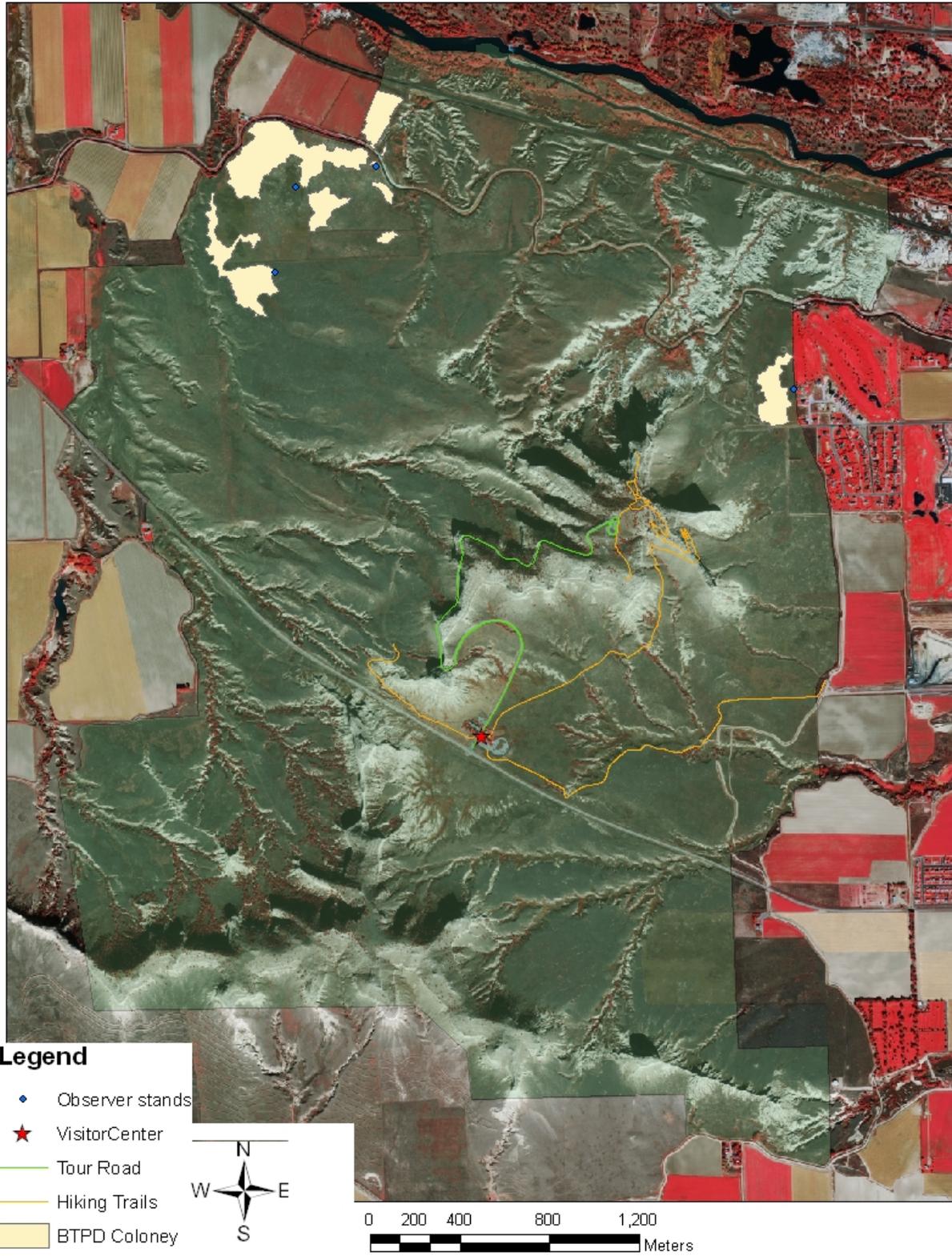


Figure 4. Black-tailed prairie dog (*Cynomys ludovicianus*) colony locations on Scotts Bluff National Monument during 2007.

Sylvatic Plague Surveillance

Sylvatic plague was not observed in the black-tailed prairie dog colonies at Scotts Bluff National Monument during 2007.

Other Observations

Two, possibly three badgers (*Taxidea taxus*) were observed on the main colony at Scotts Bluff National Monument in 2007. Badgers were not observed on the black-tailed prairie dog colony north of the canal or the Saddle Rock Unit colony. Burrowing owls were not observed at Scotts Bluff National Monument in 2007.

Discussion

In 2007, the estimated density of black-tailed prairie dogs on the main colony at Scotts Bluff National Monument reached its lowest level since monitoring began in 1995. The 2007 density estimate was approximately 35 % of the average estimates for the past 13 years. However, with the exception of density estimates in 1996 and 2005, our estimated density falls within the confidence limits of most annually estimated densities (Figure 2). One interesting observation made with our black-tailed prairie dog data from the main colony, is that years of high population densities often follow years of low population densities. For example, the 1995 population density of 12 individuals/ha was followed in 1996 by a density of 53 individuals/ha, the 2000 population density of nine individuals/ha was followed in 2001 by a density of 23 individuals/ha, and the 2004 density of 14 individual/ha was followed in 2005 by a density of 45 individuals/ha. The colony north of the canal demonstrated this pattern in 2006-2007 (34 vs. 71 individuals/ha), and the colony in the Saddle Rock Unit demonstrated it in 2004-2005 (13 vs. 109 individuals/ha), as well. We can only speculate on what might cause this phenomenon. However, it is likely that infanticide, a common practice in black-tailed prairie dogs (see Hoogland 1995) plays a role. Infanticide is a population regulating response to high population density. Therefore, in years of low population densities more young survive to contribute to the next years' density, both through their reproductive output, and the simple fact they are part of the population. Hoogland (1995) noted that infanticide was more prevalent within closely related family groups living in close proximity to each other than between unrelated family groups living further apart. In 2008, it should be expected that the density of black-tailed prairie dogs on the main colony will increase.

Another factor affecting colony size may be weather. Prior to 2000, colony expansion was constant, but generally low, with annual precipitation above average. However, since 2000, 88 % of our annual colony size estimates demonstrate an inverse relationship with precipitation for the first seven months of the year (Figure 5), colony size in 2007 being the exception. Below average precipitation before and during the growing season reduces the availability of nutritious vegetation, thus influencing the colony's size. Black-tailed prairie dogs need to forage over larger areas to meet their nutritional needs during dry weather conditions (Hoogland 1995). Thus, population densities are lower in dry years than in wet years. Therefore, both infanticide and weather may be operating in tandem to control black-tailed prairie dog densities on the colonies at Scotts Bluff National Monument. However, another factor may have been influencing the 2007 black-tailed prairie dog density on the main colony as well. We will explain this factor in detail below.

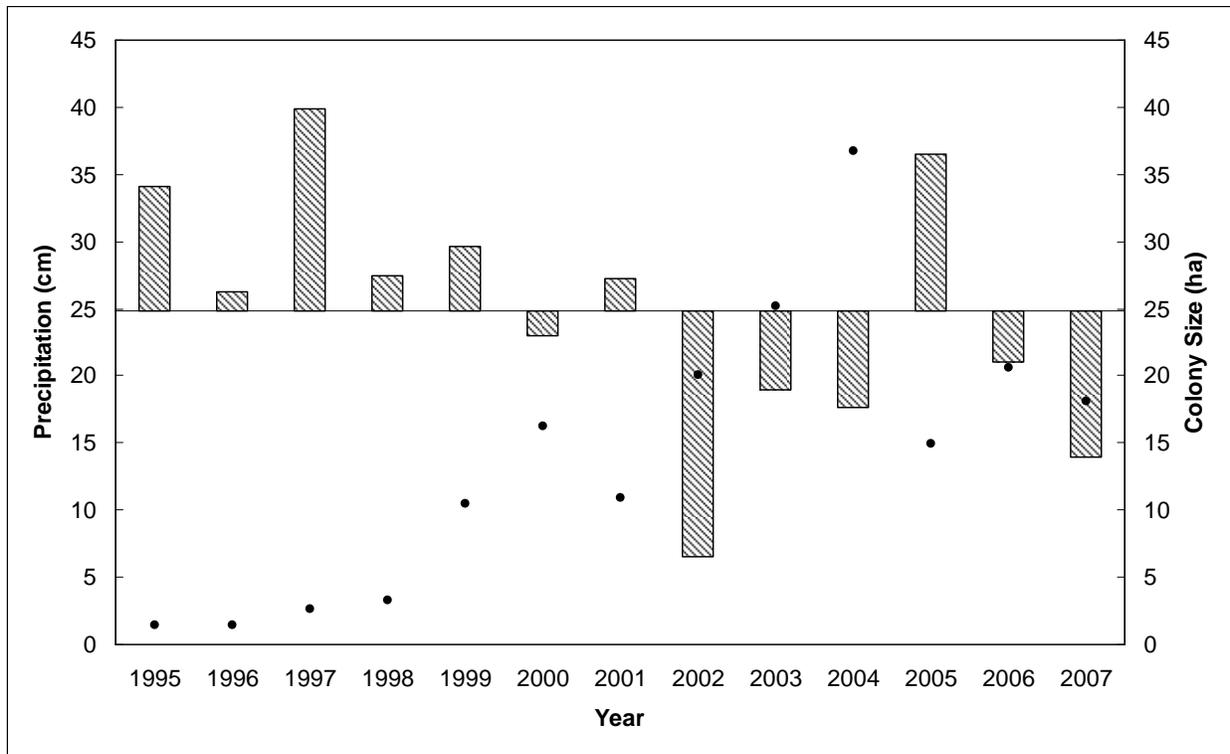


Figure 5. Cumulative precipitation for the first seven months of each year, shown annually as deviations from the thirteen year average (1995-2007) at Scotts Bluff National Monument, Nebraska. Annual precipitation averaged 24.80 cm for the first seven months of each year during the thirteen-year period. Asterisks represent the main colony size for each year.

While the overall shape and cohesiveness of the main colony in 2007 was similar to 2006, the number of hectares occupied declined (Figure 1). With the dry conditions over the last two years, one might predict the colony size to increase, as individuals forage over larger areas to meet their nutritional needs. However, with 271 fewer individuals estimated on the main colony in 2007 than in 2006, the competition for food did not drive expansion of the colony. The presence of badgers (a major predator of prairie dogs) on the main colony in 2007 suggests their predation of black-tailed prairie dogs may be suppressing population size and the area the colony occupied. Supporting this observation is the fact that density, population size, and area occupied were all down from the previous year even though droughty conditions and the previous year density would generally lead to increased colony size and density. Predation by badger was likely a greater population control on the main colony than infanticide and weather, unlike previous years. Also supporting this theory is the fact that under similar conditions, except for the presence of badgers, both the other black-tailed prairie dog populations on Scotts Bluff National Monument grew in size and area occupied in 2007.

Presently, the combined colonies occupy only a small portion of the monument (i.e. 3.42% of the monument's 698-ha of grassland). Monument staff should continue to monitor for new occurrences of black-tailed prairie dog colonies in other areas of the monument. Dispersal from colonies outside the monument (most likely the source of the Saddle Rock Unit colony) and from colonies within (most likely the source of the colony north of the canal) may produce new colonies. One such colony did appear to have established east of the main colony in 2007, but subsequently it was abandoned. Dispersal usually begins in late winter and is complete by the end of June (Garrett and Franklin 1988; Hoogland 1995). Black-tailed prairie dog monitoring at Scotts Bluff National Monument will continue as part of the National Park Service's effort to address concerns over population status on their lands. Annual monitoring of the colony allows resource managers the opportunity to assess the impacts of colony expansion on the cultural and natural resources of the monument, and assess the status of black-tailed prairie dogs at Scotts Bluff National Monument in comparison to other National Park Service lands. Sylvatic plague surveillance as well as surveillance for other mortality factors will continue to be a routine part of the monitoring. An investigation of mortality factors must be undertaken if a rapid decline in the black-tailed prairie dog population is observed to minimize the risk to human health without causing undue concerns. Findings from monitoring efforts on black-tailed prairie dog at Scotts Bluff National Monument should be incorporated with those from other National Park Service lands in order to help recover this element of the prairie ecosystem to sustainable numbers.

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The NPS has organized its parks with significant natural resources into 32 networks linked by geography and shared natural resource characteristics. HTLN is composed of 15 National Park Service (NPS) units in eight Midwestern states. These parks contain a wide variety of natural and cultural resources including sites focused on commemorating civil war battlefields, Native American heritage, westward expansion, and our U.S. Presidents. The Network is charged with creating inventories of its species and natural features as well as monitoring trends and issues in order to make sound management decisions. Critical inventories help park managers understand the natural resources in their care while monitoring programs help them understand meaningful change in natural systems and to respond accordingly. The Heartland Network helps to link natural and cultural resources by protecting the habitat of our history.

The I&M program bridges the gap between science and management with a third of its efforts aimed at making information accessible. Each network of parks, such as Heartland, has its own multi-disciplinary team of scientists, support personnel, and seasonal field technicians whose system of online databases and reports make information and research results available to all. Greater efficiency is achieved through shared staff and funding as these core groups of professionals augment work done by individual park staff. Through this type of integration and partnership, network parks are able to accomplish more than a single park could on its own.

The mission of the Heartland Network is to collaboratively develop and conduct scientifically credible inventories and long-term monitoring of park “vital signs” and to distribute this information for use by park staff, partners, and the public, thus enhancing understanding which leads to sound decision making in the preservation of natural resources and cultural history held in trust by the National Park Service.

www.nature.nps.gov/im/units/htln/



The Department of the Interior protects and manages the nation’s natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

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