



Black-tailed Prairie Dog at Scotts Bluff National Monument

Importance: A keystone species population declines

The black-tailed prairie dog (*Cynomys ludovicianus*) is a “keystone” species of the short grass prairie. Many species within this ecosystem depend on the keystone for food or habitat. The US Fish and Wildlife Service protects keystone species under the Endangered Species Act when other dependent species are imperiled. The most endangered mammal in the United States, the black-footed ferret (*Mustela nigripes*), depends on prairie dogs for food and shelter. The rare and unique burrowing owl (*Athene cucularia*) depends on prairie dog tunnels for shelter. Keystone species play a vital role in ecosystem health.

Vagrant prairie dogs reestablished a colony at Scotts Bluff National Monument in 1981. Colony size grew steadily until an abrupt and sustained decline in population occurred between 1988 and 1995. Natural causes, such as *Sylvatic Plague*, and human causes may contribute to population fluctuations.



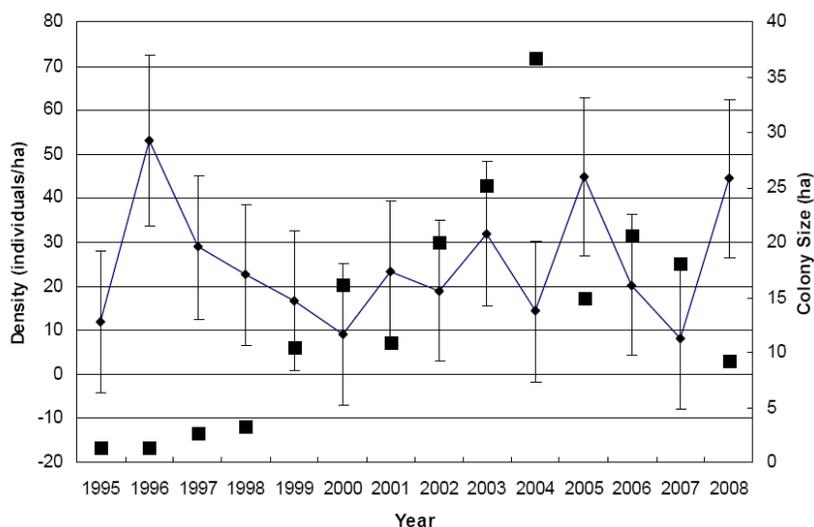
HTLN photo

Long Term Monitoring: Determining trends in population size ¹

Scientists have monitored prairie dog populations for 13 years to understand the status and trends in population change of this keystone species. The Heartland Network Inventory and Monitoring Program currently monitors prairie dogs at Scotts Bluff NM to: 1) estimate prairie dog abundance and density; 2) map annual size and location of the prairie dog colonies; and 3) determine if a potentially fatal disease, *Sylvatic Plague*, exists in these colonies.

Status and Trends: Population fluctuated with a recent decline

Black-tailed prairie dog population size and density increased in 2008 from low levels of 2007 at Scotts Bluff NM, while the colony’s spatial size decreased. Investigators did not observe *Sylvatic Plague* in the colonies, but individuals no longer populate one of the three colonies:



Graph shows two types of data: points and lines represent annual estimates of black-tailed prairie dog population sizes and squares show colony size in hectares. All data represent Main Colony for years 1995 to 2008. Bars at each estimate represent a confidence limit for that year.

1. Precipitation before and during the growing season determines a colony’s spatial size by changing the amount of available nutritious vegetation in and around the colony. As vegetation diminishes, colonies increase in size so that prairie dogs can forage over a larger area. A smaller area can produce adequate nutrition, when precipitation increases.
2. Scientists have difficulty connecting a single cause to population changes. Predation, disease, weather conditions and/or numerous other factors may be working together to cause fluctuations in prairie dog population size.
3. Investigators observed a burrowing owl in one of the colonies during the survey.

Heartland Network Inventory and Monitoring Program of the National Park Service. Visit www.nps.gov/im/units/htln/index.htm

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¹Peitz, D. G., and J. T. Cribbs. 2008. Black-tailed Prairie Dog Monitoring at Scotts Bluff National Monument, Nebraska: Annual Status Report 2008. Heartland Network Monitoring Report Update—August, 2008.