

# Report from the Burrow

## Forecast of the Prairie Dog 2017

Taylor Jones, WILDEARTH GUARDIANS



A Report from



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#### MISSION STATEMENT

WILDEARTH GUARDIANS protects and restores the wildlife, wild places, wild rivers and health of the American West.

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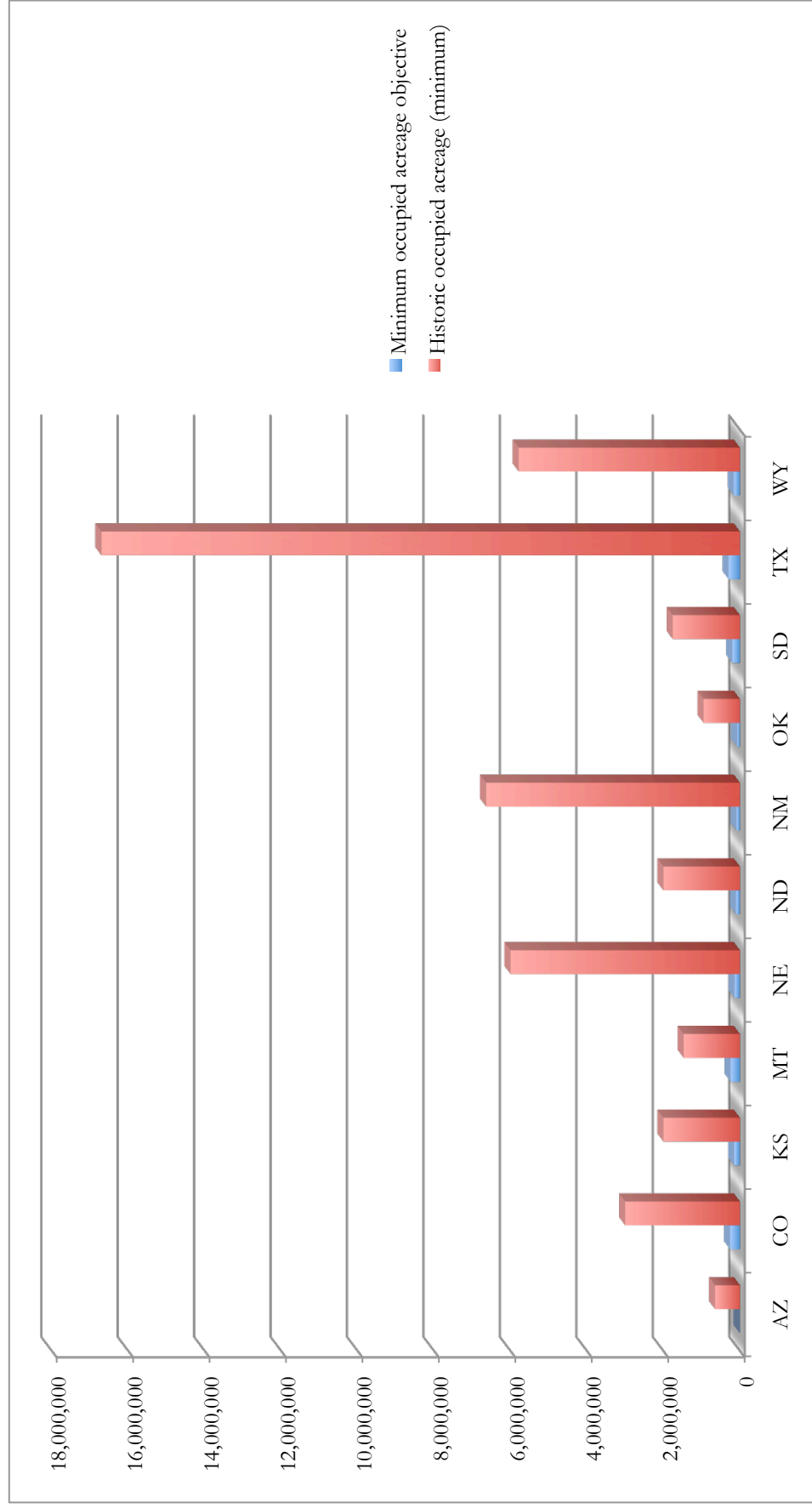
## **Report from the Burrow: Forecast of the Prairie Dog 2017**

WildEarth Guardians annually releases our *Report from the Burrow: Forecast of the Prairie Dog* on February 2, “Prairie Dog Day,” also known as Groundhog Day. We link these two holidays because both groundhogs and prairie dogs provide us with predictions of the future. Famous groundhog Punxsutawney Phil entertains us, foretelling the length of winter. However, the status of prairie dog populations has more serious implications, as prairie dogs are a keystone species and shape the future of western grassland ecosystems.

Four species of prairie dog live in the United States: the black-tailed, white-tailed, Gunnison’s, and Utah prairie dog. The fifth species, appropriately named the Mexican prairie dog, is found only in Mexico. Prairie dogs only inhabit about 1 to 2 percent of their former range (Slobodchikoff et al., 2009, p. 3), and with the loss of prairie dogs comes the demise of the complex ecosystem that prairie dogs create and maintain. As a “keystone species,” prairie dogs have unique, transformative effects on grassland ecosystems that are disproportionately large relative to their abundance (*see e.g.*, Miller et al. 1994; Bangert & Slobodchikoff, 2006; Davidson & Lightfoot, 2006). These social, burrowing mammals (members of the squirrel family) fertilize and aerate the soil and clip foliage, creating shorter but more nutrient-rich plants (*see e.g.*, Whicker & Detling, 1988; Augustine & Springer, 2013; Sierra-Corona et al. 2015). Large herbivores including pronghorn, bison, and cattle often prefer to graze on prairie dog towns (Hoogland et al., 2006, p. 80; Sierra-Corona et al., 2015, p. 11). Prairie dog burrows provide homes and shelter for numerous mammals, birds, reptiles, amphibians, and invertebrates, many of who are likewise imperiled. Prairie dogs are an important food source for a wide variety of species including hawks, eagles, coyotes, foxes, badgers, and extremely rare and critically imperiled black-footed ferrets (*see e.g.*, Martínez-Estévez et al., 2013; Davidson et al., 2012; Miller et al., 1994). Black-footed ferrets are prairie dog obligates, meaning their diet consists almost entirely of prairie dogs and they cannot survive in areas where prairie dogs are not present (Davidson et al., 2012, p. 484). They are listed as “endangered” under the federal Endangered Species Act.

In 1999, the eleven states within the range of the black-tailed prairie dog (Montana, North Dakota, South Dakota, Wyoming, Nebraska, Colorado, Kansas, Arizona, New Mexico, Texas, and Oklahoma) formed the Black-tailed Prairie Dog Conservation Team (which has now expanded its mission to all four U.S. species of prairie dogs and is simply called the “Prairie Dog Conservation Team”). Nine of the eleven states (excluding Colorado and North Dakota) signed a Memorandum of Understanding to cooperate on rangewide conservation of the black-tailed prairie dog, and in 2003 the Team published “A Multi-state Conservation Plan for the Black-tailed Prairie Dog, *Cynomys ludovicianus*, in the United States” (hereinafter “Multi-state Plan”). The states’ goal was to remove enough threats to black-tailed prairie dogs that long-term conservation of the species was assured. The Multi-state Plan set a goal of 1,693,695 occupied acres by 2011, and each state was provided additional guidelines for occupancy specific to that state (USFWS, 2002; *see* Table 1).

In the past, we graded state and federal agencies using a system derived from the listing criteria of the Endangered Species Act. This year, based on feedback from report participants, we ceased assigning grades and also do not evaluate federal agencies. We instead compare the most current state occupied acreage count to the goals of state management plans and the Multi-state Plan, with the caveat that current occupied acreage may not be comparable between states due to different survey methods and timing. Nor are we arguing that states should seek to recreate historic occupied acreages; in most cases



**Figure 1.** The minimum occupied acreage objective from the Multi-state Conservation Plan compared to the estimated minimum historic occupied acreage. This illustrates that while the minimum acreage objectives are an important starting point, they are miniscule compared to historic numbers of black-tailed prairie dogs in each state. See Table 1 for exact numbers and citations.



that is not possible due to habitat loss. We include historical numbers to put current occupied acreage goals into perspective and highlight the magnitude of prairie dog decline over the past century (*see* Figure 1) and the need to conserve remaining habitat and populations.

## Glossary

**Endangered Species Act (ESA):** An important environmental law passed in 1973, designed to protect species from extinction. The ESA’s purpose is to protect and recover imperiled species and the ecosystems upon which they depend. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service jointly administer the law. Species may be listed as “endangered” or “threatened” under the law, at which point they are granted the law’s full protections. “Endangered” means a species is in danger of extinction throughout all or a significant portion of its range. “Threatened” means a species is likely to become endangered within the foreseeable future in all or a significant portion of its range. Protections of the ESA include consultation requirements with the U.S. Fish and Wildlife Service for any federally-permitted project that might further imperil a listed species or its habitat, and prohibitions on “take.” For the full text of the law, *see* 7 U.S.C. § 136, 16 U.S.C. § 1531 et seq.

**Extirpation:** The condition of a species (or other taxon) that ceases to exist in the chosen geographic area of study, though it still exists elsewhere.

**Ground truth:** Information provided by direct observation as opposed to information provided by inference or modeling.

**National Agriculture Imagery Program (NAIP) aerial images:** A set of aerial images used to survey for occupied prairie dog acreage.

**Occupancy model:** A statistical model that produces unbiased estimates of an area occupied by a species and related parameters.

**Occupancy rate:** The estimated percentage of an area occupied by a species; produced by an occupancy model. Importantly, this percentage does not directly translate into occupied acres and cannot be compared with occupied acreage estimates; occupancy rates can only be compared with other occupancy rates through time in order to determine trends.

**Occupied acreage:** The number of acres occupied by prairie dogs at a given time. Usually collected via ground surveys, aerial surveys, or aerial imagery analysis. This is historically the most common metric used to estimate the size of prairie dog populations. However, surveys from different times, using different methodologies, may not be directly comparable. Occupied acreage surveys are not comparable to occupancy models, as they measure different parameters.

**State:** In this report, “state” refers to the assemblage of management agencies that influence prairie dog management in a single state, including the wildlife agency, the department of agriculture, the wildlife commission, and in some cases federal agencies, the state legislature, the courts, counties, or municipalities.

**Sylvatic plague:** A disease caused by *Yersinia pestis*, a pathogen introduced to North America in the early 1900s. The disease has spread throughout the majority of prairie dog range and is always present on the landscape at low, almost undetectable levels. Prairie dogs have no natural immunity to plague, and an outbreak can rapidly cause 99 percent or higher mortality in a colony. Also referred to simply as “plague” in this document.

**Western Association of Fish & Wildlife Agencies (WAFWA):** An organization representing 23 states and Canadian provinces in western North America. WAFWA was formed in 1922 to collectively address game management issues and maintain state sovereignty over game management.

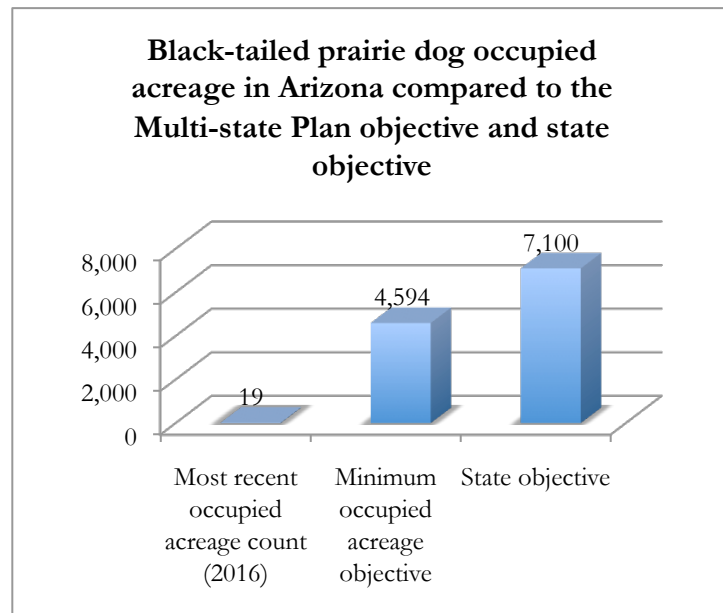
## **Arizona (*black-tailed and Gunnison’s prairie dogs*)**

**State agency designations:** Black-tailed and Gunnison’s prairie dogs are both designated “non-game” and “species of greatest conservation need” by the Arizona Game & Fish Department (AZGFD).

### **Black-tailed prairie dogs**

**Historic occupied acres:** Arizona once had between 650,000 and ~1.4 million acres of black-tailed prairie dogs, but they were extirpated by poisoning campaigns by 1940 (USFWS, 2009, p. 63,346). Since 2008, the AZGFD has worked to reintroduce black-tailed prairie dogs on Bureau of Land Management (BLM)-administered public lands and state trust lands within the Las Cienegas National Conservation Area.

**Current occupied acres:** The 2016 acreage survey yielded 18.5 acres of occupied habitat (AZGFD, pers. comm., 2017).



**Occupied acreage goal:** Arizona has a draft management plan for black-tailed prairie dogs (Underwood & Van Pelt, 2008). The goal of the plan was to restore 7,100 acres by 2011, 1,000 of those acres on BLM-administered public lands (Underwood & Van Pelt, 2008, p. 30). This exceeds the minimum occupied acreage objective from the Multi-state Plan, which is 4,594 acres. Both goals are far from being met, though the Department is actively restoring black-tailed prairie dogs and their habitat and is pursuing permitting for a translocation that would allow establishment of a new colony outside Las Cienegas on Sands Ranch.

### **Gunnison’s prairie dogs**

**Historic occupied acres:** Arizona once had ~6.6 million acres of Gunnison’s prairie dogs (USFWS, 2008, p. 6,664). The AZGFD mapped 108,353 acres of Gunnison’s prairie dogs in Arizona in 2007

(excluding tribal land: this number was a minimum count) (Underwood, 2007, p. 21). AZGFD resurveyed Gunnison's prairie dog colonies in 2011 and mapped 109,402 occupied acres.

**Current occupied acres:** Survey results from 2014 and 2015 indicate that Gunnison's prairie dogs occupy 69,325 acres (excluding tribal lands)(AZGFD, pers. comm., 2016). The decline since 2011 can be explained by a plague outbreak at Espee Ranch and reduced densities in Aubrey Valley, as well as the implementation of a new, more accurate survey methodology.

**State goal:** Arizona has a completed management plan for Gunnison's prairie dogs. The goal of the plan is to recover 75 percent of the area occupied in the early 1900s before major poisoning campaigns began (4,950,000 acres) (Underwood, 2007, p. 27, *see* Table 2). This goal has not been met.

## **Colorado (*black-tailed, Gunnison's, and white-tailed prairie dogs*)**

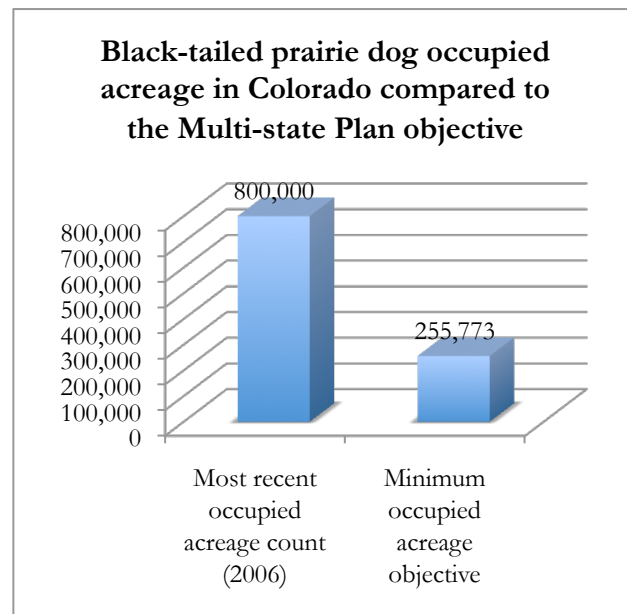
**State agency designations:** The three prairie dog species in Colorado are designated as "small game" by the state. Under the state's Comprehensive Wildlife Conservation Strategy, all prairie dog species are listed as "species of greatest conservation need." In contrast, the Colorado Department of Agriculture designates prairie dogs "destructive rodent pests," which limits the ability of relocators to move them across county lines.

### **Black-tailed prairie dogs**

**Historic occupied acres:** Colorado once had between three million and seven million acres of black-tailed prairie dogs, which shrank to a historic low of 96,000 acres in 1961 (USFWS, 2009, p. 63,346).

**Current occupied acres:** Colorado Parks & Wildlife (CPW) reported the state had ~800,000 active acres (plus or minus ~80,000 acres) of black-tailed prairie dogs in 2006 using aerial surveys. A new survey was recently completed but has not been finalized, so more current numbers are not yet available.

**Occupied acreage goal:** Colorado is not a signatory to the 1999 Multi-state Conservation Plan for the Black-tailed Prairie Dog. However, Colorado signed an intrastate Memorandum of Understanding for Prairie Dog Management with several federal agencies in 2000. Colorado follows the Conservation Plan for Grassland Species in Colorado (which supports the goals of the Multi-state Plan), finalized in November 2003 (USFWS, 2004, p. 25). Colorado has exceeded the Multi-state Plan's objective of 255,773 occupied acres.



## **Gunnison's prairie dogs**

**Historic occupied acres:** There were about 6 million acres of Gunnison's prairie dogs in Colorado in 1916; by 1961 just 116,000 acres remained (USFWS 2008, pp. 6,664-6,665). In 2002, Colorado supported ~151,547 acres of Gunnison's prairie dogs (USFWS 2013, p. 68,668).

**Occupancy rate:** Surveys were completed in 2005, 2007, and 2010 for Gunnison's prairie dogs, showing a stable statewide occupancy rate (these occupancy model results are not comparable to counts of occupied acreage; see the Glossary for more details). A new occupancy survey is currently in progress and results should be available in mid-February 2017.

**State goal:** CPW manages white-tailed and Gunnison's prairie dogs in accordance with the Gunnison's and White-tailed Prairie Dog Conservation Strategy (Seglund & Schnurr, 2010). The management plan does not set occupied acreage or occupancy rate goals. The goal of the plan is, in part, to "[d]evelop and implement conservation and management strategies designed to maintain viable [Gunnison's prairie dog] populations range-wide in Colorado to prevent the need to list these species under the ESA" (Seglund & Schnurr, 2010, p. 7, *see* Table 2).

CPW implements Action Plans for Gunnison's and white-tailed prairie dogs within nine Individual Population Areas: populations of prairie dogs that are physically separated from each other or face unique management issues. Action Plans were developed collaboratively with stakeholders and address the issues pertinent to white-tailed or Gunnison's prairie dogs in each Individual Population Area including plague, population monitoring, population reestablishment, poisoning, urban development, and associated species.

## **White-tailed prairie dogs**

**Historic occupied acres:** No estimate of historic white-tailed prairie dog range is available (USFWS, 2010, p. 30,342).

**Occupancy rate:** The changes in state-wide white-tailed prairie dog occupancy rates measured from 2004-2016 suggested an increase in occupancy in 2008 from the 2004 baseline, a decrease in 2011, and a slight increase between 2011 and 2016 (Seglund, 2016, p. 10, *see* Table 3). Though there are changes in extinction and colonization rates through time, populations have remained stable over the past 12 years (Seglund, pers. comm., 2017)

**State goal:** CPW manages white-tailed and Gunnison's prairie dogs in accordance with the Gunnison's and White-tailed Prairie Dog Conservation Strategy (Seglund & Schnurr, 2010, *see above; see* Table 3).

## ***Kansas (black-tailed prairie dogs)***

**State agency designations:** The black-tailed prairie dog is listed as a species of "greatest conservation need" in the Kansas Comprehensive Wildlife Conservation Strategy, which provides some management guidance but no regulatory protection. Kansas Department of Wildlife, Parks, & Tourism (KDWP) classifies black-tailed prairie dogs as a "nongame wildlife" species.

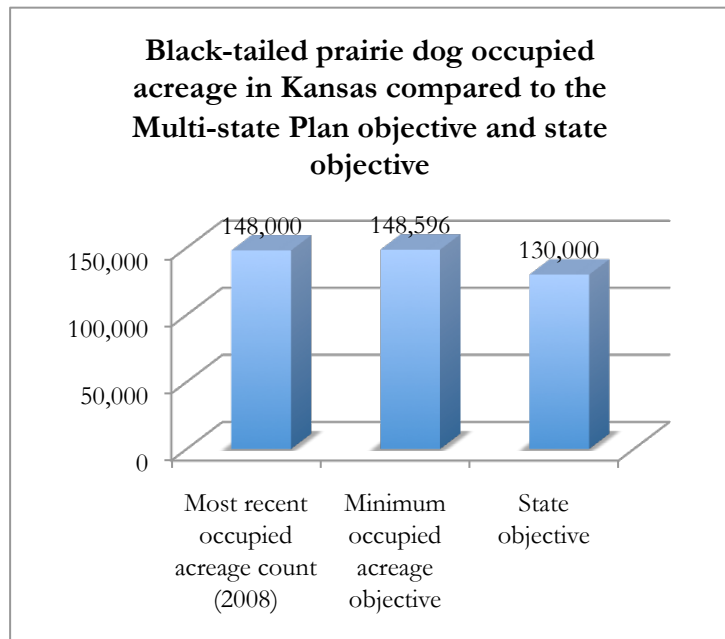
**Historic occupied acres:** Kansas historically had 2 million to 7.5 million acres of black-tailed prairie dogs (USFWS, 2009, p. 63,347). That number decreased to ~57,000 acres in 1958, mainly due to



poisoning programs and land development; two-thirds of the 33 million acres of Kansas within prairie dog range was converted to cropland and other uses post-European settlement. Once extermination efforts lessened, occupied acreage increased to ~130,000 acres by 2002, which became the population maintenance goal for the KDWPT (*see* KSPDWG, 2002). Kansas is primarily private land, which limits the KDWPT's management options compared to states with large amounts of public land.

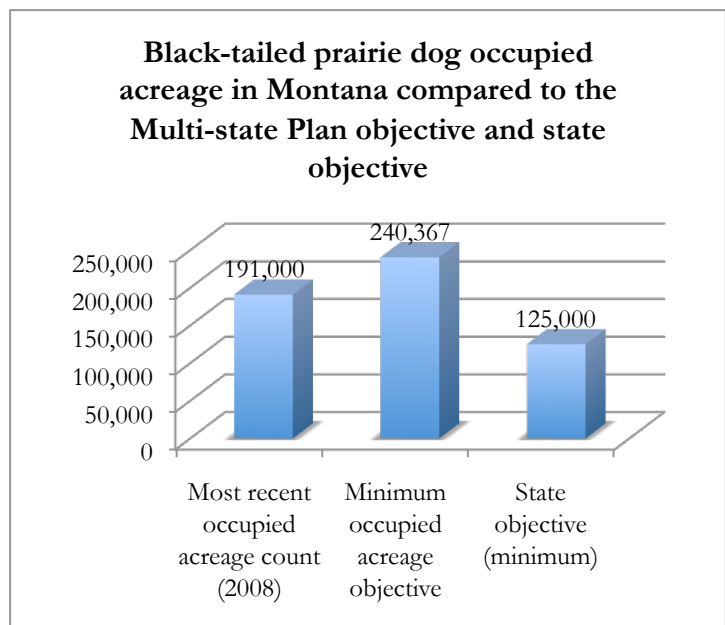
**Current occupied acres:** Kansas' most recent prairie dog survey, conducted in 2008, found 148,000 acres of prairie dogs. A new survey is in the process of being ground truthed.

**Occupied acreage goal:** KDWPT produced a prairie dog conservation plan in 2002 (KSPDWG, 2002). The state's goal was to maintain 130,000 occupied acres of prairie dogs and increase the number to 150,000 acres by 2012 if incentive programs were developed at the federal level (KSPDWG, 2002, p. 10); no federal incentive programs have been developed. The acreage objective is less than the objective of 148,569 acres proposed in the Multi-state Conservation Plan for the Black-tailed Prairie Dog. The state has exceeded the state objective and is within 1,000 acres of meeting the Multi-state Plan objective.



## **Montana (*black-tailed and white-tailed prairie dogs*)**

**State agency designations:** Montana Fish, Wildlife & Parks (MFWP) classifies prairie dogs as a “nongame species” and Montana’s Comprehensive Wildlife Conservation Strategy lists both resident prairie dog species as high priority “species of concern.” The Montana Department of Agriculture designates both black-tailed and white-tailed prairie dogs as “vertebrate pests,” meaning that the Department can implement systematic programs for their management and suppression. The state conservation plan only applies in situations outside of Department of Agriculture authority.



## Black-tailed prairie dogs

**Historic occupied acres:** Montana once had ~1.5 million to ~10.7 million acres of black-tailed prairie dogs, which shrunk to a historic low of 28,000 acres in 1961 (USFWS, 2009, p. 63,347).

**Current occupied acres:** A 2008 survey found ~191,000 acres of occupied colonies and ~32,000 acres of inactive colonies in the state (Rauscher et al., 2013, pp. 4-5).

**Occupied acreage goal:** The state has a conservation plan for both black-tailed and white-tailed prairie dogs. The plan's acreage goal for black-tailed prairie dogs is significantly less than the objective in the Multi-state Plan; the state objective is 125,000 to 145,000 acres of occupied habitat and the Multi-state Plan objective is 240,367 acres (USFWS, 2004, p. 26; *see also* MPDWG, 2002). Montana met the state plan goal in 2008 but has yet to achieve the Multi-state Plan goal.

## White-tailed prairie dogs

**Historic occupied acres:** Montana is at the northern edge of white-tailed prairie dog distribution. No historic estimate of occupied acreage exists, but white-tailed prairie dogs were likely restricted to a triangular area on the central southern border of the state (Seglund, 2004, p. 38).

**Current occupied acres:** As of 2009 there were an estimated 227 acres of white-tailed prairie dogs in Montana (USFWS, 2010, p. 30,342). Montana Fish, Wildlife & Parks visited 23 historically occupied colonies in spring 2016. Four of the 23 colonies appeared to be occupied and one new colony was located. Occupied acreage was not measured during this survey (Hanuaska-Brown, 2016, p. 1).

**State goal:** Enhancing populations with the aim of preventing extirpation from the state (MPDWG, 2002, p. 27; *see* Table 3).

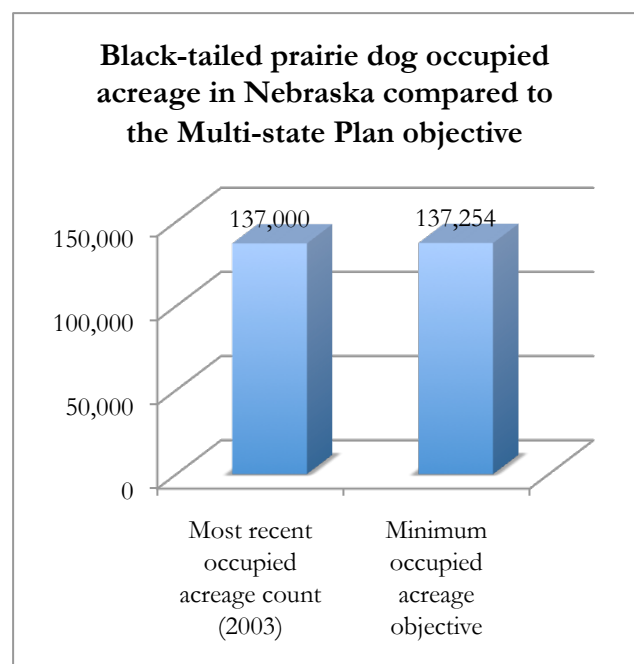
## **Nebraska (*black-tailed prairie dogs*)**

**State agency designations:** The prairie dog is an unprotected nongame species in Nebraska.

**Historic occupied acres:** Nebraska once had an estimated six million to nine million acres of black-tailed prairie dogs (USFWS, 2009, p. 63,347).

**Current occupied acres:** The state estimated it had ~137,000 occupied acres in 2003.

**Occupied acreage goal:** The Nebraska Game & Parks Board has been actively hostile to developing a prairie dog conservation plan. Nebraska Game & Parks developed a draft plan before being told to cease work (USFWS, 2004, p. 26). The Multi-state Plan objective is 137,254 occupied acres. That goal was within 1,000 acres of being met in 2003.



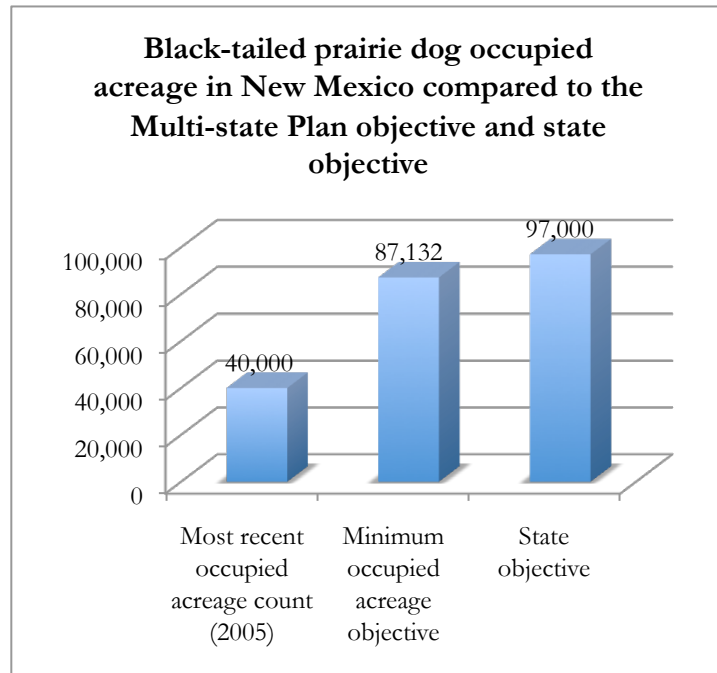
## New Mexico (*black-tailed and Gunnison's prairie dogs*)

**State agency designations:** Both black-tailed and Gunnison's prairie dogs are listed as "species of greatest conservation need" in New Mexico's Comprehensive Wildlife Conservation Strategy. However, as neither species is considered "small game," the New Mexico Department of Game & Fish (NMDGF) does not have the authority to issue regulations on prairie dog shooting such as bag limits or seasonal limitations and is limited in what actions they can take to maintain or increase populations.

### Black-tailed prairie dogs

**Historic occupied acres:** Historically, black-tailed prairie dogs occupied 6.6 million to nine million acres in New Mexico, dropping to a historic low of 17,000 acres in 1961 (USFWS, 2009, p. 63,347).

**Current occupied acres:** The New Mexico Natural Heritage program (N MNH) used NAIP aerial images from 2005 to estimate the area of prairie dog disturbance over the historical range of the black-tailed prairie dog. The NMNH estimated 40,000 acres of active black-tailed prairie dog towns in the study area, an apparent increase from an estimate based on 1996-1997 imagery (these estimates should be considered approximate) (Johnson et al., 2010a, p. 24).



**Occupied acreage goal:** The state conservation plan goal for the black-tailed prairie dog of 97,000 (NMBTPDWG, 2001, p. 16) exceeds the 10-year objective for occupied habitat of 87,132 acres from the Multi-state Conservation Plan. Neither goal has been met.

### Gunnison's prairie dogs

**Historic occupied acres:** In 1916, there were 11 million acres of Gunnison's prairie dogs in New Mexico; by 1961, that number had dropped to 355,000 acres (USFWS, 2008, pp. 6,664-6,665). Using aerial imagery and a model, the NMNH estimated the area of active Gunnison's prairie dog towns on the Navajo Nation and Reservation of the Hopi Tribe at ~254,000 acres (only a portion of this acreage is in New Mexico; the remaining area of the Navajo Nation falls within Utah and Arizona, and the Reservation of the Hopi Tribe is entirely within Arizona) (Johnson et al., 2010b, p. 18).

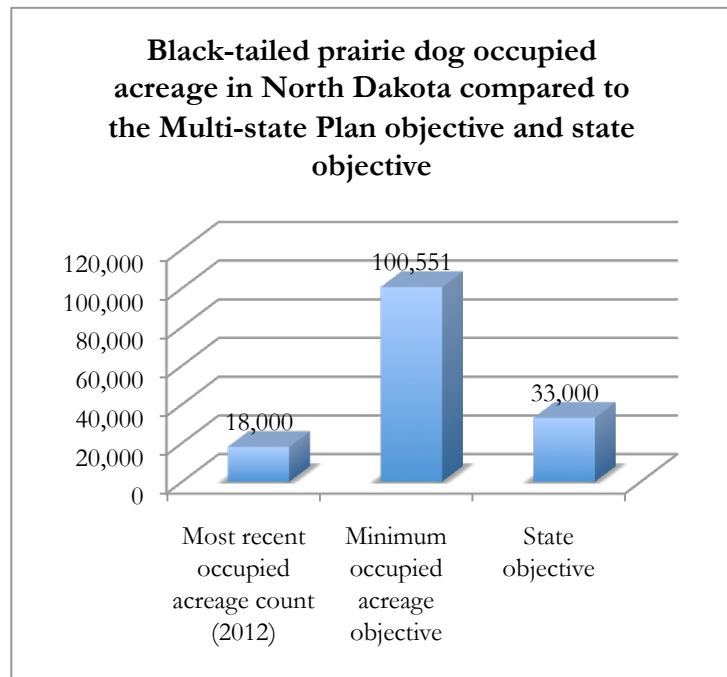
**Occupancy rate:** The occupancy rate based on 2016 surveys was approximately 29% (NMGFD, pers. comm., 2017).

**State goal:** New Mexico released a draft conservation plan for the Gunnison’s prairie dog in 2008, but has yet to finalize the plan. The three-part goal of the conservation plan is to 1) establish focal areas for conservation of Gunnison’s prairie dog; 2) ensure persistence of populations in each focal area; and 3) provide habitat connectivity between focal areas (NMDGF, 2008, p. 19; *see* Table 2). There is no specific acreage goal in the draft conservation plan.

## **North Dakota (*black-tailed prairie dogs*)**

**State agency designations:** North Dakota’s Comprehensive Wildlife Conservation Strategy lists the black-tailed prairie dog as a “species of conservation priority.” The North Dakota Department of Agriculture designates prairie dogs as a “pest species.”

**Historic occupied acres:** North Dakota is at the northeastern edge of black-tailed prairie dog distribution, and prairie dogs are found only in the southwest corner of the state. Black-tailed prairie dogs once inhabited an area of about two million acres in North Dakota; by 1961 that acreage had shrunk to a low of 20,000 acres (USFWS, 2009, p. 63,347). In 2001, there were 33,000 acres of occupied habitat (USFWS, 2002, p. 5).



**Current occupied acres:** Based on the latest survey from the North Dakota Game & Fish Department (NDGFD) using aerial photos from 2012 and ground truthing, occupied acreage has decreased to ~18,000 acres from ~22,600 acres in 2006. It is unclear whether this decline is due to differing survey methodology, a smaller survey area, or an actual decline in population, but it appears that the occupied acreage is now at or below the historic low of 1961.

**Occupied acreage goal:** The state’s prairie dog management plan does not support the acreage objective of 100,551 occupied acres set forth in the Multi-State Conservation Plan for the Black-tailed Prairie Dog. Instead, the state’s goal is to maintain a “biologically viable” population of the species, which NDGFD defined as the amount of prairie dogs present in the state at the time the plan was written: 33,000 acres (USFWS, 2002, p. 25-26). This population has not been maintained.

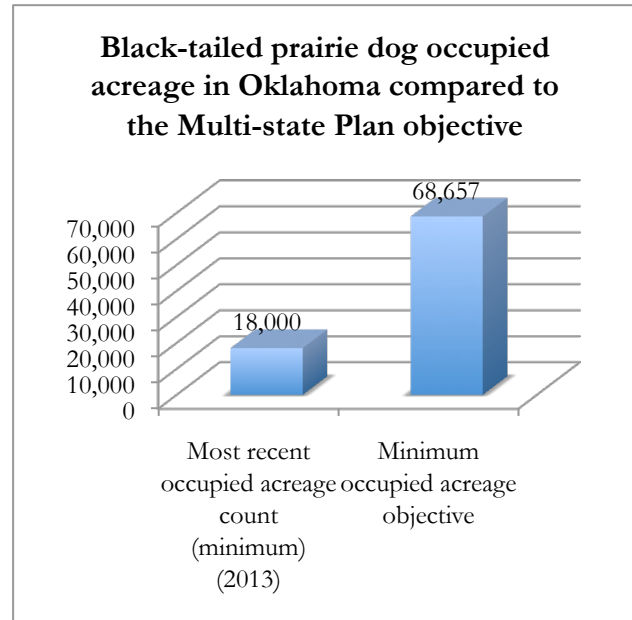
## Oklahoma (*black-tailed prairie dogs*)

**State agency designations:** The Oklahoma Department of Wildlife Conservation (ODWC) classifies black-tailed prairie dogs as “nongame wildlife” and lists them as a “species of concern” in the state’s Comprehensive Wildlife Conservation Strategy.

**Historic occupied acres:** Oklahoma once had 950,000 to 4.6 million acres of black-tailed prairie dogs, which were reduced to a low of 15,000 acres in 1961 (USFWS, 2009, p. 63,347). Occupied acreage has contracted due to plague outbreaks in the panhandle, followed by ongoing drought that slowed recovery; acreage was 57,677 acres in 2006 and 42,000 acres in 2011.

**Current occupied acres:** The most recent surveys of prairie dog range, using statewide aerial photos and ground truthing in 2013, estimated 18,000 to 22,000 occupied acres.

**Occupied acreage goal:** Oklahoma has a completed black-tailed prairie dog conservation plan (Hoagland, 2001) which supports the 10-year objective of 68,657 occupied acres set forth in the Multi-state Plan f(USFWS, 2004, p. 27; Luce, 2003, p. 28). This objective is not met.

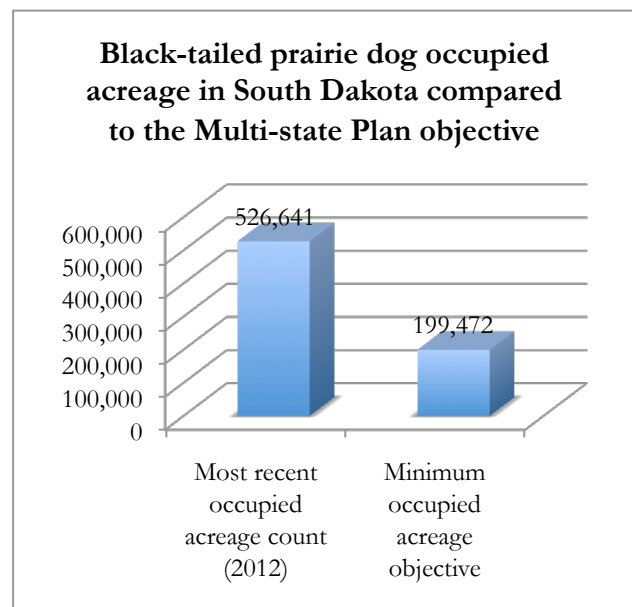


## South Dakota (*black-tailed prairie dogs*)

**State agency designations:** South Dakota Game, Fish & Parks (SDGFP) classifies the black-tailed prairie dog as a “predator/varmint species” for hunting license purposes, and as a “species of management concern,” meaning the state believes it may require either control or protection depending on variables including climate, disease, and population viability.

**Historic occupied acres:** Approximately 1.8 million to 6.4 million acres of black-tailed prairie dogs once existed in South Dakota, contracting to a low of 33,000 acres in 1961 (USFWS, 2009, p. 63,347). SDGFP estimated there were 630,849 colony acres in 2008.

**Current occupied acres:** In 2015, SDGFP completed analyzing the data from a survey of black-tailed prairie dogs using aerial imagery and ground truthing. As of 2012, there were 526,641 acres of black-tailed prairie dog colonies in South Dakota,





222,173 acres on tribal lands and 304,468 acres on non-tribal land (Kempema et al., 2015, p. 1). Of the 52,861 acres of colonies ground truthed, 43,791 acres (82.8 percent) were active and 9,070 acres (17.2 percent) were inactive (Kempema et al., 2015, p. 8). The next survey is contingent upon availability of NAIP imagery, but the state intends to monitor approximately every three years (Kempema et al., 2015, p. 2).

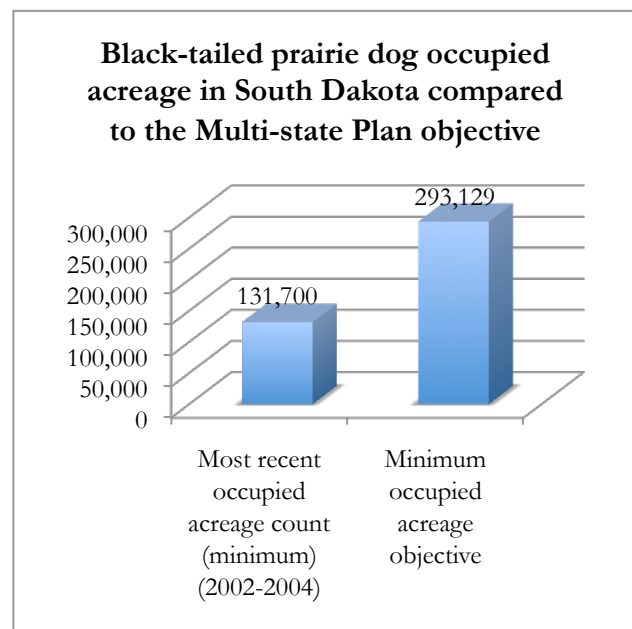
**Occupied acreage goal:** South Dakota has exceeded the state-specific acreage goal of 199,472 occupied acres outlined in the Multi-state Plan (Kempema, et al. 2015, p. 1). The state management plan supports the Multi-state Plan (Cooper & Gabriel, 2005, p. 27). Approximately 80 percent of South Dakota is private land, which limits the scope of the state management plan (Cooper & Gabriel, 2005, p. 8)

## **Texas (*black-tailed prairie dogs*)**

**State agency designations:** The Texas Parks & Wildlife Department (TPWD) designates black-tailed prairie dogs as nongame and a “species of concern.”

**Historic occupied acres:** At one time, Texas had 16.7 million to 57.6 million acres of black-tailed prairie dogs, which shrunk to a low of 26,000 acres in 1961 (USFWS, 2009, p. 63,347).

**Current occupied acres:** The TPWD estimated ~131,700 acres occupied by prairie dogs in its last finalized survey estimating occupied acreage between 2002-2004 (Singhurst et al., 2010, p. 245, 252). Data from 2010-2011 surveys is waiting for analysis (TPWD, pers. comm., 2017).



**Occupied acreage goal:** Texas’ management plan, introduced in 2004, set a goal of 293,129 acres of occupied habitat by 2011 (TXPDWG, 2004, p. v), the same goal set by the Multi-state Plan. The goal was not met. Most of the state is private land, making acreage goals more difficult to achieve.

## **Utah (*Gunnison’s, Utah, and white-tailed prairie dogs*)**

**State and federal agency designations:** Gunnison’s and white-tailed prairie dogs are identified as “species of greatest conservation need” in the 2015 Utah Wildlife Action Plan. The Utah Division of Wildlife Resources (UDWR) has assigned both species a NatureServe rank of “vulnerable,” meaning that they are at “moderate risk” of extirpation within the state. White-tailed and Gunnison’s prairie dogs are classified as “depredating animals” by the Utah Department of Agriculture & Food, which has regulatory authority over poisoning through the Agriculture & Wildlife Damage Prevention Board.

The situation of Utah prairie dogs is unique, as they are the only prairie dog species in United States listed under the Endangered Species Act (ESA). The species only occurs in Utah, but because they are listed as “threatened,” the U.S. Fish & Wildlife Service (USFWS) has authority over Utah prairie dog

recovery efforts. USFWS works in cooperation with partners on recovery efforts and the UDWR accomplishes the majority of the fieldwork. Other federal agencies such as the U.S. Forest Service, BLM, and National Park Service work in concert with USFWS on recovery actions (translocation, dusting, and monitoring). Due to a recent court case and subsequent administrative rules which came into effect in May of 2015, the state of Utah, via the UDWR, has full management authority over Utah prairie dogs on non-federal land, where they are temporarily no longer subject to the ESA. The lower court ruling is contrary to federal law and the case is currently on appeal.

### **Gunnison's prairie dogs**

**Historic occupied acres:** Estimates put the Gunnison's prairie dog at 700,000 occupied acres in Utah around 1916; by 1961, the occupied area shrunk to 100,000 acres (USFWS, 2008, pp. 6,664-6,665). The UDWR surveyed for Gunnison's prairie dogs in 2008 on tribal lands and in 2007 on non-tribal lands. Non-tribal lands were resurveyed in 2010 and again in 2013 using occupancy modeling, and occupancy appears stable over that time period.

**Occupancy rate:** The state estimated a 2016 occupancy rate of 25.9% (UDWR, pers. comm., 2017; *see* Table 2).

**State goal:** Utah adopted the Gunnison's Prairie Dog and White-tailed Prairie Dog Conservation Plan in 2007, planning for 2008 through 2017 (*see* Lupis et al., 2007). The goal of the plan is maintaining populations above 60 percent of the 2008 population baseline; it is unclear if this goal still applies now that occupancy modeling is being used exclusively for Gunnison's and white-tailed prairie dogs as opposed to occupied acreage counts.

### **White-tailed prairie dogs**

**Historic occupied acres:** Historical acreage of white-tailed prairie dogs is difficult to determine, but in 2002 and 2003 there were 141,808 acres of occupied white-tailed prairie dog habitat, mostly in Uintah and Duchesne Counties. Smaller population areas were found in Emery and Grand Counties (26,856 acres), and in Rich County (180 acres). This is an underestimate, as surveys did not include private land (USFWS, 2010, p. 30,343).

**Occupancy rate:** The UDWR conducted occupancy surveys for white-tailed prairie dogs in 2008, 2011, 2014, and 2016. The occupancy rate in 2016 was 51%, which is higher than 2014 but lower than 2011 (UDWR, pers. comm., 2017; *see* Table 3).

**State goal:** Utah adopted the Gunnison's Prairie Dog and White-tailed Prairie Dog Conservation Plan in 2007, planning for 2008 through 2017 (*see* Lupis et al., 2007). The goal of the plan is maintaining populations above 60 percent of the 2008 population baseline; it is unclear if this goal still applies now that occupancy modeling is being used exclusively for Gunnison's and white-tailed prairie dogs as opposed to occupied acreage counts.

### **Utah prairie dogs**

**Historic occupied acres:** In the 1920's, as many as 95,000 Utah prairie dogs may have inhabited southwestern Utah. The species was listed under the ESA in 1973 and recovery efforts began after the species reached a population low of 3,300 animals in 1972 (UDWR, 2015, pp. 4-5).

**Current occupied acres:** Spring counts of adult Utah prairie dogs are conducted annually from April to June. The total count for 2016 was 11,435 adult animals. Only about 50 percent of prairie dogs are above ground (sightable) at a time. The population estimate is determined by multiplying the spring count by sightability, the percentage of females that breed, and the average litter size.

**Occupied acreage goal:** The UDWR is working toward goals set forth in the 2012 Recovery Plan for the Utah prairie dog (*see* USFWS, 2012) which, when achieved, could start the process for removing ESA protections from Utah prairie dogs. The Recovery Plan focuses on three “Recovery Units”— the Awapa Plateau Recovery Unit, the Paunsaugunt Recovery Unit, and the West Desert Recovery Unit — that are essential to the survival and recovery of the entire species and contain high concentrations of Utah prairie dogs.

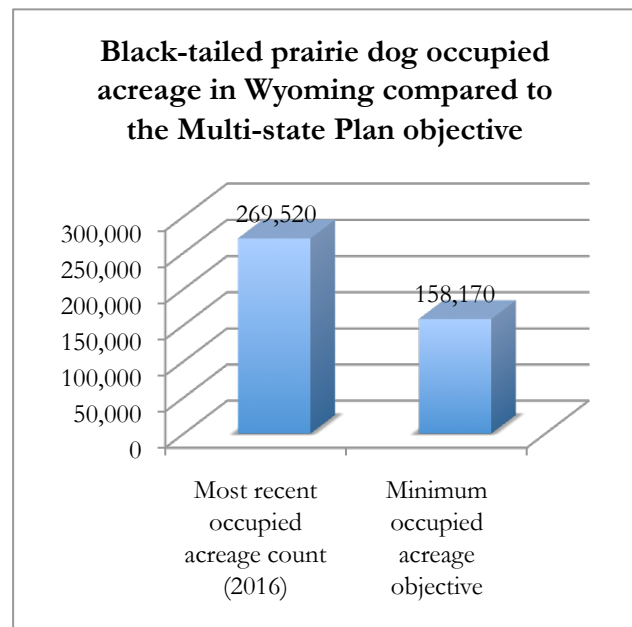
## Wyoming (black-tailed and white-tailed prairie dogs)

**State and federal agency designations:** Both white- and black-tailed prairie dogs are designated as “non-game species of special concern” by the Wyoming Game & Fish Department (WGFD) but as a “pest” by the state’s Agriculture Department.

### Black-tailed prairie dogs

**Historic occupied acres:** Wyoming once had approximately six million to 16 million acres occupied by black-tailed prairie dogs, which shrunk to a low of 49,000 acres in 1961 (USFWS, 2009, p. 63,347). The WGFD surveyed black-tailed prairie dog populations in 2006 and estimated 229,607 occupied acres (Grenier et al., 2007).

**Current occupied acres:** The WGFD contracted with a private company (WEST, Inc.) for a black-tailed prairie dog acreage survey in summer 2015. According to that survey, Wyoming contains an estimated 269,520 acres of black-tailed prairie dog colonies (WGFD, pers. comm., 2017).



**Occupied acreage goal:** Wyoming does not have a statewide prairie dog management plan, as the Wyoming Game Commission rejected the draft plan developed in 2001 (USFWS, 2004, p. 29). The state has exceeded the Multi-state Plan objective of 158,170 acres.

### White-tailed prairie dogs

**Historic occupied acres:** Historical acreage numbers for white-tailed prairie dogs in Wyoming are not available (USFWS, 2010, p. 30,343).

**Occupancy rate:** The Department contracted with the Wyoming Natural Diversity Database for statewide white-tailed prairie dog surveys, and completed the first in 2016. Baseline occupancy for

white-tailed prairie dogs in the state is 21.1% (WGFD, pers. comm., 2017). This baseline will be compared to future survey results to evaluate trends over time.

**Occupied acreage goal:** Wyoming does not have a statewide prairie dog management plan, as the Wyoming Game Commission rejected the draft plan developed in 2001 (USFWS, 2004, p. 29; *see* Table 3).

## Conclusion

The native grassland ecosystem is one of the most endangered in our country (Noss et al., 1995, Fig. 2). Many of the incredible natural phenomena associated with grasslands — prairie dog colonies millions of acres across, massive herds of bison migrating across the plains, lesser prairie-chickens dancing on their leks, the eyes of black-footed ferrets shining in the night — have vanished or are nearly gone. Prairie dogs and their interactions with other species once shaped vast landscapes in the American West. Protections for prairie dogs will be key to recovering America’s grasslands.

Some states, such as Arizona, are actively working to enhance black-tailed prairie dog populations through relocation, plague prevention and management, and education. Other states, including Kansas, South Dakota, and Wyoming, have met the goals of the Multi-state Plan and are therefore not taking any special management actions to maintain or enhance populations. Some states, such as New Mexico and Nebraska, are working from old information on black-tailed prairie dogs, and prairie dog conservation would be enhanced by new survey data.

Several states, to greater or lesser degrees, have contradictory policies between agencies. Colorado, Montana, North Dakota, Utah, and Wyoming all have Department of Agriculture regulations defining prairie dogs as “pests,” which complicates their management by state wildlife agencies as species of concern and undermines conservation efforts.

All states in prairie dog range should continue working to educate the public about the positive aspects of prairie dogs. Through a combination of education, regulatory changes, plague management, and restoration, we can ensure this rich ecosystem is preserved for future generations.

**Table 1. Black-tailed prairie dog historic and current occupied acreage counts, minimum occupied acreage objective from the Multi-state Plan, and state management plan goals.**

State	Historic occupied acreage (low and high estimates) <sup>1</sup>	Minimum occupied acreage objective for 2011 <sup>2</sup>	Most recent occupied acreage count (year) <sup>3</sup>	State management plan (year published) <sup>3</sup>	State management plan goal <sup>3</sup>
AZ	650,000 1,396,000	4,594	18.5 (2016)	Draft (2008)	7,100 acres by 2011, 1,000 on BLM land
CO	3,000,000 7,000,000	255,773	800,000 (2006)	Yes (2003)	255,773 occupied acres
KS	2,000,000 7,503,000	148,596	148,000 (2008)	Yes (2002)	Maintain 130,000 occupied acres of prairie dogs, 150,00 w/ federal incentives
MT	1,471,000 10,667,000	240,367	191,000 (2008)	Yes (2002)	125,000-145,000 occupied acres
NE	6,000,000 9,021,000	137,254	137,000 (2003)	No	None
ND	2,000,000 2,201,000	100,551	18,000 (2012)	Yes (2001)	“Viable population”, 10,000 acres
NM	6,640,000 8,950,000	87,132	40,000 (2005)	Yes (2001)	97,000 occupied acres
OK	950,000 4,625,000	68,657	22,000 (2013)	Yes (2001)	68,657
SD	1,757,000 6,411,000	199,472	526,641 (2015)	Yes (2005)	199,472
TX	16,703,000 57,600,000	293,129	115,000 (2006)	Yes (2004)	293,129
WY	5,786,000 16,000,000	158,170	269,520 (2016)	No	None
<b>Total</b>		<b>1,693,695</b>	<b>2,331,473</b>		

<sup>1</sup>USFWS 2009, p. 63,346-63,347

<sup>2</sup>Multi-state Conservation Plan, p. 28

<sup>3</sup>Multiple sources; see individual state sections for details



**Table 2: Gunnison's prairie dog historic and current occupied acreage, occupancy rates, and state management plan goals. Note that occupancy rates may not be comparable between states due to differing methodologies and timing.**

State	Historic occupied acreage <sup>1</sup>	Most recent occupied acreage count (year)	Occupancy rates	State management plan (year published) <sup>7</sup>	State management plan goal <sup>7</sup>
AZ	6,600,000	69,325 (2014-2015) <sup>2</sup>	14-37% (2010) <sup>4</sup>	Yes (2007)	75% of 1900 acreage (4,950,000)
CO	6,000,000	151,547 (2002) <sup>3</sup>	22.4% (2010) <sup>4</sup>	Yes (2010)	Develop and implement conservation and management strategies designed to maintain viable Gunnison's prairie dog populations range-wide in Colorado to prevent the need to list these species under the ESA
NM	11,000,000	Not available <sup>1</sup>	29% (2016) <sup>5</sup>	Draft (2008)	1) Establish focal areas for conservation of Gunnison's prairie dog; 2) ensure persistence of populations in each focal area; and 3) provide habitat connectivity between focal areas
UT	700,000	40,000 (2007) <sup>1</sup>	25.9% (2010) <sup>6</sup>	Yes (2007)	Maintaining populations above 60 percent of the 2008 occupancy baseline

<sup>1</sup>USFWS, 2008, pp. 6,664-6,666

<sup>2</sup>AZGFD, pers. comm., 2015

<sup>3</sup>USFWS 2013, p. 68,668

<sup>4</sup>USFWS 2013, p. 68,669-68,670

<sup>5</sup>NMGFD, pers. comm., 2017

<sup>6</sup>UDWR, pers. comm., 2017

<sup>7</sup>Multiple sources; see individual state sections for details

**Table 3: White-tailed prairie dog historic and current occupied acreage, occupancy rates, and state management plan goals. Note that occupancy rates may not be comparable between states due to differing methodologies and timing.**

State	Historic occupied acreage <sup>1</sup>	Most recent occupied acreage count (year) <sup>1</sup>	Occupancy rates	State management plan (year published) <sup>5</sup>	State management plan goals <sup>5</sup>
CO	Not available	Not available	13-35% (2016) <sup>2</sup>	Yes (2010)	Develop and implement conservation and management strategies designed to maintain viable white-tailed prairie dog populations range-wide in Colorado to prevent the need to list these species under the ESA
MT	Not available	227 (2009)	Not available	Yes (2002)	Enhancing populations with the aim of preventing extirpation from the state
UT	Not available	168,844 (2003)	51% (2016) <sup>3</sup>	Yes (2007)	Maintaining populations above 60 percent of the 2008 population baseline
WY	Not available	2,893,487 (2008)	21.1% (2016) <sup>4</sup>	No	None

<sup>1</sup>USFWS, 2010, p. 30,342-30,343

<sup>2</sup>Seglund, 2016, p. 8

<sup>3</sup>UDWR, pers. comm., 2017

<sup>4</sup>WGFD, pers. comm., 2017

<sup>5</sup>Multiple sources; see individual state sections for details

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# Ranges of the Five Prairie Dog Species





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