



# Restoring the Prairie Dog Ecosystem of the Great Plains

*Learning From the Past to Ensure  
the Prairie Dog's Future*



*Predator Conservation Alliance  
Bozeman, Montana  
November 2001*



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## *Learning from the Past to Protect the Prairie Dog Ecosystem's Future*

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### **Purpose**

This report explains the importance of the prairie dog ecosystem, documents the reasons for its decline, and offers solutions for reversing this trend. A map-based recovery vision with a focus on our public lands explains exactly how and where to restore this vibrant ecosystem, so that in the future we may once again discover a healthy Great Plains ecosystem with prairie dog towns and the many other species that depend on them.

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### **About Predator Conservation Alliance**

Predator Conservation Alliance works to conserve and restore forest and grassland ecosystems by protecting predators and their habitats—*saving a place for America's predators*.

This place is on the ground in the northern Rockies and High Plains, where we are working to protect predators and the places they live. Predator Conservation Alliance also works to create a place for predators within the human heart and mind, by increasing public awareness about the important ecological role predators play.

### **Acknowledgements**

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When Lewis and Clark crossed the Great Plains, they found a land brimming with life, a tapestry of earth and sky as far as the eye could see. The Great Plains accommodated millions of bison, elk and pronghorn antelope, thousands of foxes, coyotes, wolves and bears, hawks and owls, mice and grasshoppers. And countless black-tailed prairie dogs.

This landscape is far different today, with only pockets of undisturbed landscape resembling what made the Great Plains so great. Many species no longer roam this area.

By the early 1900s, plows, poisons and shortsighted policy had altered the landscape so dramatically that these animals could no longer survive in their native habitat.

The prairie dog, a small, football-sized burrowing rodent, is often referred to as the “key” to a healthy prairie ecosystem, a species on which so many other native prairie species depend.

The story of the black-footed ferret—as well as that of the ferruginous hawk, burrowing owl, swift fox and mountain plover—are chapters in the tale of the prairie dog.

Today, millions of acres of prairie grasslands exist on our public lands that could support prairie dogs, and the associated species that live in or near their colonies.

These vast spaces could be bustling with life: shadows of hawks overhead, the low hoots of owls, the antics of black-footed ferrets, the

deliberate movements of salamanders, toads, snakes and lizards, and the constant burrowing of prairie dogs.

We cannot secure the future of the prairie dog ecosystem without changing the policies and practices that brought about its decline.

To best insure the prairie dog’s future, we need to learn from the past, because the roots of the war against the prairie dog reach far back into our history on the Great Plains.

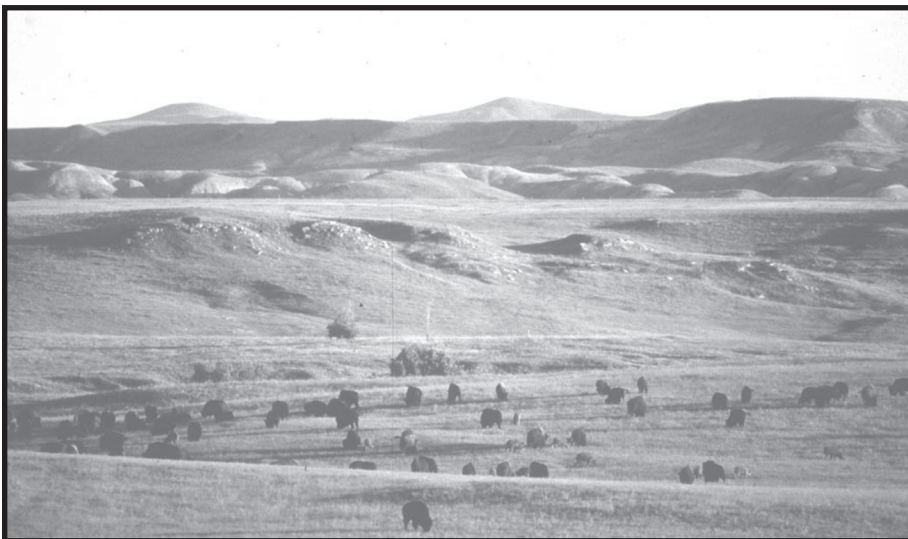
Predator Conservation Alliance has a vision to restore the prairie dog ecosystem, and reclaim some of what made the Great Plains so great. We have been and continue to be one of the growing number of voices for prairie dogs. Our efforts have included: petitioning the U.S. Fish and Wildlife Service to list the prairie dog as a threatened species, mapping suitable prairie dog habitat across the Great Plains, working to ban prairie dog shooting and poisoning on public lands and raising the profile of several declining species closely linked to the prairie dog. Predator Conservation Alliance is doing what it takes to keep prairie dogs on the ground.

We hope this report will help inspire you to become involved in the restoration of the prairie dog ecosystem, and the larger Great Plains region in which they live. Visit our public lands in the Great Plains, and imagine what they once were and what they can be once again. Refer to our “what you can do” list at the end of this report for more ideas on how you can help. Thanks.

For All Things Wild and Free,



Tom Skeele  
Executive Director  
Predator Conservation Alliance



The buffalo roam throughout the history of the Great Plains.  
Photo by Raymond Gehman

## Chapter 1

### What's so Great About the Great Plains?

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**T**he Great Plains. The belly of America. A land embraced by ceaseless wind, ethereal light, and a horizon rimmed by grasses. As writer Wallace Stegner wrote in "Wolf Willow," his childhood memoirs, the plains, "Are a long way from characterless; 'overpowering' would be a better word. For over the segmented circle of earth is domed the biggest sky anywhere, which on days like this sheds down on range and wheat and summer fallow a light to set a painter wild, a light pure, glareless and transparent. The horizon a dozen miles away is as clean a line as the nearest fence."

This landscape of light and space which defines the plains of central North America has always been marked by the abundance of a variety of

grasses, whether by the native short and long grasses before the arrival of Europeans, or by the farmer's golden wheat.

From its origin at the base of the Rocky Mountain Front to the edge of the eastern hardwood forests, the vegetation of the Great Plains is dominated by grasses primarily due to the lack of one thing: water. The Plains lie in the rain shadow of the Rockies; the grasslands closest to the Rockies get the least amount of water and are typified by the shortest native grasses. Moving east, and farther away from the rain shadow, the grasses are able to grow taller until, somewhere near Illinois, the horse-high grasses of the tallgrass prairie rustle and wave.

The Great Plains region encompasses 424

million acres of North America's landmass. Historically, this sea of grass fueled a vast community of grazing animals. Great herds of elk, pronghorn antelope, deer and of course bison—an estimated 45 million bison—roamed the heartland (Shelford 1963).

Today, this region is often called the world's breadbasket because of the extensive amount of food grown here, made possible by the region's productive soils. But this conversion from grassland to cropland has come at a price—the tragic loss of "America's Serengeti."

Few people think of wild, majestic nature when they think of today's Great Plains. But the Great Plains still contains large areas of land that can support

the wide array of wildlife that once roamed this region, if we as a society choose to restore it.

#### **The Prairie Dog Ecosystem of the Great Plains**

The tens of millions of enormous, nomadic bison that chewed and trampled their way across the plains were accompanied by a curious creature that also was dependent upon the grasslands: the black-tailed prairie dog. Billions of prairie dogs. Preferring the shorter grasses dictated by scant rain and open areas trampled by the bison, prairie dogs nibbled plants and burrowed deep into the soil to make their dens. As they did, they engineered an ecosystem found nowhere else on earth: the prairie dog ecosystem of North America.



The Great Plains: a landscape of light and space. Photo by Jim Brandenburg



## Chapter 2

# The Importance of Prairie Dogs to the Great Plains

The prairie dog ecosystem was, and still is, home to an amazing variety of plants and animals. Find a prairie dog town, and that diversity increases. Prairie dog towns host more species than do adjoining grasslands without



prairie dogs (Sharps and Uresk 1990). Many species of plants and animals depend on or benefit from prairie dog towns (Kotliar et al 1999).

Five species of prairie dogs

live on the North American continent. In the early 1900s, prairie dogs made homes on between 100 and 250 million acres of prairie, and may have numbered as many as five billion individuals. Of these five species, the black-tailed prairie dog is the most abundant and widely distributed, and is the only species found in the Great Plains region.

Prairie dogs live together in large family units called coteries, generally consisting of one adult male, one to four adult females and their young (Hoogland 1995). Several coteries make up densely populated colonies, or towns, that can range in size from a few acres to several thousand acres. Prairie dogs live close together in large towns as a method of survival. At any one time, many pairs of prairie dog eyes are watching the land and sky for predators.



Prairie dog burrows are six- to 14- feet deep.  
Photo by Louise Forrest

### Prairie dogs create habitat

Prairie dogs are equipped with short, muscular front legs and long claws perfectly designed for digging. They excavate burrows that are six- to 14- feet deep, and about 15 feet long, with small chambers just below the surface where they can sit and listen for above- ground activity. Deeper nest chambers provide a haven where they sleep and care for their young. Black-tailed prairie dog towns typically have 30 to 50 burrow entrances per acre (Foster and Hynstrom 1990).

### Prairie dogs change the soil

Prairie dogs are constantly digging. This turns the soil much as tilling aerates the soil in a garden. This churning action promotes soil formation. Soils in



Prairie dogs are constantly digging.  
Photo by Jim Brandenburg

prairie dog towns are richer in nitrogen, phosphorous and organic matter than in adjoining grasslands (Sharps and Uresk 1990). Prairie dog activity also increases the soil's ability to absorb water.

### Prairie dogs change the vegetation

To better see their predators, prairie dogs need to live where the grasses are short. They also contribute to maintaining open grasslands by clipping back intruding shrubby plants, like sagebrush and mesquite, thereby maintaining the character of some grasslands (Weltzin et al 1997).

Because of their constant clipping, prairie dogs help stimulate new plant growth, which contributes to a greater amount and diversity of vegetation. This benefits other grazing animals, such as deer, antelope, elk, bison and even cattle.

All of these interactions between prairie dogs and their environment demonstrate why the prairie dog is a keystone species of the Great Plains.

## Chapter 3

### Who Lives on Prairie Dog Towns?

In the process of digging their homes, prairie dogs provide food and shelter for many other animals. Recent research has identified more than 150 species of wildlife associated in some way with prairie dogs. A 1999 study refined this list by identifying nine species that depend on prairie dogs or their activities, and another 137 species that are associated opportunistically, or benefit in some way, from prairie dogs (Kotliar et al 1999).

Some animals are so intricately associated with prairie dogs that the decline of the prairie dog seems to be contributing to the decline of these species as well.

The nine species most tied to prairie dogs are: black-footed ferret, burrowing owl, mountain plover, ferruginous hawk, golden eagle, swift fox, horned lark, deer mouse and grasshopper mouse.



Photo by Jim Brandenburg

**Burrowing owls** are closely associated with prairie dogs and the short-grass prairie. These small owls rely on empty prairie dog burrows for their nests and find an abundance of prey in prairie dog colonies. Knowles and Knowles report, Although the burrowing owl has an extremely wide distributional range in the Americas and is not endangered with extinction, that portion of the species associated with prairie dogs has declined remarkably since settlement of the prairies. (Knowles and Knowles 1994).



Photo by Jon Sharps

The **ferruginous hawk** preys on prairie dogs in areas where the two species ranges overlap. Biologist Jack Cully noted that, The pattern of ferruginous hawk abundance during fall migration suggested that ferruginous hawks responded strongly to the local availability of prairie dogs. (Cully 1991)



Photo © John Winnie, Jr.

The diminutive **swift fox** thrives when it lives near prairie dog towns, probably because of abundant food supply and shelter from the attack of their main predator coyotes. One study found that when swift foxes live near prairie dog towns, prairie dogs make up 50 percent of their diets (Sharps 1996). These foxes also often den within approximately one-quarter- to one-half-mile of the colonies (Sharps 1996). Scientific evidence suggests extensive poisoning programs for prairie dogs and ground squirrels as one probable cause of the decline of swift foxes. (Sharps and BLF 1994).



PCA photo archives

The rare **mountain plover**, a shorebird adapted to life on the plains, prefers to nest in areas with bare soils and low grasses conditions found on prairie dog towns. In areas where sagebrush is the dominant plant, these plovers rely heavily on prairie dog colonies for their nesting sites (Miller et al 1994). The decline of mountain plovers may be attributed to the reduced population of prairie dogs (Knowles et al 1982). In 1999, the U.S. Fish and Wildlife Service officially proposed to list the mountain plover as a threatened species, and a final ruling is still pending.





Photo courtesy of USFWS

Perhaps the most well known, and certainly most endangered species associated with prairie dogs is the **black-footed ferret**. In fact, this grassland member of the weasel family requires prairie dogs in order to survive. Black-footed ferrets live in prairie dog burrows, and feed almost exclusively on the rodents: prairie dogs make up over 90 percent of a black-footed ferret's diet. Biologists estimate that a ferret might eat one prairie dog every three days (Matchett 1995).

The **black-footed ferret** was designated as endangered under the Endangered Species Act due in large part to severe population declines caused by a decreasing food source, namely prairie dogs, and a loss of habitat prairie dog towns (BLF and Sharps 1994).

The needs of the black-footed ferret should be used as a measuring stick for prairie dog management. In order to keep the ferret from becoming extinct, federal and state agencies need (and are required by law) to manage some prairie dog towns to fulfill black-footed ferret recovery goals. Ferrets should be restored to a minimum of 10 locations to downlist the weasel from its current endangered status to threatened status. At this point in time, however, only six black-tailed prairie dog towns exist that are large enough to provide adequate habitat for a self-sustaining population of black-footed ferrets (Lockhart, pers. corr. 2001). In other words, active prairie dog restoration is needed if black-footed ferret recovery is ever to succeed.

### Many other species benefit from prairie dogs.



**Deer mice and white-tailed jackrabbits** thrive on the nutritious plants found on prairie dog towns. Great Plains toads, tiger salamanders and lizards all prey on one or more of the hundreds of species of insects, spiders and other invertebrates living on prairie dog towns. And rattlesnakes feed on mice, rabbits and even the prairie dogs themselves!

Photo by Jonathan Proctor



Photo courtesy of Wind Cave National Park

**Badgers** are one of the most common predators found on prairie dog towns. Badgers excavate prairie dog burrows for homes and to reach the prairie dogs, one of their favorite foods.



**Bobcats** also prey on prairie dogs under the right conditions when habitat overlaps for bobcats and prairie dogs on grasslands near major rivers. If prairie dog populations are stable, the rodents provide these small wildcats a constant food source (BLF and Sharps 1994).

Photo by James Halfpenny



Many raptors hunt on prairie dog towns. In northeastern Colorado, **golden eagles** have been known to nest near colonies for years and feed prairie dogs to their young (Koford 1958).

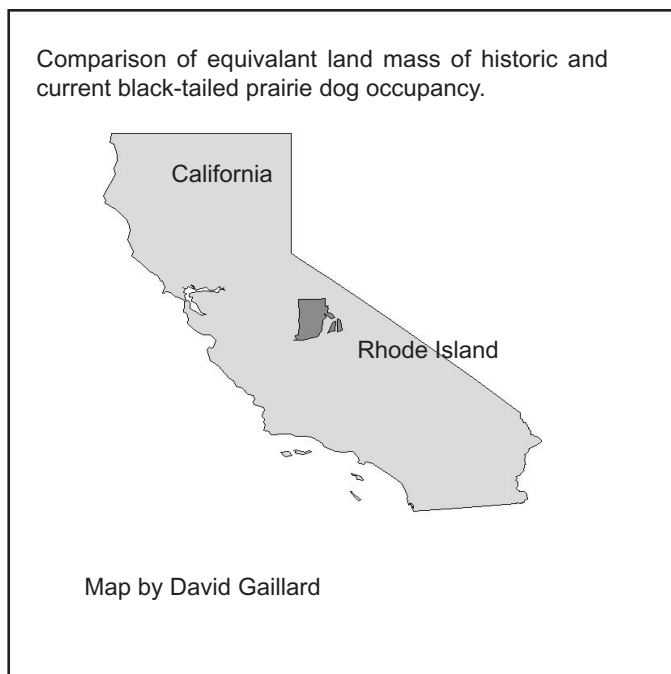
Photo courtesy of Theodore Roosevelt National Park

## Chapter 4

### Waging War on the Prairie Dog

European settlers on the Great Plains viewed prairie dogs as vermin—an animal to get rid of.

The prairie dog towns that remain today are for the most part small, scattered remnants across the region. The most recent estimate from the U.S. Fish and Wildlife Service is that black-tailed prairie dogs occupy around 768,000 acres in the U.S., Mexico, and Canada—an area about the size of Rhode Island. By comparison, the lowest historic estimate of prairie dog occupation—100 million acres—is an area about the size of California.



### Four causes have reduced prairie dog numbers by about 99 percent.

#### Habitat Loss

Perhaps the most significant factor in prairie dog decline over time has been habitat loss. As we have built towns and cities and converted rich grasslands into farmland, habitat for prairie dogs and the other animals of the prairie grasslands has rapidly disappeared.

Grasslands are the most fragmented ecosystem in North America (Groombridge 1992). Grassland conversion to cropland has severely impacted prairie dog habitat in the eastern half of the prairie dog's range. The western half,

however, still includes significant areas of unplowed lands. But conversion of these remaining grasslands to cropland continues.

Urbanization is a lesser, but locally significant, factor in the decline of the black-tailed prairie dog, most notably in the Denver/Boulder area in Colorado. In 2000, urbanization there was responsible for the loss of over 3,000 acres of prairie dogs (Rocky Mountain Animal Defense [in lit.](#) 2000).



Prairie dogs killed in the early part of the century. Photo courtesy of Wildlife Damage Review and Sharlot Hall Museum.

#### Poisoning

Prairie dog poisoning began in the 1800s and continues to this day.

The federal government became greatly involved in wildlife control in 1909, when Congress appropriated funding for the USDA to conduct, "Experiments and demonstrations in destroying noxious animals." (Randall 1991) In 1931, the federal government's role in wildlife control, including prairie dogs, was given statutory authority with the passage of the "Animal Damage Control Act." This act directed the Secretary of Agriculture to develop and implement programs on both public and privately held land to eradicate, "Mountain lions, wolves, coyotes, bobcats, prairie dogs ..." and other wildlife "injurious" to livestock and other human interests (ADC 1994).

Ironically, many of the weapons used against prairie dogs actually harm the livestock they are designed to protect, as well as harming countless wildlife species. Scientists have found that zinc



phosphide, a commonly used rodenticide, offers considerable risk to, “Domestic livestock and million acres.” (Gerhardt 1994). Between 1916 and 1920, humans poisoned prairie dogs over

**Up to 45 percent of the prairie dog population may be removed by shooting in some years (Knowles and Vosburgh 2001).**

their entire range at the time, a total of about 100 million acres of western rangeland (Forrest in lit 1996).

Although the level of poisoning has dropped off since its heyday (mainly because there are so few prairie dogs left), private landowners and some state agencies are still actively poisoning prairie dogs across most of the animal’s present range.

Predator Conservation Alliance has documented that the U.S. Forest Service poisoned approximately 97,558 acres of prairie dog colonies between 1985 and 1998 on our 12 National Grasslands in the Great Plains. In addition, the National Park Service poisoned approximately 5,508 acres of prairie dog colonies between 1985 and 1998 on our National Park Service units in the Great Plains (Forrest and Proctor in lit. 2000).

And though it’s hard to believe, some states continue to require that private landowners poison prairie dogs living on their own land!

In Kansas, law mandates prairie dog control if an adjacent landowner complains (KSA 80-1202). In Wyoming, poisoning is mandatory (Wyoming Weed and Pest Control Act of 1973). In South Dakota, a state-owned production plant provides bait and poison to state and federal agencies, and provides control to landowners when requested.

The Bureau of Indian Affairs has also conducted some very large prairie dog poisoning

**The largest reported prairie dog colony was located in Texas, occupied a 25,000-square-mile area, and had an estimated population of more than 400 million individuals (Merriam 1902).**

projects. The largest occurred in 1980-1984, and was documented by biologists David Roemer and Steve Forrest in what is the most comprehensive analysis of poisoning in Montana, Wyoming and South Dakota to date. They wrote, “In response to a lawsuit brought by the American Farm Bureau, the BIA conducted one of the largest and most expensive prairie dog poison-

ing efforts in history at the Pine Ridge Indian Reservation in South Dakota.” Congress appropriated approximately \$6.2 million for the poisoning of 458,618 acres of prairie dogs (Miller et al 1990), at a cost of about three dollars per prairie dog killed (Sharps 1988). From 1985 to 1986 240,000 acres were re-treated (Roemer and Forrest 1996).

Altogether, biologists documented state and federal involvement in over one million acres of prairie dog control in the northern Great Plains during 1978-1992 (Roemer and Forrest 1996).

**Arizona, New Mexico, Oklahoma and Texas may have been home to more than half of all black-tailed prairie dogs in the U.S. historically, but now contain less than 10 percent of remaining prairie dogs (Knowles 1998).**

### **The Cost of Killing: Economics of Prairie Dog Control**

Poisoning prairie dogs is an expensive undertaking.

Typical poisoning efforts cost about three dollars per prairie dog killed (Sharps 1996). To put this in perspective, a bale of hay weighs a bit more than the amount of forage produced on an acre of grassland in South Dakota, and costs about five dollars (Sharps 1996). Even if prairie dogs consumed all of the grass on each acre they occupy, then in looking at the previous example, the Pine Ridge Indian Reservation spent \$6.2 million in prairie dog poisoning to preserve \$2.3 million worth of grass for domestic livestock.

In areas where fewer prairie dogs occupy each acre of land, poisoning can cost as much as five dollars per prairie dog killed (Byer 1994).

Some biologists think similar estimates of the costs of poisoning prairie dogs are conservative. Biologists Miller, Ceballos and Reading note that the estimated costs do not consider, “The long-term expenses of recovering a degraded ecosystem, the intangible value of biological diversity as a public benefit, or the loss of potential or actual wealth from the depletion of biotic resources.” They also note that, “[As] a result of poisoning programs, the few remaining prairie dog colonies are smaller and more isolated. These fragmented colonies are more susceptible to extirpation, particularly by sylvatic plague.”

The success of future management options, “...Hinge critically on an end to U.S. government subsidies for prairie dog eradication programs. The subsidies are financially and ecologically unsound, and they only contribute to the prevailing misconceptions about the role of the prairie dog on the grasslands.” The authors conclude, “[Without] addressing the issues surrounding the destruction of the prairie dog, we will only continue to degrade the western grasslands, reduce

## Target Practice:

### Recreational Shooting of Prairie Dogs

Another factor in prairie dog decline is the shooting of prairie dogs for target practice. For those who have never heard of the practice, recreational shooting of prairie dogs may be difficult to imagine. Prairie dog shooters travel to a prairie dog town, often with a paid guide or maps from a federal land management agency or local chamber of commerce. They shoot prairie

Using data gathered in the 1980s to identify prairie dog towns large enough to support black-footed ferret reintroduction areas, the North Dakota Department of Fish and Game created the North Dakota Prairie Dog Hunters Guide Book.

dogs from a distance. The prairie dogs are neither retrieved nor eaten. The challenge is in hitting the small targets as they run for cover.

As outfitter/guide Dan Moyer once said, “Varmint hunting is a game of skill, just like golf... you just don’t go boom, boom, boom.” (Miniclier 1990)

Recreational shooting is becoming increasingly popular. One reason is advertising. In August 1995, the *Wall Street Journal* ran an article titled, *For Great Adventure, What Could Match A Prairie-Dog Safari?*—“The hobby has exploded in recent years, fueled by ranchers who detest the burrowing rodents and gun enthusiasts who view this as the ultimate target practice.” (Aeppel 1995)

The increasing popularity is evident in the following numbers:

BLM officials estimated that in Montana’s Phillips Resource Area, 191 shooters killed over 37,000 prairie dogs during 1987. The average shooter stayed for 4.2 days and shot 196 prairie dogs (Connell 1993).

In South Dakota, 766,000 prairie dogs were shot in 2000 (Gigliotti 2001).

Colorado Division of Wildlife phone surveys of hunters found that 3,400 shooters killed over one-quarter million prairie dogs over 27,000 shooting days in the state in 1999 (Slater 2000).

Nebraska wildlife officials documented that in 1999, 7,100 shooters killed 300,000 prairie dogs (Fritz 2000). Residents shot an average of 8.5 prairie dogs each day, 20 by non-residents.



A prairie dog shooter takes aim. Photo by Raymond Gehman

biotic diversity and drain government budgets.” (Miller et al 1994).

Prairie dog shooting is unregulated in most places.

For example, in Kansas, Nebraska, New Mexico, North Dakota, Oklahoma, Texas and Wyoming shooting seasons run year-round, with no bag limits.

#### **The Impact of Plague on the Black-Footed Ferret**

**The black-footed ferret reintroduction program in Shirley Basin, Wyoming was devastated by outbreaks of plague in 1995. Ferrets were first released there in 1991, and the reintroduced captive ferrets gave birth to several wild-born litters. In July 1995, however, plague killed off an estimated 90 percent of this prairie dog population (Casper Star Tribune 1995). No ferrets were thought to survive in the area. But surveys in 2000 did find 15 ferrets, providing a glimmer of hope for this otherwise failed reintroduction project. Plague is also known to exist within or near the ferret recovery areas in Montana, Utah, Colorado and Arizona.**

#### **The Broader Implications of Shooting Prairie Dogs**

Although prairie dog shooters argue that shooting prairie dogs does not impact population numbers, recent figures tell a different story.

In May, 1998, an article in a shooters magazine attracted hundreds of prairie dog shooters to an area on the Buffalo Gap National Grassland in South Dakota. These shooters may have wiped out over half of the prairie dogs in one of the best remaining prairie dog complexes in the country, that happens to be the site of the most important black-footed ferret reintroduction program in the country (USFWS 1998).

After the slaughter, the area was closed to prairie dog shooting for the benefit of a black-footed ferret reintroduction. Two years later, prairie dog densities on these towns had doubled (Perry 2000). Not surprisingly, the black-footed ferret recovery project here has since become the only truly suc-

cessful recovery area for this endangered species.

Research to determine the effects of shooting pressure on prairie dogs is scant but growing. Three studies explore this issue, and all have indicated that areas with heavy shooting had severe negative impacts on prairie dog colonies, including large population reductions compounded by the disruption of the prairie dog social system. Besides decimating prairie dog numbers, shooting increases stress levels and decreases foraging opportunities for the remaining prairie dogs (Stockrahm 1979, Knowles 1988, Vosburg and Irby 1998).

#### **Sylvatic Plague:**

##### **The Greatest Danger to Prairie Dogs**

Sylvatic plague, a disease that arrived on the North American continent in 1900, has become a significant factor in the species' decline. Sylvatic plague is known as bubonic plague in humans, and is spread by fleas carrying the disease. It is now perhaps the greatest threat to prairie dogs and the prairie dog ecosystem. Modern medicine has decreased the plague risk to humans, but rodent populations remain highly susceptible with little chance of survival if infected.

The first instance of plague in North Ameri-



Plague-killed prairie dog. Photo by Louise Forrest



can native mammals was recorded in 1908 among a ground squirrel population near Berkeley, California. In every year since, the infected region in North America has increased (McNeil 1976).

Plague was first observed in black-tailed prairie dogs in Texas in 1946 (Cully 1993). Since then, it has spread across the Great Plains and decimated numerous prairie dog towns. South Dakota remains the only state in the Great Plains where plague has not yet struck prairie dog towns.

Humans have also spread plague. Anecdotal reports describe the capture of plague-infected prairie dogs in burlap bags, which are then transported to healthy prairie dog colonies. Author William H. McNeil wrote, "Ranchers actually transported sick rodents in trucks, sometimes crossing

hundreds of miles, with the intention of infecting local communities of prairie dogs and reducing their numbers, thus allowing cattle to find more grass." (McNeil 1976)

Some species show resistance, but prairie dogs have demonstrated little immunity and devastating rates of mortality to the disease. Plague often kills more than 99 percent of prairie dogs in an infected colony; death occurs so quickly that prairie dogs do not develop antibod-

ies or overt signs of pathology (Cully 1993).

Although large, continuous prairie dog colo-

nies are more likely to suffer high mortalities from plague, they are also more likely to have

survivors. Smaller, isolated colonies may not have enough individuals left to recover from a plague outbreak (Barnes 1993).

Prairie biologist Craig Knowles warns, "Plague, more than any other factor, appears to have the greatest potential to shape the prairie dog eco-

system in future years... Species such as the prairie dog, with no immunity to this disease, have survived simply because they have large, dispersed populations."

(Knowles and Knowles 1994). When combined with the extensive loss of habitat and persistent poisoning and recreational shooting programs, the possibility that plague could completely eliminate prairie

dogs becomes ever more likely.

Because current methods of controlling the spread of the disease are only partially successful, it may be some time before we can reverse the impact of plague on the prairie dog ecosystem. This means we should concentrate our efforts where we can be most successful, by addressing those impacts we have direct control over—habitat loss, poisoning and recreational shooting.

Prairie dog eradication is thought to be responsible for the past and continuing conversion of six million acres from arid grassland to desert scrub in Arizona and New Mexico (Oakes 2000).



Sylvatic plague can wipe out entire prairie dog colonies.  
Photo courtesy of Jonathan Proctor



## Chapter 5

### The Myths Behind the Slaughter

**W**hy have people made such an enormous effort to reduce prairie dog numbers?

There are many reasons, real or imagined, that prairie dogs have been persecuted. They range from the common but inaccurate belief that the rodent provides significant competition with livestock for forage, to the notion that cattle routinely break legs in prairie dog holes. Despite the science to conquer these notions, many long-held myths persist today.

#### Competition for Forage

Many ranchers have been, for the most part, unwilling to share the grasslands with prairie dogs, for fear the small rodents would eat so much of the grass that nothing would be left for their cattle. This fear began with the first European settlers and was given weight in 1902 by C.H. Merriam, director of the Bureau of Biological Survey. Without any scientific proof to back him, Merriam claimed that prairie dogs decreased land productivity by 50 to 75 percent, spawning the myth that prairie dogs compete with livestock for forage, and rationalizing wide-

spread poisoning, trapping and shooting “control” programs of the past.

Early settlers feared prairie dogs would eat all of the grass and cause soil erosion.

The amount of forage consumed by prairie dogs is surprisingly small. Though these small mammals are constantly grazing, it takes 300 prairie dogs to eat as much as one cow and calf (Uresk and Paulson 1988). A number of additional studies also debunk the prairie dog/cattle competition theory: A study in South Dakota found that removing all the prairie dogs from a grazing allotment there would only increase forage for livestock by about 4.4 percent (Sharps and Uresk 1990).

In many cases, prairie dogs actually maintain the existence of grasslands by preventing the spread of shrubs such as sagebrush and mesquite. Once these woody plants become established, they prevent the re-establishment



The myths surrounding prairie dogs are larger than life. Statue near Badlands National Park, South Dakota. Photo by Steve Forrest

of grasses due to surface shading, erosion and loss of topsoil. Many former desert grasslands in Arizona, now desert scrub, were prairie dog colonies poisoned by 1922 (Oakes 2000).

Even though there is slightly less forage on a prairie dog colony for livestock to eat, the nutritional value of the forage is often greater. Researchers have found that nutrient content and digestibility of grasses on prairie dog towns is greater than that of grasses growing on equivalent rangelands without prairie dogs. New, green material with high nutritive value is continually being produced during the growing season on prairie dog colonies. As a result, biologists have noted that, "Domestic cattle and bison often prefer to graze on prairie dog towns because the grass is more succulent." (Miller et al 1990)

## Erosion

The claims that prairie dogs cause severe erosion are highly exaggerated. Prairie dog activity decreases soil compaction, increases the soil's ability to take in water and promotes soil formation. Additionally, the soil in prairie dog towns is richer in nitrogen, potassium and organic matter than it is in adjoining grasslands.

Prairie dog poisoning is sometimes called for in management plans to prevent or respond to erosion occurring on prairie dog colonies (U.S. Forest Service, 1986). However, Predator Conservation Alliance was unable to find any study where erosion from prairie dog colonies was measured, or any case where water quality degradation or soil loss was documented. And because livestock often prefer to graze on prairie dog colonies (Miller et al 1990), erosion, if any exists, may be more accurately tied to the combination of prairie dog and livestock grazing than prairie dog grazing alone.

## Plague Risk

Some public officials have used the existence of plague as an excuse to poison prairie dogs, saying that the disease poses a threat to humans. However, according to the Center for

Prairie biologist Craig Knowles reports, To date, there has been no documented evidence that prairie dogs compete with domestic livestock under densities typically encountered on the Great Plains. (Knowles and Knowles 1994)

Disease Control, the chances of a human contracting sylvatic plague are extremely remote. This is because a human must come in contact with an infected animal or its fleas (fleas are the host that carry the plague to prairie dogs). Only a few fleas on prairie dog towns are infected, and the fleas prefer prairie dogs as hosts, and tend to avoid humans (USFWS 2000).

## Injury to Cattle

Ranchers have long complained that prairie dog burrows are dangerous to cattle—that the animals trip and break their legs in the burrows. This story is told time and time again. Yet, no documented cases of cattle getting injured in



Cows grazing on a prairie dog town. Photo by Jonathan Proctor



The switch from bison to cattle led to the myth of destructive rodent pests. Historically, bison and prairie dogs together grazed the short- and mixed-grass prairie. Bison herds would heavily graze a specific area before moving on to a new spot, and prairie dogs would then move into these disturbed areas. They, in turn, further grazed the area and altered the succession of plants, creating a new and unique ecosystem one eventually dominated by forbs (annual plants). In some areas, the prairie dog towns would eventually be abandoned and return to an ecosystem dominated by grasses. In this manner, prairie dog towns ebbed and flowed across the Great Plains over long periods of time.

Bison numbers probably peaked at 45 million animals prior to European settlers migrating to the American West (Shelford 1963). By the mid-19th century, only six- to seven- million remained. As the result of a massive extermination effort, these massive grazers had virtually vanished by 1875 (White 1991). Domesticated livestock replaced the bison throughout the prairie grasslands, and fenced pastures divided the landscape.

only three to four young each (Hoogland 1995).

Predator Conservation Alliance believes that if prairie dogs occupy just 10 percent of their potential habitat on public lands in the Great Plains, it will benefit all of the species associated with prairie dogs with little or no

negative impact to human activities.

this way can be found. Bison and other large animals coexisted with prairie dogs long before cattle grazed the prairie.

### **Prairie Dogs are everywhere**

Prairie dogs are not “everywhere.” They currently occupy a tiny fraction of one percent of the Great Plains. Grasshoppers, jackrabbits and other animals consume many times the amount of forage across the Great Plains than do prairie dogs. But because prairie dogs live in well-defined and visible towns, people often perceive that prairie dogs have a greater impact on the region.

Black-tailed prairie dogs reproduce slowly. Females do not breed until their second year. Only half of breeding females actually rear young each year, and litters average



### **Associated Myths**

Myths even persist about species associated with prairie dogs. One man, at a public meeting in Billings, Mont., said that protecting prairie dogs was not necessary in light of a pending black-footed ferret reintroduction because ferrets, “Only suck the blood from prairie dogs, and do not eat them,” and that, “Ferrets only kill a prairie dog every 16 days.” Ferrets do indeed eat prairie dogs, at a rate of about two per week per ferret (Matchett 1995).

Bison and prairie dogs coexisting.  
Photo by Raymond Gehman

## Chapter 6

### Winds of Change Sweep the Prairie

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The myths and misconceptions about prairie dogs have led to tremendous losses of all five species. The black-tailed prairie dog—the only prairie dog species that inhabits the Great Plains—survives in a heavily fragmented pattern across 10 of the 11 states within the species' historic range (USFWS 2000).

The winds of change are blowing across the plains. Scientists, conservation organizations such as Predator Conservation Alliance, some government agencies, policymakers and others are working toward better land and wildlife management decisions in the Great Plains. The American public is rediscovering this lost ecosystem, and insisting it be restored on our public lands.

Scientists began the effort to save the prairie dog ecosystem through studies documenting the ecosystem's importance. Predator Conservation Alliance forwards these efforts by taking the science to the public and decision-makers. Our efforts include: our first prairie dog report in 1996, presenting our prairie dog ecosystem slide show across the Great Plains and beyond, identifying potential habitat and restoration opportunities through mapping, organizing public input in government planning efforts and attending and providing input at countless government meetings.

The major catalyst for change, however, has been the effort to list the black-tailed prairie dog as threatened under the Endangered Species Act. The first attempt came in 1995 when the Biodiversity Legal Foundation and biologist Jon Sharps petitioned the federal government to protect the black-tailed prairie dog under Endangered Species Act. This effort eventually failed, and the eradication efforts continued, even on our public lands.

Then, in 1998, a new range-wide estimate of prairie dogs found less than one million acres remaining across the Great Plains. This may sound like a lot, and it is—possibly 10 million individuals—but it represents a surprising and spiraling decline in just over a century. Less than one percent of this once vast ecosystem remains.

Spurred by this new information, Predator Conservation Alliance, Biodiversity Legal Founda-

tion and biologist Jon Sharps together filed one of two formal petitions in 1998. The U.S. Fish and Wildlife Service determined in February 2000 that the black-tailed prairie dog is “warranted” for listing, but “precluded” due to a backlog of



Positive change is now in view for the prairie dog ecosystem.  
Photo by Jon Sharps

other species that are also waiting to be listed, and a lack of funds. Instead, this species was designated as a “candidate species,” awaiting further federal protection.

This decision sounded a warning bell for nothing less than the existence of the remaining viable grasslands of the Great Plains as we know them.

#### Agencies Respond with Positive Changes in Prairie Dog Management

The effort to list the black-tailed prairie dog by petitioning the federal government has caused significant change, even though the prairie dog is not officially a protected species, but rather a “candidate” for future protection. Following is a chronology of positive changes in prairie dog management since the petitions were filed in July and August of 1998.

**1998:** Colorado implemented regulations for prairie dog shooting contests—the first (and still only) state to do so. The BLM denied a request to poison prairie dogs on a portion of the



lands the BLM oversees in Johnson County, Wyoming. A new BLM policy resulting from the petitions elevated the prairie dog to a “sensitive” species on its lands, requiring the agency to more closely scrutinize any plans to poison prairie dogs.

Also, the Forest Service banned prairie dog shooting on the Conata Basin area of the Buffalo Gap National Grassland in South Dakota. The ban came after shooters wiped out over half of the prairie dogs in this area, which also happens to be the only successful black-footed ferret reintroduction site to date. Enacted to protect the endangered black-footed ferret, the Forest Service shooting ban was due in part to members of Predator Conservation Alliance and others who called and wrote the agency and helped convince the Forest Service to implement this first shooting ban on Forest Service land.

**1999:** In direct response to the petitions, the 11 state wildlife agencies within the historic range of the black-tailed prairie dog formed the “Black-tailed Prairie Dog Conservation Team.” This group wrote a management plan with the goal of recovering prairie dogs and avoiding Endangered Species Act listing. The plan calls for inventorying existing prairie dog towns, identifying minimum recovery goals, and regulating shooting and poisoning (Van Pelt 1999). Nine of the eleven states eventually signed onto the

plan.

The Forest Service imposed a shooting moratorium on the National Grasslands during the species’ Threatened Species status review, and ended poisoning on the National Grasslands. The BLM closed 15 north-central Montana prairie dog towns within a ferret recovery area to recreational shooting, after a request from the U.S. Fish and Wildlife Service and an appeal filed by Predator Conservation Alliance. This was the first BLM-enacted shooting ban in the country. The

National Park service ended prairie dog poisoning and shooting on National Park lands.

**2000:** The Black-tailed Prairie Dog Conservation Team continued to advance its multi-state goals for additional protections for this species. The Sierra Club and Predator Conservation Alliance delivered approximately



PCA Program Associate Jonathan Proctor and biologist Randy Matchett release a black-footed ferret on BLM land in Montana. Photo by Larry Walker, The Billings Gazette.

10,000 public comments to the U.S. Forest Service, the agency that manages our National Grasslands. The comments were on the Draft Northern Plains National Grasslands Management Plan that was released in July, 1999. Comments included demands to increase prairie dog numbers dramatically on these public lands. This public response to an issue facing our National Grasslands was unprecedented.

Other milestones were reached as well. The U.S. Fish and Wildlife Service placed a moratorium on all chemical control and shooting of prairie dogs on Wildlife Refuges.

The BLM instructed all of its state directors

to, “Ensure that activities authorized, funded, or carried out by BLM do not contribute to the need to list the black-tailed prairie dog.” And Arizona finally closed its shooting season on black-tailed prairie dogs—40 years after they were eradicated from the state.

**2001:** The Black-tailed Prairie Dog Conservation Team proposed a draft plan to identify focus areas where the rangewide acreage of prairie dogs will be doubled in 10 years. All states but Montana and North Dakota agreed to reach this goal.

A broad coalition including Predator Conservation Alliance, government agencies, Native American Tribes and private landowners went to Washington, D.C. to push for funding to implement a landowner incentives program to protect and restore prairie dogs to key private lands. This effort is ongoing.

Colorado instituted a year-round ban on recreational shooting of black-tailed prairie dogs on Federal and State wildlife lands, and began a voluntary landowner incentive program to reward private landowners who agree to protect prairie dogs.

South Dakota removed prairie dogs from the state’s “pest” list, ended mandatory poisoning on private lands and initiated a

## Federal Lands and Agencies in the Great Plains

### National Grasslands

The U.S. Forest Service manages our 12 National Grasslands in the Great Plains. Many of these National Grasslands support very small populations of prairie dogs on lands with extremely high potential for viable populations. National Grasslands account for over 3.5 million acres of federally managed land.

### National Parks

The Great Plains is the most under-represented region of our country in the National Park System. Historically, twelve National Park Service units contained black-tailed prairie dogs. By the 1960s they were gone from all park units south of the Colorado-Kansas border. As of 2000, only seven units contained black-tailed prairie dogs, altogether totaling only 6,600 acres. Of these seven, only three are of significant size: Wind Cave National Park in South Dakota (1,600 acres of prairie dogs in 2000); Badlands National Park in South Dakota (4,300 acres of prairie dogs in 2000); and Theodore Roosevelt National Park in North Dakota (847 acres of prairie dogs in 2000).

### Bureau of Land Management (BLM)

This agency manages more land in the United States than any other, and has several million acres in the Great Plains, especially in eastern Montana, Wyoming, and New Mexico. With the exception of Montana, it is not known how many prairie dog towns exist on these lands.

The Phillips Resource Area in Montana is possibly the only BLM area in the country with a recent black-tailed prairie dog population approaching one percent of the landscape (0.9 percent in 1988).

### National Wildlife Refuges

The U.S. Fish and Wildlife Service manages several small wildlife refuges scattered about the Great Plains, but very few contain significant prairie dog habitat. One notable exception is the Charles M. Russell National Wildlife Refuge in Montana, which eliminated almost all prairie dogs from the 1940s to 1960s, but then reversed its course. Since then, management has evolved to today’s priority goal to “[Attain] and perpetuate a balanced, natural diversity of plant and animal communities favoring endangered or threatened species...”

### USDA “Wildlife Services”

Although not a land management agency, this branch of the U.S. Department of Agriculture has profound impacts on prairie dogs on federal, state, tribal and private lands. Wildlife Services produces much of the poison applied to federal, state and private lands, which it often supplies at cost to its own agents or other cooperators (Roemer, 1997). These poisons are used to control a variety of wildlife species. Annual poison summaries categorize control activities by species, thus allowing an evaluation of the effect of Wildlife Services activities on prairie dogs.

### **A model for prairie dog ecosystem management**

Today, the Charles M. Russell National Wildlife Refuge (CMR) in Montana is an example of a public land agency with a real commitment to maintaining and restoring biological diversity. The CMR contains one of the most complete Great Plains ecosystems, although the bison, wolf, grizzly bear and swift fox are still conspicuously absent. The refuge reintroduced bighorn sheep in 1947 and Rocky Mountain elk in 1951. Prairie dog towns have not been poisoned since 1964, longer than in any other area in Montana. Prairie dog shooting is also not allowed.

This Refuge has been at the forefront of prairie dog ecosystem management for most of the last decade. In 1994, the CMR began reintroducing black-footed ferrets. In 1996 and 1998, the CMR dusted thousands of prairie dog burrows to prevent the spread of plague. Beginning in 1997 and continuing today, refuge personnel and volunteers are relocating prairie dogs to some of the towns that were eliminated by plague.

seasonal ban on prairie dog shooting from March 1 to June 14 of each year on all public lands in the state. North Dakota stopped providing guides of prairie dog colony locations to shooters.

The Montana legislature passed a bill allowing the state wildlife department to protect prairie dogs on public lands in the state. As of this writing, the department is considering a seasonal recreational shooting ban on public lands. And the Wyoming Game and Fish Department proposed a seasonal prairie dog



Photo by Jim Brandenburg

shooting ban on public lands, effective March 1 through June 14 of each year. They project that these regulations will be in place by the end of 2001.

### **Other Efforts**

#### **Tribal Lands**

Native American Tribal lands contain over 10 percent of remaining prairie dogs, and most of the remaining large prairie dog complexes. Some tribes have been at the forefront of prairie dog management and recovery. For example, The Fort Belknap Indian Community in Montana began reintroducing black-footed ferrets on its prairie dog towns in 1997, and closed these towns to shooting.

On the Cheyenne River Indian Reservation in South Dakota, black-footed ferrets were reintroduced to prairie dog towns starting in 2000, and many prairie dog towns were closed to shooting to support this effort.

On the Northern Cheyenne Indian Reservation in Montana, a prairie dog reintroduction program began in 1999 to restore areas lost to plague. Black-footed ferrets will be reintroduced there as soon as prairie dog numbers are restored.

Eight Tribes formed the "Inter-tribal Prairie Ecosystem Restoration Consortium" and are working on prairie dog management plans for their Tribal lands.



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## Private Lands

A few private landowners are also moving forward with prairie dog restoration. The most notable example is Ted Turner, America's largest private landowner. The Turner Endangered Species Program is reintroducing prairie dogs on Turner ranches in South Dakota, Kansas and New Mexico. These areas have the potential to become black-footed ferret recovery sites in the future, as well as excellent habitat for many other species such as swift fox and burrowing owls.

## More is Needed For Prairie Dog Recovery and Restoration

People are realizing just how important the prairie dog is to the overall health of the Great Plains. Some federal, state, tribal and private landowners and managers have begun to implement protections for prairie dogs from poisoning and shooting on some lands across the Great Plains.

Progress is being made, but much more needs to be done to restore this unique ecosystem. What is needed now is an overall plan with a rangewide perspective so that enough prairie dog focus areas are protected and connected. Each focus area should include clear prairie dog population goals that

are adequate to maintain associated wildlife species.

Laws and regulations that impede prairie dog recovery in these areas must be revised. Landowner incentives should be prioritized for these focus areas. Finally, plague research needs to continue, with the hope that someday we will be able to adequately manage this significant threat to the future of the prairie dog ecosystem.

These needs are being recognized. A draft addition to the multi-state prairie dog plan included a proposal to, "Delineate focus areas where intensive black-tailed prairie dog management will be applied." (Luce 2001) Landowner incentive programs are moving forward, and plague research continues at the Centers for Disease Control.

### The Conata Basin: Then and Now

The Conata Basin in South Dakota has seen its share of prairie dog destruction. Forest Service poisoning (the Forest Service manages this National Grassland area) reduced prairie dog populations here from an amazing 40,000 acres in the mid-1980s to 8,000 acres in the mid-1990s. Sport shooting also played a major role in the destruction; in 1998, shooters converged on this area (drawn in by articles in shooters magazines) and wiped out over half the remaining prairie dogs. All of this occurred simultaneous to black-footed ferret recovery efforts!

Thankfully, common sense finally prevailed, and the U.S. Forest Service stopped poisoning and banned shooting in this area in 1998.

Because of these actions, prairie dogs have increased in number to occupy 12,800 acres, and their colonies continue to grow. Just as important, prairie dog densities (the number of prairie dogs in a given acreage) have doubled since shooting ended. As a result, black-footed ferrets have thrived.



In the 200 years since Lewis and Clark's journey across the Great Plains, the "manifest destiny" so many Americans sought has displaced and even removed much of the prairie's lifeblood. Herds of bison no longer rumble over the plains, and we have eradicated all but a vestige of the once endless prairie dog ecosystem.

But history does not end here. We can learn from our past, change our course and restore the prairie dog ecosystem. The choice is up to us as a society.

**History does not end here. We can learn from our past, change course and restore the prairie dog ecosystem.**

If we choose this path of restoration, we must take a long look at the part we have played in its deterioration. By understanding the necessity, the beauty and the biology of the prairie dog ecosystem, we may begin to sculpt a new future for the short- and mixed-grass prairie; one which looks to the past for its guiding principles, and forward to a new way of interacting with this vast grassland.

We need more than biological knowledge to restore this ecosystem. Despite what scientists know about the biological importance of this ecosystem and its associated species, the values that people ascribe to wildlife are just as impor-

tant to the conservation of a species.

Prairie dogs, conservation biologist Richard Reading believes, "Are a particularly good example of the importance of valuation considerations to conservation." In a recent paper, Reading traced the history of human values afforded to prairie dogs. He found that because, "Prairie dog persecution has been occurring in the United States for decades, it has been institutionalized at the federal, state, tribal, and local levels, it has had very few detractors until recently, and it often ignites battles over such contentious issues as states' rights vs. federalism, private property rights, and control of public grazing lands. Conservation of prairie dogs and the prairie dog ecosystem faces perhaps no greater challenge than that of changing attitudes, perceptions and most importantly, values toward one of the most characteristic and ecologically

**Conservation of the prairie dog ecosystem faces perhaps no greater challenge than that of changing attitudes, perceptions, and most importantly, values... Rich Reading**

significant genera of the American West." (Reading 1995)

The following strategies encompass Predator Conservation Alliance's vision for a balanced and sensible approach to restoring the prairie dog ecosystem. These are not new concepts, but this is the first time they have been proposed under a range-wide, holistic map-based plan.

### Five Restoration Strategies

#### RESTORATION STRATEGY #1

Identify 10 priority focus areas and several secondary focus areas in which to restore prairie dog towns to 10 percent of suitable habitat.

Just as with the contentious issue of wolf restoration, prairie dog ecosystem restoration will only happen once people decide where to restore the species. This means we must draw lines on a map, no matter how much controversy this may create. This strategy consists of three benchmarks:

1. Restore at least 10 core prairie dog focus areas across the Great Plains with at least 10,000 acres of black-tailed prairie dogs in each. This is derived from the immediate needs for the



Photo by Raymond Gehman

most endangered member of the prairie dog ecosystem—the black-footed ferret. The U.S. Fish and Wildlife Service (FWS) black-footed ferret recovery plan requires ferret reintroduction in 10 sites in order to “downlist” the species from endangered to threatened. Biologists have determined that it will take a minimum of 10,000 acres of prairie dogs for a ferret population to survive in each location over the long term. Ten such areas do not currently exist. To date, ferrets have been reintroduced into eight prairie dog complexes (only three of which are black-tailed prairie dog complexes) of sufficient size.

2. Restore several secondary core prairie dog areas with at least 10,000 acres of prairie dogs in each, and increase prairie dog towns within the 10 priority focus areas to occupy 10 percent of public land suitable habitat. The additional focus areas are needed for the black-tailed prairie dog’s long-term survival, as well as for the black-footed ferret.

Although the scientific community has not yet agreed on a minimum number of recovery sites for either species, a conservation biologist working for the Fish & Wildlife Service estimated a need for 20 sites for black-tailed prairie dogs to withstand outbreaks of plague.

3. Connect core areas where possible. This may be the greatest challenge to restoring a fully functioning prairie dog ecosystem across the Great Plains, but it should move forward where possible nonetheless. Connections could consist of corridors of smaller prairie dog towns that serve as “stepping stones” between large complexes, separated by no more than five kilometers of level terrain with low vegetation, to allow for prairie dog migration.

The first benchmark moves the prairie dog ecosystem toward recovery. The second benchmark distinguishes the shift between species recovery and ecosystem restoration by increasing prairie dog densities to a level that approximates historic conditions and allows associated species to thrive rather than merely survive. The third benchmark, when achieved, is the hallmark of a truly restored grassland ecosystem: large primary and smaller, secondary core areas connected by migration pathways of relatively undisturbed habitat, allowing interactions between many populations of native prairie species. This is the essence of a restoration vision that Predator Conservation Alliance works to bring to fruition.

Recent implementation of Strategy #1:

- The Forest Service has identified focus areas for prairie dog and black-footed ferret recovery in the northern plains National Grasslands. In these areas, prairie dog and ferret conservation and restoration are the primary management goals. These are the first such plans on public lands that can be used as a model to implement a larger restoration strategy.

### RESTORATION STRATEGY #2

Reintroduce prairie dogs to public lands where they are locally extinct, and augment their populations on public lands where they are far below management goals.

The focus areas selected under strategy #1 should be prioritized for these reintroductions, although they may occur in any suitable areas to meet management objectives.

Recent implementation of Strategy #2:

- Reintroduction is proving successful on a handful of private ranches across the Great Plains, including the Bad River Ranch in South Dakota and the Vermejo Park Ranch in New Mexico.
- The Charles M. Russell National Wildlife Refuge in Montana has been reintroducing prairie dogs since 1997, to increase the acreage and density of black-tailed prairie dogs.
- The Northern Cheyenne Indian Reservation in Montana has been reintroducing prairie dogs recently, and plans to reintroduce black-footed



Photo by Jonathan Proctor

ferrets once prairie dog populations are adequate.

### RESTORATION STRATEGY #3

#### End prairie dog poisoning on all public lands.

A poisoning ban is now in place on most federal lands, a result of petitioning to list the black-tailed prairie dog as a threatened species. This ban should be made permanent and expanded to include all public lands, both state and federal, especially within focus areas selected under strategy #1.

Prairie dog poisoning on public lands is usually done for its perceived benefits to livestock grazing, on behalf of a relatively small number of public-lands ranchers. Continuing this practice at the risk of an entire ecosystem is a bad investment in our future. Poisoning also does not make financial sense, considering the investment of time and money society has made and must continue to make to bring the prairie dog ecosystem back from the risk of extinction.



Black-footed ferret being released on the CMR National Wildlife Refuge. Photo courtesy of Charles M. Russel National Wildlife Refuge

#### Recent implementation of Strategy #3:

- The U.S. Forest Service (manager of our National Grasslands), Bureau of Land Management, National Park Service and U.S. Fish and Wildlife Service all initiated temporary poisoning bans or restrictions after the Fish & Wildlife Service determined that the black-tailed prairie dog may be warranted for listing as a threatened species. These restrictions remain in place.

### RESTORATION STRATEGY #4:

Close prairie dog shooting on public lands focus areas.

Prairie dog shooting remains largely unregulated across the Great Plains. Heavy levels of recreational shooting clearly impact prairie dog populations. Although low levels of shooting may not cause a decline in overall prairie dog numbers, it may cause behavioral changes such as extended periods when prairie dogs remain in underground burrows, and loss of associated species due to disturbance. Our lack of knowledge about the total impact of shooting requires us to be cautionary in our conservation approach. Closing shooting on public lands would provide safe, known locations people can visit to observe and enjoy a healthy, active prairie dog ecosystem. This could help balance out the current situation, which allows almost universal prairie dog shooting.

#### Recent implementation of Strategy #4:

- In 1998, the Buffalo Gap National Grassland banned prairie dog shooting in its black-footed ferret reintroduction area—the only successful ferret reintroduction site to date, due in part to this shooting ban.
- Thunder Basin National Grassland followed suit in 2001 in its proposed ferret reintroduction area.
- In 1999, the BLM banned prairie dog shooting on 15 prairie dog towns in Montana in a part of its ferret reintroduction area.
- The Fort Belknap and Cheyenne River Indian Reservations both banned prairie dog shooting in their black-footed ferret reintroduction areas.
- In 1999, Arizona banned all prairie dog shooting in preparation for a future prairie dog reintroduction effort.
- Colorado banned prairie dog shooting on public lands beginning in 2001.
- South Dakota implemented a seasonal prairie dog shooting ban on public lands beginning in 2001.

### RESTORATION STRATEGY #5

Research and develop methods to prevent or deter the spread of plague. Plague is now the greatest threat to the prairie dog ecosystem. The best solution to address the threat of plague



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is to allow prairie dog colonies to expand so they are numerous enough to withstand plague outbreaks. Still, more research and testing are needed to investigate possible solutions such as flea powder, inoculations and oral vaccines.

Recent implementation of Strategy #5:

- Several federal agencies are now funding research through the Centers for Disease Control (CDC). Recent advances from CDC indicate some hope for an inoculation for black-footed ferrets. This may lead to oral vaccines for both ferrets and prairie dogs in the future.

## Focus Area Selection

Predator Conservation Alliance created the focus area map based on the locations of large blocks of suitable habitat on publicly owned lands, whether occupied by prairie dogs or not. Further consideration was given to existing and historic large prairie dog complexes.

Information initially compiled defined the historic range of the black-tailed prairie dog. We mapped all potential habitat currently remaining within the historic range by identifying all lands with both:

- Slopes of 10 percent or less (from 1:250,000 U.S. Geological Survey Digital Elevation Model data); and
- Vegetation classified as grasslands, shrub lands, dry salt flats or transitional barren areas (from 1:250,000 U.S. Geological Survey land use/land cover data). Plowed lands, urban lands, forests, water and all other obviously unsuitable lands were excluded.

We then gathered all the land ownership data we could find within the historic range, and identified all the suitable prairie dog habitat on federal, state, tribal and key private lands of 5,000 contiguous acres or greater. From these areas, we selected the best focus areas with special consideration for locations overlapping with existing and known historic large prairie dog complexes.

The resulting map clearly depicts the best opportunities for prairie dog ecosystem restoration across the Great Plains. (See centerfold.)

A few notes: this map represents a maximum area of potential habitat on federal, state and tribal lands. Some areas identified as “potential” may not be suitable due to the limits of available data (including scale) and conditions not consid-

ered. We believe that this map is, however, adequate for its purpose—identification of logical focus areas for prairie dog ecosystem restoration. More detailed analysis for the areas selected will be needed, and Predator Conservation Alliance has already done this for focus areas in Montana.

## Why focus on public lands?

Public lands include federal, state and tribal lands. Federal lands have the highest potential for recovery of prairie dogs due to obligations under federal law to conserve native wildlife species. State lands often are less straightforward, due to other priorities including raising revenue for schools. Tribal lands are sovereign lands owned and managed by individual tribal governments. These public lands also contain the most important remaining prairie dog populations. Of the five remaining large black-tailed prairie dog complexes in the United States (greater than 10,000 acres), one occurs primarily on federal land and four occur primarily on tribal lands (USFWS 2000). Private and state lands contain none. A sixth large complex, which occurred on federal lands, was lost in 2001 to sylvatic plague. Prior to this loss, approximately 36 percent of the remaining black-tailed prairie dog acres in North America existed on these six complexes and a seventh in Mexico. The total estimate at that time was 768,000 acres range-wide (USFWS 2000).

Most of the Great Plains is in private ownership. Private lands are often seen as key to prairie dog restoration because of this fact, and because private lands contain possibly two thirds of remaining prairie dogs. The greatest need for restoration, however, is large prairie dog complexes of 10,000 acres or greater. Until private landowners allow very large prairie dog complexes to exist on their lands, we must place our efforts on public lands. Those landowners that choose to encourage prairie dog recovery—and a few have, notably Turner Enterprises and the Nature Conservancy—can be added to the map of focus areas quite easily.

The most important private lands will be those adjacent to or surrounded by public lands within focus areas, as well as private lands with existing prairie dog complexes of somewhat significant size (1,000 acres or greater). These private lands should be prioritized for any voluntary landowner incentives that may be instituted in the future.

### You can help in the following ways:

1. Write letters! They really do help! All addresses are listed on the inside back cover. For examples of any of these letters, check out our website.

--If you live in one of the 11 black-tailed prairie dog states, write a letter to your state wildlife agency in support of restoring prairie dogs within the focus areas listed in this report. If you don't live here, write to any of them anyway, noting your interest in visiting these areas.

--Write a letter to the U.S. Fish and Wildlife Service in support of protecting the black-tailed prairie dog under the Endangered Species Act.

--Write a letter to the U.S. Forest Service and Bureau of Land Management, asking them to adopt Predator Conservation Alliance's focus area recommendations for restoring the prairie dog ecosystem to our public lands.

--Write a Letter-to-the-Editor to your local newspaper about the black-tailed prairie dog and its ecosystem, and ask your community to support

the restoration of this Great Plains ecosystem (consider including our website address so the reader can get more information).

2. Visit your public lands and tribal lands in the Great Plains.

3. Spread the word. Buy our video, "Our Vanishing Wildlife on the Prairie Grasslands," and consider showing it at a community event in your area, or hosting a PCA staff member to come to your town.

4. Check out our website for more information about the Prairie Dog Ecosystem, and tell others to do the same.

We are confident that any action you take on behalf of the prairie grassland will help give future generations a chance to follow Lewis and Clark's footsteps through the endless grasses, among native wildlife, on our Great Plains.



Photo courtesy of Badlands National Park

# Where to Write About Prairie Dog Management in the Northern Plains

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## Management at the State Level

### **Montana**

- Department of Agriculture, Agricultural Sciences Division, Agriculture and Livestock Bldg., POB 200201, Helena MT 59620 (406) 444-3144
- Department of Fish, Wildlife and Parks, 1420 E. 6th Ave., Helena MT 59620 (406) 444-2535

### **North Dakota**

- Department of Agriculture, 600 E. Boulevard Ave., 6th Floor, Bismarck ND 58505 (701) 328-2231
- State Game and Fish Department, 100 North Bismarck Expressway, Bismarck ND 58501 (701) 328-6300

### **South Dakota**

- Department of Agriculture, 523 E. Capitol, Foss Bldg., Pierre SD 57501 (605) 773-3375
- Game, Fish and Parks Department, 523 East Capitol, Pierre SD 57501 (605) 773-3387
- State Tourism Board, 711 E. Wells Ave., Pierre SD 57501 (800) 952-3625

### **Wyoming**

- Dept. of Agriculture, 2219 Carey Ave., Cheyenne WY 82002 (307) 777-6591
- Game and Fish, 5400 Bishop Blvd., Cheyenne WY 82006 (307) 777-4501
- State Parks and Historic Sites, 6101 Yellowstone Rd., Cheyenne WY 82002 (307) 777-6323
- Don't forget to contact your elected state legislators.

## Management at the Federal Level

- Department of the Interior, Interior Bldg., 1849 C St., NW, Washington DC 20240
- Bureau of Indian Affairs, Interior South Bldg., 1951 Constitution Ave., NW, Washington DC 20245
- BLM, U.S. Dept. of Interior, 1849 C. St. NW, Rm. 5600, Washington DC 20240
- National Park Service, Interior Bldg., POB 37127, Washington DC 20012-7127
- U.S. Fish and Wildlife Service, Washington DC 20240

### **In Montana**

- BLM Lewistown, POB 1160, Lewistown MT 59457 (406) 538-7461
- BLM Miles City, 111 Garryowen Rd., Miles City MT 59301 (406) 232-4331
- CMR Nat'l Wildlife Refuge, POB 110, Lewistown MT 59457 (406) 538-8706

### **In North Dakota**

- Theodore Roosevelt. NP, Medora ND 58645
- Little Missouri National Grassland, 161 21st West, Dickinson ND 58601 (701) 225-5151.

### **In South Dakota**

- Badlands NP, POB 6, Interior SD 57750
- Grand River National Grassland, 1005 5th Ave. West, POB 390, Lemmon SD 57638 (605) 374-3592
- Buffalo Gap National Grassland, Wall RD, 708 Main St. POB 425 Wall SD 57790 (605) 279-2125; Fall River RD, 209 N. River, Hot Springs SD, 57747, (605) 745-4107
- Fort Pierre National Grassland, 124 South Euclid Ave., POB 417, Pierre SD 57501 (605) 224-5517
- Wind Cave NP, Hot Springs SD 57747

### **In Wyoming**

- Devils Tower National Monument, Devil's Tower WY, 82714
- Thunder Basin National Grassland, 809 South 9th, Douglas WY 82633 (307) 358-4690
- BLM Casper District, 1701 East E. St., Casper WY 82601 (307) 261-7600



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Just as Americans have grown to appreciate and value the old-growth forests of the west as much more than a source of timber, so too have we come to value the prairie as more than a place to raise crops and run cattle.

Our nation's earliest vision of the prairie grassland was shortsighted and single-focused. By and large, the prairie was seen as good for farming, grazing or building; little thought was given to the natural communities of plants and animals that once lived there in staggering abundance.

The plains have always been a testing ground. Native peoples hunted, gathered and developed a rich culture on the plains, and the early European settlers exercised the toughness and ingenuity necessary to survive. America became the world's greatest food producer on the prairie soil, but not without

great cost to the natural diversity and resilience of what once seemed an endless resource. Paying perhaps the highest price has been the humble architect of a unique community of interdependent animals and plants — the black-tailed prairie dog.

Now we have come to another test: can we look back to the great heart of our continent and recapture a portion of its natural richness?

Conservation biologist Reed Noss has written, "We have an opportunity unique to our generation: to halt a mass extinction." An essential step in doing this will be to protect and preserve the prairie dog ecosystem.

Will we save a place for the prairie dog and the many species that depend on it? In our lifetime, the restoration of the prairie dog ecosystem is possible, if you and many others will help.



Photo courtesy of Jim Brandenburg

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