

Plague in Gunnison's Prairie Dogs



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Controlling Plague in Gunnison's Prairie Dogs

Plague, caused by a non-native bacteria and carried by fleas can kill all prairie dogs in a colony, leading to local extinctions that threaten the overall survival of the Gunnison's prairie dog (*Cynomys gunnisoni*) in Colorado. Unmanaged plague has the potential to reduce populations of the Gunnison's prairie dog to the point that a listing as federally endangered or threatened becomes more likely. Such a listing would not only underscore the need for additional conservation, it could also limit land uses for agriculture and recreation.

The Gunnison's prairie dog serves key roles in southwest Colorado's biological landscapes:

- A food source for many wildlife species including raptors and mammalian carnivores.
- Prairie dog colonies serve as habitat for mountain plover, burrowing owl, badger, weasel, snakes and other wildlife species.

Research Objectives

Since the Gunnison's prairie dog is an important species in the state's ecosystem, Colorado Parks and Wildlife (CPW) has determined that controlling plague in this species is a priority conservation action. The CPW goal is to develop plague management tools to help manage and stabilize Gunnison's prairie dog populations on public lands and in cooperation with willing landowners.

CPW Plague Control Research Success

The U.S. Geological Survey's National Wildlife Health Center developed a sylvatic plague vaccine (SPV) and tested the vaccine in the lab in 2010. That laboratory research demonstrated that the vaccine is safe and protects prairie dogs from plague. Field trials are necessary to confirm these findings in the wild.

In 2012, CPW conducted the first small-acreage field trials of the vaccine to measure prairie dog consumption of the peanut butter-flavored baits, compare the colony population before and after the vaccine, and monitor the prairie dogs responses to the vaccine. Those field tests demonstrated that the prairie dogs readily consumed the baits and the vaccine is safe with no observable negative effects.

In July 2013, CPW staff distributed the oral plague vaccine at three Gunnison's prairie dog colonies in Gunnison and Teller Counties. This began a three-year study to determine if use of the SPV increases or stabilizes survival of vaccinated prairie dogs compared to non-vaccinated prairie dogs. These ongoing research efforts found:

- Prairie dogs captured at the treated colonies were tested and, in some cases, 90 percent had consumed the vaccine bait.
- The safety of the vaccine and the high uptake rates were also demonstrated when CPW researchers tested the vaccine on a black-tailed prairie dog colony in Larimer County.
- Annual use of plague vaccine may be necessary to protect the young animals produced each year.
- The oral vaccine research project will continue for two more years (2015) to evaluate impacts on treatment and control colonies.

CPW Research Outcome

Encouraged, in part, by CPW's plague research and management projects, the U.S. Fish and Wildlife Service declined to list the Gunnison's prairie dog as endangered or threatened in November 2013.



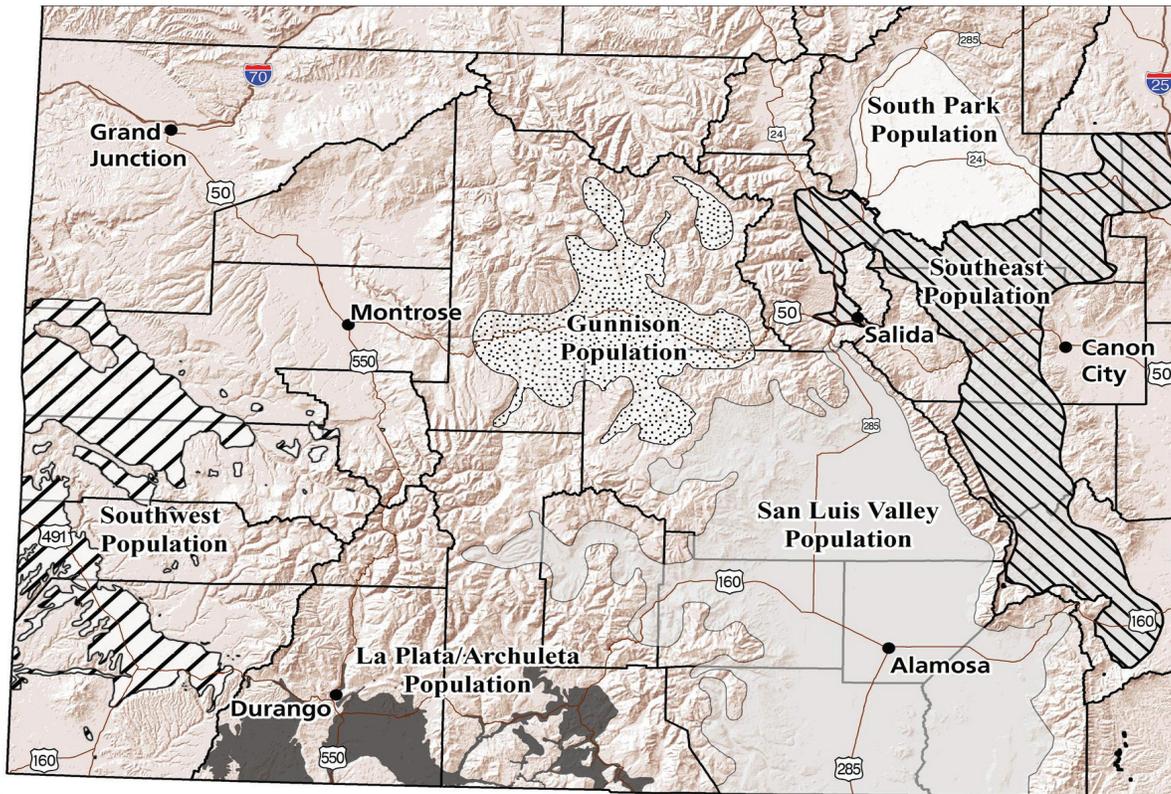
Vaccine baits contain a red dye which marks the prairie dogs that eat them.



CPW researcher distributes plague vaccine baits during field trials.



Gunnison's prairie dog eating plague vaccine bait.



The range of the Gunnison's prairie dog includes the intermountain valleys and plateaus of Southwestern Colorado.



Historic CPW Plague Control Research and Management

Plague was found in flea samples collected from prairie dog colonies in northwest Colorado in 2007. CPW responded quickly in 2008, manually dusting white-tailed prairie dog burrows with an insecticide that kills fleas, but is safe for wildlife, in the black-footed ferret recovery area. The treatments were effective at controlling fleas and slowing the spread of plague, and CPW managers expanded the project to protect Gunnison's prairie dogs while continuing to research and develop additional plague management tools.

Starting in 2010, CPW managers dusted Gunnison's prairie dog colonies in several Colorado counties with insecticide and found that:

- There was no observed mortality due to plague in the Gunnison's prairie dog colonies that were dusted.
- Some nearby colonies that weren't dusted experienced severe population declines due to plague.
- Researchers are seeking other more efficient methods to control plague on prairie dog colonies like vaccines.

Ongoing Plague Control Research

CPW researchers will continue to develop and refine new tools, like vaccines, to manage the spread of plague while using insecticides to stabilize populations of Gunnison's prairie dogs.

Other current projects include:

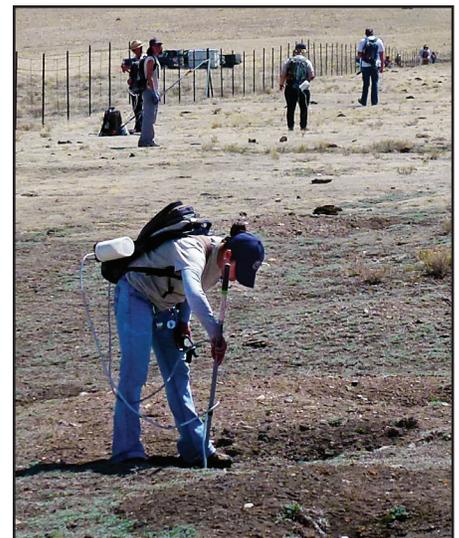
- Testing of new types of baits to efficiently distribute vaccine.
- Development of a comprehensive plague control program that utilizes both vaccines and insecticide to effectively stabilize Gunnison's prairie dog populations.

Partners: The U.S. Geological Survey's National Wildlife Health Center, the U.S. Bureau of Land Management, the City of Fort Collins, the National Park Service, the U.S. Forest Service and many cooperating private land owners.

Funding: CPW's Gunnison's prairie dog research and management projects are funded mainly through the Species Conservation Trust Fund, which is derived from severance tax revenues on mineral extraction within Colorado.

General Plague and Human Health Background

The first confirmed human case of plague in Colorado occurred in 1940. Today, plague in humans is rare with an average of seven cases annually in the U.S. Antibiotics are effective for treatment of plague if administered in the early stages of the disease.



Gunnison's prairie dog burrows are "dusted" to kill fleas.