



Restoring Desert Grasslands and Black-tailed Prairie Dogs in the Trans-Pecos

article by **Dr. Bonnie J. Warnock**, Associate Professor of Range Management, and **Stacy M. Duckett**, Research Assistant

photos by **Stacy M. Duckett**

Black-tailed prairie dogs are not species we usually associate with the Trans-Pecos of far West Texas. Historically, however, they were abundant in the desert grasslands of the nine counties west of the Pecos River, the northernmost part of the Chihuahuan Desert.

As Burt Rutherford's story on page eight explains, we more often think of the prairie dog as part of the High Plains of the Texas Panhandle and Central Plains, rather than West Texas.

What happened to our Trans-Pecos prairie dogs? And what can we do to restore them?

Prairie dogs were once abundant native herbivores of the short, mixed-grass prairies and desert grasslands of North America. They have declined across their geographic range from poisoning, plague, and habitat conversion and fragmentation. Federally sponsored prairie dog eradication programs in the early 1900s aimed to reduce forage competition with cattle.

This shift from prairie dogs to livestock coincides with the increase in woody species, primarily honey mesquite. Data suggest that mesquite and other woody plants would be minimal today if prairie dogs were still around. Eliminating

them removed grazing pressure on such aggressive woody shrubs, which allowed them to colonize new, available habitat.

There is little research on black-tailed prairie dog populations in the Chihuahuan Desert and even less on Trans-Pecos populations. The only intact black-tailed prairie dog complex supporting multiple colonies in the Chihuahuan Desert is the Janos-Nuevo Casas Grande complex in northwestern Mexico. It is estimated to be 36,562 acres of occupied habitat in 2006. The Trans-Pecos does, however, support a

variety of small prairie dog towns.

Because of the lack of prairie dog research in this ecologically distinct region, we started a project to restore habitat in a shrub-encroached desert grassland and translocate a small population of black-tailed prairie dogs. We conducted the study on a private ranch at the southern edge of the species' geographic range in Trans-Pecos Texas. Historically, prairie dogs occurred in the area; however, there were no existing or remnant colonies on the ranch at the time of the study. Our research objectives were to: 1) select a

translocation site, 2) restore habitat, and 3) translocate a small population of black-tailed prairie dogs.

The translocation site was selected based on habitat requirements for black-tailed prairie dogs and ease of access for researchers. The site has deep, loam and clay-loam textured soils, slope of less than six percent, elevation less than 5,500 feet, and short vegetation in the form of a tobosa flat in an alluvial basin with room for expansion. Predominant vegetation in the site was tobosa and honey mesquite.

Black-tailed prairie dog foraging in a Trans-Pecos release site





Release site before (l) and after brush removal.

To address our second objective of restoring habitat, we first had to make the site suitable by clearing some 200 acres of mesquite, especially shrubs large enough to provide cover or a perch for predators. Within that area, we cleared 17 acres by manually removing the extracted mesquite to avoid damaging the vegetative cover. We then designated a release area of some 3.2 acres within the manually cleared area and mowed it so prairie dogs could detect predators easier and regularly conducted predator control on the ranch.

We then translocated a total of 200 prairie dogs in three separate releases. A professional prairie dog relocater conducted all captures and assisted with transport and releases. The prairie dogs came from the Lubbock, Midland, and Marathon areas of Texas. We released each group in the morning.

A soft release was used initially. Acclimation cages, completely enclosed with a door on top and an opening in the bottom, were situated in a circle. Each cage was stuffed with hay and staked down over a two-foot hole. At release, prairie dogs were placed in the cages with supplemental food and a cover for

shelter and allowed to dig out of the cage through the bottom opening and pre-dug hole.

A hard release was used for the second group of individuals. Prairie dogs were taken out of transport cages and physically let go at burrow entrances.

The final release was a soft one. These cages were placed approximately 90 feet away from the colony. The area was not mowed prior to release, but we hand-cut vegetation immediately around the cages.

Of the three methods, the first soft release within a cleared area showed the most promise. Reported survival rates ranged from zero to 40 percent in previously unoccupied sites from studies other than ours. Our survival rate was less than 10 percent, less than what we expected. Multiple releases were conducted because we observed very low numbers after each release. Factors such as stress, unexpected precipitation, potential territorial behavior, and the lack of a pre-existing colony undoubtedly affected our survival rate.

While we did not achieve our expected results, the remaining prairie dogs appear to be established.

Future efforts will be based on what we learned and how we can increase survivability. An established population of black-tailed prairie dogs in this region would enable

long-term research to be conducted to assess and evaluate the impacts of this keystone species in a desert grassland ecosystem. 🐾



Mechanical brush removal of mesquite with excavator, then manually clearing it off the release site.



Why Grasslands – and Prairie Dogs – are Disappearing

Grasslands have declined on a global scale from conversion to agricultural production, the absence or decline in native herbivores, and shrub encroachment. This last factor – shrub encroachment – is complex and includes climate variation, small-herbivore impacts, overgrazing, fire suppression, and desertification, which is the extreme degradation of already-arid lands from loss of vegetative cover and soil moisture.

In the southwestern United States, the proliferation of woody species is largely attributed to livestock overgrazing and the resultant decrease in fuel, which reduces fire frequency. Desert grasslands (arid and semiarid grasslands that have lower precipitation and higher evaporation rates than other grasslands) have undergone extreme shrub encroachment in the last century.

Honey mesquite, a native drought-resistant shrub, is one of the primary culprits in the northern Chihuahuan Desert. Shrub encroachment has long-term consequences and damages the structure and function of the grassland ecosystem, particularly desert grasslands. Shrubs such as mesquite trap soil resources underneath their canopies, reduce water availability in an area with an already limited water supply and hurt the grassland's productive capacity.

Part of our work at the Borderlands Research Institute is directed at restoring grassland ecosystems that have undergone such deterioration, to include restoration of species such as the black-tailed prairie dog.



Site ready for first release group with acclimation cages positioned in a circle.



First release group in their acclimation cages.



Second release group with hard release directly into burrows.

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