The Case for Desert Grasslands

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The phrase *desert grassland* is a great example of an oxymoron (contradictory term). For most, the two terms *desert* and *grassland* evoke completely different images. For many, *desert* brings up images of the landscape commonly portrayed in the Looney Tunes cartoons of Wile E. Coyote and Road Runner—visions of barren desert with an occasional cactus—whereas *grassland* brings up visions of wind-blown, waist-high grasses commonly found in the High Plains of Nebraska or Kansas.

This seemingly contradictory ecosystem deserves our attention, both for the incredible diversity found here and for the threats it is facing. Grasslands throughout North America have been lost to a variety of factors, including conversion to agriculture, urban development and brush encroachment. Like other grasslands across North America, the remaining desert grasslands are just a fraction of what they once were.

The Trans-Pecos region of Texas was generally considered a large expanse of desert grasslands until Anglo settlement in the late 1800s. With subsequent changes in land use, woody species like creosote, tarbush, mariola, whitethorn acacia, juniper and honey mesquite have encroached on historical grasslands of the Trans-Pecos.

Desert grasslands occur in a naturally fragmented distribution, which makes them especially vulnerable to brush encroachment. As a life zone along an elevational gradient, desert grasslands occur in mesic habitats above desert scrublands and below pinyon-juniper or oak-juniper habitats. Desert grasslands are always in flux, where precipitation, soil, fire and grazing all play a role in their health and status. This dynamic state is a virtual battlefield between perennial grasses and brush.

With their shallow root system, perennial grasses such as black grama, blue grama and tobosa grass exploit resources in the upper portions of the soil where rainfall infiltrates most frequently. This strategy allows the grasses to respond to rainfall, but it also makes them vulnerable during drought, when they frequently

Fire suppression, drought and land-use practices have all played a role in the decline of desert grasslands. If not properly managed, brush will begin to encroach into this grassland.
they have dwindled to a small percentage of what they once were in Texas,” said Chris West, director, Rocky Mountain regional office, NFWF. “NFWF and its partners in the Pecos Watershed Conservation Initiative are excited to support this project that will advance the conservation of wildlife and habitat by working with ranchers and biologists across the landscape.”

The Borderlands Research Institute and Texas Parks and Wildlife Department recently received a grant from NFWF to focus on restoring desert grasslands near Marfa and Marathon in West Texas.

Table 1 provides a comprehensive list of research projects BRI is engaged in with our partners (Texas Parks and Wildlife Department, Texas Parks and Wildlife Foundation, U.S. Fish and Wildlife Service, Bird Conservancy of the Rockies, Dixon Water Foundation, The Nature Conservancy, National Fish and Wildlife Foundation, and energy partners).

**TABLE 1**

Current Desert Grassland Initiatives at the Borderlands Research Institute

- Assessing conservation priorities for the Dos Rios Conservation Area
- Pronghorn restoration and monitoring
- Estimating carrying capacity of pronghorn
- Habitat use and movement of translocated pronghorn
- Overwinter survival and habitat use by desert grassland birds
- Using quail as indicators of grassland health
- Assessing habitat conditions of desert grasslands
- Influence of prairie dog colonies on vegetation and cattle
- Black-tailed prairie dog reintroduction
- Understanding kit fox distribution in desert grasslands
- Mitigating habitat disturbance following O&G activity
- Grassland habitat enhancement in the Marfa Plateau and Marathon Basin

The recent decline of pronghorn is undoubtedly tied to encroachment of brush in desert grasslands. Efforts to combat brush encroachment are at the forefront of BRI’s research program.

Desert grasslands are also unique in that the precipitation that drives their health comes in a monsoonal pattern. In fact, approximately 90 percent of grass growth in desert grasslands occurs in July-September, and winter precipitation does little for grass growth.

Desert grasslands are an underappreciated ecosystem found throughout the Desert Southwest that supports a diversity of wildlife that is unparalleled. In Texas, economically and ecologically important species are obligates of desert grasslands, including mule deer, pronghorn and scaled quail, as well as a host of birds (Loggerhead Shrike, Lark Bunting, Cassin’s Sparrow, Long-billed Curlew, Ferruginous Hawk, Golden Eagle, Aplomado Falcon, Burrowing Owl, Chestnut-colored Longspur, Sprague’s Pipit and Mountain Plover) and mammals (kit fox, prairie dog and kangaroo rat). This high wildlife diversity coupled with increasing threats have made desert grasslands one of the most vulnerable habitats in North America.

It is reasonable to conclude that broad-scale habitat change in the form of brush encroachment is the primary suspect in the decline of pronghorn, prairie dogs, wintering grassland birds and other wildlife species. The Borderlands Research Institute is committed to working with private landowners and partners to conserve the desert grasslands of West Texas.

Desert grasslands are an underappreciated biodiversity hotspot, and unfortunately, die. In contrast, shrubs such as mesquite, tarbush and juniper utilize deeper soils where more dependable water sources can be found, allowing shrubs to be more drought tolerant.

Researchers with the Borderlands Research Institute have partnered with the Dixon Water Foundation to monitor small mammal distribution and abundance.

**NEW PECOS WATERSHED CONSERVATION INITIATIVE**

The National Fish and Wildlife Foundation (NFWF) is working toward desert grassland conservation as part of the Pecos Watershed Conservation Initiative. This project supports conservation projects in the Pecos River Watershed, which extends from eastern New Mexico into West Texas and comprises a large portion of the energy-rich Permian Basin. The initiative identifies strategic conservation opportunities and works to enhance and restore the natural resources and wildlife habitat in the region.

“The grasslands of the Trans-Pecos region are an underappreciated biodiversity hotspot, and unfortunately, they have dwindled to a small percentage of what they once were in Texas,” said Chris West, director, Rocky Mountain regional office, NFWF. “NFWF and its partners in the Pecos Watershed Conservation Initiative are excited to support this project that will advance the conservation of wildlife and habitat by working with ranchers and biologists across the landscape.”

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