

# The Chihuahuan Desert in Texas

RARE SPECIES THRIVE IN THE VAST HIGH DESERT



Photo: Independence Creek Preserve © David Morris.

Neatly ringed by massive mountain ranges and nourished by precious springs, the Chihuahuan Desert is the largest North American desert and the most biologically diverse in the Western Hemisphere. It spans the Trans-Pecos area of Texas, large parts of southern New Mexico, a slice of Arizona and large portions of several Mexican states. Scientists believe at least 1,000 plant species are unique to this desert and approximately 120 different species of mammal have been documented, including black bears, mountain lions and pronghorns, as well as 300 species of birds, and 170 species of amphibians and reptiles.

Large, intact grasslands provide important habitat, as do areas of chaparral, savanna, woodlands and forests in the mountains and narrow ribbons of forest along streams and springs. Desert grasslands provide wintering grounds for a large proportion of Great Plains birds, many with declining populations, such as mountain plovers, ferruginous hawks and Baird's sparrows. Nearly half of the region's fish species are endemic to this desert, and many are at risk or declining.

Excessive pressures on the desert's springs, aquifers, streams and rivers from industrial, agricultural and municipal use threaten this fragile ecosystem. The Nature Conservancy is protecting

this desert, its sky islands and springs with on-the-ground conservation at a number of different preserves across the region:

The Davis Mountains Preserve is a 33,000-acre expanse that features volcanic peaks, desert grasslands and rare upper elevation wildlife and plant communities. The preserve is buffered by a network of conservation easements that keep nearly 66,000 acres of neighboring family ranches intact, including the iconic Sawtooth Mountain and surrounding Mount Livermore, the summit of the Davis Mountains. The preserve also encompasses the heart of a functioning landscape, with intact watersheds and a unique assemblage of animals and plants. Plant life is diverse and presents interesting contrasts—on wetter, shaded slopes is a montane forest, including ponderosa pine and small stands of quaking aspens sheltered under cliffs beneath Mount Livermore. South-facing slopes are dominated by pinyon pine, gray oak, alligator juniper and mountain mahogany, while madrone trees dot the shaded valleys and deep canyon streambeds. Eleven rare species of plant are known, and rare animals include cottontail rabbits, mountain short-horned lizards and snails. The birds in the higher mountain elevations—



Above: Independence Creek Preserve's Caroline Springs © Erika Nortemann. Below: Student volunteers at the Davis Mountains Preserve © Ian Shive.

which include the common black-hawk, golden eagle, dusky-capped and buff-breasted flycatchers, and Montezuma quail—are more closely associated with western mountain ranges than birds across the rest of Texas. Some species nest only in the Davis Mountains and nowhere else in Texas.

Independence Creek Preserve spans roughly 20,000 acres and is a significant piece of West Texas' natural heritage; the creek for which its named is the most important—and one of the few remaining perennial freshwater tributaries of the lower Pecos River. The pristine waters of Independence Creek flow into the Pecos and contribute substantially to the river's water quality, increasing the river's water volume by 42 percent at the confluence and reducing total dissolved solids by half. Independence Creek also sustains a diverse downstream wildlife community and several unusual fish and threatened aquatic inhabitants, the rarest being the proserpine shiner, which is at risk of disappearing from the Pecos River. The preservation of Independence Creek ensures a safe haven for this and several native species, like the Rio Grande darter and headwaters catfish. The creek is fed by Caroline Spring, which is upstream at the preserve headquarters; Caroline Spring produces 3,000 to 5,000 gallons per minute and comprises about 25 percent of Independence Creek's flow.

Our Dolan Falls Preserve has long been considered one of the jewels of The Nature Conservancy—at the intersection of the Edwards Plateau, Chihuahuan Desert and Rio Grande Plains, it is 4,788 acres of Conservancy-owned land bolstered by conservation easements on more than 32,700 acres of adjoining property. The Devils River flows through the preserve's canyons, supporting stands of oaks and sycamore bounded by steep cliffs dotted with juniper and mesquite; the river and its associated springs sustain rare salamanders and fish, several of

which are unique to the region. Rare flora and fauna such as the endangered Texas snowbell and Mexican white oak trees occur there and one of the key conservation targets is the endangered black-capped vireo—pairs return to the preserve to nest each spring. This riparian corridor is also an important migration path for birds and monarch butterflies traversing the dry west; in total, the Conservancy has helped protect more than 111,000 acres along the Devils River.

The 4,099-acre Diamond Y Spring Preserve protects one of the largest and last remaining desert springs and its associated marshland systems in West Texas. This preserve provides critically important habitat for two species of rare desert fishes listed as federally endangered—the Leon Springs pupfish and the Pecos gambusia, a type of mosquitofish. The preserve was designated as critical habitat for the pupfish and is the only remaining natural habitat for the species, whereas the Pecos gambusia has a severely reduced range across the lower central Pecos River basin in west Texas and southeastern New Mexico. Diamond Y also sustains the federally threatened, salt-tolerant Pecos (or puzzle) sunflower, four other globally rare plants and a suite of rare aquatic invertebrates. All of these organisms depend upon the maintenance and perpetuation of the surface springs, their outflow marshes and watercourses, or sub-irrigated moist soils for survival.

The 281-acre Sandia Springs Preserve includes East and West Sandia Springs, which are part of the Balmorhea Spring Complex. The complex, in the Balmorhea area, is one of the largest and most important of the remaining desert spring systems in west Texas. This complicated system contains the only naturally occurring populations of the Comanche Springs pupfish along with very rare and limited Pecos gambusia. Like our Diamond Y Preserve, Sandia Springs also provides critical habitat for the Pecos sunflower; these two locations are the only known sites in Texas at which the sunflower grows.

