

## GYPSUM SOILS

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**Nominated ACEC:** Gypsum Soils ACEC

**Nominated by:** New Mexico Wilderness Alliance

**Size:** 62,300 acres

### Historic Value

Historic activities in the area include Captain John Pope's 1854 expedition to find a route for the Transcontinental Railroad. John Pope surveyed a route along the thirty-second parallel through Texas that was of interest to the Southern population. Historic sites associated with this encampment include possible tent platforms and rock cairns relating to surveying activities.

The 1883 General Land Office Survey Plats of the area along the Delaware River show that this was one of the earliest regions of settlement in Eddy County. Five ranches, a house, and a corral are noted along the river on the 1883 plats. The dam, irrigation ditches and associated infrastructure were built later and were designed to collect and distribute water to agricultural parcels along the river. A recent cultural resource survey of the Delaware River recorded thirteen historic sites comprising a historic homesteading district along the Delaware River. As a whole, the thirteen sites form a cohesive set representing the range of activities associated with the small, independent homesteads of the pre-Depression era. These sites are being formally nominated for listing on the National Register of Historic Places as a Historical District.

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### Importance

- Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.

### Cultural Value

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#### Relevance

This area contains prehistoric archaeological sites and areas of traditional cultural importance to Native American tribes. Archaeological sites have been recorded along the portion of the Delaware River on BLM-managed lands. The archaeological sites are characterized by chipped stone and ceramic artifacts, bedrock mortars, thermal features, and small stone enclosures.

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## Scenic Value

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### **Relevance**

Portions of the Pecos, Black and Delaware Rivers provide unique scenic values that are enhanced by topographic and riparian diversity not commonly found in the planning area. Riparian landscapes display dramatic transitions from stark, white gypsum soils and sparsely vegetated sandy flats to rolling hills, deep drainages. Riparian areas feature sedge, hemlock, desert willow, cattail and large cottonwood trees that provide an unexpected vegetative density with noticeable visual contrast in the line, form, color and texture of the Chihuahuan Desert environment. Mature trees along the river banks appear as green ribbons meandering through a dry, desert environment of muted tans, browns, grays and drab greens. The Guadalupe Escarpment provides a dramatic background with sheer, rugged peaks that extend 2,000 feet above the desert floor. Unique soils, geology and hydrogeological processes give the Black River an aqua blue color that is not seen elsewhere in southeastern New Mexico.

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## Fish or Wildlife Resource

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### **Relevance**

There are several species within the nominated ACEC that are either Threatened, Endangered, or considered to be Species of Concern by either the BLM or State of New Mexico. Some of these include Allthorn, Texas Hornshell, Bigscale Logperch, Gray Redhorse, Blue Sucker, Mexican Tetra, Roundnose Minnow, Headwater Catfish, Pecos Pupfish, Barking Frog, Western River Cooter, Plainbelly Watersnake, Bald Eagle, Ferruginous Hawk, Peregrine Falcon, Yellow-billed Cuckoo, and Bell's Vireo. A single Cave Swallow (*Pterochelidon fulva*) colony on the edge of the area was the first recorded lowland, non-cave site in southeastern New Mexico.

In dry climates with little rainfall, desert rivers are used as breeding, feeding, and sheltering grounds for most of the species that exist near them. These rivers are significant stops along the seasonal migratory path of birds. The Delaware has been designated an Important Birding Area by the Audubon Society and is either a home or a rest stop for hundreds of species.

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## Natural System or Process

### *Karst Resources*

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#### **Relevance**

This nominated ACEC contains hydrologically important gypsum karst. It has significant caves, sinking streams, springs, and numerous sinkholes. The area is sensitive to soil erosion and surface disturbing activities. The cave resources provide recreational opportunities as well as habitat for cave-adapted animal species and point sources for groundwater recharge.

The southern gypsum escarpment area contains several hundred caves and other karst features. Parks Ranch Cave falls within the nominated ACEC. At 4.2 miles in length, Parks Ranch Cave is the longest gypsum cave on federal lands in the United States. Parks Ranch Cave is also the most visited cave within the planning area.

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### *Paleontological Resources*

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#### **Relevance**

Pleistocene mammoth and bison bones have been recovered along the eroding banks of the Delaware River. In 1999, paleontologists from the BLM and the New Mexico Museum of Natural History removed a 10,000 to 20,000 year old mammoth tusk from the bank of the Delaware River. Other paleontology exposures along the river have also been reported

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### *Riparian Areas*

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#### **Relevance**

Riparian areas in New Mexico, especially those in the Chihuahuan Desert, are some of the most biologically rich areas in temperate regions. Most of the organisms on the New Mexico list of threatened and endangered species are either riparian dependent or are high users of riparian areas. Riparian areas in the nominated ACEC include the Delaware, Pecos, and Black Rivers. In 1992, the Nature Conservancy, in conjunction with the BLM, conducted a field study of the riparian areas along the Delaware River. This study revealed a large number of species, including several rare or protected species.

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## Soils

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### **Relevance**

This area is an excellent representative of the uniquely exposed Castile formation within the Chihuahuan Desert ecosystem. Most of the area consists of bare steep slopes and deep eroded arroyos covered by microbiotic soil crusts, a rare and very fragile soil cover. Microbiotic soil crust is a highly specialized community of mosses, lichen, and cyanobacteria. In addition to covering the surface of the soil, it also serves to break down rock material, absorb water, slow soil erosion and provide an environment in which other plants germinate. Microbiotic soil crusts are extremely fragile. While found across the proposed ACEC, this soil type is best demonstrated in the western portion of the area, the old Yeso Hills Research Natural Area.

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## **Special Status Plants**

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### **Relevance**

The area contains Gypsum Wild Buckwheat, a federally Threatened species. The area also contains three Species of Concern: Gypsum Milkvetch, Gypsogenus Ringstem, and the Yeso Hills Linum. All of these species are found on gypsum soils and are sensitive to loss or alteration of the habitat. This is especially important because this soil type as it is slow to recover and reclamation efforts are often less than ideally successful.

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## **Natural Hazards**

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### **Relevance**

All undeveloped caves contain some hazards including total darkness, loose rocks, low ceilings, low tight passages, slippery surfaces, and unstable and uneven floors. In addition, several of the caves in the Chosa Draw areas contain steep pit entrances posing a hazard to surface users. These areas are also subject to sudden surface collapse which can be triggered by surface use or by natural processes. Gypsum caves are subject to flash flooding, creating a drowning hazard to cave visitors. Harmful water borne bacteria is also present in some gypsum caves.

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### **Importance**

- Poses a significant threat to human life and safety or to property.