



Stone, Sand, and Stream

Life zones are determined by elevation, latitude, climate, and aspect. Some plants and animals are most common in particular life zones, while others thrive in multiple life zones.

Great Sand Dunes National Park and Preserve protects a wonderful diversity of life zones. We invite you to explore them all.

Nestled against the rugged Sangre de Cristo Mountains, the Great Sand Dunes are the magnificent centerpiece of a natural system that includes high mountain peaks, sparkling streams, powerful winds, and—of course—billions of grains of sand. Unexpectedly awe-inspiring, this wild landscape pairs majestic scenery with intimate glimpses into the complexity of life and offers rich connections to our human history.

The huge dunes—the tallest in North America—comprise about 11 percent of an enormous sand deposit that covers more than 330 square miles.

Eroded from mountains, shattered by freezing and thawing, tumbled and moved by streams and the wind, the sand grains cycle through the Great Sand Dunes system as if it were a living thing. Most of the sand deposit outside the dunefield is stabilized by plants; the curves and contours of old dunes now covered by grass and shrubs are difficult to discern at first glance. See “Sand” below to learn about the dunefield, sand sheet, and sabkha, and some of their residents.

Rolling around the edges of the dunefield are the creeks some call the lifeblood of the dunes sys-

tem—Medano Creek and Sand Creek. Swift, shallow, and seasonal, they are critical links in the natural system of sand recycling and are sources of precious moisture in this desert valley. Medano Creek is the focal point for many visitors to Great Sand Dunes. Springtime play and exploration in the surging waters are irresistible draws for the young and the young at heart. Streamside habitats are vital. See “Stream” below to learn more.

Both creeks originate in the Sangre de Cristo Mountains of Great Sand Dunes National Preserve. High and cold, the mountains collect and hold snow

from October through early April, releasing it in icy streams when temperatures warm in late spring. Although the creeks dwindle as the mountain snows melt, the advent of summer brings the highcountry to life. See “Stone” below for details.

The dunes have long stood as a landmark for travelers, from ancient North Americans to Southern Ute, Jicarilla Apaches, Navajos, explorers, gold miners, homesteaders, ranchers, farmers, and migrant field workers, to you—today’s park visitor. Review the information and map on the reverse side to plan your visit.

WATER:
the liquid thread

Water is the lifeblood of the Great Sand Dunes. Without water—both on the surface and within the subsurface aquifers—the dunes system and the diversity of life it supports would be dramatically different.

Medano and Sand creeks and the other small streams and wetlands around them play several roles within the Great Sand Dunes system. As life givers, they support plants and animals throughout the diverse habitats of the park and preserve. As land shapers, the creeks move huge quantities of sand downstream, where it is later blown back into the dunefield. The tall dunes on the eastern edge of the dunefield owe their height to the yearly resupply of sand brought by Medano Creek. As community builders, the creeks feed the subsurface aquifers, which support the valley’s residential wells, local agriculture, and livestock. And they bring delight to hundreds of thousands of visitors each year.

The expansion of Great Sand Dunes National Monument into Great Sand Dunes National Park and Preserve was driven largely by increased knowledge of the complex roles of water within this sandy system, and the desire of Americans to protect the system—its dunes, mountains, creeks, and wetlands—forever.

LIFE ZONES OF GREAT SAND DUNES



ALPINE TUNDRA

American pika



Alpine primrose



Dwarf phlox



Moss campion

The treeless alpine tundra zone occurs above 11,000 feet (3,350 meters), where rugged peaks are blasted by winds and may be ice-covered for 10 months of the year. Despite a very short growing season, small plants thrive here, growing close to the warmer earth and nestling

between rocks for protection from the wind. Animal life includes American pikas, yellow-bellied marmots, and Rocky Mountain bighorn sheep. In summer, watch for golden eagles, hawks, horned larks, and white-tailed ptarmigan.



Rocky Mountain bighorn sheep



SUBALPINE

Peregrine falcon



Colorado blue spruce



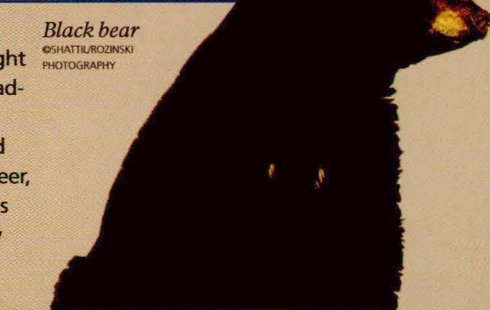
Shooting star



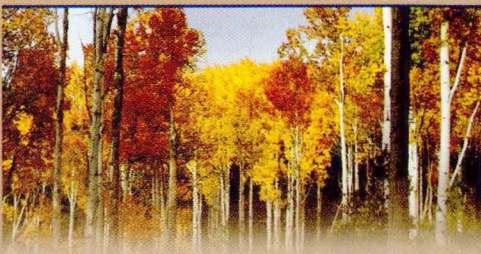
Blue columbine

The subalpine forest zone (9,500 to 11,500 feet; 2,900 to 3,500 meters) receives extremely heavy snowfall, contributing to its year-round cold and damp growing conditions. Hardy, stout trees, including Englemann and blue spruce, survive by withstanding heavy snows without

breaking, while subalpine firs bend flexibly to shed the weight of the snow. Broad sunny meadows are wet and vibrant with summertime wildflowers and mosquitoes. Watch for mule deer, elk, beaver, and black bears, as well as northern harriers, gray jays, and Steller’s jays.



Black bear



MONTANE FOREST

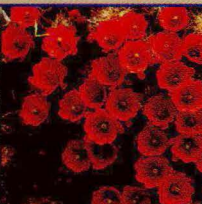
Abert’s squirrel



Rocky Mountain juniper



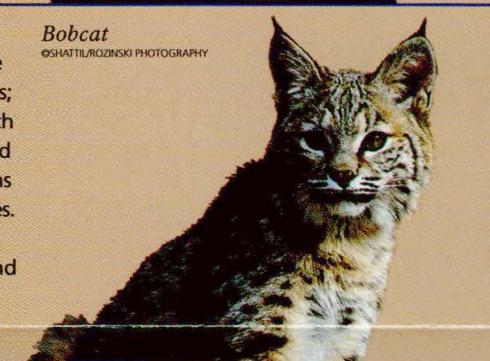
Spitleaf Indian paintbrush



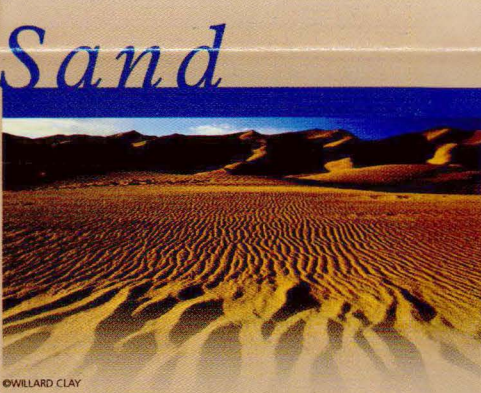
Claret cup cactus

The montane forests and piñon-juniper woodlands occupy similar elevations (8,000 to about 9,500 feet; 2,440 to 2,900 meters) but prefer different habitats: montane species (Douglas fir, aspen, and narrow-leaf cottonwoods) thrive in wet drainages, while piñon pines and junipers prefer sunny hillsides. The contrasting habitats and plants at-

tract a wide variety of wildlife. Omnivorous black bears forage for insects, berries, and rodents; bobcats range hillsides in search of rabbits, Abert’s squirrels, and other small animals; pine siskins and juncos feed among the trees. Northern goshawks navigate the forest with short wings and long, rudder-like tails.



Bobcat



DUNEFIELD

Great Sand Dunes tiger beetle



Prairie sunflower



Scurfpea



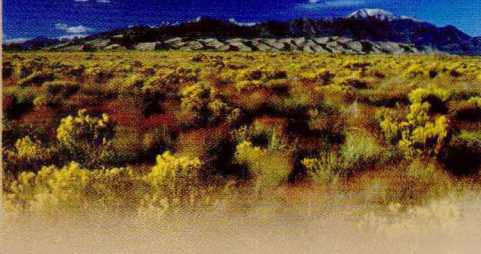
Skeletonweed

From a distance the dunes appear barren, but a short exploration shows how life adapts to fill every niche. Seven species of insects thrive here and nowhere else in the world. Ord’s kangaroo rats are the only mammals that make their homes in the dunefield, although coyotes,

mountain lions, and even elk wander through parts of it. Indian rice grass, blowout grass, and scurfpea, common in sandy dry areas, grow in the swales between the dunes, withstanding gritty winds and high surface temperatures; their root systems anchor them in place.



Ord’s kangaroo rat



SAND SHEET & GRASSLAND

Short-horned lizard



Starvation prickly pear



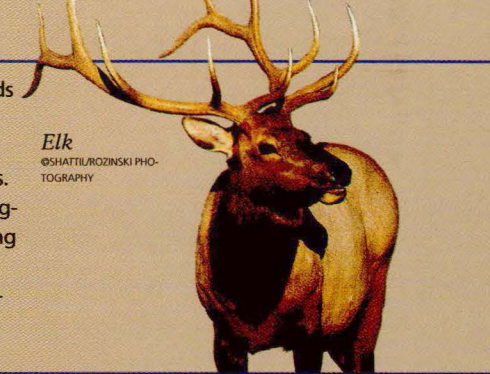
Small flower sand-verbena



Narrowleaf yucca

The vast sand sheet surrounding the dunes makes up about 53 percent of the sand deposit. Grasses and shrubs, including rabbitbrush, prickly pear, and yucca, grow over old dunes, stabilizing them with their roots and reducing wind speeds with their branches and leaves. Many

animals frequent the grasslands and sand sheet, including elk, mule deer, pronghorn, white-tailed jack rabbits, and coyotes. Iridescent caterpillars seen clinging to rabbitbrush plants during spring metamorphose into green-striped rabbitbrush beetles in summer.

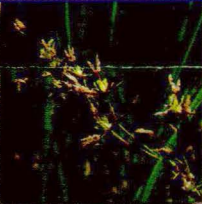


Elk

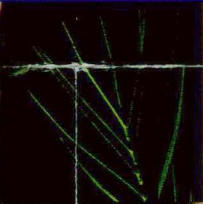


SABKHA

American avocet



Baltic rush



Inland saltgrass



Four-wing saltbush

The low-lying sabkha, comprising about 36 percent of the sand deposit, lies west and south of the dunefield. It is a salt-encrusted plain punctuated by wetlands and patches of white crusty sand. Sand grains here are cemented into a fragile crust by alkaline minerals leached out of the high water table. Saltbush and salt-

grass are among the few plants adapted to tolerate this harsh environment, although slightly higher, less alkaline areas nearby may also host plants and animals of the sand sheet. Wetland areas within the sabkha attract migratory birds, including sandhill cranes and American white pelicans.



Sandhill crane



RIPARIAN & WETLANDS

American white pelicans



Narrow-leaf cottonwood



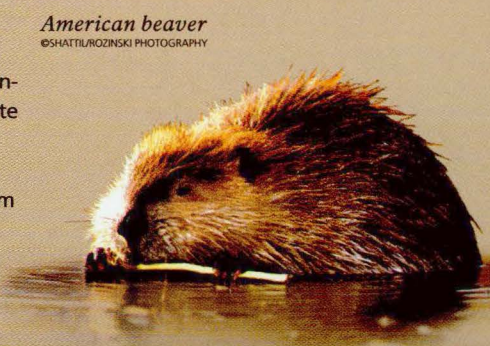
Rocky Mountain iris



Broadleaf cattail

Medano and Sand creeks flow seasonally around the dunefield. They carve out and carry sand from the eastern, western, and northern edges of the dunefield and redeposit it to the south, where wind eventually recycles it back into the dunefield. They create lush oases where cottonwoods, willows,

golden currants, and Wood’s roses thrive. Watch for the red and yellow flash of western tanager and bold, black-and-white magpies. Areas of wetlands within and near the dunefield are fed by subsurface flow from these two streams; they foster amazing life in the midst of a sandy desert.

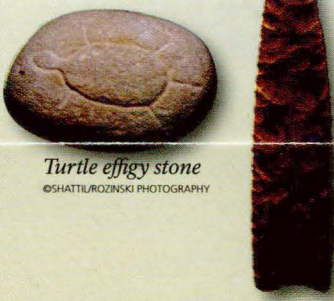


American beaver

An Enduring Connection: People and the Dunes

Early People
11,000 years ago

Some of the first people to enter the San Luis Valley and Great Sand Dunes area were nomadic hunters and gatherers drawn here by herds of mammoths and prehistoric bison that grazed nearby. These Stone Age people apparently spent time here when hunting and plant gathering was good and avoided the region in times of drought and scarcity.



Turtle effigy stone
©SHUTTERSTOCK PHOTOGRAPHY

Clovis projectile point
ALL IMAGES NPS UNLESS OTHERWISE NOTED

Historic and Modern Tribes

Ancestors of modern Indian tribes were familiar with this area before Spaniards arrived here over 400 years ago. The Jicarilla Apache and Southern Ute camped and hunted in the San Luis Valley. They also collected the inner layers of bark from ponderosa pine trees for use as food and medicine. The Jicarilla Apache continue an ancient tradition of collecting sand from the Great Sand Dunes for ceremonial uses.

Spanish Explorers
1694

Don Diego de Vargas was the first European known to have entered the San Luis Valley, although hunters and herders from Spanish colonies in present-day northern New Mexico may have entered the valley as early as 1598. In 1776 Juan Bautista de Anza and a large group of men probably passed near the dunes after raiding a group of Comanches. At this time the San Luis Valley was a travel route between the High Plains and Santa Fe for Utes, Comanches, Apaches, and Spanish soldiers.

Westward Expansion
1807

The first known references to the dunes appear in the 1807 journals of U.S. Army Lt. Zebulon Pike. Although his assignment was to explore the southern portion of the Louisiana Purchase, he trespassed into Spanish territory and the San Luis Valley. Pike described the dunes as looking like a "sea in a storm." John C. Fremont saw them in 1848 while he searched for a railroad route from St. Louis to California. Capt. John Gunnison of the U.S. Topographical Engineers crossed part of the dune-field on horseback in 1853.

Trails and Roads
1852

Settlers followed explorers into the San Luis Valley via trails from Santa Fe or La Veta Pass and by routes over the Sangre de Cristo Mountains well-known to Indians. Medano and Mosca passes offered more direct routes from the growing Front Range cities. The Mosca Pass Toll Road was developed in the 1870s and remained in use into the early 1900s. It is now a hiking trail.

Gold Rush
1853

Gold and silver rushes around the Rockies after 1853 brought miners by the thousands into the state, stimulating mining businesses still operating today. Numerous small strikes were made in the mountains around the San Luis Valley.



Volcanic Mining operation
circa 1920

Homesteaders
1875

Ulysses Herard and his family established a ranch and homestead along Medano Creek in 1875. They raised horses, cattle, and chickens and built a trout hatchery in the creek. Others who homesteaded near the dunes included the Teofilo Trujillo family, who raised sheep southwest of the dunes, and Frank and Virginia Wellington, who built the cabin and hand-dug the irrigation ditch that parallels the Wellington Ditch Trail, just south of today's campground.

From National Monument to National Park
1932-2004

By the 1920s the dunes had become a source of pride for local people and a potential source of tourist dollars for local businesses. Fearing that the dunes might be destroyed by gold mining and other ventures, the residents of the San Luis Valley launched a campaign to have the area designated a national monument. Numerous organizations, newspapers, and politicians joined in the effort. In 1932 President Herbert Hoover established Great Sand Dunes National Monument by presidential proclamation.

Great Sand Dunes wilderness area was established in 1976. In 2000 Congress authorized the expansion of the national monument into a national park and preserve to protect the entire Great Sand Dunes system. National park designation followed in 2004.

Although they are two units, the national park and national preserve are managed jointly by the Great Sand Dunes staff. The national preserve is part of the Sangre de Cristo wilderness area, established in 1993.

Great Sand Dunes is one of over 390 parks in the National Park System. To learn more about national parks and National Park Service programs in America's communities, visit www.nps.gov.

More Information
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719-378-6300
www.nps.gov/grsa
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Wilderness Note

Most of the Great Sand Dunes and surrounding mountains are designated as wilderness. Motorized and mechanized vehicles are prohibited in these areas, but you are encouraged to explore these pristine areas on foot or horseback. Dunes wheelchairs are permitted in the sand. Please inquire at the visitor center for wilderness boundaries.

Origins of the dunes

Where did the sand come from? Most of the sand originated in the San Juan Mountains, over 65 miles to the west. The larger, rougher grains and the pebbles originate in the nearby Sangre de Cristo Mountains.

How did it get here? Wind and water are the primary movers of the grains. Streams, creeks, melting snows, and flash floods brought bits of rock out of the mountains to the valley floor. Southwesterly winds then began the slow process of bouncing the grains toward the low curve of the Sangre de Cristo Mountains. There they piled up at the base of the mountains or dropped into creeks to be washed back out toward the valley floor.

How old are they? Age estimates range from 12,000 years to over a million years. Research continues.

Why are they so tall? At least two factors are responsible. Huge quantities of sand are carried downstream by Medano Creek, then redeposited by the southwesterly winds on the eastern edge of the dune field, accounting for the very tall dunes in that area. Also, less common but stronger winds blow from the northeast. These northeasterlies blast through the passes and pile the dunes back upon themselves, producing startlingly crisp ridges—and the tallest dunes in North America.

BACA
NATIONAL
WILDLIFE
REFUGE

Ask a ranger for
access information

SAN LUIS VALLEY

GREAT SAND DUNES
NATIONAL PARK

DUNEFIELD

GREAT SAND DUNES
NATIONAL PRESERVE

SANGRE DE CRISTO MOUNTAINS

WIND

WATER

WIND

WATER

Safety Concerns

- Sand gets hot—140°F—on summer afternoons. Hike in early morning or early evening.
- The visitor center is 8,175 feet above sea level. Move slowly and drink plenty of water while your body adjusts to the high elevation.
- Lightning can kill! Get off dunes immediately if thunderstorms approach.
- This is black bear country! Campers: check with a ranger for precautions you must take to avoid bear problems.
- Keep wildlife wild. Feeding wild animals is dangerous for you and unhealthy for them.

SAN LUIS LAKES
STATE PARK AND WILDLIFE
AREA

San Luis Lake
7515ft
2308m

PRIVATE PROPERTY
THE NATURE CONSERVANCY



0 1 2 Kilometers
0 1 2 Miles

- Unpaved road
- 4-wheel-drive road
- Hiking trail
- Unimproved trail

- Parking/trailhead
- Picnic area
- Campground
- Lodging

- Food service
- Store
- Gas station
- Horse trailer parking

Visitor Center to Mosca
23mi 37km

Visitor Center to Mosca
15mi 31km