

# Great Sand Dunes

NATIONAL MONUMENT • COLORADO



# Great Sand Dunes

## NATIONAL MONUMENT

*Shifting sand dunes entrapped by the great curve of the Sangre de Cristo Mountains; among the largest and highest dunes in the United States.*

AT THE eastern edge of the famous San Luis Valley of southcentral Colorado lies a great expanse of the highest piled inland sand dunes in the United States. Paralleling for almost 10 miles the base of the heavily forested, snowcapped Sangre de Cristo Range, whose peaks reach elevations over 14,000 feet above sea level, these spectacular dunes rise from the flat valley floor in striking contrast to the towering mountain background. This unique spectacle, together with the many interesting natural phenomena resulting from the presence of the Gargantuan sand pile, makes the area well qualified to hold a place as one of the units of the far-flung National Park System.

### *A Natural Trap is Created*

The floor of the present San Luis Valley, 7,500 to 8,000 feet above sea level and three times the area of the State of Delaware, was once the eastern shore of a great land mass. Skirting this shoreline, there developed a zone of weakness in the earth's crust along which a great uplift later took place, forming the Sangre de Cristo Range. Sand and gravel, together with lava and ashes thrown out by volcanoes, were deposited in the wide valley lying to the southwest of these mountains.

Continued crustal movements further depressed the floor of the San Luis Valley, and a fault developed along the northwest side of the San Luis Hills, about 20 miles south of the present city of Alamosa. Lava flows, which accompanied or followed the fault-making movements, blocked the southern end of the valley.

### *Wind and Sand*

The light sandy soil of the San Luis Valley is easily transported by the prevailing wind which sweeps across the broad valley from the southwest. On reaching the formidable barrier presented by the lofty Sangre de Cristos, these prevailing winds sweep upward and funnel through Mosca, Medano, and Music Passes, the lowest gaps in the range. In rising to reach these passes, the wind loses much of its velocity; hence its ability to carry earth particles is markedly decreased and its burden of sand is dropped at the foot of the mountains. Here, these wind-dropped particles have continued to accumulate through the centuries. They have been continuously shifted, sorted, and piled by the wind into the great dunes whose ever-changing crests rise to 600 feet above the valley floor. Dunes

are ever changing and shifting due to capricious winds.

Although the water table beneath the San Luis Valley of today is relatively close to the surface, the climate of the valley is semiarid. Streams entering the valley are few in number, and the principal flow follows the melting of snow among the mountain peaks in the spring. Medano Creek, which rises in the mountains immediately east of the national monument, has been diverted from its original channel by the main sand-dune mass. In the spring, the waters of the creek skirt the eastern foot of the dune area for several miles before disappearing in the sand. It is possible that the sizable pond accumulating from the flow of Indian Springs, near the western side of the dune area, represents the emerging waters of Medano Creek that have seeped along its deeply sand-covered original channel for several miles.

### *Plants and Animals*

The dunes and Medano Creek, at the meeting place of valley floor and mountain range, provide a variety of elevational, climatic, and moisture conditions. In addition to plant and animal communities normally found on the valley floor, foothill slopes, and forested

highlands, there is the peculiar and distinctive, though sparse, vegetation of the sand dunes themselves. Lack of moisture and the continually moving surface of the sand prevent plants from obtaining a foothold except in protected depressions where small patches of grass, a species of low pea plant, and sunflowers find suitable conditions and stabilize the sands. In certain locations where sand sifts into these pockets, the plants develop extremely long stems as they try to keep from being buried.

Encroachment of sand upon the ponderosa pine lands northeast of the main dune area has buried and killed some of the trees. As the dunes have moved on under the impetus of the wind, the naked trunks appear, mute evidence of the trees' inability to adapt to this kind of invasion.

Other examples of plant reaction to this unusual environment may be seen by the careful observer. Very little has been done in the way of scientific studies on the effect of the sand encroachment on local plantlife. The monument offers many opportunities for interesting and revealing research.

Aside from the dune area itself, the monument contains plant and animal communities like those found on the valley floor to the

west and on the foothill slopes to the north and east. Rabbits, ground squirrels, coyotes, magpies, and other small mammals and birds characteristic of the rabbitbrush and grassland of the valley floor abound along the southwestern edge of the dune area. Chipmunks, mule deer, jays of several species, and other creatures typical of the pinyon-juniper-ponderosa pine belt of the foothill region are at home in the eastern and northern parts of the monument. Because of the many small lakes and marshy depressions found in the San Luis Valley with its water table so close to the surface, wild ducks are numerous in the general vicinity. The waters of Medano Creek contain trout, although the stream does not attract many fishermen because it is almost inaccessible.

### *Historical Background*

Projectile points and other native artifacts found in the vicinity of the dunes indicate that the dune area was used by prehistoric occupants of the San Luis Valley. The few Folsom-type points found at the monument are evidence of considerable antiquity.

It is known that Spanish explorers, continuing northward from New Mexico along the Rio Grande, reached the San Luis Valley.

However, the only well-known expedition is that of Juan Bautista de Anza, who in 1779 traveled through the valley to strike the Comanche Indians near the Arkansas River.

In the winter of 1806-7, Lt. Zebulon Pike's expedition, exploring the territory acquired through the Louisiana Purchase, entered the San Luis Valley by way of Medano Pass and raised the United States flag at a temporary fort on the Conejos River. Pike included in his journal a description of the dune area. Later, other explorers, including John C. Fremont (in December 1848 and December 1853) and John W. Gunnison (in the summer of 1853) viewed the dunes. Permanent settlement in the San Luis Valley began early in the 1850's.

F. V. Hayden, of the United States Geological Survey, is credited with naming the area in his report, "The Hayden Atlas," which was published in 1878.

In the early 1870's, a toll road was constructed across the Sangre de Cristos through Mosca Pass, making the valley accessible to pioneers and settlers. This road passed through the eastern part of what is now the monument. With the construction of a railroad, the toll road fell into disuse and, with the resulting isolation, the dunes were prac-

*The beauty of the dunes is enhanced by the snow-capped Sangre de Cristo Mountains*



*Smothered by a moving dune, skeletons of pines emerge to windward after the dune has passed*



*Wading the shallow waters of Medano Creek*



The National Park System, of which this area is a unit, is dedicated to conserving the scenic, scientific, and historic heritage of the United States for the benefit and enjoyment of its people.



tically forgotten. As the San Luis Valley became settled, the size and spectacular features of the dunes aroused public attention and, on March 17, 1932, the monument was established by Presidential proclamation. It has a total area of about 57 square miles.

### About Your Visit

Except for a campground and picnic area with wood, water, and tables, there are no accommodations in the monument. Provisions may be obtained at Hooper and Mosca, on State Route 17, which is 23 miles west of the monument, and at Alamosa, 36 miles southwest of the monument. Major approach road to the monument is State Route 150 which leaves State Route 17 one mile north of Mosca.

*Self-guiding Nature Trail.* The Monteville Trail provides an enjoyable half-hour stroll through a small valley. Significant and interesting trailside features are explained in a leaflet which you should obtain before starting your walk.

*The following observations are made for the protection of the natural beauties of the monument, as well as for your comfort and convenience:*

Be careful with fire! Campfires may be built only within constructed fireplaces.

All plants and animals within the monument are protected, and must not be disturbed

or harmed. For this reason, dogs and cats brought into the monument must be kept on leash or otherwise under physical restraint at all times.

Hunting or shooting in the monument is strictly prohibited.

Please help in keeping the premises clean by using the fireplaces and refuse containers.

**UNDER NO CIRCUMSTANCES ATTEMPT TO DRIVE AUTOMOBILES OVER THE SANDS TO THE DUNES.**

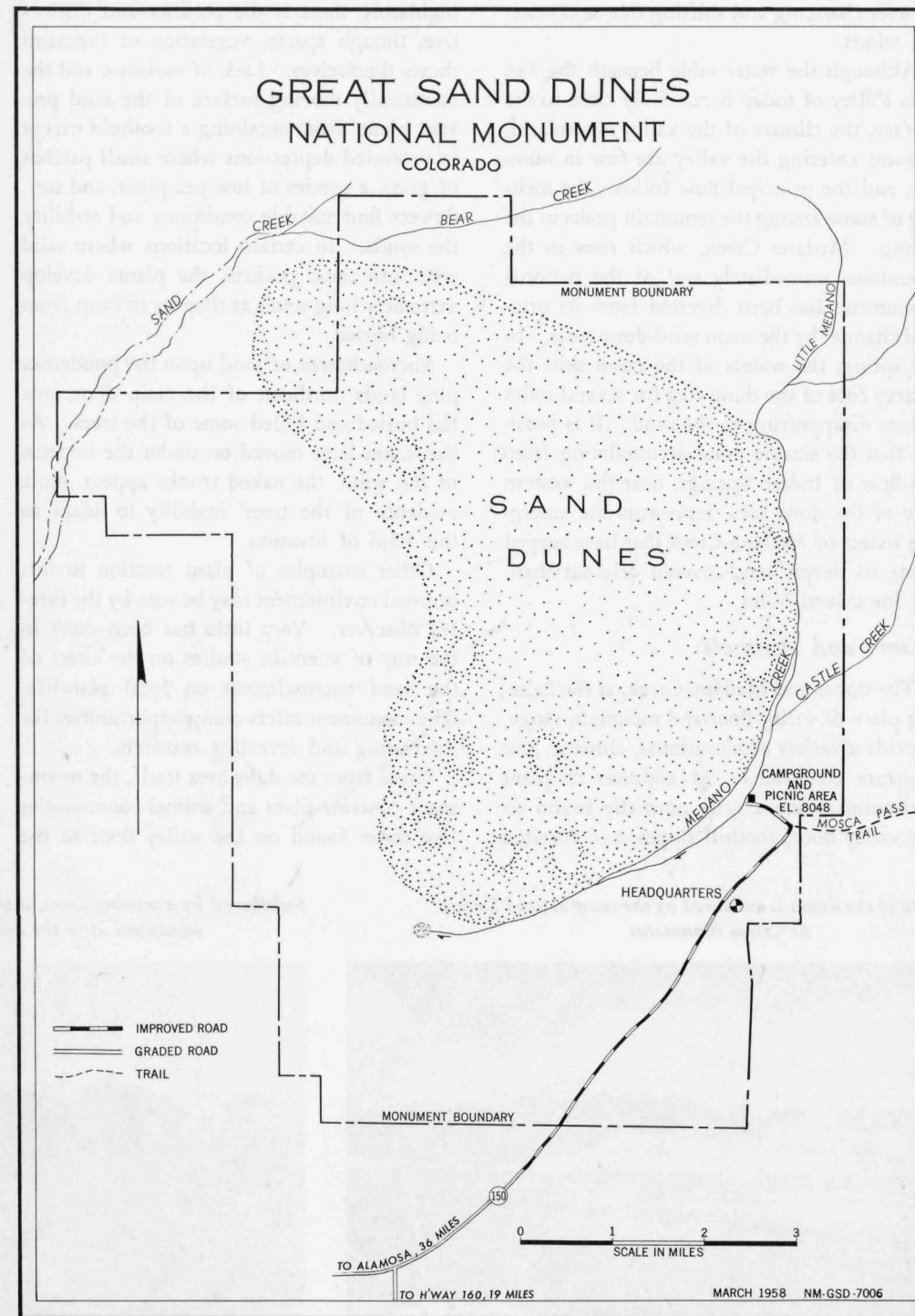
Be careful not to get stuck in the loose sand near the parking and picnic areas.

### Mission 66

Mission 66 is a program designed to be completed by 1966 which will assure the maximum protection of the scenic, scientific, wilderness, and historic resources of the National Park System in such ways and by such means as will make them available for the use and enjoyment of present and future generations.

### Administration

Great Sand Dunes National Monument is administered by the National Park Service, U. S. Department of the Interior. A superintendent, whose address is Box 60, Alamosa, Colo., is in immediate charge.



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DEPARTMENT OF THE INTERIOR

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