



Foundation Document Overview

White Sands National Monument

New Mexico



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Contact Information

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Purpose



An island of white within the Chihuahuan Desert, WHITE SANDS NATIONAL MONUMENT provides for and promotes scenic, scientific, and educational opportunities while preserving the world's largest gypsum dunefield—a dynamic environment created and sustained by wind and water—and protects endemic flora and fauna, unique human and paleontological history, and the quiet solitude of the dunes.



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Significance

Significance statements express why White Sands National Monument resources and values are important enough to merit national park unit designation. Statements of significance describe why an area is important within a global, national, regional, and systemwide context. These statements are linked to the purpose of the park unit, and are supported by data, research, and consensus. Significance statements describe the distinctive nature of the park and inform management decisions, focusing efforts on preserving and protecting the most important resources and values of the park unit.

- In 1933, President Hoover established White Sands National Monument to preserve the world's largest gypsum dunefield and its sources of gypsum sand. This enormous dunefield—more than 275 square miles—is used by astronauts in space as a geographic reference.
- Legislated to protect resources of scientific interest, White Sands National Monument promotes a wide range of innovative research that globally leads the way in the fields of rapid evolution and dune dynamics. Internationally recognized experts study aspects of the monument to expand understanding in subjects as diverse as soil microfauna to space exploration.
- Vast and brilliant white, the geologically young—less than 10,000 years old—gypsum dunefield has provided the conditions for evolution through rapid adaptation in the flora and fauna of the dunefield and surrounding desert scrub communities. Adapted white-colored species include an animal from every class of vertebrate, except birds, in North America.



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Fundamental Resources and Values and Other Important Resources and Values

- The hydrologic, geologic, and climatic forces of the Tularosa Basin create the gypsum cycle that gave birth to and sustains this active and dynamic gypsum dunefield. Rainfall, groundwater, and a regional aquifer are essential ingredients that nourish the world's largest gypsum dunefield.
- At first glance, the dunefield appears inhospitable and uninhabitable, yet the monument protects numerous and diverse evidence of more than 10,000 years of human history. The physical properties of gypsum create time capsules when heated, preserving dateable charcoal, plant, and animal remains, and other cultural material, which leads to the production of unique archeological sites called gypsum hearth mounds not known to occur anywhere else on earth.
- The monument contains a mega-track site with the largest and highest density of Cenozoic-era fossilized-gypsum footprints in North America. These highly ephemeral tracks are found in sediments of ancient Lake Otero and range in age from 20,000 to 40,000 years BP (before present). The trackways, found in gypsum sand and lake sediments, are revealed in an unpredictable manner by wind and rain.
- White and stark, the awe-inspiring gypsum dunefield offers distinctive opportunities to hike barefoot on cool, moist sands, sand sled year-round, and experience solitude broken only by wind and occasional military-related sound events. This unique setting inspires learning, appreciation, and stewardship.

Fundamental resources and values are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to merit primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance.

- **A Desert Island: 275 Square Miles of Gypsum Dunes.** White Sands National Monument preserves almost half (40%) of the world's largest gypsum dunefield, which is 275 square miles in total size.
- **Water in an Arid Landscape: A Wet Desert.** The gypsum dunefield is intricately tied to and sustained by surface and groundwater hydrologic processes throughout the Tularosa Basin. Although precipitation and surface water contribute to the hydrology of the area, water from the regional groundwater is the main contributor to dune stability.



- **Footprints from the Past: Paleontological Resources.** White Sands National Monument preserves the largest and densest concentration of ephemeral gypsum fossil tracks in the Americas and possibly the world.
 - **It's More than a Sandbox: Visitor Experience and Opportunities.** The rolling white dunes provide visitors with an expansive and unencumbered outdoor recreation experience.
 - **On the Edge of Discovery and Learning: Research, Education, and Partnerships.** White Sands National Monument serves as a living laboratory for cutting-edge research. Local, regional, and international partnerships provide resource-based learning opportunities found only in the world's largest gypsum dunefield.
 - **Traces of the Past: Prehistoric and Historic Sites.** White Sands National Monument is home to over 10,000 years of human history.
 - **Solitude, Silence, and Beauty: Expansive Views and Endless Skies Soundscapes and Viewscapes.** The vast, undeveloped landscape allows for extraordinary views of the white sand dunefields, natural quiet, and solitude supporting a high quality visitor experience.
 - **An Island in the Desert: Biological Richness and Diversity.** The convergence of geologic, hydrologic, and geographic forces and the interdependence of these influences create an extraordinary environment that supports wetlands, playa lakes, gypsum dunes, and extensive remnants of Chihuahuan Desert grasslands.
- White Sands National Monument contains other resources and values that may not be fundamental to the purpose and significance of the park, but are important to consider in management and planning decisions. These are referred to as other important resources and values.
- **Cogs in the Wheel: Cross Boundary Management.** The monument collaborates with White Sands Missile Range, Holloman Air Force Base, Department of Interior lands, and private landowners to support a variety of monument and agency missions.

Description

White Sands National Monument was established on January 18, 1933 under the presidential proclamation of President Herbert Hoover “for the preservation of the white sands and additional features of scenic, scientific, and educational interest . . .” Situated about 15 miles southwest of Alamogordo, New Mexico, at the northern end of the Chihuahuan Desert in the Tularosa Basin, the monument protects a major portion (about 115 square miles) of the world’s largest gypsum dunefield. Among the most prominent features of the park are the brilliant white dunes that rise up to 60 feet in some places and move as much as 30 feet per year.

What may appear to many as a virtual wasteland, actually supports a diverse ecosystem that is uniquely adapted to the gypsum dune landscape. Described as part of a “wet eolian system,” the White Sands dunefield is influenced by eolian (wind-related) processes and surface and groundwater hydrology. The two principal features in White Sands National Monument—the gypsum dunes and playas—typify these processes, attesting to past and present eolian and pluvial (precipitation-related) activities and groundwater discharge.

Alkali Flat covers the northwest portion of the monument and extends southward to Lake Lucero, a playa lake in the southeast corner of the monument. Here, dazzling displays of selenite crystals, which serve as the source of the gypsum dunes, extend across the alkaline mudflats of the lakeshore, creating a geologic showcase found nowhere else in the national park system. Uniquely adapted “white-colored” species can also be found throughout the monument, and include an animal from every class of vertebrate, except birds, in North America.

White Sands National Monument is “more than a sandbox.” Extraordinary cutting edge scientific research is occurring at the monument in the fields of geology, archeology, paleontology, and biology. Scattered throughout the backcountry are thousands of archeological sites, including unique archeological sites called gypsum hearth mounds that are found nowhere else in North America.

About 12,000 to 24,000 years ago, the monument’s playa lakes were part of a much larger lake known as Lake Otero, which sustained a wide array of Pleistocene or Ice Age species. Today, ice age footprints can be found along the much broader shoreline of the Lake Otero, including fossil track sites of Pleistocene mammals such as the mammoth, dire wolf, ancient camels, the sloth, and American lion, as well as a variety of other plant and animal life from the era. A mega-track site is the most significant paleontological discovery at the monument to date, and represents one of the largest concentrations of Cenozoic fossil tracks within the United States.

Around 500,000 people visit White Sands National Monument annually and enjoy a variety of recreational experiences. Benefiting area communities, visitors in 2014 spent \$25.5 million; supporting 386 jobs with a cumulative benefit to the local economy of more than \$29 million.

