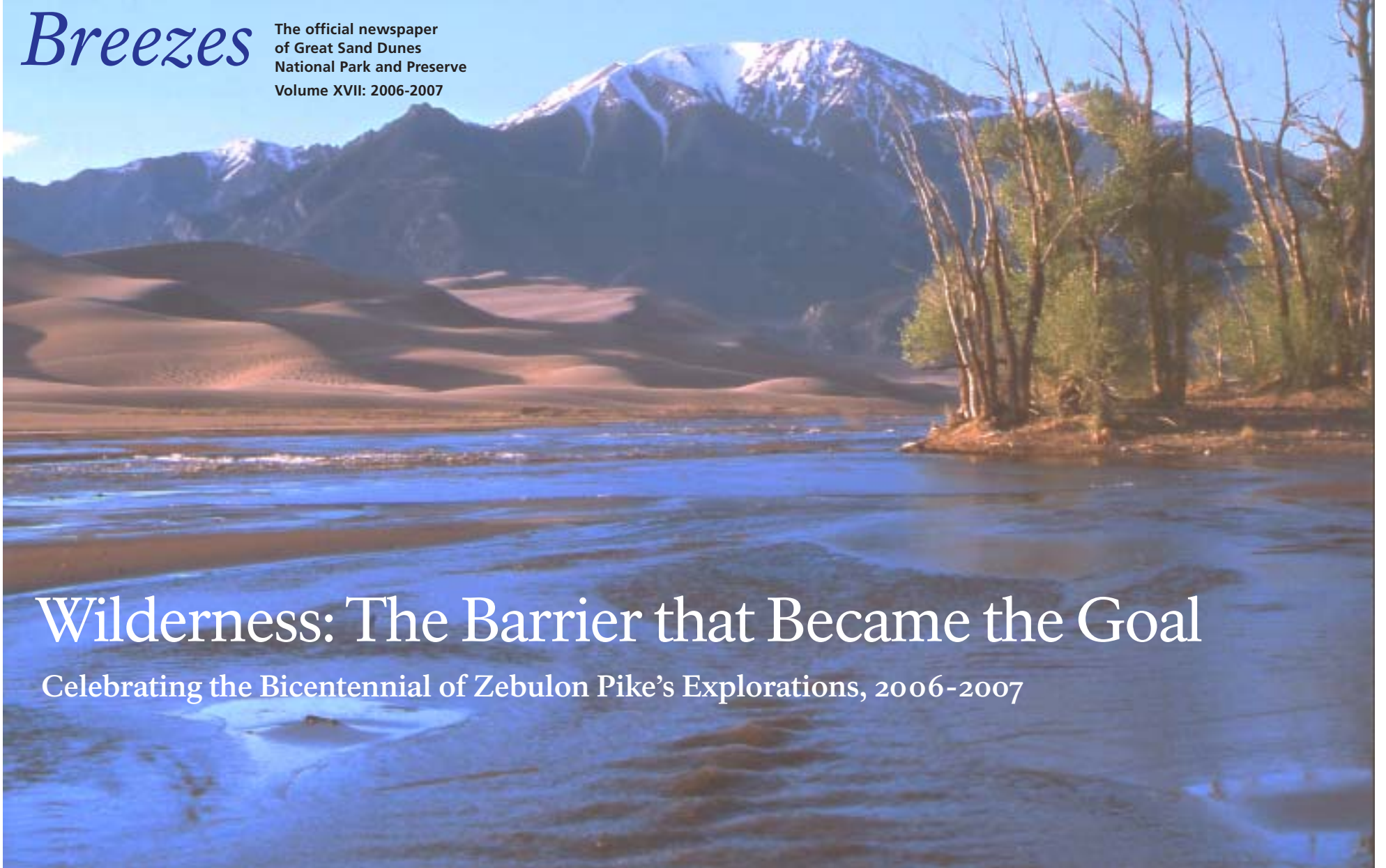




Breezes

The official newspaper
of Great Sand Dunes
National Park and Preserve
Volume XVII: 2006-2007



Wilderness: The Barrier that Became the Goal

Celebrating the Bicentennial of Zebulon Pike's Explorations, 2006-2007

by Fred Bunch, Resource Management Specialist

TWO HUNDRED YEARS AGO, ZEBULON PIKE AND HIS MEN, whom he fondly referred to as his “damn’d set of rascals,” were under orders from General Wilkinson to explore the southern boundaries of the Louisiana Purchase, especially the headwaters of the Arkansas and Red Rivers. Having spent the prior 6 months walking through the wilderness that then existed between St. Louis, Missouri, and the Great Sand Dunes, what must they have thought on a cold day in January when they first caught sight of these gigantic piles of sand?

Pike plays a key role in Great Sand Dunes history as well as the nation’s history. He left the first known written description of the dunes when he crossed over the Sangre de Cristo Mountains (most likely over Medano Pass) on January 28th, 1807. He wrote in his journal: “their appearance was exactly that of the sea in a storm, except as to color, not the least sign of vegetation existing thereon.” Not surprisingly, Pike seemed more bothered by his predicaments than by the presence of sand dunes in a high mountain valley. He and his men were uncertain of their location. Lack of winter uniforms combined with cold weather had taken a toll on the men, forcing Pike to leave
(continued on page 2)



Courtesy Independence National Historical Park

Zebulon Pike, the first to document the Great Sand Dunes, climbed the wilderness barriers of the rugged Sangre de Cristo Mountains and the dunes. What was an obstacle for this explorer is now a protected wilderness for all to enjoy.

Superintendent's Welcome

Welcome to an unusual combination of federally designated wildernesses: the Great Sand Dunes Wilderness and the Sangre de Cristo Wilderness.



Steve Chaney
Superintendent

Here you may experience the quiet beauty of a walk on the dunes, a joyful tumble down a sandy slope, the wonder of a globally rare pulsating stream, or the lush beauty of pristine mountains. The designated Wilderness within the park and preserve is part of the National Wilderness Preservation System, established in 1964 with the passage of the Wilderness Act. The Wilderness Act says “...in contrast with those areas where man and his own works dominate the landscape, [wilderness] is hereby recognized as an area where the earth and its community of life are untrammelled by man...retaining its primeval character.” At Great Sand Dunes National Park and Preserve, you have the opportunity to visit diverse ecosystems protected as designated wilderness - much the same today as when Zebulon Pike first explored here. Today you can also explore and enjoy the same natural quiet, dramatic beauty, and starry night skies. I hope you enjoy your visit to the Great Sand Dunes, and thank you for allowing us to help care for your national parks.

2 -4 Getting Started *¡Bienvenidos!*

All the information you’ll need to prepare for a safe visit, and to know what is available in your national park and preserve. Park facilities, camping information, ranger programs, and contact information for local services.
Información en español, pagina 2.

6-9 Hiking Opportunities

Trails and routes in the dunes, forests, and alpine areas of the park and preserve. Color map, trail and route descriptions, and a chart with distances for each trail is included. Hiking destinations nearby, but outside the park, are on page 9.

10 Science Behind the Scenery

Great Sand Dunes is a hotspot for cutting-edge scientific and historic research. Find more on Pike history, and information about research you may see going on during your stay in the park.

Zebulon Pike and Wilderness (continued from cover)

behind three soldiers with badly frostbitten feet, as well as all of the expedition's horses.

Tenacious and undeniably tough, Pike and men reached the southern San Luis Valley a few days later. Near the Rio Grande River, which Pike thought was the Red River, he built a log stockade. He sent a rescue party back to retrieve the remainder of his soldiers, evidently planning to regroup at the stockade and allow his men to rest before continuing in spring.

However, Spanish troops from Santa Fe soon arrived at the stockade and informed Pike that he was trespassing on Spanish soil. How would this news have affected men who had suffered through what they apparently believed was mostly wild country?



Pike's winter view of the dunes from the Medano Pass area

Pike ordered the American flag lowered and accepted a Spanish escort to Chihuahua, Mexico. He was released in July, 1807, and returned to Louisiana. Pike published a report in 1810 that described the areas he explored, which became a great resource for future travelers to the western wilderness.

MY how times have changed! When Pike walked here he didn't know where he was, he was

poorly equipped, and it was all he could do to keep his troops fed. The wilderness was something that had to be "reckon'd" with—a barrier to travel and an obstacle to trade, farming, and civilization.

Today, we travel with GPS units in our cars, we plan our trips with the help of *MapQuest*, and few of us are left behind by our traveling companions because our feet hurt. Pike's barrier—

wilderness—has become a national treasure that we protect through legislation and public support. The Great Sand Dunes Wilderness and the Sangre de Cristo Wilderness provide great opportunities for solitude and adventure—as well as the chance to look at this remarkable landscape through the eyes of someone else in some other time. While we usually associate protected wilderness areas with plants, animals, physical challenge, and gorgeous scenery, they also hold timeless human stories of courage, exploration, disappointment, surprise, commitment, fear—and more. Wilderness areas like these allow us to 'travel' in time and experience, as well as through this place, letting us look back 200 years into Pike's era, and into our children's future—how far forward?

For a Safe Visit

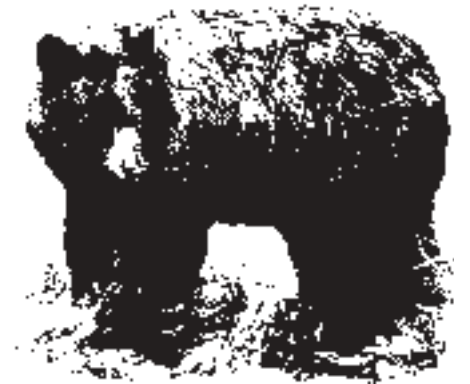
The temperature of the sand can reach 140°F (60° C). We suggest wearing closed shoes (tennis shoes or hiking boots) and drinking plenty of water when hiking on the dunes. Be careful with your pets, as the hot sand can easily burn their feet. Hike the dunes in early morning or evening for cool sand temperatures.

The weather changes rapidly at Great Sand Dunes; be prepared for a variety of weather conditions. High winds and cold temperatures can occur any time of year. If you see a thunderstorm approaching, get off the dunes immediately. Lightning can kill!

Wild animals: Never feed wild animals. It is unhealthy for them, and dangerous to you. Please help keep wildlife wild, and drive slowly on park roads to prevent accidents with crossing animals. Bears and mountain lions may be encountered, especially on summer nights. Pick up the "Wild Ways" handout at the Visitor Center to learn more about these animals. While there are no poisonous snakes or scorpions in this high elevation park, there are rattlesnakes at lower elevations elsewhere in the San Luis Valley.

Drink water: At 8,200 feet (2,499 m) above sea level, altitude sickness can be a problem, especially if you're accustomed to lower elevations. Symptoms include shortness of breath, headaches, and nausea. Take it slow, rest often, drink plenty of water, and avoid alcoholic beverages. Seek medical attention if your symptoms are severe.

In case of emergency, contact a ranger or call 911. Phones are located at the Visitor Center, Dunes parking lot, and at the campground registration kiosk.



Black Bear
Oso Negro

¡Bienvenidos!

¡Bienvenidos al Parque Nacional de las Grandes Dunas! Mientras que usted esté visitando, esperamos que aproveche la oportunidad de explorar algunas de las características únicas del parque. Desde las dunas más altas de Norteamérica hasta algunos de los picos más altos de los Rocky Mountains, este rico ecosistema sorprende continuamente a los visitantes con la estupenda diversidad de vida y paisaje.

Cosas populares para hacer:

¡Suba a las dunas! El paseo desde el Centro de Visitantes a la cima de la duna más alta toma como 2 horas para dar la vuelta. La elevación y la arena lo hace algo dificultoso, pero ¡vale la pena! Esté preparado para la temperatura alta de la arena, y lleve protección para el sol y agua para tomar.

¡Disfrutar el Arroyo del Medano! En primavera y verano, el arroyo corre por la base de las dunas. Los niños de todas las edades gozan en chapalear, jugar, o aunque sea nada más que remojar en el arroyo.

¡Compartir una comida en el campo! El área de comer que esta cerca del Centro de Visitantes tiene mesas, parrillas y baños sanitarios cerca. Se permiten fuegos de carbón en las parrillas; por favor extíngalos totalmente antes de irse. Y por favor: no haga fuego con leña ni alimente a los animales.

Para Seguridad a Las Grandes Dunas de Arena

En el verano, las temperaturas en la superficie de la arena pueden alcanzar hasta los ¡140 grados F (60 grados de C)! Use calcetines y zapatos en vez de sandalias para proteger sus pies contra quemaduras severas. También, recuerde traer protección para el sol, bastante agua, un sombrero, y alimentación adicional.

El Centro de Visitantes está a 8200' (2.470 m) de altura sobre el nivel del mar. Usted puede sentir la respiración entrecortada, o sentirse mareado. Vaya despacio, descanse a menudo, y tome bastante agua.

Se permiten las mascotas en las dunas pero deben siempre mantenerse con correas. Camine temprano en la mañana o bien de tarde para proteger los pies de la arena caliente.

Los basureros de basura están situados en el estacionamiento, en las áreas de la comida y de acampar. Nunca deje el alimento donde un oso u otro animal podría encontrarlo. Manténgase alejado de los animales salvajes: alimentar a los animales salvajes es malsano para ellos y peligroso para usted. ¡Usted está en el territorio del oso! No deje alimentos o los refrigeradores desatendidos en ningún momento. Cuando usted no está comiendo, almacene todo el alimento y bebidas en su vehículo con todas las ventanas cerradas.

Esté preparado para el clima fresco, también en el verano.

Esperamos que usted disfrute de su visita a las Grandes Dunas de Arena. Pida más información en español en el Centro de Visitantes.



Facilities

The Visitor Center is open daily from 9:00 a.m. to 6:00 p.m. from Memorial Day to Labor Day. Hours vary the rest of the year; please call for times. Rangers are available to answer questions and provide assistance. The Visitor Center offers an inspiring new Great Sand Dunes film presentation, exhibits, bookstore, first aid room, and back porch with viewing scope.

Interpretive Programs

Nature walks, short talks, and evening programs are offered most days during the summer months, and many days in spring



and fall. Free programs for groups may also be reserved in advance by calling 719-378-6344. Topics include geology, plants, wildlife, and history. For additional information and a schedule of activities, stop at the Visitor Center or see the weekly schedule of events posted at the campground bulletin boards and the Dunes parking lot.

Accessibility

Accessible restrooms are located at the Visitor Center, Dunes parking lot, and the



campground. The Visitor Center, the amphitheater, and ranger programs held at these locations are accessible. A wheelchair designed for the sand

can be borrowed; inquire at the Visitor Center. Two accessible campsites are located in the campground. For a backcountry experience, Sawmill Canyon Backcountry Site offers a graded trail to a tent pad and accessible privy. Contact the Visitor Center for more information.

Road Repairs in 2006

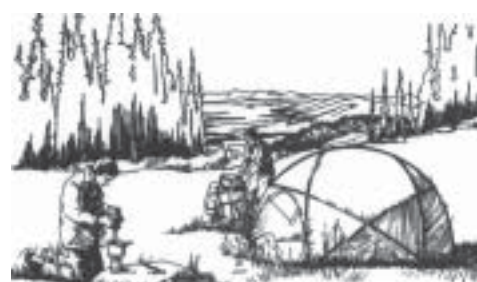
The main park road and parking areas will be upgraded and repaved in summer 2006. We apologize for the inconvenience this may cause. Please drive carefully and follow directions from traffic control staff.

Weather

Weather is typically sunny, but temperatures are relatively cool all year at this altitude of 8,200 feet (2,499 m). Summer highs average in the 80s F (27°C), with lows in the 40s F (4°C). High winds can develop anytime, creating cold wind chill factors. In winter, sub-zero temperatures are possible. Bring warm, layered clothing any time of the year.

Camping

Great Sand Dunes offers developed car camping, 4WD backcountry camping, and backpacking. The frontcountry



car campground, Pinyon Flats, contains 88 sites with picnic tables and fire grates. There are

no hook-ups; restrooms include flush toilets and running water. These sites cost \$14.00 per night for a maximum of six people and are first-come, first-served. Campsites vary in size; some sites may not be able to accommodate larger RVs. Three sites for groups of 12 or more may be reserved by calling the Visitor Center at 719-378-6399. Group sites cost \$3.00 per person per night.

The amphitheater parking lot near the entrance to the campground contains a trash dumpster and air compressor.

Firewood gathering is not permitted; firewood is sold at the Visitor Center or at the Oasis store. Please pitch tents within rock walls or on tent pads. Quiet hours are from 10:00 p.m. to 6:00 a.m.; generators may be run from 7:00 a.m. to 6:00 p.m.

Backpacking requires a free permit from the rangers at the Visitor Center. You may camp on the dunes or in one of six designated sites along the Sand Ramp Trail. One-way hikes range from 1.4 to 11 miles (2.3 to 17.7 km). No open fires are permitted in the backcountry; use stoves instead. Group size is limited to six.

Car camping in the backcountry requires a high-clearance 4WD vehicle. You may camp in first-come, first-served sites along the Medano Pass Primitive Road in Great Sand Dunes National Preserve. This requires a minimum 5 mile drive down a soft sand road. For additional guidelines and seasonal closures for this area, check with a ranger.

Bears may frequent the campground. Please always store all items that have any smell in the bear-proof containers at each site.

Pets

Leashed pets are welcome anywhere outdoors in the park and preserve. They must remain leashed and under control at all times. Do not leave your pet in the car unattended; on a sunny summer day, temperatures inside a vehicle can reach 102°F (39°C) in 10 minutes, even if the windows are cracked. If you take your pet hiking on the dunes, try to limit your time on the dunes to very early morning or early evening when the surface of the sand is cooler. Please clean up after your pets!



Restrooms

Restrooms are located at the Visitor Center, Dunes parking lot, picnic area, and campground.

Telephones

Public telephones are located at the Visitor Center, Dunes parking lot, and the campground registration kiosk.

Horse Use

Horseback riding is permitted in most parts of Great Sand Dunes



National Park and Preserve. Please obtain a free "Horse Use Guidelines" handout from the Visitor Center.

Local Services

The facilities and services listed, unless otherwise noted, are located within 10 miles of Great Sand Dunes National Park and Preserve. The towns of Mosca, Hooper, Blanca, Fort Garland, and Alamosa offer additional facilities and services, including gas stations, restaurants, lodging, and campgrounds, but not all facilities are available in each town. Alamosa, 34 miles southwest of the park, is the largest community and offers the greatest number of services.

Emergencies

Call 911

National Park Service

General information (recorded, 24 hours) 719-378-6300
 Visitor Center 719-378-6399

Western National Parks Association

Visitor Center Bookstore 719-378-6399
 web: www.nps.gov/grsa, then click "bookstore" link

Lodging

Great Sand Dunes Lodge (April-October) 719-378-2900
 web: www.gsdlodge.com

Campgrounds

Pinyon Flats (within park) 719-378-6399
 Great Sand Dunes Oasis (seasonal) 719-378-2222
 San Luis Lakes State Park (seasonal) 719-378-2020

Convenience Stores/Gasoline

Great Sand Dunes Oasis (April-October) 719-378-2222

Medical Facilities (in Alamosa)

24-hour Emergency Care
 San Luis Valley Regional Medical Center 719-589-2511
 By Appointment (Monday-Friday)
 San Luis Valley Physicians' Services Clinic 719-589-2511
 Alamosa Family Medical Clinic 719-589-3658

Friends of the Dunes

Membership and activity information 719-378-6381
 web: www.greatsanddunes.org

Oasis Restaurant (at park entrance May -Sept.) 719-378-2222

Recreational Opportunities

Alamosa-Monte Vista Wildlife Refuges (USFWS) 719-589-4021
 Zapata Falls Recreation Area (BLM) 719-274-8971
 Rio Grande National Forest (USFS) 719-852-5941
 Oasis Jeep Tours (summer only) 719-378-2222

Hot Springs (within 40 miles)

Sand Dunes Swimming Pool (Hooper) 719-378-2807
 Splashland Hot Springs (Alamosa, summer only) 719-589-6307
 Inquire at Visitor Center for additional hot springs locations

Friends of the Dunes

Membership and activity information 719-378-6381
 web: www.greatsanddunes.org

For More Information

Great Sand Dunes National Park and Preserve
 11999 Hwy 150
 Mosca, CO 81146
 web: www.nps.gov/grsa email: grsa_interpretation@nps.gov

Alamosa Chamber of Commerce 719-589-3681
 Cole Park
 Alamosa, CO 81101
 web: www.alamosachamber.com

Alamosa Visitors Center 800-BLU-SKYS
 web: www.alamosa.org
 email: bluskys@alamosa.org

San Luis Valley Information Center 719-852-0660
 947 1st Avenue
 Monte Vista, CO 81144
 web: www.sanluisvalleyinfo.com

Thanks to Our Partners



WNPA is a non-profit organization designed to further educational work in the national parks. Net proceeds from bookstore sales are returned to the National Park Service for education and publications, including annual funding of this newspaper. web: www.wnps.org



Friends of the Dunes, Inc. is a nonprofit citizens support group for Great Sand Dunes National Park and Preserve. The Friends provide a forum for citizen involvement in planning, focus public interest on issues, and provide volunteer and financial assistance to the dunes. Special projects and events include funding part of the new Visitor Center film, sponsoring an annual bird count, and financial support for the current parkwide archeological survey.

For more information, or to become a Friend, call 719-378-6381, or complete the form available at the Visitor Center.
 web: www.greatsanddunes.org



The Nature Conservancy is an international, non-profit organization that preserves plants, animals, and natural communities representing the diversity of life on Earth by protecting the lands and waters they need to survive. In 1999, the Conservancy purchased the spectacular Medano-Zapata Ranch, a 103,000-acre property now partly within Great Sand Dunes National Park. The acquisition of this preserve assures the long-term protection of this special landscape which harbors more than 200 species of birds, a large herd of bison, and a number of rare plant and animal species.



The Colorado Division of Wildlife assists the National Park Service in managing the region's diverse and abundant wildlife resources.



The mission of the Colorado Field Institute is to provide in-depth outdoor learning and research opportunities for educators, students, residents and visitors that will expand stewardship of the natural and cultural resources of the San Luis Valley.



The US Forest Service works with the National Park Service in managing the Sangre de Cristo Wilderness Area.



The US Fish and Wildlife Service manages three wildlife refuges in the San Luis Valley.



Colorado State Parks manages San Luis Lakes State Park and Wildlife Area adjacent to the national park.

Fun Facts: What Is This I Found?

Please remember that all things in national parks are protected by federal law. Enjoy each thing you find, then leave it for others to also enjoy and study.

What is this green rock?



Visitors often find rocks with an unusual greenish mineral on them, seen as a green vein in the rock, or a flat green surface. This mineral is *epidote*, formed as the Sangre de Cristo Mountains were uplifting. As rocks cracked during uplift, hot water from deep in the earth carried natural minerals into the cracks. Epidote, made of calcium aluminum silicate, was one of the minerals formed in these cracks.

What is this rough glassy tube?



Fulgurites are formed when lightning strikes the dunes, melting sand at around 50,000 degrees F. Most fulgurites are somewhat fragile, since they are glass. Ask at the Visitor Center desk to see and touch a fulgurite.

What Can Kids Do Here?



Become a Junior Ranger!

Pick up a Junior Ranger booklet at the Visitor Center for 50 cents, then do the activities and sections for your age group. When you finish, return the book to receive your official Great Sand Dunes Junior Ranger badge! Earn and collect junior ranger badges at most National Park Service sites.



Play in the Sand!

The dunes are made for you! They are fun to play in, and don't have any dangerous animals in them. You can build a sand castle, roll or slide down a dune, splash in the creek water, look at bugs, or try to climb to the top.

Go to a Ranger Program!

Most ranger programs are kid-friendly, and include hands-on learning. Check at the Visitor Center to find out which programs are best for kids. Most days in summer there is also a kids program especially for children ages 5-12.

Your Fees at Work

At Great Sand Dunes National Park and Preserve, your fees directly benefit you. This year's work includes:

- Partial funding for a multi-partner study on the effects of bison and elk in the park and surroundings.
- Planning is underway to clarify traffic flow and pedestrian walkways at the Dunes parking lot. In 2006, improved signage will be installed.
- New roadside interpretive exhibits along the Medano Pass Primitive Road.
- Stucco repairs on the trash dumpster wall, the park entrance sign, and the picnic area restroom building.
- Native seed production for revegetation projects around the developed areas
- Trail-work park-wide, including erosion control.



Entrance fees help fund projects such as the three-year study of elk and bison in the park. See page 11 for more information.

VIPs

The term VIP has a very special meaning to the National Park Service. Not only does it stand for Very Important Person, it also represents Volunteers in Parks. Volunteers serve in all units of the NPS, staffing visitor centers, hosting campgrounds, giving interpretive programs, rehabilitating trails, collecting research—basically doing anything and everything for little reimbursement other than the chance to live and work in a

beautiful place.

At Great Sand Dunes, volunteers work with nearly every division, and become an integral part of the park staff.

To learn more about the VIP program at Great Sand Dunes, contact Volunteer Coordinator



Libbie Landreth at 719-378-6342, or email libbie_landreth@nps.gov. Web: www.nps.gov/volunteer. Students may also visit the Student Conservation Association website, www.thesca.org.

Thanks to all the volunteers who contribute tirelessly and with great commitment to our National Parks—you make the parks a better place for all!

Great Sand Dunes Breezes Volume XVII: 2006-2007

Text Editors

Carol Sperling
Libbie Landreth
Patrick Myers

Photography

NPS Staff

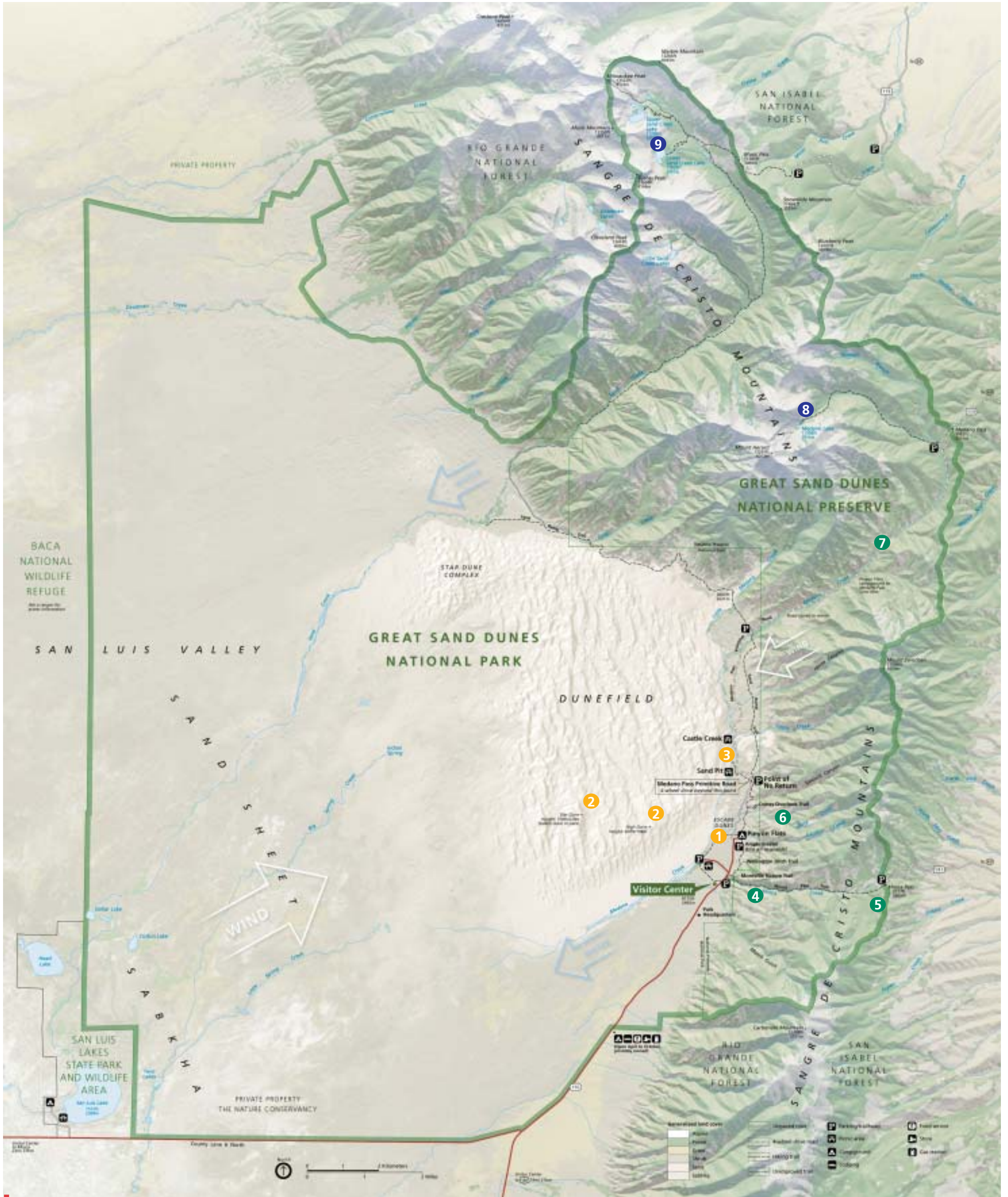
Layout and Graphics

Patrick Myers

Email

grsa_interpretation@nps.gov

Hiking Opportunities



This map is also available separately as the official park map and guide, distributed at the Entrance Station or Visitor Center. Detailed topographic maps from the USGS are available for purchase at the Visitor Center.

From desert sands to alpine tundra, explore an unusual combination of landscapes all found at this special place. Below are a few suggested treks.

Check with a ranger for advanced climbing routes and other off-trail hikes in the mountains and grasslands. See also the detailed hiking chart on the following page.

Dunes Exploration

Explore any part of the 30 square mile dunefield you wish; there are no designated trails in the sand. A dunes-accessible wheelchair is available for free loan at the Visitor Center. In summer months, plan to hike the dunes in morning or evening to avoid hot sand.

1 Medano Creek When there's water in Medano Creek at the base of the dunes, adults and kids alike love to splash in the stream. Watch for waves in the water, a phenomenon called 'surge flow.'

2 The tallest dunes The High Dune is neither the highest in elevation nor the tallest, but it looks that way from the main parking lot. It is about 650 feet (198 m) high. Cross the flats and zigzag up the ridgelines to reach it. The 360 degree view is inspirational. From High Dune, the skyrising dune you see to the west is the spectacular Star Dune, rising 750 feet (229 m). It is the tallest dune in North America. To reach it from High Dune, journey another mile and a half up and down across the dunes to its summit.

3 Eastern dune ridge By high clearance 4WD vehicle, drive to Sand Pit or Castle Creek Picnic Areas. Or, with 2WD vehicle, drive to Point of No Return, then hike 1/2 mile (1K) to Sand Pit. Castle Creek offers an impressively tall, steep dune face. Both areas have close access to Medano Creek.

Grasslands/Wetlands

Ask at the Visitor Center for a free information sheet on accessing the grasslands and wetlands of the park area.

Forest Trails

4 Montville Nature Trail Keep this hike as an option for afternoon as an escape from the heat of the dunes. Walk along a shady mountain trail named for a late 1800s settlement, comprising 20 houses in its heyday. Rest near the trail's highpoint, where you'll find outstanding views of Mt. Herard, the dunes and the valley.

5 Mosca Pass Trail This trail follows a small creek to the summit of a low pass in the Sangre de Cristo mountains, winding through aspen and evergreen forests. Allow 2-3 hours to reach the pass; the trail is 3 1/2 miles (5.7 km) one-way. Indians and early settlers used this route for travel into the valley.

6 Dunes Overlook/Sand Ramp Trail For a view of the dunes from the foothills, begin hiking the Sand Ramp Trail in Loop 2 of the campground. Scenery abounds in all directions. Although only 2 miles (1.2km) round trip to the overlook, this trek can be extended, as the Sand Ramp trail continues for 11 miles total around the eastern and northern perimeter of the dunes.

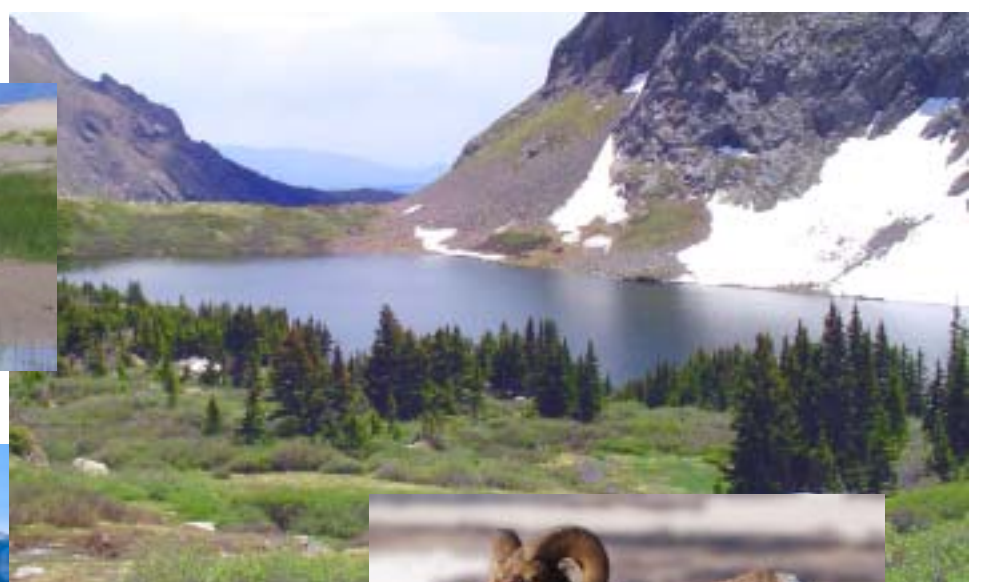
7 Medano Pass 4WD Road Driving this road requires high clearance 4-wheel drive (not recommended for small sport utility vehicles). A scenic drive any time of the year, it is especially spectacular in fall. Creek crossings can be hazardous in spring and the road is closed when winter conditions create hazards. For those without a 4WD vehicle, consider taking the Oasis 4-wheel drive tour, offered May through October at the Oasis store near the park boundary.

Alpine Trails

8 Medano Lake/Mount Herard Access this trailhead from the Medano Pass 4WD road. Beginning at 10,000' elevation, the trail climbs 2000' through lush meadows and forests, ending at an alpine lake just above timberline. For advanced hikers, continue on to the summit of 13,297' Mount Herard for a spectacular aerial view of the dunes.

9 Music Pass/Sand Creek Lakes/other alpine peaks The alpine scenery here is stunning, but requires a long drive and/or a long hike. Check with a ranger for conditions before travel. The eastern trailhead for Music Pass is accessed from Highway 69, 4.5 miles south of Westcliffe. Turn off Highway 69 to the west at the sign for Music Pass and South Colony Lakes Trailhead. At the "T" junction, turn left onto South Colony Road. At the end of the ranch fence on the right, you'll see another sign for Music Pass. 2WD drivers should park where the Rainbow Trail crosses Music Pass Road. From here, walk 3.5 miles to the pass. 4WD drivers may drive another 2.5 rough miles to the end of the road. From here, it is just a steep one mile hike to the pass. Music Pass is at treeline, with a great view of the Upper Sand Creek basin. From the pass, hike farther to two alpine lakes, or to any one of the 13,000' peaks above the basin. "The Essential Guide to Great Sand Dunes National Park and Preserve" in the bookstore has climbing information for the peaks.

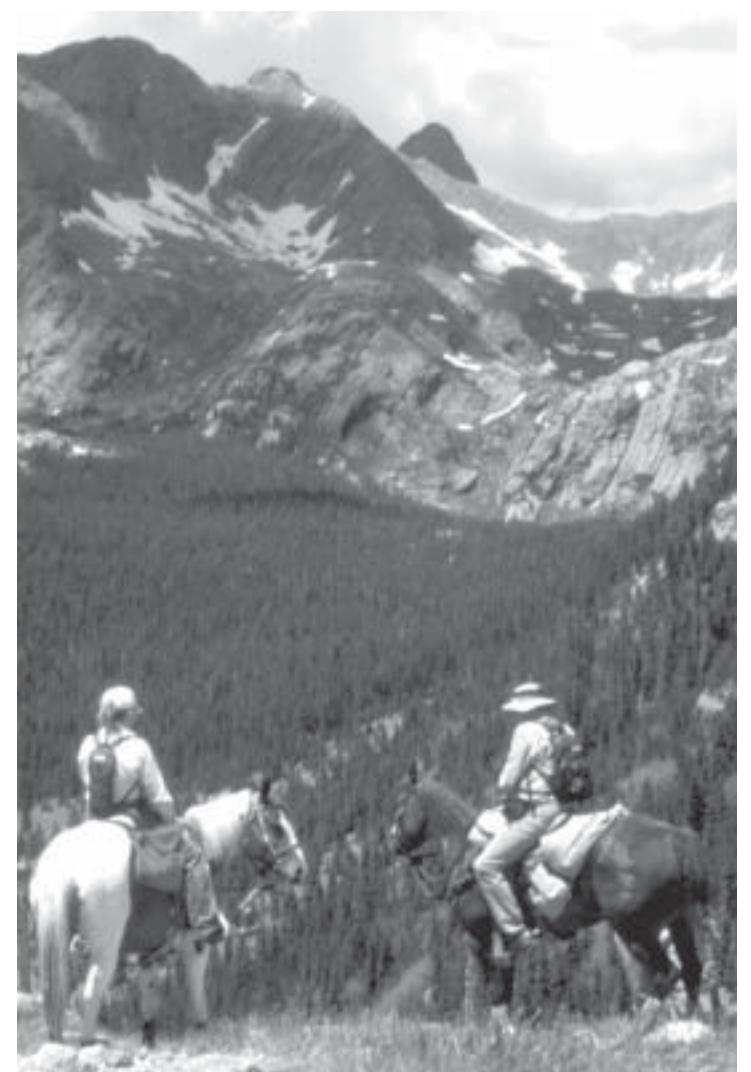
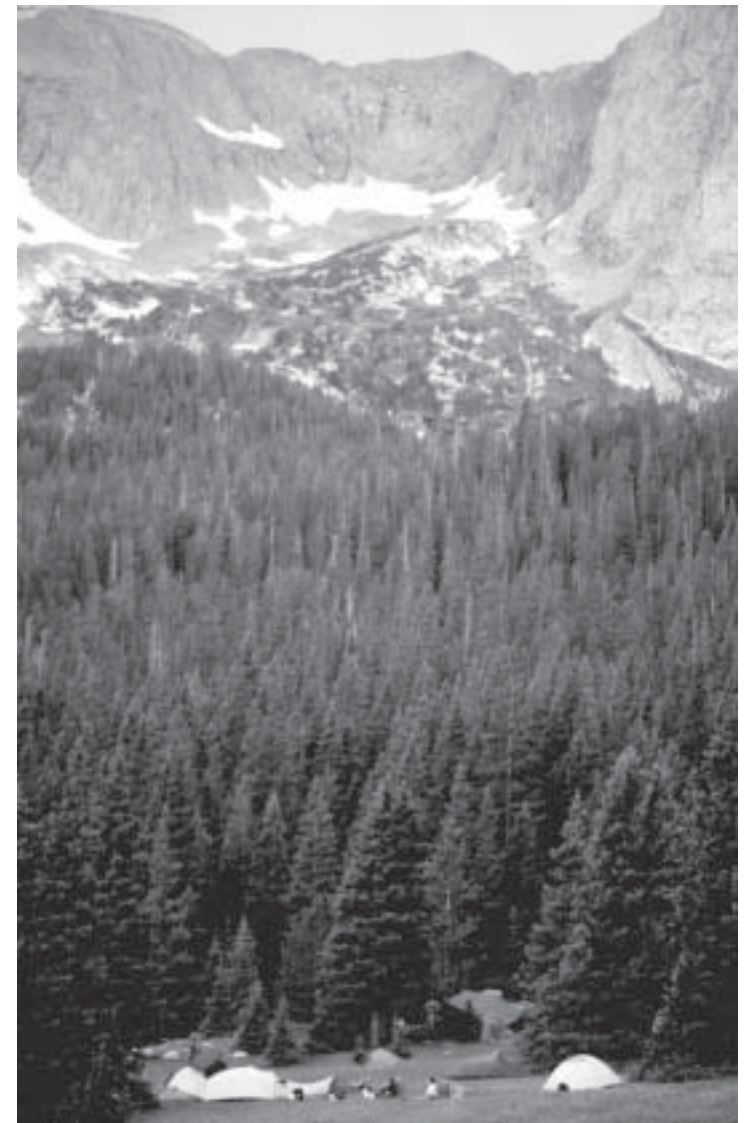
You may also access these lakes and peaks via the Sand Ramp Trail, connecting with the Sand Creek Trail from the west. Check with a ranger for details.



Great Sand Dunes National Park and Preserve has opportunities for experiencing a variety of landscapes, from grasslands to tundra.

Hiking Chart

Easy to Moderate Hikes			
Name	One-way Distance Miles (km)	Comments	Location of Trailhead
Medano Creek (or dry creekbed)	variable	Stroll up or down stream, relatively flat	Dunes Parking Lot
Sand Pit	.5 (.8)	Medano Creek usually found year-round here	Point of No Return
Montville Nature Trail	.5 (.8) loop	Trail guide may be purchased at Visitor Center	Top of hill just north of Visitor Center
Campground Trail	.5 (.8)	Trail from campground to dunes	Campground, near Site 32
Escape Dunes and Ghost Forest	.75 (1.2)	Follow Medano Creek upstream to low dunes.	Dunes Parking Lot
Medano Wetlands (seasonal)	1.3 (2)	Downstream to end of trees (ask ranger for locations and status)	Dunes Parking Lot
Castle Creek	2.5 (4)	Follow creek upstream	Dunes Parking Lot
Dunes Overlook	1 (1.6)	Views from foothills	Campground, near site 62
Wellington Ditch Trail	1 (1.6)	Relatively flat with views from foothills	Montville Parking Lot or Loop 3 of the campground
High Dune	1.15 (1.9)	Follow the ridgelines until you reach the top	Dunes Parking Lot
Mosca Pass	3.5 (5.6)	Forests, small stream	Montville Parking Lot
Sand Ramp Trail	variable, up to 11 (17.8)	Eastern and northern perimeter of dunes	Sand Ramp Trail near site 62 in campground
Star Dune	3.8 (6.1)	Hike down Medano Creekbed to its base, then ascend ridge	Dunes Parking Lot
Difficult Hikes - Check with rangers first!			
Medano Lake	3.5 (5.6)	1,900-foot (579 m) elevation gain	Medano Lake TH (high-clearance 4WD needed)
Music Pass	4-6 (6.4-9.7)	Beautiful high alpine environment	2WD parking on Music Pass Road (4WD required to go further)
Carbonate Peak	3 miles (4.8 km) south of Mosca Pass	Bushwhack along crest in heavy timber	Mosca Pass
Sand Creek Lakes	Lower - 3.0 (5.2) Upper - 3.5 (6.0)	Alpine lakes and majestic mountains	Music Pass 4WD TH
Mount Herard	5.2 (8.8)	Hike to 12,500' (3,810 m) saddle to west, then on to summit	Medano Lake TH - (high-clearance 4WD needed)



Top: Backpacking into Upper Sand Creek Basin in the national preserve offers a wilderness experience dramatically different from the park's frontcountry.

Middle: The Montville Nature Trail is an easy, 0.5 mile (1K) trail along a stream in the foothills of the Sangre de Cristo Mountains. Numbered stops are interpreted in a booklet available at the Visitor Center.

Bottom: Music Pass is a main access route to the high country of the preserve.

Other Nearby Destinations

(Hiking trails and routes for Great Sand Dunes National Park and Preserve are listed on pages 6-8.)



Zapata Falls This 30 foot (9 m) high waterfall cascades within a narrow semi-cavern about 10 miles south of the dunes. It is especially refreshing on a hot summer afternoon. Drive south on Highway 150 to the Zapata Falls Recreation Area sign, drive 3 miles up a gravel road, then hike 1/2 mile (0.8 km) to the creek. Wade upstream into the narrow cave to see the falls. Water is swift in early summer - use caution! *Bureau of Land Management (BLM), 719-589-5941.*



Fort Garland Located in the nearby town of Fort Garland, this fort with a scenic setting near Blanca Peak historically protected settlers. Many multi-cultural events take place through the summer months. *Colorado Historical Society, 719-379-3512.*



Colorado Gator Farm Located just north of the town of Mosca, this is a combination fish and alligator farm, popular with kids. *719-378-2612*



Blanca Wetlands These quiet wetlands see few visitors, but many birds. Inquire at the Visitor Center for directions and nesting closures. *Bureau of Land Management (BLM), 719-589-5941.*



South Zapata Lake is nestled at the base of 14,043' (4280 m) Ellingwood Peak. This is the most easily accessible alpine lake trailhead in the Great Sand Dunes area, but it is still a strenuous day hike. From Zapata Falls (at left), hike 4 miles (6.5 km) farther along a trail to the lake (2300' or 701 m elev. gain). Marmots and pikas are often seen here. Twin Peaks, 13,580' (4139 m) may be climbed by ascending the steep tundra west of the lake. *US Forest Service, Rio Grande National Forest, 719-589-5941.*



Willow Lake This is an especially spectacular hike in mid-summer, when wildflowers are abundant in wet years. An 80 foot (24 m) high waterfall graces a cliff above the lake. This area also serves as a base camp to climb Kit Carson Mountain, 14,165' (4318 m). Please use Leave No Trace guidelines, camping at least 300' from water. Access Willow Lake from the trailhead just beyond the town of Crestone. The hike is 4 miles (6.5 km) one way, 2760' (801 m) elev. gain. *Rio Grande National Forest, US Forest Service, 719-589-5941.*



San Luis Lakes State Park and Wildlife Area The large lake, and the lush wetlands in the wildlife area (closed during nesting), are especially good for birdwatching. *719-378-2020*



Blanca Peak As the fourth highest in Colorado, this is the most popular peak to climb near the Great Sand Dunes. However, it is a long hike: around 15 miles round trip, or a bit shorter if you have 4WD. The trail passes by four alpine lakes. Please use Leave No Trace guidelines. Ask at the Visitor Center for an information sheet on Blanca Peak access and hiking. *Rio Grande National Forest, US Forest Service, 719-589-5941.*



National Wildlife Refuges Alamosa NWR protects wetlands and cottonwood groves along the Rio Grande, 5 miles southeast of Alamosa. Monte Vista NWR, located 10 miles south of Monte Vista, is a complex of irrigated and agricultural wetlands, a haven for sandhill cranes during spring and fall migrations. Both refuges harbor a wide variety of birds. Look for official brown signs for both refuges along Highway 160. Baca NWR, adjacent to Great Sand Dunes NP, was designated in 2004 and is not yet open to the public. *US Fish and Wildlife Service, 719-589-4021.*



Pike's Stockade This is the location where Zebulon Pike and his men wintered after entering the San Luis Valley. Take US 285 south from Alamosa to La Jara. At La Jara, turn left (east) onto Colorado Road 136. Follow Colorado Road 136 to County Road 20. Turn left (north) onto County Road 20. Travel 2 miles to County Road Y. Turn right (east) onto County Road Y. Travel 4 miles to the entrance of Pike's Stockade. Turn right into the stockade grounds (over a cattle guard—which is actually County Road 24). Travel on County Road 24 for approximately 1 mile to the stockade.

Just as Zebulon Pike was the first to document the Great Sand Dunes, scientific and historic documentation today is critical in understanding and managing this complex national park and preserve. On these pages are some of the ways National Park Service scientists study and protect the Great Sand Dunes system and its flora, fauna, geologic resources, and historic resources.

Vital Signs Monitoring

by Fred Bunch, Resource Management Specialist

The Natural Resources Challenge is a recent effort in the National Park Service (NPS) to revitalize and expand the natural resource program within the NPS and improve park management through greater reliance on scientific knowledge. A need has been identified to conduct long term monitoring in order to determine the status and trends in the condition of park resources. One of the most fundamental parts of the Inventory and Monitoring Network is the development of and the implementation of monitoring for *Vital Signs*. This would accomplish three objectives:

- 1) assess management and protection efforts
- 2) provide early warning of impending threats
- 3) provide a basis for understanding and identifying meaningful change in natural systems characterized by complexity, variability, and surprises.

The intent is to track a subset of the physical, chemical, and biological elements and processes of park ecosystems. The vital signs selected represent long-term health or condition of

resources, known or hypothesized effects of stressors, and elements that have important human values. Ideally the vital signs have four qualities:

- 1) relevant to management
- 2) sensitive to ecological change
- 3) complements existing work
- 4) integrated with other programs.

A total of 12 vital signs have been identified: landscape composition and dynamics, weather and climate, wetlands, water chemistry, hydrology, invasive exotic plants, invasive aquatic species, wet and dry deposition, focal species, groundwater hydrology, vegetation composition and aquatic biota.

The focal species vital sign is especially important to the Great Sand Dunes due to the occurrence of endemic species of insects within the park. These species, found nowhere else in the world, may have few threats. Since the populations have a very limited range, however, an ecological risk would lead to extinction. It is essential that we as park managers monitor and document these key indicators of the overall “health” of the park and continue to build this legacy of valuable resource information.



Geologist Andrew Valdez regularly monitors stream flow throughout the park and preserve. This data is essential to understanding any changes in the Great Sand Dunes’ system which could impact the dunes themselves.



Phyllis Pineda Bovin, park biologist and curator, prepares specimens for preservation.

Preserving our Heritage Through Curation

by Phyllis Pineda Bovin, Biologist and Curator

Visitors to Great Sand Dunes may not realize that the park houses a museum collection, or more accurately, a curatorial collection. Currently, the collection at Great Sand Dunes holds more than 14,000 objects. The collection is a group of artifacts that are relevant to the park’s mission, mandates, history and themes. Objects contained in the collection are geological, biological, archaeological, and archival in nature.

In the most common sense, a museum is a large building with many objects on display for visitor education. However, collections at most National Park

Service (NPS) facilities are largely unseen, and few objects are publicly displayed. Due to the sensitive nature of many collection objects, access to park collections is supervised, and requests to access NPS collections are carefully evaluated, with each request given consideration to ethical, legal, scientific, preservation, and protection matters.

NPS Museum Management policy is also clear on the types of objects placed in collections. Care of artifacts is very detailed work, so NPS policies ensure that collections grow at a reasonable rate while guarding against acquisition of objects that are not clearly relevant to the park and its history.

Other Current Research at Great Sand Dunes

These projects are also part of current research at the park. Ask at the Visitor Center for more information.

- Geomorphology studies (surficial geology)
- Comprehensive vegetation mapping of entire park area
- Sand dating using Optically Stimulated Luminescence
- Seismographic monitoring
- Archeological surveys
- Amphibian survey
- Exotic plant survey and removal
- Continual GPS monitoring of Rio Grande Rift

Changed Outlook: Observations of a Bison Tracker

Follow one scientist's change from indifference to deeper understanding and even passionate concern for bison. Katie Hagaman tracks bison as part of a three-year study of elk and bison in the park's grasslands. This study will help park scientists better understand and manage populations of these animals in the absence of natural predators. There are approximately 1000 bison and a few thousand elk in the areas generally west of the dunes.

by Katie Hagaman, *Bison Tracker, Elk/Bison Study*

"What drab animals" was my first thought upon learning I was to track fourteen bison with radio telemetry over the next few years. As a year has passed and the data builds, I have found that bison managed by The Nature Conservancy within national park boundaries are anything but drab. It has become an adventure to wander out amongst the rabbitbrush and wild grassy meadows to find out what new secrets each herd will share. Tracking these magnificent animals has revealed things that the average individual may or may not expect: common birthing and dying locations and the behaviors that indicate those actions; unique movements that appear almost like clockwork in specific weather conditions; their grazing habits and preferential environments; and my personal favorite, the personalities of each bison within the herd of more than 1000.

Each day's expedition begins with a review of the weather, their previous movements, and even thinking like a bison in

order to understand their whereabouts. I have learned to never expect the same thing from week to week, as they educate and entertain me: whether it is an uncharted location, a new species of grass, or the enchanting interactions of the bison and other wildlife they live amongst. Ten hour days fly by while driving along bumpy two-track roads, hiking different terrains, and tracking up to fourteen different herds in which I record details of each group and their actions. To accompany all this, I am treated to the view of the birthing of calves and their shaky first steps in their first five minutes, or get to witness a pair of coyotes teasing yearlings and calves, encouraging them to join an innocent game of tag.

"Drab" is now the *last* word I would use to refer to bison after beginning to learn the intimate details of this herd and being accepted to meander through them. A few hours surrounded by a wild herd of these gentle, yet powerful and dangerous animals has the ability to change any individual's first impression.



Bison calves stand within their first five minutes of life.



Vegetation is monitored as part of the current elk/bison study. The presence of these animals may ecologically benefit other grassland species, including grasses, insects and amphibians.



National Park Service scientist Julie Mao uses radiotelemetry equipment to track the movements of selected animals for the current elk/bison study. Katie Hagaman (author of article) and Julie Mao each sometimes track animals for 10 hours at a time.

Pike's Explorations

A Chronology of Zebulon Pike and His Expedition by the Great Sand Dunes

1779 Zebulon Montgomery Pike is born in New Jersey.

1799 Joins the US Army at the age of 20.

July 15, 1806 At the age of 27, under military orders, Pike heads west from St. Louis, commanding an assortment of 20 enlisted men, a volunteer physician, and an interpreter.

November 1806 Clothed in summer gear, Pike unsuccessfully attempts a winter ascent of the mountain that would later bear his name. The group did manage to ascend nearby 11,499' Mt. Rosa.

December 1806 Surviving mostly on meat from buffalo (bison) that they captured along the way, Pike and his men explore the Upper Arkansas River, Royal Gorge, and Wet Mountain Valley.

January 28, 1807 With many of his men frostbitten, and wading through waist deep snow, Pike crosses the Sangre de Cristo Mountains and records his impressions of the Great Sand Dunes (see cover article for details). Pike camped at the base of the dunes, and ascended one of the tallest dunes the following day. The group then continued to the Rio Grande where they built a stockade.

February 26, 1807 Pike and his group are arrested and escorted by Spanish soldiers to Santa Fe and on to Chihuahua, Mexico.

June 30, 1807 Pike and most of his party are returned to Louisiana and released.

April 27, 1813 At age 34, Brigadier General Zebulon Pike is killed by shrapnel in the War of 1812. He leaves behind a wife and daughter.

For more on Pike, visit www.zebulonpike.org.



National Park Service
U.S. Department of the Interior

Great Sand Dunes
National Park and Preserve

11999 Highway 150
Mosca, Colorado 81146

www.nps.gov/grsa



The Great Sand Dunes and most of the Sangre de Cristo Range are designated as wilderness, where “the earth and its community of life are untrammelled by man.” (Wilderness Act, 1964)

EXPERIENCE YOUR AMERICA

K-12 Learning Opportunities

If you are a teacher or trip leader, consider scheduling an education program with Great Sand Dunes staff. Education programs are age-appropriate, correlated with Colorado Content Standards, and incorporate active learning in the park’s magnificent outdoor classroom. Hands-on field and classroom learning experiences can bring wildlife, plants, history, geology, and other subjects alive for learners of all styles.

- Reserve use of the Discovery Room at the Visitor Center



- Schedule a ranger to visit San Luis Valley classrooms or educational events
- Bring your group to the park for a ranger-led education program (reserve in advance)



New!

“Out of the Blue” is a new online curriculum for K-12 teachers and students:
www.nps.gov/grsa/resources/curriculum/intro.htm



- Online resources provide students who live far away with an engaging opportunity to learn about geology, hydrology, ecology, and cultural history.

“The entire website is very user friendly. With the range of activities you have it is easy to find an activity suitable for the learning style and ability of any student.”

- a 5th grade teacher

To learn more about educational opportunities at the Dunes or schedule a program, please contact Education Specialist Kathy Zelenka at 719-378-6344, or email grsa_interpretation@nps.gov