

# WIND CAVE NATIONAL PARK

South Dakota

# Wind Cave

## National Park

*Open All Year*

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Situated on the southeastern flank of South Dakota's Black Hills, Wind Cave National Park preserves, in relatively unspoiled condition, part of the original prairie grassland. Preserved here also is a distinctly different type of limestone cavern—a series of subterranean passages and rooms, some of which are lined with calcite crystal formations in various color shadings.

Bison roam over the park's 44 square miles of rolling wooded and plains country. American elk, pronghorn, and many other animals also live in this part of the Black Hills.

The strong currents of air that blow alternately in and out of the cave suggested the park's name. This strange phenomenon is believed to be caused by changes in atmospheric pressure. When outside pressure drops below that of the cave's interior, the wind blows outward; when it rises, the wind blows into the cave. Stop at the cave entrance to read Nature's barometer.

Biologically speaking, East meets West in Wind Cave National Park, where stands of ponderosa pine, typical of the

mountain environment of the Black Hills, intermingle with the wide open spaces of the undulating grassland.

The park includes a prime example of mixed-grass prairie—a rich natural blending of medium-tall and short grasses—with a sprinkling of wildflowers, which lend color to the scene in spring and summer. Here you may behold the beauty of a sea of wild grass rippling with waves in the prairie wind.

### ON THE SURFACE

#### *Animals*

Wind Cave National Park is a wildlife sanctuary. Here are protected many species of animals that were characteristic of the Great Plains and the Rocky Mountains before white men came.

One of the park's main attractions is its bison herd. It is a rare day that you can't see from the road at least a few of these huge, shaggy animals. Watch for them.

As you drive through the park, you will notice that the black-tailed prairie dogs have several of their towns here. These towns once covered many square miles of the Great Plains. You will want to stop and watch the antics of these quick-moving little rodents. A roadside exhibit has been placed near one of the towns to help you understand their habits.

Here, too, is the graceful pronghorn ("antelope"). Swiftest of North American mammals, it is also the only species on the continent that sheds its horn sheath annually. True antelopes never shed horns or sheaths. Its tan-and-white coat and conspicuous white rump patch help you identify the pronghorn.



*The National Park System, of which this park 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.*

Among the other mammals of the park are American elk, deer, coyotes, badgers, raccoons, and several small rodents.

The list of park birds is a long one, and includes meadowlarks, woodpeckers, warblers, chickadees, sharp-tailed grouse, kingbirds, bluebirds, and magpies.

### *Forest and Flowers*

Great expanses of grassy plain separate this part of South Dakota from the eastern deciduous and Rocky Mountain forests, and from the desert vegetation of the Southwest. Nevertheless, the flora in Wind Cave and the rest of the Black Hills evidently has received immigrants from all of these sources.

Here you can see bur oak and American elm from the east; yucca, cactus, and cottonwood from the arid southwestern plateaus; and two species of conifers—ponderosa pine and Rocky Mountain juniper—from the Rocky Mountains.

Dominant grasses in the park include representatives of both true prairie and short-grass plains. Among the former are prairie junegrass, needlegrasses, and wheatgrasses; the latter are represented by buffalograss and gramas.

Here, too, in spring and summer, is a large assortment of wildflowers. Look for pasqueflower (South Dakota's State flower), ground phlox, darkthroat shooting star, mariposa, and wallflower. Some, such as verbena, parade their colors until the crisp frosts of autumn.

### *The Naturalist Program*

Be sure to make the visitor center-concession building one of your early stops in the park—preferably the first. Museum exhibits in this building describe the geological story of the cave, and include the wildlife, plantlife, and early history of the park. Specimens of formations from the cave are displayed for your close examination. Free evening campfire talks are presented in the campground nightly from late June through Labor Day. If you have questions about the park, ask the uniformed ranger-naturalist on duty in the center.

### *Rankin Ridge Nature Trail*

To help you enjoy the surface features of the park, a self-guiding nature trail leads to the summit of Rankin Ridge (elevation 5,016 feet, highest point in the park). To double your enjoyment of this walk, be sure to get the free nature trail leaflet from the box at the beginning of the trail. It points out the most important features of this self-guiding walk.

Round trip, the trail is  $1\frac{1}{4}$  miles long and takes about 1 hour. Take your camera and binoculars. From the observation post on the lookout tower you can obtain a fine panoramic view of the southern Black Hills.



## YOUR VISIT TO THE CAVE

Cave trips are conducted daily at scheduled intervals from April 1 through October 31, depending on the availability of park-ranger guides. Ask for a schedule at the visitor center. The cave is closed in winter. Organized groups may make advance arrangements with the superintendent for special service.

Conducted 1- to 1½-hour tours enter the cave by either walk-in entrance or elevator. Cave trails are hard-surfaced, and a modern electrical system provides indirect lighting.

You will enjoy your cave trip more if you take some of the same precautions you would on a hike over a mountain trail. Wear low-heeled walking shoes, preferably with rubber soles. The cave is a chilly 47°, so wear a light sweater or jacket; slacks are more comfortable than shorts.

Your uniformed National Park Service tour leader, trained in cave guiding, will explain the origin of Wind Cave and compare it with other caverns. He will explain its wind, or "breathing" the properties and origin of limestone and calcite, and the crystal formations, chert layers, and fossils.

There is a fee for each trip. The fee does not apply to adult-escorted children under 12 years of age, or to groups of elementary and high school students and accompanying adults responsible for their safety and conduct.

## HOW THE CAVE WAS FORMED

The limestone bed in which Wind Cave was formed varies from 300 to 630 feet in thickness in the Black Hills region. It is known as the Pahasapa limestone, a local formation deposited in a great inland sea in the Mississippian period, some 300 million years ago. Following the deposition of this limestone, the region was elevated above the sea.

Several periods of elevation and subsidence have occurred since then. During the periods of submergence, the Pahasapa limestone was covered by other sediments, several hundred feet in thickness. The final uplift of the land here from beneath the sea began at the end of the Cretaceous period, some 60 million years ago. It was during this time, geologists believe, that the formation of Wind Cave probably began.

This limestone layer, subjected to several such periods of uplift or warping, became fractured or broken. Cracks developed in all directions and at all angles. Those close together served as the pattern for the characteristic "boxwork." The boxwork was formed when rainwater seeped down from the surface through decaying vegetation, absorbing carbon dioxide, which made the water acid and capable of dissolving limestone (calcium carbonate). This carbon-dioxide-bearing water took some of the limestone into solution; then, evaporation of the water caused the calcium carbonate to be deposited in the cracks and crevices below as calcite (the crystal form of calcium carbonate). Later the more soluble limestone, between the calcite plates, was dissolved away, leaving the formation of calcite "fins" we call boxwork.

About  $3\frac{1}{2}$  miles of the 10 miles of explored cave passages are electrically lighted along trails that descend some 240 feet to the lowest point. But most of this honeycomb of underground chambers remains in primitive condition and much is unexplored.

The predominant formation is boxwork, but displays of unusual "frostwork" and "popcorn" are also found in certain areas.

### MAN AT WIND CAVE

Although it seems probable that various Indian tribes must have come upon the small natural opening to Wind Cave during the centuries of prehistoric habitation of the Black Hills, it remained for the area's permanent settlers to recognize the opening as something unique and interesting.

Facts about the discovery of the cave are little known, but it is generally believed that it was discovered by Tom Bingham, a Black Hills pioneer, while hunting deer in 1881. He was attracted by a strange whistling and, after searching about in the undergrowth, he discovered that it was caused by wind escaping through a small hole in some rocks.

For several years after discovery, the area around the cave entrance lay open to claims. In 1890, a company called the South Dakota Mining Company filed location certificates on the cave. That same year, Jesse D. McDonald, accompanied by his sons, Elmer and Alvin, came to Wind Cave to manage the property for the company.

With the arrival of the McDonalds, the first serious exploration of the cave began. For the first time, guided tours were conducted. Alvin McDonald discovered many of the passageways and rooms, and kept an extensive diary in which he named the rooms, interesting formations, and chief routes, estimated distances, and kept a record of explorations. He died in 1894 of pneumonia, believed to have been caused by exposure in the cave. He was buried near the cave entrance. A plaque now marks his grave.

In 1892, the elder McDonald, along with several others, including John and Charles Stabler, formed the "Wonderful Wind Cave Improvement Company," and took over the property. As a private enterprise, this company made many improvements, opened passageways, and built stairways.

These were years of controversy, much of it in the courts, between the Stabler and McDonald families over the ownership of the land. However, both families continued to operate the cave and guide visitors until administration of the area was assumed by the Department of the Interior.

On June 11, 1902, South Dakota Senator Robert J. Gamble introduced a bill in the Senate to establish the cave as a national park. It passed the Senate on June 19, 1902. A similar bill was introduced in the House of Representatives by Representative Lacy of Iowa on June 13, 1902, and was passed by the House on December 12. On January 9, 1903, President Theodore Roosevelt signed the bill, and the park was thus set aside for the perpetual benefit, enjoyment, and inspiration of the people of the United States and their guests from foreign lands.

### WHEN TO VISIT

The popular seasons at the park are summer, spring, and autumn. Wintry weather often discourages travel in the Black Hills from November through March.

The climate is relatively dry. There are frequent windy days in winter and spring, but extreme winds do not occur in the park.

The black-tailed prairie dog. *Carl B. Koford photo.*



Thunderstorms and hailstorms in the summer and snow and icy roads in the winter may temporarily disconcert the traveler, but such delays can be rewarding, as they provide a fine excuse to pass the time pleasantly and profitably in the visitor center looking at and studying the exhibits.

## HOW TO REACH THE PARK

Wind Cave National Park is in southwestern South Dakota in the heart of the Black Hills. Main points of entrance are from the south via Hot Springs and from the north via Custer.

*By automobile.* U.S. 385 runs through the western part of the park and connects Hot Springs and Custer. You may also approach the park by State Route 87 through Custer State Park, one of the largest State parks in the Nation.

*By bus.* Hot Springs, Custer, Rapid City, and Edgemont are served by transcontinental buses.

*By train.* A daily train of the Chicago, Burlington & Quincy Railroad stops at Edgemont.

*By airplane.* Frontier, North Central, and Western Airlines serve Rapid City.

## ACCOMMODATIONS

### *Within the Park*

The campground, near park headquarters, is operated on a first-come, first-served basis; reservations cannot be made. There are no utility connections for trailers, but a comfort station, water, and free wood are available nearby. Building of campfires is limited to designated fireplaces; gas stoves and other self-contained fires, however, are permitted.

Lunchroom facilities and soda-fountain service are provided by a concessioner in the visitor center during the summer. Curios and miscellaneous articles are also available.

### *Outside the Park*






There are modern motels, hotels, trailer courts, and garages in Hot Springs, Custer, and other nearby towns along the approach highways to the park.

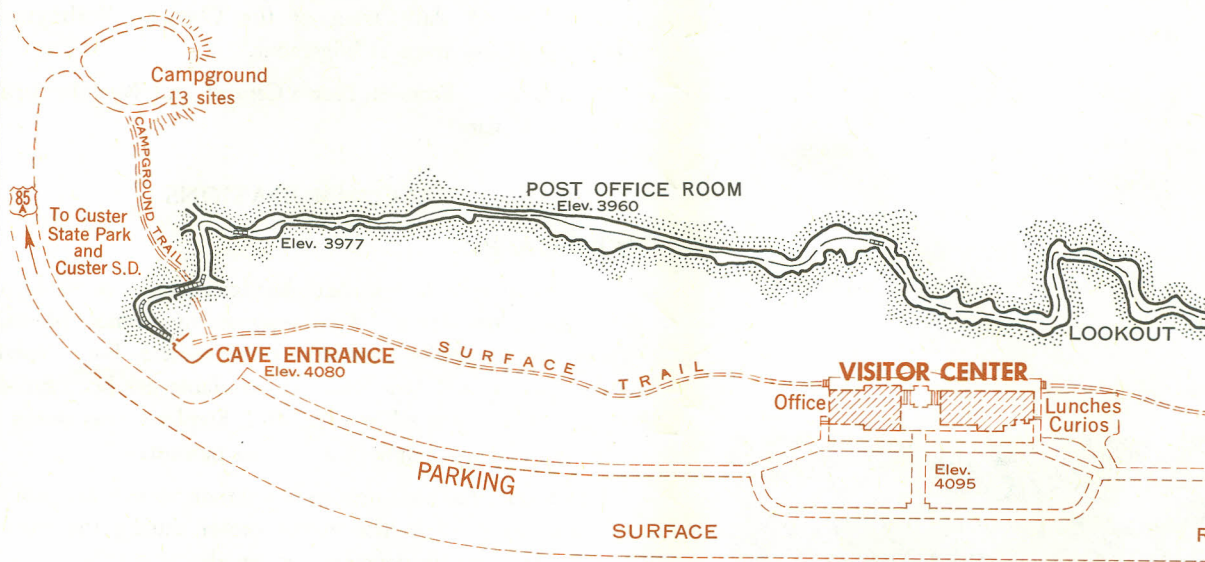
## HELP US PROTECT THIS PARK

Park regulations were established to protect you as well as the park. Please obey them.

*Preserving natural features.* Please do not disturb, injure, or destroy vegetation, rocks and minerals, and animal life of the park. Do not handle the walls and formations within the cave or deface them by writing, carving, or otherwise marring them.

# UNDERGROUND CAVERNS WIND CAVE

-  Surface Features
-  Upper level. Approximate limits of elevation, 4080 to 3930 feet.
-  Intermediate level. Approximate limits of elevation, 3930 to 3880 feet.
-  Lower level. Approximate limits of elevation, 3880 to 3840 feet.
-  Stairway.



PEARLY GATES

Calcite Frostwork Ledge

FAIRGROUNDS

Elev. 3963  
Elev. 3885

BLUE GROTTO  
Elev. 3840

Elev. 3853

Elev. 3870  
THREE-WAY STAIR  
Elev. 3870

MONTE CRISTO PALACE

TEMPLE ROOM

ELKS ROOM  
Elev. 3911

MODEL ROOM  
Elev. 3892

CROSSROADS  
Elev. 3884

OKOUT

**ELEVATOR BUILDING**  
Elev. 4055

Elev. 3865

GARDEN OF EDEN

Frostwork Ledge  
Elev. 3945  
Elev. 3904

SURFACE TRAIL

PARKING

ROAD

Service Road to National Park Utility Area

To Hot Springs



400



Canes, umbrellas, tripods, or sticks may not be taken into the cave unless permission is granted by the superintendent or one of his representatives; this permission is granted only when a cane or walking stick is necessary for you to make the cave trip. Tossing or throwing rocks or other material inside the cave is prohibited.

*Fires.* Fire is an enemy of the forests of the park and of all the creatures that live in them. The grasslands are also subject to devastating prairie fires. *Build fires only in designated places. Make sure your fire is out, even if you plan only a temporary absence. Do not throw cigarettes, cigars, or matches from your automobile.*

*Camping.* Please use the designated campground and keep it clean and sanitary. Place empty cans and garbage in containers provided for that purpose.

*Cave trips.* You are not permitted to enter the cave unless conducted by a uniformed National Park Service representative.

## YOU AND THE BISON

*It is reckless and dangerous for you to approach a bison on foot; it may turn impulsively and inflict serious injury. Do not feed, tease, frighten, or molest this animal in any way; such foolhardy acts are violations of park regulations.*

*Stay on the road in your car to observe the bison.*

*Hunting.* Wind Cave National Park is a wildlife sanctuary, and the hunting, killing, wounding, capturing, or attempting to capture any wild animal is prohibited. Firearms are permitted within the park only if they are packed to prevent their use.

*Pets* must be physically restrained at all times, and must not be allowed to become a noisy nuisance. They are not allowed in the cave or public buildings within the park.

*Traffic.* Drive carefully at all times to protect yourself, other visitors, and wildlife. Please obey the speed limits posted along park roads. Do not drive your car off established roads; doing so damages the grasslands.

## ADMINISTRATION

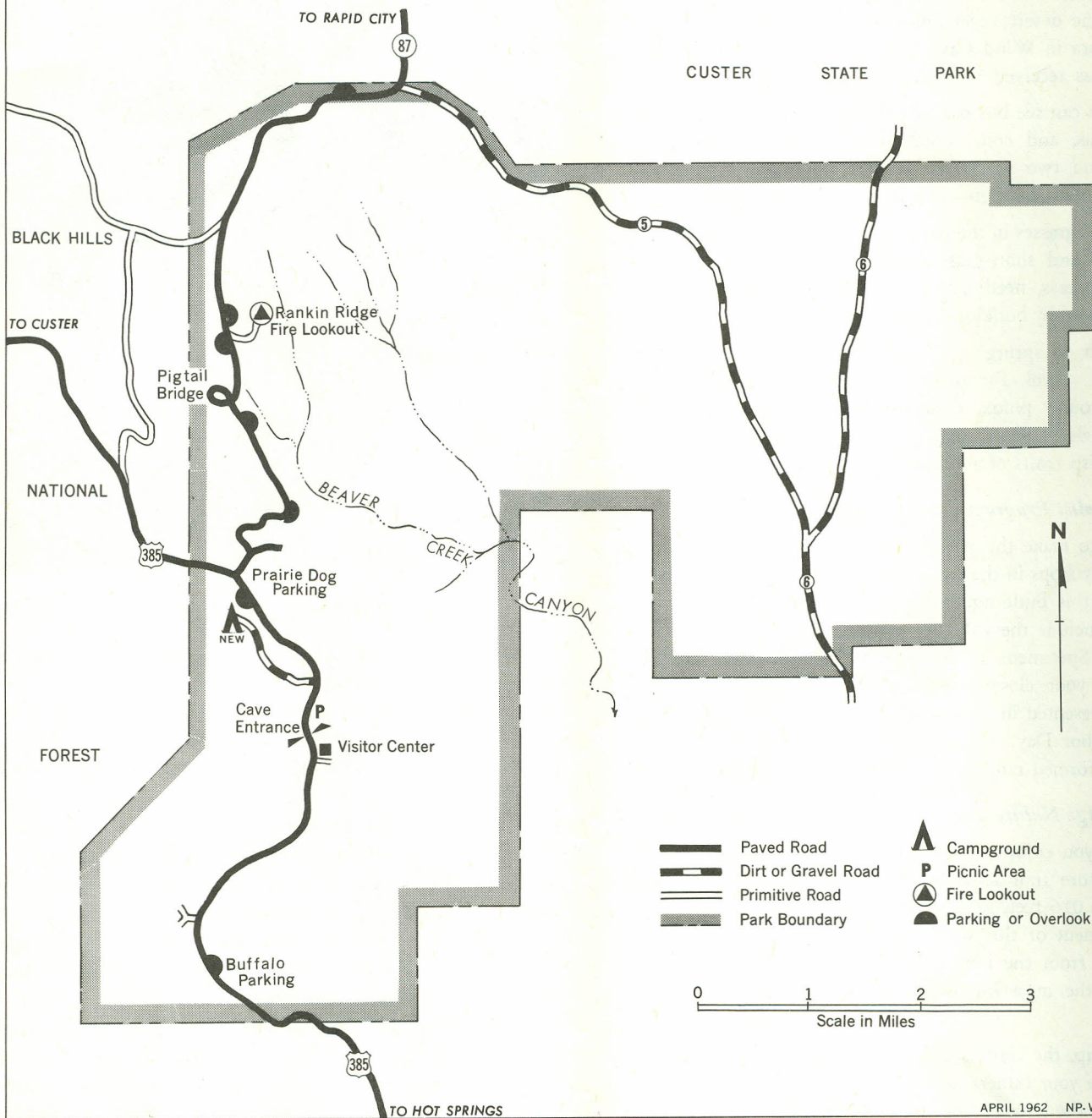
Wind Cave National Park is administered by the National Park Service, U.S. Department of the Interior. A superintendent is in immediate charge; his address is Hot Springs, S. Dak. If you have any questions or comments about services within the park, feel free to contact him.

# WIND CAVE

NATIONAL PARK

SOUTH DAKOTA

CUSTER STATE PARK





## MISSION 66 AT WIND CAVE

MISSION 66 is a development, improvement, and conservation program of the National Park Service. It was launched in 1956 and is scheduled for completion in 1966, the 50th anniversary of the establishment of the National Park Service—hence the name MISSION 66.

This program proposes so to develop and staff the areas managed by the National Park Service as to permit their wisest possible use, maximum enjoyment for those who use them, and maximum preservation of the scenic, scientific and historic resources which give them their distinction.

MISSION 66 projects completed at Wind Cave include installation of a new elevator; a heating system in the elevator building; reconstruction of cave trails; a road and parking area for the Rankin Ridge lookout; and extension of the park water system.

Projects planned for the future under this program include expansion and rehabilitation of the visitor center; a new, larger campground; concession facilities; employee residences; and reconstruction of the north-south park road.

Cover: View of Wind Cave National Park, with Buffalo Gap in the distance.

### VISITOR-USE FEES

Fees collected at the visitor center for guide service in the cave, which includes the use of the elevator, are deposited as revenue in the U.S. Treasury. They offset, in part, the cost of operating and maintaining the National Parks.



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

