



Bryce Amphitheater from Bryce Point by Larry Ulrich

Hoodoos Cast Their Spell

Hoodoo—a pillar of rock, usually of fantastic shape, left by erosion. Hoodoo—to cast a spell. At Bryce Canyon National Park erosion forms an array of fantastic shapes we know as hoodoos. Surrounded by the beauty of southern Utah, these hoodoos cast their spell on all who visit. Geologists say that 10 million years ago forces within the Earth created and then moved the massive blocks we know as the Table Cliffs and Paunsaugunt plateaus. Rock layers on the Table Cliffs now tower 2,000 feet above the same layers on the Paunsaugunt. Ancient rivers carved the tops and exposed edges of these blocks, removing some layers and sculpting intricate formations in others. The Paria Valley was created and later widened between the plateaus.

The Paria River and its many tributaries continue to carve the plateau edges. Rushing waters, carrying dirt and gravel, gully the edges and steep slopes of the Paunsaugunt Plateau on which Bryce Canyon National Park lies. With time, tall thin ridges called fins emerge. Fins further erode into pinnacles and spires called hoodoos. These in turn weaken and fall, adding their bright colors to the hills below.

Early Native Americans left little to tell us of their use of the plateaus. We know that people have been in the Colorado Plateau region for about 12,000 years, but only random fragments of



Christine Black

For the full impact of the hoodoos, walk down one of the trails. Elevations along trails range from 6,500 to 9,100 feet; allow enough time for your physical condition. Overnight backpacking is available along the 22-mile-long Under-the-Rim Trail. Other trails range in length from 1.5 to 8 miles round trip.

worked stone tell of their presence near Bryce Canyon. Artifacts tell a more detailed story of use at lower elevations beyond the park's boundary. Both Anasazi and Fremont influences are found near the park. The people of each culture left bits of a puzzle to be pieced together by present and future archeologists. Paiutes lived in the region when Euro-Americans arrived in southern Utah. Paiutes explained the colorful hoodoos as "Legend People" who were turned to stone by Coyote.

The Paiutes were living throughout the area when Capt. Clarence E. Dutton explored here with John Wesley Powell in the 1870s. Many of today's place names come from this time. Dutton's report gave the name Pink Cliffs to the Claron Formation. Other names—Paunsaugunt, place or home of the beavers; Paria, muddy water or elk water; Panguitch, water or fish; and Yovimpa, point of pines—were derived from the Paiute language.

The Paiutes were displaced by emissaries of the LDS Church who developed the many small communities throughout Utah. Ebenezer Bryce aided in the settlement of southwestern Utah and northern Arizona. In 1875 he came to the Paria Valley to live and harvest timber from the plateau. Neighbors called the canyon behind his home Bryce's Canyon. Today it remains the name not only of one canyon but also of a national park.

Shortly after 1900, visitors were coming to see the colorful geologic sights, and the first accommodations were built along the Paunsaugunt Plateau rim above Bryce's Canyon. By 1920 efforts were started to set aside these scenic wonders. In 1923 President Warren G. Harding proclaimed part of the area as Bryce Canyon National Monument under the Powell (now Dixie) National Forest. In 1924 legislation was passed to establish the area as Utah National Park, but the provisions of this legislation were not met until 1928. Legislation was passed that year to change the name of the new park to Bryce Canyon National Park.

Each year the park is visited by more than 1.5 million visitors from all over the world. Languages as varied as the shapes and colors of the hoodoos express pleasure in the sights. Open all year, the park offers recreational opportunities in each season. Hiking, sightseeing, and photography are the most popular summer activities. Spring and fall months offer greater solitude. In the winter months, quiet combines with the area's best air quality for unparalleled views and serenity beyond compare. In all seasons fantastic shapes cast their spell to remind us of what we protect here in Bryce Canyon National Park.



Hoodoos



Spring snow



Fall colors



The Sentinel

Along the plateau rim the geology catches your eye. Nearby forests and meadows offer striking contrast to intricately eroded rocks. Plant communities change with elevation and with slope direction. Pinyons and junipers dominate lower elevations; ponderosa pines yield to spruce, fir, and aspen at higher elevations. Bristlecone pines, the park's oldest trees, grow on exposed, rocky slopes unsuitable for most other trees.



Aspen trees and dandelions

Sedimentation

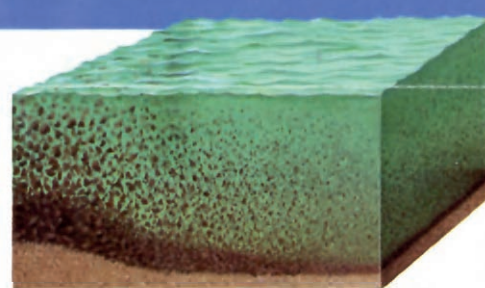
Ancient Sedimentation
Our dynamic planet is constantly being shaped and reshaped by dramatic events such as earthquakes, volcanoes, and mudslides. Other changes may not be detected in a human lifetime. Geological timespans or Periods cover millions of years. The Cretaceous Period began some 144 million years ago and lasted until about 63 million years ago. The rock formations you see exposed at Bryce Canyon began to develop during this time. For 60 million years a great seaway extended northwestward into this area, depositing sediments of varying thick-

ness and composition as it repeatedly invaded, retreated, then re-invaded the region. Retreating to the southeast, it left sediments thousands of feet thick. Their remnants form the oldest, lowest, gray-brown rocks at Bryce Canyon.

In the Tertiary Period, between 63 and 40 million years ago, rivers and streams flowing from surrounding highlands deposited iron-rich, limy sediments into an ancient freshwater lake system. The sediments became the reddish-pink rocks that represent the Claron Formation from which the hoodoos are carved and for which the Pink Cliffs are named.



The Cretaceous Sea way moved northward from the Gulf of Mexico into this region of North America (at left). Sediments deposited as the sea invaded and re-treated became the brown and gray marine rocks now exposed at the park's lowest elevations and across the Paria Valley.



Sediments come from debris eroded from the land. Water carries varying sizes of debris or dissolves it chemically. When water slows or cools, particles settle to

the bottom of the waterway, sorted by size and weight. Rocks form when particles are cemented and bonded together.

Water running over surfaces removes the softer layers below hard cap rock to form monoliths such as Thor's Hammer.



Hoodoos are carved from the Claron Formation, whose rock was deposited by ancient rivers, streams, and

lakes over a period of 20 million years. State shapes are shown for reference.

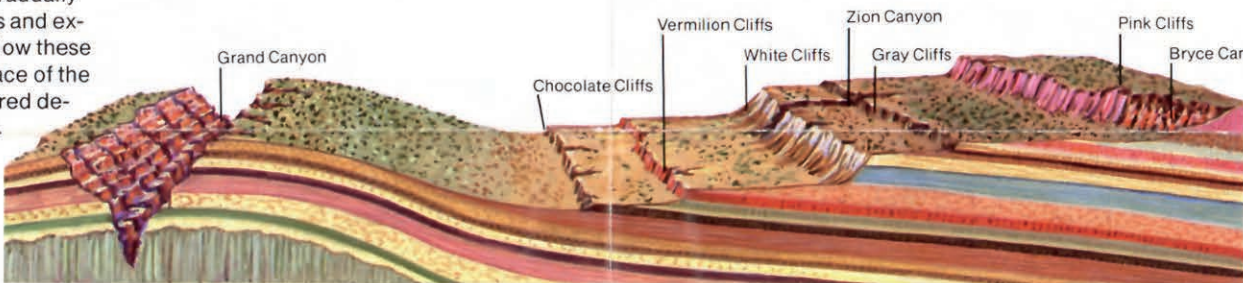
Uplift

Deformation, Uplift, and the Grand Staircase
Horizontal compression related to the formation of the Rocky Mountains deformed these rocks. Then volcanic materials from the north and west covered parts of the region: black rocks at the mouth of nearby Red Canyon and on the Sevier Plateau to the north still protect softer underlying layers. About 10 million years ago the earth pulled apart, moving and tilting great blocks along north-south trending fault lines. Layers, once connected, were displaced vertically by several thousand feet, forming the High Plateaus of Utah.

Older Cretaceous layers rested side by side with younger Tertiary layers across fault lines. Streams began to remove sediments deposited by their ancestors. Working on the weakened edges of the upthrown blocks, water gradually removed the uppermost Tertiary layers and exposed Cretaceous rocks once again. Now these drab marine sediments lay on the surface of the land side by side with the brightly colored deposits of freshwater lakes and streams.

Edges exposed by uplift are susceptible to erosion. In Utah the southern edges of the High

Plateaus have eroded into the cliffs of the Grand Staircase.

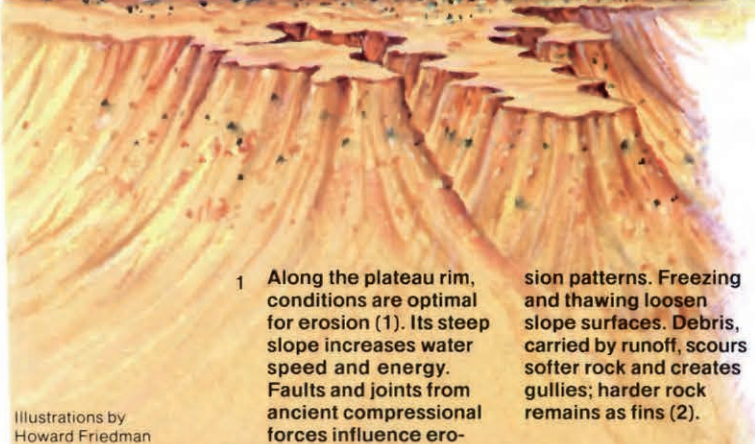


On the Colorado Plateau, the high elevations and mountains create micro-climates

where forests may grow surrounded by arid lowlands.

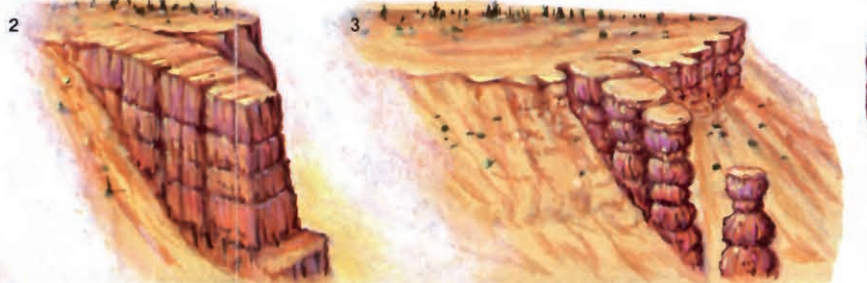
Erosion

Differential Erosion
Water erodes rock mechanically and chemically. Scouring, abrading, and gullying occur when fast-moving water scrapes its silt, gravel, and rock debris against firmer bedrock. Slow-moving or standing water enters minute rock pores and dissolves cements holding the rock together. This leaves loose grains to wash away. Softer Cretaceous rocks were loosened and carried away from the upthrown block by the Paria River. The resulting Paria Valley is carved out of rocks that lie deep beneath the Paunsaugunt Plateau, whose edge now is exposed to erosion.



As gullies widen to canyons, fins become exposed to further erosion along vertical cracks. In winter, freezing water

expands within cracks to peel off layers and carve vertical columns (3).



1 Along the plateau rim, conditions are optimal for erosion (1). Its steep slope increases water speed and energy. Faults and joints from ancient compressional forces influence ero-

sion patterns. Freezing and thawing loosen slope surfaces. Debris, carried by runoff, scours softer rock and creates gullies; harder rock remains as fins (2).

Illustrations by Howard Friedman



Hoodoos and eroding fins

Larry Ulrich

Fred Hirschmann

Bryce Canyon

Visiting the Park

Following the plateau rim for much of its 18 miles, the park road and its overlooks offer stunning geological panoramas. To make the most of your visit, stop at the visitor center first. There you can watch a free slide program, study the exhibits, and browse through books, maps, and other publications about the park and surrounding area. At the information desk, you can get advice to help you plan your visit.

Bryce Canyon National Park offers more than driving tours. Rangers conduct walks, talks, and campfire programs in summer, on topics ranging from geology and wildlife to air quality. Some 50 miles of hiking trails offer prospects of close encounters with hoodoos. A number of trails lead down among them from overlooks on the main park road. Just a short walk will leave you surrounded by these unusual rock formations and greatly reward your effort.

The small map at right shows details of the developed area inside the gray rectangle on the large map.

Visitor Center The park visitor center provides information, lost-and-found, backcountry permits, and first aid services. It is open from 8 a.m. to 4:30 p.m. every day except Thanksgiving, December 25, and January 1. Spring, summer, and fall hours are extended.

Drivers Note: Trailers are not allowed beyond Sunset Campground; day-use visitors may park trailers at the visitor center or other designated sites. Check with park staff. Vehicles longer than 25 feet are not allowed at Paria View.

For park information, visit our web site at www.nps.gov/bryc, or write to: Superintendent, Bryce Canyon National Park, P.O. Box 170001, Bryce Canyon, UT 84717-0001. You may also call 435-834-5322 weekdays from 8 a.m. to 4:30 p.m. Mountain Time, except on federal holidays. In case of emergency, call 911 or the Garfield County Sheriff's Office at 435-676-2411.

For horseback rides contact Canyon Trail Rides, P.O. Box 128, Tropic, UT 84776-0128; telephone 435-679-8665.

Enjoying the Park

Interpretive Programs Park rangers offer interpretive programs in summer. These include geology talks, campfire programs, and guided walks and hikes on a variety of topics. Staffing may permit spring and fall programs. Schedules for interpretive activities are available at the visitor center.

Lodging and Tours Designed by master architect Gilbert Stanley Underwood and built of local stone and timbers from 1924-25, Bryce Canyon Lodge reflects the rustic style of the period. Rooms and cabins are available from April to November. The lodge has a restaurant, gift shop, and post office. You may also register at the lodge for guided horse rides. For lodging reservations write to: Amfac Parks and Resorts, Inc., 14001 East Iliff Ave., Suite 600, Aurora, CO 80014-1433, or call 303-297-2757.

General Store Groceries, film, quick meals, and camper supplies are available April to November at a store near the Sunrise Point parking area. Coin-operated shower and laundry facilities are also available here.

Camping Tent and RV camping is available on a first-come, first-served basis at North and Sunset campgrounds. A fee is charged; length of stay is limited to 14 days per visit, 30 days per year. Sites have picnic tables and fireplaces; water and restrooms are nearby.

Wildlife

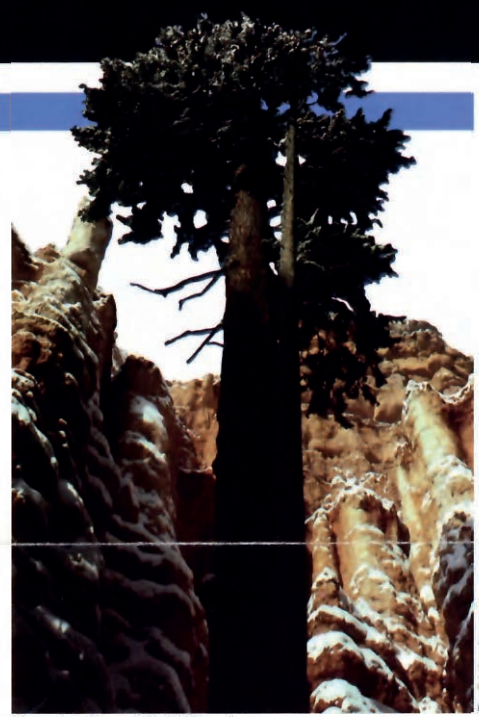
Bryce Canyon's forests and meadows support diverse animal life, from small mammals and birds to foxes and occasional mountain lions and black bears. Keep a healthy distance from wildlife; feeding or approaching causes problems for the animals and can be dangerous to you. Do not disturb their eating behavior and natural wariness.

Mule deer are the most common large mammal—best seen on summer mornings and evenings in roadside meadows. Mountain lions prey on mule deer in mutually beneficial population dynamics. Elk and pronghorn antelope, reintroduced nearby, are sometimes seen in the park. More than 160 species of birds visit the park yearly. Watch swifts and swallows perform aerobatics along cliff faces while feeding on insects in flight. In winter, mule deer, mountain lions, and coyotes migrate to lower elevations. Martlets and ground squirrels hibernate. Most bird species migrate to warmer climates, but jays, nuthatches, ravens, eagles, and owls winter

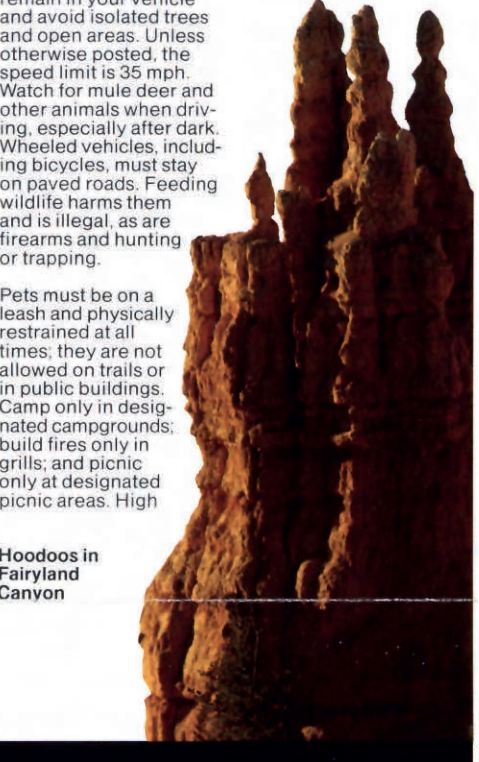
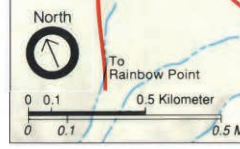
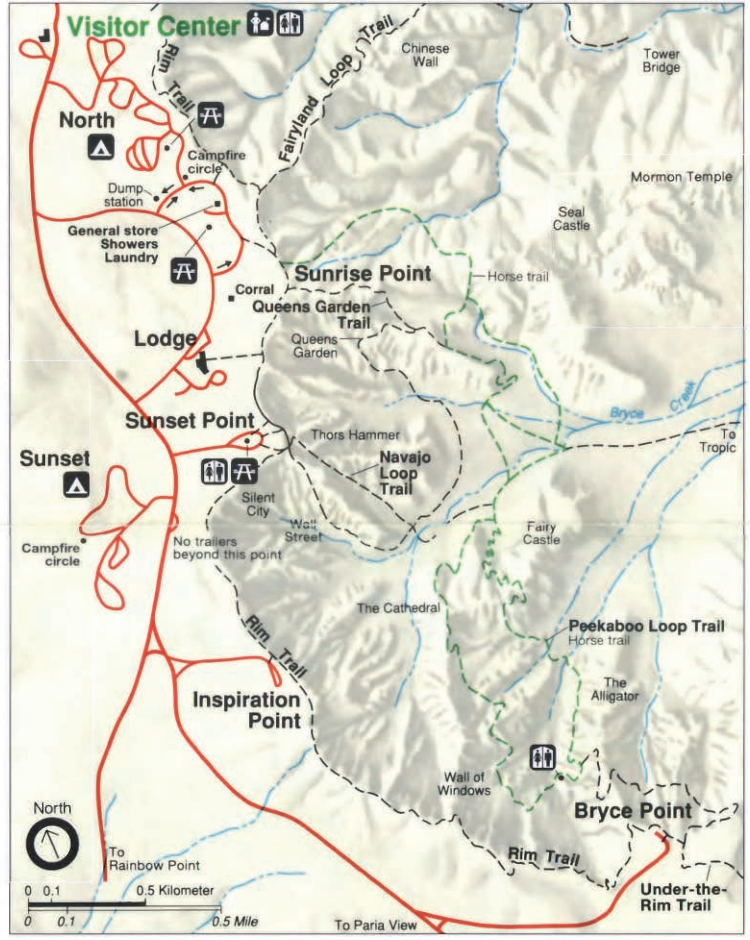
Wildflowers

Elevations ranging from 6,000 to 9,100 feet and diverse soil and moisture conditions influence the park's plant life. More than 400 plant species grow in the park. At the park's comparatively high elevations, many wildflowers that bloom in spring elsewhere may bloom in late summer here. Pictured at right are 1 gentian, 2 bellflower, 3 yellow, 4 gilia, 5 sego lily, and 6 manzanita.

Flower photographs by Margaret Littlejohn



Douglas fir on Wall Street



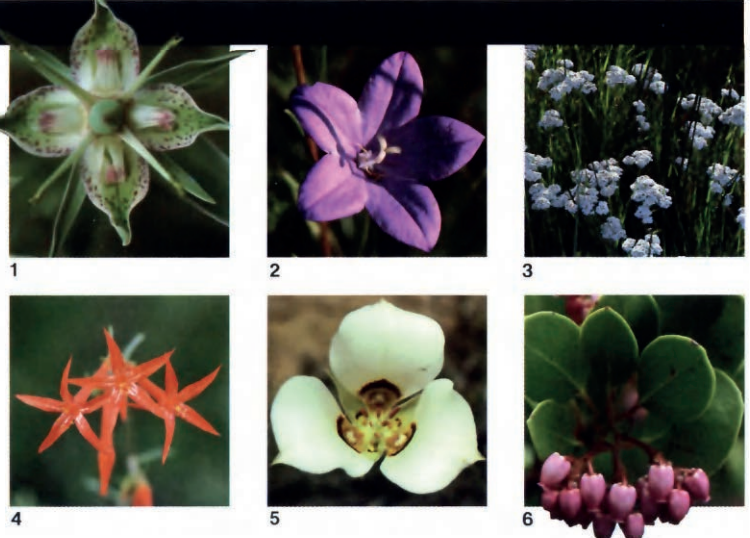
Hoodoos in Fairyland Canyon



Utah prairie dogs live only in southwestern Utah and are listed as a threatened species under the Endangered Species Act. Inhabiting park meadows, these small animals are actually members of the rodent family. Their living requirements include

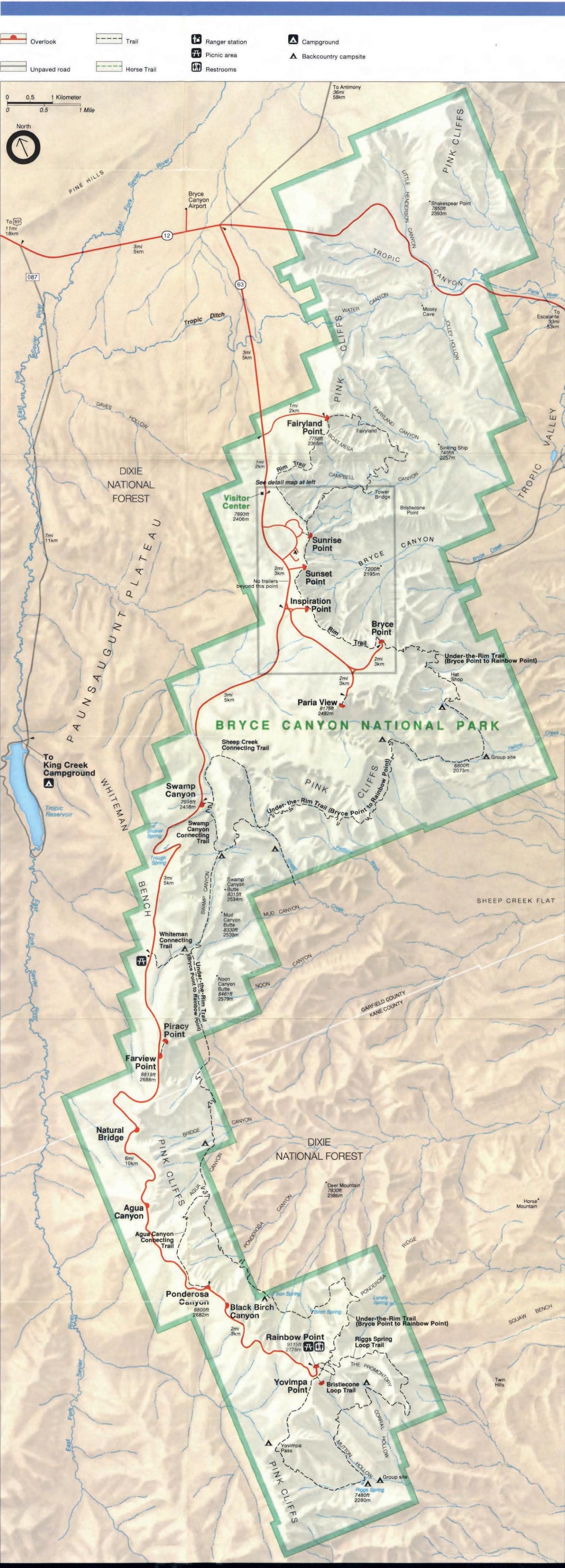
vegetation sparse enough to see through and low enough to see over and a diet consisting of moist, nutritious grasses and forbs. Please respect their wildness. Do not attempt to get close to these or any other wild animals!

here. While humans have severely reduced the habitat available to wildlife, a scarcity of water in southern Utah restricts human development, allowing for enhancement of wildlife diversity.



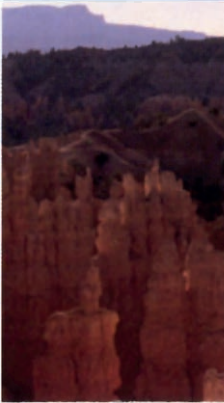
Bryce Canyon National Park Utah

Bryce Canyon National Park U.S. Department of the Interior



Driving Along the Plateau Rim

Because Fairyland Canyon lies between the entrance station and the park boundary and is 1 mile off the main road, many visitors miss this viewpoint. Don't be one of them. The fanciful formations packed into this small canyon rival any the park offers.



The 18 mile main park road affords outstanding views of the park and southern Utah scenery. From many overlooks you can see more than 100 miles on clear days. On crisp winter days, views from Rainbow or Yovimpa points are restricted only by the curvature of the Earth. Driving south from the visitor center to Rainbow Point, you gradually gain 1,100 feet of elevation. En route, watch how the forests change from ponderosa pine to spruce, fir, and aspen. Trailers are not permitted beyond Sunset Campground. Leave trailers at the visitor center, the trailer turn-around south of Sunset Campground, or at your campsite. All overlooks lie east of the road. To avoid crossing traffic to reach them, drive to the southern end of the park and stop at the overlooks on your return.

Fairyland Point offers views of Fairyland Amphitheater and its fanciful shapes. Highlighted by the Sinking Ship, with a backdrop of the Aquarius Plateau and distant Navajo Mountain, this scenery rivals any in the park. Because this overlook is a mile off the main park road, many visitors miss it. The road is not plowed and is used as a crosscountry ski trail during snowy months.

Sunrise, Sunset, Inspiration, and Bryce points ring Bryce Amphitheater, the largest natural amphitheater in the park. The Queen's Garden Trail begins at Sunrise Point. From Sunset Point, you can hike to Thor's Hammer and Wall Street. Inspiration Point offers the best view of the Silent City. The Under-the-Rim Trail begins at Bryce Point. Distant panoramas from each point feature the Black Mountains in the northeast and Navajo Mountain in the south.



At Sunset Point you look down into Bryce Amphitheater pictured here.

Paria View looks out across hoodoos in an amphitheater carved by Yellow Creek. The Paria River valley and Table Cliffs Plateau form the backdrop. To the south, the White Cliffs, carved out of Navajo Sandstone, are visible.

Farview Point affords a panorama that includes neighboring plateaus and mountains, and far to the southeast, the Kaibab Plateau of Grand Canyon's North Rim. Here Ponderosa Pines begin to give way to Douglas fir and white fir.

Natural Bridge was not formed by a stream as true natural bridges are. It is more accurately an arch, carved by the combined forces of rain and frost erosion acting from the top of the rock.

Ponderosa Canyon shows off multicolored hoodoos framed by pine-covered foothills and the Table Cliffs Plateau to the north.

Agua Canyon displays contrasts of light and color that are among the most satisfying in the park. Look for small trees atop a hoodoo known as The Hunter. In the distance, the rims of southern plateaus and canyons are visible.



Agua Canyon affords good views of the vertical cliffs that typify the southerly Paunsaugunt Plateau.

Yovimpa and Rainbow points offer expansive views of southern Utah. On most days you can see Navajo Mountain and the Kaibab Plateau 90 miles away in Arizona. On the clearest days, the view extends into New Mexico. The foreground is awash in the colors of long-eroded slopes and remnant hoodoos. The park road ends at Rainbow Point.



Known as The Poodle, this hoodoo northwest of Rainbow Point seems to pose for the camera, although it is difficult to find. Behind it the Pink Cliffs look like a photographer's painted studio backdrop. At Rainbow Point the scenic drive along the canyon rim ends with a road loop that turns you back toward the park entrance.