

GRAND CANYON THE GUIDE NATIONAL PARK

Maps Inside

South Rim

November 17 - January 11, 1992

Produced for Grand Canyon National Park by Grand Canyon Natural History Association.

Volume XVI, Number 2

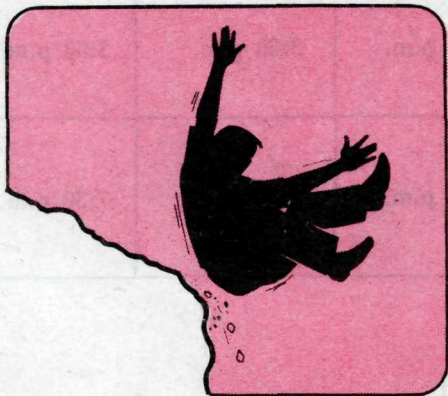
QUESTIONS? LOOK INSIDE

Camping	7
Climate	14
Crossword	12
Desert View	16
Disabled Access	7
Emergency	6
Food/Restaurants	6
Hiking	10,11
Lodging	6
Maps	8-9,14,16
Medical Services	6
North Rim	7
Other Services	7
Planning Ahead	14
Publications	15
Ranger Programs	2,3
Religious Services	6
Sunrise & Sunset	8
Things to Do	2,3,10,11



Did you know that Federal law requires you to wear seatbelts while driving in a National Park? *So buckle-up.* It's the law in Grand Canyon.

USE CAUTION



NEAR
THE
EDGE

FOOTING
CAN BE DANGEROUS

HOW TO SEE THE CANYON



There are many ways to enjoy Grand Canyon National Park. Following are some suggestions to help you get the most out of your visit. Here is what to do if you have:

TWO OR THREE HOURS

Visit Yavapai Museum where you may view exhibits about the geologic history of Grand Canyon. Magnificent views of the Canyon are seen from the Museum.

Visit the West Rim Drive for many scenic views. The drive begins just west of Bright Angel Lodge and follow the rim for eight miles to Hermits Rest. Accessible only by Shuttle during summer. The Colorado River may be seen from Hopi Point, Mohave Point, and Pima Point.

HALF DAY

Having experienced the above, stop at the Visitor Center and explore exhibits which trace the human and natural history of Grand Canyon. Be sure to view the 15-minute slide program for an informative introduction to Grand Canyon.

Take a leisurely walk along any portion of the Rim Nature Trail. The paved trail

extends from Yavapai Museum to Maricopa Point.

ONE DAY OR MORE

Enjoy the above activities, then consider a drive along the East Rim to Desert View (25 miles [40 km], 45 minutes one way). At Desert View is the famous Watchtower, and views of the Colorado River and Painted Desert. Tusayan Museum and ruin are located three miles west of Desert View.

Hike a short distance into the Canyon. The Bright Angel Trail or South Kaibab Trail are recommended. Remember, it usually takes twice as long to hike up as it does going down. Carry water at all times of year.

Join a Ranger for an interpretive walk or talk to learn more about the human and natural history of Grand Canyon. See THINGS TO DO elsewhere in *The Guide* for program information.

See the sunrise or sunset from the Canyon rim. Arrive early and observe the Canyon's changing colors and moods.

EMERGENCY - 911

Dial 911 from a pay phone or residence. From hotel or motel rooms, dial 9-911.

A 24-hour emergency telephone is located to the left of the Visitor Center entrance.

Hearing impaired visitors can call 911 or 9-911 from a hotel on a TDD to report an emergency.

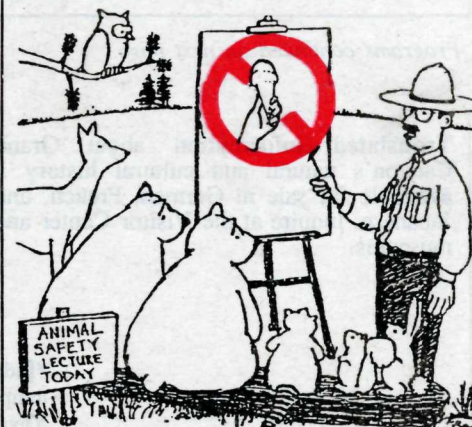
NOTRUF - 911 Wenn Sie im Notfall ärztliche bzw. polizeiliche Hilfe benötigen, wählen Sie von einem öffentlichen Fernsprecher die Nummer 911. Von Ihrem Hotelzimmer aus, wählen Sie 9-911. Ein Notrufrufnummer im Visitor Center zur linken Seite der Eingangstür steht rund um die Uhr zur Verfügung.

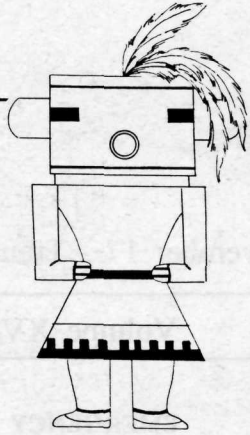
APPEL D'URGENCE - 911 Si vous avez besoin d'aide médicale ou de la police, composez le numéro 911 depuis un téléphone publique. Composez le 9-911 depuis votre chambre d'hôtel. Un téléphone d'urgence qui reste à votre disposition 24 heures sur 24 se trouve au "Visitor Center", à gauche de la porte principale.

緊急-911 救急車や警察は、公衆電話からは911番をダイヤルして下さい。ホテルの部屋からは9-911でかかります。なお、公園案内所(Visitor Center)の入口左側にも24時間緊急電話が設置されています。

DO NOT FEED ANIMALS

The feeding, touching, teasing or disturbing of wildlife in national parks is prohibited. Visitors have been kicked, bitten, and chased at Grand Canyon while trying to feed wildlife. It is important not to feed deer, squirrels or any other wild animal in the park. When you feed wildlife you are committing an illegal act which is subject to citation and fine.








THINGS TO DO



VILLAGE AREA PROGRAMS

Grand Canyon is on Mountain Standard Time year round.

Activity	Sun	Mon	Tue	Wed	Thur	Fri	Sat
GEOLOGY TALK* A "Ranger's Choice" program exploring some aspect of the Canyon's geology story. Topics range from current theories about canyon formation, to drifting continents, to fossils found within the canyon walls. Allow 30 minutes. Meet at Yavapai Museum.	10:00 a.m.	10:00 a.m.	10:00 a.m.	10:00 a.m.	10:00 a.m.	10:00 a.m.	10:00 a.m.
CANYON TALK* Grand Canyon protects a wide variety of natural and cultural resources. Examine one of these resources in depth and learn how it is being managed for future generations. Allow 20 minutes. Meet at Yavapai Museum.	11:00 a.m.	11:00 a.m.	11:00 a.m.	11:00 a.m.	11:00 a.m.	11:00 a.m.	11:00 a.m.
WINTER WALK Humans turn up the thermostat when the weather turns cold. How do the Canyon's plant and animals survive the winter months? Learn of their strategies and other winter wonders while celebrating the season's quiet beauty. Dress warmly for this 1/4-mile walk on an unpaved path. Allow 1 hour. Meet at Yavapai Museum.	1:30 p.m.	1:30 p.m.	1:30 p.m.	1:30 p.m.	1:30 p.m.	1:30 p.m.	1:30 p.m.
FIRESIDE CHAT* Join a ranger for a comfortable indoor fireside program. We'll explore some aspect of the natural or cultural history of Grand Canyon. Meet in the lobby of El Tovar Hotel. Allow 45 minutes.		2:00 p.m.		2:00 p.m.		2:00 p.m.	2:00 p.m.
GEOLOGY TALK* A "Ranger's Choice" program exploring some aspect of the Canyon's geology story. Topics range from current theories about canyon formation, to drifting continents, to fossils found within the canyon walls. Allow 30 minutes. Meet at Yavapai Museum.	3:00 p.m.	3:00 p.m.	3:00 p.m.	3:00 p.m.	3:00 p.m.	3:00 p.m.	3:00 p.m.
NATURE WALK On this walk we'll explore Grand Canyon's natural or cultural history. A 1-1/2 mile round-trip walk. Allow 1-1/2 hours. Meet at the Visitor Center.	3:00 p.m.	3:00 p.m.		3:00 p.m.	3:00 p.m.	3:00 p.m.	3:00 p.m.
EVENING PROGRAM* A narrated program about an interesting aspect of the cultural or natural history of the Canyon. For program topic, check the Visitor Center lobby or call 638-7888 and press 1-3-2-4. Allow 1 hour. Meet at the Shrine of the Ages.	7:30 p.m.	7:30 p.m.	7:30 p.m.	7:30 p.m.	7:30 p.m.	7:30 p.m.	7:30 p.m.

Programs continued on next page.

Translated information about Grand Canyon's natural and cultural history is available for sale in German, French, and Japanese. Inquire at the Visitor Center and museums.

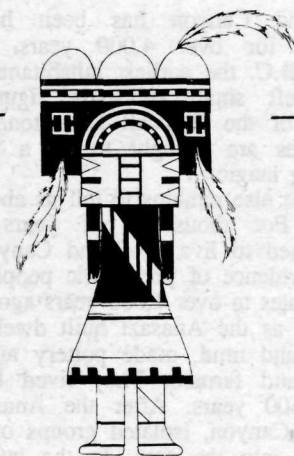
AUSKUNFTSUBERSSETZUNGEN über die Natur-und Kulturgeschichte des Grand Canyons werden zum Verkauf auf Französisch, Deutsch und Japanisch angeboten. Erkundigen Sie sich im Visitor Center und in den Museen.

外国語による案内書 グランドキャニオンの自然及び文化の歴史をつづった案内書が、仏・独・日の各種外国語でお求めになれます。ビジターセンターか博物館でお問い合わせください。

DES TRADUCTIONS sur l'histoire naturelle et culturelle du Grand Canyon se vendent en français, allemand et japonais. Adressez-vous au Visitor Center et aux musées.

*Indicates program is Wheelchair Accessible with Assistance. The National Park Service provides wheelchairs for temporary use by park visitors. No rental fee is charged. Wheelchairs are available at the Visitor Center and Yavapai Museum.

THINGS TO DO



DESERT VIEW PROGRAMS

Grand Canyon is on Mountain Standard Time year round.

Activity	Sun	Mon	Tue	Wed	Thur	Fri	Sat
TUSAYAN RUIN TOUR* A guided tour of an Anasazi ruin which was inhabited 800 years ago. 1/8-mile round trip on a paved, level trail. Allow 30 minutes. Meet inside the Tusayan Museum. Indoor talks given during inclement weather.	10:30 a.m. 11:30 a.m.	10:30 a.m. 11:30 a.m.	10:30 a.m. 11:30 a.m.	10:30 a.m. 11:30 a.m.	10:30 a.m. 11:30 a.m.	10:30 a.m. 11:30 a.m.	10:30 a.m. 11:30 a.m.



Visitor Center

The Visitor Center, six miles north of the Park's south entrance station, is open daily from 8:00 a.m. to 5:00 p.m. General information about the Park, maps and brochures may be obtained at the Information Desk.

A Grand Canyon Natural History Association bookstore is located in the lobby. Open daily from 8:00 a.m. to 5:00 p.m. Exhibits about the natural and cultural history of the Grand Canyon may be viewed in the Visitor Center exhibit hall.

Media programs are shown in the Visitor Center Auditorium every half hour starting at 8:30 a.m. - 4:30 p.m.



Tusayan Museum

A visit to Tusayan Ruin and Museum will provide a glimpse of Anasazi life at Grand Canyon some 800 years ago. The museum, located 3 miles west of Desert View, is open daily from 9 a.m. to 5 p.m. A self-guiding trail leads through the adjacent 800-year-old ruin.

Books, maps, and videos are available at the Natural History Association bookstore in the museum lobby.*



Yavapai Museum

Yavapai Museum, located 3/4-mile east of the Visitor Center, features exhibits about the geologic history of the Grand Canyon of the Colorado River. A panorama of the Canyon is visible through the museum's large windows. The museum is open daily from 8 a.m. to 5 p.m. Books, maps, and videos are available at the Natural History Association bookstore in the museum lobby.* *Yavapai Museum will be closed Christmas Day, December 25.*



"When your spirit cries for peace, come to a world of canyons deep in an old land; feel the exultation of high plateaus, the strength of moving waters, the simplicity of sand and grass, and the silence of growth."

August Fruge



Junior Rangers

Children up to age 12 may become Junior Rangers by completing the activities outlined for them in *Young Adventurer*, a special newspaper just for kids. Pick up your copy of *Young Adventurer* at the visitor center, or at Tusayan or Yavapai Museums.

*Indicates program is Wheelchair Accessible with Assistance. The National Park Service provides wheelchairs for temporary use by park visitors. No rental fee is charged. Wheelchairs are available at the Visitor Center and Yavapai Museum.

Anasazi legacy

Grand Canyon has been home to people for over 4,000 years. Around 2,500 B.C. the earliest inhabitants of the area left small split-twig figurines in caves of the Redwall Limestone. These figurines are thought to be a form of hunting magic.

Little else remains to tell us about their lives. For thousands of years people continued to live in Grand Canyon. The best evidence of prehistoric people living here dates to over 1,000 years ago. People known as the Anasazi built dwellings of stone and mud, made pottery and stone tools and farmed. They lived here for over 500 years. After the Anasazi left Grand Canyon, isolated groups of people moved into the area. In the late 1800s white men came to mine the minerals and eventually to find greater monetary reward in operating tourist enterprises.

Nearly 2,500 archeological sites have been found at Grand Canyon representing occupation throughout the past 4,000 years. Please preserve our archeological heritage. Federal and state laws institute civil and criminal penalties for the defacement of archeological sites or theft of artifacts. More important is the history, preserved for thousands of years, which will be lost through carelessness. Please:

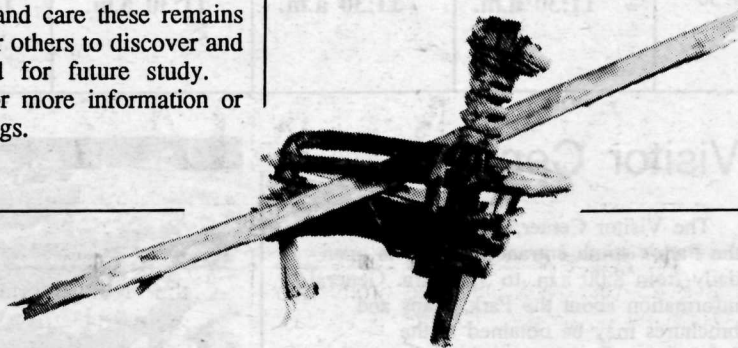
- Leave all artifacts in their original locations.



Tusayan Ruin

■ Walk around, not through walls or mounds and do not lean on these fragile structures.

With your help and care these remains will be preserved for others to discover and be kept unimpaired for future study. Contact a ranger for more information or to share your findings.



Split-twig figurines

"After climbing the steep talus slope the Indians entered the dark recess in the cliff face. Sorting through the willow twigs they had brought from the creek bed below, they split the most supple to within several inches of the cut end using a stone blade hafted in a wooden handle.

"As they twisted and wrapped, the images of animals began to take shape. One had horns much like the desert bighorn sheep; in the body cavity of

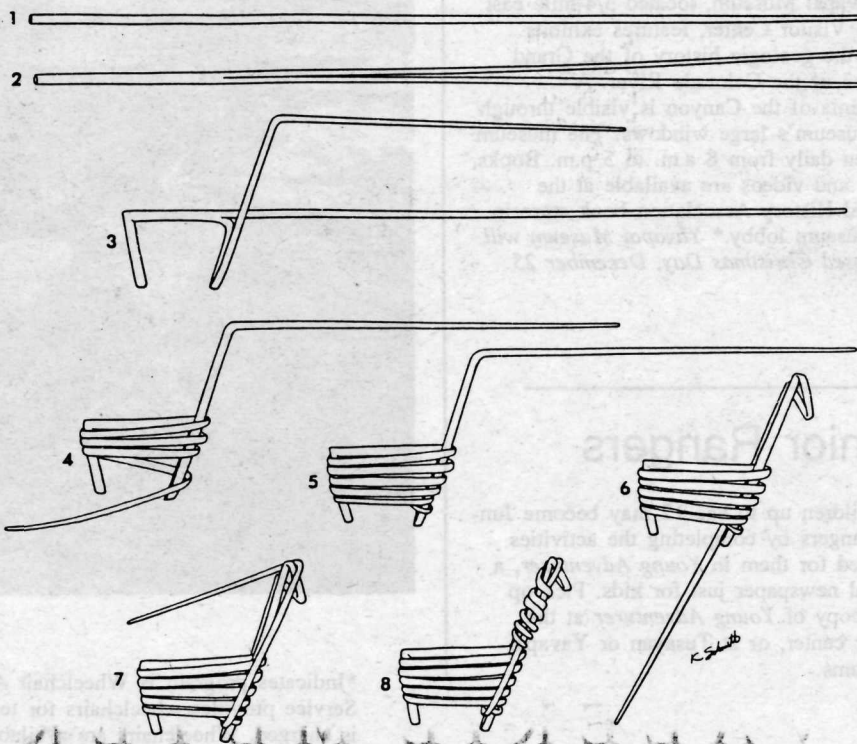
another a pellet of deer feces was placed as if to give some credence to the tiny deer effigy. The body of the third was pierced by a small willow twig in imitation of a spear.

"A juniper torch was lit when the effigies were finished, and they were cached deep within the cave and covered with a cairn of rocks."*

Anthropologists suspect that this scene was repeated over a period of 1000 years as Desert Culture hunters

sought to ensure a successful hunt. The figurines left behind some 4000 years ago are the oldest record of human life in the Grand Canyon. In recent years park employees have removed them from the isolated caves in the Redwall Limestone because of increased vandalism of arch-aecological sites.

*Taken from *A Sketch of Grand Canyon Pre-history* by A. Trinkle Jones and Robert C. Euler, Published by the Grand Canyon Natural History Association, 1979.



Split-twig figurines vary in size from 1 to 8 inches, but all are of similar construction.

They are made from one twig (1) which was split to within several inches of its cut end (2). The unsplit portion formed the back leg and backbone (3). One split end, when wrapped around the legs (4), formed the body (5); the other end, which formed the front leg, was then brought up to construct the head and neck (6-8).

Drawings by Karen Schmitt.

Tusayan Ruin

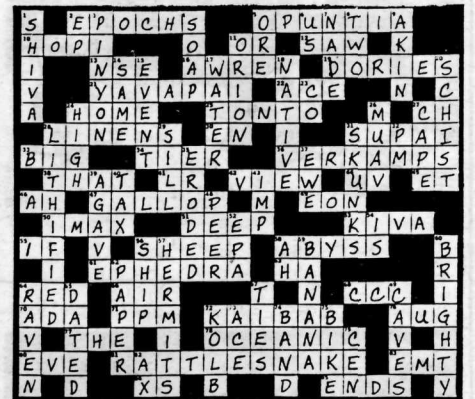
Much of the historical interest of the Grand Canyon is geological, but at Tusayan Ruin there is a change of focus to the human history of the area.

Tusayan Pueblo, one of more than 2,000 prehistoric Indian ruins at Grand Canyon, was occupied by about 30 people around 1185 A.D. The Indians who built it were ancestors of the present day Hopi who now live to the east of the Canyon.

These 12th-Century Indians were settled peoples. They cultivated corn, beans, and squash, which were supplemented by many edible wild plants and the deer, mountain sheep, and rabbits they hunted.

The ruin was abandoned in 1225 A.D., as were most of the Pueblo ruins at Grand Canyon. At that time severe drought conditions coupled with other climatic changes made it increasingly difficult for the people to continue their agricultural way of life. They relocated near more dependable sources of water to the east.

A visit to Tusayan Ruin and Museum will provide a glimpse of life at Grand Canyon some 800 years ago. The Museum, located four miles west of Desert View, is open daily from 9 a.m. to 5 p.m. A self-guiding trail leads through the adjacent 800-year-old ruin.



Crossword puzzle is found on page 12.



The Guide is published by Grand Canyon Natural History Association to provide information about Grand Canyon National Park. Copyright 1991 GCNHA

Evelyn Bettencourt, Guide Editor
McQuiston & Daughter, Inc., Designers

The Guide is printed on recycled paper.

The forest surrounding you at Grand Canyon National Park is unique in many ways. It is a forest in miniature, an island of pinyon pine and juniper supporting a select family of plants and animals.

Grand Canyon National Park is located on the Colorado Plateau, an area of approximately 130,000 square miles, encompassing Northeastern Arizona, Southeastern Utah, Southwestern Colorado, and Northwestern New Mexico. Elevations on the Plateau range from 4000 feet to over 12,000 feet. The pinyon-juniper forest is found in the 4000 to 7500-foot elevation range.

The Plateau climate is dry; rain comes in summer months during the "monsoon" season, with thunderstorms occurring almost every afternoon. These storms originate in the Gulf of California and move quickly northward, releasing large quantities of rain in a short period of time. Unfortunately, most of this moisture does not deeply penetrate the rocky soil.

Winter brings snowfall from Pacific storms. The higher elevations on the North Rim of the park receive up to eleven feet of snowfall, while the South Rim averages four or five feet a year.

The forest has adapted over time to the dry climate, lower elevations, and rocky soil of the Colorado Plateau.

Depending upon where you stand, you will see more of one type of tree than another. As you walk along the rim trail here at Grand Canyon National Park, you will see an equal number of pinyon and juniper trees. The predominant pinyon is the Colorado Pinyon (*Pinus edulis*) which is distinguished from the juniper in that it has cones and needles. Pinyons rarely reach more than 35 feet in height, and they grow very slowly -- top growth may be less than 2.5 cm a year; diameter growth less than 0.3 cm. Growth occurs during spring and summer months. Since growth of the pinyon is closely associated with rainfall, a dry year results in little or no new growth.

Juniper

Berries are not palatable to humans, but are used in the distilling of gin.



FOREST IN MINIATURE

The pinyon does not bear cones until it is 25 years old, and seed production does not occur until the tree is at least 75 years of age. Pinyon seeds are heavy and usually are not dispersed by wind. This task is left to small animals and birds. The Pinyon Jay, Clark's Nutcracker, Scrub Jay, and Steller's Jay, all of which live in the pinyon-juniper forest, collect cones and seeds in the fall and store them on south-facing slopes. Those seeds which are not eaten will germinate in spring with the melting snows. Not only does this symbiotic relationship benefit the future pinyon tree, but also birds receive nourishment throughout the winter from the stored seeds.

Small animals such as the Pinyon Mouse and Cliff Chipmunk carry and cache seeds in their middens, though these seeds are not carried nearly as far afield as those carried by birds. If you look closely at the forest floor, you will notice that it is relatively free of grass, pine needles, and duff. This sparse groundcover is conducive to pinyon and juniper growth. Small seedlings take

hold and flourish in rocky outcroppings -- the less interference from other plants, the better!

Juniper trees look similar to pinyons from a distance, but when you take a closer look you will see the difference. One unique characteristic is the rough-textured bark. The trunk of the juniper also appears more gnarled than that of the pinyon and its branches are bushier. The most common species of juniper at Grand Canyon National Park is Utah juniper (*Juniperus osteosperma*), with the alligator juniper (*Juniperus deppeana*) found less frequently.

Hardy junipers are even more adapted to arid areas than pinyons, and extend to lower elevations in the park. The juniper does not grow as tall as the pinyon, rarely topping fifteen feet, while the trunk is typically less than a foot in diameter. Small, bluish-colored "berries" form in late summer and are eaten by small animals and birds such as Townsend's Solitaires, American Robins, and Western Bluebirds. These birds collect berries during winter, eat them, and disperse the seeds during flight.

Pinyon Mice rely on the juniper for food and shelter, but do not play a major role in the caching and carrying of seeds. Both pinyon and juniper trees maintain mutually beneficial relationships with the birds and animals of the forest. For without each other, they would not have a chance for survival.

Certain other plants live harmoniously in association with pinyon and juniper. Big Sagebrush, Rabbitbrush or Chamisa, Gambel Oak, and Banana Yucca are hearty plants requiring little water and lots of sunlight, which is ample among the widely-spaced pinyons and junipers.

Humans living in or near the Canyon benefit from the plants in this unique forest. Anasazi Indians, who made their home in this area almost a thousand years ago, gathered the relatively reliable crop of pinyon nuts, a food rich in protein and fat (pinyon nuts are second only to cashews in protein value). The Anasazi also used the pinyon and juniper for shelter. Today Navajo, Havasupai, and Paiute Indians harvest pinyon nuts each fall, either by shaking the trees or gathering nuts that have already fallen to the ground.

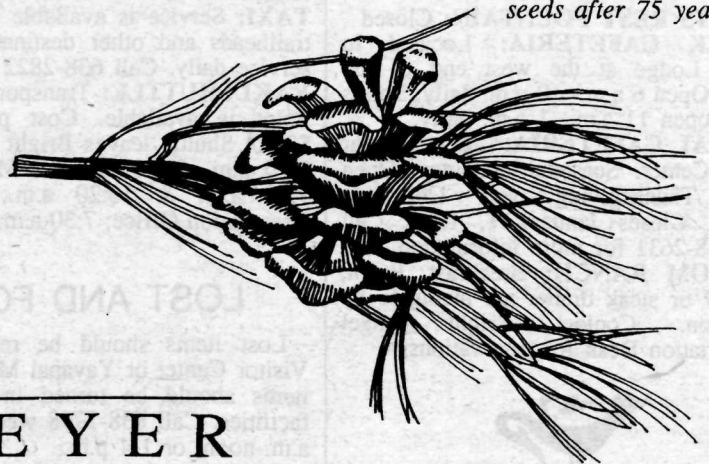
Juniper berries are not particularly delectable to humans, but they are used in the distilling of gin.

Pinyon and juniper trees also provide a source of fuel. The slow-, steady-burning juniper is prized for cooking fires. Pinyon trees play an important role in Indian religious ceremonies and folk medicine. Pollen is used in certain Navajo rituals; pinyon gum is believed to give the Hopi protection against sorcerers; and resin is used to seal baskets for use as water jugs, as well as healing cuts and sores.

Look closely at the pinyon-juniper forest, its unique features, and the close relationship it fosters with both man and animal. If you walk the Canyon trails at dawn or dusk, you will see in its shadows the illusion of a velvet cloak upon this Plateau which lies between the "low and high."

Pinyon Pine

The pinyon begins bearing cones after 25 years of growth, and seeds after 75 years.



BY

VALERIE MEYER



FACILITIES & SERVICES

Grand Canyon is on Mountain Standard Time year round.

EMERGENCY - 911

Dial 911 from a pay phone or residence. Dial 9-911 from your hotel or motel room.

LODGING

BRIGHT ANGEL LODGE: On the rim. \$33-182.

EL TOVAR HOTEL: On the rim. \$97-222.

KACHINA LODGE: On the rim. \$82-88. Make reservations at El Tovar Hotel.

THUNDERBIRD LODGE: On the rim. \$82-88. Make reservations at Bright Angel Lodge.

MASWIK LODGE: Located at the west end of the Village. \$40-86.

YAVAPAI LODGE: Located near Mather Center. \$65-75. Seasonal openings. Call (602) 638-2631 for more information.

Front desks of the above lodges are open 24 hours a day. For same-day reservations call (602) 638-2631. For advance reservations call (602) 638-2401 or write to Grand Canyon National Park Lodges, P.O. Box 699, Grand Canyon, AZ 86023.

PHANTOM RANCH: Overnight dormitory and cabin space is located at the bottom of the Canyon. Advance reservations are necessary. Call (602) 638-2401 or contact the Bright Angel Transportation Desk in person. 6:00 a.m.- 7:00 p.m.

FOOD AND DRINK

BABBITT'S DELICATESSEN: Babbitt's General Store. Open 8 a.m.-6 p.m.

BABBITT'S GENERAL STORE: Located across from the Visitor Center. Open 8 a.m.- 7 p.m. daily.

BRIGHT ANGEL RESTAURANT: Located in Bright Angel Lodge. Open 6:30 a.m.- 10 p.m. daily. Lounge open 11 a.m.-12:30 a.m. daily.

ARIZONA STEAKHOUSE: Located at east end of Bright Angel Lodge. Opens 5-10 p.m. No reservations accepted. Cocktails available.

EL TOVAR DINING ROOM: View of the Canyon. Open daily for breakfast, 6:30-11 a.m.; lunch, 11:30 a.m.- 2 p.m.; dinner, 5-10 p.m. Lounge open 11 a.m.- 1 a.m. daily.

HERMITS REST FOUNTAIN: Closed

MASWIK CAFETERIA: Located in Maswik Lodge at the west end of the Village. Open 6 a.m.- 10 p.m. daily. Sports Lounge open 11 a.m.- 1 a.m. daily.

YAVAPAI CAFETERIA: Located near Mather Center. Seasonal openings. Open during Thanksgiving and Christmas holidays. Closes January 1, 1992. Call (602) 638-2631 for more information.

PHANTOM RANCH: Breakfast, lunch, and stew or steak dinner are available by reservation. Contact Bright Angel Transportation Desk for reservations.

TRANSPORTATION

TRANSPORTATION DESKS: Information about taxi, bus, tours, mule rides, horseback riding, Phantom Ranch facilities, and sightseeing air tours of Grand Canyon is available at Transportation Desks in lodge lobbies:

Bright Angel Transportation Desk handles arrangements for Phantom Ranch and Mule Trips. Open 7 a.m.- 6 p.m. daily. **Maswik Transportation Desk** is open daily.

Yavapai Transportation Desk is open daily when Lodge is open.

AUTOMOBILE RENTAL: available year-round by contacting rental desks at Grand Canyon Airport. Budget Rent-a-Car, c/o Grand Canyon Airport, Grand Canyon, AZ 86023, (602) 638-9360; Dollar Rent-a-Car, Box 3294, Grand Canyon, AZ 86023, (602)638-2625.

BUS: Bus service between Grand Canyon National Park and Flagstaff or Williams, Arizona, is offered by Nava-Hopi Tours; call (602) 774-5003, or inquire at lodge transportation desks for schedule. Greyhound Bus Lines offers service to Flagstaff and Williams, Arizona, from points nationwide.

RAIL: Steam Train service is once more available between Williams, Arizona and Grand Canyon National Park. Limited winter schedule. Call 1-800-THE-TRAIN for reservations and information. AMTRAK stops at Flagstaff, Arizona, and connecting bus service is available daily through Nava-Hopi Tours (see above). For AMTRAK information, call (602) 774-8679 or 1-800-872-7245. The Railroad Express provides bus service for people wanting to take only a one-way trip on the Steam Train. Passengers may ride to Williams with Fred Harvey Transportation and take the train to Grand Canyon. Contact any Transportation Desk for information.

RIM TO RIM: Round-trip transportation service between Grand Canyon's South and North Rims. For additional information or reservations, call (602) 638-2820 or contact any lodge transportation desk.

SHUTTLE: Hourly scheduled shuttle service between Grand Canyon Village and the village of Tusayan, and Grand Canyon Airport. Inquire at Transportation Desks for schedule.

TAXI: Service is available to the airport, trailheads and other destinations, 24-hour service daily. Call 638-2822 or 638-2631.

YAKI SHUTTLE: Transportation to Yaki Point is available. Cost per passenger: \$3.00. Shuttle leaves Bright Angel Lodge; 7:10 a.m. & 10:10 a.m., Maswik Lodge; 7:20 a.m. & 10:20 a.m., Backcountry Reservation Office; 7:30 a.m. & 10:30 a.m.

LOST AND FOUND

Lost items should be reported at the Visitor Center or Yavapai Museum. Found items should be turned in at the same facilities. Call 638-7798 weekdays from 8 a.m.-noon, or 1-4 p.m.

TOURS

AIR TOURS: Fixed-wing and helicopter tours of the Grand Canyon region originate daily from Grand Canyon Airport and many other locations in Arizona, California, Nevada, New Mexico, and Utah. Contact your local Chamber of Commerce for detailed information. Air tour reservations may also be made at any Grand Canyon Lodge Transportation Desk. A list of air tour operators is available upon request from the Visitor Center and museums.

BUS TOURS: Tours within the park to Desert View and Hermits Rest available daily. Tours outside the park, including Monument Valley and a tour of Indian ruins and museums, are available by arrangement. Inquire at any transportation desk. The Railroad Express provides bus service for people wanting to take only a one-way trip on the Steam Train. Passengers may ride to Williams with Fred Harvey Transportation and take the train to Grand Canyon. Contact any Transportation Desk for information or call 1-800-THE-TRAIN.

MULE TRIPS: One- and two-day mule trips into the Canyon depart in the morning and are available on a waiting-list basis. Beginning November 1, a three-day mule trip into the Canyon. Call (602) 638-2631 or contact the Bright Angel Transportation Desk for full information.

RIVER TRIPS: Smooth water raft trips on the Colorado River are available Tuesday, Thursday, and Saturday only. Call (602) 638-2631 or arrangements may be made at any transportation desk. A list of river tour operators is available upon request at the Visitor Center and museums.



CURIOS

Bright Angel Gift Shop . . .	7 a.m.- 10 p.m.
El Tovar Gift Shop	7 a.m. - 10 p.m.
El Tovar Newsstand	7 a.m. - 10 p.m.
Hermits Rest	9 a.m.- 5 p.m.
Hopi House	8 a.m.- 5 p.m.
Lookout Studio	9 a.m.- 5 p.m.
Maswik Gift Shop	7 a.m.- 10 p.m.
Verkamp's Curio	9 a.m.- 6 p.m.
Yavapai Curio	8 a.m.- 5 p.m.
Film processing	10 a.m. - 5 p.m.

weather permitting

DESERT VIEW IN-PARK SERVICES

Chevron Service Station . . .	8 a.m.- 5 p.m.
closed for the season November 1.	
General Store	9 a.m.- 5 p.m.
Trading Post Fountain	9 a.m.- 4 p.m.
Trading Post Gift Shop	9 a.m.- 5 p.m.
Watchtower Gift Shop	9 a.m.- 5 p.m.
Watchtower Stairs	9 a.m.- 4:30 p.m.

MEDICAL SERVICES

GRAND CANYON CLINIC: Open Monday-Friday 8 a.m.-5:30 p.m.; Saturday 9:00 a.m. -noon. After hours care available. 24-Hour Emergency services. Phone 638-2551 or 638-2469.

PHARMACY: Open Monday-Friday, 8:30 a.m.- 5:30 p.m. Phone 638-2460.

DENTIST: Open Monday, Tuesday & Wednesday 8 a.m.-3 p.m.; Call 638-2395.

RELIGIOUS SERVICES

Church of Jesus Christ of Latter-Day Saints: Branch President Donald E. Keil. Office phone, 638-2792; home phone, 638-9426. All meetings held at Shrine of Ages. Sunday: 7 a.m. Melchizedek Priesthood; 8:15 a.m. Aaronic Priesthood, Young Women, Primary, Sunday School; 9:30 a.m. Sacrament Meeting; 10:45 a.m. Relief Society.

Roman Catholic: Father Bill O'Connor, 638-2390. Saturday: 5:30 p.m. Sunday: 8:30 a.m. and 10:30 a.m. All services at El Cristo Rey Chapel, located on the corner of Boulder and Albright streets. No street parking. Park in Grand Canyon School lot..

Grand Canyon Assembly of God: David F. Haynes, Pastor. Phone 638-9415. All services held at the Community Building. Sunday: Sunday School, 9 a.m.; Worship services 10 a.m. and 6 p.m. Thursday: Worship and Bible Study, 7 p.m.

Grand Canyon Baptist Church: Brother Ronald Nation. Office phone 638-9421, home phone 638-2284. Sunday: 9:30 a.m. and 5:00 p.m. Worship Service, Shrine of the Ages Auditorium; 11 a.m. Sunday School, at the Grand Canyon School. Wednesday: 7 p.m. Prayer and Bible Study at Shrine of the Ages; 7 p.m. RA's and GA's, WMU and Brotherhood at the Shrine of the Ages. Tusayan Baptist Mission: Sunday: 7 p.m. Worship Service, Grand Canyon Squire Inn, Hopi Room. Wednesday: Prayer and Bible Study, Hopi Room 7 p.m.

A Christian Ministry in the National Parks: Interdenominational. Resident Minister: Richard J. Matson, 638-2340. Sunday: 8:30 a.m. Worship at the West Rim Worship Site *through October 31*. 11:00 a.m. Worship at Shrine of the Ages, Nursery provided. Tuesday: 8 p.m. Bible Study in Church Office, 39 Coconino Dr.

SERVICE ORGANIZATIONS

Lions Club: Meets first and third Wednesdays at Maswik Lodge, 7 p.m. Call 638-2769 for information.

Alcoholics Anonymous: Meets Monday 7 p.m. and Friday 6:30 p.m. at the Fred Harvey Training Center. Call 638-2769 for information.

Grand Canyon Rotary Club: Meets Thursdays at Noon at the Canyon Room, El Tovar Hotel.





FACILITIES & SERVICES

OTHER SERVICES

BANK: Valley National Bank is located in Mather Center. Open Monday-Thursday, 10 a.m.-3 p.m.; Friday, 10 a.m.-3 p.m. and 4-6 p.m. Will cash travelers checks and exchange foreign currency. Cannot accept out-of-town checks. Cash advances on charge cards and wire transfers are available. A 24-hour automated teller machine accepts cards from Valley National Bank, American Express, Plus and Star systems, Arizona Interchange Network, and Master Teller.

POST OFFICE: Located in Mather Center. Window service Monday-Friday, 9 a.m.-4:30 p.m.; Saturday, 11 a.m.-1 p.m. Stamps available in lobby. Lobby open 5 a.m.-10 p.m. daily.

TELEGRAPH: A telegraph office is located in Grand Canyon National Park Lodges, General Offices. Open daily 8 a.m.-5 p.m.

GARAGE: Mechanic services available at Grand Canyon Garage, located east of Grand Canyon National Park Lodges, General Offices. Open 8 a.m.-5 p.m. daily. 24-hour emergency service. Phone 638-2631.

FUEL: Gasoline, diesel fuel, and propane are available at Grand Canyon Chevron station, located across from the Visitor Center. Open daily 7 a.m.-8:00 p.m. Beginning November 17-December 15 open daily 8 a.m.-7 p.m., December 16-31 open daily 7 a.m.-8 p.m. (Christmas Day open 7 a.m. to 6 p.m.) Beginning January 1, open daily 8 a.m. - 7 p.m.

LAUNDRY & SHOWERS: Near Mather Campground. Open daily, 8 a.m.-8 p.m. Occasional temporary changes in hours of operation may be necessary due to extreme weather conditions. Call 638-2631 ext. 6075 for possible changes.

BEAUTY & BARBER SHOP: Bright Angel Hair Design is located in Bright Angel Lodge. Open Tuesday-Saturday, 9 a.m.-5 p.m.; additional hours by appointment. Phone 638-2210.

PET KENNELS: Open daily, 7:30 a.m.-5 p.m. After 5 p.m. contact Fire and Safety for retrieval by calling 638-2631.



EQUIPMENT

EQUIPMENT SALES: Camping, hiking, and backpacking equipment may be purchased at Babbitt's General Store, located in Mather Center; open daily 8 a.m.-7 p.m.

EQUIPMENT RENTAL: Camping, hiking, and backpacking equipment may be rented at Babbitt's General Store, located in Mather Center; open daily 8 a.m.-7 p.m.

EQUIPMENTAL REPAIR: Limited repair services are available at Babbitt's General Store (see Equipment Rental listing for location and hours).

Camping on the South Rim

Campers may camp only in designated campsites while in the National Park. Violators are subject to citation and/or fine.

Mather Campground: Operated by the National Park Service, campsites (no hookups available) are \$10 per site per night (\$5 for Golden Age Passport holders). Reservations may be made at participating National Park Service areas. Check at the Campground Entrance Station for daily campsite availability and reservation details.

Desert View Campground: Closed for the season.

Trailer Village: Trailer sites with hookups are located next to Mather Campground; \$15.00 per site per night. Campers may register at the entrance of Trailer Village. Please call (602) 638-2631 for seasonal hours and same-day reservations. For advance reservations call (602) 638-2401 or write to Grand Canyon National Park Lodges, P.O. Box 699, Grand Canyon, AZ 86023.

Camper Village: Commercial campground located seven miles south of Grand Canyon Village in the town of Tusayan. Hookups are available. Call 638-2887 for further information.

Ten-X Campground: Closed for the season.

OUT-OF-PARK SERVICES SOUTH RIM

The following facilities are located in Tusayan, just outside the Park's south entrance on U.S. Highway 64 South. Additional services are also available. Consult the local telephone directory for further information.

LODGING

Grand Canyon Squire Inn	638-2681
Moqui Lodge	638-2424
Quality Inn	638-2673
Red Feather Lodge	638-2414
Seven Mile Lodge	638-2291

CAMPING

Camper Village	638-2887
Ten-X Campground (USFS)	638-2443

FOOD

Babbitt's General Store	638-2854
Canyon Food Mart	638-2608
Galaxy 4 Restaurants	638-2694
McDonalds	638-2208
Moqui Restaurant	638-2424
Squire Inn Restaurant	638-2681
Tusayan Steak House	638-2780
We Cook Pizza, Etc.	638-2278

FUEL


Moqui Service Station	638-9325
---------------------------------	----------


OTHER

Grand Canyon Tourist Center	638-2626
U.S. Forest Service	638-2443

Services for special populations

Programs, services and facilities that are fully or marginally accessible to persons with a physical disability are noted throughout *The Guide* using the following symbols:

 Wheelchair accessible

 *Accessible with assistance

The National Park Service provides wheelchairs for temporary use by park visitors. No rental fee is charged. A wheelchair is usually available at the Yavapai Museum and the Visitor Center. Visitors requiring wheelchairs may obtain a temporary permit at the West Rim kiosk for access to West Rim Drive in the summer. To obtain a temporary parking permit for handicap parking inquire at the Visitor Center or at Yavapai and Tusayan Museums.

Some ranger programs are adapted to meet the needs of persons with vision impairment. Tusayan Museum offers an exhibit guide in large print, and some exhibits at Yavapai Museum are accessible to those with vision impairment.

The Grand Canyon National Park Accessibility Guide is available upon request at the Visitor Center. Because this Access Guide is currently being revised, visitors are encouraged to check with rangers at the desk for the most current information about accessibility.



North Rim

The average distance across the Grand Canyon "as the raven flies" is ten miles. However, getting from the South Rim to the North Rim by automobile requires a five-hour drive of 215 miles.

Full-service accommodations are available at the Canyon's North Rim from mid May to mid October, weather permitting. Reservations are strongly recommended. Additional facilities are available in the surrounding National Forest and nearby town of Jacob Lake.

A separate *Guide* issue is published for the North Rim, and includes details about facilities and services as well as program and hiking information. Inquire at the South Rim Visitor Center. Quantities are limited.

Tips for a Safe Visit

To help make your visit to Grand Canyon safe and enjoyable, here are a few tips from the National Park Service.

• **Watch your children.** Your hand and voice may be too far away once your child has climbed over a barrier or wall.

• **Keep your distance from wildlife.** Do not feed, touch, or disturb animals in the park. Rodents may bite and large animals have been known to kick when startled.

• **Find a friend.** Most hiker fatalities occur with solo hikers. Make sure someone knows your plans. Overnight stays in the Canyon require a free permit. Ask a ranger for permit information.

• **Pay attention to weather changes.** Use caution when walking near the canyon rim and driving in the Park, especially in rainy or snowy conditions.

• **Know your limits.** Elevation on the South Rim is 7,000 feet (2,134 meters) above sea level. People with heart and respiratory problems should be especially cautious about over exertion.

• **Keep track of your belongings.** Remove all valuables from your car and trunk. Immediately report any suspicious activity to a ranger. Thieves work quickly.

• **Pets must be physically restrained** at all times. They are allowed on paved rim trails but not below the rim. The only exception is guide dogs for people who are blind or deaf.

• **Bicycles are permitted** only on primary paved roads, secondary dirt roads and fire roads. Helmets are strongly recommended, and headlights and reflectors are required at night.

• **Bicycle use is strictly prohibited off-road and on trails.** Violators will be cited and fined, and their bicycles confiscated.

• **Obey posted speed limits.**

• **Protect your park.** Grand Canyon National Park is fully protected by federal law to preserve it for future generations. Do not disturb or remove any natural or cultural feature, including fossils, rocks, plants, animals, and artifacts.

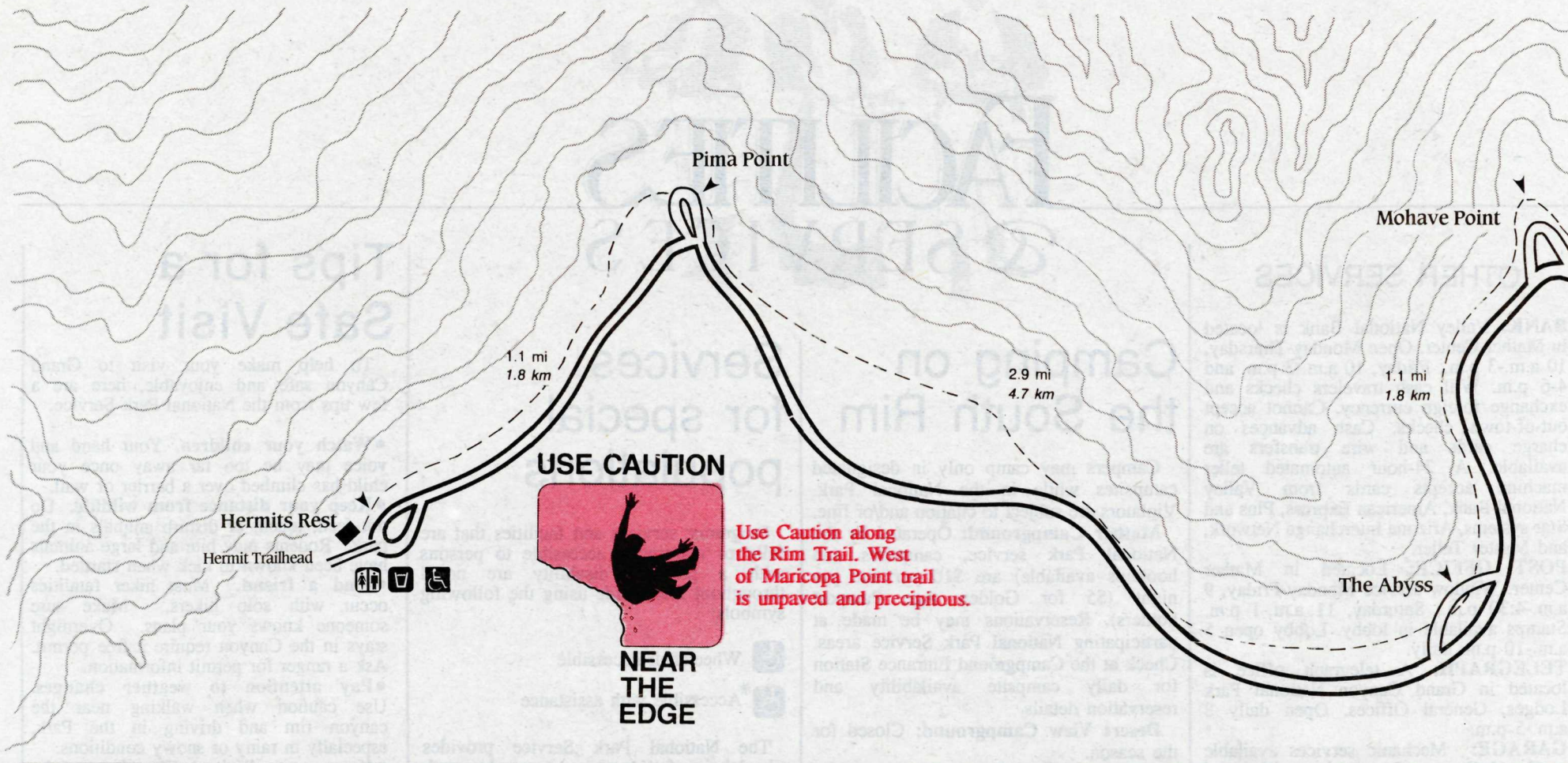
• **EMERGENCY - DIAL 911** from pay phones or residences. From hotel or motel rooms dial 9-911. A 24-hour emergency telephone is located at the Visitor Center, to the left of the front door.

• **Parking in handicapped areas** is restricted to vehicles displaying handicapped license plates. Temporary parking permits are available at the Visitor Center, Yavapai Museum and Tusayan Museum.

• **Camp only within designated campsites** in the National Park. Violators may be fined.

• **Fishing requires an Arizona fishing license.** Licenses are available at Babbitt's General Store in Grand Canyon Village.

• **Visitors are responsible** for knowing park rules and regulations.



West Rim Drive and Nature Trail

The West Rim Drive begins just west of Grand Canyon Village, and continues along the Canyon rim for eight miles, ending at Hermits Rest. Numerous overlooks afford fine views of the Canyon and occasional glimpses of the Colorado River. See map for details.

No water or restrooms are available along the West Rim Drive until you reach Hermits Rest.

TRAILVIEW I & II

From Trailview Overlook you have an excellent view of the Village to your right. On the southeastern horizon you can see the San Francisco Peaks, Red Butte, and Bill Williams Mountain.

The Bright Angel Trail winds into the Canyon from your right. You can follow it to Indian Garden, the patch of cottonwood trees on the Tonto Plateau, -- 4.6 miles from the rim, and a vertical drop of 3,000 feet. If you look carefully you may be able to see hikers or mules on the trail.

The Plateau Point Trail extends north from Indian Garden to the edge of the Tonto Plateau.

Bright Angel Trail follows a side canyon that was formed by erosion along the Bright Angel Fault which runs north-south across the entire breadth of the main canyon. Movement along this fault-line caused minor earthquakes and cracked the earth's crust. Erosive forces have widened and deepened these cracks. Bright Angel Creek flows down this faultline from the North Rim.

MARICOPA POINT

On the rim to your left is the Orphan Mine, originally claimed for copper in 1893. In the canyon below and to the left of this point you can see a mine opening

with cable lines leading to the structure on the rim. The ore was extremely pure, but the economics of transporting it from the canyon made the venture unprofitable. In 1954 uranium was discovered, but mining stopped again in 1966. In 1976 ownership reverted to the park.

From this overlook the Vishnu Schist with its pink granite intrusions is noticeable in the deepest part of the Canyon. This is some of the oldest exposed rock on earth.

POWELL MEMORIAL

In 1869 John Wesley Powell and a party of nine men navigated the Colorado River through Grand Canyon. Until that time the river's course had never been charted and on most maps the region was an ominous blank.

With heavy wooden boats, crude or no safety equipment, poor provisions, and no way of knowing what dangers were ahead, Powell set out to chart this unknown region, naming tributaries and buttes as they went along.

HOPI POINT

From this point you can see a long section of the Colorado River, including a portion of Granite Rapid to the west. From this vantage point the river doesn't look 350 feet wide, but it is.

The entire course of the river is 1450 miles from its source in Wyoming to the Gulf of California -- 277 of those miles are in Grand Canyon National Park. As it flows through the park the river drops 2,200 feet in elevation. This sharp decline, coupled with the tremendous siltload carried in the water, makes it a very effective cutting tool.

MOJAVE POINT

A stretch of whitewater known as Hermit Rapids can be seen along the river toward the west. On a still day the sound of the rapid's monstrous waves is audible on the rim.

Hermit and two rapids seen upstream from this point, Granite and Salt Creek Rapids, are formed at the mouths of side creeks where boulders and debris have washed down during severe storms. This process of erosion and deposition continues to shape and reshape the canyon. As a result, the landscape you see before you is ever-changing.

THE ABYSS

The Great Mojave Wall drops a sheer 3,000 feet to the head of Monument Creek on the Tonto Plateau. The major cliffs of the Grand Canyon are formed from limestone and sandstone which are more resistant to erosion than the softer shales that form more gradual slopes. The cliffs form when softer rock beneath them is eaten away by erosion. The loss of support to the overlying formations causes sections of rock to break away.

PIMA POINT

Below you, on the Tonto Plateau, are faint traces of the Tonto Trail which traverses the plateau, nearly 1500 feet above the Colorado River. From beginning to end, the Tonto Trail is more than 70 miles long.

If you look closely at the plateau from the west side of Pima Point, you can see faint outlines of building foundations--reminders of Hermit Camp. Built by the Santa Fe Railroad in 1911, this tourist camp offered cabin and tent accommodations. It was closed in 1930, and the buildings were removed, but it remains a popular backpacking area.

HERMITS REST

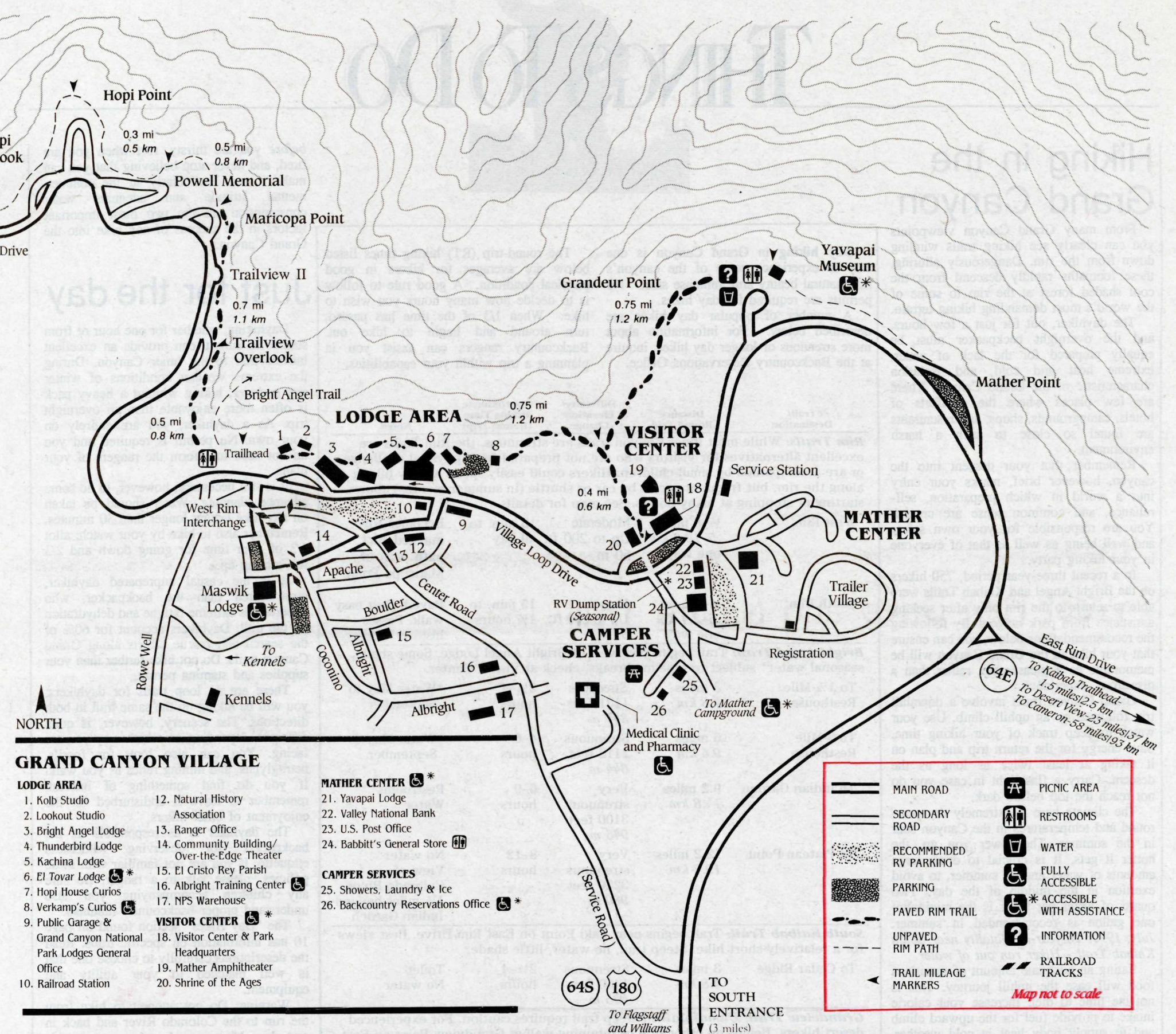
This point, the side canyon, and two trails are named after Louis Boucher, known locally as "the Hermit." Boucher came to the Grand Canyon from Canada around 1891 in search of mineral wealth. He worked several claims in the canyon and made his home at Dripping Springs.

Hermits Rest, a stone-and-log rest-house designed by Mary Jane Colter, was built in 1914, after Boucher had left the canyon. Today, as then, it offers a resting place for weary travelers. Restrooms and drinking water are available. Hermit Trail begins at this point.



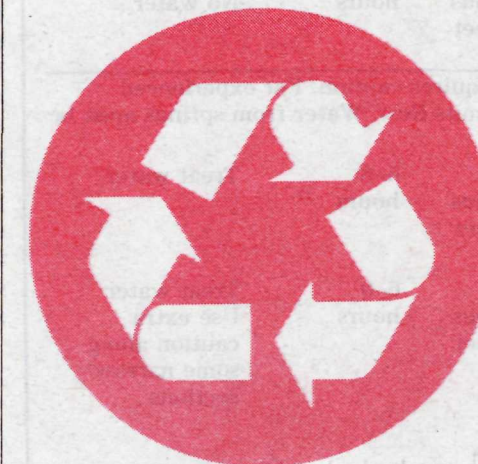
SUNRISE & SUNSET

November 17	7:07 a.m.	5:20 p.m.
November 23	7:13 a.m.	5:17 p.m.
November 28	7:18 a.m.	5:15 p.m.
December 5	7:24 a.m.	5:14 p.m.
December 15	7:32 a.m.	5:16 p.m.
December 25	7:37 a.m.	5:20 p.m.
January 1	7:39 a.m.	5:25 p.m.
January 11	7:40 a.m.	5:33 p.m.



Recycle it!

Each year the average American uses 580 pounds of paper - almost 5 trees worth!



Each year one million copies of *The Guide to Grand Canyon National Park* are printed and distributed to park visitors free of charge.

We print it on newsprint -- 77,238 pounds of newsprint to be exact! Because the paper is made up of 65% recycled fiber, each year we save the following resources: **427 trees, 102,969 kwh of energy** (that's enough to fuel 12.5 homes for a year), **175,716 gallons of water** (a lot of long showers), and we release **1400 fewer pounds of effluent** into the atmosphere.

These are significant savings. But another consideration -- the disposal of

solid waste -- is even more crucial at the present time.

The average American generates waste at the rate of 3.58 pounds per day -- 447,500,000 tons of trash nationwide. Each day! Of that total, 38% is paper and paperbound -- the single largest category of waste material. Fully half of that waste paper could be recycled. Instead, we are burying our resources, and creating a waste-disposal crisis in the process.

By printing *The Guide* on recycled paper, in one year we divert 75 cubic feet of solid waste from landfill, and save over \$500 in tax dollars that would be spent to dump it.

THINGS TO DO



Hiking in the Grand Canyon

From many Grand Canyon viewpoints you can clearly see hiking trails winding down from the rim. Dangerously alluring, these footpaths rapidly descend from the cool shaded forest at the rim to some of the world's most demanding hiking terrain.

The dayhiker, out for just a few hours, and the overnight backpacker must be equally prepared for the lack of water, extreme heat and cold, and isolation characteristic of the Grand Canyon. There are few places where the comforts of hotels, campgrounds, shops, and restaurants are found so close to such a harsh environment.

Remember that your descent into the canyon, however brief, marks your entry into a world in which preparation, self-reliance, and common sense are crucial. You are responsible for your own safety and well being as well as that of everyone in your hiking party.

In a recent three-year period, 750 hikers on the Bright Angel and Kaibab Trails were able to return to the rim only after seeking assistance from park rangers. By following the recommendations below, you can ensure that your hike in the Grand Canyon will be memorable as a pleasurable, rather than a disastrous, experience.

Grand Canyon trails involve a downhill trip followed by an uphill climb. Use your watch to keep track of your hiking time. Save energy for the return trip and plan on it taking at least twice as long as the descent. Carry a flashlight in case you do not reach the top before dark.

The climate here is extremely dry year-round and temperatures in the Canyon soar in the summer. The lower you go, the hotter it gets. It is crucial to drink large amounts of water and, in summer, to avoid exertion in the middle of the day. Two quarts of water per hiker is the minimum; one gallon is recommended in summer. July, 1990: 26-year-old fatality near South Kaibab Trail - Hiker ran out of water.

Eating an adequate amount of nutritious food will ease the uphill journey. This is not the time to diet. Increase your calorie intake to provide fuel for the upward climb and to supply body heat in cold weather. Granola bars and high sugar foods are not sufficient to sustain you for hours of hiking.

If you are with a slower hiker, do not leave that person alone! It is particularly important not to take the person's food and water in an effort to lighten their load. Walk with the slower hiker to provide physical and psychological assistance. This will save you much subsequent worrying when you are unsure of the location and welfare of your abandoned companion.

Finally, a positive mental attitude is essential. The Grand Canyon is so demanding that even people in excellent condition often emerge sore and fatigued. Yet it has been hiked by small children, senior citizens, and people with physical disabilities. Eat when you are hungry, drink

Day hiking in Grand Canyon is one way to experience some of the canyon's rich natural beauty and immense size. No permits are required for day hikes.

A number of popular day hikes are described below. For information about more strenuous or longer day hikes, inquire at the Backcountry Reservations Office.

The round-trip (RT) hiking times listed below are averages for hikers in good physical condition. A good rule to follow is to decide how many hours you wish to hike. When 1/3 of the time has passed, turn around and begin to hike out. Backcountry rangers can assist you in planning a trip within your capabilities.

Trail/ Destination	Distance Round Trip	Difficulty/ Elevation Change	Approximate Hiking Time (Round Trip)	Notes
Rim Trails: While most Inner Canyon trails are strenuous, the Rim Trails are excellent alternatives for visitors who are not prepared for a physical challenge, or are accompanied by small children. Hikers could easily spend all day hiking along the rim, but frequent access by car or shuttle (in summer months) allows starting or stopping at many points. See map for details.				
West Rim	1/3-8 mi .5-12.8 km one way	Moderate Up to 200 ft. 60 m	15 min. to all day	Becomes un- marked dirt path west of Maricopa Point.
South Rim	1/3-1 1/2 mi .5-2.4 km one way	Easy Up to 200 ft. 60 m	15 min. to 1 1/2 hours	Paved. Best easy walk. Passes historic buildings.
Bright Angel Trail: Trail begins just west of Bright Angel Lodge. Some shade, seasonal water* subject to pipeline breaks, check at Visitor Center.				
To 1 1/2-Mile Resthouse	3 miles 4.8 km	Strenuous 1131 feet 345 m	2 1/2-4 hours	*Water May to September
To 3-Mile Resthouse	6 miles 9.6 km	Strenuous 2112 feet 644 m	4-6 hours	*Water May to September
To Indian Garden	9.2 miles 14.8 km	Very strenuous 3100 feet 945 m	6-9 hours	Restrooms Water
To Plateau Point	12.2 miles 19.7 km	Very strenuous 3220 feet 980 m	8-12 hours	No water View of Colorado River 1 1/2 miles beyond Indian Garden
South Kaibab Trail: Trail begins near Yaki Point on East Rim Drive. Best views for a relatively short hike. Steep trail, no water, little shade.				
To Cedar Ridge	3 miles 4.8 km	Strenuous 1450 feet 445 m	2 1/2-4 hours	Toilet No water
Grandview Trail: <i>Unmaintained</i> steep trail requires caution. For experienced desert hikers. Begins on other side of retaining wall at Grandview Point on East Rim Drive (12 miles east of the Village). <i>Hiking boots recommended.</i>				
To Horseshoe Mesa	6 miles 9.6 km	Very strenuous 2600 feet 792 m	7-11 hours	Toilet No water
Hermit Trail: <i>Unmaintained</i> steep trail requires caution. For experienced desert hikers. Begins 500 feet south of Hermit's Rest. Water from springs must be treated. <i>Hiking boots recommended.</i>				
To Santa Maria Springs	5 miles 8 km	Very strenuous 1200 feet 360 m	5-8 hours	Treat water
To Dripping Springs	6 miles 9.5 km	Very strenuous 1350 feet 412 m	6-9 hours	Treat water Use extra caution along some narrow sections

before you are thirsty, rest when you are tired, and never stop believing that you can make it out. Particularly in the summer, mental attitude and adequate water consumption are the two most important factors in the success of any hike into the Grand Canyon.

Just for the day

Dayhiking, whether for one hour or from sunrise to sunset, can provide an excellent introduction to the Inner Canyon. During the extreme weather conditions of winter and summer, hiking without a heavy pack is often more enjoyable than an overnight trip. As a dayhiker, you are entirely on your own. No permit is required and you do not need to inform the rangers of your plans.

It is still necessary, however, to do some advance planning. Water should be taken on any hike lasting longer than 30 minutes. Remember also to hike by your watch; allot 1/3 of your time for going down and 2/3 for coming up.

It is the casual unprepared dayhiker, more often than the backpacker, who experiences extreme fatigue and dehydration on the trail. Dayhikers account for 60% of the search and rescue efforts along Grand Canyon trails. Do not hike farther than your supplies and stamina permit.

There are no loop trails for dayhikers; you will be hiking on the same trail in both directions. The scenery, however, is quite different, depending on which way you are facing. You can also look for fossils, petroglyphs, and mining relics as you walk. If you do find something of interest, remember to leave it undisturbed for the enjoyment of other hikers.

The dayhiker is as responsible as the backpacker for observing wilderness etiquette. If you are not familiar with these policies, please talk to a ranger. Be sure any children accompanying you also understand proper backcountry manners.

The "Day Hikes" section found on page 10 has information on specific trails. Read the descriptions carefully to choose one that is well matched to your ability and equipment.

Warning: Do not attempt to hike from the rim to the Colorado River and back in one day. Many people who attempt this have suffered serious illness or death.

LEBENSGEFÄHRLICH: Unternehmen Sie keine Wanderung vom Schluchtrand hinunter bis zum Colorado Fluß und wieder hinauf innerhalb eines Tages! Viele Wanderer, die eine solche Tour versucht haben, erlitten schwere gesundheitliche Folgen bzw. den Tod.

NE TENTEZ PAS de faire une randonnée aller et retour depuis le bord du canyon jusqu'au fleuve Colorado dans une seule journée! Beaucoup ayant tenté cette excursion subirent de graves maladies ou même la mort.

危険 リムからコロラド川までを日帰りでハイキングしないで下さい。この距離を一日で往復して病気になるたり、死亡した人もいます。

THINGS TO DO

Camping below the rim

Overnight

Backpacking in the Grand Canyon provides a degree of solitude, wildness, and silence that is increasingly difficult to find. In the 1970s, overcrowding and environmental degradation made it necessary to institute a set of rules and regulations to which all backpackers are subject.

Permit Required

Chief among these is the requirement to obtain a permit. The main purpose of the permit is to control the number of people in one place at one time and thereby limit the impact from litter, human waste, and trampling of the ground. Guests of Phantom Ranch Lodge do not need permits.

Write for Reservations

Permits must be obtained through the mail or in person and should be reserved as far in advance as possible. Reservations may be made starting on October 1 for the following calendar year. Reservation requests should be mailed to Backcountry Reservations Office, P.O. Box 129, Grand Canyon, AZ 86023. Permits are free and it is not necessary to include a stamped, self-addressed envelope.

Call for Information

Information is available by telephone which is answered from 11 a.m. to 5 p.m. (MST), Monday through Friday, except on federal holidays. At all other hours, information is provided by a variety of recorded messages. The telephone number is (602) 638-7888.

In Person

If you are in the park, you may visit the Backcountry Reservations Office, open from 8 a.m. to 12 noon, and 3 p.m. to 5 p.m. daily; the office opens at 7 a.m. in the summer. The office is near Mather Campground, next to the showers and laundry. Here hikers without reservations can place their names on the waiting list for cancellations. The North Rim Backcountry Office, open in summer only, is in the Administration Building.

Planning a Trip

To obtain a permit, backpackers must submit a night-by-night itinerary. Planning information is available from the Backcountry Reservations Office and in many publications available commercially. Keep your trip within your capabilities. After you have started your hike, you are required to follow your itinerary.

Availability of water, temperature extremes, snow pack, and your level of experience are a few of the more important considerations. Hiking with a heavy backpack on steep rocky trails requires excellent balance; many trails demand an unusual degree of agility and constant attention to footing.

On the Trail

Carry as light a pack as possible during the summer and on any hike involving long ascents and descents. A heavy pack adds to the extreme stress already placed on the knees by the angle of the trails. *Essential items include a signal mirror, first aid kit,*

and sturdy water containers. An equipment checklist is available from the Backcountry Reservations Office.

Your Sole Support

Keep your feet happy by wearing good footwear that is broken in. Use moleskin to prevent chafed spots from becoming blisters or abrasions. Light hiking or running shoes are adequate on the Kaibab and Bright Angel Trails; hiking boots should be worn on all other trails for traction, ankle support, and protection from rocks. Good boots are just as important for children as for adults. *August, 1986: 26-year-old female fell to her death while climbing above a waterfall in tennis shoes.*

Protect Your Provisions

Many Grand Canyon animals have learned to raid backpacks for food. Others root through your possessions out of curiosity. To prevent damage to your pack, leave the compartments open to inquisitive rodents; otherwise they will chew through the fabric. At any midday or overnight camp, place your food in a stuff sack and hang it from rock overhangs, sturdy branches, or pack poles where provided.

Leave Only Footprints

During your hike you will be required to conform to many regulations concerning disposal of human waste, selection of campsites, prohibition of fires, and other issues. Be sure that you are familiar with and understand these rules when you receive a permit. Violators may be fined under federal law. These rules were all developed to prevent environmental damage. Please observe them carefully.



Hikers please yield to mules.

Trouble on the trail

Occasionally, true emergencies occur in the backcountry. Never abandon someone who is in trouble. Call for help, use your signal mirror, or send a message with another hiker. Almost all emergencies can be avoided with proper forethought. Many problems, when closely examined, are not truly critical and can be resolved by those involved.

Two genuine emergencies are heat stroke and hypothermia. Heat *stroke* occurs when the body overheats uncontrollably. Symptoms include hot dry skin, irrational behavior, and loss of consciousness. Cool the patient immediately and send for help. *July, 1988: 52-year-old man, dayhiking to the Colorado River with one liter of water, developed a body temperature of 109 degrees F. Rangers successfully rescued him one mile from Indian Garden.*

Hypothermia results when the body cannot keep itself warm. Early symptoms are shivering, drowsiness, and fatigue. Late symptoms are irrational behavior and loss of consciousness. Patients should be given dry clothing and hot drinks, be protected from wind, rain and cold, and be warmed by skin contact with another person. *February, 1989: Hypothermic man found face down in snow on Bright Angel Trail, 1-1/4 miles from rim. Hiker had attempted rim to river roundtrip with no food, water, or extra clothing. Victim was close to death when found by rangers.*

More commonly, hikers develop heat exhaustion as a result of overexertion and dehydration. The best treatment is to rest as long as necessary, often several hours, while increasing food and water consumption. Hikers suffering from heat exhaustion do not usually need additional assistance. Fatigue and muscle soreness are not medical emergencies.

Helicopter evacuations are an ambulance service. If your medical condition would not warrant an ambulance in your hometown, do not anticipate being flown out of the canyon. Flying a helicopter in the Grand Canyon is risky, given the uneven terrain for landings and the odd wind currents. We take it so seriously that full leather boots, flame resistant gloves, flame resistant flightsuits, and crash helmets must be worn by every passenger.

If someone asks you to convey a request for assistance, please try to obtain the following information: nature of problem, number of people involved, physical description of the people involved, and the location. If possible, please remain available to answer additional questions.

Rangers are prepared to respond to problems of all kinds and will provide a necessary and appropriate level of assistance. Evaluate your situation rationally and thoroughly before requesting for help.

Do Nothing

"Do Nothing to mar its grandeur, for the ages have been at work upon it and man cannot improve it. Keep it for your children, your children's children and all who come after you . . ."

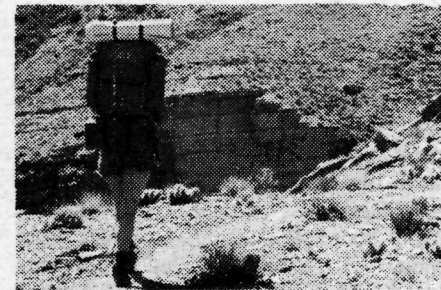
Every action you take should be evaluated in light of Theodore Roosevelt's words. You are one of hundreds of thousands of people who walk these trails in a given year. Imagine what the park would look like if each of 500,000 hikers dropped litter, collected rocks, picked a wildflower, and took a lizard home as a pet. The Grand Canyon and all national parks can remain extraordinary only through the efforts of the visitors.

While hiking the canyon, practice the principles of minimum impact or no-trace camping. The essence of this philosophy is to leave everything as you found it. Advice is available at the Backcountry Reservations Office. When camping with children consider designing a game in which a detective tries to figure out where you have stayed. The goal is to stump the detective by providing no clues.

As a result of human interference, many deer and squirrels in the park have become dependent on handouts; they may starve during the winter months if they are not encouraged to forage. The high salt and sugar content of snack foods can cause their death. The squirrels frequently bite and the deer kick powerfully. *Never feed the animals.*

At the Grand Canyon, as at all popular parks, the damage done by visitors is increasing due to the huge numbers of people involved. Many parks find that they are gradually being stripped of their fossils, artifacts, and rocks. These natural and historic features are being replaced by cigarette butts, gum wrappers, tissues, orange peels, and other trash.

Taking home what you find attractive deprives later visitors of the same pleasure of discovery. Once taken, rocks, fossils, and artifacts can never be replaced. Please help preserve the Grand Canyon for future generations by treating it as you would your most treasured possessions. It is, after all, one of your national parks, to be enjoyed ". . . in such a manner and by such means as will leave them unimpaired for future generations."

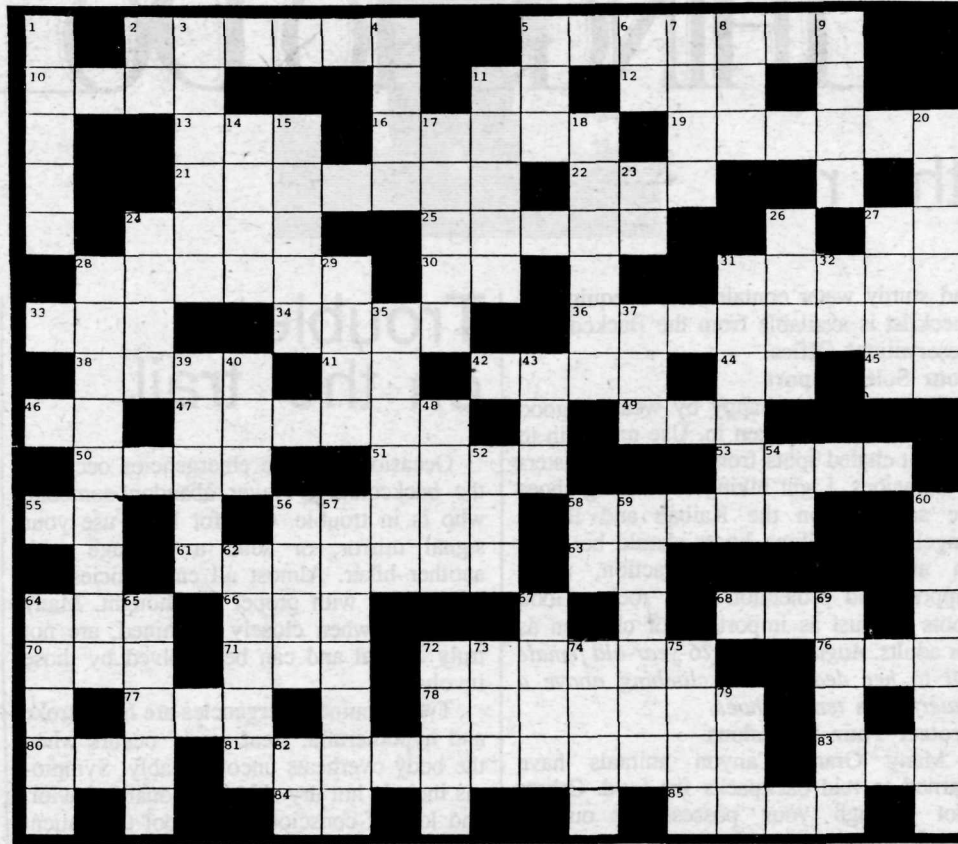


Carry--and drink!--water. Rest often

Grand Canyon Crossword Puzzle

ACROSS

- 2. Miocene, Pliocene, Pleistocene, etc.
- 5. Prickly pear genus
- 10. Popular sunset point on West Rim
- 11. Decisions, decisions: either/___
- 12. Observe (past tense)
- 13. 3 of 4 compass points
- 16. Bird sighting: ___!; feathered examples include canyon ____, rock ____, house ____.
- 19. Kind of Colorado River boat (pl.)
- 21. Local geology museum
- 22. Sightseeing pilot
- 24. Where you're from
- 25. ___ Plateau
- 27. ___ angling landforms
- 28. Provided at Phantom Ranch cabins
- 30. Lich___: symbiotic bare rock colonizer
- 31. Called "Grand Canyon Shangri-la"
- 33. Canyon adjective
- 34. Rock layer
- 36. Moved to present location 1905
- 38. Look at ___!
- 41. Meta___ail: protective fence
- 42. Lipan, Moran, & Yaki provide this
- 44. Suntan producing light
- 45. Famous hotel's initials
- 46. Sound uttered when soaking feet after a long day hiking
- 47. Not on a mule ride
- 49. Thousands and thousands of years
- 50. Big screen movie
- 51. The Grand Canyon averages 1 mile
- 53. Ruins of this at Tusayan museum
- 55. Tentative conjunction
- 56. Desert bighorn
- 58. Between Pima and Mohave Points
- 61. Mormon tea
- 63. In combination with 58 down: happy exclamation
- 64. A rock layer: ___ wall limestone
- 66. Resource quality concern
- 68. Civilian Conservation Corps (abbr.)
- 70. Wife of W.W. Bass
- 71. Parts per million (abbr.)
- 72. A popular hiking trail
- 76. Traditionally hottest month (abbr.)
- 77. ___ Bright Angel Trail
- 78. Describing a vast, inland ocean
- 80. Night before the big vacation
- 81. Pink reptile; endangered species
- 83. Emergency Medical Technician (abbr.)
- 84. Cross section (abbr.)
- 85. Finishes the puzzle



Crossword answers on page 13.

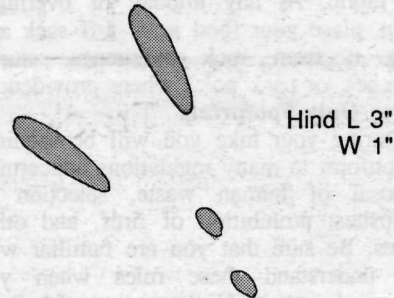
Puzzle created by Wade Williams

DOWN

- 1. Rumored temple home of dinosaurs
- 2. Evening Program (abbr.)
- 3. ___ pine
- 4. Anasazi Indians used the root of the yucca plant for this
- 5. Object of 1880s copper rush
- 6. Leave the driving to ___
- 7. Suffix common to Esplanade, Colonade
- 8. A pair
- 9. Verkamp's artist
- 11. Bright winter constellation
- 14. No two Grand Canyon temples are the ___
- 15. Geological ___
- 17. Hiker's companion
- 18. Endemic
- 20. Not a profane rock
- 23. Company (abbr.)
- 24. Kaibab plateau
- 26. Limestone layer below the redwall limestone
- 27. A North Rim lookout across from Moran Point: ___ Royal
- 28. Turned to stone (not petrified)
- 29. Volcanic intrusion
- 31. Spotted and Striped mustelids
- 32. Sunset designation
- 35. Lost from the rock record
- 37. Female desert bighorn sheep
- 39. Century plant
- 40. None of this at Visitor Center bookstore
- 43. A cavorting raven
- 48. Gaze through binoculars
- 52. Gov't agency regulating air quality (abbr.)
- 54. ___ that the East Rim Drive?
- 56. Rock formation: the Battle ___
- 57. ___ Rest
- 58. In combination with 63 Across: happy exclamation
- 59. Type of yucca found locally
- 60. Most famous Grand Canyon burro
- 62. Much-read prospectus
- 64. Local winged acrobat
- 65. Determining a rock's age (past tense)
- 67. The ___ that bind (pl.)
- 69. These pocket the limestone cliffs
- 72. Studio by the Bright Angel trailhead; last name of two famous Canyon photographers
- 73. Same as 22 across
- 74. A single, bright rock layer in the Painted Desert
- 75. Bicycle (colloq.)
- 79. Of Cen- and Mes-; the one meaning recent
- 82. Used to chop wood

Desert Cottontail

Rabbit tracks are easy to distinguish because of their long hind feet. Rabbits almost always gallop, leaving a characteristic pattern of hind feet landing in front of fore feet. Which direction is this rabbit moving?



For more information about deciphering tracks in the snow see page 13.

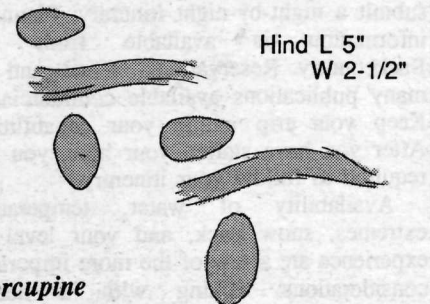
Wasted money

Wait! By tossing that soda can or cigarette butt to the ground, you are throwing your money away. Not literally perhaps, but Grand Canyon National Park spent more than \$30,000 on litter pick-up last year alone.

If every visitor uses the waste receptacles provided at overlooks and facilities this year, the National Park Service can better spend those funds to benefit park resources or improve visitor services. It's so easy, if we all pitch in.

Litter lingers:

- Aluminum cans 80-100 years
- Glass bottles 1,000,000 years
- Plastic bags 10-20 years
- Plastic-coated paper 5 years
- Plastic film containers 20-30 years
- Nylon fabric 30-40 years
- Rubber boot sole 50-80 years
- Leather up to 50 years
- Wool socks 1-5 years
- Orange or banana peels 2-5 weeks
- Cigarette butts 1-5 years



Porcupines walk "pigeon-toed," leaving prints turned in at an angle. Even distinct tracks may not show clear toe prints, but they will show the rough texture from the surface of the foot. The animal's tail trails along behind, leaving drag marks. In deep snow, the porcupine plows a wide trough. Trails often end at a tree where some bark may be chewed off.

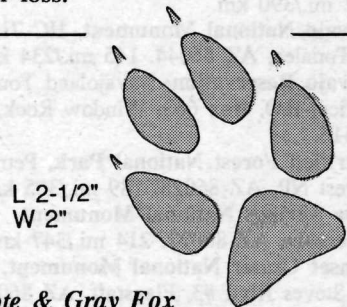
Winter at the Grand Canyon is a difficult season for plants and animals alike. The winter environment changes drastically from the hot summer environment, causing plants and animals to adapt to these changes.

At mid-latitudes solar energy reaching the earth on a winter day is only half what it was in summer. If snow is on the ground, 75-95% of the sunlight hitting the snow is reflected back into space. The resulting cold temperatures create a great deal of stress on the plants and animals living here. As plants die or become dormant, and many animals leave the area for the season, the remaining animals have difficulty finding food. This scarcity of food creates further hardships. In response to these stresses, plants and animals have adapted to survive winter conditions.

PLANTS living on the rim of the Grand Canyon must be hardy to withstand extreme variations between winter and summer temperatures. Most plants live longer than one year and go dormant in the winter. Herbs die back as winter approaches, leaving an underground bulb or root which stores energy for rapid growth the following spring.

Most trees in the park are conifers which are able to withstand both winter cold and seasonal drought. Unlike deciduous trees which drop their leaves in fall, conifers keep their foliage throughout the year, which enables them to convert sunlight into useable energy during the winter. To keep from freezing, trees reduce the water content of their sap. Like antifreeze, the concentrated sap prevents plant tissue from freezing at low temperature. Trees are further insulated by bark and woody tissue, and their foliage is protected by a thick, waxy coating.

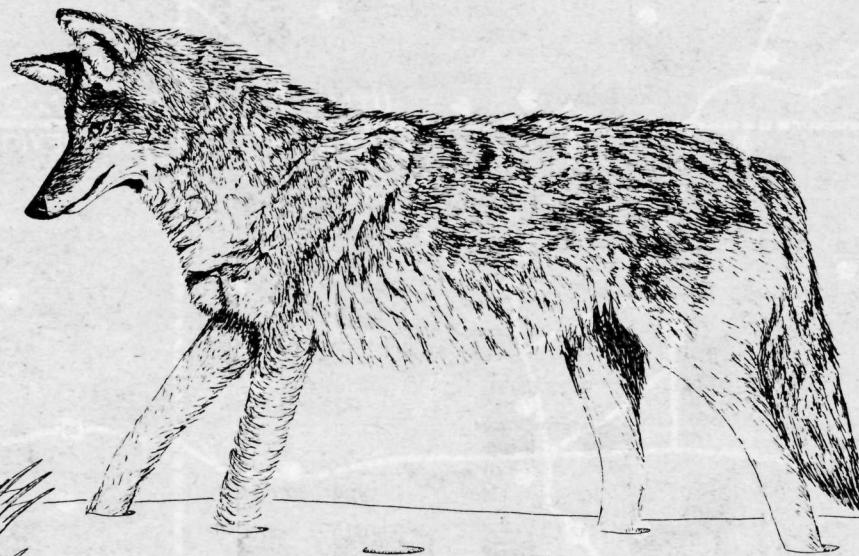
One winter challenge that is often overlooked is drought. Even if there is water in the ground, it is usually frozen and cannot be absorbed by the roots. Trees continue to lose water through their foliage, especially on windy days, and have difficulty replenishing it. The needles' waxy coating helps to reduce water loss.



Coyote & Gray Fox

Prints of canines are longer than they are wide. Unlike cats, canines cannot retract their claws, so claw marks are almost always present. Coyote and fox prints are very similar, and both animals live on the South Rim. However, foxes tend to avoid open areas, and are less common here than coyotes.

WEATHERING WINTER

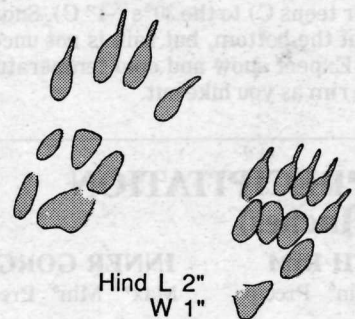


BY LISA HALL

Tracks in the snow

A story of animal activity is revealed in the snow -- the tracks of a squirrel running from tree to tree, or those of a mouse whose trek across a meadow suddenly ends among the wing prints of an owl.

Observers are more likely to see animal tracks than to see the animals themselves. To see an animal, both you and it must be in the same place at the same time; but tracks may last for days, leaving a record of all the animals that have passed by.



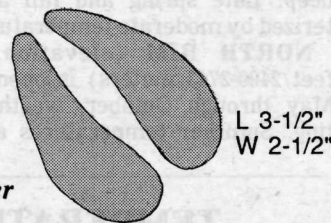
Abert Squirrel & Rock Squirrel

Squirrels have four toes on their front feet and five toes on their hind feet. Their tracks usually begin and end at trees. Rock squirrels become dormant during the colder parts of winter; when they are out, they will be near the canyon rim. Abert squirrels are found away from the rim in the Ponderosa pine forest.

More tracks on page 12.

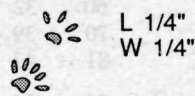
To understand tracks in the snow, you must act like a detective. Tracks themselves, the patterns they make, and their final destination provide clues to determine which animal left them. Knowing which animals live in a region and what the animals' habits are will also help in identifying tracks.

Below, you will find tracks commonly seen on the South Rim during winter. With each track is information that will help you hone your detective skills.



Mule Deer

Since deer are heavy and have slender legs, they almost always leave tracks in the snow. Their hooves form a heart-shaped print which tapers to a point. In soft snow they also leave two small circular marks behind the hoof from "dewclaws."



Mouse

Mice have the same toe pattern as that of squirrels; size alone easily distinguishes their tracks. Sometimes tail marks will be found between the prints.

ANIMALS use three different strategies to survive the winter: they migrate, hibernate, or stay where they are and weather the elements.

At first glance, migrating to warmer climates might appear to be the easiest alternative. Most species of birds migrate, either moving from the plateau to the inner canyon, or leaving the region entirely. Migration, however, requires tremendous energy. Birds expend a great deal of energy flying, but walking overland is ten times as costly. Consequently, very few land animals migrate.

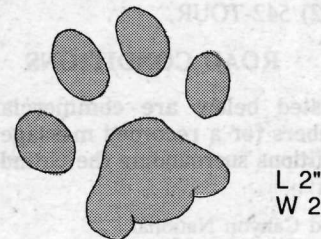
One Grand Canyon resident that does migrate is the mule deer. Many move either into the inner canyon or downslope to lower elevations of the plateau. For the majority of land-bound animals, migration is too costly, and they remain on the rim.

Some animals, such as ground squirrels, chipmunks, and reptiles hibernate. Rock squirrels and skunks become dormant. They reduce their body functions to bare maintenance levels to conserve energy, although they will waken periodically throughout the winter.

The third strategy is to remain active during the winter, and cope with the elements. Year-round residents overcome winter's cold temperatures in a variety of ways. The fur of mammals and feathers of birds provide excellent insulation. Birds further reduce heat loss by fluffing their feathers to trap pockets of warm air. Some birds such as the chickadee go into a nightly torpor, allowing their body temperatures to drop by 10-20 degrees, to reduce loss of body heat.

Many mammals curl up in a ball or huddle together to expose less surface area to the cold. Small mammals lose a higher proportion of body heat than large animals. They avoid extreme cold by burrowing into the snow. Although snow itself is cold, it can act as an insulating blanket. Inner layers of snow remain close to freezing temperature, while areas not protected by snow can drop far below freezing.

Winter adaptations are diverse and ingenious. But all share the common goal of allowing plants and animals to survive the winter at Grand Canyon National Park.



Bobcat

Feline prints are equal in length and width. Because cats retract their claws while walking, their tracks do not show claw marks.

If you're planning ahead...

If you are using *The Guide* to plan a future trip to Grand Canyon National Park, here are some tips to assure a pleasant stay.

LODGING AND CAMPING: Summer season at Grand Canyon is extremely busy. Plan ahead. If you plan to stay at the park overnight **DO NOT ARRIVE** without reservations for accommodations. Rooms and campsites will be filled before you arrive.

MULE TRIPS: Mule trips into the canyon from the South Rim are booked up to a year in advance. Make reservations as far in advance as possible. A waiting list is available in the event of cancellations, but it is not wise to count on getting a trip this way. Trips from the North Rim (a 5-hour drive from Grand Canyon Village) are easier to get without advance reservations.

BACKCOUNTRY ACCOMMODATIONS: Overnight accommodations at Phantom Ranch Lodge and Bright Angel Campground are usually booked months in advance. Make reservations as early as possible. See listings under Facilities and Services elsewhere in *The Guide* for more information.

RIMS: Although the South and North rims of the Grand Canyon average only ten miles apart as the raven flies, the North Rim may be reached only by car (a 215-mile drive from South Rim; allow 5 hours), or by hiking (a very strenuous hike taking more than one day). Be sure your reservations are for the rim you will be visiting.

KEYS: Bring an extra set of car keys. If you are locked out, it may be a very long wait for a locksmith.

SERVICES: Grand Canyon is in a remote area. Bring with you what you need.

WEATHER: Be prepared for extreme conditions and sudden fluctuations. Bring clothing and equipment to cover all weather conditions.

ADDITIONAL INFORMATION

Additional information is available from the following sources:

Grand Canyon National Park, P.O. Box 129, Grand Canyon, AZ 86023. General information (602) 638-7888.

Grand Canyon National Park Lodges, P.O. Box 699, Grand Canyon, AZ 86023; (602) 638-2401.

Grand Canyon Chamber of Commerce, P.O. Box 3007, Grand Canyon, AZ 86023.

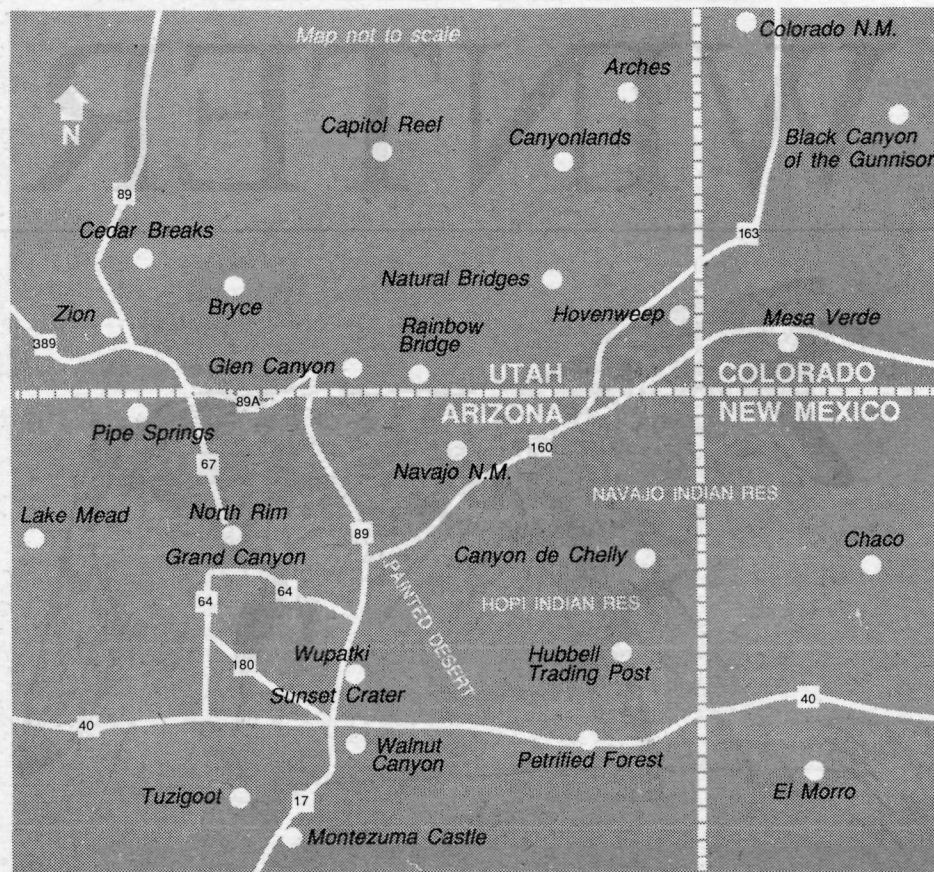
Arizona Department of Tourism, 1100 W. Washington St. Phoenix, AZ 85007; (602) 542-TOUR.

ROAD CONDITIONS

Listed below are commercial phone numbers for a recorded message of road conditions surrounding the Grand Canyon area:

Grand Canyon National Park	(602) 638-7888
Arizona	(602) 779-2711
California	(916) 445-7623
Colorado	(303) 245-8800
New Mexico	(505) 827-9300
Nevada	(702) 385-0181
Utah	(801) 964-6000

Visiting the 4-Corners Area



The national parks and monuments of the Colorado Plateau preserve many of the nation's natural and cultural treasures. A visit to Grand Canyon National Park will be enriched by side trips to any of these sites, each as spectacular in its own way as the Grand Canyon itself.

Information about facilities and services may be obtained by writing to the addresses listed below. Mileages are approximate, and are calculated from Grand Canyon Village on the South Rim.

Arches National Park, P.O. Box 907, Moab, UT 84532. 320 mi./518 km.

Black Canyon of the Gunnison National Monument, P.O. Box 1648, Montrose, CO 81402. 419 mi./679 km.

Bryce Canyon National Park, Bryce Canyon, UT 84717. 310 mi./500 km.

Canyon de Chelly National Monument, P.O. Box 588, Chinle, AZ 86503. 243 mi./392 km.

Canyonlands National Park, 125 W. 2nd South, Moab, UT 84532. 328 mi./531 km.

Capitol Reef National Park, Torrey, UT 84775. 362 mi./587 km.

Cedar Breaks National Monument, P.O. Box 749, Cedar City, UT 84720. 277 mi./450 km.

Chaco Culture National Historical Park, Star Rt. 4, Box 6500, Bloomfield, NM 87413. 366 mi./593 km.

Colorado National Monument, Fruita, CO 81521. 477 mi./773 km.

El Morro National Monument, Raman, NM 87321. 329 mi./533 km.

Glen Canyon National Recreation Area/Rainbow Bridge National Monument, P.O. Box 1507, Page, AZ 86040. 140 mi./220 km.

Grand Canyon National Park - North Rim, P.O. Box 129, Grand Canyon, AZ 86023. 215 mi./347 km.

Hopi Cultural Center, P.O. Box 67, Second Mesa, AZ 86043. 109 mi./177 km.

Hubbell Trading Post National Historic Site, P.O. Box 150, Ganado, AZ 86505. 243 mi./394 km.

Lake Mead National Recreation Area, 601 Nevada Highway, Boulder City, NV 89005. 270 mi./435 km.

Mesa Verde National Park/Hovenweep National Monument, Mesa Verde NP, CO 81330. 303 mi./488 km.

Montezuma Castle National Monument, P.O. Box 219, Camp Verde, AZ 86322. 128 mi./206 km.

Monument Valley, P.O. Box 93, Monument Valley, UT 84536. 178 mi./287 km.

Natural Bridges National Monument, Box 1, Lake Powell, UT 84533. 242 mi./390 km.

Navajo National Monument, HC 71 Box 3, Tonalea, AZ 86044. 145 mi./234 km.

Navajo Reservation, Navajoland Tourism Office, P.O. Box 663, Window Rock, AZ 86515.

Petrified Forest National Park, Petrified Forest NP, AZ 86028. 189 mi./305 km.

Pipe Springs National Monument, Moccasin, AZ 86022. 214 mi./347 km.

Sunset Crater National Monument, 2717 N. Steves Blvd #3, Flagstaff, AZ 86004. 80 mi./128 km.

Tuzigoot National Monument, P.O. Box 68, Clarkdale, AZ 86324. 124 mi./200 km.

Walnut Canyon National Monument, Walnut Canyon Rd., Flagstaff, AZ 86004. 86 mi./140 km.

Wupatki National Monuments, 2717 N. Steves Blvd. Ste.#3, Flagstaff, AZ 86001. 76 mi./123 km.

Zion National Park, Springdale, UT 84767. 272 mi./439 km.

Grand Canyon Climates

Weather at Grand Canyon is unpredictable. At any time of year visitors should bring rain gear. In winter, even if you plan to hike into the Inner Canyon, be prepared for cold, wet weather.

SOUTH RIM (elevation 7000 feet/2135 meters) is open all year. Summer temperatures range from highs in the 80's (upper 20's C) to lows in the 50's (lower teens C). Expect afternoon thunderstorms from mid to late summer. Winter temperatures range from highs in the 20's-30's (-7° to -1° C) to lows well below zero (-18° C). Snow may be expected from mid November to April. Accumulated snow is usually less than 2 feet deep. Late spring and fall are characterized by moderate temperatures.

NORTH RIM (elevation 8000-9000 feet/2400-2743 meters) is open from late May through October, weather permitting. Summer temperatures average 3-5

degrees cooler than the South Rim, and afternoon rain is common in late summer. During winter months Highway 67 to the North Rim is closed to vehicles and *no services* are available. Snowshoeing and cross-country skiing are permitted. For winter access information contact Grand Canyon Backcountry Office, P.O. Box 129, Grand Canyon, AZ 86023.

The **INNER CANYON**, accessible only by foot or mule, is open all year from South Rim access points; summer only from the North Rim. Elevation at Phantom Ranch, along the Colorado River, is 2400 feet/732 meters. Summer temperatures range from highs in excess of 100° (38+° C) to lows in the 70's (20's C). Winter temperatures range from the 50's (lower teens C) to the 30's (-1° C). Snow is rare at the bottom, but rain is not uncommon. Expect snow and cold temperatures at the rim as you hike out.

TEMPERATURES AND PRECIPITATION (Fahrenheit and Inches)

Average:	SOUTH RIM			NORTH RIM			INNER GORGE		
	Max°	Min°	Precip	Max°	Min°	Precip	Max°	Min°	Precip
January	41	18	1.32	37	16	3.17	56	36	.68
February	45	21	1.55	39	18	3.22	62	42	.75
March	51	25	1.38	44	21	2.63	71	48	.79
April	60	32	.93	53	29	1.73	82	56	.47
May	70	39	.66	62	34	1.17	92	63	.36
June	81	47	.42	73	40	.86	101	72	.30
July	84	54	1.81	77	46	1.93	106	78	.84
August	82	53	2.25	75	45	2.85	103	75	1.40
September	76	47	1.56	69	39	1.99	97	69	.97
October	65	36	1.10	59	31	1.38	84	58	.65
November	52	27	.94	46	24	1.48	68	46	.43
December	43	20	1.62	40	20	2.83	57	37	.87

GRAND CANYON NATURAL HISTORY ASSOCIATION:

Aid to Grand Canyon National Park

PUBLICATIONS

BOOKS

ALONG THE RIM by Nancy Loving. A brief discussion of plant and animal life on the South Rim, and guide to points along East and West rim drives from Desert View to Hermits Rest. 56 full-color and black-and-white photographs, four maps, landmark keys. 52 pp. \$2.95

GRAND CANYON GEOLOGY ALONG BRIGHT ANGEL TRAIL by David Thayer. This lucid explanation of Grand Canyon geology contains 30 photos, 30 line drawings, and 5 section maps of Bright Angel Trail. 6"x8-1/2" wirebound. 100 pp. \$8.95

GRAND CANYON WILDFLOWERS by Phillips and Richardson. A field guide to the wildflowers of the Grand Canyon area. 160+ color plates representing 140 species. Quick reference to color, location and blooming season. 145 pp. \$15.95

GUIDE TO GRAND CANYON VILLAGE HISTORIC DISTRICT by Timothy Manns. Illustrated booklet describing historic buildings in Grand Canyon Village on the South Rim. 24 pp. \$2.50

IN THE HOUSE OF STONE AND LIGHT by J. Donald Hughes. Detailed look at the human history of Grand Canyon before and after it became a national park. Historic photographs. 137 pp. \$9.50

INTRODUCTION TO GRAND CANYON GEOLOGY by Michael Collier. The story of Grand Canyon geology in lay terms. 40 color plates. 42 pp. \$4.00 pb, \$7.50 hc

JAPANESE GUIDE TO THE GRAND CANYON by Masahiro Ohta. Introductory guide to Grand Canyon includes a map of the area. Written in Japanese specifically for Japanese visitors. 13 color plates. 26 pp. \$5.00

JOHN WESLEY POWELL AND THE ANTHROPOLOGY OF THE CANYON COUNTRY by Fowler, Euler, and Fowler. Reprint of the U.S. Geological Survey professional paper No. 670. Powell's ethnography dating back to the late 1800s. 30 pages. \$4.00

LIGHTFALL AND TIME: FIFTEEN SOUTHWESTERN NATIONAL PARKS. by Bennett and Lamb. Paintings and essays about Grand Canyon, Arches, Canyonlands, and 12 other national parks. Informative and inspirational. 64 pages, 15 color plates, 8"x8." \$14.95, pb

MOUNTAIN LYING DOWN: VIEWS OF THE NORTH RIM by Shoemaker, Euler, and Collier. The biologic, geologic, and cultural history of the North Rim of the Grand Canyon in lay terms. 36 pp. \$3.00

RECOLLECTIONS OF PHANTOM RANCH by Elizabeth Simpson. Pocket-sized history of Phantom Ranch, the guest quarters at the bottom of the Canyon. Suggestions for day hikes. 28 pp. \$2.50

RIVER RUNNERS OF THE GRAND CANYON by David Lavender. A lively history of river running on the Colorado River as it winds its way through Grand Canyon; 1869 to the present. 75 B/W photographs. 188 pp. \$15.00

SKETCH OF GRAND CANYON PREHISTORY by A. Trinkle Jones and Robert Euler. An introduction to the anthropology and archaeology of Grand Canyon written in non-scientific terms. B/W illust. 14 pp. \$4.00

TRAIL GUIDES

POCKET-SIZE GUIDES
An informative series of trail guides containing information about the cultural and natural history of the area, as well as trail maps and photographs. 20-48 pp. \$2.95 each

BRIGHT ANGEL GRANDVIEW HERMIT
HAVASU
NORTH KAIBAB
SOUTH KAIBAB
SOUTH & NORTH BASS

GUIDE TO HIKING THE INNER CANYON by Scott Thybony. Descriptions and maps of major trails and routes in Grand Canyon National Park. Includes information on backcountry reservations, safety, and minimum impact hiking. 43 pp. \$3.95

FOR CHILDREN

EXPLORING THE GRAND CANYON by Lynne Foster. A lively yet comprehensive look at the natural and cultural history of the Grand Canyon, and the hikes and activities awaiting children today. Ages 9-12. Richly illustrated. 9"x9" 160 pp. \$14.95

WHERE DO I LOOK? by Franklin and Huey. A child's look at the Grand Canyon provides the opportunity to recognize where we all fit in the scheme of nature. For young children. 42 B/W photographs. 40 pp. \$7.50

WILD ANIMALS FACE TO FACE. A set of seven animal masks painted by wildlife artist Elizabeth McClelland. Coyote, Bighorn, Tassel-eared squirrel, Ringtail, Horned lizard, Monarch butterfly, Raven. Each mask 5"x7" or larger. Set \$7.95

MAPS

GEOLOGIC MAP OF EASTERN PART OF GRAND CANYON NATIONAL PARK by Breed, Huntoon, and Billingsley. Colorful map graphically shows geologic formations of the Grand Canyon. \$6.00

GEOLOGIC MAP OF HURRICANE FAULT ZONE AND VICINITY WESTERN GRAND CANYON, ARIZONA by Huntoon, Billingsley, and Clark, 1981 edition. \$6.00

GEOLOGIC MAP OF LOWER GRANITE GORGE AND VICINITY, WESTERN GRAND CANYON, ARIZONA by Huntoon, Billingsley, and Clark, 1982 edition. \$6.00

GEOLOGIC MAP OF VULCAN'S THRONE AND VICINITY, WESTERN GRAND CANYON, ARIZONA by Huntoon, Billingsley, and Clark, 1983 edition. \$6.00

POSTERS

CANYON NATURE POSTER. Canyon rim setting filled with native birds, insects, reptiles, and plants. Drawn by distinguished artist Lawrence Ormsby. Full Color. Includes key. 37"x25" \$5.00

GRAND CAÑON POSTER. Photographs by Christopher Brown combine with words of John Wesley Powell to create a moving experience of the Canyon. 18"x24" \$5.00

"I AM TEN THOUSAND CATHEDRALS ROLLED INTO ONE." Tom Bean photograph shows Grand Canyon at its most dramatic. 11"x14" \$4.00

CASSETTE

CANYON LIFESONGS by Rita Cantu. 45 minutes of mellow vocals and orchestration. Songs written about and in the canyonlands of the Colorado Plateau, and performed by the composer. \$9.95

VIDEO

RIVER SONG: A NATURAL HISTORY OF THE COLORADO RIVER, narrated by Richard Chamberlain. The river is the lifeblood of the Grand Canyon, yet because of its remoteness it was not explored completely until 1869. Even today it is a challenge to the adventure-some. In this award-winning film we see animals, plants, geology, and the great river itself. 40 minutes. VHS, PAL. \$29.95

NEW VIDEO, BOOK & POSTER!

CANYON SONG: A LYRICAL JOURNEY FROM RIM TO RIVER, video narrated by Katharine Ross. Enter the immense Grand Canyon on foot, dropping below its rim to explore, from a hiker's perspective, a wealth of history, geology, botany, and something more -- the indelible imprint left in the hearts of those who come to know the Canyon well. 33 minutes. Closed captioned in VHS-NTSC only. VHS-NTSC, VHS-PAL. \$29.95

THE KOLB BROTHERS OF GRAND CANYON by William C. Suran. A collection of memorable incidents and humorous anecdotes from the lives of these colorful men who lived on the brink of the Canyon. Includes a rich collection of their photographs. 38 B/W photographs, 60 pp. Paperback. \$5.95

TONTO PLATFORM POSTER. Inner Canyon setting filled with native birds, insects, mammals, and plants. Illustrated in full color by Lawrence Ormsby. Includes key. 22"x37" \$5.00



Grand Canyon
Natural History Association
P.O. Box 399
Grand Canyon, Arizona 86023
602-638-2481 FAX 602-638-2484

PUBLICATIONS ORDER FORM

Name _____

Address _____

zip _____

Please send the following publications:

QUANTITY	TITLE	PRICE

Minimum credit purchase \$5.00

Subtotal _____

Signature _____ Members deduct 20% - _____

MasterCard # _____ Membership dues + _____

VISA # _____ Postage and Handling + _____

(Please list all digits from your charge card.)

Total Order _____

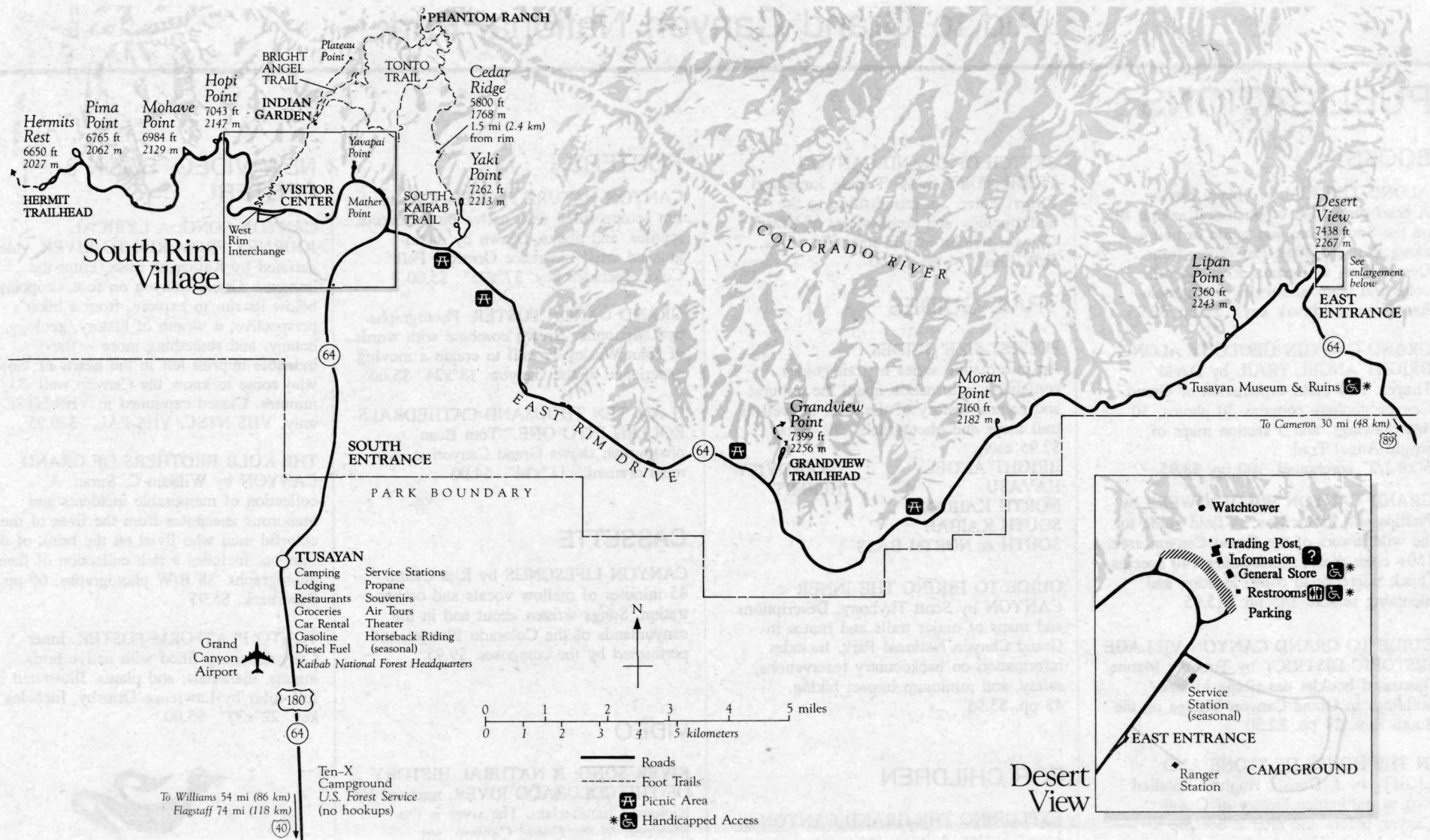
Expiration Date _____

Phone () _____

POSTAGE & HANDLING RATES

First book, audio cassette, video,
calendar, or folded map \$4.00
First geology map in tube \$7.00
First map or poster in tube . . . \$5.00
Each additional item50

FOREIGN AIRMAIL
First item \$8.00
Each additional item \$2.00
(Sorry, no tubed items sent abroad.)



East Rim Drive to Desert View

The 25-mile drive along the South Rim between Grand Canyon Village and Desert View is known as East Rim Drive. East Rim offers views of the canyon and the Colorado River, as well as numerous other sights -- the Painted Desert, San Francisco Peaks, Indian ruins, and the Desert View Watchtower among them. Restrooms are located at Tusayan Museum and Desert View. Drinking water is available at Desert View.

YAKI POINT

At Yaki Point the heavily traveled Kaibab Trail begins its descent toward Phantom Ranch. This point offers a tremendous view of Wotan's Throne to the northeast, a large flat-topped butte named by the scientist who made the first topographical map of the canyon.

GRANDVIEW POINT

Grandview Point is at a higher elevation than most points along the East Rim Drive. Receiving more moisture, it supports large stands of Ponderosa pine and Gambel oak, along with pinyon pine and juniper. The trail from Grandview Point leads to Horseshoe Mesa where Pete Berry laid claim to the Last Chance Copper Mine in 1890. In the mid 1890s construction began on the Grandview Hotel, a two-story log structure that was one of Grand Canyon's leading tourist facilities until it closed its doors in 1908.

MORAN POINT

Moran Point was named for the famous 19th-century landscape artist, Thomas Moran, whose impressive works helped convince Congress to establish Grand Canyon as a National Park.

TUSAYAN MUSEUM AND RUIN

Tusayan Museum, on the south side of East Rim Drive, features exhibits about the prehistoric and historic Indian cultures which inhabited the Grand Canyon region. A self-guiding trail leads through the 800-year-old Anasazi ruin adjoining the museum. Museum hours are 9 a.m. to 5 p.m. daily. A Grand Canyon Natural History Association bookstore is located in the lobby.

LIPAN POINT

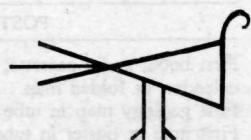
Lipan Point is also trailhead for Tanner Trail, a nine-mile hike to Unkar Delta. On this tributary fan are found ruins of prehistoric Anasazi dwellings dating back nearly 1000 years. Views from Lipan Point of the Grand Canyon Supergroup, the tilted bright red-black-white rock, are unequalled by any other view from the rim.

NAVAJO POINT

Navajo Point offers excellent views of Escalante Butte and the Colorado River.

DESERT VIEW

Desert View encompasses a broad range of scenic vistas -- from the luminescent Painted Desert, home of the Navajo Indians, up Marble Canyon where the Grand Canyon turns sharply to the west, to Cedar Mountain and the Vermillion Cliffs.



WATCHTOWER

Erected in 1932, the Watchtower overlooking this panorama was designed by the remarkable designer-architect, Mary Jane Colter. The tower, which Colter labeled as a "re-creation," stands 70 feet high and 30 feet wide at the base -- larger than any of the Indian towers which inspired it, including those found at Mesa Verde and Canyon de Chelly. The concrete foundation and steel framework were constructed by the bridge department of the Santa Fe Railway.

The large observation room on the ground floor was modeled after an Indian kiva. Its ceiling was created with logs salvaged from the old Grandview Hotel, the first hotel built at Grand Canyon. Replicas of ancient petroglyphs and kiva paintings decorate the tower's interior.

Hopi artist Fred Kabotie painted the Hopi Room on the second floor. He created the sand painting on the Snake Altar by holding colored sand between thumb and fingers and, with infinite patience, dribbling it into place. Unlike traditional sand paintings used in ceremonies, this painting was not brushed away after completion. Kabotie was 30 years old when he painted the Hopi Room. In the years that followed he became an internationally-known artist.

The tower provides a panoramic view of the Grand Canyon and the Colorado River. The tower is the highest point on the South Rim, reaching 7522 feet above sea level.

WUPATKI & SUNSET CRATER

Wupatki and Sunset Crater National Monuments are located southeast of Grand Canyon off US 89, along a scenic drive between Cameron and Flagstaff. The multi-story pueblo ruins of Wupatki are remnant dwellings of Sinagua and Anasazi Indians who lived on the western edge of the Painted Desert some 800 years ago. Sunset Crater is Arizona's youngest volcano. It first erupted in 1064 A.D., and was active for about 200 years. The result may be seen today in its 1000-foot cinder cone and tortured lava flows. Visitor Centers are open daily.

