

# Mount Rainier

NATIONAL PARK

*Washington*



The National Park System, of which this park is a unit, is dedicated to conserving the scenic, scientific, and historic heritage of the United States for the benefit and enjoyment of its people.

## *Historic Events*

- 1792 Capt. George Vancouver, of the Royal British Navy, first white man to record sight of "The Mountain," named it Mount Rainier in honor of his friend, Admiral Peter Rainier.
- 1833 Dr. William Fraser Tolmie entered northwest corner of what is now the park. First white man to penetrate this region.
- 1857 Lt. A. V. Kautz and four companions made first attempt to scale Mount Rainier but did not reach summit.
- 1870 Hazard Stevens and P. B. Van Trump made the first successful ascent via Gibraltar route.
- 1890 The first woman, Fay Fuller, reached the summit of Mount Rainier.
- 1899 Mount Rainier National Park established by act of Congress.
- 1913 Elevation of Mount Rainier established as 14,408 feet above sea level by the Geological Survey, United States Department of the Interior.
- 1915 First public travel by automobile to Paradise Valley.
- 1916 National Park Service established in the United States Department of the Interior to administer the National Parks and National Monuments.
- 1931 Road completed to Sunrise, Yakima Park.
- 1940 East Side Road completed.
- 1956 Elevation of Mount Rainier reestablished as 14,410 feet above sea level by the Geological Survey, United States Department of the Interior.
- 1957 Stevens Canyon Road completed.

## *WILD ANIMALS*

It is dangerous for you to get near wild animals though they may appear tame. Some have become accustomed to humans but they still are wild and may seriously injure you if you approach them. Regulations prohibiting feeding, teasing, touching, or molesting wild animals are enforced for your own safety.

COVER: Mount Rainier from Mirror Lake, Indian Henrys Hunting Ground.

# MOUNT RAINIER

## NATIONAL PARK

*Open all year*



**M**OUNT RAINIER, from a base amid rugged peaks, lifts its summit nearly 2 miles above the Cascade Range of central Washington. Here rises a mighty mountain mass ribbed with lavas and deeply cut by glaciers that still fill its canyons. Flower meadows, alpine lakes, cascading rivers, and dark forests are all elements of its foreground. Mountain and foreground combine in a natural masterpiece, one of our country's major scenic wonders, well deserving its place among the Nation's National Parks.

While each National Park differs from the others in many of its scenic features, each tends to complement the others. Thus, the glaciers of Glacier National Park, Mont., Olympic National Park, Wash., and Mount McKinley National Park, Alaska, and the glacier-carved peaks and canyons of Grand Teton National Park, Wyo., Rocky Mountain National Park, Colo., and Yosemite National Park, Calif., present different aspects of the story of glaciers exemplified by the glaciers of Mount Rainier. Likewise, the hot springs and geysers of Yellowstone National Park, Wyo., Mont., and Idaho, the deep lake

filling the caldera of ancient Mount Mazama in Crater Lake National Park, Oreg., the recently active volcano of Lassen Volcanic National Park, Calif., and the active volcanoes of Hawaii National Park, Hawaii, are a part with Mount Rainier of the story of volcanism.

Mount Rainier National Park was established by act of Congress on March 2, 1899. The park contains almost 380 square miles and is 24 miles across at its widest point.

### *The Mountain*

Mount Rainier, a towering, ice-clad volcano, is the distinctive feature of Mount Rainier National Park. Located some distance west of the Cascade Range crestline, the mountain, 14,410 feet high, is the most superb landmark of the Pacific Northwest. It is made doubly impressive by the mantle of glacial ice that conceals all but the most rugged crags and ridges. In delightful contrast to this bold and forceful landscape are the flower-covered mountain meadows and deep forests encircling it. The mountain occupies approximately one-fourth of the park area.

## *The Origin of Mount Rainier*

A long period of earth history, involving sedimentary rock formation, volcanic eruption on a grand scale, tremendous earth movements, and the sculpturing action of rivers and glaciers, is represented in Mount Rainier National Park. Long before Mount Rainier came into existence as an individual peak, tremendous volcanic flows, together with the formation of sandstones and shales of river and lake origin, built up a thickness of thousands of feet of sedimentary rock and lava in what is now the region of the Cascade Range. Over a long period of geologic time, earth movements gradually elevated the region to form a platform standing from 8,000 to 10,000 feet or more above the sea. Simultaneously, rivers carved their channels to depths of several thousand feet, thus sculpturing the uplifted platform into a network of irregular ridges and peaks, separated by canyons and valleys.

After the Cascade Range was uplifted and considerably dissected, local eruptions occurred which resulted in the building of individual cones rising thousands of feet above it. Of these, Mount Rainier is the highest and grandest of the series which, within the United States, extends from Mount Baker in northern Washington to Lassen Peak in northern California. These volcanoes, together with others of South and Central America, Alaska, Kamchatka, Japan, Malaya, the Philippine Islands, the East Indies, and New Zealand, formed a veritable "Circle of Fire" around the Pacific Ocean in recent geologic time.

In the eruptions that built Mount Rainier, liquid lava, which cooled into widespread sheets of dark-colored, columnar andesite, predominated at first.

After the first phase, the flows alternated with outbursts of volcanic ash and cinders. In the late stages, the fragmental material was most in evidence. Thus, sheets of massive dark lava, which formed the immediate base of Mount Rainier, and alternating layers of solid and fragmental lava are clearly visible in the higher ridges. Volcanic ash is abundant on the upper slopes and is deeply spread over many of the mountain parks.

The summit is approximately 1 square mile in extent. It is broad and rounded, with three separate peaks rising from it—Liberty Cap to the north, with an elevation of 14,112 feet; Point Success to the south, 14,150 feet; and Columbia Crest to the east, 14,410 feet. These three peaks appear to form a part of a huge craterlike rim, broken on the west where glaciers have carved a deep gash in the flank and summit of the mountain. Columbia Crest is on the rim of a smaller but more perfect crater some 1,200 feet in diameter. The basin within this crater is filled with perpetual snow, but much of the year the crater rim is clearly outlined by the exposed rock. Steam vents still persist within the crater, melting the snow to form hollows and small caves. Mountaineers have found a refuge in these caves when forced to spend the night on the summit.

### *Glaciers*

The original smooth-contoured slopes of a composite volcanic cone are not evident on Mount Rainier today, except from some viewpoints where the long exposed rock ridges, reaching from the base toward the summit, give the mountain the symmetrical profile of a cone. The deep basins and canyons between such ridges have been cut in the moun-



*Courtesy Rainier National Park Co.*

*Nisqually and Wilson Glaciers from the Skyline Trail above Paradise.*

tain by water and glaciers which during the past covered not only the mountain proper but most of the lower ranges, canyons, and mountain parks of the Cascades as well. In fact, some of the glaciers of Mount Rainier are believed to have extended into the Puget Sound area. This more extensive glaciation was so recent in geologic time that the sculpturing and molding effects on the landscape are very evident today. The broad-floored and steep-walled canyons of all the larger rivers radiating from Mount Rainier, the numerous cirques, faceted peaks, and saw-toothed ridges of the Cascades, and the many lakes and spectacular waterfalls—all owe their origins to the sculpturing of the mountain area by water and glaciers.

The 26 active glaciers remaining on Mount Rainier, although mere remnants of their former size, still cover about 40 square miles. Twelve are major glaciers originating either in large cirques at elevations of about 10,000 feet or from the

summit icefield. The Emmons Glacier, on the northeast side of the mountain, and the Nisqually, on the south side, are the best known and the most easily visited. The Emmons, approximately 5 miles long and 1 mile wide, is the largest glacier on Mount Rainier. All of the major glaciers extend well below timberline to elevations of about 5,000 feet. Of the 14 minor glaciers, Paradise is best known and easiest to reach. In a comparatively small area, it exhibits many of the features of mountain glaciers—melt water, moraines, polished and fluted rocks, great cirques, and the broken, crevassed expanse of blue ice. At times, beautifully colored ice caves develop where the outlet stream flows from beneath the Paradise-Stevens Glaciers.

Year to year studies show that the surface ice of the Nisqually Glacier moves at a rate of about 25 feet per month. Such action slowly moves the ice from the upper basins and canyons

to lower elevations, where most of the melting takes place. The heaviest snowfall occurs between 5,000 and 10,000 feet, for the summit is often above the storm clouds in both summer and winter. The accumulated snow adds to the weight of the ice and is partly responsible for the movement of the glacier out of its cirque or basin. Other factors affecting movement of glaciers are thickness of ice, slope of the mountain, and air temperature. Thus, a glacier is able to maintain itself below the snowline because this movement transfers ice from above.

Recent studies reveal that the glaciers of Mount Rainier are expanding at higher elevations and show a subsequent advance of the ice at their lower extremities. This may be a temporary advance reflecting the variations of the climate, to which glaciers are closely related.

Before this, they had been receding for several years. During this period of glacier recession, new ground was exposed, probably for the first time in history. The slow advance of vegetation to cover the newly exposed barren rock, the formation of waterfalls plunging into canyons that were once ice filled, the formation of small lakes—these and other processes of landscape changes are strikingly apparent over a period of years.

### *Flowers and Forests*

Mount Rainier National Park is justly famous for the beauty of its floral display. Probably no area excels the mountain environs in abundance of flowers or in the number of individual species. The reason lies in the variety of topography, exposure, soil, and climatic con-



*Courtesy Brockman.*

*Avalanche fawnlily.*

ditions especially favorable to plant growth.

The flowers of the heavily wooded lower elevations are not as generally known or appreciated as the flowers of the subalpine meadows, largely because the latter offer more striking effects en masse. Nevertheless, the species of the deep woods, such as the threeleaf anemone, bunchberry dogwood, Pacific trillium, calypso, and the spring beauty, actually outnumber those typical of the higher elevations. Many interesting plants may be seen in bloom by early May, but the flowers of the forests are most numerous in July.

In the mountain parks there are two periods when the flower fields are most striking. The first is normally in early July, depending upon the season, when the avalanche fawnlily, western pasque-

flower, marshmarigold, and mountain buttercup take over the meadows from the rapidly receding snowbanks; the second usually occurs about a month later when the painted-cups (paintbrushes), lupines, speedwell or veronica, valerian, American bistort, and many others tint these same meadows in a variety of colors. Often in late summer, where the shade of a clump of trees has retarded the melting of a snowbank, one may find groups of "early" flowers entirely surrounded by those of the later season.

Habitat, quite as much as season, is reflected in the flower display. Thus the saxifrages, phlox, Alaska spirea, polemonium, and Lyall lupine are among those growing near timberline; while under the drier conditions of the hillsides, dense mats of *Mertens cassiope* ("white heather") and red mountainheath are most conspicuous. From the borders of red and yellow mimulus along each rivulet to the brilliant red penstemon massed on the barren rocky cliffs, and from the humble coltsfoot, first flower to appear at low elevation in May, to the last lingering gentian in September, each season and each environment provides its own special exhibit.

The effects of altitude and of habitat are reflected quite as definitely, if less conspicuously, in the forest growth. The lowland forest, penetrating the park by way of the largest river valleys, reaches to an average elevation of around 3,500 feet. Characterized by heavy density of stands and great size of individual trees, and impressive in its shaded, velvet-green beauty, the lowland forest is made up principally of western hemlock, Douglas-fir, and western redcedar. The Sitka spruce occurs in the vicinity of Carbon River. Grand fir may be found, and above 2,500 feet *amabilis* fir, noble

fir, and western white pine are encountered, although the three last-named species are more characteristic of the intermediate forest. This intermediate forest lies between the dense forests of the lower areas and the parklike subalpine meadows and contains some of the species of both. The noble fir, *amabilis* fir, western white pine, and Alaska yellowcedar are characteristic, and the western hemlock of the lowlands here gives way to the mountain hemlock. Above about 5,200 feet there are subalpine meadows characterized by tree islands rather than thick forests. Alpine fir and mountain hemlock are the typical trees, although some *amabilis* fir and Alaska yellowcedar also occur. In the Yakima Park area, whitebark pine and Engelmann spruce are found.

## *Wildlife*

Two factors are primarily responsible for the continued abundance of native mammals and birds in Mount Rainier National Park. The animals are unmolested, and they pursue their native ways. With the exception of minor areas where the public is accommodated, the primitive forests and meadows and large wilderness areas, which provide homes, food, and protection for these animals, are preserved against any encroachment of civilization. It is no surprise in these conditions to find the animal life relatively easy to observe. More than 130 species of birds and 50 species of mammals have been recorded. Of these, the racoon, found at lower elevations, and the ground squirrel, chipmunk, and marmot, at higher elevations, are commonly observed. The gray jay, or camp-robber, and the Clark's nutcracker are common birds. Black-tailed





deer may be seen along the roads at lower elevations from late fall until spring, when they move upward as snow disappears. Bears are fairly common and, though usually shy, may sometimes be seen. The greatest thrill comes with the view of mountain goats, commonly seen during the summer at and above timberline in the vicinity of some of the glaciers. Bands of these magnificent dwellers of the crags may often be seen above Van Trump or Klapatche Parks, on Emerald Ridge, the Colonnade, in the vicinity of Skyscraper Mountain, or the Cowlitz Chimneys. In recent years, small herds of elk, or wapiti, have moved over the crest of the Cascades into the southeastern part of the park. Where animals are completely protected, as in a National Park, it is usually unnecessary and unwise to control their predators. Here, therefore, a natural animal population prevails, and the fortunate observer may catch a fleeting glimpse of a mountain lion, bobcat, or an occasional coyote.

## *Weather*

In a region having as much as 100 inches of precipitation a year, it might be expected that views of the mountain and glaciers would be obscured much of the time by clouds and fog. This is true during part of the year, but warm, clear weather may be expected during the height of the summer season from about July 1 to early in September. Quite often Indian summer weather continues well into October. Most of the precipitation falls as snow during the winter, and from late autumn until late winter the sky is usually overcast. However, during late winter and early spring, many clear, warm days may be

expected, interspersed by snowstorms. Depending upon the season, the snow disappears between late June and early July at elevations comparable to that of Paradise Valley.

## *How To Reach and See the Park*

*By automobile.* State Route 5, known as the National Park Highway, leads to Mount Rainier National Park. Some sections of the approach highways are designated by number and letter, and so be sure to select your destination in the park from the vicinity map on page 12 for a direct approach.

The roads from Nisqually Entrance to Paradise and from the northeast boundary to Ohanapcosh are open all year. (See map, pages 8 and 9.) After the first heavy snow, usually about November 1, the other roads remain closed to travel until spring. Snow conditions may cause roads to be closed for short periods. Tire chains are required for part of the drive during the winter.

In winter, heavy snows blanket the park at higher elevations. At Paradise, snows may reach an average depth of 20 feet. The winter season normally begins in December, with sufficient snow for skiing remaining until early May.

Rope tows operate during the skiing season (December 1 to May 1) at Paradise. Warming hut, snack bar, and first-aid room are available but no overnight facilities are operated in the park in winter.

Park roads closed in winter ordinarily are open for travel between June 15 and July 1. Mowich Lake road is usually open from mid-July to mid-October. (See map, pages 8 and 9.)

*By trail.* There are 300 miles of trails

that await you if you would know the park intimately. Many of the trails will take you into truly primitive wilderness areas, through alpine meadows, past waterfalls and placid lakes, with ever-changing views of Mount Rainier.

The 90-mile Wonderland Trail completely encircles Mount Rainier. Parts of this trail offer excellent 1-day hikes; and campsites with shelter cabins, spaced 8 to 12 miles apart, make possible extended hiking and pack trips of a week or more.

## *Mountaineering*

Mount Rainier presents a difficult climb over ridges of crumbling lava and pumice and along inclined and deeply crevassed icefields and glaciers. Independent parties may climb the mountain provided they have qualified and experienced leaders. To insure safety, all prospective summit climbers must register with a park ranger at the time of starting the climb and upon returning. Climbers must give evidence that they are physically capable, have proper equipment and have had experience in similar hazardous climbing. Rules for summit climbs may be obtained at the office of the park superintendent.

## *Fishing*

The glacial streams and high altitude lakes of the park do not generally afford good fishing, but the more remote lakes and some of the clear streams yield fair-to-good catches late in the season. No license is required. Unless posted as closed, lakes are open to fishing from July 4 to September 30, inclusive; and the season for streams conforms to that of the State of Washing-

ton. Complete regulations governing fishing are on file at all ranger stations.

## *Visitor Centers*

The visitor center at Longmire is open all year. Here and at other visitor centers you may obtain helpful information about the park and its natural features.

Yakima Park Visitor Center contains exhibits that tell the story of mountain building.

## *Park Rangers and Park Naturalists*

Park rangers and park naturalists are stationed in the park to help you. If you are in any difficulty, see one of these men in the distinctive park ranger uniform.

*Park rangers* are responsible for visitor safety, enforcement of park rules and regulations, fire detection and suppression, operation of entrance stations, and safeguarding the park's resources for your enjoyment and that of future generations. They also handle lost and found property and receive suggestions and complaints.

*Park naturalists* are the park's interpretive staff. They are prepared to help you understand what you see in the park and are responsible for all interpretive services. These services, which are free of charge, include:

*Illustrated talks.* Informal programs are given each evening at Paradise; and each evening except Sunday at Yakima Park and Longmire. They include slides or movies dealing with the natural history or history of the park.

*Guided walks.* A schedule of guided walks is posted on bulletin boards at important interest centers.





*Courtesy Brockman.*

*Skiing on Mount Rainier's slopes—a thrill for both beginners and experts.*

## ***Hotel Facilities***

***Paradise*** (late June to early September). Various types of hotel rooms are offered at Paradise Inn, with dining room and fountain service and a souvenir shop. Guide service is available for trail trips and summit climbs.

***Sunrise*** (late June to early September). There are no overnight accommodations. A cafeteria, gas station, and fountain are operated at Sunrise Lodge, where some staple groceries may be purchased.

***Longmire***. The National Park Inn is open from May to October. It is operated on the European plan, with grill-type meals, fountain service, and limited campers' supplies. Rooms with and without bath are available. Service station.

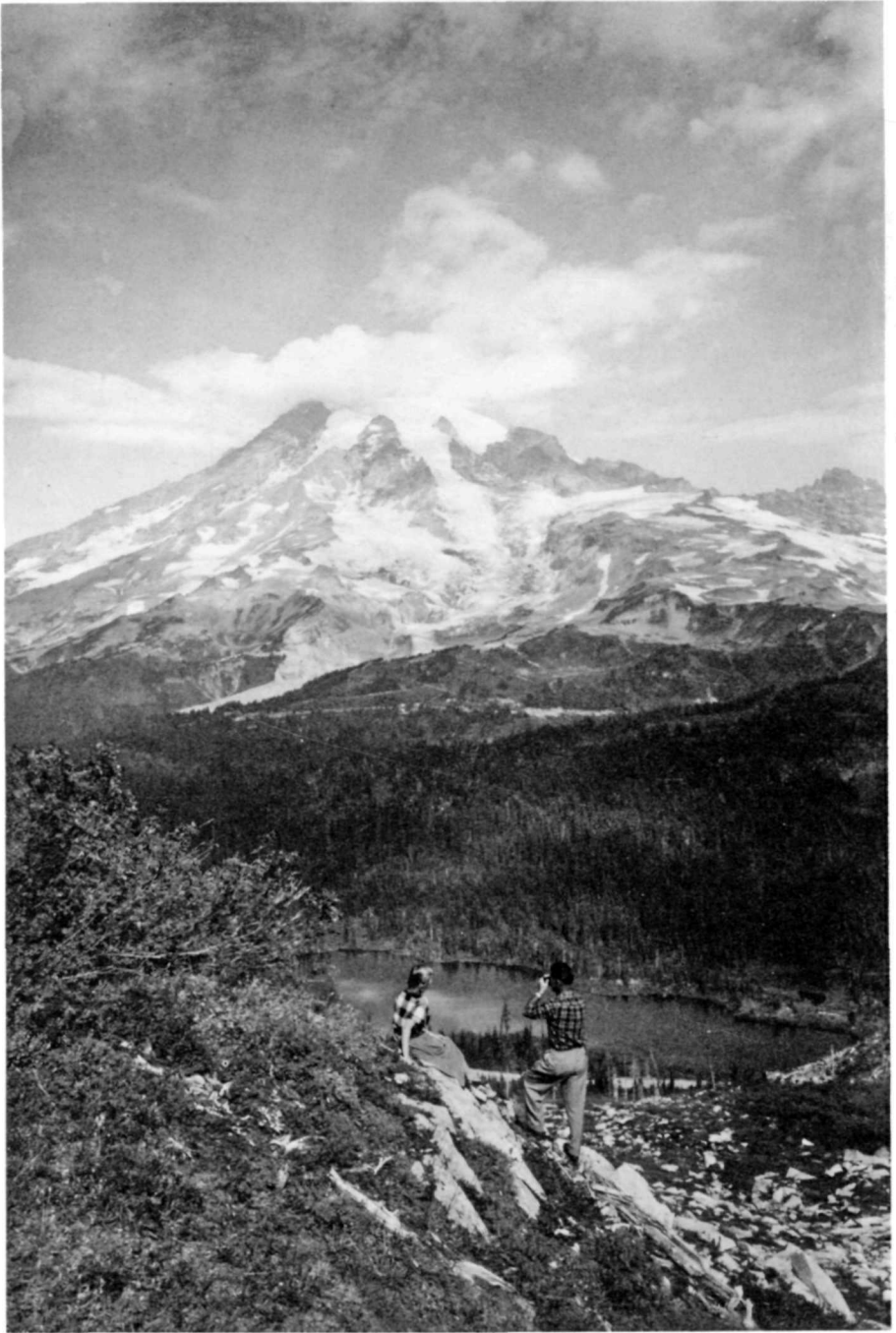
Inquiries regarding accommodations, rates, and reservations at Paradise or Longmire should be addressed to the Rainier National Park Co., Box 1136, Tacoma 1, Wash.

## ***Religious Services***

Protestant and Catholic services are held from July 1 until Labor Day.

## ***Mission 66***

MISSION 66 is a program designed to be completed by 1966 which will assure the maximum preservation and wisest use of the scenic, scientific, wilderness, and historical resources of the National Park System. At this park,



*Mount Rainier from Tatoosh Range.*

MISSION 66 will provide increased interpretive facilities and new physical facilities for the park's visitors.

### *Administration*

Mount Rainier National Park is administered by the National Park Service, U.S. Department of the Interior. A superintendent, whose address is Longmire, Wash., is in immediate charge.

### *Mountain Topics*

There is no positive proof that Mount Rainier has been active as a volcano within historic time, although there are reports that clouds of smoke were seen over the crater in the late 1800's. Clouds of dust blown from the pumice fields, however, often simulate smoke from an eruption.

The heaviest snowfall ever recorded in the United States was at Paradise during the winter of 1955-56, when 82½ feet of snow fell, compacting to a

depth of 27½ feet on the ground. Campgrounds and picnic areas above 5,000 feet are sometimes closed by winter snows until late July.

The largest western redcedars of the park, some with 11-foot base diameter, are in the Ohanapecoh district.

The volcanic-ash soil which covers the mountain parks is easily disturbed and erodes rapidly. Even a few hikers cutting across trails will produce lasting scars.

The volume of water flowing from the glaciers increases tremendously during the hot summer days. Thus, rivers which may be safely forded in the morning become raging torrents, impossible to cross, by late afternoon.

The picking of wildflowers is prohibited in all National Parks. Some flowers depend entirely upon the seeds that are produced one season to replant the next year's crop. A single flower picked from a natural setting will thus reduce the beauty of the scene the next year.



UNITED STATES DEPARTMENT OF THE INTERIOR

Stewart L. Udall, *Secretary*

NATIONAL PARK SERVICE

• Conrad L. Wirth, *Director*

# *Help Us Protect This Park*

Regulations are designed not only to protect the natural features of the park but also to help you enjoy this scenic area. You are requested to assist the park administration by respecting the rules and the rights of others. The following synopsis and suggestions are for your guidance; complete rules and regulations may be seen at any ranger station. Park rangers are here to help you as well as to enforce regulations.

**Fires.** Throwing away cigarettes, cigars, matches, or any other burning material along roads and trails is prohibited. Smoking while traveling on trails is not allowed. Fire permits must be obtained from park rangers for building fires at any point other than at auto campgrounds. Build fires only at designated places; extinguish COMPLETELY before leaving.

**Warning about bears.** Feeding, touching, or molesting of bears is prohibited; the animals are wild and may bite or strike. If left alone, the bears are seldom harmful, but they will break into camps or autos for food.

**Lost and found articles** should be reported to a park ranger.

**Dogs and cats** are allowed in the park if on leash, crated, or otherwise under physical restraint at all times. However, they are not allowed on trails or in other areas which the superintendent may designate.

**Firearms.** Unless adequately sealed, cased, broken down, or otherwise packed to prevent their use while in the park, firearms are prohibited, except upon written permission from the superintendent.

**Trees, flowers, and animals.** The destruction, injury, or disturbance in any way of trees, flowers, birds, or animals is prohibited. However, dead and fallen trees may be used for firewood.

**Keep park clean.** Keep your camp clean. As far as possible, burn garbage in your campfire; place cans and residue in containers provided. If no container is provided, bury the refuse. Do not throw lunch papers, wrappers, or other trash along roads or trails. Carry the material until you can burn it or place it in a receptacle.

**Suggestions** for improvements of any phase of the park operation and management should be communicated to the superintendent.

## **VISITOR USE FEES**

Automobile, housetrailer, and motorcycle permit fees are collected at entrance stations. Fees applicable to the park are not listed herein because they are subject to change.

All National Park fees are deposited as revenue in the U.S. Treasury; they offset, in part, appropriations made for operating and maintaining areas of the National Park System.