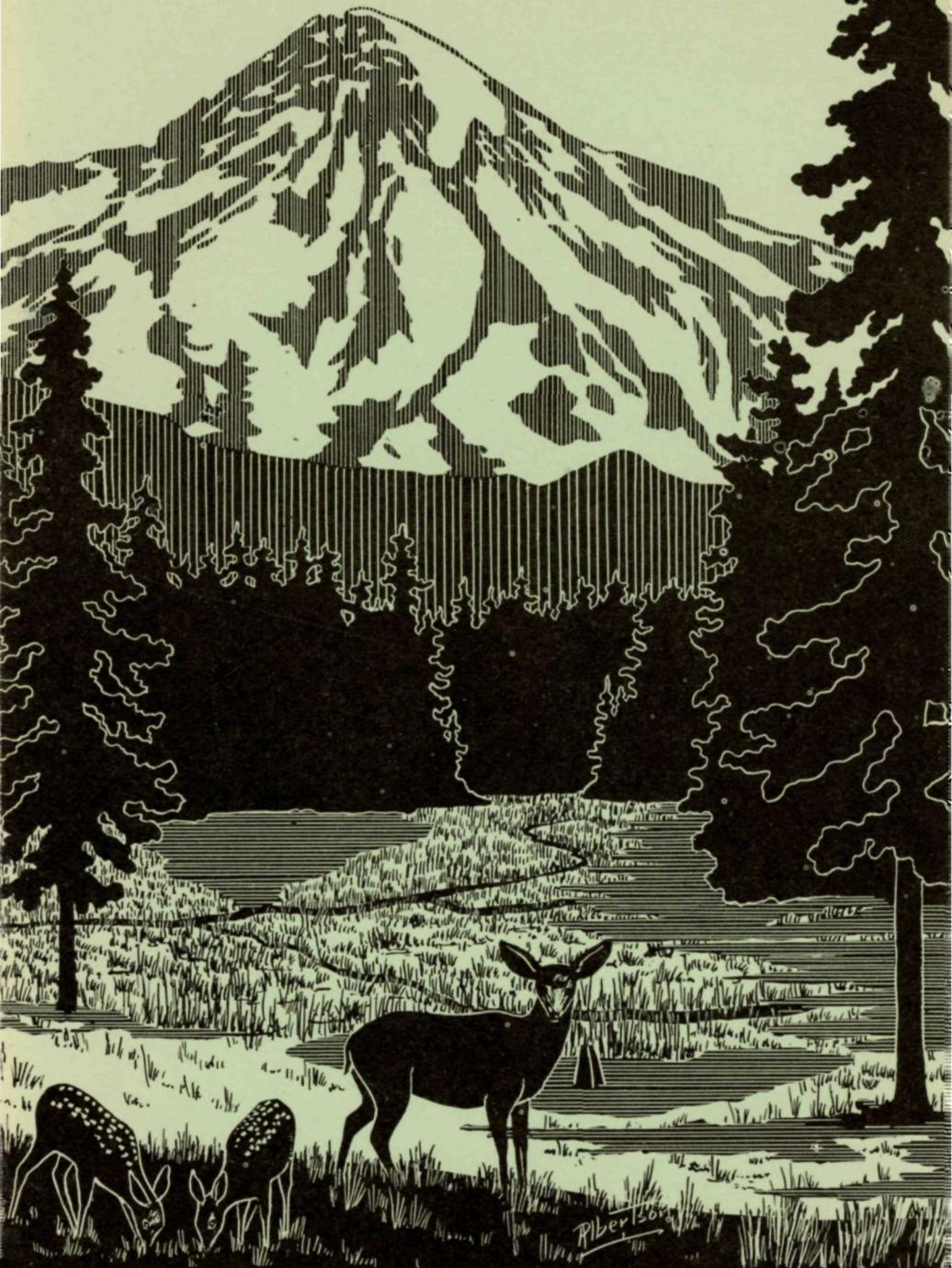


TRAIL OF THE SHADOWS



MOUNT RAINIER NATIONAL PARK



PUBLISHED IN COOPERATION
WITH THE
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT
OF THE INTERIOR
BY
THE MOUNT RAINIER
NATURAL HISTORY ASSOCIATION

**Guide yourself. Follow the numbered posts and
match them with the statements in this booklet.**

PRICE 10c

OR

PLEASE RETURN BOOKLET TO
DISPENSER AT END OF TRAIL.

TRAIL of the SHADOWS

Self-Guiding Nature Trail

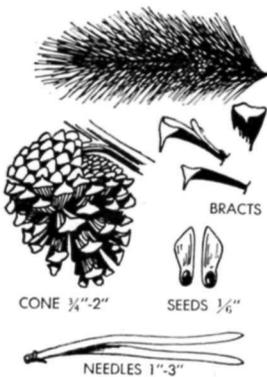
This is a delightful walk of approximately one-half mile through a forest community noted for its variety of trees, shrubs, and flowering plants. Scattered throughout the meadow are about 50 mineral springs. The temperature in the springs varies, with the maximum being about 73° F. It is a loop trail and in about thirty minutes of easy walking you will return to this point.

This leaflet is designed to aid you in a greater enjoyment and appreciation of the park. The numbers along the margin of the text correspond to numbered markers along the trail.

1. A MINERAL CLAIM was staked here in 1883 by James Longmire. He crossed the Cascade Range via Naches Pass into western Washington with the first overland emigrant train from the east in 1853. Soda Springs is one of the two remaining mineral springs still showing the early development by the Longmires.



2. OLD HOTEL SITE. In 1890 James Longmire, with the aid of his sons and several Indians, began building a road into this claim. During the same year a small hotel was constructed on this site. By present standards it was anything but a handsome structure. It measured 20' x 30' and had two stories. The lower level, with its puncheon (split cedar) floor, served as the lobby. Five tiny guest rooms were located on the second floor. Visitors could obtain accommodations and mineral baths with water from the warm springs.



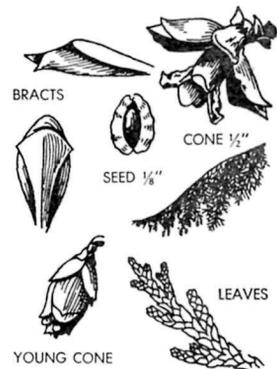
3. LODGEPOLE PINE (*Pinus contorta*) is the only two-needle pine in the park. The needles grow in bundles of two and are seldom over two and one-half inches long. The parent tree, when it fell in 1950, was 109 years old. A tree's age may be determined by counting the number of growth rings found in a cross section of the main stem. All these smaller lodgepoles were propagated by seeds from the parent tree.

4. DOUGLAS-FIR (*Pseudotsuga menziesii*) is the monarch of the Pacific Northwest. It comprises 60 percent of the trees in the forests. It is the largest tree in the park and specimens as large as 10 feet in diameter are common. You can easily recognize it by its drooping branches, pendant cones, and needles. The cone, with its three-pointed, forklike bract, does not break up when ripe as does that of the true firs. The needles stand out from all sides of the twig and are slightly rounded at the tip.



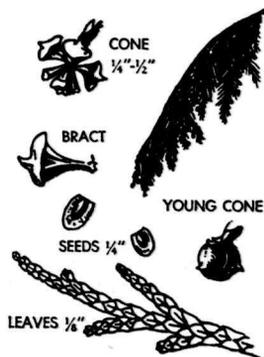
5. BEAVER previously occupied the Longmire meadow. Many years ago an old beaver dam was located about 100 feet to the left of the trail at this point; however, it has since rotted away leaving no visible traces. The dam was constructed of limbs and twigs of cottonwood and willow trees. Beaver are large rodents (average weight about 30 pounds) that live exclusively on plants. They construct a den of sticks surrounded by deep water. It has an underwater entrance and a large ventilated dry room. Although beaver have abandoned the Longmire meadow they are still active along other low level waterways within Mt. Rainier National Park.

6. WESTERN REDCEDAR (*Thuja plicata*) is one of the three most important trees in the park. This tree generally inhabits swamps and moist flats and slopes. Its wood is extremely durable. Fallen forest trees often provide footholds for the young trees. Some windthrown redcedars have been observed supporting as many as ten western hemlocks which were more than 100 years old, and the wood of the redcedar was still sound! The slow growing habit of this tree causes the fine grain in its wood. Thus, the wood can be split evenly into boards several feet long. Early pioneers in this region utilized the redcedar for building their dwellings because it provided them boards as well as shingles. Notice the shake roof on the homestead cabin. These shakes were split from redcedar.



7. THE HOMESTEAD CABIN was built in 1888 by Elcain Longmire, son of James Longmire. It is constructed of western redcedar. This particular site was selected because of the nearness to the spring. Elcain filed on this homestead, immediately adjoining that of his father, to provide more land for their development of the hot mineral springs as a resort.

8. **IRON MIKE** is the popular name of this mineral spring. The name was given to it because of the apparent iron content of the water and the rust color of its deposit. The spring drains into the meadow below where it was dammed by the beavers, and the water level is maintained throughout the year. Iron Mike and Soda Springs are the only ones of the many springs in the area still showing the development made by the Longmires. Others have returned to their natural conditions over the years.



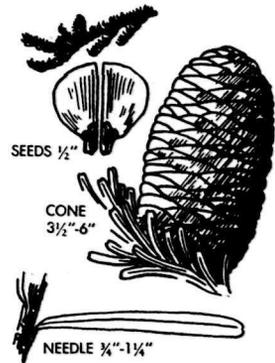
9. **ALASKA-CEDAR** (*Chamaecyparis nootkensis*) has the greatest elevational range of any tree in the park. It is found growing from 2,500 feet to almost 7,500 feet. The Alaska-cedar is easily recognized by its drooping branches which gives it a wilted appearance. At the upper extremities of growth it may be reduced to a sprawling, shrublike form on unprotected sites. Compare this foliage to that of the redcedar growing a few feet away toward the meadow.



10. **PACIFIC YEW** (*Taxus brevifolia*) is a medium sized tree found in moist, shaded canyons. It is readily distinguished by its seed which is berry-like and partly surrounded by a scarlet, fleshy material similar in size and color to a salmon egg. The needles are sharply pointed. Yew is world renowned and its wood was used by the Indians for bows, their most important weapon. Early pioneers used the wood for various implements and handles as we now use hickory.

11. **OREGONGRAPE** (*Mahonia nervosa*) is the name of this small shrub bearing numerous yellow flowers (in season). It is a common plant in the woods throughout the lower elevations of the park. The leaves have spiny teeth which give the plant a distinctive holly-like appearance. The fruit is a deep blue-black, fleshy berry which Indians used for food.

12. PACIFIC SILVER FIR or LOVELY FIR (*Abies amabilis*), deserves its name because it is the most handsome of its kind. It is one of the four true firs found in the park and bears an erect cone which disintegrates upon maturity. This process is nature's way of distributing the seeds. Because of its beautifully shaped crown and dense, lustrous foliage, it is often used as an ornamental tree in the eastern United States.



13. VINE MAPLE (*Acer circinatum*) is so called because of the sprawling, crooked, vine-like appearance and the habit of its slender, weak stems. It is one of the three maples found in the park and is common below 5,000 feet. The leaves are rose red when young and are a beautiful reddish-yellow or bright scarlet color in the fall. The fruit is a winged seed and is light yellow-brown when it is ripe; a short time before falling the wings are red. Chipmunks are often seen gathering the seeds, trimming the wings, and storing the seeds underground. Many of the seeds are forgotten by the chipmunks and, under right conditions, germinate producing more trees. Thus, chipmunks play an important part in spreading the seeds of various trees.



14. THIS AREA OF EXTREME MOISTURE has several plants that only inhabit boggy places. BUTTERBUR (*Petasites nivalis*) is the first plant to bloom in the park each season. The flowers are white to purplish in heads and bloom before the leaves unfold. The leaves are large (6-12 inches long). YELLOW SKUNKCABBAGE (*Lysichitum americanum*) vies with butterbur for being the first spring bloom. At that time it is a bright yellow blossom with a heavy spike of tiny flowers. The leaves are very large (12-36 inches long) and, like the butterbur, unfold after the blossom. The name comes from the pungent, skunk-like odor which the plant exudes. DEVILSCLUB (*Oplopanax horridum*) is the plant with the large maplelike leaves (4-12 inches wide). The stem and underside of the leaves are covered with numerous spines, hence its name. The green flowers mature into bright red berries late in summer. There are several ferns growing here, principally the DEERFERN (*Struthiopteris spicant*), one of the most common ferns in the park. SWAMP HORSETAIL (*Equisetum fluviatile*) is the peculiar plant with jointed stems. It is a plant of the ancient scouring-rush family. They reproduce by minute spores borne on a stem containing a cone-shaped body called a strobile.



15. **WESTERN HEMLOCK** (*Tsuga heterophylla*) is a large forest tree and, with Douglas-fir and western redcedar, comprises most of the trees in the forest. The needles are flat and the cones are small—not more than an inch long. Large crops of cones are produced about every third year. This tree usurps cut-over and burned-over areas formerly occupied by other trees.

16. **COMPETITION** of tree growth in the forest is quite evident here with western redcedar and western hemlock forming almost a pure stand. See the rotting stumps? They are the remains of a former forest of Douglas-fir that grew here and was destroyed by fire. Western hemlock is quite tolerant throughout its life and competes with the slower growing Douglas-fir. The slower growing fir trees are often suppressed by the faster growing hemlock and redcedar in the continual struggle for sunlight and moisture.
17. **FALLEN TREES** provide seed beds in the forest. Once a tree has fallen it is immediately attacked by mosses, lichens (lik-ens), insects, fungi, and other microscopic forms of life which slowly return it to the soil. This is a typical log or stump garden. Here salal, a small shrub with evergreen leaves and edible dark purple berries, moss-like lichens, and young trees have found anchorage, light, and a source of food. Moss-covered rocks also provide ideal places for seed germination.
18. **FOREST CHANGES** are continually taking place and new soil is built by the action of various digesting agents. Rain water is a key factor in the decomposition of rock and vegetation because it is slightly acidic. Root hairs secrete a weak acid to further assist this process. This log is rapidly returning to the soil and young trees are already starting to grow in the decaying wood. They, too, in time will become part of the forest soil.
19. **A SPREADING ROOT SYSTEM** is typical of evergreen trees. A short distance toward the meadow is an uprooted western hemlock. Notice the absence of a large taproot which broadleaf trees possess. Absence of a large taproot makes the trees susceptible to windthrow. Even under the most ideal soil conditions the evergreens do not produce taproots. One often wonders, when looking at especially large trees, how they can remain upright with such a small and shallow anchoring system.

20. A FOREST FIRE swept through here several years ago destroying a Douglas-fir forest which was about 500 years old. These stumps are all that remain of that forest. Close examination will reveal charred areas that withstood the weathering throughout the years. Indians often burned the forests to provide better hunting conditions and to produce more berries. Western redcedar, Douglas-fir, and hemlock are able to establish themselves quickly in burned areas because of their frequent seed crops and an excess of ground moisture.
21. WET STREAM BANK ASSOCIATION finds violets, woodsorrel, butterbur, yellow skunkcabbage, and devilsclub growing together form the ground cover.

22. RED ALDER (*Alnus rubra*) is the most common broadleaf tree in the park. It is particularly abundant in moist to wet soils where it often forms dense groves. It is one of the first trees to "heal" man-made scars in the forest, but it later gives way to the larger evergreens which suppress its growth. Alder provides the organic materials needed by the soils for good evergreen growth.



23. REDOSIER DOGWOOD (*Cornus stolonifera*) is the shrub with the reddish brown bark a few feet upstream. It is one of the four dogwoods found in the park. The flowers (in season) are small and white. In close association with this shrub are water-loving willows which inhabit wet or moist conditions found along the stream side.

24. BLACK COTTONWOOD (*Populus trichocarpa*) is the largest broadleaf tree in the park. The seeds are tufted with white hairs resembling cotton, hence its name. During the winter of 1955-56, a beaver felled this tree, cutting from a high position afforded by the deep snow. Note that the lower cut was started when the snow was about 2 feet deep. More snow fell and the new and final cut was made when the snow depth was about 5 feet. The sapwood (lifeline) and inner bark of this tree are used as food by the beaver.



25. MUDFLOWS are common in glaciated areas. This rocky area and small trees tell us that several years ago this valley experienced a great mudflow similar to that which took place in the Kautz Valley in 1947. Mudflows can be found in all the major river valleys of the park. They are very destructive to a forest but it is a natural process of erosion taking place.



26. THIS WESTERN WHITE PINE (*Pinus monticola*) is one of the two five-needle pines growing in the Park. The other is the white-barked pine (*Pinus albicaulis*) known as the "sentinel of the high country" because its altitudinal distribution is between 5,000 and 7,000 feet. It is often the last tree in the timberline class. Western white pine provides the matchwood of industry and has a number of natural enemies. The bark is extremely thin even on mature trees and they are easily damaged by a light ground fire. White pine blister rust and bark beetles take a heavy annual toll of these trees. Many of the trees in this area have been attacked by these enemies and will soon die. Looking about you, those trees entirely red have been attacked by the pine beetle. Those partly red have been attacked by blister rust. The western white pine is easily recognized because it bears the largest cone in the forests of the park.

The things that you have seen along this trail, and all features in Mount Rainier National Park, are protected. 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 the people.

Art by Roger D. Albertson

We hope that you have enjoyed your trip. You will find other self-guiding nature trails in the park at the Kautz Mudflow area, Ohanapecosh, and Sunrise.

Your comments on the booklet and trail would be appreciated. Kindly leave them with a Park Naturalist at the Longmire Visitor Center or write:

Superintendent
Mount Rainier National Park
Longmire, Washington 98397



Watch for wayside exhibits and self-guiding nature trails throughout the park. They are announced by this sign.

The MOUNT RAINIER NATURAL HISTORY ASSOCIATION is a non-profit organization pledged to aid in the preservation and interpretation of Mount Rainier National Park. Profit from the sale of these items is used to further the interpretive program within Mount Rainier National Park and the National Park Service.

The association lists for sale many interesting and excellent publications for adults and children, as well as color slides on Mount Rainier. These items may be seen throughout the year at the Longmire Visitor Center and during the summer season at Paradise, Ohanapecosh, Sunrise, and Box Canyon. A catalog of these items is available from the association.

Mount Rainier Natural History Association
Longmire, Washington 98397