MARYMERE FALLS NATURE TRAIL

OLYMPIC NATIONAL PARK
WASHINGTON

PLEASE HELP US KEEP THE PARK CLEAN AND GREEN

"....It was the Indian's way to pass through a country without disturbing anything; to pass and leave no trace, like a fish through the water or birds through the air."

Willa Cather

HOW TO USE THIS NATURE TRAIL

FOLLOW THE LETTERED STAKES. They correspond to the lettered paragraphs in this leaflet. In addition there are smaller, numbered markers. These correspond to the numbered list of plants beginning on Page 10.

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A. THE FOREST that you are about to enter is similar to that which once covered much of western Washington. It developed as a response to the mild, humid climate, and has grown here for thousands of years.

B. A FOREST CONSISTS NOT ONLY OF TREES, but of shrubs, herbaceous plants, ferns, mosses, fungi, microscopic plants such as bacteria, and the many forms of animal life. A forest is a very complex community of living things.

At this point note the variety of plant life.

C. SALAL (Gaultheria shallon) is the most common shrub in the Northwest's coastal forests. It varies from a low sparse growth to an impenetrable tangle 10 feet or more in height. Note its leathery, evergreen leaves with finely toothed edges.

Several kinds of tree seedlings are part of the undergrowth here.

D. MOST FOREST PLANTS are green because of the chlorophyll in the leaves. Only plants with chlorophyll can manufacture their own food. Plants that lack chlorophyll must obtain their food already made. Some of the non-green plants get food from living plants (or animals). These are parasites. Others, the scavengers, live on dead and decaying organisms. These are called saprophytes. But for the work of

saprophytes the forest would be congested with the undecayed trunks and limbs of trees.

E. ALTHOUGH THE PACIFIC YEW (Taxus brevifolia) reaches its finest development on the Olympic Peninsula it is a small tree and is lost among its gigantic neighbors. Its growth is slow - - this tree is 104 years old. You can remember the tree by its scaly, red trunk and sharp-pointed needles with two-tone color beneath.

F. WESTERN SWORDFERN (Polystichum munitum) loves dense shade, moist soil, and humid air. Note the attractive display on the hillside to the left. It is an evergreen plant that resembles the Christmas Fern of the eastern United States. It is now scarce near cities because it has been gathered and shipped east in carload lots for florist's decorations. You can identify it by the leaflets which are sharp-pointed, and sharp-toothed, and are attached by a short stalk.

G. WESTERN HEMLOCK (Tsuga heterophylla) is a prolific, fast-growing tree. Its dense foliage casts shade so deep that no tree seedlings, except its own, can grow under it. Therefore, Western Hemlock tends to "inherit the earth" in this region. It is the climax forest growth and would be even more abundant but for its thin bark which affords little protection against fire.

Note the dense growth of young trees on the left. The tree on the right of the trail is also a Western Hemlock. The drooping tip identifies this tree.

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H. LOOK UP! - - - - This Western Hemlock is not healthy. A parasite, mistletoe, is growing on the branches and has caused broom-like clusters called "witches' broom." (The moss growing on the tree does not harm it.) This dwarf mistletoe, like other mistletoes, is a flowering plant that produces sticky seeds that adhere to the bark of trees. When they germinate a specialized outgrowth penetrates the bark and takes nutriment from the tree. The "witches' broom" interferes with the life processes of the tree and may cause death to the branches. Severe infections may kill the tree.

I. MOSSES IN THIS REGION attain their finest development in the rain forests of Olympic's western valleys. Yet mosses are hardy plants, able to grow in dry as well as cold climates, and in places where no plants have grown before. This boulder, which may have tumbled from Mount Storm King, was once bare. Mosses and lichens were the first plants to gain a foothold in its surface cracks. Their pioneering work is converting the rock surface into soil in which other kinds of plants are starting to grow. Here we see on a small scale how this forest started. To see mosses at their best visit the Rain Forest Nature Trail in the Hoh River Valley.

J. DOUGLAS FIR (Pseudotsuga taxifolia) is King of Northwest trees. Next to the Sequoias of California, this fast-growing, long-lived tree is the largest in the forests of the Western Hemisphere. The largest Douglas Fir known is located three miles up the Queets River Trail in Olympic National Park. It is 53 feet 4 inches in circumference.

Since the beginning of time fires have swept through Northwest forests, creating sunlit openings necessary for the regeneration of Douglas Fir. Unlike Western Hemlock its seedlings do not develop under shade.

The thick, reddish, deeply furrowed bark distinguishes Douglas Fir. The cones, commonly found on the trail, are 2 to 3 inches long and have three-pointed bracts between the scales.

K. LICHENS (Like-ens) are plants composed of an alga and a fungus that have formed a partnership. The alga, having chlorophyll, manufactures food for the partnership. The fungus absorbs water and minerals and provides protection. Both benefit from this arrangement. Lichens are hardy and can grow in a great variety of places and for this reason have a greater distribution on the earth than any other group of plants.

They grow in a variety of shapes and sizes. Most of the light-colored splotches on trees are lichens of the crustose type, which also grow on rocks. Lichens of the fruticose (bushy) form are growing on the trunk of this tree. Foliose (leafy) lichens are also common in this forest. The largest and most attractive of these look like leafy lettuce that is light green on one side and ivory on the other. It grows on branches high in the trees and these sometimes break off and fall to the ground with the decorative lichens attached.

L. LIFE AND DEATH, growth and decay are often found in close association in nature. Green plants fashion complex substances (carbohydrates, proteins, etc.) from simple substances (carbon-dioxide, water, and minerals). This is growth. Saprophytic bacteria and fungi change the complex substances back to simple ones. This is decay. Here, for example, you see a variety of green plants growing vigorously on the rotting remains of a tree that fell many years ago. In the process of its decay the body of the tree is being reduced to the simple substances used by the green plants. Several kinds of flowering plants, ferns, and seedlings of Western Hemlock are present. The tree fell at least a century ago for the Western Hemlock tree growing upon it is 93 years old.

TURN TO THE NUMBERED LIST OF PLANTS ON PAGE 10 TO FIND THE NAMES OF PLANTS MARKED WITH NUMBERED STAKES

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M. WHEREVER THE FOREST IS OPENED UP by the death of one or more of its larger members, new life enters the vacancy. Here you see a group of seedling trees each competing with its neighbors for a place in the sun. Some are destined to die in the struggle. The largest of these, with dark green, oval-shaped leaves is Red Alder. Commonly it is the first tree to appear in forest openings. Gradually, the evergreen cone-bearing trees supplant the Alder. Other seedlings here are: Western Hemlock (nodding tips and feathery foliage); Western Redcedar (scale-like leaves); Grand Fir (two-ranked, blunt needles forming flat sprays). If the opening is large enough, the sun-loving Douglas Fir will come in.

N. WESTERN REDCEDAR (Thuja plicata) was utilized more than any other tree by the Indians of the North Pacific Coast. From its gigantic trunks they carved ocean-voyaging canoes capable of carrying 50 warriors. The tree furnished wide planks and timbers for the building of their communal houses. Clothing, mats, and even a substitute for kapok were made from the shredded bark. The roots were used for basketware, while the leafy parts were used in various ways as medicine.

The largest known Western Redcedar is 66 feet in circumference and is located near Steamboat Creek in the Ocean Strip of Olympic National Park.

You can identify the tree by the stringy and fibrous bark and often fluted base. In this region it is the only lowland tree with scaly foliage.

O. LISTEN! - - There are birds in this forest, but you will more likely hear them than see them. They are part of the forest community. The forest provides

suitable habitats for several species. In return the birds help to keep the forest healthy by feeding on insects that could otherwise become destructive.

Woodpeckers, for instance, depend on forest snags like the two on the left of the trail. Such snags become the homes of many insects, grubs, and worms, especially when partially rotted. These are the food for woodpeckers, who are constantly at work digging them out. You may hear the staccato rapping of their excavating activities as you walk along the trail.

P. THIS IS THE LARGEST DOUGLAS FIR you will see along the nature trail. It is 10 feet in diameter and approximately 800 years old. The bark around the base, as is true for many of the larger trees in the vicinity, has been blackened by fire. Years ago a ground fire swept over the area. Many of the smaller trees were heat killed, but the old veterans, heavily insulated by their thick layers of bark, withstood the flames. The dead trees soon rotted away and their places were taken by others. As a result the only evidence of the fire's effect upon the forest is the occasional burned out interior of a tree, or as here, the fire-blackened trunk.

Q. THE STORM KING MOUNTAIN TRAIL is about 1-3/4 miles in length. It is steep in many places, but you can climb without trouble to a point marked "dangerous beyond this sign." At intervals you will be rewarded for your efforts by splendid views of Barnes Creek Valley, Aurora Ridge, almost the entire length of Lake Crescent, Pyramid Peak directly across the Lake, the Strait of Juan de Fuca, Vancouver Island, and the San Juan Islands. There is no water along this trail —— take a drink from Barnes Creek before you leave!

Directly in front of you lies another large boulder from Mt. Storm King showing stages of plant succession from lichens and mosses to ferns and small trees.

R. THE FOREST is not everywhere the same even at the same elevations for different growing conditions may occur. For instance variations in soil and moisture and different slope directions (south-facing slopes are warmer and drier than north-facing ones) cause variations in the forest. At this point you are overlooking a stream bottom forest. Most typical of the trees are the white-barked and moss-covered Red Alder. Although not common at this spot, Western Redcedar is usually common in such localities. The tangled mass of shrubby undergrowth consists mainly of Salmonberry canes, American Devilsclub, Pacific Red Elder and Western Swordfern.

S. IN MANY PLACES the lower level of the forest is filled with Vine Maple. It gets its name from its habit of sprawling on the ground. A dense growth of it is very difficult to penetrate. Vine Maple compensates for its small stature with beauty. Where sunlight pours through holes in the upper tree canopy it may be caught by the Vine Maple and transformed into a "million" stars of twinkling and diffused green.

Along forest borders and in openings Vine Maple gives the Northwest its most gorgeous autumn colors.

T. TREES GROW by adding a layer of new wood each year. During spring, when growth is fast, the soft, lighter colored part of the ring is formed. As summer arrives growth becomes slower and the hard, darker layer develops. These two layers together make an annual ring. Trees grow in height as well as diameter so we must remember when counting the rings high up on a trunk, that we determine only how many years have passed since the tree reached that height. This tree (Western Hemlock) is about 250 years old at the point where cut. It was weakened at the base by a fungus that attacks and rots living trees. In such a weakened condition it fell an easy prey to a winter storm.

U. THERE IS NO FINER HARDWOOD TREE in the Northwest than the Bigleaf Maple (Acer macrophyllum). Its sturdy trunk, its height, and its large leaves that may measure a foot across, distinguish it from the Vine Maple. It is common in moist bottom lands and in favorable situations it grows to three or four feet in diameter. Generally, however, it exists in the forest only as a scattered understory tree. In autumn its foliage turns a brilliant yellow.

V. MORE THAN ANY OTHER TREE in this region Bigleaf Maple is hospitable to epiphytes. Epiphyte means upon a plant. They are the "hitchhikers" of the plant world. Most epiphytes are able to manufacture their own food and do not rob the plants upon which they grow. They are abundant in humid regions. They obtain carbon-dioxide and some moisture from the air and their roots obtain water and minerals from windborne debris that collects on the bark where they grow. You have already seen the abundance of lichens and mosses growing as epiphytes. LOOK UP! - - On this tree licorice ferns are also growing.

W. DEVIL'S CLUB (Oplopanax horridus) grows in the shady forest where the soil is damp, and rich with organic matter. Its large maple-like leaves and thick, spiny stems make it conspicuous. Large clusters of white flowers appear at the top of the plant in June and by late summer these develop into pyramids of bright red berries.

X. THE DRAINAGE AREA OF THE BARNES CREEK basin is the largest emptying into Lake Crescent. Heading about eight miles above this point, it has, throughout thousands of years, carried immense amounts of soil and rock debris into the lake. By "carrying the mountains to the sea" it has created a large delta - the most extensive level area around the shores of Lake Crescent. The rich soil deposited by the stream has helped produce this forest of giant trees.

The trail climbs to Marymere Falls
a distance of 180 yards

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Y. THE PLANT COVER IS SPARSER ON SLOPES than on valley floors. The reason for this is less water and thinner soil. The steeper the slope the faster water runs off, carrying with it soil material.

The ground cover here consists of a sparse growth of moss, a few Swordferns and Salal shrubs. Nearly all the other plants you saw on the valley floor are absent.

The largest trees are Douglas Firs. These are healthy trees yet, but note the abundance of smaller Western Hemlock. These will eventually dominate the forest on this slope if fire is kept out. The older Douglas Firs will eventually die and in this dense shade their seedlings will not grow.

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PLEASE do not cut across the switchbacks,
as it encourages erosion and increases
the cost of trail maintenance

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Z. WATERFALLS occur where streams reach previously existing cliffs, or where they pass from resistant rocks to weak rocks. Here Fall's Creek cuts deeply into weak rocks to form Marymere Falls which is 90 feet high.

THE NUMBERS ON THE SMALL MARKERS CORRESPOND TO THE NUMBERS IN THE FOLLOWING LIST OF PLANTS

LILY FAMILY

1. FAT SOLOMONPLUME (Smilacina amplexicaulis). This large, attractive plant, also called Solomon's Seal, has a large pyramidal cluster of small whitish flowers. The berries are red and edible, but rather tasteless.

2. TWISTEDSTALK (Streptopus amplexifolius). You can tell Twistedstalk by the twist in the thread-like flower (or berry) stems. The alternate leaves clasp the stem.

3. CANADA BEADRUBY (Maianthemum dilatatum). It is also called "Wild Lily-of-the-Valley." Each stem has one or two waxy, heart-shaped leaves. A spike of small, white flowers rises above the leaves. The berries are at first mottled with brown, but change to ruby beads when ripe.

4. PACIFIC TRILLIUM (Trillium ovatum). Three leaves in a whorl are supported at the top of a stout stem. In April or May a pure white lily-like flower appears that changes to pink or purple as it ages.

ORCHID FAMILY

5. WESTERN RATTLESNAKE PLANTAIN (Goodyera decipiens). Its evergreen leaves are veined and blotched with white.

BIRTHWORT FAMILY

6. BRITISH COLUMBIA WILDGINGER (Asarum caudatum). You will find this plant in the dim light beneath the densest forest canopy and near water. The wildginger

grows close to the ground. Its heart-shaped leaves are green above and reddish beneath. Its dark red flowers are often covered by leaves or other forest litter.

PURSLANE FAMILY

7. WESTERN SPRINGBEAUTY (Claytonia sibirica). This tender little "salad" plant has spatulate leaves arising from the base and two opposite leaves on the stem.

BUTTERCUP FAMILY

8. WESTERN BANEBERRY (Actaea arguta). The small, round-topped clusters of white flowers are followed in midsummer by the shiny scarlet berries. The berries are poisonous.

BARBERRY FAMILY

9. OREGON GRAPE (Mahonia aquifolium). This evergreen shrub has leaves composed of 5 to 11 leaflets. The leaflets are stiff, shiny and have wavy, and spiny-toothed edges. The veins are pinnate.

10. CASCADES MAHONIA (Mahonia nervosa). It can be distinguished from Oregon Grape by the 11 to 21 leaflets per leaf which are dull instead of shiny.

11. DEERFOOT VANILLALEAF (Achlys triphylla). After death of the plant the leaves have the fragrance of vanilla which accounts for another name, "Sweet-after-death." It has a single, fairly large leaf of 3 segments at the top of a slender stem.

SAXIFRAGE FAMILY

12. TREFOIL FOAMFLOWER (Tiarella trifoliata). This plant has several long-stemmed leaves growing from the base and one growing from the slender stem. Each leaf has 3 leaflets. Notice the thread-like petals of the delicate white flowers.

ROSE FAMILY

13. SYLVAN GOATSBEARD (Aruncus sylvester). This tall plant of the cool, rich woods is widely distributed all over the world. It is not a shrub, as it dies down to the ground each year. Its tiny, white flowers are arranged to form open panicles composed of slender pencils.

14. WESTERN THIMBLEBERRY (Rubus parviflorus). It is a slender shrub with maple-like leaves, conspicuous white flowers, and bright red edible but insipid raspberry-like fruits.

15. SALMONBERRY (Rubus spectabilis). This common shrub of the coastal forests prefers moist bottomlands. Its flowers are reddish purple, its fruits red to amber, its stems light brown and satiny.

EVENING PRIMROSE FAMILY

16. FIREWEED (Epilobium angustifolium). This tall plant with willow-like foliage has world-wide distribution. In the Northwest it is generally abundant following logging and fires. Its name is due to the fact that it springs up quickly on burned areas.

DOGWOOD FAMILY

17. WESTERN DOGWOOD (Cornus occidentalis). It is a small tree or shrub with characteristic "dogwood" leaf that is covered underneath with fine white hairs.

HEATH FAMILY

18. INDIANPIPE (Monotropa uniflora). One writer described it: "A drooping flower molded from pure white wax." It is a saprophyte living on decaying vegetation.

19. WOODLAND PINEDROPS (Pterospora andromedea). This slender, tall, reddish-purple plant is a saprophyte.

20. COMMON PIPSISSEWA (Chimaphila umbellata). Also called Prince's Pine, this is one of the Northwest's many evergreen plants. Its shiny, leathery, sharply toothed leaves form a loose cluster around the stem. Pink to white waxy flowers appear in May and June.

21. RED WHORTLEBERRY (Vaccinium parvifolium). It is also known as Red Huckleberry. This shrub with green twigs and red berries prefers edges of forest openings, although it grows in shady places.

PRIMROSE FAMILY

22. WESTERN STARFLOWER (Trientalis latifolia). It is a small, delicate plant bearing a whorl of thin leaves at the top of a slender stem. One to four white or pinkish star-shaped flowers grow on thin stems from the center of the leaf whorl.

WATERLEAF FAMILY

23. WATERLEAF (Hydrophyllum tenuipes). It prefers shade and rich river bottom soil. This soft, fuzzy plant has delicate lavender flowers with protruding stamens and pistils.

MINT FAMILY

24. COMMON SELFHEAL (Prunella vulgaris). As is characteristic of members of the mint family this blue-flowered plant has a square stem.

MADDER FAMILY

25. BEDSTRAW (Galium sp.). The bedstraws have weak, four-angled stems that often cling to other plants and to your clothing by means of hooked hairs or bristles on the angles of the stems.

HONEYSUCKLE FAMILY

26. PACIFIC RED ELDER (Sambucus callicarpa). This shrub with its stout, spreading stems, has opposite leaves. Each leaf consists of 5 to 7 toothed, sharp-pointed leaflets.

27. TWINFLOWER (Linnaea borealis var. longiflora). The drooping, fragrant flowers of this low evergreen vine are borne in pairs. Notice that the leaves are opposite and finely toothed.

COMPOSITE FAMILY

28. AMERICAN ADENOCAULON (Adenocaulon bicolor). Notice the contrast between the deep green upper and the silver lower surface of the leaves. Another common name for it is "Silver-green." The name "Pathfinder" is also used because of the path left by a person walking through patches of this plant.

29. SWEET COLTSFOOT (Petasites speciosa). Coltsfoot is one of the earliest of spring flowers. It is familiar in moist woods, along streams and moist road banks. It has large, broad leaves that are deeply cleft into 7 to 9 lobes.

30. INDIAN THISTLE (Circium edule). This tall thistle is also called Edible Thistle. Its fleshy root was used as food by some Western Indians, but apparently not by Western Washington Indians.

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This booklet is produced by the
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A non-profit organization cooperating with
the National Park Service
in preserving and interpreting the Park.

We hope that this nature trail has helped you to understand and enjoy Olympic National Park. Your suggestions as to how this trail and its guide booklet may be improved will be appreciated.

OTHER NATURE TRAILS IN THE PARK

Rain Forest Nature Trail - Hoh Valley
Hurricane Nature Trail - Hurricane Hill
Dosewallips Nature Trail - Dosewallips River Valley