

9 Know your trees and shrubs. Can you identify some in this area. Using the cottonwood tree as a bearing (remember it by its rough, furrowed bark?) . . . beside it is a hemlock. Opposite the cottonwood are devil's club and mountain maple. The name alone has undoubtedly allowed you to identify these!

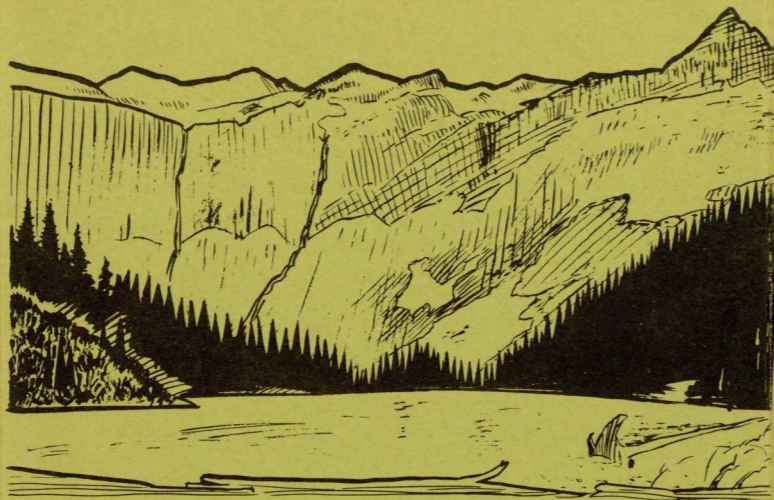
DEVIL'S CLUB (*Oplopanax horridum*) is one of the most showy shrubs in the park. The stems and underside of the large maple-like leaves are very prickly. The bright red fruits are abundant and form a large, dense, club-like cluster projecting above the leaves in the center of the plant. Devil's Club grows to 3-4 feet high and often forms thickets along streams.

RED OSIER DOGWOOD (*Cornus stolonifera*) is recognized by its bright red stems which support opposite leaves. Early in the spring the bunches of four-petaled white flowers add much to the natural scene. Later in the summer the green berries turn to red and are much desired by the birds.

MOUNTAIN MAPLE. (*Acer glabrum*) This small shrub (6-8 feet high) is the only maple found in the park. This an important browse for wild-life and is fairly common in lower and middle elevations mainly in woods and thickets.



10 ENGELMANN SPRUCE (*Picea engelmannii*). Several characteristics identify these two trees as Engelmann spruce. Note the thin, scaly bark. Find some needles on the ground and compare them with other trees. The spruce needles are square, not flat like those of other evergreens. Feel how pointed and sharp these needles are.



TRAIL TO AVALANCHE LAKE

THIS FOUR MILE ROUND TRIP HIKE IS A GOOD FAMILY TREK. THE TRAIL IS SHADED, WELL-TRAVELED, AND ONLY CLIMBS 497 FEET TO THE LAKE. ALLOW TWO HOURS ROUND TRIP FOR WALKING TIME.

Fishing is best done by otters, bears and eagles. If you wish to fish, too, you may catch the native cutthroat trout. No license is required. **NO OVERNIGHT CAMPING IS ALLOWED.**

THE FIRST 100 YARDS OF THE TRAIL PARALLELS THE TWISTED AND SMOOTH GORGE. BEWARE OF WET ROCKS AS THEY ARE VERY SLIPPERY.

The following description of the trail is quoted from The Ruhle Handbook, Roads and Trails, Waterton-Glacier National Parks by George C. Ruhle, 1972 (available wherever publications are sold in the park):

For the first mile the trail passes beneath hemlocks and larches with haphazard cedars and paper birches. Large cedar snags, scarred by fire and exceeding in girth any now living are scattered at random. At one place a fallen cedar has rejuvenated with several vertical branches growing vigorously from the prostrate bole and persisting apparently without independent root systems.

The songs of numerous birds fill the air; tracks of many animals are impressed in the plastic tread. Snowshoe rabbits, pine squirrels, and chipmunks scamper in and out

of cover. Butterflies, mostly checkerspots and mourning cloaks, flutter among the flowers or bask in spots of sunshine. Cones of trees are sprinkled everywhere; flowering plants are common: beargrass, queen cups, pyrolas, columbines, arnicas, fireweeds, harebells, and bunchberries.

As the trail climbs, the dense forest dissolves into an open stand of birches, cottonwoods, and dwarf maples with random larches and alpine firs. Glimpses of the magnificent strata of the canyon and the fine cirque at its head unfold here and there. In places it is possible to see parts of Sperry Glacier. The entrance of the rugged canyon which drains Hidden Lake appears on the left. Small fragments of metagabbro are scattered beside the trail.


The trail glides into a dense stand of mature hemlocks heavily loaded with goatsbeard lichens, in which varied thrushes are almost certain to be seen or heard in company with Swainson's thrushes. Passing over a small open stretch, another almost pure stand of hemlock is reached, heavily infested by Indian paint fungus and loaded with strands of streaming beard lichens.

Since the 1964 flood, the trail has been relocated near the creek as it weaves among maples, smaller shrubs, and false hellebores to the edge of the lake.

AVALANCHE LAKE. The lake lies in a huge cirque quarried by the glacier which pushed down Avalanche Canyon. Today half a dozen silvery waterfalls tumble over the half mile high walls... melt waters from Sperry Glacier, which lies out of sight on the shelf above and in the shadow of Gunsite Mountain (9,258 feet). Today, Sperry Glacier carves and abrades the mountain block as did its predecessor which formed this cirque and gave the U-shape to Avalanche Canyon.

NATIONAL PARKS ARE AREAS WITH SUPERLATIVE SCENIC, SCIENTIFIC, AND HISTORICAL VALUES OF NATIONAL SIGNIFICANCE, WHICH ARE TO BE PRESERVED UNCHANGED FOR THE ENJOYMENT OF PRESENT AND FUTURE GENERATIONS.

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TRAIL OF THE CEDARS AND AVALANCHE LAKE



The numbers along this trail correspond to the text in this leaflet, calling attention to things of interest along the trail. Please use the leaflet free; however, if you plan to keep one, please deposit 10¢ in the box.

TRAIL OF THE CEDARS is an easy ¼-mile through a cool, shady forest. Allow about 30 minutes. You may return along the same route, or return through the Avalanche Creek Campground, or at the end of the trail you may want to hike to . . .

AVALANCHE LAKE . . . a round trip hike of four miles (elevation gain of 497 feet) along an interesting pothole canyon. This beautiful lake is set in a deep glacial cirque with high waterfalls.

Man has unwittingly trampled ferns and other plants in the area. Let's all help this area recover by remaining on the trail.

PACIFIC TRILLIUM or Wake-Robin (*Trillium ovatum*) with white flowers aging to purple, is one of the earliest blossoms seen along the trail. The plants are conspicuous throughout the summer.



The white, thin, papery bark identifies the **NORTH-WESTERN PAPER BIRCH** (*Betula papyrifera subcordata*). Although the bark peels back naturally, it should not be pulled from the tree. This spoils the beauty and can harm the tree.

1 WESTERN RED CEDAR (*Thuja plicata*) is the dominant tree in this immediate area. Flat, fern-like branches, small cones, and light brown, stringy, fibrous bark are the characteristic features. Common from northern California to Alaska, the tree is not a true cedar, nor is the wood red. The eastern extent of its range is in Glacier where it is confined almost entirely to McDonald Valley. Along the humid coast of Oregon, Washington, and British Columbia the tree reaches diameters in excess of ten feet; the largest in McDonald Valley range from four to seven feet in diameter and 100 feet in height.

Some cedars have fallen. Of what value can they be?
Provide homes for insects . . . ?
Humus, as they decay . . . ?

Have you wondered how deep the soil might be to support such trees? Look for clues.

2 WEEPING ROCKS. Springs on the hillside above keep these rock ledges wet throughout the summer and fall. This moisture permits a heavy growth of algae, mosses, and water plants.

LISTEN! Can you hear the one note trill of the varied thrush?

Look for this robin-like bird on the forest floor. It can be identified by its speckled, orange breast and orange eye stripes and wing bars.

3 WINDFALL! This fallen western red cedar is a typical windfall. Notice the shallow root system. Because of abundant moisture near the ground surface, these trees do not have deep roots, and thus, are occasionally blown over. In drier areas the cedar would normally have deeper roots.

4 STOP! Look at the tree trunks in this area. Can you find large, warty lumps growing on some of them? These burls are abnormal, cellular growths resulting from malformed buds, wounds, or mistletoe. The growth is somewhat comparable to cancer.

Notice, too, the bark of the trees. Can you find one whose bark is very different? Rough and furrowed?

This bark is a mark of the mature **BLACK COTTONWOOD** (*Populus trichocarpa*) . . . the largest species of tree in the park. The golden leaves in the fall merge with the aspen and birch to create beautiful color displays. Seedling western red cedar are numerous throughout this area.

Look at the forest floor! Do you think there is enough browse here to support deer, elk, or bighorn sheep? No, they are found where grasses and browse are abundant, such as meadows and in burned areas.

5 MECHANICAL DECOMPOSITION. This rock is being broken up. Notice how the roots of the red cedars completely fill the cracks in the rock. As the roots slowly grow and expand, the cracks are enlarged until the rocks break apart.

An interesting form of lichen is growing here. **GOATS-BEARD LICHEN** is the dark gray variety hanging from tree limbs along this trail. It does not harm living trees, as it gets its food from substances in the air.



6 FOREST MONARCH. This large western red cedar has a problem of too many admirers. The soil around the roots is compacted due to the numerous feet passing this way. Compacted soil prevents water and air from percolating through the soil to the roots. Please stay on the established trails in order to confine soil compacting to as small an area as possible.

The rough-barked tree beside the forest monarch is a **DOUGLAS FIR** (*Pseudotsuga menziesii glauca*). "False Hemlock with Foliage Like a Yew" is the meaning of the Latin name. The long, flexible, three-pointed bracts which protrude from between the scales of the cone readily identify this tree.



7 AVALANCHE CREEK. On June 8, 1964, Glacier National Park and surrounding areas were deluged with up to 14 inches of rain which fell on the heavy winter snow accumulation. This tremendous mass of water came down the mountains, causing much damage to roads, trails, and bridges. The streambed was scoured and changed its course in many places.

Trees were uprooted. Avalanche Creek has not yet stabilized and occasionally the large cottonwoods and cedars along the banks are undermined and topple into the creek.

Yet remember, these are natural processes. Like the slow erosion of mountain tops and the breaking up of rock into soil, these processes are part of the slow changing of the face of the earth.

7 Which is which? PACIFIC YEW (*Taxus brevifolia*) and **WESTERN HEMLOCK** (*Tsuga heterophylla*) are growing side by side.

To the left of the stake is the yew, a many-branched shrub which does not grow to tree size in Glacier. You can tell the yew by the pointed ends of the blunt needles and the bright red fruit. Needles are green underneath.

The western hemlocks here are mostly young trees and seedlings. Hemlocks are easily recognized by their drooping tops. The needles are blunt and without points and whitish underneath.

8 This is the remnant of a western larch. Living trees are seen farther up the hill. Unlike most cone-bearing trees, the larch loses its needles each fall. The soft, light green needles are borne in clusters of 15 to 35 each year. In autumn the needles turn to yellow, giving these conifers the appearance of dying.

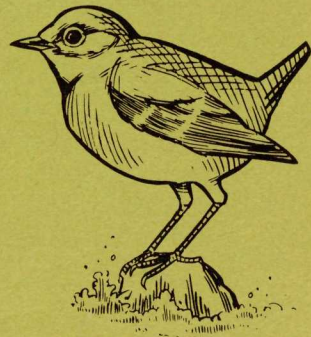
As the larch has a thick, fire-resistant bark, it often survives fires; thus, it can be seen standing high above younger forests in areas of old forest fires, like the south end of the park. Due to the windy, dry environment on the east side of the park, the larch is rarely found there.



BRIDGE OVER AVALANCHE CREEK. McDonald Valley was shaped by glaciers; however, this gorge is the result of stream-cutting since the end of the Ice Age, about 10,000 years ago. Where swift streams carry rocks, they often accumulate in uneven depressions in the streambed. The turbulent stream action causes the rocks to swirl around and grind like millstones. The round holes which result from this grinding are called "potholes." As potholes are enlarged they merge with others and form a twisting gorge. This erosional action is still going on here.

Watch the stream for the slate grey water ouzel!

This water-loving bird nests in the spray of waterfalls here. It dives under the water and searches the streambed for insect larvae. This bird can be identified by its nervous, bobbing up and down and by its white eyelids.



TRAIL JUNCTION. THE TRAIL UP THE SLOPE TO THE LEFT LEADS TO AVALANCHE LAKE. IF YOU TAKE THIS HIKE, READ THE FOLLOWING SECTIONS ON THE AVALANCHE LAKE TRAIL.