

Lily Pond Nature Trail

Lassen Volcanic National Park



This is an easy loop trail one mile in length requiring about an hour or less of walking time. Enjoy a leisurely stroll along lake shores, forest edges and through a portion of the rock avalanche area called Chaos Jumbles. Stakes along the trail correspond to numbered paragraphs in the test which call your attention to and explain points of interest and natural features which otherwise might be overlooked.

As you take this walk, look around you and see if you can observe some of the interrelationships between the plants, animals and other parts of the entire environment.

1 In the 1880's this stream was constructed by William H. Coffey and John E. Stockton by diverting part of Manzanita Creek. Reflection Lake, formerly called Mud Lake, was previously fed only by underground seepage.

2 Small particles of volcanic rock are carried by the stream from its headwaters on the slope of Lassen Peak. When the stream reaches the still water of the lake the particles are dropped, slowly building a sandy delta. As the delta extends into the lake, rushes, sedges, grasses and other plants start to grow. In this way lakes are slowly filled in and mountain meadows develop.



THINLEAF ALDER

(CONE $\frac{1}{4}$ - $\frac{1}{2}$ INCH)

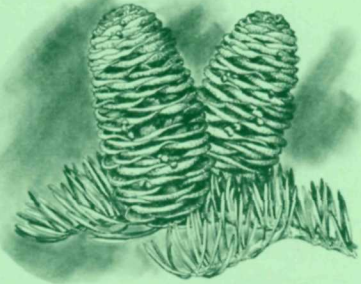
3 These broad-leaf trees are mountain or thinleaf alder (*Alnus tenuifolia*). They grow only in moist places such as this. Look for the little conelike fruits. You may see both this year's green ones and last year's dry opened ones.

4 Notice the relatively shallow root system of this fallen white fir tree. Deciduous trees normally send their roots deep into the ground in search of water while conifers tend to spread their roots over a wide area near the surface.

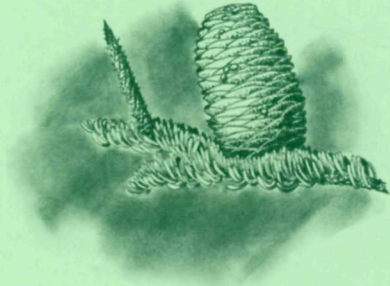
WHITE FIR

(CONE 2 - 5 INCHES)

5 White fir (*Abies concolor*) is one of the most common trees at this elevation. The short, flat, yellowish-green needles grow singly on the branchlets. The bark on mature trees is deeply furrowed from repeated splitting and expansion as the tree grows. Cones point upward.



6 The bright yellow or chartreuse growth on the trunks of the trees is not a moss, but staghorn lichen "Like-en" (*Letharia vulpina*). It is a combination of algae and fungi living together, getting nourishment from air, water and sunlight. It does no harm to the trees and may be seen growing on dead trees just as well as on live ones. The rough surface of the tree trunk furnishes an attachment but no nourishment.



RED FIR

(CONE 4 - 8 INCHES)

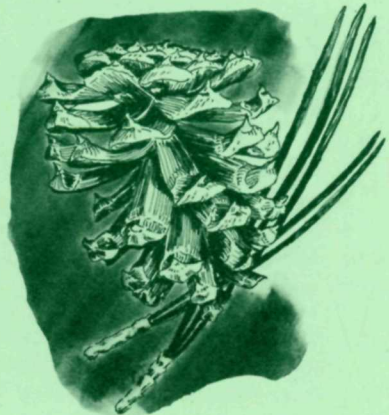
7 Look up at the beautiful lacy branch and twig pattern of this red fir (*Abies magnifica*). The blue-green needles give the tree the name of "silver tip" fir. True fir cones grow upward on the branches and fall apart at maturity; thus, the whole cones are seldom seen on the ground.

8 This is a good place to watch the activity of the lake community. Coots and mallards hide their nests in the willow and alder thickets in early summer. They are often seen feeding on aquatic plants and insects. Yellow warblers, flycatchers and noisy Brewer's blackbirds may be seen and heard in the trees and shrubs at the edge of the lake.

PONDEROSA PINE

(CONE 3 - 5 INCHES)

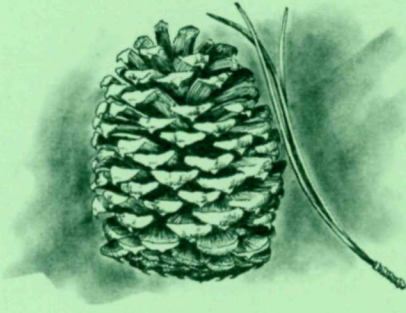
9 The large tree overhead is a ponderosa pine (*Pinus ponderosa*). It is also known as western yellow pine. Needles occur in clusters of two or three, usually three. The open cones have spines which curve outward. The yellowish bark on mature trees such as this is broken up into large plates or sections. This important forest tree is highly susceptible to smog.



— Keep right at the trail junction just ahead. —

JEFFREY PINE

(CONE 5 - 10 INCHES)

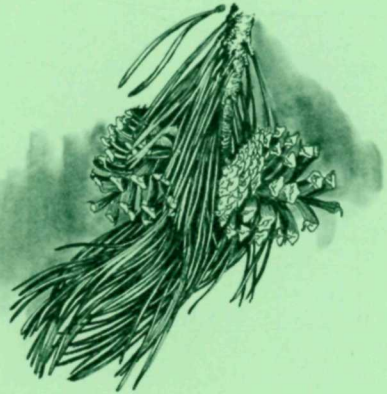


10 This Jeffrey pine (*Pinus Jeffreyi*) has characteristics which are similar to those of the ponderosa. However, the bark is usually more reddish and broken into smaller plates. Smell the bark! Does it have a vanilla or pineapple-like fragrance? The cones are larger than those of ponderosa and the spines on the cone scales tend to turn inward.

LODGE POLE PINE

(CONE 1 - 2½ INCHES)

11 Lodgepole pine (*Pinus contorta*), has two short twisted needles per bundle and thin, scaly, reddish gray bark. Small cones are visible on the branches where they may remain for several years. Unless the tree has been injured, the trunk is usually straight and unbranched, making it suitable for log cabin construction.



12 In this marshy habitat you may see white rein orchids, violets, and monkeyflowers. Dragonflies, damselflies, mosquitoes and other water insects live here and in turn attract birds which feed on them.

13 Fallen trees are usually left in place in the forests of our National Parks. Their decomposition improves the quality and water-holding ability of the soil, promotes better plant growth and helps to prevent erosion. Dead trees sometimes provide dens for small mammals and hiding places for lizards and salamanders.

14 These trees have been scarred by fire. Notice how the trees tend to grow bark to cover the wounds. Wood boring beetles and other insects have entered the dead heartwood. Woodpeckers have drilled holes in search of insects.



PACIFIC WILLOW

15 This thicket of yellow or Pacific willow (*Salix lasiandra*) is typical of lake edges and other wet locations. Individual willow trees are divided into two sexes. The "pussywillows" produce the pollen-bearing or male flower catkins. The female or seed-bearing plants produce the cotton-like "willow-down" which may be seen blowing around in mid-summer.

SUGAR PINE

(CONE 12 - 18 INCHES)

16 The large sugar pine (*Pinus lambertiana*) overhead is in the white pine group. The needles in groups of five are shorter than those of Jeffrey and ponderosa pine. Attractive cones often seen hanging from the uppermost branches may grow as long as 22 inches. The sweetish-tasting sap gives sugar pine its name.



17 Lily Pond is one of several depressions below the normal water table in Chaos Jumbles. As in other wet places along the trail, the water attracts many aquatic insects, frogs, garter snakes and birds.

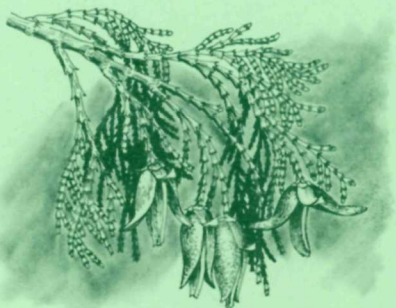


WATER LILY

18 The water plants with large heart-shaped leaves are cow lilies (*Nuphar polysepalum*). Yellow blossoms appear in early summer. The tiny twin-leafed plants which may cover the surface of the pond in summer are duckweeds. They grow and spread rapidly when the water temperature is warm enough.

GREENLEAF MANZANITA

19 Compare the wet habitat of the pond and its shore with the very dry conditions where you are standing. You are well above the water table. Plants such as the greenleaf manzanita (*Arctostaphylos patula*) growing here are adapted to the dry porous soil. Thick leathery leaves help to prevent loss of moisture from the plant during dry season.



INCENSE CEDAR

(CONE $\frac{3}{4}$ - 1 INCH)

20 The incense cedar (*Libocedrus decurrens*) with fibrous, reddish-brown bark is often confused with redwood and giant sequoia, neither of which grow here. The tiny scale-like leaves overlap to form flattened branchlets. Local Hat Creek Indians used long slabs of the bark to fashion a kind of tepee.

21 High up in the branches of this large pine are a few old boards, placed here before the Manzanita Lake area was added to Lassen Volcanic National Park. Can you guess what they were used for? A clue—animals are attracted to water. Give up? This was a “hunting blind.” Of course there is no hunting allowed now that the area is a National Park.

22 At least three kinds of lichens are growing on this small white fir. The yellowish staghorn lichen (*Letharia vulpina*) was pointed out at stake number 6. The black, stringy matted growth is horsehair lichen (*Alectoria* sp.). The third is a grayish foliose lichen. (Look closely for this one.)

23 Foliose and crustose lichens of various kinds may be seen growing on the rocks. They are usually the first plants to adapt to and live under harsh conditions. Weak organic acids, secreted while the plants are growing, slowly help to decompose the rocks, an important step in soil formation. Once lichens were fairly common in cities, but today they are rare because of smog.



DOUGLAS FIR

(CONE 1¼ - 3 INCHES)

24 The large tree at the end of this spur trail is a Douglas fir (*Pseudotsuga menziesii*). Notice how the "bottlebrush" branchlets hang downward. The unique cones have three-pronged papery bracts extending from behind each cone scale. The dark bark is heavily furrowed, giving the tree a rugged appearance.

MOUNTAIN HEMLOCK

(CONE 1½ - 3½ INCHES)

25 Here the trail winds around a clump of mountain hemlocks (*Tsuga mertensiana*). The small soft needles grow singly all around the branchlets. The top of the hemlock droops in a delicate arc that is noticeable at a distance and helps identify the tree.



26 You are now walking across the most recent avalanche which originated in the Chaos Crags. The rocks are a type of lava called pink dacite, the main component of Chaos Crags and Lassen Peak. Notice the stunted growth and sparseness of trees compared with those at the previous stop.

27 The pink dacite is composed mainly of a fine-grained pink ground-mass (largely volcanic glass); raggedy, colorless quartz crystals; white, squarish feldspar crystals with flat shiny surfaces; black plates of biotite mica; and elongated black crystals of hornblende. Look closely at a piece of rock to see these interesting crystals.

— Remember - not even rocks are to be taken out of the Park. —

28 Chaos Crags in the distance is a series of dacite masses which were rapidly pushed up through vents as stiff, pasty lava plugs. Three avalanches occurred in rapid succession approximately 300 years ago. The exact cause of these is not clearly understood.



ROCKSPIREA

29 The white blossoms of rockspirea (*Holodiscus microphyllus*) add a little color in midsummer to an otherwise drab landscape. This member of the rose family is adapted to growing on open rocky surfaces.

30 As the twig is bent, so grows the tree! An injury many years ago caused this one to grow in a complete loop. Where the trunk rubbed against itself, the bark was scraped away and the tissue grew together in a natural graft.

31 The stone building was a National Park Service residence and was built in the 1930's by the Civilian Conservation Corps, using native volcanic stone. Many of the trails and roads in the Park were also constructed by that organization.



National Parks are areas with superlative scenic, scientific and historic values of national significance which are to be preserved unchanged for the enjoyment of present and future generations.

We hope you have enjoyed this self-guiding trail. Information on other such trails can be obtained at the Loomis Museum across the road.

Please return this leaflet to the box if you did not pay for it.



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