

Columbia Junior College

**ROUNDHOUSE
NATURE TRAIL**

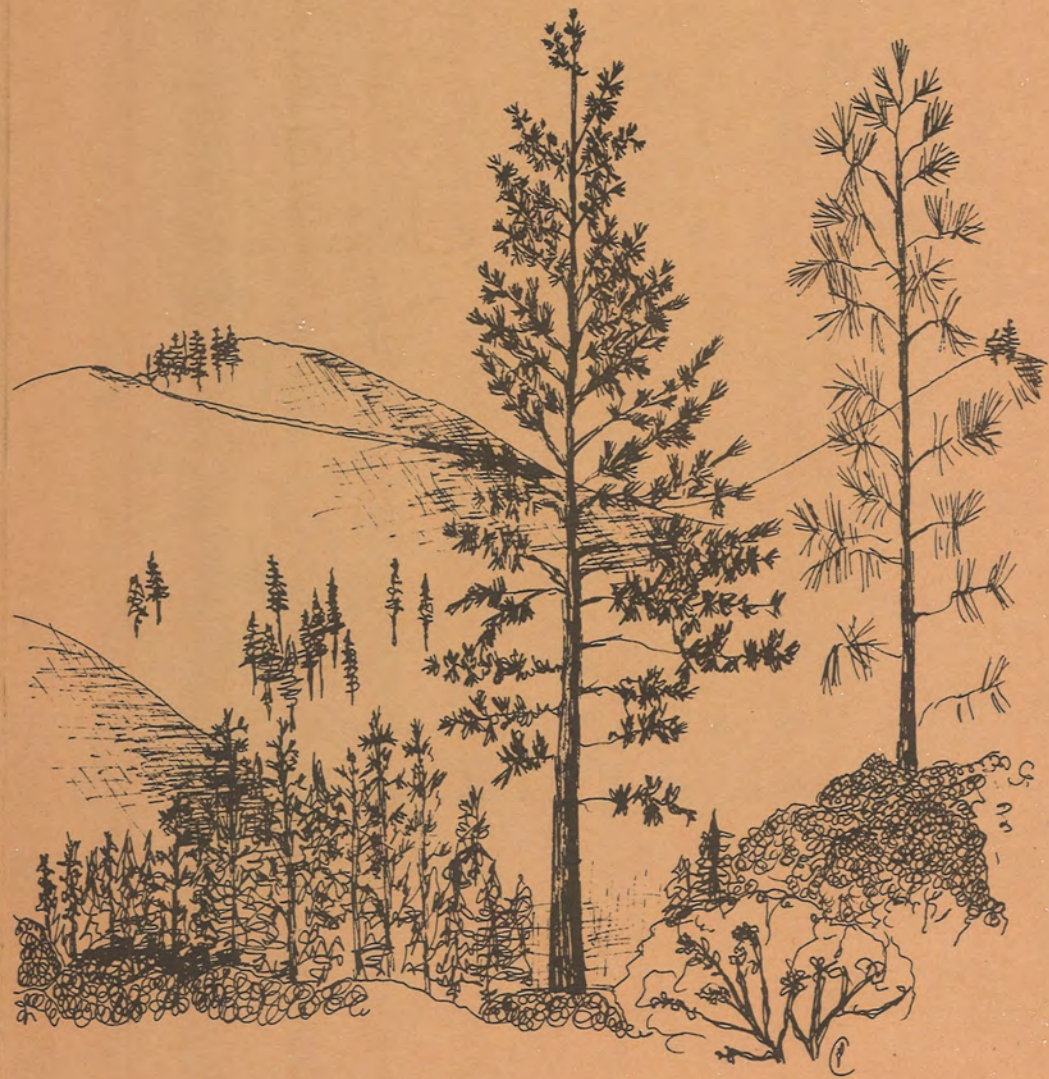


TABLE OF CONTENTS

<u>Point of Interest</u>	<u>Page</u>
1. Buck brush, <u>Ceanothus cuneatus</u> --an important deer feed in the Sierra.	2
2. Sugar pine, <u>Pinus lambertiana</u> , and ponderosa pine, <u>Pinus ponderosa</u> --longest cone in the world, most common conifer on campus.	2
3. Mariposa manzanita, <u>Arctostaphylos mariposa</u> --used by the Miwok Indians for cider.	4
4. Digger pine, <u>Pinus sabiniana</u> --used by the Miwok Indians as an important food source.	4
5. Poison oak, <u>Rhus diversiloba</u> --"leaves of three, let it be."	5
6. California black oak, <u>Quercus kelloggii</u> --most important acorn tree to the Miwok Indians.	6
7. Morehus oak, <u>Quercus morehus</u> --an interesting hybrid tree.	7
8. Interior live oak, <u>Quercus wislizenii</u> --another important acorn tree to the Miwoks.	8
9. Canyon live oak, <u>Quercus chrysolepis</u> --has golden acorn cups in fall.	8
10. Ponderosa pine, <u>Pinus ponderosa</u> --see two large trees growing side-by-side.	9
11. Young ponderosa pine and manzanita competing for soil, moisture, light and growing space.	9
12. Golden fleece, <u>Haplopappus arborescens</u> --provided numerous medicinal uses to the Miwoks.	9

This publication was made possible
by a grant from the
National Endowment For The Humanities

ROUNDHOUSE NATURE TRAIL

This brochure and nature trail will acquaint you with historical uses of native campus flora by the Miwok Indians, and point out other interesting plant features. The walk requires approximately 15 minutes. Numbered points of interest along the trail correspond to written information in the brochure. Latin names as well as Miwok names of plants are provided for your interest. Enlarged lettering has been used to set off each description for children.

As you follow the nature trail, try to picture a more open plant environment characteristic of past centuries where fewer shrubs and scattered oak and pine were developed through repeated low intensity controlled burns during the Miwok era. These frequent controlled burns were prescribed by the Indians to provide growing space for the oak and pine, essential Miwok food sources, and to promote young brush sprouts which were more palatable and nutritious to deer than the decadent tall shrubs now common to undisturbed portions of this area.

To the east toward Telegraph Hill (elev. 3,738') and southeast toward Bald Mountain, (elev. 3,342') slopes are covered with native chaparral, oak, and pine, all of which were common to the Miwok era. Today the chaparral is more dense because of repeated intensive wildfires every ten years or so, which kills the larger oaks and pines and assists reproduction by breaking hard seed coats and stimulating root-crown sprouting. Intensive wildfires to the east have increased soil erosion in recent decades to provide a more suitable environment for shallow-rooted chaparral species.

In fall (October-November) the slopes to the east display brilliant oranges and yellows of the deciduous black oak. When these same oaks leaf out in spring (April-May) their presence is evident by a light green distributed across the hillside before you.

The nature trail begins to your left if you are interested in learning about Indian uses of native flora.

1. THIS SMALL SHRUB IS BUCK BRUSH AND IS AN IMPORTANT DEER FEED. Buck brush, Ceanothus cuneatus (Miwok name--paiwa) is common to the west slope Sierra foothills. Larger branches of this shrub were used by the Miwoks as a digging stick to extract edible bulbs from the earth. The piece to be used for a digging stick was hacked off with a sharp-edged stone and scraped with flint. Its point was hardened by fire. It was held in both hands and jabbed into the ground close to the object to be dug. The left hand grasped the stick eight or ten inches above the point, and the right hand grasped it a foot or so above the left hand. A digging stick was more effective than a steel spade for extracting bulbs from the sun-baked earth, for only the minimum quantity of earth was moved.



2. THE TWO LARGE TREES BELOW THE ROAD ARE SUGAR PINE AND PONDEROSA PINE. Approximately 100 yards to the southeast a large sugar pine, Pinus lambertiana (Miwok name--hi'natci) is seen to the left and a large ponderosa pine, Pinus ponderosa (Miwok name--wa'ssa) on the right. Both of these trees are approximately 100 years of age. The



sugar pine has shorter needles (2-4") in clusters of five and cones up to 24 inches in length. Ponderosa pine has needles 6-9 inches long in clusters of three and 4-6 inch cones armed with a sharp prickle.

The nut of sugar pine was relished by the Miwok for food. Cones were collected just before they were mature enough for the nuts to fall out (October--November). Special climbing poles were set against tall trees to aid in climbing into the branches. The branches were then swayed and rotated until the heavy cones twisted themselves off. As a rule the man who climbed the tree divided the nuts among the men and women of his party.

In addition to shelling the nuts, which are soft shelled, and eating the meat whole, the Miwok's pulverized the nuts, shell as well as meat, in a mortar until they had the consistency of peanut butter, but a darker color. The resulting sugar pine nut butter was called "lopa" and was prepared especially for feasts. Sugar pine sugar (crystalized sap) was also eaten as a delicacy and mild laxative.

Ponderosa pine nuts were seldom collected because of their small size. However, the roots were sometimes used in basket work.

3. HERE YOU SEE LARGE SHRUBS WITH RED BARK USED BY THE INDIANS TO MAKE CIDER. Mariposa manzanita, Arctostaphylos mariposa (Miwok name--e'ye) provided one of the preferred manzanita berries crushed by the Miwoks to produce sweet, unfermented cider. The berries were either used at once for cider making or dried and stored for winter consumption. In making cider the berries were reduced to a coarse meal by grinding. The meal was placed in a winnowing basket set over a water-tight cooking basket. Water was then poured over it, a little at a time, until all the flavor was leached from the meal. The liquid was then ready to drink and would keep two to four days without souring. Leaves of this shrub were also chewed to relieve stomach ache and cramps.

Notice how the leaves on manzanita are oriented vertically to reduce leaf surface temperatures and conserve water in the plant. During spring and summer the diameter growth of manzanita causes the prominent red bark to peel off in wafer-thin curls.



4. THE LARGE LEANING TREE IS DIGGER PINE AND HAS EDIBLE NUTS IN THE CONES. Digger pine, Pinus sabiniana (Miwok name--sakku) has long (10-12") grey-green needles in clusters of three, and large heavy cones armed with long claws. The sweet, oily nuts were an important food source of the Miwok, as well as the pithy center of green cones which was roasted 20 minutes or so in hot ashes to yield a brownish, pithy, sweetish food. Cones were collected in September. Nuts were sometimes eaten raw, but were usually parched with live coals in a flat parching and sifting basket.

The long needles of this tree were used for thatch, bedding and floor covering; twigs and rootlets as sewing material for coiled baskets. Melted pitch from the tree was used to bind together the strands of soap plant hairs which were used as a brush to collect scattered acorn meal in the acorn grinding process.



Holes in the trunk of this tree were caused by the California acorn woodpecker, Melanerpes formicivorus, who uses the Digger pine bark as a storehouse for acorns. Often these stored acorns will become infested with the larvae of various insects in which case the woodpecker will be treated to protein as well as carbohydrate food as he uses this storehouse throughout the year. Squirrels are unable to steal the tightly-packed acorns hammered into the dense bark.

Notice the younger Digger pine located behind you as well as across the road.

5. "LEAVES OF THREE, LET IT BE" WARNS YOU TO KEEP AWAY FROM POISON OAK. Poison oak, Rhus diversiloba appears to have not been used by Miwok Indians, but was used by other California Indian cultures (Pomo, Yuki) for medicinal uses, basketry, skin paint, and cooking to some extent. Full-blooded Indians were only slightly, or not at all, subject to the poisonous effects of this plant.

The leaves of this plant resemble oak leaves. However, the plant is not even related to the oaks, but is related to the eastern poison ivy. The oily poisonous substance in the leaves is highly volatile



in early spring and can infect some individuals without plant contact. Burning increases the volatile nature of the oil and has proven very serious to some people. Spring pollen will also transmit the poisonous oils to those with highly sensitive skin.

In fall the leaves turn red and are shed. Winter twigs are bare but often have wiry, hair-like seed stalks (1-2" long) hanging from them

to aid in identification. Bare twigs also contain the poisonous oil. Poison oak is the most widespread poisonous shrub in California.

6. THE LARGE TREE ABOVE YOU IS CALIFORNIA BLACK OAK, THE MOST IMPORTANT ACORN TREE TO THE MIWOK INDIANS OF ALL NATIVE OAK TREES. California black oak, Quercus kelloggii (Miwok name--tele'li) provided the major acorn source for Miwok Indians throughout the Sierra. Acorns had to be ground into meal with either portable mortars and hammerstones or bedrock mortars, which were produced from large, flat out-croppings of the bedrock of the region. Tannin in the acorns made it impossible to use the meal directly from the mortar. It first had to be leached. Leaching was done using sandy pits or artificial pits constructed of pine or cedar boughs and up to



ten applications of hot and cold water. Leached acorn meal was cooked as soup, mush, biscuits, or bread. Acorn husks were steeped to provide a tea.

The bark of black oak was also much prized as a fuel for parching seeds, as it burned long and slowly.

7. THE SMALLER TREE TO THE LEFT OF THE BLACK OAK IS MOREHUS OAK, A HYBRID BETWEEN BLACK OAK AND INTERIOR LIVE OAK, WHICH IS DESCRIBED IN THE NEXT STOP. Notice how the Morehus oak, Quercus morehus, displays leaf characteristics of both parents by having shallow-lobed leaves with prickles, whereas black oak leaves are deeply-lobed. Black oak is deciduous and interior live oak is an evergreen. Morehus oak will often be semi-deciduous, that is, will drop some of its leaves in fall and retain others throughout the winter. Quite often portions of single leaves on this oak will die while other portions of the same leaf remain alive for a number of years, thus keeping the leaf from dropping.



8. THIS IS INTERIOR LIVE OAK, ANOTHER IMPORTANT ACORN TREE USED BY THE MIWOK INDIANS. Interior live oak, Quercus wislizenii, (Miwok name--sasa) an evergreen oak, was the third preferred oak species for acorns by the Miwoks. This tree is more adapted to drought than black oak, and grows at a lower elevation. Leaves of this species are usually prickly and a lighter green on the under side. Acorn cups cover the acorns by two-thirds.

Dark foliage of this tree gives protected roosting places for valley quail and other birds.

9. THE LARGE OAK IS CANYON LIVE OAK WHICH HAS GOLDEN ACORN CUPS IN FALL. Canyon live oak, Quercus chrysolepis (Miwok name--sako'sa or sakasa) another evergreen oak, was the second preferred oak species for acorns by the Miwoks.

In fall the wide acorn cups are covered with a golden fuzz suggesting a yellow turban. The color of the foliage is one of the great beauties of this oak. It is a bright green above and below is covered with a golden or silvery fuzz which rubs off. The foliage is strangely bewildering in its variability. Young trees or young limbs usually produce leaves with spiny, holly-like margins; older trees and limbs bear blades with spineless margins. However, the same twig will often bear both types of leaves. Spiny leaves on young trees are said to ward off browsing deer.



Pioneers later used the durable wood of this tree for maul handles, axles, wheels and poles, thus giving it another common name of maul oak.

10. NOTICE THE TWO LARGE PONDEROSA PINES. These two large pines are nearly 100 years old and are still growing at the rate of one foot in height each year. Another common name for this important conifer is yellow pine, which refers to the pale color of bark on mature trees. Ponderosa pine is the most common conifer on the Columbia campus.

11. YOUNG PONDEROSA PINE TREES ARE SCATTERED AMONG YOUNG MANZANITA SHRUBS AT THIS VIEWPOINT.

Four mature ponderosa pines serve as parent seed trees for numerous young ponderosa pines established around you. Ages of these young trees (in 1975) range from three to eight years. These young trees and Mariposa manzanita, Arctostaphylos mariposa (Miwok name--e'ye) established themselves by natural seeding following clearing of the parking area in 1967 when the campus was built. Notice how the pine appear to be topping the manzanita. In time the manzanita will be shaded out by the aggressive pine. Notice how manzanita and young pines are absent beneath the parent trees. Both of these species are intolerant of shade and cannot survive directly beneath the dominant parent trees.

12. THE PUNGENT EVERGREEN SHRUB IS CALLED GOLDEN FLEECE BECAUSE OF ITS GOLDEN LATE SUMMER FLOWERS. Golden fleece, Happopappus arborescens (Miwok name--Tch'ktceka or susube) was used for numerous medicinal applications by the Miwoks. The boiled decoction of the leaves was drunk hot to cure stomach trouble and applied to rheumatic parts. Twigs and leaves were bound on rheumatic parts without mashing. The leaves were applied to boils to bring them to a head. They might also be bound over a sore on one's foot when travelling, being tied with a piece of buckskin or put inside the moccasin.



PLEASE RETURN THIS BROCHURE TO THE BOX IF YOU DO NOT WISH TO KEEP IT.

Compiled by: Ross A. Carkeet, Jr.
Natural Resources Instructor
Columbia Junior College

Sketches by: Peggy Carkeet

Trail design by: Terry Deatsch

REFERENCES CITED:

1. D. C. Peattie. 1953. A Natural History of Western Trees. Houghton Mifflin Company.
2. E. K. Balls. 1972. Early Uses of California Plants. University of California Press.
3. S. A. Barrett & E. W. Gifford. 1933. Miwok Material Culture. Yosemite Natural History Association.
4. T. I. Storer & R. L. Usinger. 1966. Sierra Nevada Natural History. University of California Press.