

THE GATHERING INDUSTRY WEST OF THE CASCADES

by

IVAN LEON NEWTON

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APPROVED:

Redacted for privacy

Associate Professor of Natural Resources

In Charge of Major

Redacted for privacy

Chairman of Department of Natural Resources

Redacted for privacy

Chairman of School Graduate Committee

Redacted for privacy

Dean of Graduate School

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Typed by Joann Brady

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THE GATHERING INDUSTRY WEST OF THE CASCADES

INTRODUCTION

Forest products form a significant facet in the economy of western Oregon and western Washington. The forest exploitation accent is upon trees for the manufacture of lumber, veneer and pulp. The forests, however, are rich in many other raw materials. The tree is the prime objective but other botanical species with diversified properties are present—species whose use include drugs, landscaping plants, greenery for florists, holiday decorations, food and seeds. These commodities play a minor role in the gross forest resource but they still supply certain definite needs and contribute measurably to the economy of the region. The collection of these raw materials, known as the wild gathering industry, constitutes a source of income and employment for numerous individuals ranging from school children to temporarily, unemployed laborers. For some individuals it provides full-time employment and the single source of income.

Wild gathering is strictly an outdoor occupation and forest "know how" is a necessary requirement. Rewards are usually in direct ratio to the abundance of the raw material sought and energy employed. Rewards need not always be associated with money. There can be personal satisfaction derived from gathering Christmas decorations for the home, shrubs for beautifying the yard and wild berries for a pie.

The primary purpose of this thesis is to focus attention on the products of a minor but important forest gathering industry and to

consolidate this information. A second objective is to include as many products as is feasible, stressing those which play a part in the general pattern of consumer use. The thesis includes chapters on Christmas trees, decorative greens, crude drug plants, native landscaping material, berries, pitch and cones, decorative woods, and miscellaneous products such as sphagnum moss, mistletoe, lead-mold and yew wood. For each commodity there is a coverage on the description, environmental setting, use, gathering methods and markets.

The locale of western Oregon and Washington was chosen in order to emphasize the importance and distribution of wild gatherings in an area of the Pacific Northwest. Furthermore, the western slopes and valleys of these two states possess a relatively homogeneous physical environment with a variety and wealth of minor forest products. This region is a wild gathering center and the headquarters of workers, buyers and distributors.

Methods used in gathering information were varied. Literature on the subject was consulted which included chiefly newspaper and magazine articles, and government pamphlets. Many hours were spent in field research. Interviews were held with gatherers, users, field buyers and distributors. These include Ivor Griffith and Fred Johnson of Waldport, Oregon, who make a living picking fern, ever-green brush, foxglove leaves and peeling Cascara bark. Users of the various products are too numerous to mention specifically, however, Dr. Helen Gilkey of Corvallis, Oregon has a wild plant garden which

illustrates the beauty and use of native plants for landscaping.

The Sawin family of Corvallis, Oregon, who market cones, provided a practical demonstration of the use of various cones for the holiday market. Finally, the author drew information from his own personal background which included a working knowledge of many of the materials and numerous associations with those actively engaged in forest gathering operations.

CHRISTMAS TREES

The use of evergreen trees in Christmas ceremonies has been traced by historians to the time of Martin Luther (1483-1546). Luther attempted to reproduce a scene he had witnessed while walking under a starlit sky on Christmas Eve. He attached lighted candles to an evergreen tree and placed a star in the upper branches--this was the beginning of decorated trees at Christmas time (21).

The earliest known use of Christmas trees in the United States dates back to 1834 when a few trees were ferried across the Delaware River from New Jersey to Philadelphia (21). The custom of decorating the evergreen trees with a star on top to simulate the star that shown over Bethlehem on the first Christmas eve and other decorations, such as tufts of cotton, popcorn and cranberries, that have been replaced in our modern times by variety store trinkets, proved so popular that it is now a national custom.

The commercial sales of evergreen trees for Christmas use did not take place for nearly one hundred years after the introduction of the custom. Today there are 21 million or more trees cut and marketed for the Christmas holidays (21).

The forests of Oregon and Washington produce nearly 3 million of the nation's total Christmas trees with an estimated value of 3.5 million dollars (24).

Christmas trees are gathered by people from all walks of life--

the logger who is out of work due to weather conditions, business men such as service station owners, Boy Scouts and the individual who makes this industry his full-time occupation.

A Christmas tree that meets all the standards of the Christmas Tree Association should possess the following specifications:

1. Good color—bright green.
2. Fragrant odor.
3. Retention of needles from cutting time through the Christmas season.
4. Round, full, symmetrical shape.
5. Limbs strong enough to support ornaments.
6. Springy branches that can be tied compactly for shipment without breaking, and regain their shape when released.

The Douglas fir possesses all these qualities which makes it a leader over all other evergreens in the Christmas tree harvest.

(See Figure 2).

Other species that are harvested are the true firs—White, Noble, Grand, Silver, and Shasta fir. Completing the list are Scotch pine, Norway spruce, Lodgepole pine and Sitka spruce.

The majority of the Christmas trees cut in Oregon and Washington grow in the Douglas fir belt that occupies nearly all the non-agricultural land lying from the eastern edge of the coastal fog belt to the summit of the Cascade Mountains (see Figure 1).

The larger percentage of Christmas trees is cut from privately-owned lands and only about thirteen per cent is cut from public lands (15). Harvesters of Christmas trees on Federal land cut only the unmarked trees leaving those that are spotted with yellow paint for future lumber production. Stands of young trees on private

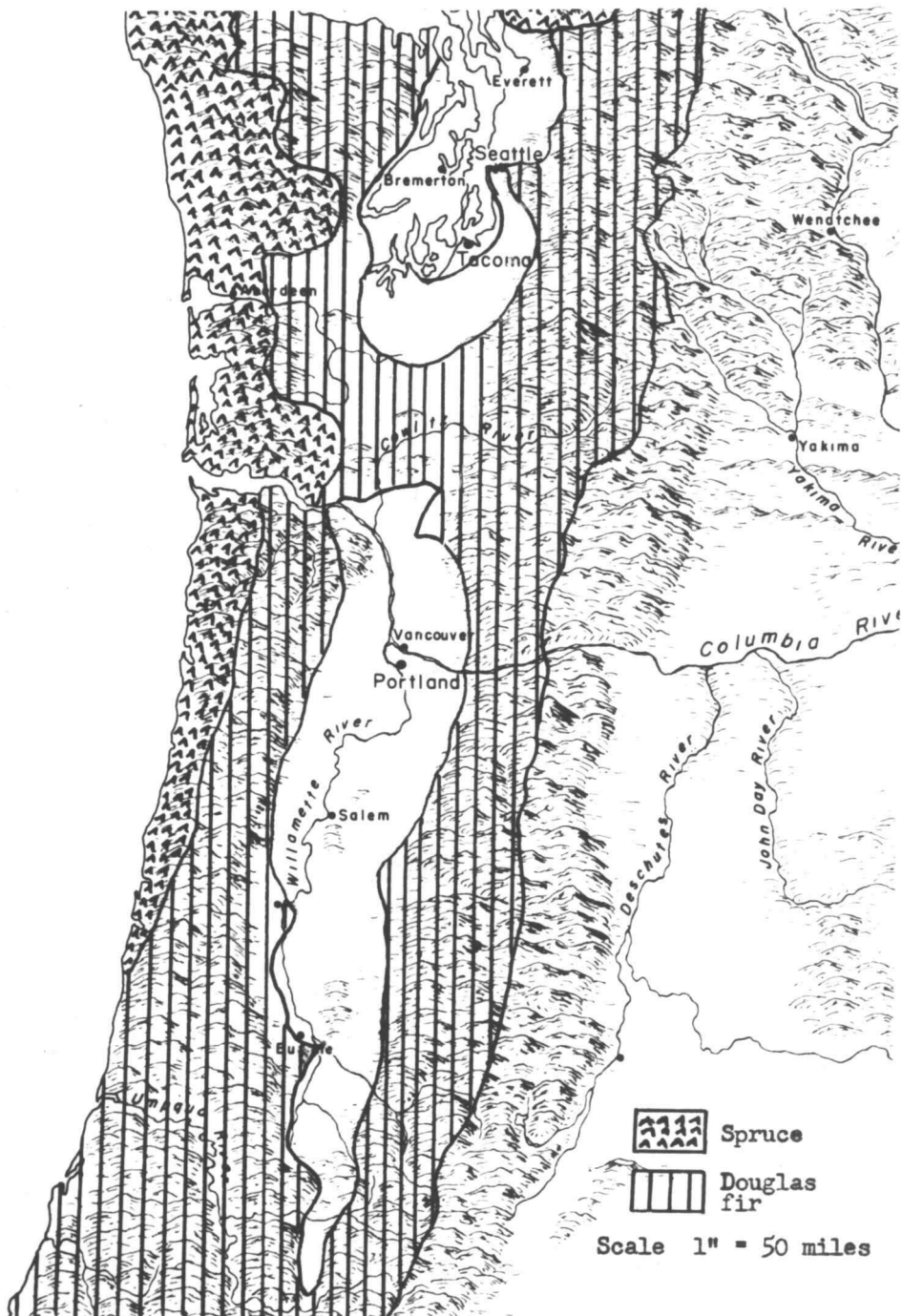


Figure 1. Christmas tree areas of western Oregon and Washington.

land are usually thinned but seldom clear-cut. A newer plan by the Christmas Tree Association is to use the tops of trees that are felled in recent logging operations. Private plantations of Christmas trees are gaining in numbers and in the near future these may become one of the leading producers of holiday trees.

Trees for the Christmas holidays must be cut a month or so before December 25 so they can be processed and shipped to eastern markets in time. The cutting season in Oregon and Washington starts by September and continues until late December.

Tools that are needed for harvesting are an ax, a hatchet and a pruning saw. The trees are usually sawed off about six inches from the ground level although small trees are easily severed with one blow from a sharp hatchet or ax. After cutting they are piled in bunches to be either carried out by hand or hauled by tractor to a yard where further processing occurs. (See Figure 4). The average tree cutter can cut and yard nearly two hundred trees a day. Trees must be made compact which is done by using a wooden rack where they are compressed and tied into bundles of twenty-four lineal feet each. The number of trees in a bundle vary according to tree size. Four foot trees have six to eight per bundle. Large trees, six feet or more, are packed separately. While in the racks the base of the trees are trimmed for neat appearance, consumer convenience and ease in transportation.

The trees must be transported from the yards to cold storage facilities if they are to be held for long periods of time. Low



Figure 2. A premium quality Douglas fir Christmas tree.



Figure 3. Goodwan Christmas Tree Farm, Vida, Oregon, 1955.



Figure 4. Piles of trees ready for trimming and bundling prior to shipment.



Figure 5. Douglas fir trees being loaded for Tennessee at Eugene, Oregon.

temperatures prevent loss of moisture and excessive needle dropping. If the trees are to be marketed immediately they are taken directly from the yards to rail or truck shipping points.

Box cars or flat cars are used for rail shipment. (See Figure 5). Trees going short distances, such as from Washington to California, are usually shipped by flat car. The average carload of trees, depending on size and species, will have from one thousand to four thousand trees. A load for a three ton truck average five hundred to one thousand trees, if 4 feet in length.

The marketing of Christmas trees is one of the most disorganized and uncontrolled industries of the Western states. A person who cuts trees for sale has two main market. He may either wholesale his stock to a dealer or sell directly to the public. The surplus of trees after Christmas is due to poor selection, overstocking and transportation difficulties.

Success may depend upon the ingenuity of the salesman. One of the newer devices to stimulate sales is the individually wrapped Christmas tree designed as a gift package for over-the-counter or mail order sales. This idea was pioneered by Pacific Evergreen Inc., of Olympia, Washington.

Individual packaging has been used since 1947 and has attracted wide-spread interest both here and in foreign countries. Every tree is picked by experts. Packaging keeps the trees fresher and more compact and adds an individual touch.

The packaging of a tree is a fairly simple process. The base of a select tree is fitted into a small, leakproof, metal can filled with damp peat moss and certain chemical ingredients. The tree is then compressed by passing it through a special funnel into a moisture-sealed, corrugated shipping container. Pieces of plywood are included that securely hold the can and serve as a tree stand. Pacific Evergreens Inc., supplement their "Giftree" package with a variety of native greens and pine cones. The retail prices of these packaged trees range from \$4.95 for a three foot tree to \$9.95 for an eight foot tree delivered anywhere in the United States.

One of the most popular and usual methods of selling Christmas trees is the establishing of retail stations in towns close to the harvesting area. If the site is in a strategic location for trade, advertising will help to increase sales. Promotional methods include a variety of tree sizes and kinds. Using silver, white, gold, pink and other colored sprays is also an attractive retailing device.

Individuals who harvest trees in large quantities sell their products wholesale to contractors who order the trees a year in advance. Financial help, if needed, is often given to the harvester by the retailer.

Markets can be found in nearly all large cities. The bulk of the trees from Oregon and Washington is shipped to California. San Francisco and Los Angeles are the two main markets. A few carloads of trees go to large urban centers east of the Rocky Mountains. New York City is the major market. Consumers in this metropolis

purchase nearly one-tenth of all the Christmas trees sold in the United States during the Christmas holidays (9).

Harvesters must be careful to calculate their needs and not to over-cut and finish the holidays with a surplus of unsalable trees. It is better management not to cut a tree until it is sold.

The burning of surplus Christmas trees after the holidays is looked upon with disfavor by some conservationists and laws could be passed prohibiting the shipping of trees out of the states unless an order has been given.

The gatherer can expect the average wholesale price as quoted in the table below for various sizes of Douglas fir Christmas trees at shipping points (24).

<u>Size</u>	<u>Cost</u>
2 - 3 feet	\$.20 to \$.30
3 - 4 feet	.25 to .35
5 - 6 feet	.40 to .60
7 - 8 feet	.70 to .90
9 -10 feet	1.00 to 1.25
11 -12 feet	1.50 to 2.50

The principal buying and packing centers for Christmas trees in Washington are located at Tacoma, Yelm, Shelton and Olympia. Shipping and packing centers in Oregon are located in Portland, Roseburg, Astoria and Klamath Falls.

The gathering of Christmas trees has entered the category of "big business". Individuals who wish to follow the industry are finding it more difficult each year to find trees which may be harvested. The one answer may lie in Christmas tree plantations.

Tree plantations started in the eastern states where the heavy population created a large demand. Foresters and growers realized that trees were a logical crop to grow on the poorer sites of land not capable of producing good trees for saw timber.

This idea has spread to the Pacific Northwest and large areas in the Puget Sound region of Washington are now being planted to trees. (See Figure 3).

Several areas near Portland, Oregon have such plantations. Advantages of plantation Christmas trees over those restocked by nature are: (1) trees can be more easily protected from pests, fire, and theft, (2) more species and different age groups are available in the same area, and (3) plantations can usually be planted close to markets.

The species best suited for Christmas tree plantations in Oregon and Washington are Douglas fir, the true firs, Scotch pine, Norway spruce and Sitka spruce, especially in areas along the coast.

Careful planning of the plantation is of utmost importance. The grower must think of soil conditions, weather, and the availability to customers. Some prefer to drive to the plantation, pick their tree and cut it. The customer has the pleasure of cutting his tree and knows it is fresh.

Proper spacing of trees on the plantation is a necessary procedure. The average grower has been successful when seedlings were planted with a 3 x 3 foot spacing. After the third or fourth year every other one is removed for small table top trees. Planting

with a 3 x 3 foot spacing will result in 4,840 trees per acre. If larger trees are needed then planting with a 6 x 6 foot spacing will result in 1,210 trees per acre (13).

The planting of Christmas trees is becoming more important to the gatherer for he must have a place to harvest trees in future years.

A new trend was started in March 1954, when a group organized a Christmas tree industry. This was the Northwest Christmas Tree Association, an organization of Christmas tree gatherers, growers, wholesalers, retailers and technical people vigorously promoting the interests of the entire Christmas tree industry of the entire Pacific Northwest. The objectives were to consolidate this industry for protection, price regulation, grading, and marketing.

There are eight other Christmas tree associations in the United States at this time. States having an association are Michigan, New York, New Jersey, Ohio, Pennsylvania, Wisconsin, West Virginia, and Maryland.

DECORATIVE GREENS

Decorative greens are significant to the florist trade. This green material includes swardfern, huckleberry, salal, Oregon grape and branches of various conifers such as pine, cypress and cedars.

The swordfern, huckleberry and salal all grow in the same region, and are distributed from the seacoast to elevations near the summit of the Cascade Mountains. Oregon grape is found in nearly all the valleys and foothills of Oregon and Washington. The boughs from evergreens are harvested from the scattered trees and forests covering almost all the mountainous area of the western part of both states.

The gathering of decorative greens has developed into a year-round business. Prices fluctuate with the demand and the supply available. During the winter, prices are usually higher since the wet brush and snow-covered ground is a hindrance to the harvest. Supplies are below normal unless seasonal layoffs liberate men who augment their income by harvesting decorative greens.

Problems occasionally arise in some areas due to trespass and carelessness. Conscientious pickers are generally careful to secure permission of the land owner for they realize that the success and permanence of their enterprise is, in a large measure, dependent upon public good will and approval.

The gathering of decorative greens is a specialized industry, fairly well organized and highly competitive. Some have entered the

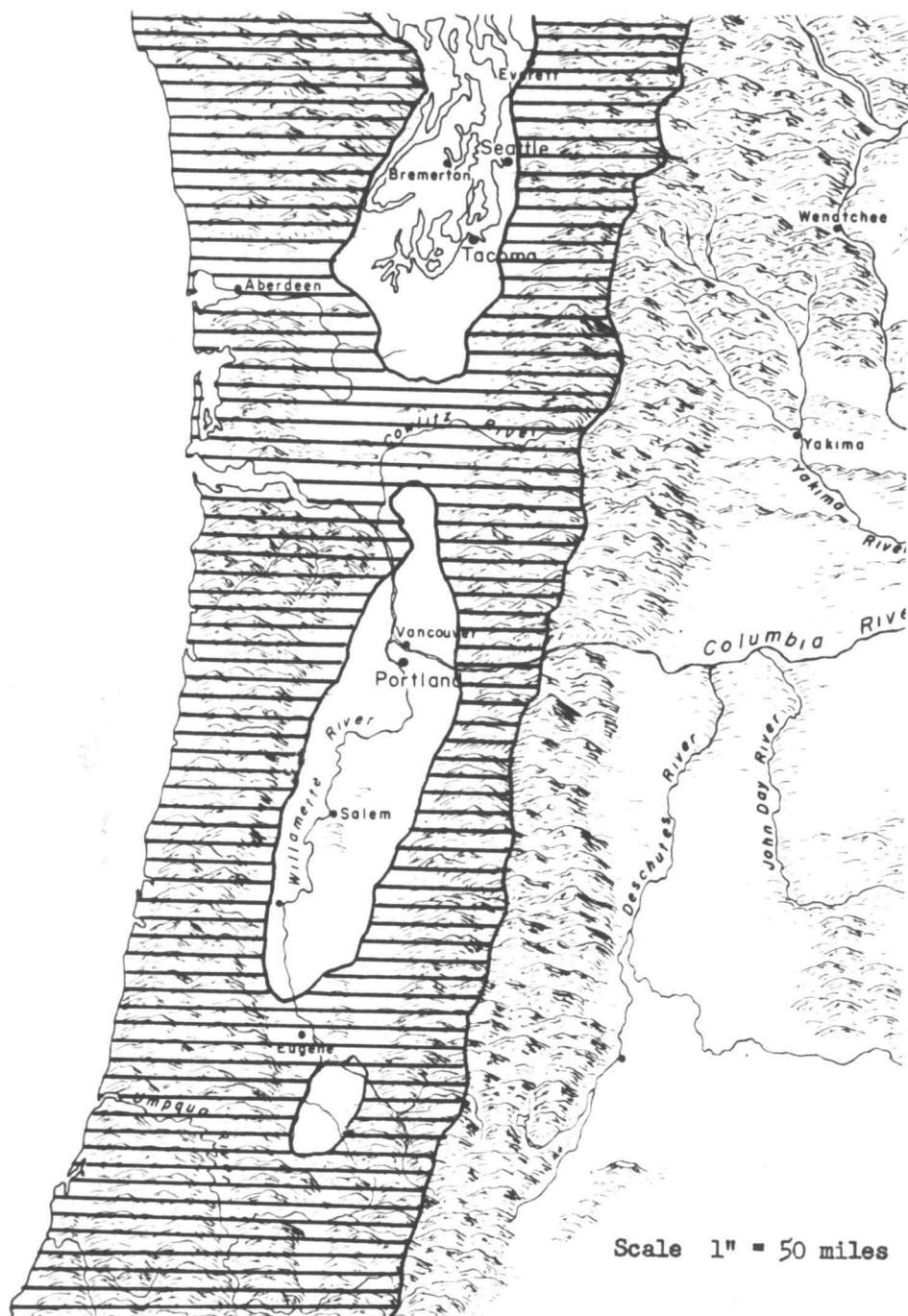


Figure 6. Areas of decorative greens in western Oregon and Washington.

trade to realize rapid profits but have soon learned that it takes hard work and ability to sell the finished product.

Special packaging of evergreens in attractive containers that can be sent through the mails has opened new markets in all parts of the United States and some foreign countries.

Swordfern

Polystichum munitum, the most important plant of the decorative greens, is the common swordfern. (See Figure 7). It is used in the florist trade throughout the United States as a background for floral wreaths and fillers for bouquets. In addition to its beauty, the frond will retain its green color for several weeks.

Swordfern is a perennial evergreen with an underground rootstock that sends up new fronds in clusters each spring which average about thirty-five per plant. The new growth is curled and has a brownish pubescence that disappears when it reaches maturity. New fronds are tall and erect averaging two to four feet in height. The leaflets on the frond are arranged in rows opposite each other forming a flat sword. The frond averages four to five inches in width at the bottom and terminates in a point at the top.

The second year growth will be spotted and stained with curved fronds. These are useless to the florist trade and care must be taken by the picker because a few of these fronds mixed with the marketable ones will downgrade his product and reduce his income.



Figure 7. A clump of swordfern in the mountains near Toledo, Oregon.



Figure 8. Evergreen Huckleberry growing on the Oregon seacoast.

The swordfern is found in nearly all sections of the Pacific Northwest. (See Figure 6). The larger concentrations are found along the coasts and coastal valleys of western Oregon and western Washington. Main regions of harvesting in Washington are the Puget Sound area, and the Chehalis and Castle Rock districts. The entire coastal region of Oregon has swordfern scattered all through its forest cover but heavy concentrations are located near the Nestucca River, Siletz River Valley, Yaquina River, the Alsea Valley and Coos Bay region. Good fern can be found growing in the dense forests of fir, hemlock, cedar and spruce that cover this area. Suitable fronds also grow in hardwood stands of maple and alder in the inland valleys.

Swordfern makes its best growth in areas that are damp and shaded with some drainage. Fern that grows in direct sunlight will be discolored and have smaller fronds than those that grow under shade. Ferns growing among deciduous trees must be harvested before the leaves fall, as discoloration and breakage of tips will result from the cover of leaves.

The gathering procedure for swordfern is relatively simple. The swordfern is broken at the base by hand or is cut with a ring knife having a curved blade and worn on the index or little finger of the picker. The picker gathers part of a bunch then strips the leaflets from the base of the stem leaving between twenty-four and twenty-six inches of leaflets on the remaining stem. The discolored fronds or those having parts of the leaflets missing must be

discarded before stacking and tying. Fifty fronds make a standard bundle with two to five extra added to replace any that may be inferior. To tie, the bunch is usually placed between the knees with the base ends extending to the front, the picker then takes heavy cord, makes two wraps around the stems, spreads the bunch in half and puts the loose cord ends through again. This holds the bunch firmly together without wasting time tying a knot. The bunches are then secured to packboards or rolled in strips of burlap for transport.

Pickers who make their living gathering ferns may collect as many as two hundred bunches per day. The average part-time picker may collect about one hundred bunches in a day.

Pickers must familiarize themselves with the seasons of picking. Fern picking starts as soon as the new growth of the current season hardens enough to prevent the fronds from wilting. June or July are the picking months, and the season extends until April or May of the next year.

Ferns growing under scant shade or in the open should be picked first as they are easily damaged by the sun. Harvesting under alder trees is next because the fallen alder leaves often stain the fern. Ferns having a Douglas fir cover are harvested about the middle of the season, and the fern under dense cedar and spruce trees is left until the spring of the following year. A picker following a harvesting system such as this will have work for ten or eleven months. May is the month when the least amount of fern is

picked because at this time the new growth is at its tenderest stage and will not keep long enough to ship.

Huckleberry

Vaccinium ovatum, evergreen huckleberry is used by the florists because of its color, durability and keeping quality. It is used as a filler for bouquets and backgrounds for funeral sprays. The flat branches are often sprayed with gold or silver paint and made into bouquets that remain fresh all winter. Another use of huckleberry is in landscape planting. It may be planted in surroundings of native material or be used with other ornamentals. Near Yachats, Oregon, boundary hedges have been planted on the edges of private property. The State Highway Commission uses both huckleberry and salal to beautify approaches to bridges, large cuts through banks and entrances to parks.

The evergreen huckleberry is an evergreen shrub growing to an average height of two and one-half feet. (See Figure 8). The leaves are small, round and shiny dark-green. They are attached to flat branches and grow along each side of the stems forming a beautiful pattern. Huckleberry will color a little in the fall but very few of the dark green leaves will drop because of frost -- this makes it an ideal shrub for use as a florist item during the entire year.

The evergreen huckleberry is found growing on the coastal slopes of western Oregon and Washington near the summit of the Cascade Mountains and from the central part of Oregon through Washington.



Figure 9. Salal, an evergreen that is gaining in popularity.

(See Figure 6).

Oregon's evergreen huckleberry areas of commercial importance are located in the Mount Hood district, the western side of the McKenzie pass, Coos Bay region and along the coastal sections of Lane, Lincoln, Tillamook and Clatsop Counties.

Washington has several areas where commercial picking is profitable. Near the coast, huckleberry is found in Pacific, Grays Harbor, Jefferson and Clallam Counties. The Cascade Mountain regions include the Yakima Indian Reservation, Snoqualmie National Forest, Columbia National Forest, the areas around Mount Adams, and the Puget Sound counties of Mason and Kitsap.

Huckleberry branches are broken by hand and put into bunches. The stems are too stiff to use a ring knife cutter so all are broken at the base by hand. The flat branches must be twenty-five to thirty inches in length, of bright green color and be free from damage and insects.

The bunches can be put together any size the picker finds convenient as he will have to carry them out of the area to his transportation and then to the packing house. The packer breaks up the larger bunches, carefully sorts them and puts the stems into small bunches of ten to fifteen branches that have a total weight of one and three-fourths pounds.

One-hundred bunches by the average picker is a good day's harvest. Some pickers have been known to gather as many as two

hundred bunches in one day. The branches are more bulky than fern and carrying them out to waiting transportation is a strenuous job.

Huckleberry is gathered from August through the winter. Picking slackens during June and July when the branches are too tender to harvest.

Salal

Gaultheria shallon, salal, is an evergreen ground cover found growing in almost all regions of western Oregon and Washington. (See Figure 6).

The plant stands rigidly erect with an average height of two to three feet. It is referred to as "lemon leaf" in the florist trade because of the dark green oval-shaped leaves that are similar to the leaves of citrus trees. The part of the plant harvested is the new growth of spring and early summer, which is a lighter green. (See Figure 9). Salal has small pink bell like blossoms and bears a small blue oblong fruit. It is sometimes called "bear berry" in certain areas.

Florists use of salal is increasing because the larger leaves and branches can be used with larger flowers in the manufacture of wreaths and bouquets. The keeping quality is unsurpassed. Weeks after cutting, the branches will still be dry and erect with every leaf holding its position on the stem. Winter bouquets or everlasting bouquets are made by spraying the foliage with gold or silver paint and mixing it with other native plants that have

similar keeping qualities.

Salal can be planted with almost any type of commercial shrub that is used in the landscaping of parks and private homes. It is used to beautify highways and bridge approaches wherever growing conditions are suitable.

Salal grows in the same localities as the evergreen huckleberry. Both sides of the Coast range in Oregon and Washington are its habitat. Nearly all of the foothills leading into the inland valley floors west of the Cascade Mountains as well as the forested western slopes of the Cascades have sufficient salal to make gathering profitable.

Southern Puget Sound of Washington has several areas known as the "brush picking areas". Here water transportation is used in assembling the harvest at the shore and island areas.

Salal is harvested by breaking off a new green branch at the base. Salal is tough and a ring knife will not cut through the stems. The branches must be twenty-five to thirty inches in length, new growth of light-green color and be free from any blemishes or injury. The branches are put into bundles that can be handled easily and packed out to transportation. At the collecting stations they are broken open, sorted and placed in smaller tied bunches weighing from one and a half to two pounds.

Evergreen Boughs

The boughs of several coniferous trees are gathered throughout the year for florist use. At Christmas time the increased use by everyone who decorates, creates a steady demand for evergreen boughs, Oregon grape branches and all material that can be used for decorative purposes.

Port Orford cedar branches are gathered the year around. The branches must be flat, of dark green color and twenty-five to thirty inches in length. Branches that are found growing in the shade have the best color. Only the terminal ends are harvested.

Conifers such as red cedar, yew, spruce, fir and pine have limited use at Christmas time. The branches are sometimes a secondary product of the Christmas tree industry. Lower branches are trimmed from many trees, bundled and shipped for decorations.

Branches are used in wreaths, door swags and the center pieces which adorn tables and mantles of fireplaces. Cedar boughs are woven into ropes which are used as street decoration during the holiday season.

One of the larger companies, G. R. Kirk Company in Tacoma, Washington, makes specialty packages of decorative greens. These packages contain some of the conifer boughs, natural color or sprayed, and in addition other materials such as English Holly, Oregon grape and pine cones.

Markets

There are two large companies in the Pacific Northwest that handle the greater part of the greenery material for other than local markets. Several dozen smaller operators are shipping greens in special packages to all parts of the United States, particularly at the Christmas holiday season.

I. P. Callison and Son at Chehalis, Washington and G. R. Kirk Company in Tacoma, Washington are the leading purchasers of evergreens; they have collecting stations located throughout the region. In Washington, collecting stations are located in Port Angeles, Raymond, Tacoma and Chehalis. The stations in Oregon are scattered, however, Astoria, Waldport, Florence, Portland, Coos Bay and Sweet Home are the most important.

The price the picker receives for his gathered product varies with the time of year and the supply available. For swordfern average prices are fifteen to twenty cents per bundle.

An estimated ten million bunches of fern were shipped in 1950 by I. P. Callison and Son of Chehalis, Washington and G. R. Kirk of Tacoma, Washington with values approximating more than one million dollars (19).

Huckleberry brush has an average sale price over the past ten years of twenty cents a bunch and an estimated one million bunches were gathered in Oregon and Washington in 1955 with a cash value of 150 thousand dollars (19, 24).

Salal brings somewhat higher prices than the other evergreens.

For this shrub the average price is twenty to thirty cents per bunch.

Salal is becoming as popular as huckleberry and in the near future equal amounts will be harvested.

NATIVE LANDSCAPING MATERIAL

Western Oregon and Washington abound with many species of native plants that can be used for landscaping. The post war building of new homes has created a large market for landscape material. Upon completion of the house, the owner's finances may be nearly exhausted. Landscaping expenses can be kept at a minimum by using native plants which can be moved and replanted around homes just as any other nursery stock from the stores. A few accent shrubs with special shapes used for framing of windows or doors can be purchased from the nearest nursery. The remaining spaces can be filled with native shrubs that have a wide tolerance and adaptability.

Native material should not be treated as coarse growing plants, regulated to the fringes of the garden where they are neglected and rarely seen. When more knowledge is available the individual learns that for many a domestic plant there is a native one that equals or surpasses it in beauty and usefulness.

The Vine Maple (*Acer circinatum*) so common in mountains and along streams in the Pacific Northwest has a growing habit and foliage similar to that of the prized Japanese Maple and often rivals its fall coloring. The Oregon grape (*Berberis aquifolium*) which is the state flower of Oregon, long ago won its place as one of the most useful medium-sized evergreen shrubs. (See Figure 11). It is used not only in its native Pacific Northwest, but in many other

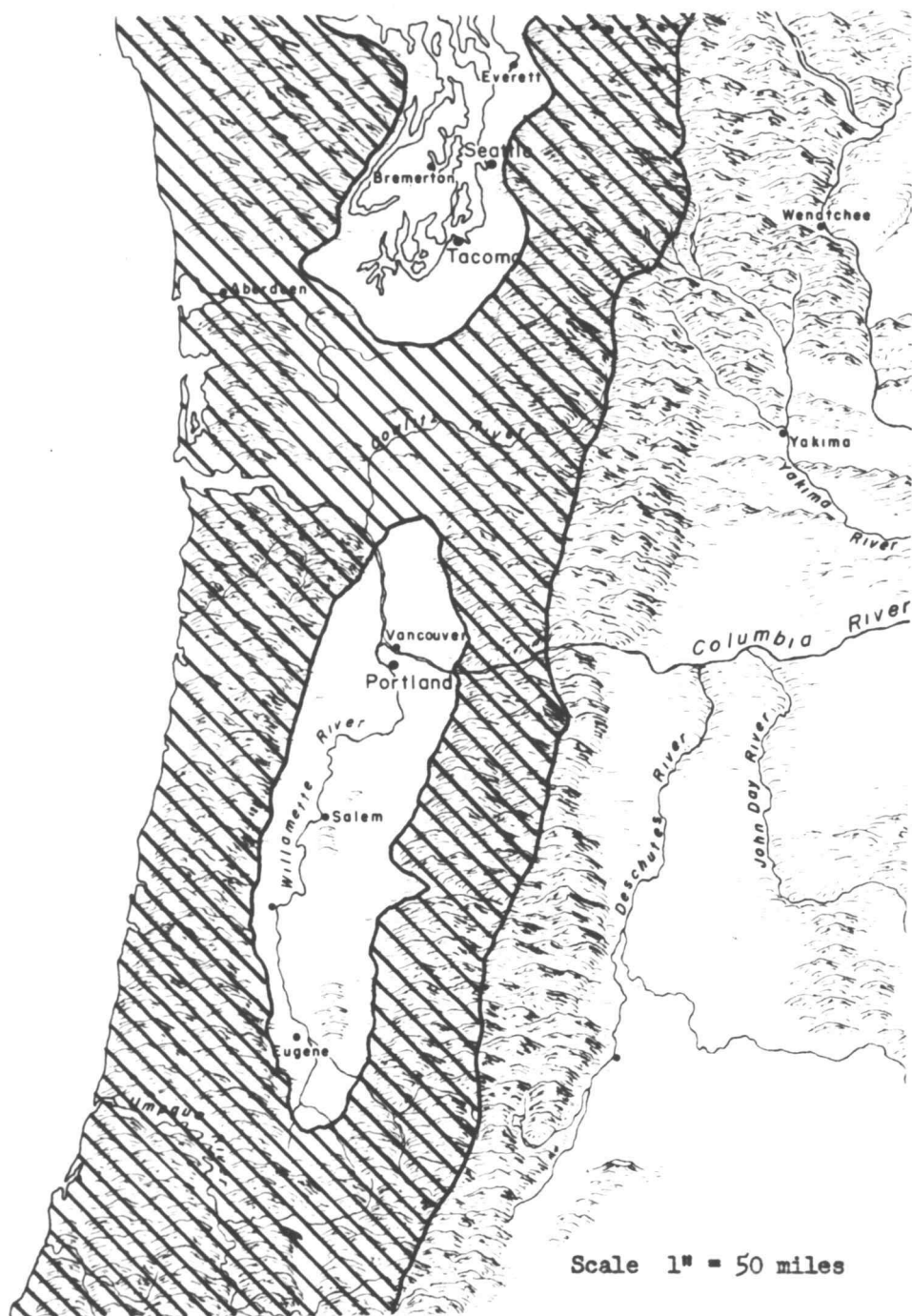


Figure 10. Areas of native landscaping material in western Oregon and Washington.

sections of the country. Two shrubs in the deciduous class, red flowering currant (*Ribes sanguineum*) and mock-orange (*Philadelphus gordonianus*) are far more interesting than many conventional plants of similar nature. (See Figure 12). The eastern flowering dogwood scarcely exceeds the beauty of the white-flowered, red-fruited native species (*Cornus nuttallii*) that is scattered through the foothills of the Coast Range and Cascade Mountains of Oregon and Washington.

Native plants can be found that will fit almost every need; there are berried shrubs, short ground or bank covers, tall shrubs for backgrounds and shrubs with showy flowers such as the native azalea, rhododendron, ocean-spray and the native wild lilac. (See Figures 13 and 14).

Personal observations by the author indicates that more use of native material is the trend not only for the newer homes but for older homes, especially those located near the sources of native plants.

Collecting Equipment

A person can collect many kinds of native flowers and a few small shrubs without any more equipment than a stout stick and his hands. A few tools save the gatherer much time and sore fingers and furthermore, tools make it possible to remove the plant with less root disturbance.

A sharp trowel will help in cutting through the tough surface



Figure 11. Native Oregon Grape, one of the hardiest evergreen shrubs.



Figure 12. Wild flowering Currant in full bloom.

soil and small roots. The trowel must be strong enough to withstand some force when prying plants from the rocks. Pruning shears are helpful in cutting through some of the larger roots and the lower limbs that should be removed to permit easier digging. A light shovel with a narrow blade is one of the most useful tools the collector possesses.

In addition to the tools, several burlap sacks that have been split at the seams and opened can be used as wrapping for the ball of soil that is clinging to the roots. Nails for securing the burlap and some twine for wrapping the ball of soil are necessary.

The smaller shrubs and flowers can be transported in boxes or flats. Larger shrubs must have some special type of transportation such as sleds, litters or a four-wheel drive jeep to bring them out of the gathering area to wherever they are to be used.

It is a safe procedure when moving a native plant to fill a container with some of the soil or leafmold from the area where the plant was removed. This material should be mixed with the soil in the excavation to acclimate the roots without unnecessary shock.

Collecting Areas

The first collecting areas of importance lie near the summit of the Cascade Mountains, the Olympic Mountains and the Coast Range. Alpine plants grow in these higher elevations near the snow line. These plants often used in rock gardens and natural plantings are usually dwarfed and small due to adverse climatic conditions and

a seasonal covering of deep snow. One of the more colorful of American alpine is the dwarf phlox. Western Oregon and Washington have a large selection of phlox in white, lavender and pink colors. In addition to flowers, the alpine area is the habitat of dwarf pine, fir, tamarack, huckleberry and other small plants.

In the lower valleys of the western part of Oregon and Washington there is an abundance of native material. Along the streams in the valley floors and growing in the foothills leading up from the valleys are many shrubs and flowers including the red flowering currant (*Ribes sanguineum*), the vine honeysuckle (*Lonicera hispidul*) and rhododendrons (*Rhododendron macrophyllum*).

Coastal slopes and the Coast Range mountains are a third region for gathering. High amounts of precipitation and moderately good soil provide a habitat where the gatherer can find many species of evergreen plants. Some of the more desirable species are Salal (*Gaultheria shallon*), Madrone (*Arbutus menziesii*), Manzanita (*Arctostaphylos columbiana*) and Scotch Broom (*Cytisus scoparius*). This region also has many species of ferns, including the swordfern (*Polystichum munitum*), maiden hair fern (*Adiantum pedatum*) and licorice fern (*Polypodium vulgare*).

The area that begins at the Pacific Ocean beaches and extends several miles inland is the habitat of many plants that are dwarfed and hardy. The wind, carrying salt spray and sandy soil, has produced many odd-shaped plants that are used by landscape gardeners. The pines (*Pinus contorta*), Evergreen Huckleberry (*Vaccinium ovatum*),

Wax-myrtle (*Myrica californica*) and Azalea (*Rhododendron occidentale*) will survive, if transplanted in any part of western Oregon or western Washington.

There are a few scattered areas where plants with an unusual characteristic can be gathered. The native azalea that grows near Elkton, in southern Oregon is flesh pink instead of having the usual white and yellow blossom.

Native strawberries that flourish on or near the Pacific Ocean beaches bear no fruit but the dense green plants make unusual ground or bank covers.

The Indian paint brush, a small plant whose flowers resemble an inverted paint brush splashed with red and orange paint is found near the coastlines or at elevations of four thousand feet in the entire region.

One of the most unusual plants grows near Tahkenich Lake on the Oregon coast, a few miles south of Florence. It is the green, curved-leaf Flycatcher plant, which captures and consumes flies and other insects. Its habitat is swampy, moss-covered soil in partial shade. When it is moved it must be placed in a similar damp spot such as a corner of the rock garden or near a pool.

There are several areas where gathering of native plants is prohibited by state and federal laws. Plant material cannot be taken from city, state or federal parks, national monuments and specified areas on each side of state highways. In spite of these restrictions there are many areas and circumstances under which native



Figure 13. A large native Rhododendron.



Figure 14. Native Azalea growing on a lawn in Corvallis, Oregon.

material can be freely gathered. Land soon to be drained, flooded or otherwise denuded of all material makes excellent collecting spots for anyone who wishes landscape material. Furthermore, one may carry away supplies of leafmold, stones, or attractive wood materials for use in native plantings.

Collecting Methods

Choosing the shrub to fit the landscape plan and the transplanting of it in nearly the same type of habitat from which it was removed is essential. Plants that are removed from shady locations and replanted in full sun become sunburned and drop their leaves. Sun-loving species when planted in shady locations grow tall and gangling in an effort to reach the light.

In the removal of native material the first step is to clear away the ground litter and leaves that might obstruct operations. This procedure also exposes the surface roots. A cut of about six inches in depth is made around the plant which prevents the soil from breaking away from the base of the plant. The distance to cut from the main trunk of the shrub is measured by taking one-third the height of the plant. A specimen six feet in height must have a ball of soil three feet in diameter. The depth of the ball is governed by the amount of roots showing. If the species has tap roots or fibrous roots, a trench is made around the plant. Small roots that protrude into the trench may be severed, however, one should dig deep enough to conserve most of the root system. The

shrub is now ready to lift out. The plant should be wrapped securely in moistened burlap after extraction.

Evergreen trees are more difficult to move since the roots must be covered at all times with soil and burlap. Exposing the roots for a short time hardens the resin and when the shrub is planted and watered, the water fails to dissolve the resinous material. Consequently the shrub is unable to assimilate moisture and food and soon dies.

One should cover the plants completely during motor transporting as wind will dry the roots in a short time.

Transplanting Procedures

Special care must be given to native material if transplanting is delayed. Plants must be kept in the shade and watered. Material to be kept for any length of time should be bedded or heeled in with a covering of leafmold or sawdust which keeps the roots and ball of soil moist until replanted.

Native plants have certain definite soil, moisture and light requirements which must be carefully considered to insure transplanting success. After the planting site has been selected a hole should be dug about twice as deep and wide as the ball of soil on the shrub. The bottom of the excavation should be filled with soil and leafmold taken from the same area as the plant. The plant is then set in the hole at approximately the same depth as was characteristic of it in the natural environment. Deeper planting

should be avoided since it sometimes discourages blooming. Soil should be packed around the earth ball making certain that no air spaces are left around the roots. The plant should then be given a thorough watering. Leafmold or peatmoss spread around the base of the shrub helps to hold moisture and is a protection against frost.

The burlap sacking can be left on the ball of soil as it soon decays. Many times in removing this cover the ball of soil splits and falls away leaving the roots bare and subject to injury.

Markets

The markets for native landscaping material are limited. There are only two nurseries in Oregon that specialize in native shrubs. These are Charles Skinner, 6100 N. E. Killingsworth Street, Portland, and Woodward's Nursery in Grants Pass. Several more nurseries handle a limited supply of native material along with their commercial species.

Native plants can be purchased at several nurseries in Washington. Two of the largest nurseries are L. N. Roberson Company, 1540 East 102nd Street, Seattle 55, and Carl S. English, Jr., 8546 30th Avenue N.W., Seattle 7. Smaller nurseries are located at Chehalis and Vancouver.

SELECTION OF NATIVE LANDSCAPING PLANTS

Species	Description and Use	Habitat
AZALEA (<i>Rhododendron occidentale</i>)	Deciduous, flesh-pink blossoms 2' to 10'. Borders	Coast range slopes and slopes of southern Oregon
CREEPING JUNIPER (<i>Juniperus sibirica</i>)	Spreading conifer, grey-green foliage. 1' to 23'. Specimens, borders	High alti- tudes in Cascades
DOGWOOD (<i>Cornus nuttallii</i>)	White flowers, red fruit in fall. 5' to 25'. Lawn specimens.	Cascades, coastal areas
INDIAN PRUNE (<i>Osmaronia cerasiformis</i>)	First shrub to bloom in the spring. 4' to 8'. Hedges	Valleys of Oregon, Washington
KINNICKINICK (<i>Arctostaphylos uva-ursi</i>)	Evergreen, red berries. 1' to 2'. Ground cover.	High altitudes of coastal ranges
MADRONE (<i>Arbutus menziesii</i>)	Broad green leaves, reddish brown bark. 5' to 50'. Speciman tree.	Coast range, dryer hillsides
MAIDEN HAIR FERN (<i>Adiantum pedatum</i>)	Evergreen, black stems. 1' to 3'. Accent plants, borders	Pacific slopes, Cascade Mts.

SELECTION OF NATIVE LANDSCAPING PLANTS (Cont.)

Species	Description and Use	Habitat
MANZANITA (<i>Arctostaphylos columbiana</i>)	Round grey-green leaves, pink flowers. 2' to 4'.	Cascades, Coast Ranges
MOCK-ORANGE (<i>Philadelphus gordonianus</i>)	White fragrant flowers in spring. 4' to 10' Background plantings	Columbia Basin, coastal regions.
MOUNTAIN ASH (<i>Sorbus sitchensis</i>)	Flat clusters of orange berries. 2' to 20'. Speciman tree.	Columbia Basin, Cascades, valleys
OCEAN SPRAY (<i>Holodiscus discolor</i>)	Cream colored flowers, shaggy shrub. 5' to 10'. Hedges	Coastal valleys Oregon, Washington.
OREGON GRAPE (large) (<i>Berberis aquifolium</i>)	Spiny leaves, yellow flowers, blue berries. 3' to 8'. Background plantings	Western Oregon, Western Washington
OREGON GRAPE (small) (<i>Berberis nervosa</i>)	Fern-like leaves, red in the fall. 1' to 3'. Ground cover	Western Oregon, Western Washington
OREGON MYRTLE (<i>Umbellularia californica</i>)	Evergreen, leaves have strong odor. 10' to 30' Speciman tree	Southern Oregon, Coast Ranges

SELECTION OF NATIVE LANDSCAPING PLANTS (Cont.)

Species	Description and Use	Habitat
PACIFIC YEW (<i>Taxus brevifolia</i>)	Dark green needles, twisted trunk, red fruit. 20' to 40'. Backgrounds	Pacific slopes, Cascade Mts.
PORT ORFORD CEDAR (<i>Hamaecyparis lawsoniana</i>)	Light green feathery limbs, round grey seeds. 15' to 50'. Windbreaks, hedge trees.	Southern Oregon coast.
RED FLOWERING CURRANT (<i>Ribes sanguineum</i>)	Bright red flower, berries, blooms early. 4' to 6'. Background plantings.	Willamette valley, Cascades
RHODODENDRON (<i>Rhododendron macrophyllum</i>)	Large broad leaves, pink flowers in May thru June. 5' to 10'. Speciman	Cascades, Coast Ranges Olympics
SALAL (<i>Gaultheria shallon</i>)	Evergreen, white flowers. 1' to 3'. Ground cover	Coast Range Oregon and Washington.
SCOTCH BROOM (<i>Cytisus scoparius</i>)	Slender green stems, yellow blossoms. 4' to 8'. Borders.	Coastal plains, valleys
SHRUB HONEYSUCKLE (<i>Lonicera ciliosa</i>)	Compact shrub, showy red fruit. 4' to 8'. Speciman	Coastal areas.

SELECTION OF NATIVE LANDSCAPING PLANTS (Cont.)

Species	Description and Use	Habitat
SHRUB WILLOWS (<i>Salix ripari</i>)	Colored stems in winter, catkins. 4' to 12' Borders.	All Oregon and Washington
SNOW BERRY (<i>Symphoricarpos albus</i>)	White waxy berries, blue- green leaves. 3' to 4'. Hedges	Valleys of both states.
SWORDFERN (<i>Polystichum munitum</i>)	Evergreen fronds. 2' to 4'. Borders.	Pacific slopes, Cascade Mts.
VINE HONEYSUCKLE (<i>Lonicera hispidula</i>)	Trailing vine, long yellow flowers. 4' to 20'. Coverings	Cascades, valleys.
VINE MAPLE (<i>Acer circinatum</i>)	Irregular shapes, bright leaves in fall. 7' to 20'. Background plantings	Cascades, Coast
WAX-MYRTLE (<i>Myrica californica</i>)	Dense evergreen. 3' to 5'. Coastal windbreaks.	Coastal areas
WHITE FIR (<i>Abies concolor</i>)	Needles in 2 rows. Flat branches. 50' to 100'. Speciman tree.	Lower elevations Coast Mts., Cascades.
WILD ROSE (<i>Rosa nutkana</i>)	Pink flowers in June, orange pips in the fall. 4' to 6'. Specimen hedges.	Western Oregon, Western Washington

CRUDE DRUG PLANTS

Western Oregon and Washington contains a number of plants having specific medicinal uses. These are known as crude drug plants and have been gathered in the region for more than a century.

New medicines and treatments have taken the place of some of the old-time remedies but almost any drug store has a small supply of the "old fashioned" drugs and herbs of years ago.

A few of the more important drug plants gathered are: Cascara, digitalis, poison oak leaves, Oregon grape roots and skunk cabbage roots. Drugs continue to be manufactured from these plants and there is little indication that they will be replaced by synthetics (26).

The gathering of drug plants is a seasonal operation. Harvesters are usually associated with the lumber industry or are individuals living near areas where there is a concentration of drug plants. School children help in the peeling of Cascara bark and gathering of foxglove seed.

Cascara

Cascara (*Rhamnus purshiana*) has long been valued for its extract which has a tonic and cathartic effect on the user. The Indians of the Pacific Northwest used the bark. Priests of early California knew of this drug as early as 1800; they named it Cascara Sagrada or sacred bark.

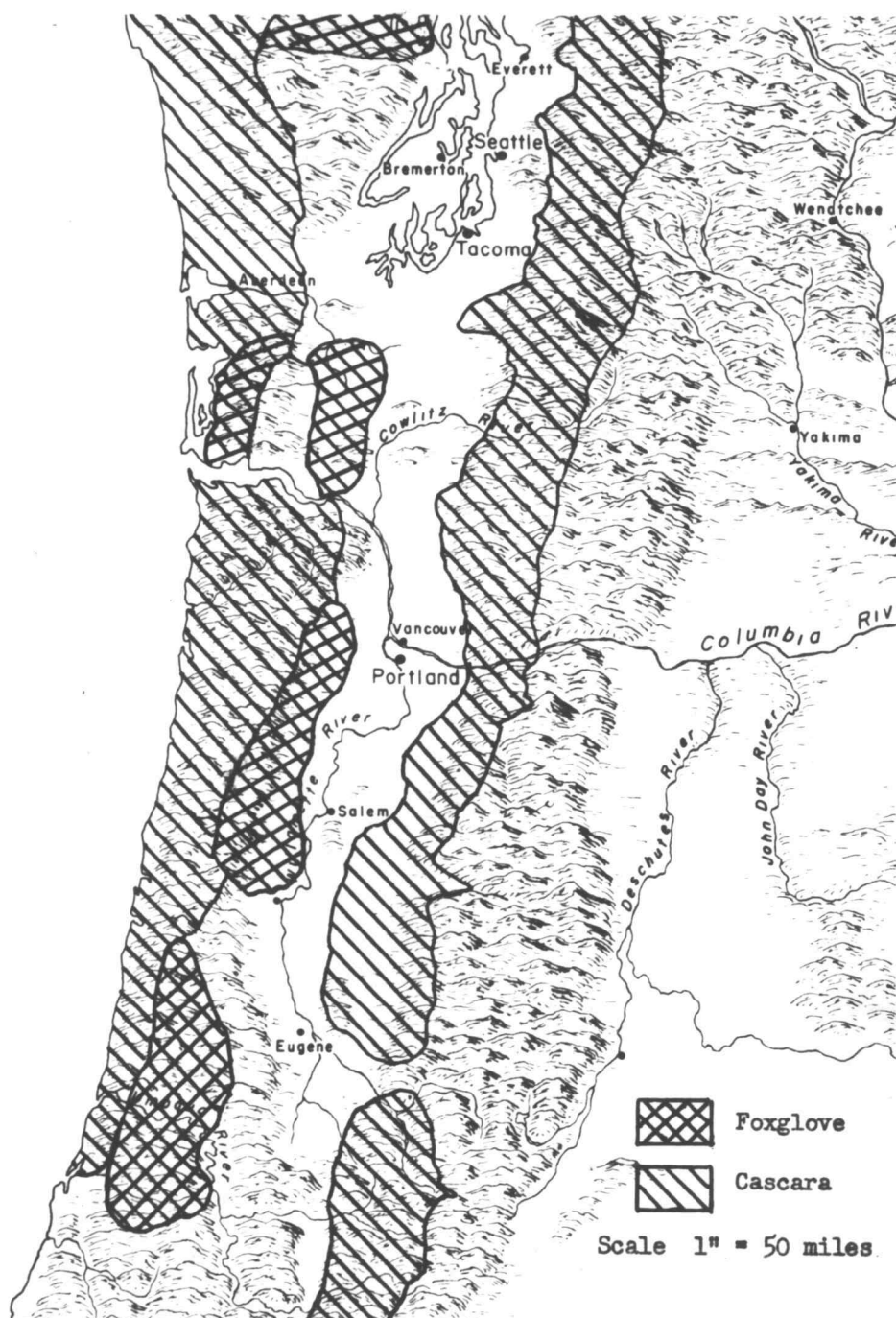


Figure 15. Crude drug plant areas of western Oregon and Washington.

Frederick Piersh was the first man to describe this tree and his labors were rewarded in 1890 when the name Rhamnus purshiana was used in all future documents describing the species (22).

The medicinal property of the bark has never been isolated by scientists, making it impossible at this time to imitate the cathartic and tonic affect it has on those who use it.

The common cascara belongs to the genus Rhamnus, of the Rhamnaceae or Buckthorn family. Four species are common in the northwestern part of the United States. The tree bears many names, some of which are: chittin, bear-berry, coffee berry, and cascara buckthorn (22).

Concentrations of cascara are found scattered through a considerable area ranging from New Mexico and Arizona northward throughout California and Oregon into the southern part of British Columbia. Two regions in Washington that have heavy concentrations of cascara are: the forested areas of the Puget Sound Lowland and in the new growth of Douglas fir that covers much of southwestern Washington. The cascara trees are scattered in Oregon and are found in the foothills of the Coast Range Mountains, through the valleys of southern Oregon, the Elliott State Forest in northern Coos and western Douglas counties, and the Willamette Valley into the lower elevations of the Cascade Mountains. Cascara makes its best growth along river bottoms, and on flats or benches in the foothills where the soil is fairly deep, rich and high in organic matter. The soil must have abundant moisture and be well-drained.

Cascara has a variety of forms depending upon its range and growth conditions. Trees growing along fence rows or anywhere in the open usually have a short trunk and a thick bushy crown. Cascara growing under a forest cover send up long trunks toward the sunlight and have an open crown.

Cascara is not a fast growing tree, however, under favorable conditions it sometimes grows one foot in height a year. In fifteen years the diameter may reach approximately ten inches. The cascara has shrub-like characteristics in arid parts of Oregon and Washington.

The trees occasionally attain heights of sixty feet, but the average cascara tree grows from twenty to forty feet tall with a diameter ranging from six to fifteen inches. One of the largest trees recorded grew near the Skagit River in Washington. It was three feet in diameter, sixty feet tall and yielded nearly one thousand pounds of bark.

One means of identification are the buds which are not covered by bud scales. There is a coat of fine, rusty-brown hair which protect the young leaflets as do the scales in broadleaf trees. These buds are an absolute means of identification during the winter plus the characteristic of seedlings to retain their leaves the entire season.

The bark of the tree is usually about one-tenth to one quarter of an inch in thickness, with color ranges from light to dark brown. Lichens and moss often give the bark a gray appearance.

(See Figure 16). The inner bark is bright yellow when first peeled but darkens on exposure.

Harvesting

The harvesting season for cascara bark starts near the middle of April or as soon as the trees are in full leaf, and ends during the latter part of August. The bark does not slip at this time and harvesting is almost impossible.

Two tools are needed, an axe and a peeling knife that can be made from an old file or car spring. The blade is slightly curved with a projection on each side. These two projections tend to pull the bark apart when the knife is placed into the bark and pressure is applied downward. The axe is used to fell the trees and trim the trunk as peeling progresses. The bark on the tree trunk is usually peeled in large sections. All limbs are peeled including those one inch in diameter. The limbs are peeled by making a cut completely around the limbs about one foot apart. One cut horizontally and the bark comes off resembling a scroll.

When future production is desired it is necessary to leave the stump about six inches high, unpeeled and with a slope to facilitate rain run-off to prevent rotting. New shoots grow from this stump and in a few years a new crop will be assured.

Curing or drying of the bark is an important step in the harvesting. It must be done in the open air, usually on canvas sheets or wooden platforms. (See Figure 17). The green bark is

arranged with only the outside bark exposed as direct sunlight on the inside of the bark discolors it.

Drying time is usually from four days to a week. After thorough drying the bark is broken into pieces not over six inches long and two inches wide and put into burlap sacks.

The harvester needs to know whether a tree is large enough to make it profitable to peel. The following table gives sizes of trees and the average dry bark weight of each size.

<u>Diameter of tree at ground</u>	<u>Average weight per tree</u>
3 inches	5 pounds
5 inches	10 pounds
7 inches	15 pounds
10 inches	35 pounds
12 inches	50 pounds
17 inches	122 pounds

A large per cent of the annual cascara harvest of Oregon and Washington is collected by juvenile labor. Loggers frequently salvage bark from trees which would otherwise be destroyed in logging operations if the prices are high. The average gatherer can make five dollars a day, while experts have been known to make twenty to thirty dollars a day. Good peelers under ideal conditions can harvest from one hundred to two hundred pounds of bark daily.

Scattered throughout Oregon and Washington are many general store merchants, feed and seed store operators, and others who act as agents for the larger firms who purchase cascara bark. Many of these stores are located close to the concentrations of cascara

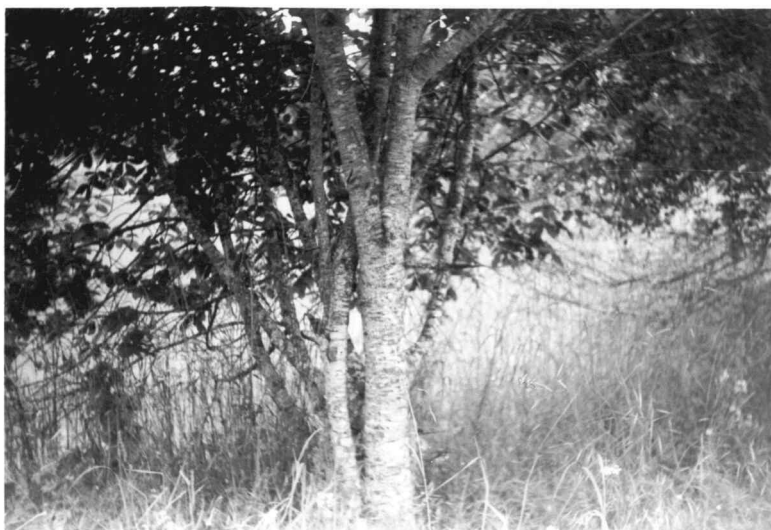


Figure 16. Cascara growing in a fence row.



Figure 17. Cascara bark drying in the sun.

making it relatively simple for the gatherer to sell the bark.

During the peeling season or near the end of the season the larger companies who hold contracts send buyers over the Pacific Northwest who purchase the bark collected by the small stores.

The company who does the largest volume of business is I. P. Callison and Sons of Chehalis, Washington. They have two smaller companies, located in Raymond and Port Angeles. The plant in Port Angeles buys considerable bark from British Columbia. Nearly all the bark peeled in Oregon is sent to the Washington companies for further processing. Foreign markets for the raw bark include England, Australia and the Near East. Portland and Astoria, Oregon are usually the shipping points.

Estimated weight of the 1954 harvest in Oregon and Washington was over five million pounds with a value of approximately \$600,000. This is the amount paid to the harvester; the returns to the wholesaler would be much larger (1, 10). The current price (1956) for dry cascara bark is ten to fifteen cents per pound.

Foxglove

Foxglove (*Digitalis purpurea*) grows on hillsides, along creek bottoms and in meadows of western Oregon and Washington. This large leaf plant plays an important role in prolonging man's life. The extract, digitalis, that is manufactured from the harvested foxglove leaves is used as a heart stimulant.

Foxglove was originally a European garden plant that was introduced into the United States because of its beautiful flowers. The plant produced seed in large quantities which was scattered naturally through the country side where it grew readily.

The foxglove is simple to identify. It has long stems, three feet or more in length, which are covered on one side with large thimble-like flowers that decrease in size toward the terminal or top of the stem. (See Figure 18). The colors range from pure white through several shades of pink and purple. Solid colors are predominant though some have small brown spots on the lower petals.

The foliage is large and flat having a covering of fine pubescence or hair over the entire leaf surface. There are an estimated twenty to fifty large leaves per plant all growing near the base of the stem which gathered for their drug content.

Foxglove is a bi-annual and in its first year of growth it attains its maximum size. The leaves are ready for cutting in the fall of their first growing year.

The cutting season begins in the early fall around September and continues through the winter until June. Cool weather is favorable to growth and it is a good practice to delay harvesting as late as the weather permits for larger and heavier leaves.

The leaves are cut at the junction of the leaf and stem since buyers do not want long stems. Cutting the leaf is recommended instead of breaking the main stem for this reason; one third to one

half of the outer leaves can be taken from each plant but if more than this per cent is harvested the plant usually dies. It is important that enough leaves are left for the plant to produce flower stalks the next season and spread the seed for future crops, as there is no satisfactory substitute for digitalis.

The larger part of the foxglove harvest is dried when it is gathered by spreading the leaves under the shade of large trees. It takes four days to a week for satisfactory drying. Care must be taken to keep the leaves out of the direct sunlight as the medicinal quality of this drug is impaired by exposure to direct sunlight. Excessive moisture is also detrimental. Some pickers will transport their leaf harvest to sheds where they may be dried if weather conditions will not permit outside drying.

After the leaves are dried they are packed for delivery in airtight cans to prevent absorption of moisture.

Foxglove markets are located in Chehalis, Port Angeles and Raymond, Washington. Raymond is recognized as the foxglove center of the Pacific Northwest and I. P. Callison and Sons of Chehalis are the leading buyers.

Oregon has several merchants who act as agents for the larger companies. Cities having collection agencies are: Astoria, Portland, Florence and Coos Bay. These cities are adjacent to the heavier concentrations of foxglove.

A proficient picker working in some of the denser concentrations of foxglove is sometimes able to harvest four to five hundred pounds



Figure 18. A foxglove plant in bloom.



Figure 19. A clump of poison oak.

of wet leaves per day. Drying, however, makes them lose around fifty per cent of the original weight. The average price is about five cents per pound of dry leaves, Which would net the average picker about ten dollars a day.

The annual foxglove harvest in Oregon is estimated at 700,000 pounds per year based on 1948 to 1954 figures. Washington pickers harvested an equal amount making more than one million pounds with an estimated value of fifty thousand dollars paid to the gatherer (1).

Miscellaneous Drug Plants

A few of the bright flowers and plants growing in the western part of Oregon and Washington have medicinal as well as ornamental value. The average person will keep a short distance away from poison oak but there are people who harvest the leaves. (See Figure 19). Many people will make unpleasant comments on the strong odor of skunk cabbage, while others dig the roots for sale to drug companies. Many of these minor drug plants are gathered when there is a profitable market. Gatherers are usually few in number and are generally on contract with firms to gather limited quantities. One year's harvest is often enough to supply the demand for two or three years.

Some of the more important minor drug plants and their uses are as follows (26):

<u>Name of Plant</u>	<u>Source</u>	<u>Use</u>
Blood Root (<i>Sanguinaria canadensis</i>)	Rhizome	Emetic Coagulant
Burdock (<i>Arctium minus</i>)	Roots	Diaphoretic
Indian Root (<i>Aralia nudicaulis</i>)	Rhizome	Stimulant
Lady Slipper (<i>Cypripedium parviflorum</i>)	Roots	Antispasmodic
Oregon Grape (<i>Berberis aquifolium</i>)	Roots	Bitter Tonic
Poison Oak (<i>Rhus diversiloba</i>)	Leaves	Immunization
Yellow Skunk Cabbage (<i>Lysichitum americanum</i>)	Roots	Insecticide Emetic
Sweet Flag (<i>Acorus Calamus</i>)	Rhizome	Flavoring Colic
Trillium (<i>Trillium erectum</i>)	Roots	Astringent Irritant

SEEDS, CONES AND PITCH

During the last fifteen years (1940 to 1956) the problem of trees for our future lumber industry has created a demand for seed and cones.

The markets for cones gathered for seed include state and private tree nurseries, tree farmers and large forest product enterprises who are concerned about their future raw material.

The growing of trees requires many tons of seed and the demand usually exceeds the supply. Shortages are due to several factors. Large companies are reforesting by spreading seed from airplanes which takes thousands of pounds, only part of which actually grow. Rodents eat a high per cent of the seed, adverse climatic conditions will account for more, and some will fall where it cannot take root and grow.

Nurseries have experienced heavy losses of seedlings due to the symphillid, a very small insect that preys on the roots and kills the young trees necessitating large amounts of seed for replacement plantings.

Species of seed that are gathered in western Oregon and Washington are taken from cones of the Douglas fir (*Pseudotsuga menziesii*), Western Red Cedar (*Thuja plicata*), Port Orford Cedar (*Chamaecyparis lawsoniana*), White fir (*Abies concolor*), Noble fir (*Abies procera*), Sitka Spruce (*Picea sitchensis*) and Western Hemlock (*Tsuga heterophylla*). Seed from a few of the hardwoods

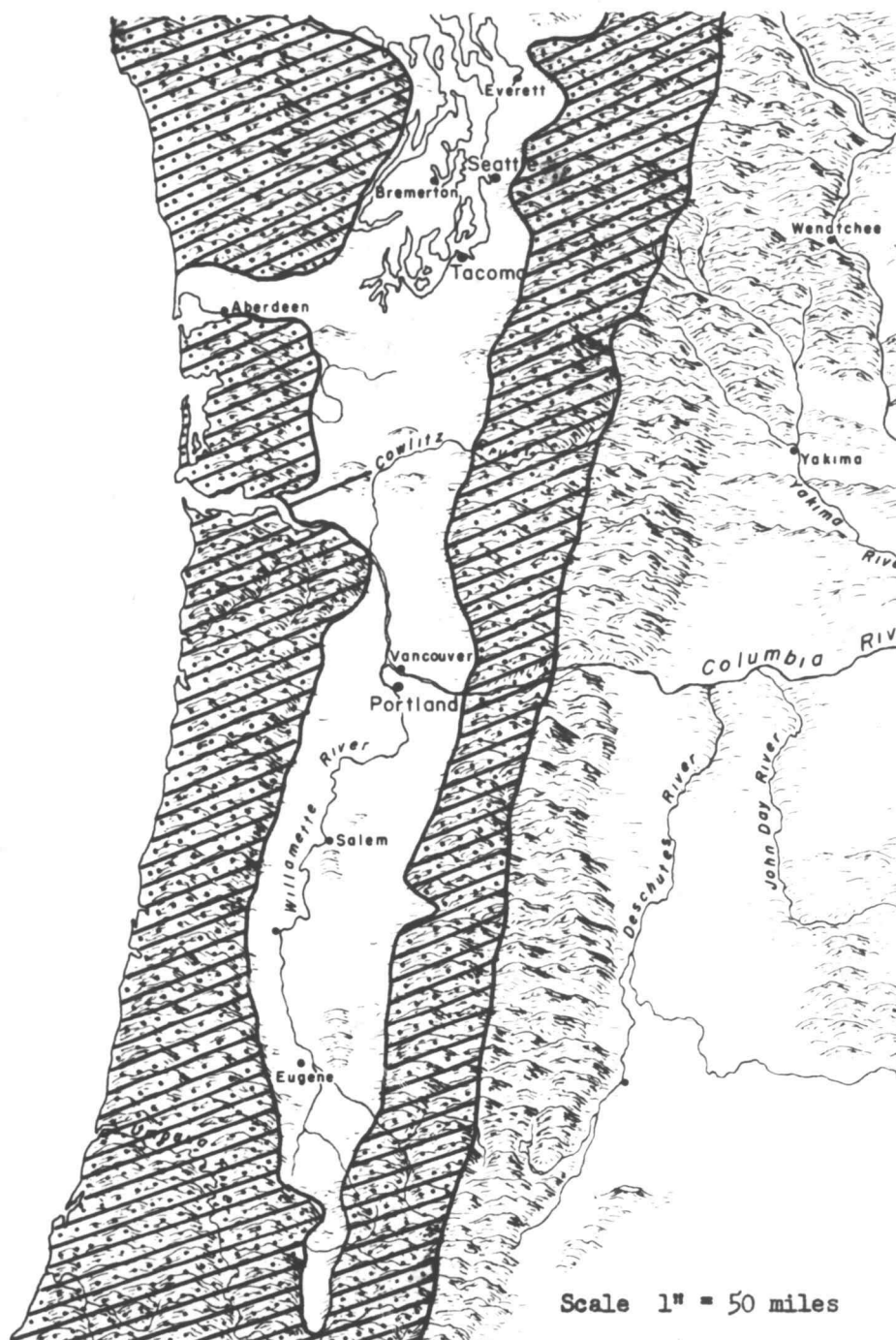


Figure 20. Areas of pitch, seed and cone gathering in western Oregon and Washington.

such as the Red Alder (*Alnus rubra*) are also collected.

The gathering of cones for seed is seasonal which makes it a part-time occupation for the collector. The season has a duration of three months, usually August, September and October.

Cone Gathering

The demand for Douglas fir seed is greater than the supply, and the cones form a basis for one of the newer gathering industries. The collector of Douglas fir cones has a large source area since these species of trees occupy nearly eighty per cent of the non-agricultural land that stretches from the sea coast to the summit of the Cascades in both Oregon and Washington.

Several methods are used in cone collecting. The earliest and most common way is to gather from young trees where cones can be reached from the ground. Larger trees are easily climbed and the cones are picked and dropped into an apple picking bag secured around the waist. Those out of reach may be pulled toward the picker with a hook or recurved knife attached to a long slender pole. This device may also be used to cut the cones for testing purposes. Burlap sacks are used as containers in the forests because of their strength and lightness of weight.

In a logging operation area profitable collecting is possible from the felled trees. Although this is one of the easier methods it may be the most dangerous. Pickers will sometimes become so engrossed in gathering cones that they will wander too close to

logging operations and equipment.

Squirrels gather seed and store it in caches for food during the winter months. Caches may often be found in small caves, along the sides of fallen trees or spaces under tree roots. This is probably the easiest method of gathering seed.

Tests must be conducted to make certain the seeds are mature. Ten sample cones from each tree in an area are cut longitudinally through the center. The meat of the seed must be solid and free from worm-infestation. Seeds that show a white color are still in the milk stage and should not be picked. A minimum grade cone contains eight seeds of a light brown color. Cones showing less than four seeds must be left because the yield will be too small to justify the cost of extraction and cleaning. If fifty per cent of the tested cones show worm infestation, cones from this tree should be discarded. However, seven seeds showing in worm-infested cones is enough in some cases to justify picking in spite of the infestation. Worm-infested cones can be identified at a glance because many are deformed and small beads of pitch have foamed on the outside layers of the cone scales.

The picking season for Douglas fir cones begins in the lower valleys in August and ends in the higher elevations by October. Cones will have shattered by this time and weather conditions make transportation nearly impossible.

There are four species of cedar in western Oregon and Washington,

however, the small Red Cedar cones are unlike other cedars, since they grow erect on the branch and resemble tobacco pipes. The trees are found scattered throughout the stands of Douglas fir, usually in the wetter locations. They prefer the shade and protection given by taller species of trees.

The small cedar cones can be gathered by hand or pulled from the branches with a fine-toothed rake. The smaller trees averaging thirty to fifty feet in height bear the most cones. Cedars are easy to climb because of the many limbs that protrude from the trunk about every one foot and a half. Many of these limbs can be cut and the seeds removed without damage to the tree. Cones are sometimes gathered from trees having a bumper crop by spreading two or three canvases beneath them. The cones are then raked from the branches with a special fine-toothed rake. The small Western Red Cedar cones are bought by the pound instead of by the sack.

The cones of the hemlock are some of the smallest of any that are produced by the needle-type evergreens, measuring only an inch or less in length. The small size makes gathering difficult.

The cones can be stripped from the trees by hand or rake with close set teeth. Some cutting of branches from the tree facilitates cone removal. After a few warm summer days the cones open and the seeds fall to the ground. Canvas is often spread under trees to catch the seeds.

Cones from other species are gathered in response to market demands. A few deciduous trees are grown in the nurseries and seed

is collected from alders, maples, oaks, cascara and poplars to fill this need.

Cones must be delivered immediately to the buying agency. Crowding or storing in a damp place will cause them to mold, which reduces the viability of the seed and lessens the market value. Cones should be stored in a dry place with air circulation. The distance to markets must be given considerable thought because the season for cone picking is short and long hauls use up valuable time needed in picking.

Markets

Cones are marketed in two-bushel burlap sacks. The sacks are sewn at the top because tying them with twine would cut down the capacity of the sacks below two bushels. Tags are attached which indicate the species of tree, where the cones were picked and the date collected.

Seed cones are purchased by the State Forestry Department at the respective capitals of Oregon and Washington. District forest rangers located through Oregon and Washington are also authorized purchasers.

The Siuslaw National Forest in Oregon has buyers in Corvallis, and the district rangers at Waldport, Hebo and Mapleton, Oregon are authorized to buy cones of Douglas fir, Sitka spruce, hemlock and cedar. Other national forests in Oregon and Washington have similar programs.

Private nurseries such as the Sherwood Nursery Company, 141 South East 65th Avenue, Portland 16, Oregon, and the Pacific Coast Nursery, Route 1, Box 114B, Portland 9, Oregon, usually purchase cones of all species.

Washington has many nurseries scattered throughout the state. Two that propagate evergreens are the May Nursery Company, P. O. Box 494, Yakima, and Chenoweths Mount Vernon Nursery, Mount Vernon. Collectors should secure contracts in advance of the actual harvesting season. This helps to assure a market and a definite price.

Prices paid per sack for Douglas fir cones vary from two to four dollars. In the fall of 1954 there was a shortage and four dollars per sack was paid for several lots of cones. Western red cedar cones brought fifteen cents per pound in 1954-55. White fir cones were listed at two to four dollars a two bushel sack. Prices paid for hemlock cones in 1955 were seven dollars per bushel (23).

A new industry has been making rapid progress within this gathering field. Cones of pine, fir, cedars, hemlock, and alders are being marketed as Christmas decorations. (See Figures 21, 22, 23 and 24).

Collectors promote markets by sending pamphlets to florists and novelty stores stating species available, prices and uses of the different cones. Smaller cones such as hemlock and alder may be dipped or spray painted and used by the florist in the manufacture of



Figure 21. Assorted cones for Christmas trade.

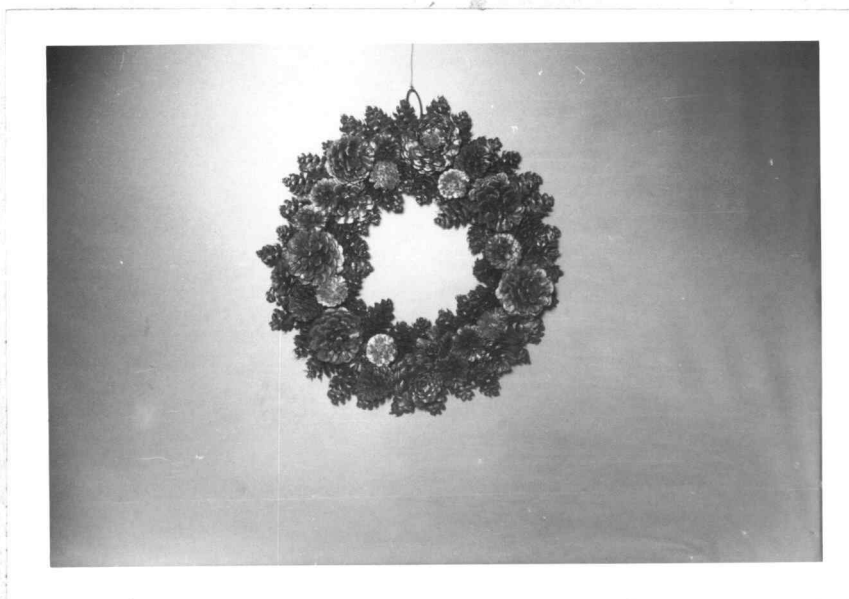


Figure 22. Christmas wreaths made from mixed cones.



Figure 23. A door swag consisting of evergreen boughs and cones.

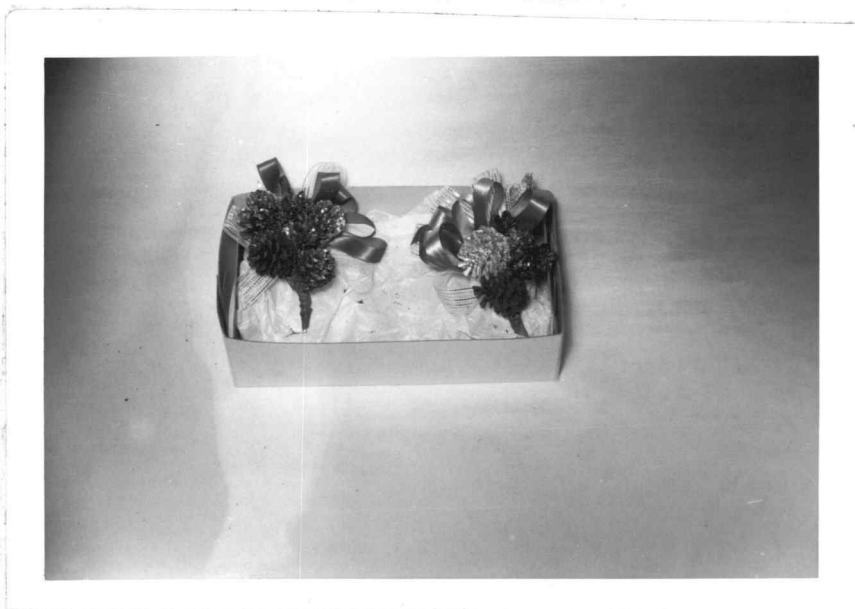


Figure 24. Christmas corsages made from mixed cones.

corsages. Chemicals are mixed with some of the larger cones and they are packaged in bags to be used as novelty fireplace fuel. The cones burn with blue, red, yellow or green flames. The small, compact pine cones are gathered before they reach maturity and are carved and painted to resemble birds and animals. Tourists are the chief buyers of these carved novelties.

Douglas Fir Pitch

The gathering of pitch from old growth Douglas fir is a companion industry to cone collecting.

The Douglas fir pitch is refined and used for medicinal purposes, paints, India ink, and the optical industry. The refractive index of the pitch is approximately the same as that of optical glass, which makes it useful as a cement for fine lenses and a mounting agent for microscopic slides.

Experience is necessary to recognize trees that have pitch pockets or seams. A few gatherers can tell if a tree has a pitch cavity by sounding or tapping on the base of the tree with a hammer and listening to the echoes. Others drill test holes in the base of the tree.

The pitch of the Douglas fir is usually found in cavities or hollow places near the base of the tree. The butt of a pitchy tree is usually swollen or gnarled with sticky-appearing bark. Decay in the basal part of the tree often indicates that pitch seams are present.

Gathering methods are fairly simple. A brace and three-foot bit are the essential tools and lengths of hollow pipes the same diameter as the bit are needed.

Holes are drilled with a downward slant into the tree trunk until the pitch starts to come out with the chips from the bit. The pipe is inserted and the container, usually a five gallon can, is put under the spout.

Large Douglas fir trees have been known to produce up to one hundred gallons of pitch. The average tree, however, usually produces from ten to twenty-five gallons. This amount of pitch will take from three days to a week to flow from the trees. The rate of the flow determines how many times the containers require emptying.

Markets

Pitch is marketed in the larger cities of Oregon and Washington. Portland, Oregon has two buyers: The Western Crude Drug Company, 615 N.W. 15th Street; and Blue Mountain Hide, Wool and Fir Company, 1704 S.W. Front Street. Washington also has two buyers: The G. R. Kirk Company, Box 1586-7 Tacoma 1; and I. P. Callison and Son, Lloyd Building, Seattle. Seattle is the head office for this firm and branch stations are located in Raymond, Chehalis, Bellingham and Quilcene.

The estimated amount of pitch gathered in Oregon and Washington is five hundred barrels per year. Each barrel contains one hundred gallons. The average prices paid in 1954 were seventy-five cents to

one dollar and fifty cents per gallon (13).

WILD BERRIES

The uncultivated lands of Western Oregon and Washington are the habitat of a variety of edible berries which have been the basis for a gathering industry since the days of the Indians and pioneers. Although the relative importance of the berry has declined as settlement progressed, several species are still harvested in significant quantities. These include the Wild Blackberry (*Rubus macropetalus*), Himalaya (*Rubus procerus*) and Evergreen (*Rubus laciniatus*). Others worthy of mention are the Blackcap Raspberry (*Rubus leucodermis*), Salmonberry (*Rubus spectabilis*), Low Bush Huckleberry (*Vaccinium deliciosum*), Red Huckleberry (*Vaccinium parvifolium*) and Blue Elderberry (*Sambucus glauca*). (See Figure 25).

Berry gathering is done primarily by persons not in the permanent labor force of the region. The activity provides seasonal and part-time work for many children, women and older people who pick berries for sale to neighbors or to local stores. Others pick for home canning or for commercial canneries.

Pickers have free access to roadways and all public lands and can usually harvest berries on private lands by obtaining permission.

Species

The wild blackberry is the first berry to ripen in the summer. It is highly prized owing to the excellent flavor and scarcity.



Figure 25. Areas of wild berries in western Oregon and Washington.

Wild blackberries are perennial and grow year after year in the same locality. The canes often attaining lengths of twenty-five feet and are covered with hair-like thorns that makes picking difficult and painful.

Western Oregon and Washington have many acres of cut-over land which is the usual habitat of numerous patches of wild blackberries. They appear to thrive in logged-off areas that have been burned. They are also found in open timbered land and along fence rows and roadsides. Pickers must search out the vines because they are usually hidden by tall grass, bracken fern and weeds.

Himalaya blackberry is the second berry to ripen in the summer. It is not native to this region of the Pacific Northwest but was a cultivated berry that became wild. The plants are rank growing and aggressive. They may trail along the ground or grow in clumps ten or more feet in height. (See Figure 26). The canes are covered with large thorns from the base to the tips and care must be used in the harvest. The berries, large and round, are scattered over the entire plant.

Large clumps of Himalaya berries may be found along streams, in open pastures and along the roadsides of both inland and coastal valleys.

Evergreen blackberry ripens soon after the Himalaya in the mid-summer months. The plants grow in clumps and reach a height of ten feet or more and measure many rods across. (See Figure 27). It is also an aggressive plant and spreads from seeds and may also take



Figure 26. Himalaya Blackberry.



Figure 27. Evergreen Blackberries.

root from the tips of the canes. Many curved thorns cover the long canes and the underside of the leaves. The fruit is shiny black and almost round with a distinctive taste. Evergreen berries are objectionable to some people because of the rather large seeds.

Large patches of these berries are found within the Puget Sound Lowland and the Chehalis River Valley in Washington. The Willamette Valley and the coastal counties of Lincoln, Lane, Tillamook and Clatsop are concentration areas in Oregon.

Blackcap Raspberry has a distinguishing characteristic which makes it easy to identify. The plants grow in clumps from four to six feet tall and have long drooping canes with an unmistakable blue-gray sheen. They are found in burned-over areas and open forests where there is bright sunshine and good drainage. The entire region is the home of this plant. The berry is blue black and shaped similar to a cap or thimble.

The Salmonberry is a native plant, usually unknown to the average person, that thrives in wet marshy places along the streams of the region. The Salmonberry grows in dense clumps that are almost impassible. The bushes reach heights up to twelve feet and the long stalks are covered with a mass of thorns one-half inch long that break-off when touched. The plant bears bright orange berries that are cup-shaped with large seeds.

The low bush huckleberry is found in the high mountain meadows at three thousand to four thousand feet elevation. Areas noted for these berries in Washington are the Snoqualmie National Forests,

Columbia National Forest, the region around Mount Adams and the Yakima Indian Reservation. In Oregon they are concentrated near Mount Hood, the western side of the McKenzie Pass and in the Willamette National Forest.

The low bush variety spreads into large clumps with an average height of eighteen inches. Small, round leaves cover the entire plant. The small, blue-black berries are found in large clusters near the tips of the many branches.

The Low Huckleberry grows at elevations of 3000 to 4500 feet in the same general localities as the low bush huckleberry. The bush grows taller than the other species—three feet to four feet is the average height. The leaves on this plant are larger than the leaves of other huckleberries but the berry size is the same.

The Evergreen Huckleberry grows on the Pacific slope from sea level to altitudes of one thousand feet. The plant is one and one-half feet to three feet in height and remains bright green throughout the entire year. It has a spreading habit and covers many acres with its dense growth. It is prized by the brush pickers because its evergreen foliage is more valuable for the florist trade than for its small, round berries.

Huckleberry bushes adjacent to the sea coast are sometimes blighted by the heavy rainfall and fog. In protected areas the berries will be more abundant, making picking worthwhile.

The Red Huckleberry is much different from the other species. The small, sparse foliage is light green, and scattered along thin

green stems. The round, light red, edible berries are attached singularly to the stems over the entire plant. It grows in the deep shade of forests with its roots near the surface. It is often found growing on rotting logs and stumps.

The forests of the Coast Range and the western slopes of the Cascades are the habitat of this beautiful plant. Foothills leading upward from the valley floors are scattered with red huckleberry bushes.

The blue elderberry thrives in many parts of western Oregon and Washington and is found growing in cut-over forests, pastures and along fence rows in the lower valleys. The bush grows from ten to twenty feet tall, has bluish green foliage and is, at times, shaped like a huge umbrella in the more open areas. (See Figure 28). The blue berries hang downward from the terminal ends of the branches in flat, round clusters that sometimes measure eight inches in diameter. Flower heads of pure white are often scattered among the bunches of berries making the plant easy to recognize.

Harvesting methods are relatively simple. Berries are picked into containers that hang from a belt around the waistline. Fastening the containers by this means allows use of both hands for picking or if necessary one hand is free to keep the picker from falling into the sharp thorns. Crates or larger containers should be kept close at hand for emptying the smaller buckets. Heavy clothing is almost necessary when picking the evergreen and Himalaya blackberries because of the long, sharp thorns.



Figure 28. Clump of Elderberry bushes.

Knowing the ripening period is necessary in berry harvesting. The early part of July is the wild blackberry season which lasts about two weeks. Himalayas, the next berry to ripen, have the longest season. Berries start to ripen near the middle of July and are available until the middle of September. The evergreen berry season starts in August and continues almost through September or until the first frost. The huckleberry, salmonberry and elderberry start ripening in August and picking can continue until frost damages the fruit.

Uses

The wild blackberry has an excellent flavor and specialty companies use this fruit for jam and jellies. The product is conserved in small glasses and jars that bring an average price of thirty-five to seventy-five cents apiece.

Himalaya and evergreen blackberries are picked for home use and thousands of quarts are home canned. Canneries also use many tons and local stores buy and sell berries. Some are made into beverages by wineries.

Blackcap raspberries have two uses; the largest part of the total pick goes into the home and are made into jam and jellies. A specialty product manufactured by a few companies is a delicious blackcap syrup used at the breakfast table.

The main use of the blue huckleberry is for pie filling and the manufacture of jam. Red huckleberries are used for jam, jelly

and pie making. The elderberry is picked for jellies and pies and for making wine.

Although thousands of gallons of berries are used in the home as canned food canneries near the heavier concentrations areas purchase tons of the fruit from pickers. Several plants, such as Birdseye Snyder at Woodburn, Oregon, or the M. C. Mercer Company at Seattle, Washington, send trucks loaded with crates of empty boxes to the berry areas and deposit them wherever needed. The same evening or the following day the trucks return and pick up the filled boxes.

Specialty companies are a third market and the Hubbs Company and Smuckers Company of Portland put up fancy packs of jams and jellies.

Many small companies now quick-freeze berries and a limited market exists in this field. The local grocery stores are also a market and will buy berries according to the demand.

The market for wild berries fluctuates from year to year, due to the amounts of cultivated berries harvested. From 1947 to 1953 the tonnage dropped mainly as a result of larger acreages of tame berries (1, 19). However, a long, wet spring may cause tame berries to blight and set less fruit, placing a heavy demand on the more resistant wild berry.

The estimated value of all wild berries harvested in western Oregon and Washington is about 500 thousand dollars (1, 13). The huckleberry harvest alone in the states of Oregon and Washington is

worth approximately 125 thousand dollars (10).

EDIBLE WILD BERRIES OF WESTERN OREGON AND WESTERN WASHINGTON

<u>Species</u>	<u>Geographical Distribution</u>
WILD BLACKBERRY (<i>Rubus macropetalus</i>)	Cut overland--burns--open timber. 0-2000 feet.
EVERGREEN BLACKBERRY (<i>Rubus laciniatus</i>)	Pastures--fence lines--wooded lots. 0-1000 feet.
HIMALAYA BLACKBERRY (<i>Rubus procerus</i>)	Stream bottoms--roadsides--fence lines. 0-1000 feet.
BLACKCAP RASPBERRY (<i>Rubus leucodermis</i>)	Cut-over land--burns--open hillsides. 0-2000 feet.
SALMONBERRY (<i>Rubus spectabilis</i>)	Virgin forests--stream banks--shaded areas. 0-2000 feet.
THIMBLEBERRY (<i>Rubus parviflorus</i>)	Cut over land--burns--wet soils. 0-3000 feet.
LOW BUSH HUCKLEBERRY (<i>Vaccinium deliciosum</i>)	Burns--high, open areas--Cascades, Olympic Mountains. 3000-5000 feet.
BIG HUCKLEBERRY (<i>Vaccinium membranaceum</i>)	Burns--high, open areas. 3000-4500 feet.
EVERGREEN HUCKLEBERRY (<i>Vaccinium ovatum</i>)	Near coast--open areas. 0-1000 feet.
RED HUCKLEBERRY (<i>Vaccinium parvifolium</i>)	Deep forests--shady, damp areas. 0-3000 feet.
ELDERBERRY (<i>Sambucus glauca</i>)	Cut over lands--burns--open pastures. 0-2000 feet.

DECORATIVE WOODS

The farms and forests of the region contain a variety of woods which possess natural designs and colors of striking beauty. These woods are used for cabinets, veneer, novelties and furniture. Most important species are the maple, oak, myrtle and madrone. In addition, alder and cottonwood are also important.

The use of the native hardwoods in Oregon and Washington is on the increase. In the past, hardwoods have been a relatively unimportant resource when compared with the softwood industry. Some of the reasons include: low quality of material produced; excessive waste; lack of hardwood grading rules; hand labor; and inadequate information on volume measurements of existing stands of timber (1, 10).

Large quantities of hardwood timber are often ruined in the logging operations for softwood. Improper handling at small mills also wastes large quantities of the logs. These conditions are improving at present due to the coordinated logging plans that feature logging of both varieties of trees (1, 10).

Bigleaf Maple

Bigleaf Maple (*Acer macrophyllum*) is found along the coast and in nearly all the western valleys and foothills of Oregon and Washington. This species thrives in the Willamette Valley of Oregon and in the Chehalis Valley and Puget Sound area in Washington.

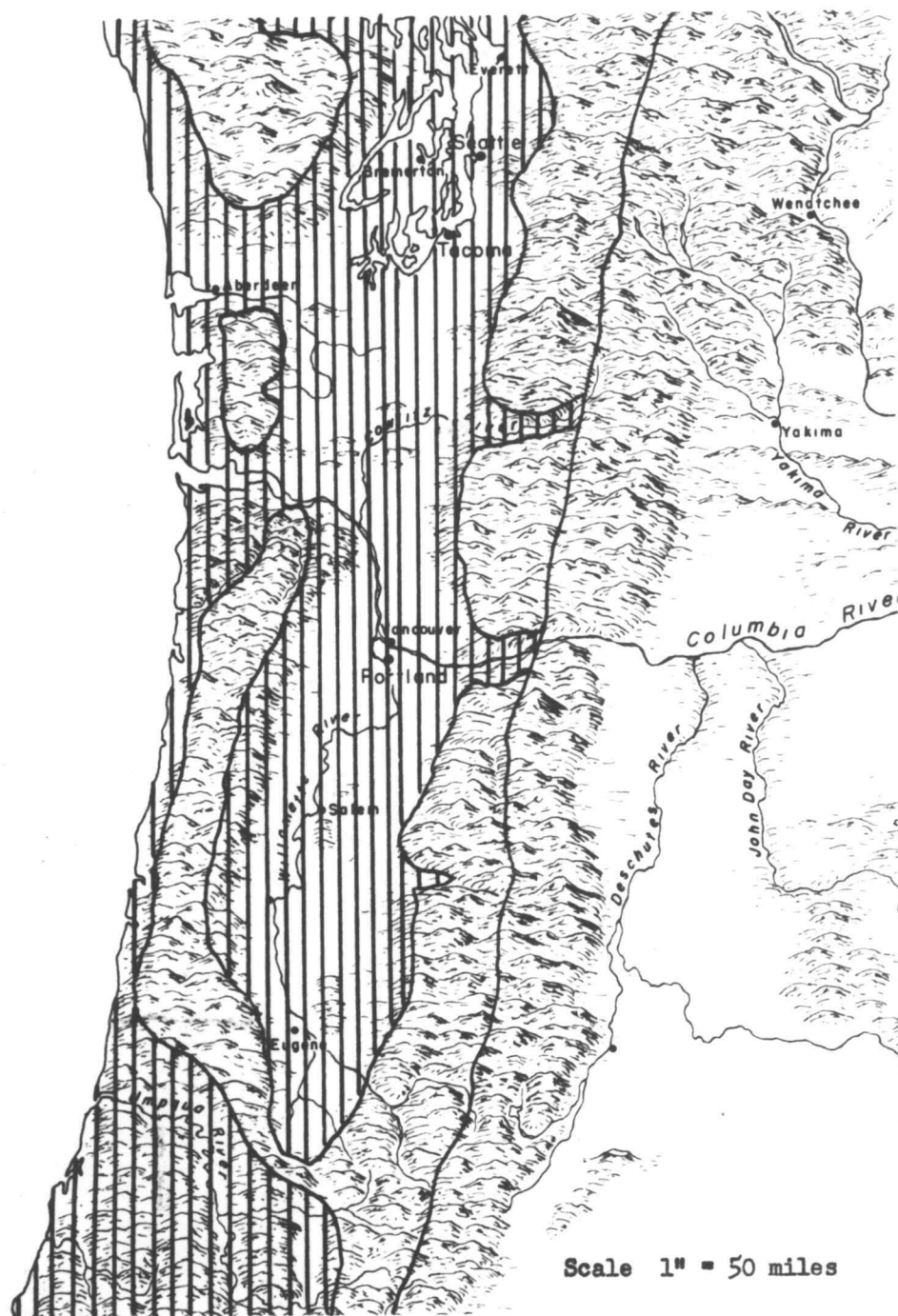


Figure 29. Decorative wood areas of western Oregon and Washington.

The prized sections of the tree come from the center part; if the base of the trunk has a burl it is cut or dug out with care for special use. The average size of maple burls of commercial value range from seven hundred to one thousand pounds. (See Figure 30).

The large burls are used for the manufacture of veneers for furniture and cabinets. Smaller specimens weighing from three hundred to five hundred pounds are used in the specialized field of novelties and useful household articles.

The business of harvesting maple is not a part-time job for the amateur without a knowledge of standards set by the manufacturers. Many man hours of work may be wasted on a cull. If it does not conform to standards it may be rejected by the purchasing agent.

Maple logs are classified by grain into three groups, fiddleback, cluster and quilted. Fiddleback grain logs have a short or narrow, wavey grain which produces an intricate design desired in the manufacture of violins and furniture.

Cluster grain comes from logs having deep burl wood bumps protruding from the surface. Between the bumps the surface of the log is smooth. Veneer from this type of log has round burl designs with figured wood in between.

Quilted grain maple is cut from logs that have many small burls regularly spaced over the surface. The blister logs, as they are called, produce a quilted design resembling the patchwork quilt.

The figured logs of maple are cut to a length of eight and one-half feet. Some of the better cluster logs can be marketed that

measures only four feet in length. Diameters must be about eighteen inches for quilted logs and a minimum of twenty inches for the cluster logs (2, 13).

Oregon Myrtle

Oregon Myrtle (*Umbellularia californica*) is one of the finest woods that can be used for novelties and household furniture. The wood is finely grained and has several different colors. There are shades of brown and black but gray is predominant. The trees have an added attraction because of a scarcity. It grows in only two areas of the world—Palestine and along the Pacific Coast of the United States. The species growing in Palestine, however, is not related to the Oregon types since it is small and scrubby while Pacific Coast Myrtle is often a tall beautiful tree. (See Figure 31).

Myrtle trees reach a height of thirty to eighty feet and diameters vary from one to three feet. Trees growing in open pasture land have round shapes with irregular trunks. In dense forests of evergreens the Myrtle has clean, straight trunks. Leaves are dark green and pointed at the terminal ends. When disturbed, they give off a pungent odor similar to camphor. The tree makes a dense shade desirable in pastures and as landscape specimens. Lumber and novelties are the two leading uses.

The trees are felled, cut into logs and transported to lumber mills as quickly as possible before the wood starts to check or split. Some of the most unusual color and grain is found in old

stumps and logs that are gathered after lying on the ground for years. Rain water and minerals from the soil provide the unusual color.

Myrtle wood is placed into three classes—the figured log, the cluster log and the burl. Figured logs have a curly or wavy grain, others show fiddleback grain which brings premium prices. The burls of myrtle wood are found at the base of the tree, not underground, as in the case of some of the maple burls. The weight of these specimens averages about one to two thousand pounds.

Groves of myrtle are located along the rivers and streams of southwest Oregon. In 1948 Coos County, Oregon had thirty-eight million board feet of myrtle wood trees still standing and Curry County had twenty-one million board feet (3). There are some scattered trees in Josephine, Jackson, and Lane Counties. Trees in these three counties, however, are too widely scattered to be of any commercial importance to the hardwood gatherer.

Red Alder

Red Alder (*Alnus rubra*) is widely distributed through western Oregon and Washington. A belt of trees approximately one hundred miles wide starts on the coast in southern Oregon and runs inland and northward the length of Oregon and Washington. A second area lies in the western foothills of the Cascade Mountains of both states.

Red Alder reaches its maximum growth on moist sites where the



Figure 30. Burl on a Maple tree, half of the burl is beneath the surface and does not show.



Figure 31. Myrtle Wood. Notice the conical shape.

soil is rich. In the coastal region almost ever river bottom has a stand of alder which stretches from the edge of the water until it meets the Douglas fir stands on the higher altitudes. Alder also grows in thick stands on logged-off hillsides or valleys. Prolific seeding is a characteristic and alder seedlings flourish before other species get started.

This species of alder is used primarily for inexpensive furniture because it is capable of taking such stains as walnut, mahogany, birch and maple. It is also used for core stock, wall panelling, paper roll plugs, millwork and novelties. Nearly 1.5 million board feet of Red Alder lumber are harvested each year in western Oregon and Washington (24).

Black Cottonwood (*Populus trichocarpa*)

The rivers of western Oregon and western Washington are lined with these trees. The Willamette River bank from Eugene to Portland, Oregon has pure stands. Scattered cottonwood stands are found along the Columbia River from The Dalles, Oregon to the coast and along the Chehalis River and the shores of Puget Sound in Washington.

The average height for cottonwood trees is forty to one hundred feet and they usually have diameters of two to three feet at the base. (See Figure 32). Trees line the river banks and grow on the first level above the valley floors in mixed timber or pure stands.

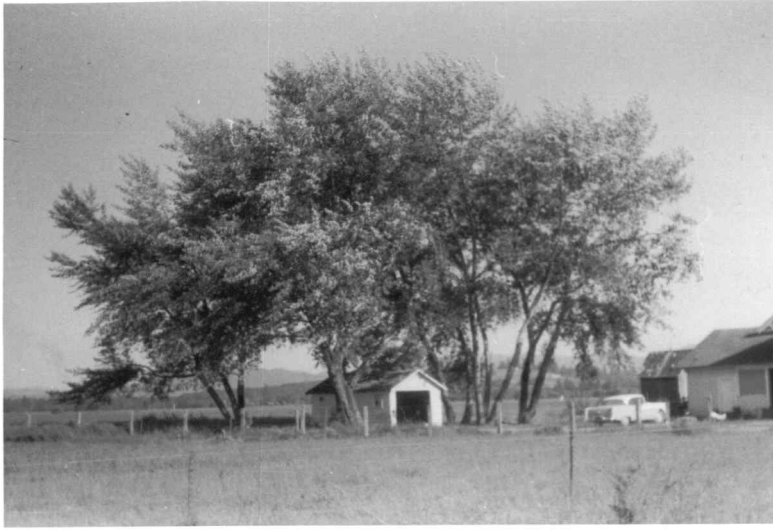


Figure 32. Cottonwood trees near Corvallis, Oregon.

Moisture is important to this species and it flourishes in sandy, gravelly or deep alluvial soils.

The wood is ground for pulp to be used for high-grade book and magazine paper. Lumber is cut for boxes, crates and dairy tubs and cottonwood veneer is manufactured for furniture.

Oregon White Oak (*Quercus garryana*)

The White Oak has been used for many years because the wood is heavy, hard, and strong. Pioneers used oak timbers for wagon axles due to its ability to resist wear.

It is found in British Columbia and extends southward through western Washington and Oregon into northern California. Groves are scattered through the drier sites of the Willamette valley and in the upper Umpqua and Rogue River regions of Oregon. (See Figure 33).

White Oak is used chiefly for furniture, flooring and interior finish lumber. A few operators manufacture charcoal from oak for use in water and food filters. Douglas County, Oregon leads in White Oak production with a cut of 41 thousand board feet in 1955 (10, 24).

Oregon Ash

Oregon Ash (*Fraxinus oregana*) is scattered along the Pacific coast and in the inland valleys of Washington and Oregon, especially in the bottomlands along the rivers.

Ash is straight-grained, heavy and stiff, making it a valuable wood for implement handles and sporting goods. Some furniture is

also manufactured from ash wood.

Pacific Madrone

The Pacific Madrone (*Arbutus menziesii*) ranges from northern Washington along the coast through Oregon into central California. It makes its best growth in southwestern Oregon and northwestern California at elevations up from sea level to 4000 feet. The trees are conspicuous in the spring because of the new, reddish-brown bark that appears after the annual winter shedding of the old bark.

Madrone is used mainly for panels in cabinet work and fine furniture. Future use as peelers for veneer is expected.

Markets

Few markets exist on the Pacific West Coast for decorative woods. Two dealers: Alfred A. Loeb, P. O. Box 1866, Piedmont Station, Portland, Oregon and L. W. Robnee & Son, Eureka, California, are the major purchasers. Both companies buy these products at any railroad siding in the states of Oregon and Washington. Other markets are uncertain but a few owners of large sawmills such as Irwin Lyons Company of Coos Bay, Oregon will occasionally buy hardwood logs.

Coos and Curry Counties in southwestern Oregon have about fifty individuals, mainly farmers and small novelty shop owners who harvest a small supply of logs each year, either for personal use or for markets. Coos County has a number of companies that work the entire year manufacturing novelties that are stocked by nearly

fifty retailers in this region (3). Portland, Oregon buyers shipped nearly 1.5 million pounds of mixed burls to foreign markets in England, Italy, France and Switzerland to be used for veneer purposes only (1, 10). Many carloads of hardwood logs are shipped by rail to the Atlantic coast where they are loaded aboard ships and sent to Europe.

Prices obtained for good burls average from three to four cents per pound or stumpage of ten dollars per ton. Oak logs average between \$35 to \$40 per thousand board feet at the sawmills. Some of this timber is cut into cordwood and prices range from \$25 to \$30 per cord if they are clean, straight butt logs. Alder logs bring from \$25 to \$30 per thousand board feet delivered to the mill. Cottonwood usually sells for around \$15 per cord delivered at the pulp plants.

MISCELLANEOUS PRODUCTS

The gathering of some miscellaneous minor products still flourishes in spite of competition from synthetics. As an example, archery enthusiasts demand bows constructed from yew wood instead of plastics. Steri-foam has almost replaced sphagnum moss in the florist industry but the plastic material cannot be used for mulches or packing.

Some products, however, such as leafmold, Douglas fir bark, mistletoe, dry pine needles, and novelty wood, as well as others, have no substitutes and are gathered whenever a market exists.

The Pacific Yew

The Pacific Yew (*Taxus brevifolia*) is used mainly for fishing rods, novelties and bow staves. The tree is also used for landscaping.

The yew is a short tree averaging from twenty to fifty feet in height with many branches that are covered with needles having the darkest shade of green in the evergreen group. The needles are the key to its recognition--since they are flat, lance-shaped and form a small branch with needle rows alternately opposite each other. During several months of the summer it bears a small, oval, pink-colored berry that is scattered among the small branches.

The Pacific yew is found chiefly throughout the Coast range, however, some grow on the western slopes of the Cascade Range.

One particular concentration area is in the Alsea Mountain located in the Coast Range west of Corvallis, Oregon. The tree flourishes in deep shade, where there is an abundance of moisture. It is often found growing under larger trees or thick brush in moist flats at medium and lower elevations. The flexibility and strength of the yew wood makes it durable for bows. Trees best suited for bow staves are straight or with only a slight curve in the first eight feet of the trunk. The basal or butt part of the log is used for bow staves; additional cuts of the log are used for novelties or fuel. The log is split into halves and often quartered if it measures more than one foot in diameter. The ends of the split sections are painted to prevent excessive checking or splitting. The split sections are either seasoned in a dry, cool place by the gatherer or are sold directly to manufacturers who do their own drying and seasoning. It usually takes several years to season the wood before it is processed.

Prices paid for yew wood bow stock varies with the demand. Straight-grain, single pieces, forty inches long that have a five inch diameter, with one and one-half inches of heartwood, have a sale value of two to four dollars each.

Archery companies, hobbyists and large sporting goods stores are the major markets for bow staves. W. H. Burr, 8202 14th N.E., Seattle, Washington, and Northwest Archery Co., 4329 Airport Way, Seattle, Washington, are two of the leading market sources.

Sphagnum Moss

There are two species of sphagnum moss most suitable for markets—*Sphagnum capillaceum* and *S. papillosum*. They are found in marshes or bogs, and are aggregated in dense tufts or cushions which consist of one species or a mixture of two or more. The moss grows from one to six inches in thickness and spreads in all directions, sometimes covering many acres. It is highly absorbent and retains moisture like a sponge.

The accumulation of dead plants is the product harvested and sold on the market as peat moss.

The green moss on the ground surface is gathered first, and the pure sphagnum peat that lies just below is harvested next. A rake, knife or saw and a shovel are the tools needed and the containers can be wooden boxes or burlap sacks. The peat is cut into squares, dried, wrapped with heavy paper and wired together to form salable parcels.

The surface layers peel or brush off in various sized pieces. The larger pieces are easy to gather but the smaller ones must be raked into piles and scraped into containers. Peat found beneath the green surface layer is cut or sawed into squares and stacked to dry. It may be sun dried or placed in a building where warmth and air circulation will dry it.

The surface layer of sphagnum moss has long fibers used to line flower pots and hanging baskets or it is wrapped in desired

shapes for backgrounds of floral pieces. Nurseries use sphagnum for bulb packaging, flower shipments, seed propagation and as a packing for the roots of deciduous shrubs and fruit trees shipped long distances. The moss, finely ground and spread thinly on the surface of seed flats, holds moisture and helps prevent damping-off--a disease that rots the stems of seedlings at the surface level.

Poultrymen prefer sphagnum and sphagnum peat for floor covering or litter. The advantages over other types of litter include a higher absorption power, a better insulator and finally, it is more economical.

Markets for sphagnum moss are located near the collecting areas. Poultrymen, florists, nurserymen and stores that sell garden supplies are potential purchasers. A retail yard or store in a large city is the usual outlet. The public demands several size packages; nurserymen generally buy one hundred pound bales. Smaller packages of ten, twenty-five and fifty pounds are needed for hobby gardeners and the people who grow houseplants.

The Western Mistletoe (*Phoradendron villosum*)

Mistletoe, gathered for the Christmas season, is a parasitic plant that grows on several species of trees, especially myrtle wood, horsechestnut, oak trees, and manzanita shrubs. It is a short bushy plant with pale green leaves matching the green color in the stems. Small pink to flesh-colored berries are scattered in groups along the stems. Mistletoe is easily found during December when

when trees are bare and the plant is silhouetted against the sky. (See Figure 33). It grows in the upper parts of the trees toward the terminal ends of the branches.

The ancient Druids of Brittany suspended mistletoe from an oak tree over the doorway of homes to protect the occupants from evil spirits. The Scandinavians adopted this custom and added an extra tradition—a girl caught beneath the mistletoe rewarded her captor with a kiss. The custom is as popular today as other Christmas customs such as bringing in the yule log, trimming the tree and the hanging of the holly.

The common method of gathering mistletoe is to climb the trees, remove the bunches and lower them to the ground by means of a string. Care must be taken in removing the plant since rough handling causes a loss of berries and leaves. Mistletoe from short trees is gathered by using twenty foot extension ladders. This method has its disadvantages because of the inconvenience of transporting a heavy ladder to the picking area.

Florist shops are the usual markets during the short Christmas holiday season. Near large cities many pounds of mistletoe are purchased by grocery stores, variety stores, wholesale florist companies and individuals who sell Christmas trees and decorations.

Mistletoe is sold by the pound or packaged in cellophane bags. One pound usually brings a price ranging from thirty-five to fifty cents. More profit is realized by the gatherer if he will package the mistletoe in one-fourth pound packets which may sell at twenty-



Figure 33. Mistletoe infested Oak tree near Albany, Oregon.

five cents.

Mistletoe must be gathered in a short season from the 10th of December to the 25th. The greater share of this product is harvested by school children who in many cases are not afraid to climb trees. Amounts harvested vary, due to the uneven concentrations. In areas having moderate concentrations, amounts over twenty-five pounds constitutes a full day's work. Twenty-five pounds of mistletoe will net the gatherer about ten dollars.

Leafmold

Leafmold is formed by the leaves of hardwood trees which accumulate under the trees until layers are formed. Pressure and the elements cause the leaves to disintegrate and form a material known as leafmold.

Leafmold can usually be found under most hardwood trees. Oak leaves produce the best quality since they are less acid than the foliage of other hardwood species.

Although accumulations are usually found under the trees, the wind often blows leaves into small valleys and crevasses where they pile up to depths of several feet. Gatherers prefer these areas because it simplifies collecting.

Leafmold gatherers use an ordinary garden rake, shovel and a pitchfork with close-set teeth. Leafmold from larger beds are forked into burlap sacks or boxes. The finer material is raked into piles and shoveled into containers. Burlap sacks of two bushel

capacity will hold nearly one hundred pounds if tightly packed. Prices received average from seventy-five cents to one dollar and a half a sack.

Gatherers can either retail leafmold by the sack or stock-pile it and sell by the pound. Nurserymen purchase leafmold; flower shops and seed stores will carry it if they are assured of a constant supply. Correct labeling and use instructions attached to each leafmold container will aid in marketing.

Douglas Fir Bark

Douglas fir bark is gathered for the tannin it contains. Specifications for bark gathering are rigid. The bark must be obtained from second-growth trees. A length of four feet and a maximum thickness of one and one-half inches are the slab dimensions. The slabs must not have been immersed in water. Currently a limited market exists for bark. There is only one buyer for the region, the Muir and McDonald Company, 100 Levens Street, Dallas, Oregon, who purchase several hundred tons a year. Gatherers receive on the average of sixteen dollars a ton.

Bark gathering will grow in the future because research by some wax technologists show waxes from Douglas fir and white fir bark to be superior to beeswax and equal to carnauba wax (13).

Fiber products can be produced from consolidated wood and bark mixtures without the use of any binding resins. Under experimentation is the use of bark instead of more expensive materials in the

manufacture of paper. Experiments using bark as an ingredient for roofing and insulation felts, car liners and sheathing is being attempted. New products will create markets for large amounts of bark that otherwise would have been wasted or consumed in the burner.

CONCLUSION

The role of wild gathering in the gross pattern of the forest and forest products economy is minor. Nevertheless, the occupation provides part-time as well as full-time employment for hundreds of harvesters in western Oregon and Washington. The money return from the products is small in contrast to the log harvest but, nevertheless, it has been estimated at a value of between six and eight million dollars (1, 10). This figure only represents the market worth of the raw material and does not include values added by procession nor wages received for packing and handling. Furthermore, there is no means of estimating values of products harvested by an individual and used directly at home.

The permanency of the economy is favored chiefly by the limited and seasonal demands of many products. It is questionable whether Cascara plantations, foxglove fields, or fern gardens as well as domestic cultivation of other species to supply needs would be economically feasible on a large scale. Furthermore, the products from wild gathering have not suffered greatly from synthetic substitutes. Wild gathering should continue as a segment of the forest economy.

The wild material may not necessarily be vital but many of the products are a part of the amenities and traditions of American living. The occupation can be lucrative as well as a healthful form of recreation. Finally the economy is a definite part of the

multiple use philosophy of the forest.

It is hoped that the contents of this thesis will help to enrich and consolidate the literature of the field as well as to stimulate an interest in the uses of the numerous botanical species of a forest community.

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