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MINOR FOREST PRODUCTS OF THE PACIFIC NORTHWEST*

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The evergreen forests of Washington and Oregon are the source of an interesting variety of so-called "minor products." Many of these forest sidelines are not well known. They are generally underestimated and quite often misunderstood. This is partly because the value and significance of these smaller, incidental products of the forest have long been overshadowed by the emphasis on timber production. The independent, unorganized harvesting methods have also contributed to the obscurity of these minor forest products. But even so, in 1948 they brought to the hundreds of local harvesters and producers in the Pacific Northwest an estimated return of 4 or 5 million dollars. This represents only the direct forest asset value of the raw products and does not include the wages or income from packing, processing, and handling. Morevoer, these minor products constitute a source of continuous income that can be derived from the forest while the long-time timber crop is growing. They are, in reality, a product of forest conditions.

A precise definition of the term is rather difficult, but in general, minor forest products include those smaller, sideline items of commercial value that can be obtained from the forest, usually without intensive management or cultivation. Christmas trees probably stand at the head of the list, in familiarity at least. But as this forest family grows, it takes in quite an array of members, and a few distant relatives. Perhaps if they could be outlined as a typical family tree, the branches might include:

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Christmas trees

Decorative greens

Swordfern, huckleberry, salal, conifer boughs and Christmas decorations

Crude drugs

Cascara, foxglove, and others

Wood products

Burls, bow staves, and rustic furniture

Miscellaneous products

Wild fruits and berries, nuts, seeds, cones, honey and maple sugar
Liquid pitch from Douglas-fir
Distilled pitch from ponderosa pine stumps
Tanning bark from second-growth Douglas-fir and hemlock
Rhododendron and other native ornamentals
Dyestuffs and essential oils
Other novelty items and decorations

Christmas Trees

Each year in December the Christmas tree comes into the focus of human interest. Consequently, this seasonal but highly specialized industry has received a much wider publicity and perhaps more glamorization than any of the other minor products from the forest.

The Northwest has been called the Christmas tree capital of the country. In 1948 Oregon and Washington alone produced close to one-fifth of the Nation's estimated 21 million trees. This would be about 6 or 7 hundred carloads or some 3 million trees, most of which were young Douglas-fir.

The prices paid for Christmas tree stumpage are highly variable, ranging from 1 or 2 cents a tree up to 26 cents a linear foot for highly select, choice specimens of Shasta fir. According to estimates from the State Forester of Washington, the average rate paid to the owner during the past season has been about 5 to 10 cents a tree. Of course, on some of the big-scale operations in the Puget Sound area the prices have been somewhat lower. The cutter who harvests the trees and ties them in standard bundles containing 24 linear feet is paid about 95 cents per bundle. Automatic bundling machines have recently been introduced by the G. R. Kirk Company to streamline their harvesting. Like the lumber industry, the greater part of the retail price is not the original stumpage, but rather the combined costs of handling, processing, distributing, and retailing.

For the past several years the national demand for Christmas trees has been gradually increasing. This has stimulated better regulation and control of cutting practices, plus considerable research on improved methods of management, silviculture, handling, and merchandising. For example, in the early thirties the Pacific Northwest Forest and Range Experiment Station and other agencies made some experiments in producing a second Christmas tree from the stump where one Christmas tree had already been removed. A vigorous lower limb was left which turned upward, or a new tip sprouted from near the top of the stump, producing a second tree in shorter time than it could be grown from a seedling. The method was not found altogether successful and is not recommended except where follow-up work can be done to remove excess leaders or those which do not develop into well-shaped trees. The system has not found favor in the Northwest but is being employed some in Montana.

Another trend is individually packaged Christmas trees designed for over-the-counter or mail order sales. This new idea was pioneered by Pacific Evergreens, Inc., and the G. D. Martin Company of Olympia, Washington. It has been in production for only two years but already it has attracted widespread interest both here and abroad and has proved to be quite convenient and satisfactory. The packaging of a tree is a fairly simple process. The base of a select Douglas-fir is first aligned and fitted into a small, leak-proof, metal can filled with damp peat moss. The tree is then compressed by passing through a special funnel into a moisture-sealed, corrugated shipping container. Pieces of wood fitted so as to securely hold the can and serve as a tree stand are also included in the attractive, carry-home package. Pacific Evergreens, Inc., supplement their "Giftree" package with a variety of native Christmas greens and pine cones.

In spite of these recent developments and improvements, the Christmas tree industry is still in its infancy and much remains to be done to put it on a sound permanent basis. The holding of a forest area for the production of Christmas trees alone is a perfectly legitimate forest business; but even if an area is being held for timber production, the cutting of Christmas trees need not be destructive to future stands. Foresters have worked out a system of marking that is simple and easy. The forester goes over the area in strips and, with a paint gun, puts a slash of paint on the foliage of the trees correctly spaced for timber production. The Christmas tree cutter is then allowed to take any unmarked trees in the stand. There is no inclination to take the marked trees because the paint on the foliage makes them useless for Christmas tree purposes. Most stands, particularly on the poorer soils, have many more trees than are needed to produce a good forest; and after careful marking, Christmas tree cutting will benefit the stand rather than injure it. This early cutting will offset the initial investment and help to carry fire protection and other costs and will compensate for slow growth on the poorer sites. In some cases the removal of Christmas trees stimulates the production of wild huckleberries and other minor products.

The usual waste of surplus trees not sold by Christmas Eve has been one of the main objections, but attempts are being made to more closely adjust the supply to the current demand. The advance ordering of packaged trees should help to reduce this waste. The respect for private ownership and property rights is also being encouraged and enforced. All cutting done on National Forests is carefully controlled and all trees removed are clearly labeled.

Decorative Greens

From the cool, fragrant forests of the Northwest come a veritable host of decorative greens--long, graceful swordfern, salal, huckleberry, boughs of cedar, fir, and yew, Oregongrape, and several others. The gathering of these flourishing evergreens has developed into a yearround business that brings an estimated 2 or 3 million dollars of extra income to our rural people.

The veteran fern and brush pickers are usually true woodsmen and often among the forest's best friends. Many a fire has been put out or prevented by their alertness and cooperation with forest officials. As they work their areas they keep open a system of roads and foot trails through the tangled underbrush. They soon become as familiar with the topography, trails, and the lay of the land as with their own dooryard. The people who pick fern and huckleberry brush are often the same ones, or at least the same type of people, who harvest the various other minor products. They are usually family groups, stump ranchers, farmer boys, and country dwellers. Women often help with the sorting and packing. In general these people are typical of the pioneer spirit that has produced America. Their love of freedom and individual liberty is inherent. Like Thoreau, their philosophy of life is based on a natural simplicity. Even the most skillful pickers never get rich at the game. They work hard, love the out-of-doors, and like to be independent, often preferring to rely on their incomes from ferns and huckleberry brush rather than accept local relief or pensions. Of course, not everyone who works in the minor products measures up to these ideals. Trespass and carelessness are still a problem in some places. But conscientious pickers are generally careful to secure the 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.

In the Northwest, Callison's and the G. R. Kirk Company handle the greater part of the greenery business for other than local markets, but two or three dozen small-scale operators are also shipping greens now. It is a specialized industry, fairly well organized and highly competitive--not one in which just any newcomer can enter the trade and get rich quick. Several have already learned this by experience.

Swordfern

Most important of the decorative greens is the common swordfern (Polystichum munitum) which is used in the florist trade throughout the

nation. This fern thrives best in the cool, damp, shade of our west-side forests. They are gathered by trained pickers who select the most desirable fronds. About 25 inches of the tips are taken. Then they are carefully tied about 55 fronds per bunch. A standard bunch contains 50 fronds, but an extra 3 to 5 fronds are always included to make up for possible culling. The bunches are then secured to pack boards or rolled in strips of burlap and carried out of the woods. Occasionally pack animals or jeeps are used by a few big operators. The price received by the picker varies with the time of year and the current demand. Fourteen cents for a standard bunch, which is higher than in previous years, was an average rate during the early part of 1949. To prevent drying, the ferns are promptly taken to central packing plants where they are inspected, precooled, packed 2500 fronds to a case and shipped under refrigeration to florists and wholesalers from coast to coast.

Contrary to the popular opinion of the uninformed, the conservative picking of ferns does not seriously damage the plants themselves nor the forest. Swordfern is a perennial which sends up new fronds each year from its underground rootstock. The pickers usually cut only the 25-inch tips from a few of the more perfect fronds that often attain a length of 4 or 5 feet. Throughout the fir and hemlock forests west of the Cascades the common swordfern is so abundant that there is very little danger of depletion. Moreover, the specification of what is an acceptable frond acts as a natural safeguard to overcutting. On the National Forests and some private holdings the pickers are required to obtain a permit, and usually pay a small fee per unit. The really scientific pickers prefer this system for it enables them to organize and plan their harvest in a more business-like manner. For example, ferns growing under scant shade or in the open should be picked first as they are damaged by the sun, then those growing under alder should be harvested because they are often stained by the falling alder leaves. Ferns under Douglas-fir should be picked next, but those under dense cedar and spruce stands may be held to the last and are good until the spring of the following year. When a picker has a specified area to work where no one else will trespass, he can arrange his pick in this order.

Recent experiments conducted by the Pacific Northwest Forest and Range Experiment Station indicate that picking is less likely to injure the fern crop if, on short plants, not more than 25 percent of the fronds are cut annually. Their studies have also shown that heavy picking in October while the plant is storing food for the following year reduces its vitality more than picking at either an earlier or a later date.

Huckleberry

Evergreen huckleberry (Vaccinium ovatum) is another by-product of the forest that is highly prized as a decorative green. The florists use its glossy, dark green sprays of finely cut leaves as filler foliage. It is harvested and handled in much the same way as swordfern. Only flat, undamaged shade-grown sprays of 25 to 30 inches in length are accepted. The picker sends his bundle of "brush" to the packing shed where it is

carefully sorted, weighed and wired into smaller bunches of a standard size and weight. The sprays are always thoroughly moistened before being packed. During the spring of 1949 the price has been about 16 cents for a 1-3/4 pound bunch. As is the case with most of the native greens, the picking season slacks off during the early summer growing period.

The conventional method of gathering huckleberry brush does not damage the whole shrub. It merely serves as a light pruning that helps improve the form and stimulates the growth of better sprays. It doesn't conflict with the huckleberry pie business either, for to yield the best fruit the shrub must grow in open sun, whereas to produce the desired type of foliage the plant requires the deep shade of the remote forest far from the roadsides. Also the species used for sprays is the evergreen huckleberry, the fruit of which is not so highly prized as that of the blue huckleberry and the mountain huckleberry.

Salal

The widely distributed salal (Gaultheria shallon) is gradually becoming more popular as a florists' green. Its uses, specification, harvesting, and prices are practically the same as for huckleberry. The best flat sprays come from the deep shade where they produce the smooth oval leaves used in attractive floral backgrounds.

Conifer Boughs and Christmas Decorations

Port Orford cedar is used rather extensively as a florists' green and brings about 8 cents for a 2-pound bunch of flat, green sprays. Most of the other conifers (Western redcedar, yew, pine, spruce, and fir) have a limited use as Christmas and holiday decoration. Suitable cones, expecially those of sugar and ponderosa pine, are used in the same way. Last year at Yakima, Washington, one operator purchased 50 thousand bushels of ponderosa pine cones at 35 cents a bushel.

Some of the mosses, other ferns, Oregongrape, and various evergreens may have restricted commercial values as a type of decorative greenery, but markets and uses have not been widely developed as yet.

A few large companies, such as "Kirk's Evergreens" in Tacoma, make a specialty of packaging Christmas greens. Their attractive gift boxes include such items as fragrant cedar wreaths and garlands, evergreen door charms, assorted boughs of cedar, fir, and pine, choice selections of pine cones, English holly, and other Christmas decorations.

Crude Drugs

Many crude drugs of medicinal importance come from wild plants gathered in our forests. Cascara and digitalis are still the most important ones in the Northwest and show little indication of being replaced by synthetics. Since the advent of modern chemistry and medical research many of the old-time herbs and remedies have lost favor, but there are still minor markets

for such items as: bloodroot, calamus root (or drug sweetflag), goldenseal, dandelion root, ginseng, Oregon balsam made from the liquid pitch of Douglas-fir, Jimson leaves, lady slipper root, princespine (pipsissewa), skunkcabbage root, dill oil, yellow dock root, Oregongrape (or Cascades mahonia) root, Scotch broom and several others.

This season small amounts of Douglas-fir pitch have been bringing $1.00 per gallon. It is used in various medicines and as a substitute for Canada balsam in optical cements.

Cascara

The extract of "Cascara Sagrada" (from the Spanish, meaning sacred bark) has long been highly valued for its tonic and laxative properties. It is derived from the bark of the native cascara tree (Rhamnus purshiana). Over 4 million pounds of bark are harvested annually by local peelers. The current price is from 10 to 15 cents a pound dry weight, so at this rate the annual return would be about $500,000.

I. P. Callison & Sons are the world's leading supplier of this drug. At their modern plant in Chehalis, Washington, they are now equipped to produce a spray-dried, soluble, powdered, cascara concentrate. This is a considerable saving over the old methods of bulk shipment and storage.

Callison receives the raw, dry bark as it is stripped from the trees. It is then ground, sacked, and held in storage for at least one year to improve the quality before it goes through the final percolation process. The percolate from the bark is drained into a holding tank, then it goes to an evaporator, and finally to a spray-drier unit. The process by which this cascara concentrate is made is somewhat similar to that used in the preparation of powdered milk.

Unfortunately, many of the mature stands of cascara have been destroyed by improper methods of harvesting. In some places it is still rural psychology to regard the cascara tree as public property, and consequently a part of the annual harvest of bark is obtained without permission on private and other lands. However, many private owners do not consider cascara stumpage worth protecting.

Several crude drug companies and public agencies in recent years have conducted educational campaigns to promote better peeling methods and proper regard for private property. They have stressed these important rules:

1. Obtain the owner's permission before peeling.

2. Peel clean, down to limbs of 1-inch diameter.

3. Take no tree less than 4 or 5 inches in diameter.

4. Cut down peeled trees, leaving an unpeeled, sloping stump about 6 inches high so that sprouts can grow into another stand of bark-producing trees.

5. Dry bark thoroughly and protect it from rain and sun.

For several years the Soil Conservation Service and the Oregon State Forestry Department have been sponsoring the private farm planting of cascara. Since 1938 almost a half million seedlings have been supplied, but many of the plantations have not been successful.

Thomas Miller of Brownsville, Oregon was one of the first to cultivate cascara. In 1926 he started a 1.7 acre plantation from wild transplants and seedlings. Since that time he has been furnishing seed and planting stock to other growers and to the Clarke-McNary State Nursery at Corvallis. Mr. Miller estimates the present value of his cascara plantation at over $80,000.

Foxglove

The Pacific Northwest is the main source of foxglove (Digitalis purpurea), the plant from which the well-known heart medicine, digitalis, is made. Foxglove is an European garden plant that escaped into the wild and flourished along the coast of Washington, Oregon and northern California. It usually grows on sidehills, creek bottoms, and around meadows. The fresh leaves are cut from September through May and sell for about 3-1/2 cents per pound green weight. Proficient pickers working in good patches are sometimes able to harvest 400 to 600 pounds a day. Recent experimental work in the growing of foxglove has indicated that greater yields and better products can be produced under intensive cultivation. So in the not too distant future it may become highly profitable to grow specialized crops of foxglove for commercial use. By careful cutting, three crops can be taken from the original plants in a single season.

Wood Products

Burls

Burl merchandising might be called the jewelry branch of the minor forest products, for it involves a lot of prospecting, sometimes a bit of mining, and a very special skill in cutting to produce the finest type of figured veneer. Burls are too unique and valuable to be measured in board feet; instead they are bought by the pound.

In order of volume and commercial importance the western burl source is as follows:

(1) Bigleaf maple (Acer macrophyllum).

(2) Oregon myrtle or California-laurel (Umbellularia californica).

(3) Madrone (Arbutus menziesii).

These burls range from 700 to 2000 pounds in size.

According to Alfred A. Loeb, a prominent burl expert and dealer in Portland, Oregon, the average stumpage price for these western burls is about $5.00 to $10.00 per ton. The logger receives about 4 to 5 cents per pound, depending on grade, for the burls delivered. Mr. Loeb also states that during 1948 he shipped close to 50 carloads of burls from Washington and Oregon. Many of these choice specimens find their way into foreign markets. At one time Mr. Loeb received a maple burl from Lebanon, Oregon which weighed 15,480 pounds.

Bow Staves

Bow staves from Pacific yew (Taxus brevifolia) are another specialty wood product. This species grows in scattered parts of the Northwest and is not very plentiful. The tree seldom attains a large size, but the wood is highly prized for its durability, elasticity, resilience, and fine texture. These qualities make it highly suitable for archery bows, cabinet work, and turning blanks.

Rustic Furniture

Madrone, willow, and other suitable species are used in lawn furniture, baskets, wicker furniture, and for rustic interior effects. Peeled saplings and small poles are generally the most desirable.

Miscellaneous Products

Fruit and Berries

Wild fruit and berries are commercially important in many localities. For example, in 1948 the M. E. Mercer Company picked and shipped from the Pugest Sound area over 350 tons of wild huckleberries. And that's enough raw material for a lot of pies! Other wild fruits used are trailing blackberry (or dewberry), evergreen blackberry (or cutleaf blackberry), Himalaya blackberry, western red raspberry, blackcap (or whitebark raspberry) Oregongrape, wild plum (or Klamath plum), and blueberry elder.

Tree Seeds

With the advent of tree farms and increased planting there has been a growing demand for seeds and cones. Markets and requirements vary with localities and with the seasons. Prices and specifications for many of the cones and seeds harvested are not fully known, but last year the South Olympic Tree Farm was paying from $1.00 to $1.50 per bushel for suitable Douglas-fir cones. The National Forests, private companies, commercial seed dealers, and the State Forestry Departments also harvest cones.

Bark

Bark as a tannin source is finding a limited use in the Northwest. Muir and McDonald Company of Dallas, Oregon were paying $18.00 per ton

during the summer of 1949 for dry, second-growth Douglas-fir bark delivered to their tannery. Small sawmills and local piling operators supply their needs. This fir bark tannin is used to tan skirting and strap leather. There is also a good potential source of tannin in the bark of Western hemlock, but it is not yet being used.

Others

In addition to those described, the forest yields quite a number of by-products, insignificant at present, but which, under proper conditions and prices could be developed. For example, there is a practically unlimited supply of conifer boughs and other waste in logging and thinning areas that could be utilized for their oil if cheaper methods of collection and distillation could be perfected. Other minor products of limited uses, but which might become more important under changing conditions and management, are: dyestuffs, honey, maple sugar, nuts, flowers, rhododendrons, and novelty items.

Conclusion

Forest owners and users in the Pacific Northwest are beginning to realize both the present and the potential value of the forest's minor products. Already several of these products, Christmas trees, cascara, florists' greens, and foxglove are considered by some progressive operators as profitable crops and probably worthy of intensive management or perhaps even artificial cultivation. For a good many years foresters have been emphasizing the importance of integrated or multiple use. Though the minor forest products are secondary to timber, water, grazing, recreation and wildlife, they do make a worth while contribution to good forestry and to what we so proudly cherish as the American way of life.