THE ADVISABILITY OF THE GROWTH AND MANAGEMENT OF RED ALDER IN OREGON

By
Alvin L. Parker

O.A.G. School of Forestry
Corvallis, Oregon
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OREGON'S HARDWOOD SUPPLY

The hardwoods of Oregon are limited in number, and as a general rule are considered as rather unimportant. The principal species of this group are red alder, black cottonwood, broadleaf maple, Oregon white oak, and Oregon ash. Another species that is quite important is Oregon myrtle (Umbellularia californica), but it is only found within a limited range in southwestern Oregon and northern California, and for that reason can hardly be considered as a hardwood of general importance in Oregon. Others of this number are, however, fairly important and have been quite extensively used. Of this group red alder, black cottonwood, and broadleaf maple have been the principal contenders.

Importance of Red Alder as an Oregon Hardwood

Red alder (Alnus rubra) has been classed as the leading hardwood of the Pacific Northwest by various authorities and from personal knowledge and observations it may safely be said that it is likewise the most important hardwood in Oregon. It is an admitted fact that very little is known of the actual amount of red alder in this state but from the statistics of all the furniture factories, veneer plants, etc., using the various hardwoods, it has been determined that this wood heads the list in so far as the native hardwoods are concerned.
The only data available as to the total amount of standing red alder timber in Oregon is given in U.S.D.A. Bulletin 1437, "Red Alder of the Pacific Northwest." This bulletin, which is based on 1923 observations, estimates a total of about 1,110,000,000 board feet for Washington and Oregon, of which Oregon has practically 750,000,000 board feet. These data, however, as stated by the authors, are only a rough estimate and the figures cannot be considered as the absolute amounts, but rather may be considered as a fairly accurate indication. We might think the above to be too small an amount to be concerned about, but we must remember that the estimate was only that of the present merchantable stand and had nothing to do with the stands that are already advancing rapidly to a merchantable size.

Red Alder vs. Eastern Hardwoods

As compared with hardwoods of the East, when used for the same purposes, red alder will be out-classed by such hardwoods as white oak, mahogany, black walnut, etc. If, however, it is used for numerous parts of furniture, chairs, etc., where little strength is required, the alder will prove just as satisfactory. Then again, if the comparative prices of eastern and western species, in respect to the amount of service obtained, are considered, the average person would probably be inclined to accept the material with the alder included. In this assumption, however, the qualities of the wood would have to be known by the buyer, or he would fear to take the chance. In opposition to this idea would be those well blessed families, financially speaking, who would rather get the commodity which had the
higher priced materials than to get a low priced stuff. They buy more on a basis of cost and appearance than utility.

Competition must not be looked upon as the whole story in this discussion of eastern hardwoods vs. red alder, for in a sense it is really a mutual benefit that the two extremes are playing toward each other. By this is meant that many of the eastern woods, more beautiful in figure, and stronger, may be combined with this somewhat inferior wood of the west to a decided financial and economic advantage. This would prove to be not only an advantage to the dealers in the finished products, but would also be a decided economic benefit to the whole American people. That is, the valuable trees that would have been used in some of the less conspicuous places, or in places where a small amount of strength and rigidity were needed, would not have to be used, and the inferior material could thus be employed, which would tend toward a perpetuation of the more valuable materials.

Uses of Red Alder Wood

From notes taken in visiting several alder mills and furniture plants in Oregon and from U.S.D.A. Bulletin 1437 the following set of conclusions in regard to the uses of red alder were obtained. The basis for this discussion is segregated into primary and secondary uses. The primary refers to those certain concerns or industries that use the alder in its log or bolt form, while the secondary refers to the industries using lumber or dimension stock which is to be re-manufactured into the various types of smaller sized articles.
Of the former type, lumber and veneer are the principal representatives. However, fuel is often used to quite an extent in certain locations where the farmer is clearing his land for agricultural purposes or the like. Another rather minor primary use of red alder has been for its charcoal production in certain types of industry. For this purpose one cord of alder will yield from 650 to 700 pounds of charcoal.

From experiments conducted by the Forest Products Laboratory it was demonstrated that red alder was well adapted to paper pulping by the soda process. While this is a possible avenue for its use it has never been devoted to this purpose unless, by chance, an occasional tree or so was mixed with other species. Even though this would be a possible desireable use it is not likely that it will ever be used for pulping to a very great extent. This is readily seen when we consider the various other uses for which it is adapted, as well as the various other more abundant woods that are now used for paper pulping. However, the fact that there are other more abundant species for such a purpose should not be an entire discredit to the quality or possibilities of red alder.

Among the secondary uses for red alder is furniture making, which is the most important of all in regard to total amount of alder consumed and amount of money received in return for it. It has often been thought that furniture made from red alder was very inferior to any other type but this in a good many respects is an erroneous idea, for there are numerous uses that it is just as capable of being devoted to, in the arts of making furniture, as any other type of hardwood. However, it must be
remembered that red alder is not one of the most expensive hard-
woods nor is it one of the most beautiful of figure, but for
many of the general purposes in furniture making it has proved
itself a very satisfactory material. The fact that it is being
used more and more each year is proof enough for this statement.

U.S.D.A. Bulletin 1437 states that this furniture industry
is divided into "4" general classes, based on the type of furniture
manufactured. These classes are "combination walnut or mahogany",
"oak", "enameled", and "upholstered or overstuffed".

In the "combination walnut or mahogany" red alder is used for
turned parts such as legs and stretchers of tables and chairs, for
chair and table rails, table slides, drawer bottoms, sides, and
ends, mirror frames, and for hidden parts.

The "oak" furniture makers use red alder for panel cores,
and for drawer sides, bottoms, and ends, which material goes to
make up house, office, college, and library furnishings.

"Enameled" furniture, which includes bedroom, nursery, and
kitchen furnishings, such as dressing tables, commodes, chiffon-
iers, breakfast tables, cabinets, cribs, and chairs, is made
quite extensively from red alder. In these uses alder finds a
place in nearly all parts of the furniture except where special
strength is required.

"Upholstered" furniture includes davenports, davenport beds,
and overstuffed chairs. In this red alder is confined to the legs
and parts of the framework requiring but moderate strength.

The authors of Bulletin 1437 treat the chair industry as a
separate use for red alder. The main reason, however, being the
large amount of alder that is used in certain localized furniture
plants in various parts of Oregon as well as Washington. This branch of the furniture industry is rather specialized and since it uses a large per cent of the total cut it might well be classed as a separate use for the wood.

Other less important secondary uses for the wood, with regard to the total amount of wood used are, woodenware and novelties, fixtures, handles, paper plugs, dairy and apiary supplies, etc.

When the desirability for the use of red alder becomes entirely satisfactory for all the above mentioned purposes there is no doubt but what many lesser important uses will be found for alder. Such, however, is merely speculative but is among the most reasonable of assumptions, when the scarcity of hardwoods in the west is considered.

**General Prices of Red Alder**

Stumpage prices based on the log form in the woods varies between the limits of $0.50 and $3.50 per thousand feet. A price of $2.00 is considered a fair rate providing the timber is of good size and quality and quite accessible.

Another basis of price in log form that was quoted by the Doernbecker Furniture Company of Portland, Oregon was $20.00 per thousand board feet F.O.B. Portland. Other prices F.O.B Portland, etc., have ranged from $18.00 to $20.00 per thousand for the last year or two. This method of selling should be as reasonable as any and, if properly applied, should be as accurate. However, the Doyle Log Rule is employed, which appears to be unjust to the man selling the timber. The reason for this is that this Doyle Rule gives an undersale for small logs and an over-
scale for large logs. This would probably be fair if there were enough large logs, but such is not the case with alder, for it is not a tree that gets very large in diameter. Thus the company is continually getting the advantage due to the under-scale on small logs. The real trouble probably lies in the fact that few people actually know the differences in the values obtained by the use of various log rules. To such people a log rule is a log rule, and its results are not considered.

There are also other methods of pay on the log or "camp-run" basis that are often used. That is, the logs may be sold for a certain price on the railroad, on the highway, on tidewater, or even in the woods as cut. Each of these, of course, represents a different condition and thus a different price, and for that matter each type will present a different price due to the length of haul to the mill from these various places of delivery. To quote a price, then, would not be a very valuable index under such varying conditions.

A price of the lumber in board form is the only other method of buying and selling alder. These prices again will vary through rather wide limits. However, they will in most cases be somewhat more uniform than on the log basis. The prices quoted by the Doernbecker Furniture Company of Portland, Oregon were $28.00 f.o.b. Portland for green alder lumber, and $30.00 per thousand board feet for air dried lumber. This company covers a large area in western Oregon and Washington, and thus represents a fairly average price for the entire area. Such prices as the above are only prices made to small mills that do nothing else except cut the raw lumber and sell it to the furniture companies in the lumber form.
A few companies making furniture are too small to saw their own lumber or to have a dry kiln to dry their lumber, but merely depend upon buying it in kiln-dried form from other mills or companies that have such material. Prices for kiln-dried lumber in such cases will probably be in the vicinity of $45.00 to $50.00 per thousand feet f.o.b. mill, or center, as Portland, Oregon.

**Characteristics and Growth of Red Alder**

Alder is what might be termed a tall, rather straight, slender tree with a clear bole for about one-third of its height. The crown is somewhat conical to domelike with a rather sparse arrangement of long, upright limbs which droop downward at the ends. The bark is grayish white in color, smooth looking, and rather thin with an average of from one-fourth to one-half inch in thickness. A shallow, rather widespread fibrous root system is also characteristic. The size of this tree might well be classed as an average of the western hardwoods, or slightly smaller. This average ranges from 16 to 24 inches in diameter by 75 to 100 feet in height. Many of the old specimens, however, may be found that are 3 feet in diameter and exceptionally 4 feet with a height of 110 to 120 feet.

The age of red alder is an important point to note in a discussion of its management. It is a very short-lived tree, reaching its average age at about 50 years. Trees 75 to 100 years old are found, but there are very few of these in the 100 year class. Thus, when the rapidity with which these trees grow, to attain their size, is considered it can readily be seen that an important bearing upon its management is encountered.
The Habitat of Red Alder

Red alder usually occurs along streams, river bottoms, and on moist situations of adjoining hillsides. In such places a pure stand of rather limited extent is quite characteristic. The principal species with which it occurs in mixture are the willows, black cottonwood, grand fir, broadleaf maple, vine maple, Oregon ash, Sitka spruce, Douglas fir, western red cedar, several species of oaks, dogwood, and cascara. A rich, deep, humus, fairly well drained, gravelly to sandy or loamy soil is desired for the best growth and development of the tree. With all of this the outstanding point to be noted is that an abundance of soil moisture is the prime requisite for its best growth and development. However, many small pure stands occur on fairly dry hill-sides or in old burns, but are liable to be crowded out eventually by trees such as Douglas fir, hemlock, western red cedar, white fir, etc., that get larger than the alder, thus shading it out. Another point in this connection is in regard to its tolerance, which according to various authorities is less than most of its common associates.

The Economical Aspects of Growing Red Alder

Under this head will be considered the various factors that will tend to act as an agency for or against the growing of red alder as a business proposition.

The type of ground to be utilized, with special references to its value for alder production as compared with agricultural values, will first be discussed. In this connection the statement has often been made that the ground which alder occupies could be much more advantageously used if in agricultural crops.
This, however, would not be true except in a few cases. These few cases would concern land located where the area in alder was in the center of a farming community and, in addition, in the center of a fairly wide river valley that was capable of producing more from farming than from the alder crops. Even under such conditions it might be a question as to whether it would not pay the owner to operate the land as a woodlot in connection with his farm.

Another point to be scored against the above is that there are numerous small, non-agricultural stream bottoms that are really fit for nothing else except to grow red alder or some other species of equal moisture loving capacity. The main thing that makes many of these stream bottoms non-agricultural is that they run through narrow valleys in the mountainous regions in Oregon. In such cases the only type of farming that could be done would be on the side hills, a type of agriculture which is not warranted nor necessary at the present time. The only thing that should be guarded against is that these small, pure stands are not destroyed and that they are fully and efficiently utilized when merchantably mature.

If such steps as the above are not taken, then a real economic as well as social problem has arisen, which should be dealt with accordingly. By that is meant that this timber, which really represents an asset to society, must be so managed and so utilized as to give the greatest possible returns for the benefit of the greatest possible number. To meet such ideal use, however, various investigations would have to be made as to the final value of the red alder products in Oregon as com-
pared with eastern hardwood products delivered to Oregon.

From a comparison of the prices and uses of these two extremes of hardwoods the present available data indicate that red alder is a very desirable hardwood for many purposes. This idea is also being rapidly recognized by many of the potential users of the wood which indicates that, instead of a problem of advisability of growth being so serious, a problem of supervision and management will be the more important. This is readily seen when we compare the decreased stands of eastern hardwoods with the present stand of red alder in Oregon. The efforts should be devoted more and more to saving the present stand of red alder and to securing a new crop. These two points, however, at present are not realized by many of the small owners or by many of the large operators in Douglas fir, Sitka spruce, etc. These small owners have not realized the value of red alder except for fuel or the like, and the large operators have been more interested in the protection and utilization of their major crop, paying little or no attention to the minor hardwoods of which they come in contact.

Such conditions as cited above must first be overcome before an adequate program of growth and management of red alder can be made a paying business. This, however, will be a big problem with many of these large operators. The reason for this is that they will be unwilling to protect the alder along the streams when such streams present favorable logging chances. If such operators cannot be won to the cause of preserving the alder trees a real economic loss to society will occur.
Conclusions

When all of the factors are considered which have to do with the growth and management of red alder the general conclusion is that it is an advisable venture. The following reasons will serve to prove the contention:

1. Red alder is the most abundant hardwood in Oregon as well as in the Pacific Northwest, and is being depended upon for the various furniture purposes to an extent nearly as great as the eastern hardwoods.

2. The eastern hardwoods are being rapidly depleted causing a corresponding increase in their prices, which gives alder a decided advantage.

3. When the uses to which red alder is capable of being put are fully known it will be in much greater demand, for a large majority of people look upon the utility of a piece of furniture as well as upon its beauty of figure. The recognized use by the general public is thus an outstanding indication of a greater demand.

4. The time required to place a new crop into merchantable form is comparatively short, 40 to 50 years, and will give more people an incentive to protect their present young stand as well as to secure new crops. In this connection, however, little has been determined as to the best method or methods of getting a new crop under way, but it seems quite probable that natural regeneration will account for a considerable amount. The areas which do not seed naturally may then be planted from one or two year old alder seedlings. However, it is unlikely that very much planting will have to be done, for alder reproduces itself naturally to a marked degree.
5. The small non-agricultural lands along certain streams can be put into alder farms or woodlots, which will serve as a source of increased revenue to the owner, and an indirect asset to the state.

6. An increase in value of red alder due to changing economic conditions is inevitable. It only remains to be seen how much these increases will be. Any figure as to comparative amounts would be too great a guess to be of much value.

7. When the present uses of red alder becomes more generally known to the ever-critical public it will serve as a stimulus to create many new uses of the wood. This, however, is merely speculative, but is among the most reasonable of assumptions to make when the scarcity of hardwoods in the west is considered.

8. Another possible use for growing red alder is that of a nurse crop to some of the more important coniferous species, and then, after having served this purpose, of being thinned out when merchantable under a certain system of management, which system could be easily determined.

Red alder is thus becoming one of the valuable trees of Oregon, and any measures for its growth and management should be sponsored by all persons interested in the general welfare of the state. The prosperity and perpetuity of any country or nation depends upon the ability of its leaders and people to forecast the important problems of the day and to meet them successfully and intelligently. The growing and managing of red alder in Oregon has been put forth as advisable. It is thus necessary for all to work toward the furtherance of that ideal.
SOURCES OF INFORMATION

UNITED STATES DEPARTMENT OF AGRICULTURE—Bulletin No. 1437
NOTES AND DATA COLLECTED FROM VARIOUS FURNITURE FACTORIES OF OREGON
PERSONAL KNOWLEDGE AND INVESTIGATIONS OF THE SUBJECT