

THE FARM FORESTRY SITUATION IN WESTERN WASHINGTON

MILTON M. MOSHER, Assistant Professor

Department of Forestry and Range Management, Washington State College

EXISTING CONDITIONS

The forests of Washington have been in the past and still are one of its most important natural resources. These forests are concentrated mainly, as is generally well known, across the northern and western parts of the State. The greatest volume and heaviest timber growth is to be found west of the Cascade Mountains in what is commonly known as the Douglas-fir region. This paper deals primarily with this section of the State. A large portion of the State's population is dependent either directly or indirectly upon the forest and its industries. For many years Washington was first in lumber production but has now had to take second place due to depleted forest conditions. A Forest Service study of Grays Harbor County, for instance, indicates that the forest industries there must expect to draw more and more of their raw materials from sources outside of the county. Also many of the larger wood users have in recent years put men in the field for the express purpose of locating timber land to be logged or to buy the logs produced by "gyppo" loggers.

These buyers have, in many instances, turned to farmers for logs or to small operators who are cutting logs from farmer-owned lands. How important are these farm woods? Approximately 10 per cent of the forests of Washington are on farms, and furthermore, about 16 per cent of every farm, on an average, is forested. Census figures for 1944 show that there is close to one million acres of woodland on farms in western Washington. In percentage this amounts to about 40 per cent of the total land in farms. This can and should

be considered as a source of raw forest products to be used in stabilizing our forest industries and communities as well as providing a substantial income for the farmers themselves.

It is also realized that farm forests have not as yet begun to provide as much raw material as they should. Private industry, state and federal agencies are now working with farmers toward this end.

THE PROBLEM

Farms are small holdings scattered throughout western Washington and managed by individuals. The products and aims of the farmers are just as diversified as could be found anywhere. They range all the way from the local school teacher who supplements his income with an acre of berries up to the man who owns a thousand acres or more and hires others to operate it for him. Even many of the part-time farms have worth-while forest holdings and practically all of the larger farms have woodland on some parts of them.

At this time it might be pointed out that from the land management viewpoint, there is a second problem to be considered: namely, the production of agricultural products is limited, to a fairly definite extent, by the soil. Most farms in the valley bottoms have considerable good land, but as we move back into the foothills, the amount of Class I soil gets smaller and smaller. In turn, a farmer must have more of the under cultivation to make a living. The more land he has under the plow, the more work it takes, and soon he may have to hire additional help to handle the crops. With the hiring of more help, he pays the profit out in wages. In

most cases this poorer agricultural land once grew trees and the question arises as to whether the farmer could do better with a timber crop than with an agricultural crop.

Unfortunately, farmers as a group are not trained in the handling of forests and forest land, and therefore shy away from cutting products to sell from them. They ordinarily do not know the volume and value of their standing trees nor how to go about marketing them. It takes too long to grow a tree to merchantable size for a farmer to take a great deal of interest in a young stand or in reforestation. Taxes on forest land from which little or no income is derived is another deterrent. These are a few of the problems encountered when trying to interest farmers in the practice of forestry on their woodland areas.

In order to help find some of the answers to better farm forestry and better land utilization, a study was instituted last spring by the Washington Agricultural Experiment Station at Pullman under the joint sponsorship of the Departments of Agricultural Economics and Forestry and Range Management. This study was entitled "A Study of the Productivity and Economic Returns of Farm Woodlands in Washington." It was desired to get as complete a record as possible not only of the forest business on farms but also of the agricultural business on the same farms for the same year in which the cutting was made. To secure this information, a farm-forest business record for one full year was developed. The agricultural record sheet was "streamlined" from the table used by the Department of Agricultural Economics in securing farm business records. The forestry record table was worked up in an attempt to cover all possible situations and forest product sales. Along with the gathering of this information, an inventory of the woodland area on each farm was made. It was felt that the only way to determine how a farmer was making a profit was to determine whether the returns came from the annual growth on

his timber or from the liquidation of his forest resource. This job proved to be very time-consuming, but it was felt to be a necessary part of such a study.

In taking the records they were limited primarily to individuals who had some agricultural enterprise as well as a forestry enterprise. A few "tree farmers" only were included in the group but it is believed that they constitute a different problem and should be considered in a separate study. It was also necessary to limit the study to those farmers who had cut within the past year in order to have their agricultural and forest enterprise for the same period. Otherwise, due to many price changes from year to year a great many adjustments would have had to be made.

When the above decisions had been made, the problem resolved itself in finding those farmers who had made cuts in their woodland within the past year. We were assisted in this primarily by the Soil Conservation Service although County Agents under the Agricultural Extension Service and Foresters lent a helping hand. Local sawmills, pole dealers, and others were also contacted to help locate these men. It should be added here that the Soil Conservation Service also allowed the use of their farm plans and gave field assistance whenever possible. Most of the records were taken in Whatcombs, Skagit and Snohomish counties, although a few records were taken in Thurston county. In all, about forty records were collected and following are a few of the findings that were made. These records have not as yet been fully analyzed; therefore, it is impossible to cover the field completely at the present time. It is now planned to continue this study through another year or more and then will undoubtedly be many more things on which to report. The writer has been ably assisted in this project by R. Deane Easterbrooks, a graduate student in the Department of Agricultural Economics

THE FINDINGS

The farms visited varied from

acres to 880 acres in size with an average of 170 acres. The wooded portion of these farms run from a 5-acre minimum to a 442 acre maximum. The forested area average 90 acres per farm. Computing from the averages, the farms studied are 53 per cent forested which is considerably higher than the 16 per cent indicated for the State as a whole or the 40 per cent for western Washington. However, the writer does not consider this to be serious in that the results would be similar for smaller farm woodland areas.

Of the 36 records used for this paper, some 34 had made cash sales either on their place or delivered to market and 35 had made use of the forest products at home. Three individuals used their products entirely at home and two farmers sold all their products, using none at home. In terms of value the sales of wood products ran from \$22 to \$16,536 which when averaged shows that cash sales amounted to \$962 per farm. In that the one sale in excess of \$16,000 is "out of line" with the others, it shall be dropped from consideration and then the average cash sale is \$492 per farm. This figure seems to be more in keeping with what should be expected from farm forests. Naturally, there are always a certain number of large individual sales which tend to distort the picture. One other variation of these income figures should be cited here. It was indicated that a few of the records were taken where the farmers were "tree farmers" only. When the receipts from those farms are deducted from the total and a new average taken, the income per farm becomes \$501—a slight increase over the other average. This can be partially explained by the fact that at least two of the "tree farmers" had been cutting for only a portion of the year considered.

Products sold from the farms in order of value were sawlogs, poles, fuelwood, furniture logs, shakes, pulpwood, fence posts, barn poles, cascara bark, shingle bolts and Christmas trees. It should be kept in mind that this distribution of products is not necessarily correct, but

the first three seem to be a normal situation for present times. The great demand for building materials naturally brings sawlogs to market and most of the poles seemed to be destined for Rural Electrification Administration projects. The value of sawlogs sold was nearly four times that of poles in second place, and gave an average income of \$752 for the 25 producers. In turn it may be noted that the value of poles sold was three times that of fuelwood sold. It averages \$406 per pole producer and the 11 fuelwood sellers took in \$140 apiece. The greatest variation in money received for a product seemed to be in fuelwood with limits of \$7 and \$12 per cord. Most of the products were sold on the farm, but a few trucked their products to market or paid a trucking fee and thus received a higher price. You might wonder why there were no sales of ferns from these farms. This cannot be answered definitely except that none of the farmers contacted had sold any. It appears that harvesting of ferns is concentrated mostly in southwestern Washington, a section not studied closely as yet. The returns on an acreage basis amounted to \$5.72 per acre without the large sale (\$16,000 plus) included and \$10.69 per acre when that sale is included.

Although we are primarily concerned with cash returns, we must not overlook the forest products cut and used on the farm itself. In evaluating these products the price which the farmer could get for the product on his place was used. Values of these products used at home had a spread from \$38 to \$1,582 and averaged \$194 per farm. No attempt has been made to determine how much these products would have cost the farmer to buy on the open market, but it is undoubtedly a much higher figure. As would be expected, fuelwood was the most important home use of wood averaging \$96 per farm user. Despite the advent of electricity and fuel oil, wood still seems to be the most common fuel used in farm homes for cooking and for heating. A number of farmers proudly showed barns, milking sheds and other buildings constructed

for the year commencing in July, 19 and running to June 30, 1946.

This indicates that the sale of forest products constitutes nearly 24 per cent of farm income for that particular year. If the one large sale of forest product (\$16,000 plus) is left out of the computation, then the sale of forest products amounts to about 14 per cent of the farm income. Even this small amount is a substantial percentage of the total and is not to be scoffed at or overlooked.

GENERAL OBSERVATIONS

Personal observations based on rather extensive coverage of the farm forests of northwestern Washington indicate that there is a considerable amount of good forest land on farms. In the Douglas-fir type where site could be readily determined, there were many farms forested in sites II and III and none of served in site class V on the farm studied. Stocking of most of these stands could be considered adequate. In general, they were not in a run-down condition. Very few farmers have carried on much in the way of cultural operation on their forest areas, but this seems to be more a lack of knowledge than lack of willingness to do it.

Of the farms studied, seven had their own sawmills. These ranged in value from \$150 to \$7,000 according to the owners own estimates. It cannot be determined that the farmer with his own mill can produce his own building material and even cut some to sell if he has time. On the other hand it cannot be recommended that the average farmer have his own sawmill. It takes a great deal of ingenuity to build a sawmill cheap enough to operate it for a profit with the average farm source of raw material. There are so many little sawmills starting up in the foothills of the Cascades in particular that a farmer can get custom sawing done quite reasonably and therefore does not need his own mill. Also the author has heard of three portable sawmill outfits operating on the West Side—one in southwestern Washington, one in Whatcom County, and a newly started one in

entirely from timber and boards grown on their woodlands. In terms of value sawlogs were in first place, averaging over \$500 per user. However, three times as many farmers produced their own fence posts, having an average value of \$39 per producer. A few poles and shingle bolts were also used at home, but these were minor in comparison to the foregoing.

Are these farmers liquidating their holdings to take advantage of the high prices or are they practicing sustained yield forestry in one form or another? It is possible to answer that question as a result of the inventories taken. The 36 farms studied may be classified under the following headings: Overcut (actually and theoretically), Undercut, and Just Right. To explain the two sub-headings under Overcut, let us say this: the farms classed as being actually overcut are those where practically the entire stand was removed and where it will be many years before another cutting can be made. Those classed as theoretically overcut are farms on which three to five times the annual growth was removed. If we were considering a yearly cut, that would be an overcut, but if we have a five-year cutting cycle, the cut is just right. To list the farms in each group, 9 were actually overcut; 6 were theoretically overcut; 11 were undercut; and 10 were about right. This is too small a group to draw any widespread conclusions, but it indicates that farmers do not have too much of the "cut out and get out" policy. Besides the farmers from whom records were taken, we talked with as many more, and the majority of them were as forestry minded as their limited knowledge allowed them to be. None of the records were taken for a clear-cut area, but a few of the areas came too close to being clear cut for the good of the residential stand.

Let us draw a comparison between income received from the agricultural enterprise on these farms. The income from agriculture averaged \$3,097 per farm. The total average farm and forest income is \$4,059. These figures are

Skagit County. There may be others which have not been noted.

There is at least one danger in connection with these many new sawmills. They are dependent for their raw material mostly upon small woodland tracts, many of which are farmer-owned. Already there is evidence of considerable competition for logs in certain areas. Although this tends to increase prices, it is very apt to lead to overcutting of many areas which is not to be recommended.

This study has indicated, in general, that foresters can make many contributions to the field of research which will enable farmers successfully to practice forestry. All too little is known concerning some of our common forest trees. For instance, there are no yield tables available for Western redcedar, *Thuja plicata*. Also how long does it take a tree of this species to produce a 20-foot pole and how much longer after that until it will make a 35-foot pole? Another problem that needs much study is that of the growth and yield of red alder, *Alnus rubra*. There are hundreds of thousands of acres of this species in western Washington. It is considered by many as the most important of our western hardwoods, yet very little research has been carried out on it. We might also add that there is ample room for study of all types of cutting in second growth Douglas-fir, *Pseudotsuga taxifolia*, stands. It is hoped that some of these studies may be started in the not too distant future.

It is definitely felt that a farmer can only make a worth-while enterprise from his woodlot by doing some of the work himself. Stumpage sales of timber are seldom satisfactory. The farmer often sells his timber for a lump sum represented to him as a certain value per thousand board feet. The buyer too often takes advantage of the farmer's lack of knowledge concerning volume and value of timber. Also many stump-

age sales are on a clear cut basis which is not sound practice for young stands that are typical of farm forests. To illustrate some of these points, here are some figures furnished by Mr. William Tinney of the Soil Conservation Service at Sedro Woolley. These figures show the results of thinning one acre of 35-year-old Douglas-fir on site II. This farmer had his own sawmill. The thinning amounted to 5,300 board feet log scale and 6200 board feet mill tally showing an overrun of 16.9 percent. Tops and slabs were sold for fuel and amounted to 9½ cords for which \$66.50 was received, and the lumber sold for \$217, or a total income of \$283.50. The time spent in felling, limbing, bucking, yarding and sawing was 158 hours and costs of mill operation, depreciation, and a horse for skidding was figured at \$42.10. Stumpage value of \$5.00 per m.b.m. was allowed. The labor return amounted to \$1.35 per hour. In view of the fact that most farmers do not have sawmills, let us examine these same figures to see what the return might have been. If he had made his logs and yarded them to a landing on his own place, he could have received \$22 per m.b.m. for the 5300 board feet, or \$116.60. Fuelwood from the tops is estimated at 4 cords or a money return of \$28.00. The total return then becomes \$144.60. After deducting \$26.50 for stumpage, the return is \$118.10 which now shows a labor return of \$1.23 per hour. The other possibility would be for the farmer to make a stumpage sale. If he had done that, his total return would have amounted to only \$26.50 based on \$5.00 per m.b.m.

These figures help to show the possible returns from farm woodlands. They indicate clearly that the forested portion of the farm should be considered as a valuable asset. They also show that forest lands can yield a satisfactory return to the farmer as well as from his cleared acres. Farmers need help in handling their forest lands properly and foresters should accept their need for information as a challenge.

OUR CHOICE—A MILD SINGE OR A GOOD SCORCHING

C. K. LYMAN

Fire Chief, Kamiku National Forest

This article presupposes the deliberate use of fire in managing forest lands. Since some readers may not understand and appreciate reference to the deliberate use of fire, explanation is in order. We shall not consider fires such as those that many farmers set to clear cut-over lands. Such clearing fires are ordinarily set and permitted to burn without any effort to control them. Often they burn much more than was intended. "Prescribed burning" may be defined as "the application of fire to land under such conditions of weather, soil moisture, time of day and other factors as presumably will result in the intensity of heat and spread required to accomplish specific silvicultural, wildlife, grazing or fire hazard reduction purposes." We have learned enough about the techniques of prescribed burning so that we can burn large areas and control the fire within predetermined boundaries.

Now consider the purposes of burning. There are two general needs for using fire. First, as an aid to fire control. Second as a means of increasing land productivity. Axel Lindh, the Chief of Timber Management for Region One, stated this nicely when he said: "Prescribed burning is needed to convert high hazard land of low use value into low hazard areas of high production."

The results of a year of study by the writer of fuel reduction as related to fire control in the Northern Rocky Mountain Region indicated clearly that large areas of natural burn can be avoided in the future if we use fire to reduce the worst messes of snags, wind-falls, logging slash and other debris. In general terms, at least two acres of natural burn can be avoided by using prescribed burning techniques to reduce

one acre of the most dangerous types.

The fuel reduction study also indicated that quantity and quality of timber and forage can be increased materially by the proper use of fire. There are hundreds of thousands of acres of good timber growing lands in old burn on which young tree growth is either scattered or non-existent. With treatment, many years will elapse on most of these lands before they possibly become fully productive. A only practical way of restoring their productivity is to clean them up with fire and then plant or seed the desired species. Another condition requiring treatment with fire exists on thousands of acres supporting overmature deciduous hemlock and grand fir stands. These stands now occupy some of the best white pine sites in the region and will remain unproductive indefinitely unless we hasten Nature's process of burning and establishing a young timber stand. The loss of possible timber growth is significant on these areas. There are about 70,000 acres of such stands needing treatment in the white pine type of North Idaho.

Although large areas of uncontrolled burns can be avoided by prescribing burning on relatively small areas, a large number of other areas converted from a state of low to high production through controlled use of fire, some foresters still contend that we should not burn intentionally because of resulting soil deterioration. They have a point. Sure fire may destroy some soil nutrients and it can set the stage for soil erosion. Discretion and caution must be used when deciding where and how to burn. However, it would seem wiser to avoid some losses on limited areas and avoid uncontrolled burning of much larger