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FULL UTILIZATION OF FOREST RESOURCES IN THE PACIFIC NORTHWEST

by

Ralph W. Marquis

Pacific Northwest Forest & Range Experiment Station

Forest resources contribute to the welfare of a region in so many ways and in such diversified ways that any discussion of the benefits from full utilization must begin at the end, with the final product or service rendered by the forest. The newspaper you read, the water you drink, the house you live in, the trout you catch, and income you receive as a woods or mill worker, the sawdust you burn, the steaks or the fruit you eat--all have their origin in the forest or are dependent on the services rendered by forests. And your interest in full utilization of forest resources is determined by your primary interest in the benefits, whether you be a water user, a stockman, a sportsman, a logger, a mill operator, or a consumer of the varied products of the forest.

The farm economy is directly interested in the utilization of forest resources. Some farms include woodlots, and the owner is interested both in the indirect benefits provided by his stand of trees and in the products they will yield for the market or for his own use. Many farmers are part-time woods or mill employees. The farmer is interested as a consumer, for he uses wood in many forms, from fuel and fence posts to lumber for house and building construction or wraps and containers for his fruit crop. The stockman and the owner of irrigated land have a direct interest in the effects of forest on regulated stream flow and the storage of water. Finally the farm economy is interested in the industrial aspects of forest utilization, for the level of industrial activity and the volume of employment supported by forest industries determine, in part, the local market for agricultural crops.

Benefits from the forest begin with the mere existence of a forest cover, and continue to flow from the conversion of timber into raw materials all the way to the final consumption of forest products. For purposes of discussion it seems logical, therefore, to consider intensified use from three points of view: Use of forest land, use of forest materials, and use of raw or semi-finished materials in manufacture.

Forested land can be devoted to any of a number of uses such as timber production, grazing, recreation, game refuges, or watershed protection. In determining the proper use of forest land both physical and economic factors are to be considered. Some lands can produce a forest cover adequate for watershed protection but too poor for commercial timber. Many lands can support a forest cover that is economically adapted to several uses. Fortunately, one use may not necessarily exclude another. Forest land properly logged or properly grazed can still store water, provide recreational facilities, and perform other beneficial functions. Multiple use, when it is economically and physically possible, is the basis for the fullest utilization of forest land.

In Oregon and Washington there are some 54 million acres classified as forest land. Seven and a half million of these are classed as noncommercial, either because the timber on them is reserved from cutting or because it has no commercial value at the present time. Of the commercial forest area, 57

percent is classed as virgin and second-growth saw-timber area, 16 percent is pole timber, 13 percent is satisfactorily restocking in seedlings and saplings, and 14 percent is poorly stocked or denuded. This indicates that our commercial forest land is not being fully utilized for timber production. A comparison of current and potential growth shows this condition more clearly. Current growth in the two States is estimated to be about one and a quarter billion cubic feet a year. The potential growth, if our forests were stocked with trees of different ages and were reasonably fully stocked, would be about 3 billion cubic feet a year. In other words, we are now utilizing less than half the potential timber-growing capacity of our forest lands.

Full utilization of our land cannot be accomplished immediately. Our virgin forests add nothing in net growth, but the full use of this land in timber production must await the orderly harvesting of our virgin timber; and the harvesting of our virgin timber must be conducted in an orderly manner. We could, if we wished, cut most of our remaining old-growth in a relatively few years. But the result would be a long period of industrial stagnation while we waited for young stands to reach economic maturity. In the interests of a permanent and stable forest economy our cutting of old-growth stands must be spread over a long period of years, and fitted into our slowly increasing supplies of mature second growth. The natural restocking of denuded areas will be a slow process, and artificial restocking may have to await more favorable economic conditions. The greatest immediate opportunity to convert nonproducing to producing land is in cutting and protecting our present forests in such a way that a new crop of trees is assured.

In our use of primary forest material, logs and cordwood, there are two sources of waste. One represents an economic loss, incurred when logs suitable for a more valuable product are used for a less valuable one, as when logs of plywood quality are cut into rough lumber or when thrifty young growth that could add size and quality, if left to grow, is converted into relatively low-value products. To assure the use of each tree and log to provide the maximum contribution to the economy we need integrated utilization. We need an ownership, marketing, trading and distribution system that will provide for the use of each bit of forest material, from butt logs to branches, in the most economic manner and for the product of highest value. We need diversified forest industries to provide these markets. But first we need a better realization of the opportunities afforded by a more closely integrated scheme of forest material utilization. The second source of loss is both economic and physical, and consists of the great volume of forest material that is left in the woods to rot or burn. Recent studies in Oregon and Washington show that more than a quarter of the total sound volume that could be realized with full utilization is left in the woods. In the Douglas-fir region, the average logging waste per acre is about 10,000 board feet, log scale. This amount wasted on the coast would be considered a good forest stand in the central and eastern regions of the United States.

The reason for this less-than-full utilization of forest material is that the removal of this material has been considered uneconomic. Logging equipment designed for large logs is not economically adapted to the logging of smaller material. The greater cost of handling small material, and the lower market value of products made from it, have meant that logs under a certain size have been submarginal. This was particularly true when high-quality stumpage was plentiful and cheap, when lumber brought relatively low prices in a competitive market, and when most of our logs were cut into lumber. Today conditions are

changing, and many companies are becoming actively interested in salvage logging. Lighter logging equipment and new methods of yarding and transportation are being tried out. Small portable mills designed for sawing small logs out in the forest are being developed. There is talk of moving barkers and chippers right out to the woods. Human ingenuity and changed economic conditions will result in a greater utilization of woods waste. Full utilization may never be realized, but a substantial increase is sure to come.

Less than full utilization of forest material also results from the normal mortality that occurs in a growing stand. Nature in this region is so bounteous that a young stand contains more stems than can be supported to maturity, and the weaker ones die out to make room for the more hardy ones. If systematic thinning of growing stands could be practiced, a well-stocked forest of Douglas-fir could yield a cord an acre every year after the forest reaches thirty years of age. By the time the forest is ready for harvest, say at age 100, the total volume removed in annual thinnings would be equal to half the volume of the mature stand, and the resulting stand would be of better quality than if the thinning took place through natural mortality. Markets, of course, are necessary to pay for the cost of thinning, and these have not been present. But the growth of the sulphate pulp industry, which can use Douglas-fir, promises some help in this direction.

The utilization of forest resources does not stop with the woods operations. It is continued in lumber mills, pulp mills, plywood plants, shingle mills, cooperage plants, and many remanufacturing establishments. And here again we find lost opportunities to utilize all the material brought to the plant or to realize within the region all the opportunities for manufacture and employment presented by this versatile material, wood.

In manufacturing rough dry lumber from a log, about half the total log volume becomes lumber and the other half is bark, sawdust, slabs, miscuts, and edgings and trimmings. The use of this residual material varies greatly. In many small mills it may all go to the burner, and produce nothing of value. Some plants utilize mill waste to develop power and steam for dry kilns, and some sell it commercially for fuel. Some make lath from slabs. Others minimize the amount of residue by close utilization of small and defective pieces for toy parts, broom sticks, moldings, mouse traps, and a host of other products and parts. Some of the waste is chipped and used for pulp manufacture. A new plant at Springfield, Oregon, will soon be making alcohol from mill waste. There is, in sawmill waste, the potential source of a tremendous supply of protein that is needed by the stockmen of the region to supplement range feeding of their herds. There is a physical opportunity to double the effective utilization of material coming to a mill in the form of logs, but economic factors will prevent this full utilization. Small isolated mills may have no markets or uses for a large part of their waste. But in the larger milling centers an increased and more intensive utilization of waste is certain.

The other failure to realize all the opportunities of utilization available to a producing region is in making rough raw materials instead of carrying the processes of manufacture further toward the finished product. The employment resulting from the utilization of a thousand board feet of wood increases rapidly as the process of manufacture is extended. To log this volume requires about one man-day of labor. The cutting of rough green lumber takes another man-day. Producing finished dry lumber requires three man-days, from stump to box car. If the wood goes into box shoo some four and a half man-days are needed. The manufacture of sash and doors provides a total of some ten man-days of labor. Cabinet work brings the total to almost 20.

If logs go into pulp, logging requires one man-day, pulp manufacture two more days, and paper manufacture an additional day and a half. But if wood is converted to paper bags, a total of 10 man-days is utilized for every thousand board feet of wood. Other converted paper products will require a correspondingly large volume of employment.

In addition to providing more industry and employment for the region, the production of forest products of high quality may be an essential condition to the future successful operation of the forest industries in the Northwest. We have an advantage over many other regions in the high quality of our timber and in our forest growth potentialities. But we suffer a comparative disadvantage in our great distance from the principal consuming markets of the country. We cannot expect to compete with the southern states in the central and eastern markets if we produce only rough lumber of low quality. To overcome our disadvantage in location, we must capitalize on our ability to grow timber of high quality, we must excel in our manufacturing ability, and we must add value to the product through remanufacture to minimize the relative effect of higher freight costs.

In summary, the picture of utilization is something like this. Our forest land is producing less than half the timber it is capable of producing, and a third of the growth is lost through mortality in crowded stands. Of the timber produced, about a quarter is left in the woods under current logging practices. Of the logs brought to the sawmill, half the volume becomes lumber and the other half is unused or devoted to uses of relatively low value. And in the manufacture of products we utilize a volume of labor that could be increased many times through more intensive manufacturing practices.

All of this is very important to the future economy of the Northwest. As our virgin timber disappears we are faced with an inevitable decline in our annual log harvest. The level at which our forest industries can continue on a permanent basis depends on four things: The productivity of our forest lands in producing timber crops, the utilization of forest material in the woods, the utilization of wood at the mill, and the extent to which we take advantage of industrial opportunities in refining our raw products. Already old established plants are closing, and the reason most frequently given is lack of logs. This is a clear warning to us that the time for nonchalance about our forest resource has passed. What to do when our great reserves of timber are gone has always been a problem for the future. The future is almost here.