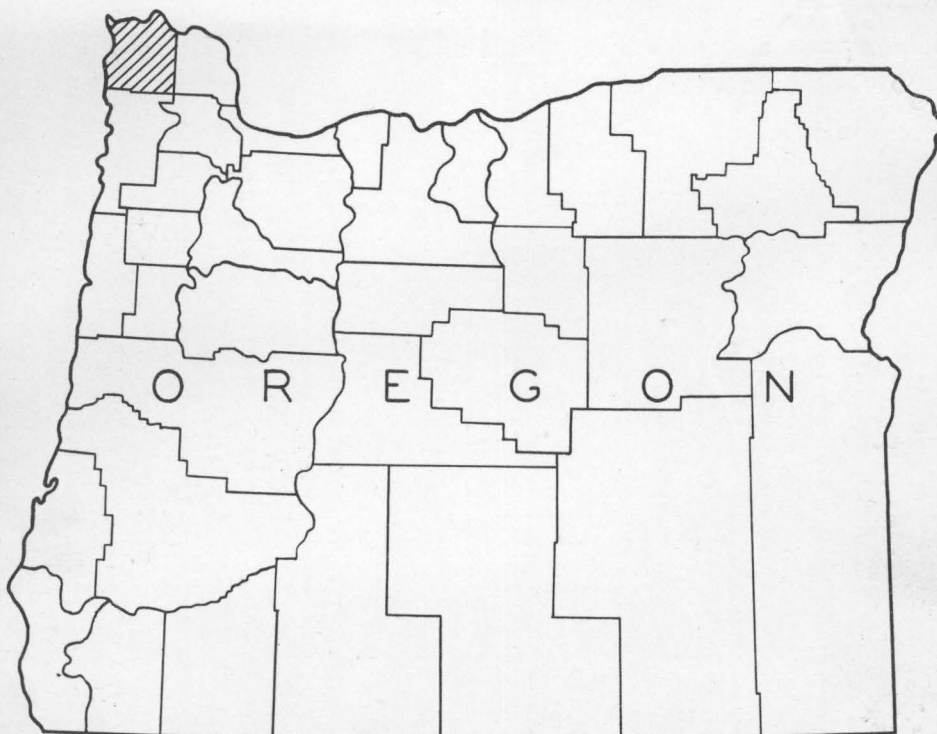


FOREST STATISTICS FOR CLATSOP COUNTY, OREGON

FROM THE INVENTORY PHASE OF THE FOREST SURVEY



U. S. DEPARTMENT OF AGRICULTURE FOREST SERVICE
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IN CLATSOP COUNTY

PORTLAND, OREGON

JULY 15, 1938

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
FIGURE 1
OUTLINE MAP
OF
CLATSOP COUNTY, OREGON

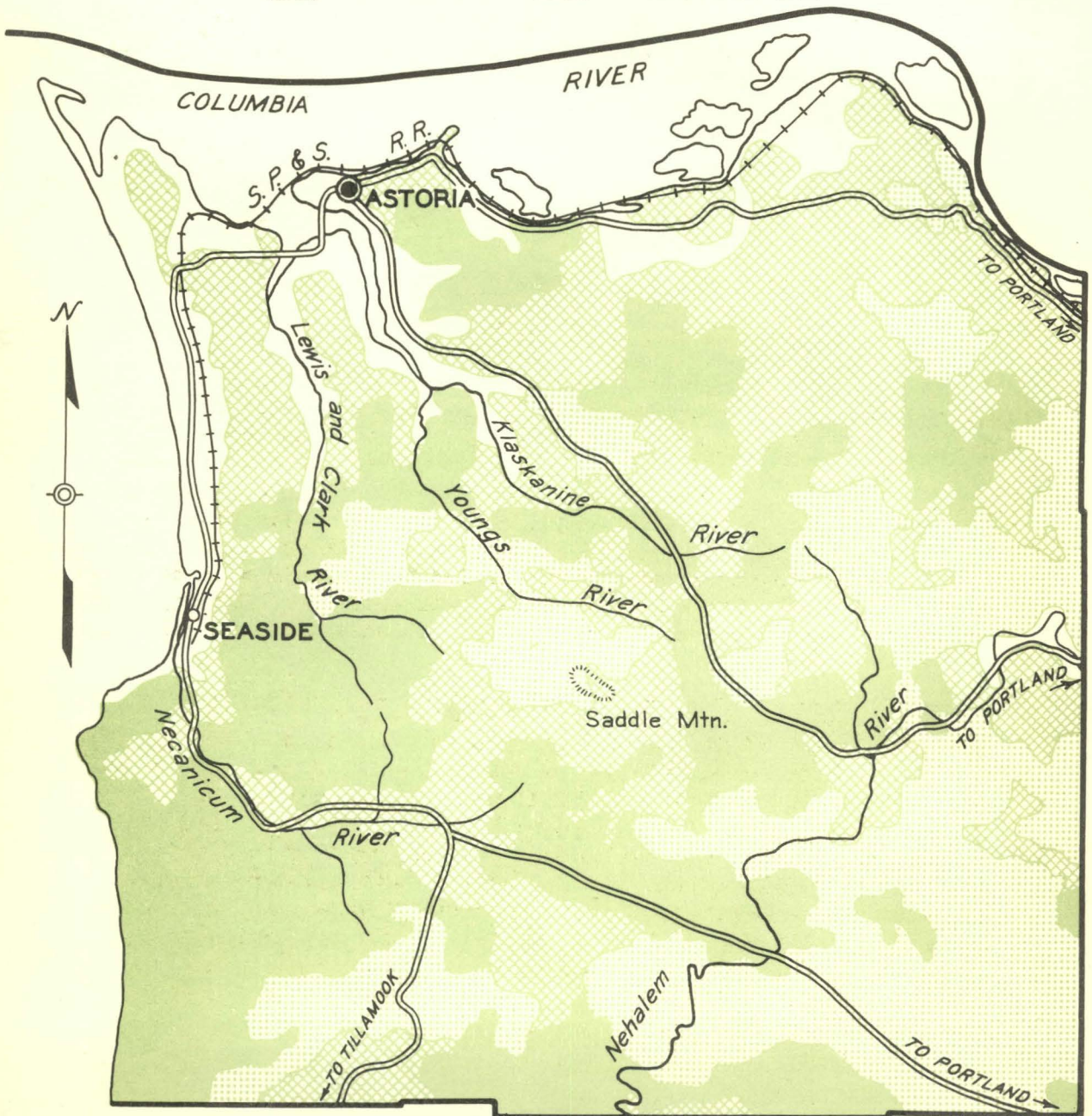
1938

SCALE

0 5 10 15 MILES

LEGEND

- | | |
|---|--|
|  SAW TIMBER |  DEFORESTED CUTOVERS AND BURNS |
|  SECOND GROWTH |  NONCOMMERCIAL FORESTS AND NONFOREST LAND |



FOREST STATISTICS FOR CLATSOP COUNTY, OREGON

By Edward D. Buell^{1/}

The forests of Clatsop County, Oregon, were inventoried first in 1930 by the Forest Service as a part of a Nation-wide survey of forest resources.^{2/} In September 1933, following the disastrous Wolf Creek fire, the inventory was brought up-to-date by remapping the burned area and adjusting the type area and merchantable timber volume data for both fire and cutting depletion occurring since the original survey in 1930. A statistical report summarizing the data obtained in the original survey and the revision was issued in 1934. In the fall of 1937 the data were again made current, this time through field examination extending over the entire county and recompilation. This report, which supersedes the one issued in 1934, presents statistics resulting from this last inventory and also a brief textual discussion of the forest situation in the county.

An explanatory text, "The Forest Survey of the Douglas Fir Region", contains detailed definitions of the forest types recognized and a description of the methods used in the inventory and should be read in connection with this report.

Location and Description of County

Located in the northwest corner of Oregon, Clatsop County is bounded on the north by the Columbia River and on the west by the Pacific Ocean. It is approximately 30 miles square and has a land area of 525,475 acres. The Coast Range extends from north to south through the county and, characteristic of most of the area along this range, the topography is very broken. Differences in elevation are not extreme but occur with great frequency and abruptness. The highest point in the county is the summit of Saddle Mountain with an altitude of 3,266 feet. There are two general directions of drainage, one to the southwest and one to the northwest. Streams draining approxi-

^{1/} The field and office work of the forest survey of Clatsop County was done by Edward D. Buell, Bert C. Baker, and A. W. Hodgman.

^{2/} Oregon and Washington were divided for purposes of the survey into two regions, (1) the Douglas fir region, consisting of that part of both States west of the summit of the Cascade Range, and (2) eastern Oregon and eastern Washington, that part of both States east of the summit of the Cascade Range. Regional reports will be issued which will present and discuss findings for each region as a whole. The regional reports will include an interpretation of the forest survey data as related to other economic data and a comprehensive analysis of the regional situation from both a physical and an economic standpoint.

mately two-thirds of the county are tributary to the Columbia River, while the others flow directly into the Pacific Ocean (figure 1).

Climatic conditions vary moderately over the county. There is a greater range in seasonal temperatures and less rainfall in the interior than in the coastal section. A small part of the county is high enough in elevation for a considerable percentage of the precipitation to fall in the form of snow. Over most of the county uniform temperatures prevail with the thermometer seldom registering over 85 degrees in summer or under 20 degrees above zero in winter. The average annual rainfall ranges from about 50 inches in the interior to 95 inches along the coast. Most of the precipitation falls during the winter months. In summer occasional rains and periods of foggy weather supply sufficient moisture for farm crops without irrigation.

Transportation is provided by a branch line of the Spokane, Portland, and Seattle Railway, a primary and secondary road system, and the Columbia River. The railroad extends from Seaside north along the coast to the Columbia River then east up the river to Portland. A paved State highway is located along the north and west sides of the county. County roads, most of which are surfaced with gravel, and forest roads constructed under the supervision of State forest officers supplement the State highway system. When finished a road now being built across the southern part of the county will connect the coastal section with Portland and Willamette Valley points by a considerably shorter route than now exists. Port facilities capable of accommodating ships of large tonnage are located at Astoria and other points along the Columbia River.

According to the Bureau of the Census, the population of Clatsop County was 21,124 in 1930. Astoria, the principal city and county seat, had 10,349 inhabitants and Seaside, second largest town, had 1,565. The remainder of the people of the county live in villages of less than 1,000 inhabitants, on farms, or in logging camps.

Forest Land and Cover Types

Clatsop County's forest land, which amounts to 478,375 acres, was divided by the survey into 21 cover types. Data concerning forest-type areas, together with data on nonforest land, are presented in tables 2 and 3 and figures 2 and 3. The nonforest land, amounting to 47,000 acres or less than 10 percent of the total area of the county, is approximately two-thirds under cultivation while one-third consists of grass, brush, sand dunes, barrens, and cities. The revised inch-to-the-mile county type map^{3/} shows the extent and location of the various

^{3/} One-inch-to-the-mile county type maps and $\frac{1}{4}$ -inch-to-the-mile lithographed State type maps have been prepared to show the location and extent of the forest types. For information about these maps and how to obtain them, address Director, Pacific Northwest Forest and Range Experiment Station, 423 U. S. Court House, Portland, Oreg.

type areas as of 1937. The forests are divided into two broad groups; those dominated by Douglas fir and those dominated by the pulpwood species, principally western hemlock and Sitka spruce.

Stands in which Douglas fir is the key species occur chiefly in the east half of the county and occupy a total area of nearly 112,000 acres. Approximately 45 percent of this area supports stands of saw-timber size, 23 percent second-growth stands less than saw-timber size, and the remaining 32 percent seedling and sapling types less than 6 inches in d.b.h.

Types dominated by the pulpwood species are distributed over 214,000 acres of forest land in the western and northern parts of the county. This area is about equally divided between types of saw-timber size and those less than saw-timber size. Western hemlock is the key species on 183,000 acres, Sitka spruce on 24,000 acres, and the balsam firs on 7,000 acres. The pulpwood stands reach their best development in close proximity to the coast.

Coniferous Saw-Timber Types

This group is comprised of all the coniferous forest types in the county in which the timber is of commercial character and most of the volume is in trees about 20 inches or more in d.b.h. There are 7 such types extending over 155,000 acres, 32 percent of the county's forest land. In 1933 the same group of types covered 192,000 acres or 40 percent of the forest land. The depletion of 37,000 acres of saw-timber types in the county between September 1, 1933, and November 1, 1937, was due chiefly to cutting, fire having affected these types only slightly during the period. Of the seven saw-timber types in the county, three are predominately Douglas fir, while western hemlock, Sitka spruce, western red cedar, and the balsam firs dominate in one each of the other four.

Approximately 88 percent of the total area of Douglas fir type in this category is occupied by large old growth (type 6). Small old growth (type 7) and large second growth (type 8) are of little importance because together they occupy only 6,200 acres. The timber stands in type 6 average about 350 years in age and trees range from 48 to 70 inches in d.b.h. Approximately 80 percent of the volume is Douglas fir, 15 percent is western hemlock, and the remainder is Sitka spruce, western red cedar, and balsam firs. Over certain areas where past fire loss was heavy, the stands have a low volume per acre. The mature trees in these stands are scattered and the intervening space has been filled by dense reproduction, often western hemlock and Sitka spruce. The veterans are usually of large size and often of the quality suitable for veneer stock and for logs used in the manufacture of the highest grade of lumber. The total area of Douglas fir saw-timber types has been reduced from approximately 70,000 acres in 1933 to about 50,000 acres in 1937.

Saw-timber types other than Douglas fir occupy 105,500 acres in Clatsop County. Western hemlock stands cover 80,000 acres, Sitka spruce 17,000 acres, the balsam firs 7,000 acres, and western red cedar 1,500 acres. Western hemlock stands occur as a practically unbroken block over about 55,000 acres in the southwestern part of the county and in smaller bodies in the north and west-central parts. Spruce, balsam fir, and cedar types occur as islands interspersed in the hemlock stands. These islands seldom exceed 1,000 to 1,500 acres in area, while most of them are considerably less. Nearly 24,000 acres still occupied by pulpwood stands of saw-timber size have been logged over selectively. Practically all of this logging was done prior to 1933 and was the result of demands for Sitka spruce, western red cedar, and high-quality Douglas fir. Most of the stands were lightly cut and the remaining volume often exceeded the amount removed. In almost all instances the remaining stands are predominately western hemlock even where other species constituted most of the volume prior to cutting. The timber not removed was considerably damaged by logging operations and further loss resulted from increased defect following injury and wind throw. Within the past few years selective logging has been carried on far more carefully with the reserve stand considered as part of a future cut.

The area of saw-timber types other than Douglas fir in 1933 was 122,500 acres. This shows that the acreage of these types was reduced during the period September 1, 1933, to November 1, 1937, by 17,000 acres. As in the Douglas fir types logging was the chief cause of this depletion. Based on the area of saw-timber types in 1933, Douglas fir types have been reduced by 28 percent and types dominated by the pulpwood species and cedar by 16 percent.

Immature Types

Immature forest types occupy 171,500 acres in Clatsop County. On approximately 79 percent of this area the original stand was logged and on the remainder it was depleted by fire. Table 4 presents data showing the acreage of the immature types by age class and degree of stocking. Although these types are distributed over the entire county, they cover considerably more area in the north half than in the south half. Western hemlock is the predominant species in types covering 103,500 acres, Douglas fir in types covering 61,500 acres, and Sitka spruce in types covering 6,500 acres. Types consisting of stands in which most of the trees are 6 inches or more in d.b.h. occupy 55 percent of the area of immature types, while types composed of stands in which most of the trees are less than 6 inches in d.b.h. occupy 45 percent.

Pole Stands

Immature types 6 inches or more in d.b.h. consist of 69 percent hemlock types, 27 percent Douglas fir types, and 4 percent Sitka spruce types. The age of the hemlock stands ranges from 20 to 80 years, of

the Douglas fir stands 20 to 50 years, and of the spruce stands 30 to 80 years. Stocking conditions are mostly satisfactory in this group. Little change in total acreage took place between 1933 and 1937 but the distribution of age classes changed considerably. The area occupied by stands in the 20, 30, and 40 year age classes as now shown in table 4 is 26,000 acres less than was shown in 1933, while the area occupied by stands in the 50, 60, and 70 year age classes is shown to be 30,000 acres more. Some of this change was due to stands advancing to an older age class during the elapsed time and some to more intensive field work.

Seedling and Sapling Stands

Immature types less than 6 inches in d.b.h. are comprised of 51 percent western hemlock types, 46 percent Douglas fir types, and 3 percent Sitka spruce types. The area occupied by this group increased from 38,000 acres in 1933 to 79,000 acres in 1937. During the initial survey all areas clear cut since the beginning of 1920 were typed as recent cutovers and stocking conditions were not determined. This type amounted to 105,000 acres in 1933. In 1937 areas logged prior to 1930 were examined and typed according to cover. Most of the trees on these areas were less than 6 inches in d.b.h. and the acreage was added to the seedling and sapling group, thus accounting for most of the 40,000 acres increase. Almost half of the area typed as recent cutover in 1933 and examined in 1937 was not restocking. Seedling and sapling stands range in age from 10 to 30 years with a great majority in the 10-year age class. Stocking conditions are satisfactory over most of the area occupied by these types but there still remains 15,000 acres understocked.

Deforested Areas

The total amount of forest land now deforested in Clatsop County is 79,000 acres, exclusive of areas clear cut since the beginning of 1930. Of this, 50,000 acres is logged-off land not restocked and the remainder is deforested burn. The deforested area of the county in 1933 was 40,000 acres not including areas clear cut since the beginning of 1920.

Approximately 7,000 acres of the area clear cut prior to 1920 was found to be nonrestocked in the 1937 examination, which is about the same acreage found in the inventory of 1933. Of the area clear cut between 1920 and 1930 43,000 acres was nonrestocked in 1937. This acreage is approximately 41 percent of the total area clear cut during the period. The possibility of stocking conditions improving naturally in the near future is remote because of the lack of seed supply.

The area of deforested burn has become less since 1933. In that year it was 33,000 acres, in 1937 it was 29,000 acres. Most of this acreage is the result of the Wolf Creek Fire of 1933. Because of the short interval between the fire and the current survey, reproduction on the area deforested by this fire was not classified as to type, the whole area being recorded as deforested burn. To ascertain the acreage

that might be expected to restock, a series of plots were taken at various places over the area. An analysis of these show that the average stocking of the entire area is now between 30 and 40 percent. Individual series vary from 7 to 62 percent stocked and considerable variation in density of the reproduction can be expected on different portions of the area. As most of the series show less than 40 percent stocked, the density of the reproduction at present is mostly below that considered satisfactory. The species of the seedlings were not recorded.

Data on areas classified as recent cutovers in 1933 and 1937 are not comparable as to total acreage because they cover different lengths of time. On an average annual basis there appears to be little difference between the period 1920 and 1929, inclusive, and the period 1930 to 1937, inclusive. During each approximately 9,000 acres a year was clear cut. The area clear cut since 1930 amounts to 61,500 acres. While some of this area is now restocking, the seedlings are not fully established and the area they occupy was not segregated from the whole.

Productive Capacity of Forest Land

A classification of the forest land of Clatsop County according to its capacity to produce timber crops is shown in table 5. All but approximately 11,000 acres is capable of growing coniferous timber of commercial character. Considerably more than half the land is classified as site II, indicating the county is well above the average of the Douglas fir region in its ability to grow timber crops. The area of below average productivity, sites IV and V, amounts to only about 2 percent of the total forest land.

The site classification of forest land in 1933 differs to some extent from that of 1937. This is due to a more detailed examination being made in 1937 and smaller site areas being recognized. The inherent site qualities of the county have not changed measurably since 1933.

Coniferous Saw-Timber Volume

The total coniferous saw-timber volume of Clatsop County is 7.9 billion board feet. The species distribution of this volume is shown in table 1 and figure 2. Western hemlock leads all other species with 3.4 billion, Douglas fir is second with 2.5 billion, and Sitka spruce is third with 1.1 billion. The remaining 0.9 billion consists of western red cedar, silver fir, lowland white fir, and noble fir. The depletion of saw-timber volume since September 1, 1933, amounts to 1.8 billion feet, nearly 60 percent of which was Douglas fir and the remainder pulpwood species.

The Douglas fir volume is segregated into four classes based on size and age of the timber. The large old growth class (DA) is the most important as it contains 85 percent of the total Douglas fir volume and is of high quality. Since 1933 approximately a billion board feet of large old-growth Douglas fir has been cut. This is 30 percent of that

remaining in the county in 1933 and 45 percent of the present volume. The other Douglas fir classes containing 15 percent of the volume were reduced by 17 percent.

In the 1933 inventory, 1.5 billion board feet of timber killed by the Wolf Creek fire of that year was considered merchantable and was included in the total volume in the county. By 1937 the volume of this timber had been reduced considerably by salvage operations and most of the remainder had either deteriorated badly or was located in the less accessible portions of the burn. Although some of the remaining timber will undoubtedly be utilized in the next few years, no estimate of the salvable timber was included in the 1937 inventory.

Hardwoods and Minor Forest Products

Hardwood types occupy approximately 10,000 acres of forest land in Clatsop County. They occur over small areas on favorable sites and as long stringers along the streams. One-fourth of the area of the hardwood types is covered by stands of merchantable size and three-fourths by stands of smaller trees. Red alder is the dominant species in both the merchantable and the second-growth hardwood stands. Its common associate is bigleaf maple. These two species are the only hardwoods of commercial importance in the county.

The total hardwood volume is 53 million board feet, 73 percent red alder, and 27 percent bigleaf maple. Hardwood volume is found in areas of hardwood type, as an understory in coniferous saw-timber types, and as an associate species in second-growth coniferous types. A considerable amount of hardwood volume is often destroyed during logging of coniferous timber. The total hardwood volume of the county has been slightly reduced since 1933.

Available minor forest products contribute somewhat to the total value of the county's forest resources. Cascara bark, sword ferns, and Christmas trees are marketed by local people. Although the total income derived from the sale of these products varies considerably from year to year owing chiefly to fluctuations in price, the average yearly income returned on their sale is about ten thousand dollars.

Cascara bark is the most important of these minor products. The trees from which the bark is gathered occur chiefly in the north and west parts of the county and are found mostly in association with hemlock and spruce. Gathering of the bark has been carried on for many years. The more available cascara stands have been depleted and their replacement is very slow due to the common practice of peeling trees as small as $1\frac{1}{2}$ to 3 inches in diameter. However, cascara stands located in the more inaccessible sections of the county will be a source of supply for some time. Regeneration of cascara was noted both in second-growth hemlock and spruce stands and on clear cut areas situated within the tree's habitat. The annual production of cascara bark in the county is usually about 60 to 75 tons. For the 5-year period 1932 to 1936,

inclusive, the average annual water shipment of this product from the port of Astoria was 73 tons. A small percentage of this tonnage comes from outside the county. A more conservative method of harvesting bark that would eliminate peeling trees of small diameter would help to maintain a continuous supply.

Forest Ownership

Approximately 87 percent of the forest land and 94 percent of the saw-timber volume is privately owned. The bulk of the remaining forest land and timber volume is in county ownership, having been obtained through tax delinquency. Both acreage of forest land and timber volume owned by the county have more than doubled in the last 4 years. In 1933 it owned 27,000 acres of forest land and 148 million board feet of timber; by 1937 it owned 60,000 acres of forest land and 380 million board feet of timber. The trend for at least the next decade will probably be toward expanded county ownership. The amount of forest land and timber volume in other forms of public ownership is of minor importance.

Forest Industries

A large part of the industrial development of Clatsop County has been based on the harvesting and manufacturing of its forest resources. From the time of first settlement in Oregon to the present, lumbering has been carried on in the county. While the establishment of sawmills along the Columbia River at various places from Westport to Warrenton has brought about the development of several small communities, the industry centers in the vicinity of Youngs Bay. Both Astoria and Warrenton have sawmills of importance and the rafting of logs for water transportation at the mouth of the Lewis and Clark River and in Youngs Bay is a prominent activity. Lumbering leads all other industries in the county in the number of persons gainfully employed. According to the Bureau of the Census report of 1930, there was a total of 2,295 persons employed in forestry, which includes all woods work such as logging, pulpwood cutting, and fire patrol, and in the lumber industry which includes saw and planing mills and other woodworking plants.

Logging

Clatsop County has been among the leaders of the State in log production from the start of the industry. The nearness of its forests to tidewater providing cheap transportation and the fine quality of its timber, assuring a product of high market value, were the major factors contributing to continuous heavy cutting. For the period 1925 to 1936, inclusive, the average annual production of sawlogs in the county was 385,970 M board feet. During this period, Clatsop outranked all counties in the State in volume production. Data on later years are not available at present but production since 1933 has probably been below the 1925-1933 average. Approximately half the logs produced in the county are exported. Most of these are utilized by mills that obtain logs from the Columbia River market. However, veneer logs are often sent to Grays Harbor and

Puget Sound, large rafts are towed to California ports, and some logs are shipped to other countries.

Beginning with bull-team logging about a century ago, methods used in lumbering in the county have kept pace with or led other sections of the Douglas fir region. Heavy equipment for high speed production has been in use for many years. Although steam logging and rail transportation is still the common method used, the trend since about 1930 has been toward lighter equipment, consisting of tractors for yarding and trucks for transportation. In 1937 there were over 25 logging operations in the county using trucks exclusively and most of the operations using railroad facilities supplemented these by trucks when practical.

With tractor yarding and truck hauling well established in the county, a change in the method of cutting is developing. Instead of following the practice of clear cutting generally used in the region, some operators are logging selectively. Only trees considered valuable enough to show a profit when marketed are removed and the remaining stand is left as a reserve toward a future crop. Many of the stands being logged in this manner consist of scattered mature high-value trees and an understory of thrifty well-stocked second growth. By preserving and protecting this second growth, the time required to produce another merchantable crop is shortened and the volume already existing in the understory is saved.

Milling

Sawmills located on the Columbia River at Westport, Wauna, Bradwood, Astoria, and Warrenton constitute the lumber manufacturing facilities of the county. Their combined capacity is approximately one million board feet per 8-hour shift. Practically all the logs used by these mills come from within the county. The companies that have mills at Wauna and Bradwood obtain logs through their own logging operations. The others buy on the Columbia River market. The mills of the county do not completely utilize its log production and a large portion is manufactured elsewhere. The lumber produced in the county is shipped by water to markets throughout the world.

Forest Growth

One phase of the Forest Survey was the determination of the growth rate of the forests of the county. Two kinds of growth were computed from the data obtained in the survey. One, the current annual growth, may be defined as the annual increment of forests in their present condition; the other, potential annual growth, is the average annual increment that could be obtained on the whole of the county's commercial forest land through intensive forest management.

Current annual growth of the forests of the county was computed from data obtained in the 1933 revision inventory. Stands on 179,000 acres were classified as growing stands and these were increasing in

volume at the rate of approximately 22 million cubic feet or 41 million board feet a year. Board-foot growth was computed for trees of saw-timber size only which accounts for the ratio of approximately 2 to 1 between board-foot and cubic-foot growth. No growth was computed for the old-growth stands since any increment that occurs in them is probably equaled by the loss through decay. When more of the old-growth stands are replaced by thrifty growing stands and deforested lands become restocked current annual growth in the county will increase. As the condition of the forests is constantly changing, current growth should not be used as a basis for any estimates of volume at a future date.

Based on data obtained in the 1937 inventory, potential annual growth on the 480,000 acres of commercial forest land in the county has been estimated to be 58 million cubic feet. The potential annual board-foot growth on trees 15.6 inches or more d.b.h. totals 202 million feet.

Other Resources

Fisheries

Ranking next to the forest resources in value, the fisheries of the Columbia River have long played a very important part in the economic development of Clatsop County. The commercial fishing industry centers in the lower river in the vicinity of Astoria and represents considerable wealth in boats, nets, and other equipment of the fishermen as well as the investment in the canneries. A total of 1,060 persons was employed in the industry in 1930, according to the Bureau of the Census.

Agriculture

Agricultural development is confined to the narrow river valleys and the small alluvial benches along the Columbia and near the mouths of Youngs and the Lewis and Clark Rivers. The tillable land, together with the pasture land adjacent to occupied farm units, amounts to 31,300 acres. Dairying is the most important type of farming in the county. Root crops and peas are grown in the vicinity of Astoria and along the Columbia River where the soil is very high in potash and nitrogen content. Farming is intensive with small ownerships and close utilization of cleared areas. Further development probably will be slow and consist of extending the areas where agriculture is already established.

In recent years attempts have been made to convert extensive areas of rough cut-over land to grazing land through artificial seeding. An experimental area to determine the feasibility of such land use has been established in the county by the Oregon State College.

The Bureau of the Census report of 1930 lists 884 persons gainfully employed in agriculture in the county.

Recreation

The ocean beaches, rivers, and forests of the county offer many opportunities for recreation and have made it one of the most popular vacation centers in the State. The resorts at Seaside, Cannon Beach, Gearhart, and other beaches bring thousands of recreationists into the county each season. Sport fishing in the Columbia and several smaller streams and deer and wild fowl hunting annually attract many sportsmen and add to the revenue of the county.

Conclusion

The gravity of the situation developing from the removal of so great a percentage of the county's merchantable timber is recognized by public officials and many individuals. The most critical immediate problem is the determination of the best plan of managing the increasing area of logged-over land, much of which is not restocking. A large acreage of this land is being forfeited to the county for delinquent taxes. Adequate fire protection, rehabilitation of idle land, stable ownership, and dedication of this land to highest permanent use are necessary to satisfactorily solve this problem. Efforts are being made to develop a plan to stabilize economic conditions as far as possible by more thoughtful management of forest and other natural resources of the county.

FOREST STATISTICS FOR CLATSOP COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 1. VOLUME OF TIMBER BY SPECIES AND OWNERSHIP CLASS
DATA CORRECTED TO NOVEMBER 1, 1937

TREES 16" AND MORE IN D.B.H.^{1/}
THOUSANDS OF BOARD FEET, LOG SCALE, SCRIBNER RULE

SUR- VEY SYM- BOL :	SPECIES ^{2/}	STATE				FEDERAL				TOTAL
		PRIVATE	AVAILABLE FOR CUTTING	RESERVED FROM CUTTING	COUNTY	MUNICIPAL	PUBLIC		RESERVED FROM CUTTING ^{3/}	
							DOMAIN,			
							AVAILABLE			

^{1/} TREES OF HARDWOOD SPECIES TAKEN FROM 12" AND MORE D.B.H.

^{2/} IN ADDITION TO THE SPECIES LISTED, NORTHERN BLACK COTTONWOOD AND OREGON ASH ARE KNOWN TO OCCUR IN THE COUNTY, BUT IN NEGLIGIBLE QUANTITIES ONLY.

^{3/} MILITARY AND LIGHTHOUSE RESERVATIONS.

FOREST STATISTICS FOR CLATSOP COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 2. AREA, IN ACRES, OF ALL FOREST COVER TYPES, BY OWNERSHIP CLASS
DATA CORRECTED TO NOVEMBER 1, 1937

		STATE			FEDERAL				
SUR-VEY TYPE NO.	TYPE DEFINITION	PRIVATE	AVAILABLE FOR CUTTING	RESERVED FROM CUTTING	COUNTY	MUNICIPAL	INDIAN, TRIBAL AND TRUST ALLOTMENTS	PUBLIC DOMAIN, AVAILABLE FOR CUTTING	TOTAL
	DOUGLAS FIR: FOREST CONTAINING 60% OR MORE OF DOUGLAS FIR								
6	DOUGLAS FIR, LARGE OLD GROWTH: MORE THAN 40" D.B.H.	40,995	30	205	2,575	25		90	43,920
7	DOUGLAS FIR, SMALL OLD GROWTH: 22 TO 40" D.B.H.	290							290
8	DOUGLAS FIR, LARGE SECOND GROWTH: 22 TO 40" D.B.H.	5,760			80			70	5,910
9	DOUGLAS FIR, SMALL SECOND GROWTH: 6 TO 20" D.B.H.	17,625			7,505			165	25,295
10	DOUGLAS FIR SEEDLINGS AND SAPLINGS: LESS THAN 6" D.B.H.	32,700			3,215			240	36,155
	SITKA SPRUCE: FOREST CONTAINING 50% OR MORE OF SITKA SPRUCE								
11	SITKA SPRUCE, LARGE: MORE THAN 24" D.B.H.	15,430		435	865	190			16,920
12	SITKA SPRUCE, SMALL: 6 TO 24" D.B.H.	2,800			1,115				4,115
13	SITKA SPRUCE SEEDLINGS AND SAPLINGS: LESS THAN 6" D.B.H.	2,450			30				2,480
	WESTERN HEMLOCK: FOREST CONTAINING 50% OR MORE OF WESTERN HEMLOCK								
14	WESTERN HEMLOCK, LARGE: MORE THAN 20" D.B.H.	74,365		200	4,455	140		450	79,610
15	WESTERN HEMLOCK, SMALL: 6 TO 20" D.B.H.	55,635	175	210	7,970	20		230	64,290
16	WESTERN HEMLOCK SEEDLINGS AND SAPLINGS: LESS THAN 6" D.B.H.	30,565		550	7,780	160		120	39,175
	WESTERN RED CEDAR: FOREST CONTAINING 40% OR MORE OF WESTERN RED CEDAR								
17	WESTERN RED CEDAR, LARGE: MORE THAN 24" D.B.H.	1,335			120				1,455
	FIR-MOUNTAIN HEMLOCK: FOREST CONTAINING 50% OR MORE OF SILVER FIR OR NOBLE FIR, OR A COMBINATION OF THESE SPECIES								
23	FIR-MOUNTAIN HEMLOCK, LARGE: MORE THAN 16" D.B.H.	6,875		255	40			80	7,250
	LODGEPOLE PINE: FOREST CONTAINING 50% OR MORE OF LODGEPOLE PINE								
26	LODGEPOLE PINE, SMALL: LESS THAN 12" D.B.H.	105							105
	HARDWOODS: FOREST CONTAINING 50% OR MORE OF HARDWOODS								
31.5	HARDWOODS, LARGE: 12" OR MORE D.B.H.	2,395			190				2,585
31	HARDWOODS, SMALL: LESS THAN 12" D.B.H.	5,565			1,675			5	7,245
	NONRESTOCKED CUTOVER: CLEAR CUT AREA NOT SATISFACTORILY RESTOCKED								
35	CLEAR CUT PRIOR TO 1920	5,595			1,475				7,070
35A	CLEAR CUT FROM 1920 TO 1929, INCLUSIVE	35,175		535	7,600				43,310
36	RECENT CUTOVER: CLEAR CUT SINCE BEGINNING OF 1930	58,900		35	2,595				61,530
	DEFORESTED AREA: NONRESTOCKED AREA DEFORESTED OTHERWISE THAN BY CUTTING								
37	DEFORESTED BURN	23,565	600	75	3,925	5	155	480	28,805
38	NONCOMMERCIAL ROCKY AREA	50		810					860
TOTAL FOREST TYPES		418,175	805	3,310	53,210	540	155	1,930	478,375
	NONFOREST LAND: CULTIVATED, GRASS, BRUSH, URBAN AREAS, AND UNMEANDERED WATER SURFACES								
2	GRASS, BRUSH, URBAN AREAS, AND UNMEANDERED WATER SURFACES	10,280		90	4,620				15,710
3	CULTIVATED AREAS	28,895	50	145	2,300				31,390
TOTAL		457,350	855	3,545	60,130	540	155	1,930	525,475

^{1/} MILITARY AND LIGHTHOUSE RESERVATIONS.

FOREST STATISTICS FOR CLATSOP COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 3. AREA, IN ACRES, OF GENERALIZED FOREST TYPES, BY OWNERSHIP CLASS
DATA CORRECTED TO NOVEMBER 1, 1937

TYPE DEFINITION	STATE			COUNTY	MUNICIPAL	FEDERAL			TOTAL	
	PRIVATE	AVAILABLE FOR CUTTING	RESERVED FROM CUTTING			INDIAN, TRIBAL AND TRUST ALLOTMENTS	PUBLIC DOMAIN, AVAILABLE FOR CUTTING	RESERVED FROM CUTTING ^{1/}		
HARDWOODS: ALDER AND MAPLE										
SURVEY TYPES 31 AND 31.5	7,960			1,865			5		9,830	
CONIFERS MORE THAN ABOUT 20" DBH										
SURVEY TYPES 6, 7, 8, 11, 14, 17, AND 23	145,050	30	1,095	8,135	355		690		155,355	
CONIFERS 6 TO 20" OR 6 TO 24" DBH										
SURVEY TYPES 9, 12, AND 15	ON CUTOVER AREAS	53,995	30	110	9,060	20			50	63,265
	ON OLD BURNS	22,065	145	100	7,530			395	200	30,435
	TOTAL	76,060	175	210	16,590	20		395	250	93,700
CONIFERS LESS THAN 6" DBH										
SURVEY TYPES 10, 13, AND 16	ON CUTOVER AREAS	61,965		550	9,880	160				72,555
	ON OLD BURNS	3,750			1,145			360		5,255
	TOTAL	65,715		550	11,025	160		360		77,810
NONCOMMERCIAL AREAS										
SURVEY TYPES 26 AND 38		155		810						965
RECENT CUTOVER AREAS: CLEAR CUT SINCE BEGINNING OF 1930										
SURVEY TYPE 36		58,900		35	2,595					61,530
NONRESTOCKED CUTOVER AREAS AND DEFORESTED BURNS										
SURVEY TYPES 35, 35A, AND 37		64,335	600	610	13,000	5	155	480		79,185
TOTAL FOREST TYPES		418,175	805	3,310	53,210	540	155	1,930	250	478,375
NONFOREST LAND										
SURVEY TYPES 2 AND 3		39,175	50	235	6,920				720	47,100
TOTAL		457,350	855	3,545	60,130	540	155	1,930	970	525,475

^{1/} MILITARY AND LIGHTHOUSE RESERVATIONS.

FOREST STATISTICS FOR CLATSOP COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 4. AREA, IN ACRES, OF CERTAIN IMMATURE CONIFEROUS FOREST TYPES,
BY AGE CLASS AND DEGREE OF STOCKING
DATA CORRECTED TO NOVEMBER 1, 1937

		TYPE NUMBER AND NAME							
		10	13	16	9	12	15		
AGE	DEGREE OF	DOUGLAS	SITKA	WESTERN	DOUGLAS				
CLASS	STOCKING	FIR	SPRUCE	HEMLOCK	FIR	SITKA	WESTERN		TOTAL
(YEARS)		SEEDLINGS	SEEDLINGS	SEEDLINGS	SMALL	SPRUCE	HEMLOCK		
		AND	AND	AND	SECOND	SECOND	SECOND		
		SAPLINGS	SAPLINGS	SAPLINGS	GROWTH	GROWTH	GROWTH		
		ACRES	ACRES	ACRES	ACRES	ACRES	ACRES		ACRES
10	GOOD	6,400	2,395	11,830					20,625
	MEDIUM	17,380	85	16,220					33,685
	POOR	9,120		5,240					14,360
	TOTAL	32,900	2,480	33,290					68,670
20	GOOD	630		2,165	3,140				5,935
	MEDIUM	2,510		2,350			65		4,925
	POOR	115		770	1,055		205		2,145
	TOTAL	3,255		5,285	4,195		270		13,005
30	GOOD			600	8,110	95	12,955		21,760
	MEDIUM				2,035		3,395		5,430
	POOR				1,345		380		1,725
	TOTAL			600	11,490	95	16,730		28,915
40	GOOD				5,565	35	4,455		10,055
	MEDIUM				1,125		1,090		2,215
	POOR				95	115	50		260
	TOTAL				6,785	150	5,595		12,530
50	GOOD				2,825		6,015		8,840
	MEDIUM					425	1,965		2,390
	POOR					70	2,450		2,520
	TOTAL				2,825	495	10,430		13,750
60	GOOD					630	8,905		9,535
	MEDIUM					1,990	920		2,910
	POOR					390	795		1,185
	TOTAL					3,010	10,620		13,630
70	GOOD						16,975		16,975
	MEDIUM						1,915		1,915
	POOR						1,235		1,235
	TOTAL						20,125		20,125
80	GOOD						520		520
	MEDIUM								
	POOR					365			365
	TOTAL					365	520		885
TOTAL	GOOD	7,030	2,395	14,595	19,640	760	49,825		94,245
ALL	MEDIUM	19,890	85	18,570	3,160	2,415	9,350		53,470
AGES	POOR	9,235		6,010	2,495	940	5,115		23,795
	TOTAL	36,155	2,480	39,175	25,295	4,115	64,290		171,510

FOREST STATISTICS FOR CLATSOP COUNTY, OREGON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 5. AREA OF FOREST LAND, BY SITE QUALITY
DATA CORRECTED TO NOVEMBER 1, 1937

SITE CLASSIFICATION		:	:	AREA IN PERCENTAGE OF—		
TYPE	SITE QUALITY CLASS ^{1/}	:	AREA IN	COMMERCIAL:	TOTAL	:
		:	ACRES	CONIFEROUS:	FOREST	TOTAL
		:	:	FOREST	LAND	AREA
		:	:	LAND	:	:
COMMERCIAL CONIFEROUS	I	:	17,180	3.7	3.6	3.3
	DOUGLAS FIR,	II	288,597	61.7	60.3	54.9
	HEMLOCK,	III	151,590	32.4	31.7	28.8
	AND SPRUCE	IV	7,361	1.6	1.5	1.4
		V	2,852	0.6	0.6	0.5
TOTAL COMMERCIAL CONIFEROUS		:	467,580	100.0	97.7	88.9
LODGEPOLE PINE		:	105	:	:	:
NONCOMMERCIAL ROCKY		:	860	:	0.2	0.2
HARDWOOD		:	9,830	:	2.1	1.9
TOTAL OTHER THAN COMMERCIAL CONIFEROUS:		:	10,795	:	2.3	2.1
ALL FOREST TYPES		:	478,375	:	100.0	:
NONFOREST TYPES		:	47,100	:	:	9.0
GRAND TOTAL		:	525,475	:	:	100.0

^{1/} THE "SITE QUALITY" OF A FOREST AREA IS ITS RELATIVE PRODUCTIVE CAPACITY, DETERMINED BY CLIMATIC, SOIL, TOPOGRAPHIC, AND OTHER FACTORS. THE INDEX OF SITE QUALITY IS THE AVERAGE HEIGHT OF THE DOMINANT STAND AT THE AGE OF 100 YEARS. FIVE SITE QUALITY CLASSES ARE RECOGNIZED FOR DOUGLAS FIR, CLASS I BEING THE HIGHEST. IN THE SURVEY DOUGLAS FIR CLASSIFICATIONS WERE USED NOT ONLY FOR TYPES OF WHICH THIS SPECIES IS A CHARACTERISTIC COMPONENT BUT FOR OTHER TYPES FOR WHICH NO SITE QUALITY CLASSIFICATIONS HAVE BEEN DEVELOPED.

FOREST STATISTICS FOR CLATSOP COUNTY, OREGON

FROM INVENTORY PHASE OF FOREST SURVEY

FIGURE 2. GENERALIZED FOREST TYPES BY OWNERSHIP CLASS (FROM TABLE 3)

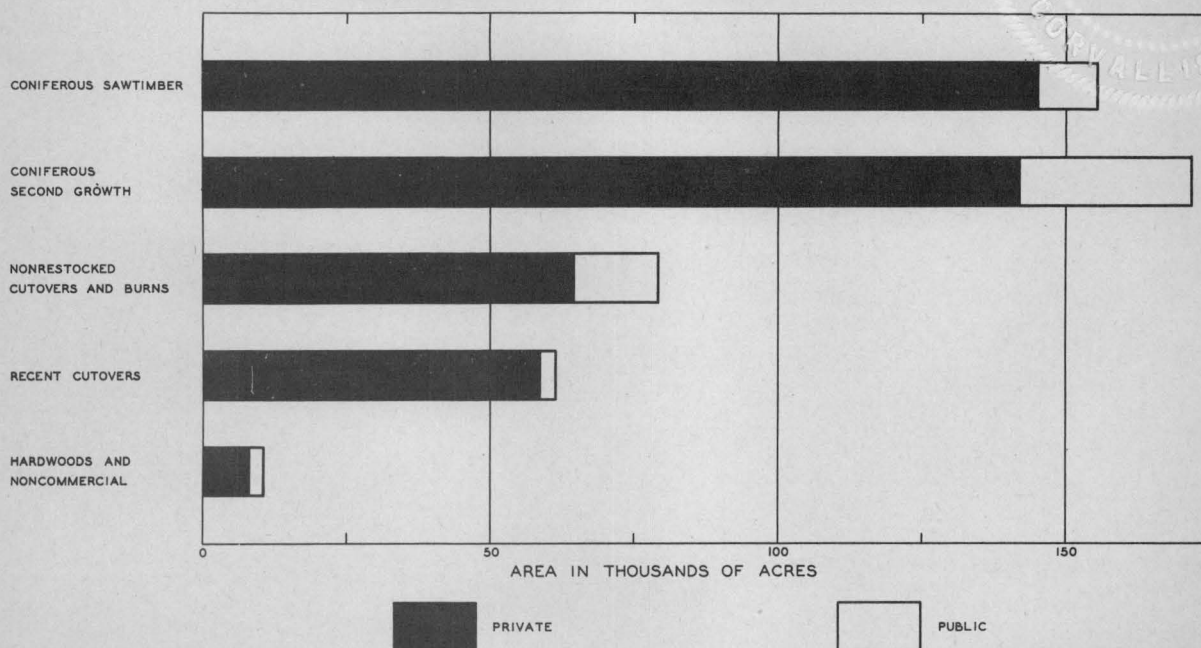


FIGURE 3. AGE CLASS AND STOCKING OF IMMATURE CONIFEROUS STANDS (FROM TABLE 4)

