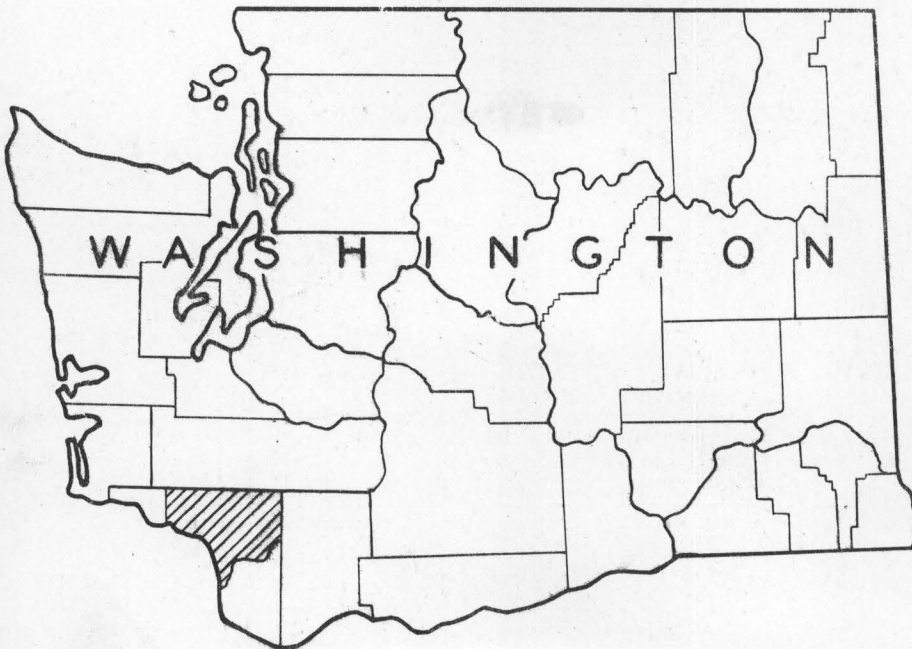


FOREST STATISTICS
FOR
COWLITZ COUNTY, WASHINGTON

FROM THE FOREST SURVEY INVENTORY REVISED IN 1939



U. S. DEPARTMENT OF AGRICULTURE FOREST SERVICE
PACIFIC NORTHWEST FOREST AND RANGE EXPERIMENT STATION
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PORTLAND, OREGON

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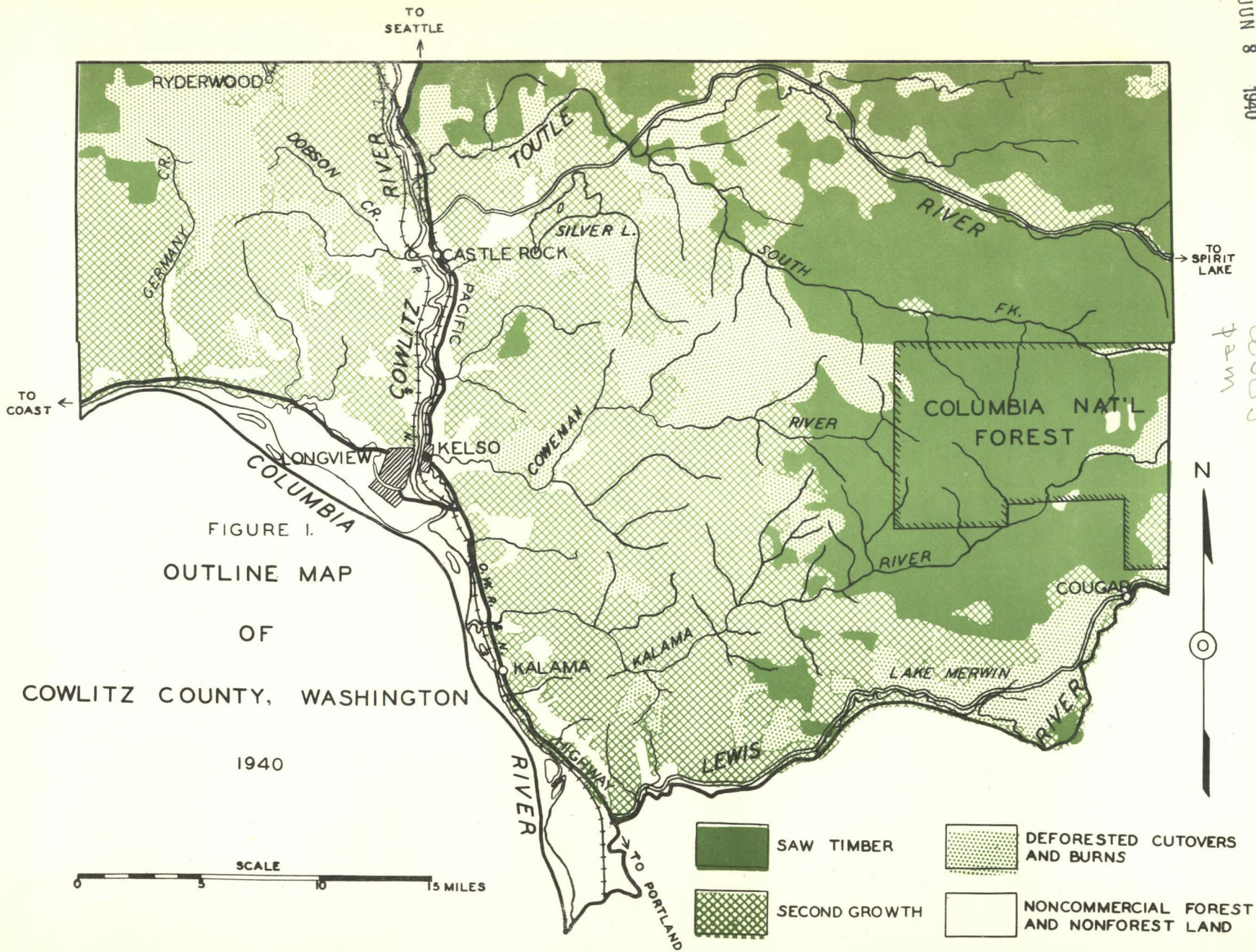


FIGURE I.
 OUTLINE MAP
 OF
 COWLITZ COUNTY, WASHINGTON

1940

FOREWORD

The forest survey, a Nation-wide project authorized by Congress in 1928, consists of a detailed investigation in five major parts of the country's present and future forest resources: (1) An inventory of the country's existing forest resources in terms of areas occupied by forest-cover types and of timber volumes, by species, in board feet and cubic feet, and a study of conditions on cut-over and on burned forest lands; (2) a study of the depletion of the forests through cutting and through loss from fire, insects, disease, and other causes; (3) a determination of the current and potential growth on forest areas; (4) an investigation of present and prospective requirements of the United States for forest products; and (5) an analysis and correlation with other economic data of findings of these studies in order to make available to public and private agencies basic facts and guiding principles necessary to plan for sound management and use of forest resources.

The forest survey of Washington and Oregon is conducted by the Pacific Northwest Forest and Range Experiment Station and work was commenced in the Douglas fir region in 1930.* Cowlitz County, Washington, was one of the first to be inventoried, the field work involved in the survey being carried on in 1930 and 1931. Later the inventory was made current as of September 1, 1933, and a statistical report, "The Forest Statistics for Cowlitz County, Washington", issued. In 1939 the inventory was again brought up to date through field work covering the entire county. In this revision adjustments were made for all changes in forest type areas and timber volumes resulting from logging and fire, restocking of deforested cut-over and burned areas, and land ownership since the original inventory. Results of this last inventory are summarized in this report which supersedes the one issued in 1934.

* Oregon and Washington were divided for survey purposes into two regions, (1) Douglas fir region, consisting of that part of both States west of the Cascade Range summit, and (2) ponderosa pine region, that part of both States east of the Cascade Range summit. Regional reports will be issued which will present findings for each region as a whole. The regional reports will include an interpretation of the forest-survey data and a comprehensive economic analysis of the regional forest situation.

FOREST STATISTICS FOR COWLITZ COUNTY, WASHINGTON^{1/}

By D. Lester Lynch^{2/}

Timber harvesting operations have been carried on in Cowlitz County, Washington, for many years and the county's forests have yielded enormous quantities of products. Some of the earliest logging in western Washington took place in the Coal Creek area north of present day Longview, when oxen and greased skids were the chief implements of logging. In this area was built one of the pioneer logging railroads in the west, an epochal event. Ocean-going rafts were built in the mouth of Coal Creek Slough at the present site of Stella in an early day. Whitewater drives were an annual event 40 to 50 years ago on the Coweman and Cowlitz Rivers and lesser streams when the finest cedar was driven to market by use of flood dams. These dams or remnants of them are still to be seen along the streams. Benson, a pioneer logger of the Pacific Northwest, began his operations at Oak Point long before Longview came into existence. One of the early sawmills, the Ostrander Railway and Timber Company, later became famous for producing the longest structural timbers in the world.

The early major industrial developments of Cowlitz County were closely linked with lumbering, and many sawmills and shingle mills were established in Kelso, the county seat and leading city at that time, Kalama, and neighboring areas. Accessibility to the Columbia River and presence of other streams navigable to river boats resulted in large volumes of logs being rafted to Portland mills and other industrial centers beyond the county's boundaries.

The development of modern logging equipment gave further impetus to the lumbering industry and from the World War on operations in the county expanded. The founding and development of Longview was a significant event in Cowlitz County's history. The erection of the first mammoth mill at Longview in 1923 was followed in a few years by the establishment of another sawmill of comparable capacity, pulp and paper plants, and several smaller allied plants. In 1938 the county's forest-products industry was comprised of 29 active sawmills with a combined 8-hour capacity of approximately 2.7 million board feet, 3 pulp plants with a total 24-hour capacity of 540 tons, several shingle mills, and a number of woodworking plants.

^{1/} Assistance in the compilation of the data contained in this report was furnished by the personnel of Works Projects Administration official project 765-94-3-5.

^{2/} The field and office work of the revised inventory of Cowlitz County, Washington, was done by D. Lester Lynch, E. D. Buell, E. A. Erickson, P. A. Liniger, Edna L. Hunt, W. E. Zeuthen, and T. J. Rowe.

Transportation outlets for the shipment of lumber and other products are good. Dock facilities at Longview and Kalama on the Columbia River providing accommodations for ocean-going vessels make possible coastal, intercoastal, and foreign shipment, and two trans-continental railroads, the Northern Pacific and Great Northern, provide for domestic shipment. At present, transportation of logs to the mills is by logging railroads and trucks operating on private roads and public highways. The latter has become an important means of log transportation in the county. Not only have truck loggers tapped large bodies of timber but have also completed the logging of nearly all the scattered bodies of timber left by earlier operations.

The extent of logging activities in the county in recent years is shown by statistics of sawlog production. During the 14-year period 1925 to 1938 the average annual sawlog production was approximately 450 million board feet. Production during the period was unusually stable in comparison with that of other western Washington counties. Lowest production, which was in 1932, was but 16 percent under the average for the period and 34 percent under the peak output reached in 1930. From 1935 to 1937, inclusive, production was very stable but dropped off in 1938 in common with the trend throughout the Douglas fir region. In addition to the sawlogs produced in the county a considerable volume is imported from Lewis County to the north and from Oregon. In 1937 approximately one-third of the total volume of sawlogs utilized in the county was imported.

Although several decades of logging in the county have removed much of the virgin timber, the inventory reveals that there still remains 225 thousand acres of saw-timber stands containing 16 billion board feet. It likewise shows a large acreage of immature timber and, on the whole, a fairly favorable condition of cut-over lands.

Inventory

Forest land. Forest lands now comprise nearly 90 percent of the total of 734,882 acres in the county. As seen in figure 1, which shows land use in four broad generalized types, the nonforest land lies principally along the Columbia, Cowlitz, and Lewis Rivers. The topography of the county is largely hilly to mountainous and the major portion of the area in agricultural use is bottomland along the streams. Three-fourths of the total of nonforest area of 72 thousand acres is agricultural land and most of the remainder is urban areas.

Approximately 82 percent of the forest land acreage is in private ownership, 12 percent in State ownership, and the remainder in county and Federal ownerships. Forest land in county ownership increased 13 thousand acres during the period between 1933 and 1939.

Table 1 gives the classification of the forest land in the county by forest cover types and ownership class; table 2 and figure 2 present

FOREST STATISTICS FOR COWLITZ COUNTY, WASHINGTON

FROM INVENTORY, PHASE OF FOREST SURVEY

FIGURE 2. GENERALIZED FORESTS TYPES BY OWNERSHIP CLASS FROM TABLE 2.

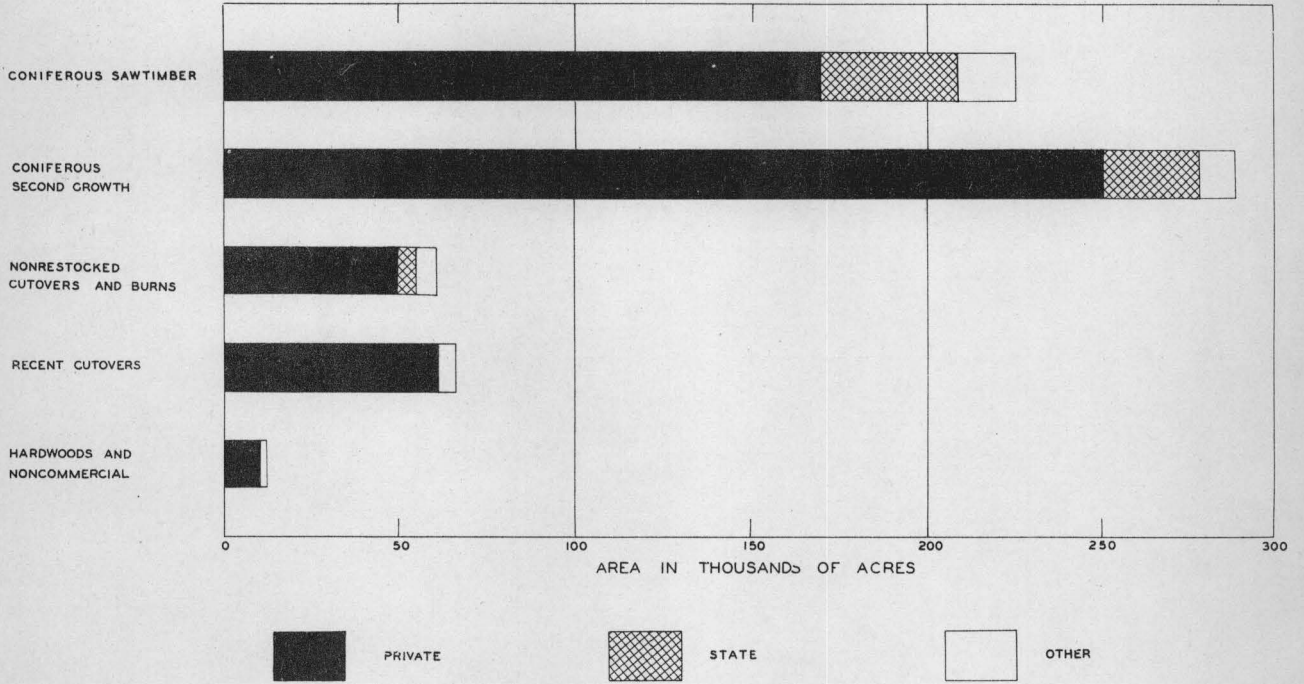
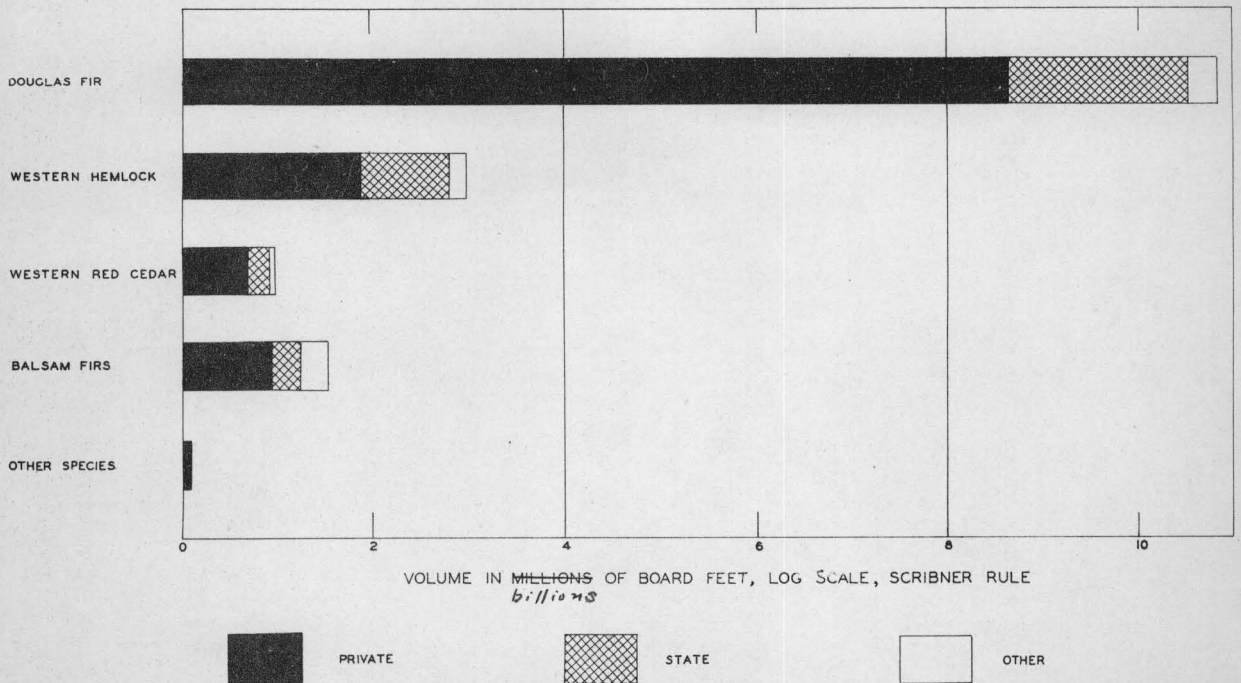


FIGURE 3. DISTRIBUTION OF SAW-TIMBER VOLUME BY SPECIES AND OWNERSHIP CLASS (FROM TABLE 5.)



statistically and graphically the classification by generalized forest types and ownership class.

Saw-timber stands. The saw-timber stands are limited almost entirely to the eastern one-third of the county; only small tracts remain in other parts--one in the extreme northwestern corner, another in the north-central portion, and a few small isolated areas.

Approximately 151 thousand acres, or 67 percent of the total area of saw timber, is stocked with large old-growth Douglas fir 40 inches or more in diameter breast height and an additional 21 thousand acres is stocked with Douglas fir from 20 to 40 inches in diameter. The old-growth stands, which are somewhat mixed with western hemlock and western red cedar, contain some of the finest timber remaining in the Douglas fir region.

The western hemlock and balsam fir-hemlock saw-timber types occupy the higher slopes and ridges in the extreme eastern portion of the county.

During the 6-year period between inventories the area of saw-timber types was reduced 42 thousand acres. Approximately 91 percent of this reduction was of privately-owned timber.

Immature timber. Immature coniferous timber less than saw-timber size occupies 300 thousand acres or about 45 percent of the county's forest land area, a high percentage in comparison with most of the other counties in the Douglas fir region.

The immature stands, which are composed almost entirely of Douglas fir types, range from seedlings to the 80-year age class. However, 206 thousand acres, or more than two-thirds of the total area, is stocked with stands of the pole size, 6 to 20 inches d.b.h.

Fires that occurred during the last century denuded a large acreage in the central portion of the county and this acreage is now restocked principally with timber of pole size. A total of 164 thousand acres is restocked burns and 136 thousand acres is restocked cut-over land.

Stocking conditions of immature stands in the county are somewhat better than average for most of the Douglas fir region. Approximately 82 percent of the area is of medium degree of stocking or better.

Table 3 and figure 4 show the distribution of the immature coniferous stands by types, age class, and degree of stocking.

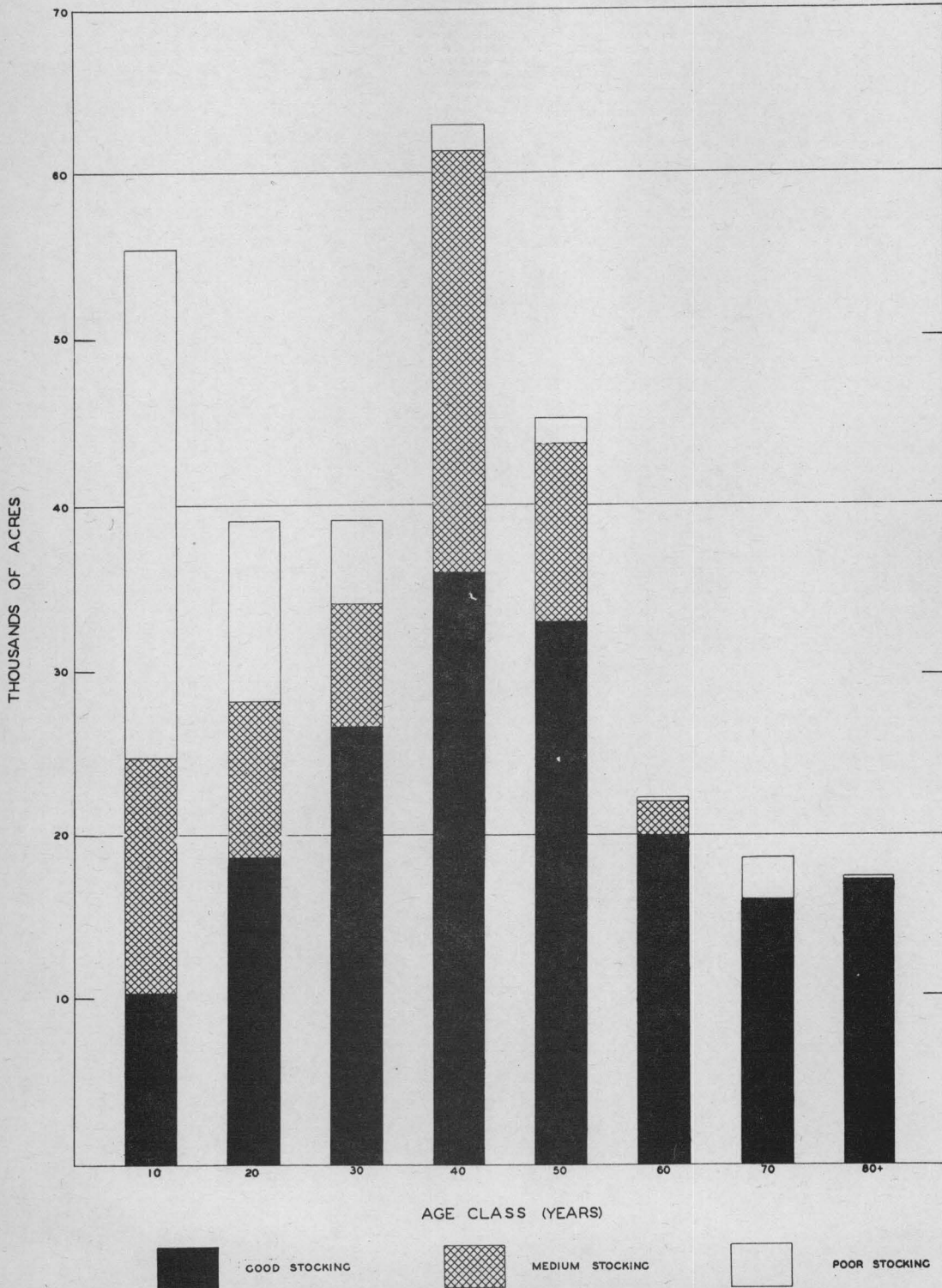
Hardwoods

Although red alder and bigleaf maple occur throughout most of

FOREST STATISTICS FOR COWLITZ COUNTY, WASHINGTON

FROM INVENTORY PHASE OF FOREST SURVEY

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



the county, they are found principally as understory trees in coniferous stands and seldom form distinct forest types. Red alder is the predominant species on most of the total of 8,580 acres mapped as hardwood type; bigleaf maple occurs only in mixture with alder or in coniferous stands; and northern black cottonwood stocks some of the bottomlands along the Columbia and Cowlitz Rivers. On some benchlands and hillside areas alder forms a transition cover type that persists for several years but gradually gives way to Douglas fir reproduction.

Deforested lands. Lands classified as deforested include all clear-cut areas logged prior to 1930 that are not restocked and areas denuded by fire. Cut-over areas were further classified into those cut prior to 1920 and those cut during the decade 1920-1929. The total deforested land is 60 thousand acres or only about 9 percent of the total forest land area in the county. Approximately 23 thousand acres is deforested burns located principally in the southeastern portion of the county; 15 thousand acres is nonrestocked cut-over land logged prior to 1920; and 22 thousand acres is nonrestocked cut-over land logged during the decade 1920-1929.

For the most part regeneration of the cut-over land in the county has been encouraging, particularly when compared to other counties in the Douglas fir region in which logging has been extensive. In the original inventory in 1933 the area of nonrestocked cut-over land logged prior to 1920 totaled approximately 33 thousand acres. By 1939 this acreage was reduced to 15 thousand acres. Of the area logged during the decade 1920-1929, which totaled approximately 55 thousand acres, 33 thousand acres, or 60 percent, had restocked by 1939. In comparison, in 8 other western Washington and western Oregon counties an average of only about 45 percent of areas logged in the same decade were restocked 10 years later.

The area of deforested burns was smaller in 1939 than in 1933 by 2 thousand acres.

Recent cut-over lands. Between January 1, 1930, and July 1, 1939, a total of 63 thousand acres was clear cut in the county. Nearly half of this acreage is in one area that lies between the Coweman River and South Fork of the Toutle River, and another large area of about 10 thousand acres is in the extreme northwestern portion of the county. The remainder of the acreage is in several smaller areas.

No examination of these areas to determine the degree of regeneration was made because of the relatively short time since logging.

Noncommercial forest land. These lands total only about 3 thousand acres located principally in the mountainous section of the county. More than half of the acreage is occupied by lodgepole pine type.

Site Quality of Forest Land

In classifying the forest land in the county as to its site quality or productive capacity the Douglas fir classification was used throughout since most of the land is occupied by this species. Table 4 presents this classification.

In all 651 thousand acres, or about 98 percent of the forest land, was considered as commercial conifer site and half of this acreage was classified as sites I and II, the sites of highest productivity. Most of the western half of the county is site II; the forest land in the eastern half is principally site III except the areas above an elevation of about 4,000 feet which are site IV.

Saw-timber volume. The county still has a good supply of large old-growth Douglas fir timber, for the most part of excellent quality. In western Washington, Lewis County alone has a greater volume of this kind of timber. In Cowlitz County 6.9 billion board feet or 43 percent of the total volume of 15.9 billion board feet is in Douglas fir trees more than 40 inches d.b.h. Also of interest is the comparatively large volume in small second-growth Douglas fir trees 16 to 20 inches d.b.h. The total of 1.5 billion board feet of this class of timber is greater than in any other county in western Washington.

As shown in table 5 and figure 3 a large portion of the saw-timber volume in the county is in private ownership; 12.2 billion board feet, or 77 percent of the total volume, is privately owned. The same percentage of the large old-growth Douglas fir volume is in private ownership.

Only three-tenths of 1 percent of the total volume is in hardwood species.

Depletion

In determining the rate of depletion of the forests in Cowlitz County, it was found that cutting and fire are responsible for nearly all of the drain; the loss due to other agencies of depletion such as wind throw, forest insects, and diseases has been no greater than what is considered normal in the forests of the Douglas fir region.

Cutting depletion. Nearly all of the drain of saw-timber volume in recent years in the county has been due to cutting and most of the volume removed has been taken out as sawlogs. Statistics on sawlog production show that during the 6-year period between inventories an average of approximately 450 million board feet of logs has been cut annually.

In addition to sawlogs several so-called minor forest products

are cut from trees of sawlog size in the county. A study made in 1930^{3/} showed that an average of 12 million board feet was cut annually into fuel wood, fence posts, veneer blocks, shingle bolts, and pulpwood.

Fire depletion. The rate of fire depletion in the county was determined from data contained in annual reports of the Division of Forestry of the State of Washington. During the 6-year period between inventories the estimated loss of saw-timber volume due to fire totaled 680 thousand board feet, or approximately 113 thousand board feet annually. Some of this volume was salvaged.

Damage to immature stands is much more difficult to estimate. During the 6 years the reports show that in addition to the areas of saw timber burned a total of 6.5 thousand acres of second-growth stands was burned and nearly 18 thousand acres of cut-over lands was burned over. It is probable that most of the cut-over land was stocked with seedlings.

Growth

Forest growth in Cowlitz County was determined from the compilation and analysis of data collected during the original survey. At that time the area of coniferous growing stock less than about 160 years of age was 265 thousand acres or approximately 41 percent of the total area of commercial conifer site in the county. The area of growing hardwoods totaled about 4.5 thousand acres or 52 percent of the area of hardwood site.

The current annual volume increment of coniferous trees 15.1 inches or more d.b.h. was computed to be nearly 104 million board feet. Current annual volume increment of hardwood trees 11.1 inches or more d.b.h. was computed to be 586 thousand board feet.

The potential annual coniferous growth on commercial conifer forest land was also computed. If all of this land in the county was producing at 75 percent of capacity, the average annual increment was estimated at 246 million board feet, or more than double the current annual increment.

Trends in Timber Supply

Comparison of the two inventories indicates the present trend in timber supply in the county. The following comparison of areas of saw timber, second growth, and nonrestocked cutovers in 1933 and 1939 shows a rather rapid depletion of saw-timber stands, but a very en-

^{3/} Johnson, Herman M. The Production and Consumption of Minor Timber Products in Oregon and Washington. Office report, Pac. N.W. For. Exp. Sta. 1933 to 1939.

couraging increase in the area of second-growth stands and a sizeable decrease in area of nonrestocked cut-over land.

Comparison of areas of saw timber, second growth, and nonrestocked cutovers in 1933 and 1939

	Private ownership			Public ownership		
	1933	1939	Percent of change [±]	1933	1939	Percent of change [±]
	M acres	M acres		M acres	M acres	
Saw-timber stands	209	170	-19	59	55	-7
Second-growth stands						
6-20" d.b.h.	149	170	+14	26	36	+38
Second-growth stands						
0-6" d.b.h.	47	80	+70	3	13	+333
Nonrestocked cutover						
prior to 1920	31	13	-58	2	2	0

Comparison of the volume of saw timber in the county in 1933 and 1939 further emphasizes the depletion of saw timber, particularly Douglas fir in private ownership. The large reduction of 41 percent of the volume of second-growth Douglas fir 22 to 40 inches d.b.h. in private ownership is the result of extensive logging operations in bodies of this class of timber in the drainages of the Toutle and Coweman Rivers which are extremely accessible.

Comparison of saw-timber volume in 1933 and 1939

Species	Private ownership			Public ownership		
	1933	1939	Percent of change [±]	1933	1939	Percent of change [±]
	Million bd.ft.	Million bd.ft.		Million bd.ft.	Million bd.ft.	
Douglas fir						
Old growth, more than 40" d.b.h.	6,419	5,330	-17	1,643	1,526	-7
Old growth, 22-40" d.b.h.	1,349	1,123	-17	372	337	-9
Second growth, 22-40" d.b.h.	1,477	874	-41	229	152	-34
Second growth, 16-20" d.b.h.	1,455	1,340	-8	191	173	-9
Total Douglas fir	10,700	8,667	-19	2,435	2,188	-10
Other species	3,894	3,550	-9	1,553	1,487	-4
Grand total, all species	14,594	12,217	-16	3,988	3,675	-8

Forest Problems

In common with other counties in the Douglas fir region in which there has been heavy cutting depletion, the problem of obtaining satisfactory regeneration of all cut-over lands is present in Cowlitz County, although to a somewhat lesser degree than in a majority of the other counties. The reforestation of areas cut during the decade 1920-1929 would have been very favorable had it not been for two bad fires, one in 1933 and the other in 1938, which swept over large acreages of recently restocked cut-over land. If fires of this kind can be prevented the regeneration of cut-over lands should not be a difficult problem in the county.

Another situation that is rapidly becoming alarming in Cowlitz County is the cutting of immature stands. During the past 15 years there has been rapid cutting of second-growth timber between 16 inches and 24 inches d.b.h. for use in the manufacture of railroad ties, planks, and rough dimension lumber. Most of the operations in this class of timber have been concentrated in the southern part of the county, particularly in the Kalama River drainage. In 1937 the combined output of 26 of these operations was a little over 7 percent of the total production of lumber in the county.

Although these operations have given employment to a considerable number of men and have returned an immediate income to small owners of second-growth timber, the cutting of thrifty growing timber while it is still making a large volume increment does not appear to be sound forest management. Particularly is this true in Cowlitz County, whose economy is dependent upon a continuous supply of sawlogs to sustain an established lumber industry of huge capacity.

Another undesirable feature of the cutting of this immature timber is the condition in which many of the logged areas are left. It has been the practice of most of the operators to remove only the dominant and codominant trees from a small area close to a highway and then to move on to another tract. The residual stand, composed of suppressed trees, will produce a volume increment far below the productive capacity of the site. The residual stand may also be heavily depleted through wind throw. Also many of the areas are left in a hazardous fire condition.

SUMMARY

The foregoing description and analysis of the forest situation in Cowlitz County reveals the following significant facts:

A comparatively large proportion of the county's forest land supports growing forests.

Second-growth forests are well distributed by age classes (table 3).

Productive capacity of the commercial forest land is well above the average for the Douglas fir region, over half being sites I and II (table 4).

Area of deforested lands is not excessive.

Current annual growth is about two-fifths of potential annual growth; a very favorable ratio considering that about one-third the commercial conifer land is supporting old-growth forests.

Current annual depletion is about twice potential annual growth.

Installed capacity of forest industries in the county considerably exceeds current sawlog depletion.

Logs from Lewis County to the north and from Oregon are now being used to feed Cowlitz County mills.

Permanence of forest industrial establishments in Longview depends upon drawing log supplies from a much larger territory than Cowlitz County.

The cutting of thrifty growing second-growth timber in parts of the county, a practice that has increased considerably in recent years, has created a situation that is becoming alarming.

FOREST STATISTICS FOR COWLITZ COUNTY, WASHINGTON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 1. AREA, IN ACRES, OF ALL FOREST COVER TYPES, BY OWNERSHIP CLASS
DATA CORRECTED TO JULY 1, 1939

SUR- VEY TYPE NO.	TYPE DEFINITION	STATE			COUNTY	FEDERAL		TOTAL
		PRIVATE	AVAILABLE FOR CUTTING	RESERVED FROM CUTTING		AVAILABLE FOR CUTTING PUBLIC DOMAIN	NATIONAL FOREST	
	DOUGLAS FIR; FOREST CONTAINING 60% OR MORE OF DOUGLAS FIR							
6	DOUGLAS FIR, LARGE OLD GROWTH; MORE THAN 40" D.B.H.	115,322	29,850	985	540	175	4,350	151,222
7	DOUGLAS FIR, SMALL OLD GROWTH; 22 TO 40" D.B.H.	295	25				245	565
8	DOUGLAS FIR, LARGE SECOND GROWTH; 22 TO 40" D.B.H.	19,785	580		255			20,620
9	DOUGLAS FIR, SMALL SECOND GROWTH; 6 TO 20" D.B.H.	169,095	18,695	20	12,610	2,210	1,260	203,890
10	DOUGLAS FIR SEEDLINGS AND SAPLINGS; LESS THAN 6" D.B.H.	80,435	8,745		4,085	155		93,420
	WESTERN HEMLOCK; FOREST CONTAINING 50% OR MORE OF WESTERN HEMLOCK							
14	WESTERN HEMLOCK, LARGE; MORE THAN 20" D.B.H.	9,635	1,570				430	11,635
15	WESTERN HEMLOCK, SMALL; 6 TO 20" D.B.H.	200	150					350
	WESTERN RED-CEDAR; FOREST CONTAINING 40% OR MORE OF WESTERN RED CEDAR							
17	WESTERN RED CEDAR, LARGE; MORE THAN 24" D.B.H.	2,730	1,955					4,685
	FIR-MOUNTAIN HEMLOCK; FOREST CONTAINING 50% OR MORE OF NOBLE FIR, SILVER FIR, OR MOUNTAIN HEMLOCK, OR A COMBINATION OF THESE SPECIES							
23	FIR-MOUNTAIN HEMLOCK, LARGE; 16" OR MORE D.B.H.	22,155	3,885				10,370	36,410
24	FIR-MOUNTAIN HEMLOCK, SMALL; LESS THAN 16" D.B.H.	1,175					955	2,130
	LOGEPOLE PINE; FORESTS CONTAINING 50% OR MORE OF LOGEPOLE PINE							
26	LOGEPOLE PINE, SMALL; LESS THAN 12" D.B.H.	610					1,000	1,610
	HARDWOODS; FOREST CONTAINING 50% OR MORE OF HARDWOODS							
31.5	HARDWOODS, LARGE; 12" OR MORE D.B.H.	2,010	5					2,015
31	HARDWOODS, SMALL; LESS THAN 12" D.B.H.	6,065	270		215		15	6,565
	NONRESTOCKED CUTOVER; CLEAR CUT AREA NOT SATISFACTORILY RESTOCKED							
35	CLEAR CUT PRIOR TO 1920	13,065	350		1,955	10		15,380
35A	CLEAR CUT FROM 1920 TO 1929, INCLUSIVE	21,460	450		200			22,110
36	RECENT CUTOVER; CLEAR CUT SINCE BEGINNING OF 1930	61,505	4,540		335			66,380
	DEFORESTED AREA; NONRESTOCKED AREA DEFORESTED OTHERWISE THAN BY CUTTING							
37	DEFORESTED BURN	14,730	4,890		2,240	740		22,600
38	NONCOMMERCIAL ROCKY AREAS	890					610	1,500
	TOTAL FOREST TYPES	541,162	75,960	1,005	22,435	3,290	19,235	663,067
	NONFOREST LAND; CULTIVATED, GRASS, BRUSH, BARRENS, URBAN AREAS, AND UNMEANDERED WATER SURFACES							
2	GRASS, BRUSH, BARRENS, URBAN AREAS, AND UNMEANDERED WATER SURFACES	16,370	45		375	35	450	17,275
3	CULTIVATED AREAS	52,880	145		1,495			54,520
	TOTAL	610,412	76,150	1,005	24,305	3,325	19,685	734,882

FOREST STATISTICS FOR COWLITZ COUNTY, WASHINGTON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 2. AREA, IN ACRES, OF GENERALIZED FOREST TYPES, BY OWNERSHIP CLASS
DATA CORRECTED TO JULY 1, 1939

TYPE DEFINITION	STATE				FEDERAL		TOTAL
	PRIVATE	AVAILABLE FOR CUTTING		RESERVED FROM CUTTING	AVAILABLE FOR CUTTING		
		COUNTY	FOR CUTTING		PUBLIC DOMAIN	NATIONAL FOREST	
HARDWOODS: RED ALDER, BIGLEAF MAPLE, ASH, AND NORTHERN BLACK COTTONWOOD SURVEY TYPES 31 AND 31.5	8,075	275		215		15	8,580
CONIFERS MORE THAN ABOUT 20" D.B.H. SURVEY TYPES 6, 7, 8, 11, 14, 17, AND 23	169,922	37,865	985	795	175	15,395	225,137
CONIFERS 6 TO 20" D.B.H. SURVEY TYPES 9 AND 15	55,975	1,050		785	40		57,850
	113,320	17,795	20	11,825	2,170	1,260	146,390
	169,295	18,845	20	12,610	2,210	1,260	204,240
CONIFERS 0 TO 6" D.B.H. SURVEY TYPE 10	67,710	7,435		2,820			77,965
	12,725	1,310		1,265	155		15,455
	80,435	8,745		4,085	155		93,420
CONIFERS 0 TO 16" D.B.H. SURVEY TYPE 24							
	1,175					955	2,130
	1,175					955	2,130
NONCOMMERCIAL AREAS SURVEY TYPES 26 AND 38	1,500					1,610	3,110
RECENT CUTOVER AREAS: CLEAR CUT SINCE BEGINNING OF 1930 SURVEY TYPE 36	61,505	4,540		335			66,380
NONRESTOCKED CUTOVER AREAS AND DEFORESTED BURNS SURVEY TYPES 35, 35A, AND 37	49,255	5,690		4,395	750		60,090
TOTAL FOREST TYPES	541,162	75,960	1,005	22,435	3,290	19,235	663,087
NONFOREST LAND SURVEY TYPES 2 AND 3	69,250	190		1,870	35	450	71,795
TOTAL	610,412	76,150	1,005	24,305	3,325	19,685	734,882

FOREST STATISTICS FOR COWLITZ COUNTY, WASHINGTON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 3. AREA, IN ACRES, OF CERTAIN IMMATURE CONIFEROUS FOREST TYPES,
BY AGE CLASS AND DEGREE OF STOCKING
DATA CORRECTED TO JULY 1, 1939

AGE CLASS (YEARS)	DEGREE OF STOCKING	TYPE NUMBER AND NAME				TOTAL
		10 DOUGLAS FIR, SEEDLINGS AND SAPPLINGS	9 DOUGLAS FIR, SMALL GROWTH	15 WESTERN HEMLOCK, SECOND GROWTH	24 FIR-MOUNTAIN HEMLOCK, SMALL	
10	GOOD	9,300	345		660	10,305
	MEDIUM	14,495				14,495
	POOR	30,730				30,730
	TOTAL	54,525	345		660	55,530
20	GOOD	18,410	180			18,590
	MEDIUM	9,535	80			9,615
	POOR	10,945				10,945
	TOTAL	38,890	260			39,150
30	GOOD	5	25,155		1,470	26,630
	MEDIUM		7,390			7,390
	POOR		5,065			5,065
	TOTAL	5	37,610		1,470	39,085
40	GOOD		35,545	350		35,895
	MEDIUM		25,500			25,500
	POOR		1,525			1,525
	TOTAL		62,570	350		62,920
50	GOOD		33,070			33,070
	MEDIUM		10,695			10,695
	POOR		1,470			1,470
	TOTAL		45,235			45,235
60	GOOD		19,955			19,955
	MEDIUM		1,985			1,985
	POOR		220			220
	TOTAL		22,160			22,160
70	GOOD		15,890			15,890
	MEDIUM					
	POOR		2,535			2,535
	TOTAL		18,425			18,425
80	GOOD		17,085			17,085
	MEDIUM					
	POOR		200			200
	TOTAL		17,285			17,285
TOTAL	GOOD	27,715	147,225	350	2,130	177,420
	MEDIUM	24,030	45,650			69,680
	POOR	41,675	11,015			52,690
ALL AGES	TOTAL	93,420	203,890	350	2,130	299,790

FOREST STATISTICS FOR COWLITZ COUNTY, WASHINGTON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 4. AREA OF FOREST LAND, BY SITE QUALITY
DATA CORRECTED TO JULY 1, 1939

SITE CLASSIFICATION		AREA IN PERCENTAGE OF---				
TYPE	SITE QUALITY CLASS ^{1/}	AREA IN	COMMERCIAL:	TOTAL	TOTAL	
		ACRES	CONIFER	FOREST	AREA	
			LAND	LAND		
		I	8,132	1.2	1.2	1.1
COMMERCIAL CONIFER	DOUGLAS FIR	II	320,487	49.2	48.4	43.6
		III	284,569	43.7	42.9	38.7
		IV	38,209	5.9	5.8	5.2
TOTAL COMMERCIAL CONIFER			651,397	100.0		88.6
LODGEPOLE PINE			1,610		0.2	0.2
NONCOMMERCIAL ROCKY AREAS			1,500		0.2	0.2
HARDWOOD			8,580		1.3	1.2
TOTAL OTHER THAN COMMERCIAL CONIFER			11,690		100.0	1.6
ALL FOREST TYPES			663,087			
NONFOREST TYPES			71,795			9.8
GRAND TOTAL			734,882			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 COWLITZ COUNTY, WASHINGTON
FROM INVENTORY PHASE OF FOREST SURVEY

TABLE 5. VOLUME OF TIMBER BY SPECIES AND OWNERSHIP CLASS
DATA CORRECTED TO JULY 1, 1939

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

SYMBOL	SPECIES	STATE			COUNTY	FEDERAL		TOTAL
		PRIVATE	AVAILABLE FOR CUTTING	RESERVED FROM CUTTING		PUBLIC DOMAIN	NATIONAL FOREST	
DA	LARGE OLD-GROWTH DOUGLAS FIR	5,330,269	1,324,449	29,840	14,667	6,021	150,508	6,855,754
DB	SMALL OLD-GROWTH DOUGLAS FIR	1,122,925	263,944	5,899	2,818	1,191	63,677	1,460,454
DC	LARGE SECOND-GROWTH DOUGLAS FIR	873,887	108,724	1,941	9,574	391	31,002	1,025,519
DD	SMALL SECOND-GROWTH DOUGLAS FIR	1,339,699	138,593	383	19,507	3,624	11,465	1,513,271
SA	LARGE SITKA SPRUCE	4,390	680			60		5,130
HA	LARGE WESTERN HEMLOCK	1,639,036	407,053	138		122	154,747	2,201,096
HB	SMALL WESTERN HEMLOCK	232,396	50,239	15	1,100	164	17,433	301,347
C	WESTERN RED CEDAR, LIVE	665,156	221,785	3,719	1,175	445	39,129	931,409
KC	WESTERN RED CEDAR, DEAD	7,415	1,665				1,175	10,255
YC	ALASKA CEDAR	135					385	520
W	WESTERN WHITE PINE	15,380	2,965				4,740	23,085
LP	LODGEPOLE PINE	350					60	410
WF	LOWLAND WHITE FIR	827	277					1,104
NF	NOBLE FIR	194,698	86,860				74,840	356,398
A	SILVER FIR	742,539	190,728	690	900		211,457	1,146,314
RA	RED ALDER	29,714	5,826	158	105	28	2,463	38,294
BC	NORTHERN BLACK COTTONWOOD	14,378	1,817	49	34	9	770	17,057
OM	BIGLEAF MAPLE	3,379	729	20	13	4	307	4,452
TOTAL		12,216,573	2,806,334	42,852	49,893	12,059	764,158	15,891,869

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