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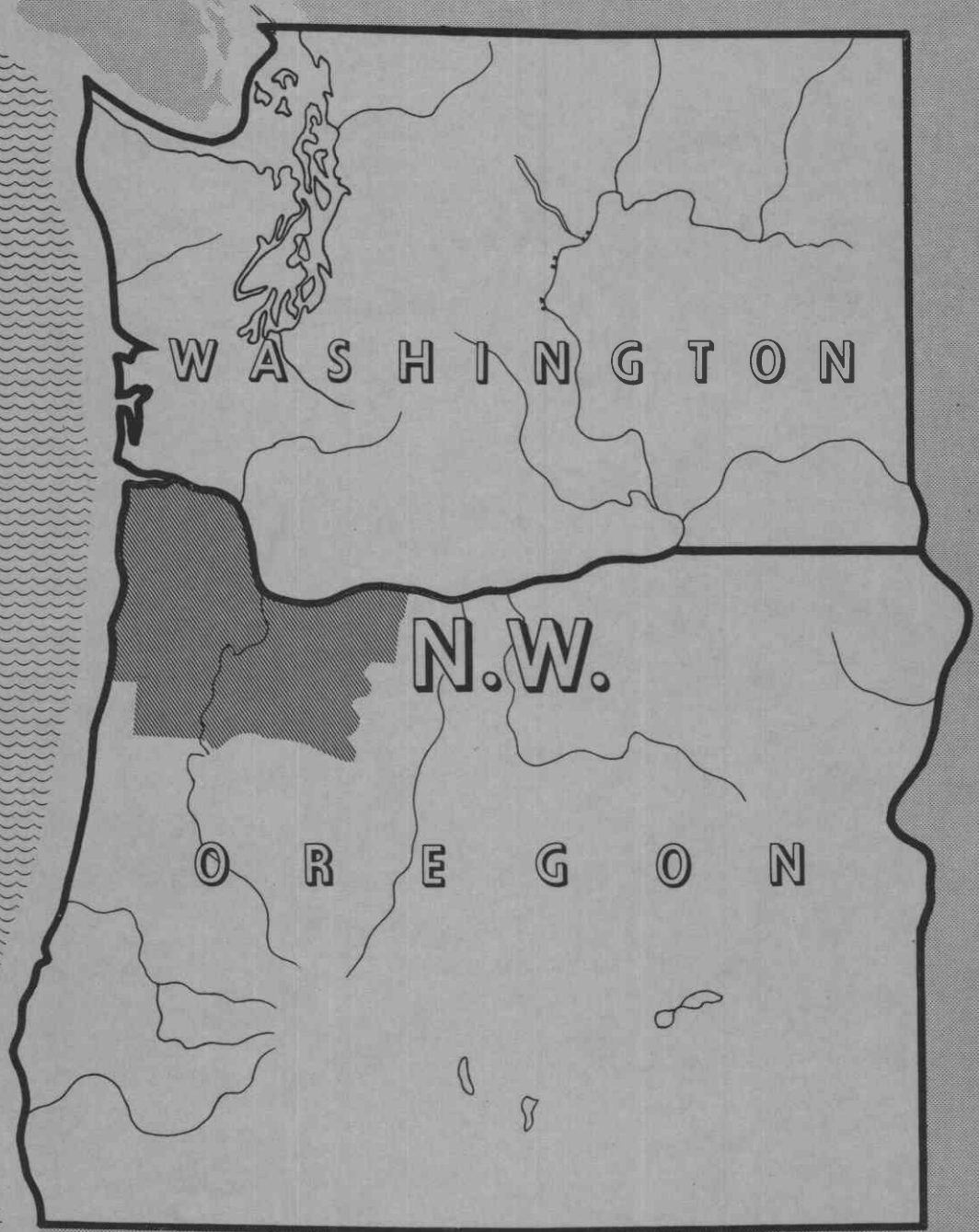
Forest Statistics for



PACIFIC NORTHWEST
FOREST AND RANGE EXPERIMENT STATION
U.S. DEPT. OF AGRICULTURE · FOREST SERVICE

U.S. FOREST SERVICE
RESOURCE BULLETIN PNW-7
1964

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Acknowledgment is made of the cooperation of the Division of Timber Management, Region 6, U.S. Forest Service, in supplying resource data for National Forest lands; of the assistance of the Oregon State Board of Forestry in furnishing ownership information; and of other public and private agencies in making aerial photography available to Forest Survey for interpretation.

U.S. Forest Service
Resource Bulletin PNW-7
July 1964

FOREST STATISTICS FOR NORTHWEST OREGON

by

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and

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

PREFACE

This publication summarizes the results of the latest reinventory of 10 counties in northwest Oregon: Clackamas, Clatsop, Columbia, Hood River, Marion, Multnomah, Polk, Tillamook, Washington, and Yamhill. This block of counties is one of 10 such blocks set up in the States of Oregon and Washington by the Forest Survey to facilitate orderly reinventories of the timber resources. Each block will be reinventoried at 10-year intervals and the results published in a single report for the block. The five blocks in Oregon are northwest Oregon, west-central Oregon, southwest Oregon, central Oregon, and northeast Oregon.

Field data for northwestern Oregon were collected in 1961 for all areas except the Siuslaw National Forest, for which the most recent data available were collected in 1956. Volume data have been adjusted for growth and cutting to January 1, 1963, but not for the effects of the windstorm of October 12, 1962. The results of this latest reinventory are presented with a minimum of interpretation to permit more rapid publication of the timber resource statistics.

The 10 counties covered by this report were previously inventoried in the years shown below:

County	Initial inventory	Second inventory	Third inventory
Clackamas	1931-32	1944	--
Clatsop	1930	1937	1952
Columbia	1930	1938	1954
Hood River	1932	1954	--
Marion	1933	1944	--
Polk	1930	1940	--
Tillamook	1930-31	1942	1955
Washington	1930	1939	--
Yamhill	1930	1942	--

The results of the initial inventory of these counties were published in 1934 as a series of pamphlets containing forest statistics for each individual county.

The results of the second and third inventories were also released in a series of individual county reports within 1 to 2 years following completion of the field inventory.

Such inventories are a part of the Forest Survey--a nationwide project of the Forest Service authorized by the McSweeney-McNary Forest Research Act of 1928, amended June 25, 1949. The purpose of the Forest Survey is to periodically inventory the extent and condition of forest lands and the timber and other forest products on them, to determine rates of forest growth and depletion, to estimate present consumption of timber products and probable

future trends in timber requirements, to analyze and make available survey information needed in the formulation of forest policies and programs, and to make resurveys as necessary to keep the basic information up to date.

The Forest Survey is conducted in the various forest regions of the Nation by the regional Experiment Stations of the U.S. Forest Service. In the States of Oregon and Washington, it is the responsibility of the Pacific Northwest Forest and Range Experiment Station at Portland, Oreg.

CONTENTS

NORTHWEST OREGON'S FOREST RESOURCE IN BRIEF

COMMERCIAL FOREST LAND--

Covers 3,954,000 acres or 71 percent of the land area;
Has sawtimber stands on 53 percent of its area; and
Is composed of 55 percent Douglas-fir type, 26 percent other softwood types, and 19 percent hardwood types.

GROWING-STOCK VOLUME--

Totals 15,772 million cubic feet;
Is 90 percent softwoods; and
Is 84 percent in trees of sawtimber size.

SAWTIMBER VOLUME--

Totals 82,821 million board feet, International 1/4-inch rule (65,567 million board feet, Scribner rule);
Is 71 percent publicly owned;
Is 38 percent in trees over 29 inches in diameter; and
Is 6 percent greater than in the 1940's.

NATIONAL FOREST OWNERSHIP--

Has 27 percent of the commercial forest area;
Controls 39 percent of the sawtimber area; and
Holds 52 percent of the sawtimber volume.

OTHER PUBLIC OWNERSHIP--

Has 22 percent of the commercial forest area;
Controls 18 percent of the sawtimber area; and
Holds 20 percent of the sawtimber volume.

FOREST INDUSTRY OWNERSHIP--

Has 24 percent of the commercial forest area;
Controls 18 percent of the sawtimber area; and
Holds 16 percent of the sawtimber volume.

FARMER AND MISCELLANEOUS PRIVATE OWNERSHIP--

Has 27 percent of the commercial forest area;
Controls 25 percent of the sawtimber area; and
Holds 12 percent of the sawtimber volume.

NET ANNUAL GROWTH--

Totals 224 million cubic feet (860 million board feet, International 1/4-inch rule, 698 million board feet, Scribner);
Is 1.4 percent of growing-stock volume; and
Is 80 percent softwood.

AVERAGE ANNUAL CUT OVER THE PAST 5 YEARS--

Has been 1,306 million board feet, Scribner rule, of which 55 percent has been from private timber; and
Has been 87 percent greater than average net annual growth.

Table 1.--Area by land classes, by county, northwest Oregon, 1963

(In acres)

County	Land class					
	Commercial forest	Unproductive forest	Productive-reserved forest	Total forest	Nonforest[1/]	All land[2/]
Clackamas	945,000	11,000	(3/)	956,000	254,000	1,210,000
Clatsop	465,000	19,000	4,000	488,000	37,000	525,000
Columbia	336,000	7,000	--	343,000	70,000	413,000
Hood River	258,000	20,000	10,000	288,000	50,000	338,000
Marion	384,000	12,000	7,000	403,000	348,000	751,000
Multnomah	128,000	3,000	1,000	132,000	139,000	271,000
Polk	279,000	(3/)	1,000	280,000	193,000	473,000
Tillamook	646,000	--	4,000	650,000	64,000	714,000
Washington	255,000	--	(3/)	255,000	203,000	458,000
Yamhill	258,000	--	--	258,000	196,000	454,000
Total	3,954,000	72,000	27,000	4,053,000	1,554,000	5,607,000

1/ Includes 12,000 acres of water according to Forest Survey standards of area classification but defined as land by the Bureau of the Census.

2/ From U.S. Bureau of the Census, Land and Water Area of the United States, 1960.

3/ Less than 500 acres.

Table 2.--Area of commercial forest land, by ownership classes, northwest Oregon, 1963

(In acres)

Ownership class	Area
National Forest	1,075,000
Other Federal:	
Bureau of Land Management	252,000
Indian	8,000
Miscellaneous Federal	--
Total other Federal	260,000
State	545,000
County and municipal	78,000
Forestry industry:	
Pulp and paper	715,000
Lumber	230,000
Other	--
Total forest industry	945,000
Farmer owned	655,000
Miscellaneous private	396,000
All ownerships	3,954,000

Table 3.--Area of commercial forest land, by county and ownership classes, northwest Oregon, 1963

(In acres)

County	All ownerships	National Forest	Other public	Forest industry	Farmer and miscellaneous private
Clackamas	945,000	532,000	89,000	115,000	209,000
Clatsop	465,000	--	144,000	221,000	100,000
Columbia	336,000	--	19,000	195,000	122,000
Hood River	258,000	177,000	43,000	23,000	15,000
Marion	384,000	183,000	50,000	36,000	115,000
Multnomah	128,000	68,000	4,000	--	56,000
Polk	279,000	1,000	43,000	132,000	103,000
Tillamook	646,000	91,000	353,000	125,000	77,000
Washington	255,000	--	95,000	8,000	152,000
Yamhill	258,000	23,000	43,000	90,000	102,000
All counties	3,954,000	1,075,000	883,000	945,000	1,051,000

Table 4.--Area of commercial forest land, by stand-size and ownership classes, northwest Oregon, 1963

(In acres)

Stand-size class	All ownerships	National Forest	Other public	Forest industry	Farmer and miscellaneous private
Sawtimber stands:					
Large	1,145,000	580,000	232,000	165,000	168,000
Small	936,000	230,000	131,000	217,000	358,000
Total	2,081,000	810,000	363,000	382,000	526,000
Poletimber stands	539,000	172,000	89,000	138,000	140,000
Sapling and seedling stands	1,127,000	75,000	319,000	382,000	351,000
Nonstocked areas	207,000	18,000	112,000	43,000	34,000
All classes	3,954,000	1,075,000	883,000	945,000	1,051,000

Table 5.--Area of commercial forest land, by stand volume classes for sawtimber and other stand-size classes, northwest Oregon, 1963

(In acres)

Stand volume class[1/]	Area by stand-size classes		
	All stands	Sawtimber stands	Other stands
Less than 1,500 board feet	1,155,000	13,000	1,142,000
1,500 to 5,000 board feet	602,000	119,000	483,000
More than 5,000 board feet	2,197,000	1,949,000	248,000
All classes	3,954,000	2,081,000	1,873,000

1/ Net volume per acre, International 1/4-inch rule.

Table 6.--Area of commercial forest land, by stocking classes of growing-stock trees and by stand-size classes, northwest Oregon, 1963

(In acres)

Stocking class	All stands	Sawtimber stands	Poletimber stands	Sapling and seedling stands	Nonstocked stands
70 percent or more	2,211,000	1,492,000	336,000	383,000	(1/)
40 to 70 percent	914,000	415,000	120,000	379,000	(1/)
10 to 40 percent	622,000	174,000	83,000	365,000	(1/)
Less than 10 percent	207,000	(1/)	(1/)	(1/)	207,000
All classes	3,954,000	2,081,000	539,000	1,127,000	207,000

1/ Not applicable.

Table 7.--Area of commercial forest land, by yield and ownership classes, northwest Oregon, 1963

(In acres)

Yield class[1/]	All ownerships	National Forest	Other public	Forest industry	Farmer and miscellaneous private
120 cubic feet or more	2,568,000	373,000	760,000	699,000	736,000
85 to 120 cubic feet	556,000	258,000	50,000	102,000	146,000
50 to 85 cubic feet	626,000	361,000	52,000	104,000	109,000
Less than 50 cubic feet	204,000	83,000	21,000	40,000	60,000
All classes	3,954,000	1,075,000	883,000	945,000	1,051,000

[1/] A classification in terms of capacity for cubic-foot annual growth per acre.

Table 8.--Area of commercial forest land, by forest types and ownership classes, northwest Oregon, 1963

(In acres)

Type	All ownerships	Public ownerships	Private ownerships
Douglas-fir	1,993,000	1,022,000	971,000
Ponderosa pine	6,000	6,000	--
Hemlock—Sitka spruce	725,000	364,000	361,000
Spruce—fir	237,000	201,000	36,000
Western larch	4,000	4,000	--
Lodgepole pine	28,000	28,000	--
Western white pine	5,000	5,000	--
Hardwoods	749,000	198,000	551,000
Nonstocked	207,000	130,000	77,000
All types	3,954,000	1,958,000	1,996,000

Table 9.--Area of noncommercial forest land, by forest types, northwest Oregon, 1963

(In acres)

Type	All areas	Productive-reserved areas	Unproductive areas
Douglas-fir	12,000	12,000	--
Hemlock—Sitka spruce	7,000	7,000	--
Lodgepole pine	1,000	1,000	--
Spruce—fir	5,000	5,000	--
Hardwoods	4,000	2,000	2,000
Nonstocked	(1/)	(1/)	--
Subalpine	7,000	--	7,000
Noncommercial rocky	36,000	(2/)	36,000
Noncommercial other	27,000	(2/)	27,000
All types	99,000	27,000	72,000

1/ Less than 500 acres.

2/ Not applicable.

Table 10.--Volume of all growing stock and sawtimber on commercial forest land by counties, northwest Oregon, 1963[1/]

County	All growing stock	Sawtimber (International 1/4-inch rule)	Sawtimber (Scribner rule)
	Million cu. ft.	Million bd. ft.	Million bd. ft.
Clackamas	4,962	27,119	21,297
Clatsop	2,048	9,918	7,789
Columbia	794	2,719	2,120
Hood River	1,198	6,237	4,817
Marion	1,798	9,797	7,768
Multnomah	641	3,826	3,174
Polk	713	3,508	2,952
Tillamook	2,426	14,462	11,490
Washington	369	1,321	1,014
Yamhill	823	3,914	3,146
All counties	15,772	82,821	65,567

1/ In this and all subsequent tables, conifer volumes are in terms of 32-foot logs for Scribner rule and 16-foot logs for International 1/4-inch rule. All hardwood volumes are in terms of 8-foot logs.

Table 11.--Volume of all growing stock and sawtimber on commercial forest land by county and ownership class, northwest Oregon, 1963

County	All ownerships	National Forest	Other public	Forest industry	Farmer and miscellaneous private
	Million cubic feet				
All growing stock:					
Clackamas	4,962	3,635	509	355	463
Clatsop	2,048	--	517	1,186	345
Columbia	794	--	54	423	317
Hood River	1,198	971	91	95	41
Marion	1,798	1,283	271	43	201
Multnomah	641	448	31	--	162
Polk	713	14	317	184	198
Tillamook	2,426	786	879	427	334
Washington	369	--	123	--	246
Yamhill	823	150	255	188	230
Total	15,772	7,287	3,047	2,901	2,537
	Million board feet[1/]				
Sawtimber:					
Clackamas	27,119	20,732	2,660	1,744	1,983
Clatsop	9,918	--	2,249	5,979	1,690
Columbia	2,719	--	67	1,506	1,146
Hood River	6,237	5,138	448	500	151
Marion	9,797	7,246	1,634	85	832
Multnomah	3,826	2,872	211	--	743
Polk	3,508	98	2,289	651	470
Tillamook	14,462	5,634	4,916	2,209	1,703
Washington	1,321	--	486	--	835
Yamhill	3,914	942	1,462	864	646
Total	82,821	42,662	16,422	13,538	10,199

[1/] International 1/4-inch rule.

Table 12.--Number of growing-stock trees on commercial forest land, by diameter classes and by softwoods and hardwoods, northwest Oregon, 1963

(Thousands of trees)

Diameter class (inches d.b.h.)	All species	Softwoods	Hardwoods
5.0 - 6.9	147,861	116,648	31,213
7.0 - 8.9	101,165	77,041	24,124
9.0 - 10.9	69,119	51,791	17,328
11.0 - 12.9	49,095	38,146	10,949
13.0 - 14.9	32,553	26,847	5,706
15.0 - 16.9	26,357	22,220	4,137
17.0 - 18.9	17,176	15,237	1,939
19.0 - 28.9	38,196	35,707	2,489
29.0 - 38.9	9,874	9,592	282
39.0 and larger	3,928	3,901	27
All classes	495,324	397,130	98,194

Table 13.--Number of cull and salvable dead trees on commercial forest land, by diameter groups and by softwoods and hardwoods, northwest Oregon, 1963

(Thousands of trees)

Diameter class (inches d.b.h.)	Cull trees	Salvable dead trees
Softwoods:		
5.0 - 10.9	6,519	--
11.0 - 18.9	1,132	2,981
19.0 and larger	6,229	1,486
Total	13,880	4,467
Hardwoods:		
5.0 - 10.9	21,293	--
11.0 - 18.9	6,140	282
19.0 and larger	2,687	--
Total	30,120	282
All species	44,000	4,749

Table 14.--Volume of timber on commercial forest land, by class of timber and by softwoods and hardwoods, northwest Oregon, 1963

Class of timber	All species	Softwoods	Hardwoods
	Million cubic feet		
Growing-stock trees:			
Live sawtimber:			
Saw-log portion	12,372	11,541	831
Upper-stem portion	931	869	62
Total	13,303	12,410	893
Poletimber	2,469	1,762	707
Total	15,772	14,172	1,600
Sound cull trees:			
Sawtimber-size	25	12	13
Poletimber-size	103	19	84
Total	128	31	97
Rotten cull trees:			
Sawtimber-size	22	19	3
Poletimber-size	1	--	1
Total	23	19	4
Salvable dead trees:			
Sawtimber-size	301	297	4
Total	301	297	4
Total, all timber	16,224	14,519	1,705

Table 15.--Volume of all growing stock and sawtimber on commercial forest land, by ownership classes and by softwoods and hardwoods, northwest Oregon, 1963

Timber and ownership classes	All species	Softwoods	Hardwoods
	Million cu. ft.	Million cu. ft.	Million cu. ft.
All growing stock:			
National Forest	7,287	7,070	217
Other public	3,047	2,753	294
Forest industry	2,901	2,637	264
Farmer and miscellaneous private	2,537	1,712	825
All ownerships	15,772	14,172	1,600
	Million bd. ft.	Million bd. ft.	Million bd. ft.
Sawtimber (International 1/4-inch rule):			
National Forest	42,662	41,843	819
Other public	16,422	15,555	867
Forest industry	13,538	12,806	732
Farmer and miscellaneous private	10,199	7,660	2,539
All ownerships	82,821	77,864	4,957
Sawtimber (Scribner rule):			
National Forest	33,863	33,065	798
Other public	12,925	12,082	843
Forest industry	10,488	9,777	711
Farmer and miscellaneous private	8,291	5,826	2,465
All ownerships	65,567	60,750	4,817

Table 16.--Volume of all growing stock and sawtimber on commercial forest land, by stand-size classes and by softwoods and hardwoods, northwest Oregon, 1963

Stand-size class	All species	Softwoods	Hardwoods
	Million cu. ft.	Million cu. ft.	Million cu. ft.
All growing stock:			
Sawtimber stands	13,883	12,814	1,069
Poletimber stands	1,224	906	318
Sapling and seedling stands	661	448	213
Nonstocked areas	4	4	(1/)
Total	15,772	14,172	1,600
	Million bd. ft.	Million bd. ft.	Million bd. ft.
Sawtimber (International 1/4-inch rule):			
Sawtimber stands	79,095	74,925	4,170
Poletimber stands	1,722	1,412	310
Sapling and seedling stands	1,990	1,513	477
Nonstocked areas	14	14	(1/)
Total	82,821	77,864	4,957
Sawtimber (Scribner rule):			
Sawtimber stands	62,544	58,491	4,053
Poletimber stands	1,389	1,088	301
Sapling and seedling stands	1,624	1,161	463
Nonstocked areas	10	10	(1/)
Total	65,567	60,750	4,817

1/ Less than 0.5 million.

Table 17.--Volume of all growing stock on commercial forest land, by species and diameter classes, northwest Oregon, 1963

Species	Diameter class (inches at breast height)										
	All classes	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0 and larger
	Million cubic feet										
Softwoods:											
Douglas-fir	7,548	186	315	391	505	531	602	521	2,005	1,262	1,230
Ponderosa pine	32	(1/)	2	1	(1/)	1	1	1	14	6	6
Western white pine	80	2	4	6	6	7	7	7	25	10	6
Sugar pine	(1/)	--	--	--	(1/)	--	--	--	(1/)	--	--
Lodgepole pine	68	14	19	12	10	6	4	1	2	--	--
Whitebark pine	1	--	--	--	--	--	--	--	1	--	--
White and grand fir	168	7	10	15	12	16	19	14	58	13	4
Pacific silver fir	560	41	45	68	46	57	59	55	144	40	5
Noble fir	328	10	9	11	16	14	17	16	101	72	62
Subalpine fir	37	5	5	5	4	3	4	4	6	1	--
Engelmann spruce	105	2	3	3	4	5	4	1	11	7	65
Sitka spruce	812	38	46	20	59	40	80	65	209	122	133
Mountain hemlock	377	11	16	22	28	37	43	42	119	18	41
Western hemlock	3,638	57	113	174	177	201	258	270	1,367	704	317
Alaska-cedar	5	(1/)	1	1	(1/)	1	1	(1/)	1	--	--
Western redcedar	375	20	28	22	27	25	25	19	93	57	59
Incense-cedar	2	(1/)	(1/)	(1/)	--	--	(1/)	--	(1/)	1	1
Western larch	36	(1/)	1	1	2	2	2	3	15	6	4
Total	14,172	393	617	752	896	946	1,126	1,019	4,171	2,319	1,933
Hardwoods:											
Red alder	1,040	113	130	165	155	128	120	76	124	27	2
Oregon ash	41	8	5	5	5	4	9	--	5	--	--
Black cottonwood	15	--	2	--	2	2	3	2	2	--	2
Bigleaf maple	264	34	35	43	41	29	17	11	38	12	4
Oregon white oak	239	46	69	51	29	8	7	4	16	7	2
Golden chinkapin	1	1	(1/)	(1/)	(1/)	--	(1/)	--	--	--	--
Total	1,600	202	241	264	232	171	156	93	185	46	10
All species	15,772	595	858	1,016	1,128	1,117	1,282	1,112	4,356	2,365	1,943

1/ Less than 500,000 cubic feet.

Table 18.--Volume of sawtimber on commercial forest land, by species and diameter classes, northwest Oregon, 1963 (International 1/4-inch rule)

Species	Diameter class (inches at breast height)							
	All classes	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0 and larger
	Million board feet							
Softwoods:								
Douglas-fir	42,525	1,961	2,465	3,140	2,960	13,050	9,193	9,756
Ponderosa pine	172	1	3	4	5	87	41	31
Western white pine	412	20	28	31	45	166	72	50
Sugar pine	1	(1/)	--	--	--	1	--	--
Lodgepole pine	100	36	26	19	5	14	--	--
Whitebark pine	5	--	--	--	--	5	--	--
White and grand fir	861	91	93	109	88	363	87	30
Pacific silver fir	2,229	213	265	301	302	856	255	37
Noble fir	1,796	53	65	83	81	605	489	420
Subalpine fir	107	20	17	20	16	32	2	--
Engelmann spruce	217	14	22	23	10	76	52	20
Sitka spruce	3,439	115	114	243	253	1,065	687	962
Mountain hemlock	2,062	115	167	219	237	731	120	473
Western hemlock	21,815	817	1,055	1,495	1,628	9,197	5,020	2,603
Alaska-cedar	14	2	3	2	(1/)	7	--	--
Western redcedar	1,834	124	115	125	99	548	375	448
Incense-cedar	8	--	--	--	--	1	4	3
Western larch	267	12	11	19	25	135	57	8
Total	77,864	3,594	4,449	5,833	5,754	26,939	16,454	14,841
Hardwoods:								
Red alder	3,467	660	652	668	453	824	195	15
Oregon ash	126	20	19	54	--	33	--	--
Black cottonwood	80	9	9	19	15	15	--	13
Bigleaf maple	871	173	147	97	67	263	92	32
Oregon white oak	413	129	44	38	25	108	51	18
Total	4,957	991	871	876	560	1,243	338	78
All species	82,821	4,585	5,320	6,709	6,314	28,182	16,792	14,919

1/ Less than 500,000 board feet.

Table 19.--Volume of sawtimber on commercial forest land, by species and diameter classes, northwest Oregon, 1963 (Scribner rule)

Species	Diameter class (inches at breast height)							
	All classes	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-28.9	29.0-38.9	39.0 and larger
	Million board feet							
Softwoods:								
Douglas-fir	33,383	1,228	1,612	2,157	2,122	10,074	7,629	8,561
Ponderosa pine	140	1	2	3	4	70	33	27
Western white pine	316	13	18	22	31	128	60	44
Sugar pine	1	(1/)	--	--	--	1	--	--
Lodgepole pine	67	22	17	13	4	11	--	--
Whitebark pine	4	--	--	--	--	4	--	--
White and grand fir	630	57	60	73	62	278	73	27
Pacific silver fir	1,633	133	174	206	216	662	211	31
Noble fir	1,432	34	42	58	58	468	405	367
Subalpine fir	75	12	11	14	12	24	2	--
Engelmann spruce	165	8	15	16	7	59	42	18
Sitka spruce	2,744	70	75	168	183	831	569	848
Mountain hemlock	1,581	72	110	150	171	565	100	413
Western hemlock	16,953	500	693	1,034	1,175	7,139	4,158	2,254
Alaska-cedar	10	1	2	2	(1/)	5	--	--
Western redcedar	1,405	77	72	81	68	410	307	390
Incense-cedar	7	--	--	--	--	(1/)	4	3
Western larch	204	8	7	13	18	104	47	7
Total	60,750	2,236	2,910	4,010	4,131	20,833	13,640	12,990
Hardwoods:								
Red alder	3,366	631	628	647	441	811	193	15
Oregon ash	122	19	19	52	--	32	--	--
Black cottonwood	78	8	9	19	15	14	--	13
Bigleaf maple	849	165	141	94	65	260	92	32
Oregon white oak	402	123	42	37	24	107	51	18
Total	4,817	946	839	849	545	1,224	336	78
All species	65,567	3,182	3,749	4,859	4,676	22,057	13,976	13,068

1/ Less than 500,000 board feet.

Table 20.--Volume of all growing stock on commercial forest land, by species and county, northwest Oregon, 1963

Species	County										
	Total	Clackamas	Clatsop	Columbia	Hood River	Marion	Multnomah	Polk	Tillamook	Washington	Yamhill
	Million cubic feet										
Softwoods:											
Douglas-fir	7,548	2,773	315	492	541	1,039	289	466	784	260	589
Pines	181	84	--	--	70	26	1	--	--	--	--
True firs	1,093	509	5	--	337	147	80	--	(1/)	11	4
Sitka spruce	812	--	389	--	--	--	--	3	419	--	1
Western hemlock	3,638	969	1,066	23	83	361	156	65	899	9	7
Western redcedar	375	182	53	56	16	23	25	(1/)	15	5	--
Other softwoods	525	280	--	--	131	113	1	--	--	--	--
Total	14,172	4,797	1,828	571	1,178	1,709	552	534	2,117	285	601
Hardwoods:											
Red alder	1,040	85	197	201	8	12	64	33	305	49	86
Black cottonwood	15	(1/)	--	--	1	9	--	--	--	--	5
Bigleaf maple	264	74	23	20	6	51	25	7	4	26	28
Other hardwoods	281	6	--	2	5	17	--	139	(1/)	9	103
Total	1,600	165	220	223	20	89	89	179	309	84	222
All species	15,772	4,962	2,048	794	1,198	1,798	641	713	2,426	369	823

1/ Less than 500,000 cubic feet.

Table 21.--Volume of sawtimber on commercial forest land by species and county, northwest Oregon, 1963 (International 1/4-inch rule)

Species	County										
	Total	Clackamas	Clatsop	Columbia	Hood River	Marion	Multnomah	Polk	Tillamook	Washington	Yamhill
	Million board feet										
Softwoods:											
Douglas-fir	42,525	16,299	1,353	1,799	3,001	6,008	1,939	2,815	5,129	1,060	3,122
Pines	690	269	--	--	303	110	8	--	--	--	--
True firs	4,993	2,287	24	--	1,549	664	399	--	1	45	24
Sitka spruce	3,439	--	1,303	--	--	--	--	18	2,114	--	4
Western hemlock	21,815	5,670	6,054	113	455	2,098	1,010	361	5,958	49	47
Western redcedar	1,834	870	318	158	139	95	162	2	77	13	--
Other softwoods	2,568	1,321	--	--	753	492	2	--	--	--	--
Total	77,864	26,716	9,052	2,070	6,200	9,467	3,520	3,196	13,279	1,167	3,197
Hardwoods:											
Red alder	3,467	228	720	532	10	19	216	90	1,171	106	375
Black cottonwood	80	(1/)	--	--	1	64	--	--	--	--	15
Bigleaf maple	871	162	146	117	9	205	90	--	12	36	94
Other hardwoods	539	13	--	--	17	42	--	222	--	12	233
Total	4,957	403	866	649	37	330	306	312	1,183	154	717
All species	82,821	27,119	9,918	2,719	6,237	9,797	3,826	3,508	14,462	1,321	3,914

1/ Less than 500,000 board feet.

Table 22.--Volume of sawtimber on commercial forest land by species and county, northwest Oregon, 1963 (Scribner rule)

Species	Total	County									
		Clackamas	Clatsop	Columbia	Hood River	Marion	Multnomah	Polk	Tillamook	Washington	Yamhill
	Million board feet										
Softwoods:											
Douglas-fir	33,383	12,918	969	1,303	2,367	4,803	1,605	2,346	3,886	791	2,395
Pines	528	202	--	--	235	84	7	--	--	--	--
True firs	3,770	1,741	15	--	1,146	508	313	--	--	31	16
Sitka spruce	2,744	--	1,053	--	--	--	--	15	1,673	--	3
Western hemlock	16,953	4,355	4,644	84	355	1,618	819	288	4,718	36	36
Western redcedar	1,405	649	263	104	114	74	132	1	60	8	--
Other softwoods	1,967	1,042	--	--	565	359	1	--	--	--	--
Total	60,750	20,907	6,944	1,491	4,782	7,446	2,877	2,650	10,337	866	2,450
Hardwoods:											
Red alder	3,366	222	701	514	10	19	209	86	1,141	102	362
Black cottonwood	78	--	--	--	--	63	--	--	--	--	15
Bigleaf maple	849	156	144	115	8	199	88	--	12	35	92
Other hardwoods	524	12	--	--	17	41	--	216	--	11	227
Total	4,817	390	845	629	35	322	297	302	1,153	148	696
All species	65,567	21,297	7,789	2,120	4,817	7,768	3,174	2,952	11,490	1,014	3,146

Table 23.--Net annual growth of all growing stock and sawtimber on commercial forest land, by species, northwest Oregon, 1962[1/]

Species	All growing stock	Sawtimber	
		International 1/4-inch rule	Scribner rule
	Thousand cu. ft.	Thousand bd. ft.	Thousand bd. ft.
Softwoods:			
Douglas-fir	112,907	452,062	354,877
Ponderosa pine	353	866	705
Western hemlock	41,080	170,452	132,463
True firs	8,731	26,864	20,284
Spruce	8,220	49,767	39,599
Western redcedar	7,208	22,327	17,104
Other softwoods	1,419	7,448	5,685
Total	179,918	729,786	570,717
Hardwoods	43,761	130,683	126,992
All species	223,679	860,469	697,709

[1/] Based on measurements of radial growth for the preceding 10-year period and estimates of long-term average annual mortality including both enphytotic and catastrophic losses.

Table 24.--Annual mortality of all growing stock and sawtimber on commercial forest land by species, northwest Oregon, 1962[1/]

Species	All growing stock	Sawtimber (International 1/4-inch rule)	Sawtimber (Scribner rule)
	Million cu. ft.	Million bd. ft.	Million bd. ft.
Softwoods:			
Douglas-fir	43	224	175
True firs	13	55	42
Western hemlock	23	132	104
Other softwoods	10	48	38
Total	89	459	359
Hardwoods	3	5	5
All species	92	464	364

[1/] Estimate of long-term average annual mortality including both enphytotic and catastrophic losses.

Table 25.--Volume of salvable dead sawtimber-size trees on commercial forest land, by softwoods and hardwoods, northwest Oregon, 1963

Species group	Volume	
	International 1/4-inch rule	Scribner rule
	Million board feet	
Softwoods	1,925	1,562
Hardwoods	16	15
All species	1,941	1,577

Table 26.--Timber harvest by ownership class, northwest Oregon, 1950-62 (Scribner rule)

Year[1/]	Total	Private	State	National Forest	Other public
	Thousand board feet				
1950	1,820,569	1,652,269		167,300	1,000
1951	1,860,799	1,687,999		172,800	--
1952	1,908,200	1,711,900		196,300	--
1953	1,651,879	1,374,192		277,600	87
1954	1,504,386	1,283,086		221,300	--
1955	1,628,234	1,370,985		257,249	--
1956	1,747,996	1,433,621		260,300	54,075
1957	1,279,822	987,668		206,700	85,454
1958	1,348,709	865,279	89,102	308,198	86,130
1959	1,530,990	863,803	99,840	448,409	118,938
1960	1,341,137	780,908	121,579	334,748	103,902
1961	1,075,728	518,316	108,917	339,030	109,465
1962	1,233,226	593,205	98,180	390,900	150,941

1/ For the years 1950-57, data for private and State ownerships were not separated, and for the years 1950-56 data for Bureau of Land Management lands were included with private and State ownerships.

Source: Reports of the State Forester, U.S. Bureau of Land Management, U.S. Bureau of Indian Affairs, and Division of Timber Management, Region 6, U.S. Forest Service.

ACCURACY OF THE CURRENT INVENTORY DATA

Forest Area and Timber Volume

Estimates of forest land area for the Siuslaw National Forest were based on complete enumeration by means of a forest type map and thus have no sampling error. Area estimates for all the remaining area, both National Forest and other lands, were derived by sampling. Sampling errors were computed separately for each of these subunits, then combined into a single estimate for the entire inventory unit. Thus, the sampling errors for total commercial and noncommercial forest land express the combined errors from the sampled units as a percent of the total estimate from all units.

Total volume estimates for northwest Oregon were derived by sampling and thus have sampling errors associated with them. Sampling errors were calculated for total board-foot and cubic-foot volume only.

In all cases, an effort was made to hold errors due to techniques or judgment to a minimum by close supervision and frequent checks of all phases of the work.

Table 27 presents the estimated sampling errors as a percent of the total estimate at the 68-percent and 95-percent probability levels.

Table 27.--Sampling errors of estimates of forest area and timber volume

Item	Estimated total	Sampling error in percent	
		68-percent probability	95-percent probability
Commercial forest land	3,954,000 acres	±0.8	± 1.5
Noncommercial forest land	99,000 acres	±14.3	±28.0
Volume:			
All growing stock	15,772 million cubic feet	± 3.3	± 6.5
Sawtimber (Scribner)	65,567 million board feet	± 4.0	± 7.7

The sampling error of any breakdown of these totals will be substantially greater than for the total, and the smaller the breakdown the larger the sampling error.

DIFFERENCES IN RESULTS OF INVENTORIES

Tables 28 and 29 show area and volume estimates for three successive inventories of northwest Oregon. Volumes for the two earlier inventories have been adjusted for changes in d.b.h. and merchantable top diameter limits. Some of the differences between inventories are due to physical changes, such as cutting and growth of stands, restocking of deforested lands, and the shift of forest land into other uses such as urban development. Some differences are due to changes in the standards of utilization recognized, some to changes in procedures, and some to changes in standards and definitions. These variations make direct comparison of some statistics meaningless, and comparison of other statistics is meaningful only after they have been adjusted to a common base.

Nevertheless, certain general conclusions can be drawn concerning the trend of northwest Oregon's forest resource. Total forest area has remained relatively stable over the past 30 years. Commercial forest area has increased slightly, while noncommercial forest land has decreased. Two significant changes have occurred since the initial inventory to influence these differences. Reserved "watersheds" on the National Forests have been reclassified as available for cutting and, secondly, improvements in logging methods and accessibility have resulted in reclassification as commercial some areas previously classified as noncommercial because of topography.

Table 28.--Comparison of forest area statistics for northwest Oregon

(In acres)

Land use class	Initial inventory 1930-34	First reinventory 1937-54	Current inventory 1963
Commercial forest	3,736,000	3,897,000	3,954,000
Noncommercial forest:			
Productive-reserved	200,000	66,000	27,000
Unproductive	108,000	66,000	72,000
Total noncommercial forest	308,000	132,000	99,000
Total forest	4,044,000	4,029,000	4,053,000
Nonforest	1,612,000	1,620,000	1,554,000
All land	1/ 5,656,000	1/ 5,649,000	2/ 5,607,000

1/ Government Land Office, U.S. Department of Interior figures.

2/ U.S. Bureau of the Census, 1960.

Table 29.--Comparison of timber-volume statistics for northwest Oregon

(In million board feet, Scribner rule)

Species	Initial inventory 1930-34	First reinventory 1937-54	Current inventory 1963
Softwoods:			
Douglas-fir	47,406	37,382	33,383
Ponderosa pine	65	83	140
Western white pine	307	370	317
Lodgepole pine	5	32	67
Grand and white fir	417	429	630
Pacific silver fir	1,794	2,272	1,633
Noble fir	2,357	2,430	1,432
Subalpine fir	40	78	75
Engelmann spruce	122	152	165
Sitka spruce	2,924	2,503	2,744
Mountain hemlock	846	1,113	1,581
Western hemlock	14,805	13,341	16,953
Western redcedar	1,526	1,347	1,405
Other cedars	--	--	--
Western larch	99	118	204
Other softwoods	23	15	21
Total	72,736	61,665	60,750
Hardwoods:			
Red alder	283	209	3,366
Black cottonwood	81	60	78
Bigleaf maple	96	102	849
Other hardwoods	54	27	524
Total	514	398	4,817
All species	73,250	62,063	65,567

The most significant changes in sawtimber volume appear to be: (1) the reduction of softwood volume and (2) the marked increase in hardwood volume. Softwood volume has shown a decrease over both previous inventories, with Douglas-fir making the most significant change.

The increase in hardwood volume is attributed to two things: (1) the rapid establishment of hardwoods on conifer sites following cutting and (2) more liberal specifications for merchantable hardwoods in the latest inventory.

FOREST SURVEY PROCEDURES

This northwest Oregon report combines the data from four separate inventory projects: the Siuslaw National Forest, 1956; Mount Hood National Forest, 1961; Willamette National Forest, 1962; and the remaining area outside the National Forests, 1961.

Siuslaw National Forest

The data from the 1956 inventory were the latest available for inclusion in this report; therefore, these data were used after updating them to January 1, 1963, by adding estimated growth and subtracting cut. The inventory of the Siuslaw National Forest was a cooperative effort of Forest Survey and the Siuslaw National Forest. A complete type map was made using aerial photos, and area data were taken from this map. Field plots were located by random selection on aerial photos. Field plots consisted of three 1/5-acre circular subplots spaced at 6-chain intervals. Permanent plots were located and established in the field; supplemental plots were measured but not marked. The field plots provided data only for volume estimates. Area estimates were made from the type map summary and updated for exchanges in area since the date of inventory.

Mount Hood and Willamette National Forests

These two forests were inventoried in 1961 and 1962, respectively, by National Forest inventory crews. The basic data were adjusted to Forest Survey standards, and the volume data updated to January 1, 1963, by the addition of growth and subtraction of cut. The statistics on forest land area, timber volume, and growth were obtained from permanent sample plot data. These plots consisted of clusters of three 1/5-acre plots similar to the Siuslaw National Forest. The plots are located on a systematic grid with intervals of 1.7 miles.

Outside National Forests

The area outside National Forests was inventoried by Forest Survey during the summer of 1961. The volume data were updated to January 1, 1963, in a manner similar to that for the National Forests.

A systematic sample of field plots was distributed across all owners other than National Forest. The field plots, spaced 3.4 miles apart, were supplemented by a more intensive sample of photo plots. The ratio of photo to field plots was approximately 16 to 1. A field plot consisted of 10 sample points distributed systematically over an acre. The variable-radius-plot principle was used at each sample point to select the trees to be tallied. The summation of the 10-point tally expressed the resources and conditions for that acre and provided area, volume, growth, and mortality statistics.

DEFINITION OF TERMS

Land Area

Total Land Area

Includes dry land and land temporarily or partially covered by water such as marshes, swamps, and river flood plains; streams, sloughs, and canals less than one-eighth mile wide; and lakes, reservoirs, and ponds less than 40 acres in area.

Forest Land Area

Land at least 10 percent stocked by trees of any size, or formerly having such tree cover, and not currently developed for nonforest use. Minimum area of forest land recognized is 1 acre.

Nonforest Land Area

Land that does not qualify as forest land. Minimum area of nonforest land recognized is 1 acre.

Forest Land Classes

Commercial Forest Land Area

Forest land which is producing or capable of producing industrial wood and not withdrawn from timber utilization.

Noncommercial Forest Land Area

Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions, and productive public forest land withdrawn from commercial timber use through statute or administrative regulation.

Productive-reserved. Public forest land withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land.

Unproductive. Forest land incapable of yielding crops of industrial wood products (usually sawtimber) because of adverse site conditions.

Subalpine. Forest stands at the upper elevational limits of tree growth.

Noncommercial rocky. Areas within the commercial forest zone but so steep and rocky that they are incapable of producing usable wood products.

Types

Forest land types are based upon the predominant species in the present tree cover. Types are determined on the basis of majority of stocking by all live trees of various species, considering both size and spacing.

Tree Classes

Growing Stock

Live trees of commercial species that are now or may be expected to become suitable for use as industrial wood. They must meet the following specifications:

Sawtimber trees (11.0 inches d.b.h. and larger). Contain at least one 16-foot coniferous saw log or one 12-foot hardwood saw log to a variable top diameter of not less than 8.0 inches inside bark and with not less than 25 percent of the board-foot volume of the tree free of defect.

Poletimber trees (5.0 to 10.9 inches d.b.h.). Not less than 50 percent sound on a cubic-foot basis and with no defects or deformities which are likely to prevent them from becoming growing-stock sawtimber trees.

Sapling and seedling trees (less than 5.0 inches d.b.h.). No defects or deformities which are likely to prevent them from becoming growing-stock poletimber trees.

Nongrowing Stock

Trees which do not meet the requirements for growing stock.

Cull trees. Trees of noncommercial species and trees of commercial species which are too defective or which are unlikely to become growing-stock trees due to deformity, disease, low vigor, etc.

Sound cull trees. Trees of noncommercial species, or with excessive defect due to form, roughness, etc.

Rotten cull trees. Trees with excessive defect due primarily to rot.

Mortality trees. Trees which died from natural causes and which were not cull trees at the time of death.

Salvable dead trees. Standing or down dead trees 11.0 inches or more in diameter that contain 25 percent or more of sound volume and at least one merchantable 16-foot coniferous or 12-foot hardwood saw log.

Stand-Size Classes

Sawtimber Stand

Stand at least 10 percent stocked with growing-stock trees, with half or more of this stocking in sawtimber and poletimber trees and with sawtimber stocking at least equal to poletimber stocking.

Large sawtimber stand. Stand in which the majority of the sawtimber stocking is in trees 21.0 inches d.b.h. and larger.

Small sawtimber stand. Stand in which the majority of the sawtimber stocking is in trees from 11.0 to 20.9 inches d.b.h.

Poletimber Stand

Stand at least 10 percent stocked with growing-stock trees, with half or more of this stocking in sawtimber and poletimber trees and with poletimber stocking exceeding sawtimber stocking.

Sapling and Seedling Stand

Stand at least 10 percent stocked with growing-stock trees and with more than half of this stocking in saplings and/or seedlings.

Nonstocked Area

An area of commercial forest land less than 10 percent stocked with growing-stock trees.

Stocking

Stocking is the extent to which growing space is effectively utilized by present or potential growing-stock trees of commercial species. "Degree of stocking" is synonymous with "percentage of growing space occupied" and means the ratio of actual stocking to full stocking for comparable sites and stands.

"Stocking percentages" express current area occupancy or stocking in relation to specified standards for full stocking based on number, size, and spacing of trees considered necessary to make effective use of forest land. Stocking by all live trees is used in classifying forest land and forest cover type. Stocking by growing-stock trees is used in classifying stand-size class.

Standards used for full stocking are:

trees 2 years old to 4.9 inches d.b.h.	750 trees per acre
trees 5.0 to 6.9 inches d.b.h.	670 trees per acre
trees 7.0 inches d.b.h. and larger:	
conifer sites	160 square feet basal area per acre
hardwood sites	100 square feet basal area per acre

Well-Stocked Stand

A stand that is 70 percent or more stocked with present or potential growing-stock trees.

Medium-Stocked Stand

A stand that is 40 to 69 percent stocked with present or potential growing-stock trees.

Poorly Stocked Stand

A stand that is 10 to 39 percent stocked with present or potential growing-stock trees.

Nonstocked Area

An area less than 10 percent stocked with present or potential growing-stock trees.

Timber Volume

Live Sawtimber Volume

Net volume in board feet of live sawtimber trees of commercial species:

Scribner rule. The common board-foot log rule used in determining volume of sawtimber in the Pacific Northwest.

International 1/4-inch rule. The standard board-foot log rule adopted nationally by the Forest Service for the presentation of Forest Survey volume statistics.

Growing Stock

Net volume in cubic feet of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) outside bark.

All-Timber Volume

Net volume in cubic feet of live and salvable dead sawtimber trees and poletimber trees of commercial species, and cull trees of all species from stump to a minimum 4.0-inch top outside bark.

Ownership Classes

National Forest Lands

Federal lands which have been designated by Executive order or statute as National Forests or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones title III lands.

Other Public Lands

Federal lands other than National Forests, including lands administered by the U.S. Bureau of Land Management, U.S. Bureau of Indian Affairs, and miscellaneous Federal agencies, and lands owned by States, counties, and local public agencies, or lands leased by these governmental units for more than 50 years.

Forest Industry Lands

Lands owned by companies or individuals operating wood-using plants.

Farmer-Owned Lands

Lands owned by operators of farms.

Miscellaneous Private Lands

Privately owned lands other than forest industry or farmer-owned lands.

TREE SPECIES

Tree species found in northwest Oregon include:

Softwoods:

- Alaska-cedar (Chamaecyparis nootkatensis)
- Douglas-fir (Pseudotsuga menziesii)
- Engelmann spruce (Picea engelmannii)
- Grand fir (Abies grandis)
- Incense-cedar (Libocedrus decurrens)
- Lodgepole pine (Pinus contorta)
- Mountain hemlock (Tsuga mertensiana)
- Noble fir (Abies procera)
- Pacific silver fir (Abies amabilis)
- Ponderosa pine (Pinus ponderosa)
- Sitka spruce (Picea sitchensis)
- Subalpine fir (Abies lasiocarpa)
- Sugar pine (Pinus lambertiana)
- Western hemlock (Tsuga heterophylla)
- Western larch (Larix occidentalis)
- Western redcedar (Thuja plicata)
- Western white pine (Pinus monticola)
- Whitebark pine (Pinus albicaulis)
- White fir (Abies concolor)

Hardwoods:

- Bigleaf maple (Acer macrophyllum)
- Black cottonwood (Populus trichocarpa)
- Golden chinkapin (Castanopsis chrysophylla)
- Oregon ash (Fraxinus latifolia)
- Oregon white oak (Quercus garryana)
- Red alder (Alnus rubra)

RECENT FOREST SURVEY PUBLICATIONS

Number	Title	Date
Miscellaneous:	1963 Oregon Log Production	June 1964
Research Paper:		
PNW-5	Timber Trends in Western Oregon and Western Washington	Oct. 1963
Resource Bulletins:		
PNW-6	1962 Washington Log Production	Dec. 1963
PNW-5	Forest Statistics for Chelan and Douglas Counties, Washington	May 1963
PNW-4	Forest Statistics for Northeast Washington	May 1963
PNW-3	Toward Complete Use of Eastern Oregon's Forest Resources	May 1963
PNW-2	1962 Oregon Log Production	Apr. 1963
PNW-1	1961 Washington Log Production	Jan. 1963
Resource Reports:		
146	1961 Oregon Log Production	Dec. 1962 (rev.)
145	Forest Statistics for Clallam County, Washington	July 1962
144	Forest Statistics for Jefferson County, Washington	June 1962
143	Forest Statistics for King County, Washington	June 1962
142	Forest Statistics for Island and Kitsap Counties, Washington, 1959; San Juan County, Washington, 1960	May 1962
141	Forest Statistics for Pierce County, Washington	May 1962

Available from:

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