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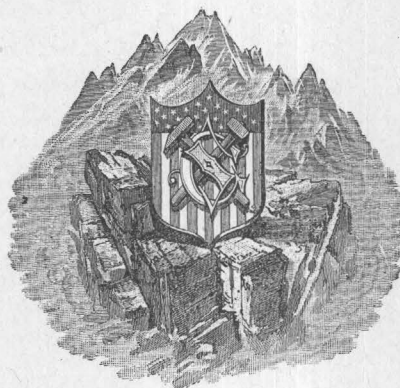
Series H, Forestry, 2

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
CHARLES D. WALCOTT, DIRECTOR

THE
FORESTS OF WASHINGTON
A REVISION OF ESTIMATES

BY

HENRY GANNETT



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ILLUSTRATION.

PLATE I. Land-classification map of Washington In pocket.

LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
Washington, D. C., June 17, 1902.

SIR: I transmit herewith, for publication in the series of Professional Papers, a revision of the estimates of the standing timber and its distribution in the State of Washington.

Very respectfully, yours,

HENRY GANNETT,
Geographer.

Hon. CHARLES D. WALCOTT,
Director United States Geological Survey.

THE FORESTS OF WASHINGTON.

(A REVISION OF ESTIMATES.)

By HENRY GANNETT.

With the exception of the redwood forests of California the forests of western Washington are among the densest, heaviest, and most continuous in the United States. Except for a few prairie openings, and except where removed by fire and the ax, they cover the country as a thick mantle from a line high up on the Cascade Range westward to the shores of the Pacific. In all this region only the Olympics rear a few summits above the forests. Not only are the forests dense overhead, but the undergrowth is dense and tangled beneath. The trees are high, reaching 12 to 15 feet in diameter and 250 feet in height, with clear trunks for 100 or more feet. The timber is mainly red fir (*Pseudotsuga taxifolia*) mingled with spruce, hemlock, and cedar.

SOURCES OF INFORMATION.

Since the publication, in the Twentieth Annual Report, of the land-classification map of the State of Washington and the statistics of its standing timber, examinations have been made, somewhat in detail, of the mountain regions of the State, including the Olympic and Mount Rainier forest reserves. The first of these comprises the Olympic Mountains and the country westward, and the second a considerable part of the Cascade Range. Besides this, an examination has been made during the last season of the region in the Cascade Range lying between the northern limit of the Mount Rainier Forest Reserve and National Park on the south and the southern limit of the Washington Reserve on the north.

These examinations have resulted in increasing greatly the estimated stand of timber in the State above the figures published in the Twentieth Annual Report. The additions consist in part of large tracts of heavy stand of species now in use by lumbermen, including red fir, cedar, spruce, and hemlock, and in part of species which are known to be of value although not at present utilized, such, for instance, as the lovely fir.

These mountain regions are not regarded by the lumbermen of to-day as containing merchantable timber, largely because of the inaccessibility of the forests. The Washington lumberman is skimming the cream. He is taking only the best and heaviest of the timber and that which is most accessible, and, from his point of view, timber within the mountains, being difficult to log, is not regarded as having any present value. That it will come into the market eventually, when the more accessible timber is exhausted, it is of course unnecessary to say, and on this account it should properly be included in a statement of the timber assets of the State. The inclusion of these bodies of timber raises the total stand of the State from 114,778,000 M feet B. M. to 195,687,966 M feet B. M.

Besides the information derived from the examinations above noted, the sources of information concerning the lands and forests of Washington are as follows:

The Northern Pacific Railway Company, which has made most elaborate cruisions of that part of its land grant situated west of the Cascade Range, has, with great liberality, through its general manager, Mr. Thomas Cooper, furnished an abstract of all the information in its possession regarding timber lands, including not only the statistics of standing timber, but maps showing the areas at present forested, those naturally unforested, those which have been cut over, and those which have been burned. These statistics have been compiled and the maps have been prepared by Messrs. John M. Rankine and George H. Plummer, of the Northern Pacific Railway office. The commissioner of the State land office has furnished abstracts of all cruisions made for the selection of lands for the State. Besides the above, several lumber companies and owners of timber land have placed their information at the disposal of this office.

The collection of data and preparation of estimates for the counties east of the crest of the Cascade Range has been done by Mr. Fred G. Plummer, who devoted the winter months of 1898-99 to this work.

Altogether, cruisions of more than 2,000,000 acres have been collected. These are scattered widely over the State and represent the stand of timber under all the different conditions of rainfall, temperature, soil, slope exposure, relief, and altitude.

The other factor necessary for obtaining the total stand of timber, the area of merchantable timber, has been obtained from the same sources in the greatest detail, and with this the areas which have been logged and which have been burned in recent years.

In connection with data regarding the stand of timber, its distribution as to species has been obtained, the classification being that recognized by lumbermen.

STAND OF TIMBER.

From these data the total amount of timber in the State, under the Washington lumbering practice, is estimated at 195,688 million feet B. M. Of this amount nearly nine-tenths, or 175,120 million feet, are west of the crest of the Cascade Range. The remainder, 20,568 million feet, is upon its eastern slope and in the northern and eastern portions of the State.

The State of Washington is naturally divided into two parts, which differ from each other widely in respect to timber growth. The line of division is the crest of the Cascade Range, running from the north to the south line of the State. West of it the country is heavily forested, or was before lumbering operations commenced. In this part of the State the areas naturally devoid of timber are few and small and altogether trifling in proportion to the total area. East of it the land is mainly without timber, and where timber exists it is sparse and its quality is inferior.

Moreover, there is a great difference in the species. West of the Cascade Range the prevailing species, which forms nearly one-half of the entire forest, is red fir. This and cedar, hemlock, spruce, and lovely fir (*Abies amabilis*) compose the forest. Fir is found in almost all parts of this region, and throughout the Sound Valley little of any other species is found, the forests being almost pure fir. East of the Cascade Range the forest consists mainly of pine, principally yellow pine, though in the northeast corner of the State a little white pine is intermingled. Red fir is found scattered through the pine forests in considerable proportion, and in the northeastern part of the State larch is abundant. Small proportions of hemlock and cedar are also found, and a trifling amount of spruce and oak.

The following table gives the stand of timber of the species recognized by the lumbermen, in thousands of feet B. M., with the percentage which each bears to the total amount:

Amount and percentage of species of timber in Washington.

Species.	M feet B. M.	Per cent.
Red fir	90, 592, 926	46
Spruce	8, 220, 723	4
Cedar	22, 646, 071	12
Hemlock	41, 571, 330	21
Lovely fir	8, 787, 500	5
Larch	4, 776, 034	2
Yellow pine	13, 082, 280	7
White fir	1, 231, 299	1
Other species	4, 779, 803	2
Total	195, 687, 966

Dividing the State into the two parts above given, the following tables show the stand of timber in each, with the amount and percentage of the prevailing species:

Standing timber in Washington.

COUNTIES WEST OF CASCADE RANGE.

	M feet B. M.
Total stand	175, 120, 112
Fir	86, 881, 834
Per cent of fir	49

COUNTIES EAST OF CASCADE RANGE.

	M feet B. M.
Total stand	20, 567, 854
Yellow pine	12, 851, 435
Per cent of yellow pine	61

The following table gives the amount of merchantable timber in each county, classified by species, in thousands of feet B. M., as at present estimated by lumbermen. If it were cut under the practice which prevails at present, these figures represent a close approximation to the amount which would be realized. There is no question, however, that, as in the case of the eastern white pine, a much larger amount will ultimately be realized, for several reasons:

First, the standard will certainly be lowered, so that instead of utilizing only one-third of the tree two-thirds may be used, and many small trees now destroyed by fire in the culled areas will be cut; second, species not now used may come into the market; third, areas now considered inaccessible will serve as sources of supply; fourth, the new growth on cut and burned areas will reach merchantable size long before the old growth is exhausted.

Summary of standing timber in Washington, by counties.

County.	Total stand.	Average stand per acre.	Red fir.	Spruce.	Cedar.
	M feet B. M.	Feet B. M.	M feet B. M.	M feet B. M.	M feet B. M.
Adams					
Asotin	79, 400	1, 200	15, 880		
Chehalis	27, 632, 828	25, 000	10, 957, 668	3, 165, 557	4, 759, 920
Chelan	3, 095, 430	1, 810	377, 443		47, 070
Clallam	25, 742, 775	29, 300	6, 482, 650	2, 393, 185	2, 537, 620
Clarke	711, 552	9, 300	697, 092		14, 460
Columbia	182, 500	1, 700	36, 500	9, 125	
Cowlitz	7, 492, 647	17, 800	5, 683, 311	1, 089	786, 691
Douglas	31, 000	1, 000	7, 750		
Ferry	1, 666, 500	1, 200	333, 300		
Franklin					
Garfield	149, 700	2, 000	29, 940	7, 485	
Island	430, 000		250, 000		180, 000
Jefferson	20, 691, 355	26, 700	3, 033, 175	843, 250	2, 712, 790

STAND OF TIMBER.

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Summary of standing timber in Washington, by counties—Continued.

County.	Total stand.	Average stand per acre.	Red fir.	Spruce.	Cedar.
	<i>M feet B. M.</i>	<i>Feet B. M.</i>	<i>M feet B. M.</i>	<i>M feet B. M.</i>	<i>M feet B. M.</i>
King	11, 857, 431	14, 300	6, 306, 494	348, 103	1, 555, 209
Kitsap	1, 140, 900	9, 000	1, 140, 900	-----	-----
Kittitas	3, 171, 312	5, 260	546, 556	-----	131, 000
Klickitat	743, 000	1, 400	336, 300	-----	-----
Lewis	11, 378, 162	12, 800	8, 848, 113	-----	1, 137, 426
Lincoln	12, 000	300	1, 800	-----	-----
Mason	7, 029, 429	15, 000	4, 953, 121	8, 492	437, 778
Okanogan	3, 831, 260	1, 340	533, 100	-----	-----
Pacific	7, 813, 067	16, 300	5, 498, 224	814, 953	713, 238
Pierce	10, 868, 440	15, 700	6, 798, 950	200, 871	1, 286, 573
San Juan	-----	-----	-----	-----	-----
Skagit	11, 098, 111	11, 000	6, 297, 350	184, 096	2, 716, 326
Skamania	11, 870, 815	15, 300	6, 117, 212	-----	455, 115
Snohomish	10, 892, 195	13, 500	7, 356, 337	42, 955	2, 050, 630
Spokane	716, 000	2, 100	32, 680	-----	29, 560
Stevens	2, 701, 680	1, 100	297, 185	-----	27, 017
Thurston	2, 787, 343	10, 100	2, 608, 125	462	108, 949
Wahkiakum	2, 974, 107	27, 000	1, 947, 150	182, 520	301, 757
Walla Walla	5, 500	260	1, 625	-----	-----
Whatcom	2, 708, 955	3, 000	1, 905, 962	18, 580	596, 342
Whitman	35, 000	3, 000	-----	-----	-----
Yakima	4, 147, 572	3, 620	1, 261, 033	-----	60, 600
Total	195, 687, 966	9, 355	90, 592, 926	8, 220, 723	22, 646, 071

County.	Hemlock.	Lovely fir.	Larch.	Yellow pine.	White fir.	Other species.
	<i>M feet B. M.</i>	<i>M feet B. M.</i>	<i>M feet B. M.</i>	<i>M feet B. M.</i>	<i>M feet B. M.</i>	<i>M feet B. M.</i>
Adams	-----	-----	-----	-----	-----	-----
Asotin	-----	-----	7, 940	47, 640	7, 940	-----
Chehalis	6, 649, 683	-----	2, 100, 000	-----	-----	-----
Chelan	-----	-----	78, 450	2, 440, 067	31, 380	121, 020
Clallam	11, 179, 820	3, 149, 500	-----	-----	-----	-----
Clarke	-----	-----	-----	-----	-----	-----
Columbia	-----	-----	18, 250	109, 500	9, 125	-----
Cowlitz	953, 430	-----	68, 126	-----	-----	-----
Douglas	-----	-----	-----	23, 250	-----	-----
Ferry	-----	-----	333, 300	999, 900	-----	-----
Franklin	-----	-----	-----	-----	-----	-----
Garfield	-----	-----	14, 970	89, 820	7, 485	-----
Island	-----	-----	-----	-----	-----	-----
Jefferson	8, 920, 140	5, 182, 000	-----	-----	-----	-----
King	2, 712, 971	-----	-----	-----	75, 233	859, 421

THE FORESTS OF WASHINGTON.

Summary of standing timber in Washington, by counties—Continued.

County.	Hemlock.	Lovely fir.	Larch.	Yellow pine.	White fir.	Other species.
	<i>M feet B. M.</i>	<i>Feet B. M.</i>	<i>M feet B. M.</i>	<i>M feet B. M.</i>	<i>M feet B. M.</i>	<i>M feet B. M.</i>
Kitsap						
Kittitas	265,911		150,645	1,349,200	520,000	208,000
Klickitat	71,400		10,500	321,100		3,700
Lewis	929,755		1,406		158,941	302,521
Lincoln				10,200		
Mason	1,174,038	456,000				
Okanogan			533,100	2,765,060		
Pacific	786,652					
Pierce	2,099,780				61,565	420,701
San Juan						
Skagit	1,900,339					
Skamania	1,948,042		551,990	230,845	295,207	2,272,404
Snohomish	1,055,737				64,423	322,113
Spokane			121,360	532,400		
Stevens			351,218	2,026,260		
Thurston	69,807					
Wahkiakum	542,680					
Walla Walla			1,625	2,250		
Whatcom	188,071					
Whitman				35,000		
Yakima	123,074		433,154	2,099,788		269,923
Total	41,571,330	8,787,500	4,776,034	13,082,280	1,231,299	4,779,803

The stand is heaviest in Clallam County, in the northern part of the Olympic Peninsula. The next heaviest is in Wahkiakum, in the southwest, near Columbia River. In western Washington the average stand is 16,000 feet; in eastern Washington it is but 1,800 feet B. M.

The entire area of Washington is 66,880 square miles. Of this, 34,245 square miles, or 51 per cent of its area, are covered with merchantable timber.

CLASSIFICATION OF LANDS.

The entire area of the nineteen counties of western Washington is 24,552 square miles. Of this area but 16,554 square miles, or two-thirds, are regarded as containing merchantable timber. Besides this, an area of 2,771 square miles has already been logged; a much greater area, 4,069 square miles, of merchantable timber has been burned. In other words, out of an area of 23,394 square miles formerly covered with merchantable timber, 12 per cent has been cut, 17 per cent has been destroyed

by fire, and the remainder is still covered with standing timber. In this area there are only 1,158 square miles which are naturally timberless.

If we assume that the logged area contained, on an average, the same amount of timber per acre as is still standing in other areas, it appears that since lumbering began in this region there have been cut from it 30,000 million feet B. M.

If we make the same assumption regarding the burned area, it appears that there has been destroyed by fire, without the least benefit to the world, the enormous amount of 43,000 million feet B. M. of lumber. Anyone who has passed the late summer and early fall in this State realizes the enormous destruction which takes place annually at this season. There are fires everywhere, and for weeks at a time the smoke from them lies as dense as the fog on the New England coast.

These are impressive facts. In less than a generation nearly one-third of the timber in one of the richest timber regions on this continent has been destroyed, and of that destruction much more than half has been caused by fire. Nearly two years' supply of lumber for the United States has been thus destroyed. Assuming that the timber so destroyed would, if standing now, have a value of \$1 per 1,000 feet, it appears that not less than \$43,000,000 worth has gone up in smoke—a dead loss to the people of the State.

In eastern Washington, out of an entire area of 42,328 square miles, 17,691 square miles only are now covered with merchantable timber, or only two-fifths of the area. Of the area at one time timbered, 1,458 square miles have been cut over and 557 square miles have been burned. These figures present a strong contrast with similar figures for western Washington, in respect to both cut and burned areas. The reason for it lies in the fact that in this part of the State the cutting is done only for local consumption and never for export, and in these open, sparse forests of yellow pine fires do not run freely or cause much damage.

The following table shows the classification of lands in the eastern and western parts of the State:

Classification of lands in Washington, east and west of Cascade Range.

Class.	West of Cascade Range.		East of Cascade Range.		The State.	
	<i>Square miles.</i>	<i>Per cent.</i>	<i>Square miles.</i>	<i>Per cent.</i>	<i>Square miles.</i>	<i>Per cent.</i>
Total.....	24, 552	-----	42, 328	-----	66, 880	-----
Merchantable-timber area	16, 554	67	17, 691	42	34, 245	51
Timberless area	582	3	22, 620	54	23, 202	35
Cut area.....	2, 771	11	1, 458	3	4, 229	6
Burned area	4, 069	17	557	1	4, 626	7
Rocky and barren.....	315	1	2	-----	317	} 1
Mountain meadows	261	1	-----	-----	261	

THE FORESTS OF WASHINGTON.

The following table presents the classification of lands by counties:

Classification of lands in Washington by counties.

County.	Timbered area.	Timberless area.	Cut area.	Burned area.	Rocky area.	Mountain meadows.
	<i>Square miles.</i>	<i>Square miles.</i>	<i>Square miles.</i>	<i>Square miles.</i>	<i>Square miles.</i>	<i>Square miles.</i>
Adams		1, 696				
Asotin	105	520	6			
Chehalis	1, 714		140	60	42	12
Chelan	2, 665	282	26	97		
Clallam	1, 370	7	113	236	33	48
Clarke	119		20	498	9	
Columbia	164	530	182			
Cowlitz	646		82	385	32	
Douglas	49	4, 713	6			
Ferry	2, 270	38		5		
Franklin		1, 251				
Garfield	128	527	70			
Island			238			
Jefferson	1, 211		81	158	128	187
King	1, 289	8	361	393		
Kitsap	210		175	22		
Kittitas	941	1, 261	94	118		
Klickitat	825	1, 197	26	31		
Lewis	1, 396	45	71	813	11	
Lincoln	63	2, 036	200			
Mason	729		199	31	20	14
Okanogan	4, 468	850				
Pacific	764	40	56	65		
Pierce	1, 079	159	200	76	40	
San Juan			187			
Skagit	1, 576	90	196	12		
Skamania	1, 209	44	31	459		
Snohomish	1, 252	28	252	119		
Spokane	530	654	585	8		
Stevens	3, 643	120	23	159		
Thurston	430	106	161	66		
Wahkiakum	173	22	38	40		
Walla Walla	33	1, 230	14			
Whatcom	1, 387	33	170	636		
Whitman	19	1, 977	109			
Yakima	1, 788	3, 738	117	139	2	
Total	34, 245	23, 202	4, 229	4, 626	317	261

ADAMS COUNTY.

This county lies in the southeastern part of the State. Its surface consists of a broadly undulating plateau of basalt, containing few stream courses, but many coulees.

The county contains no timber whatever, except strips of willow, alder, and aspen along the few streams.

ASOTIN COUNTY.

This is the southeasternmost county of the State. It consists mainly of the undulating, timberless, basalt plain of Snake River, but into its western-edge extends the end of a spur from Blue Mountains, which bears some timber.

Classification of lands in Asotin County.

	Square miles.
Total area	631
Merchantable-timber area	105
Timberless area.....	520
Cut area.....	6

Estimate of timber in Asotin County.

	M feet B. M.
Pine.....	47,640
Red fir	15,880
Larch	7,940
White fir	7,940
Total	79,400

Average stand per acre of timbered land in feet B. M., 1,200.

Besides the above there is on the cut area a small amount, estimated at 2,000,000 feet, still standing, which, added to the above estimate, gives a total of 81,400 M feet B. M. for the county.

CHEHALIS COUNTY.

This county borders upon the Pacific Ocean, and on the north extends far up into the Olympic Mountains. The northern portion is high and rugged, and in other portions there are numerous small prairie tracts. Aside from these areas the county was originally heavily forested, mainly with fir in the interior and with spruce and cedar upon the coast. There have been few fires in this county, and the burned area is trifling. Lumbering has, however, been carried on extensively upon the streams flowing into Grays Harbor, and especially upon Chehalis River, nearly one-tenth of the timbered area of the county having been denuded of its forests.

THE FORESTS OF WASHINGTON.

Classification of lands in Chehalis County.

	Square miles.
Total area	1,968
Merchantable-timber area	1,714
Barren and rocky	42
Burned area	60
Mountain meadows	12
Cut area.....	140

Estimate of timber in Chehalis County.

	M feet B. M.
Red fir	10,957,668
Spruce	3,165,557
Cedar	4,759,920
Hemlock	6,649,683
Lovely fir	2,100,000
Total.....	27,632,828

Average stand per acre of timbered land in feet B. M., 25,000.

CHELAN COUNTY.

This county has been recently formed from parts of Kittitas and Okanogan counties. It lies upon the slope of the Cascade Range, extending eastward to Columbia River. Much the larger part of its area is mountainous, and is sparsely timbered, mainly with yellow pine.

Classification of lands in Chelan County.

	Square miles.
Total area	3,070
Merchantable-timber area	2,665
Timberless area	282
Burned area	97
Cut area.....	26

Estimate of timber in Chelan County.

	M feet B. M.
Yellow pine	2,440,067
Red fir	377,443
Tamarack	78,450
Cedar	47,070
Lodgepole pine	18,497
White fir	31,380
Other species	102,523
Total.....	3,095,430

Average stand per acre of timbered land in feet B. M., 1,810.

CLALLAM COUNTY.

This county occupies the northern part of the Olympic Peninsula. The southern portion of the county comprises a part of the Olympic Mountains. The remainder of the area was heavily forested, but the ax has made inroads into the forests along the shores of Puget Sound as far west as Crescent Bay, and fires have extended inland from these cuttings to the mountains, destroying considerable areas of timber. The western part of the county is still an unbroken forest.

The forests of this county are remarkable in the fact that they contain a large proportion of hemlock, the amount of this tree being much greater than that of the red fir.

Classification of lands in Clallam County.

	Square miles.
Total area	1,807
Merchantable-timber area	1,370
Rocky and barren	33
Burned area	236
Mountain meadows	48
Cut area	113
Prairie	7

Estimate of timber in Clallam County.

	M feet B. M.
Red fir	6,482,650
Spruce	2,393,185
Cedar	2,537,620
Hemlock	11,179,820
Lovely fir	3,149,500
Total	25,742,775

Average stand per acre of timbered land in feet B. M., 29,300.

CLARKE COUNTY.

This county lies in the southwestern part of the State, bordering on the south and west on Columbia River. Originally it was entirely covered with heavy forests, with the exception of a few small prairie tracts.

But little timber has been cut in the county, lumbering being principally confined to the line of the Portland, Vancouver and Yakima Railroad, and, on the other hand, the timber in more than two-thirds of the county has been destroyed by fire, the burned areas lying principally in the southern and western parts, leaving large bodies of forest in the eastern part.

The forest consists almost exclusively of fir, there being very little cedar and hemlock, and no spruce whatever.

THE FORESTS OF WASHINGTON.

Classification of lands in Clarke County.

	Square miles.
Total area	646
Merchantable-timber area	119
Barren and rocky	9
Burned area	498
Cut area	20

Estimate of timber in Clarke County.

	M feet B. M.
Fir	697,092
Cedar	14,460
Total	711,552

Average stand per acre of timbered land in feet B. M., 9,300.

COLUMBIA COUNTY.

This county lies in the southeastern portion of the State. Its southern part is occupied by the Blue Mountains, the crest of which runs across the county. Southward they descend rapidly to the canyon of Grande Ronde River and northward to the Columbia Plains. The greater part of the county consists of these plains, which are timberless, with a broadly undulating surface traversed by few streams. The northwest slope of the Blue Mountains was formerly well timbered with pine and fir, but this has mainly been logged off. The summits of these mountains are sparsely timbered, while the southern slopes are timbered quite heavily for this region. There have been no burns in the county.

Classification of lands in Columbia County.

	Square miles.
Total area	876
Merchantable-timber area	164
Cut area	182
Timberless area	530

Estimate of timber in Columbia County.

	M feet B. M.
Pine	109,500
Red fir	36,500
Larch	18,250
White fir	9,125
Spruce	9,125
Total	182,500

Average stand per acre of timbered land in feet B. M., 1,700.

Scattered over the cut area is standing timber to the amount of 60 million feet, which, added to the above estimate, gives a grand total of 242,500 M feet B. M. for the county.

COWLITZ COUNTY.

This county lies in the southern part of the State, being limited on the south by Lewis and Columbia rivers. The eastern portion of the county comprises the western slopes of Mount St. Helens, and includes a considerable area of rugged mountainous country. Aside from this and a few areas of prairie, the county was originally covered with fine merchantable forests. Fires have, however, been extremely disastrous in this county, destroying the timber on large areas, particularly in the eastern and southern parts. Lumbering has been carried on along Columbia and Cowlitz rivers, and considerable areas have thus been denuded; but this bears little comparison to the areas denuded by fire, which comprise fully one-third of the portion originally covered by merchantable forests.

Classification of lands in Cowlitz County.

	Square miles.
Total area	1, 145
Merchantable-timber area	646
Barren and rocky	32
Burned area	385
Cut area	82

Estimate of timber in Cowlitz County.

	M feet B. M.
Fir	5, 683, 311
Spruce	1, 089
Cedar	786, 691
Hemlock	953, 430
Larch	68, 126
Total	7, 492, 647

Average stand per acre of timbered land in feet B. M., 17,800

DOUGLAS COUNTY.

This county lies a little east of the center of the State, its area being comprised entirely within the great plains of the Columbia. It is bordered on the north and west by Columbia River, flowing in a deep and narrow valley. The surface of the county is broadly undulating, consisting of a basalt plateau, intersected by coulees and stream canyons. It is almost entirely treeless, only about 1 per cent of its area being timbered, the timbered areas lying in narrow strips on the edge of the plateau near Columbia River. Along Columbia River, between Wenache and Virginia, are a few scattered pines and firs.

Classification of lands in Douglas County.

	Square miles.
Total area	4, 768
Merchantable-timber area	49
Cut area	6
Timberless area	4, 713

THE FORESTS OF WASHINGTON.

Estimate of timber in Douglas County.

	M feet B. M.
Yellow pine	23, 250
Fir	7, 750
Total	31, 000

Average stand per acre of timbered land in feet B. M., 1,000.

FERRY COUNTY.

This is a new county, formed in 1899 from the western part of Stevens County, in the northeastern part of the State. Its surface is almost entirely mountainous and broken, and is throughout covered with timber, although the timber is nowhere dense. But one burn of any magnitude has occurred in the county in recent times, and no appreciable amount of timber has been cut.

Classification of lands in Ferry County.

	Square miles.
Total area	2, 313
Merchantable-timber area	2, 270
Burned area	5
Timberless area	38

Estimate of timber in Ferry County.

	M feet B. M.
Pine	999, 900
Fir	333, 300
Larch	333, 300
Total	1, 666, 500

Average stand per acre of timbered land in feet B. M., 1,200.

FRANKLIN COUNTY.

This county, which lies in the southeastern part of the State, in the angle between Snake River and the Columbia, is utterly timberless.

GARFIELD COUNTY.

This county lies in the southeastern part of the State, extending from Snake River southward to the Oregon line. The southern part includes a narrow section of the Blue Mountains. These are forested except on the northern slope, which has been largely cut over. The northern portion of the county is comprised in the undulating plain of Snake River and is timberless.

Classification of lands in Garfield County.

	Square miles.
Total area	725
Merchantable-timber area	128
Cut area	70
Timberless area	527

Estimate of timber in Garfield County.

	M. feet B. M.
Pine	89,820
Red fir.....	29,940
Larch	14,970
White fir.....	7,485
Spruce	7,485
Total	149,700

Average stand per acre of timbered land in feet B. M., 2,000.

Scattered over the cut area is standing timber to the amount of about 20 million feet, which, added to the above figures, gives a total for the county of 169,700 M feet B. M.

ISLAND COUNTY.

This comprises a group of islands in the northern part of Puget Sound, including Whidby and Camano islands. These islands originally were entirely covered with fir forests, but have been almost completely denuded by the ax.

Classification of lands in Island County.

	Square miles.
Total area, all logged.....	238

Estimate of timber in Island County.

	M feet B. M.
Fir.....	250,000
Cedar	180,000
Total	430,000

The above timber is reported as still standing on culled land.

JEFFERSON COUNTY.

This county lies on the Olympic Peninsula, stretching from Hood Canal on the east to the Pacific Ocean. The central portion of the county, comprising three-fourths of it, lies within the Olympic Mountains and contains much rugged country on which the stand of timber is light. Elsewhere the county was formerly heavily forested—on the east with fir, on the west mainly with cedar and spruce. The timber of the eastern portion has been largely destroyed, either by the ax or by fire, mainly by the latter. The timber in the western portion of the county has as yet suffered little from either cause.

The forests of this county are remarkable because of the large proportion of hemlock and lovely fir, more than half the forest being of these species, while of fir, elsewhere the most abundant species, there is comparatively little.

THE FORESTS OF WASHINGTON.

Classification of lands in Jefferson County.

	Square miles.
Total area	1,765
Merchantable-timber area	1,211
Rocky and barren	128
Burned area	158
Mountain meadows	187
Cut area	81

Estimate of timber in Jefferson County.

	M feet B. M.
Red fir	3,033,175
Spruce	843,250
Cedar	2,712,790
Hemlock	8,920,140
Lovely fir	5,182,000
Total	20,691,355

Average stand per acre of timbered land in feet B. M., 26,700.

KING COUNTY.

This county is in the middle of the State north and south, and extends from the crest of the Cascade Range westward to the shores of Puget Sound. Much of the eastern part of the county lies high up in the Cascade Range, where the stand of timber is light. Aside from this and a few trifling areas of prairie, the county was originally heavily forested, but the forests have been largely removed by fire and the ax. The latter has taken the timber from Vashon and Maury islands, from the shores of Puget Sound and of Lakes Washington and Sammamish, and from a broad belt along the line of the Northern Pacific Railway, together with other smaller areas in the interior of the county. Fires have done a vast amount of damage in various parts of the county, mainly in its central portion, although the mountainous regions have not escaped injury.

Classification of lands in King County.

	Square miles.
Total area	2,051
Merchantable-timber area	1,289
Burned area	393
Bare area	8
Cut area	361

Estimate of timber in King County.

	M feet B. M.
Red fir	6,306,494
Hemlock	2,712,971
Cedar	1,555,209
Engelmann spruce	348,103
Lovely fir	439,821

KITSAP AND KITTITAS COUNTIES.

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Estimate of timber in King County—Continued.

	M feet B. M.
White fir	75, 233
White pine	130, 577
Noble fir	29, 366
Other species	259, 657
Total	11, 857, 431

Average stand per acre of timbered land in feet B. M., 14,300.

KITSAP COUNTY.

This county occupies the northern part of the peninsula separating Hood Canal from Puget Sound. It was originally entirely covered with heavy fir forests. These have been removed almost completely by the ax from the shores and the islands bordering them. Only a trifling area in the southern portion of the county has been burned, while nearly half the area has been logged. The standing timber consists entirely of fir.

Classification of lands in Kitsap County.

	Square miles.
Total area	407
Merchantable-timber area	210
Cut area	175
Burned area	22

Estimate of timber in Kitsap County.

	M feet B. M.
Fir	1, 140, 900

Average stand per acre of timbered land in feet B. M., 9,000.

KITTITAS COUNTY.

This county lies in the middle of the State north and south, and stretches from Columbia River to the crest of the Cascade Range. The southeastern portion of the county is within the plains region, while the western portion comprises high and rugged mountain spurs. The plains portion is without timber, excepting a narrow strip along Yakima River. The mountain portion is timbered, but by no means heavily, with yellow pine, fir, and larch. Some timber has been cut from this area, especially west of Ellensburg, and in patches in the mountains in the neighborhood of the Northern Pacific Railway. The burned areas are trifling in extent.

Classification of lands in Kittitas County.

	Square miles.
Total area	2, 414
Merchantable-timber area	941
Burned area	118
Timberless area	1, 261
Cut area	94

THE FORESTS OF WASHINGTON.

Estimate of timber in Kittitas County.

	M feet B. M.
Yellow pine	1,349,200
Red fir	546,556
Hemlock	265,911
Tamarack	150,645
White fir	520,000
Cedar	131,000
Lovely fir	78,000
Other species	130,000
Total	3,171,312

Average stand per acre of timbered land in feet B. M., 5,260.

Klickitat County.

This county occupies a long, narrow strip bordering upon Columbia River. Its western end is in the foothills of the Cascade Range, whence it stretches far eastward into the plains. The western portion of the county is timbered, and in certain small areas heavily so. The eastern portion, comprising by far the largest part of the county, is without forests. A few small areas have been cut, and at the western end of the county the great burns of the adjoining county, Skamania, have extended into it. These burns have occurred in recent years and restocking is only just commencing upon them.

Classification of lands in Klickitat County.

	Square miles.
Total area	2,079
Merchantable-timber area	825
Burned area	31
Cut area	26
Timberless area	1,197

Estimate of timber in Klickitat County.

	M feet B. M.
Red fir	336,300
Pine	321,100
Hemlock	71,400
Larch	10,500
Oak	3,700
Total	743,000

Average stand per acre of timbered land in feet B. M., 1,400.

LEWIS COUNTY.

This county is situated in the southwestern part of the State, and extends from the crest of the Cascade Range on the east to the Coast Range on the west, including the valley of Cowlitz River. A considerable portion of its area, therefore, is included

within the Cascade Range, where the stand of timber is light. There are many prairies scattered over its surface, which further reduce the original area of merchantable timber.

The timber upon more than one-third of the area of this county has been burned, the burned areas lying mainly in the eastern half of the county, though they are not by any means confined to this part. The cutting of timber has been carried on mainly in the neighborhood of the Northern Pacific Railway, which traverses the county from north to south.

Classification of lands in Lewis County.

	Square miles.
Total area	2,336
Merchantable-timber area	1,396
Rocky and barren	11
Timberless area	45
Burned area	813
Cut area	71

Estimate of timber in Lewis County.

	M feet B. M.
Red fir	8,848,113
Hemlock	929,755
Cedar	1,118,975
White fir	158,941
Noble fir	143,491
Alaska cedar	18,451
Larch	1,406
Other species	159,030
Total	11,378,162

Average stand per acre of timbered land in feet B. M., 12,800.

LINCOLN COUNTY.

This county lies in the eastern portion of the State, upon the great plains of the Columbia, and is bordered on the north by Columbia and Spokane rivers. Its surface is a broad, undulating, basalt plain, traversed by a few stream courses and numerous coulees. The timber consists mainly of yellow pine, and is found in the northern part of the county, near Columbia and Spokane rivers. Formerly it extended in a continuous belt across the county in the neighborhood of these streams, but most of it has been cut away for cord wood and saw logs. The stand is very light.

Classification of lands in Lincoln County.

	Square miles.
Total area	2,299
Merchantable-timber area	63
Cut area	200
Timberless area	2,036

THE FORESTS OF WASHINGTON.

Estimate of timber in Lincoln County.

	M feet B. M.
Pine	10,200
Fir.....	1,800
Total.....	12,000

Average stand per acre of timbered land in feet B. M., 300.

Scattered over the cut area is a little standing timber, amounting to about 2,000,000 feet, which, added to the above estimate, gives a total of 14,000 M feet B. M. for the county.

MASON COUNTY.

This county includes the southeastern part of the Olympic Mountains and much of the country bordering Hood Canal. With the exception of a few small prairie tracts, it was originally heavily timbered. Fires have done little damage, but timber cutting has been extensive. The forests have been removed from the shores of Hood Canal and other inlets from Puget Sound, as well as from much of the interior of the county; indeed, it appears that nearly two-fifths of the area has been logged.

The forest consists almost entirely of fir, the amount of other species being trifling.

Classification of lands in Mason County.

	Square miles.
Total area	993
Merchantable-timber area	729
Barren and rocky	20
Burned area	31
Mountain meadows	14
Cut area	199

Estimate of timber in Mason County.

	M feet B. M.
Red fir	4,953,121
Spruce	8,492
Cedar	437,778
Hemlock	1,174,038
Lovely fir	456,000
Total.....	7,029,429

Average stand per acre of timbered land in feet B. M., 15,000.

OKANOGAN COUNTY.

This large county lies in the northern part of the State, along the Canadian border, and about midway between the east and west boundaries. A large part of the county is comprised within the limits of the Washington Forest Reserve, where the stand of timber is light. Most of the remaining part of the county is timbered but little. It is, in the main, a mountainous region, containing, however, the broad

valley of Okanogan River, which traverses it from north to south, while along the southern edge flows Columbia River in a narrow valley. No lumbering has been carried on in the county, and the forests have not suffered in recent times by fire.

Classification of lands in Okanogan County.

	Square miles.
Total area	5,318
Timbered area	4,468
Timberless area	850

Estimate of timber in Okanogan County.

	M feet B. M.
Yellow pine	2,765,060
Fir.....	533,100
Larch	533,100
Total.....	3,831,260

Average stand per acre of timbered land in feet B. M., 1,340.

PACIFIC COUNTY.

This is the southwesternmost county of the State, bordering upon the Pacific Ocean and Columbia River. In the interior its surface is somewhat broken by the Coast Range, although the relief is nowhere great. It is drained by Willapa and Nasel rivers.

Originally the entire surface, with the exception of a few sandy tracts near the coast, was covered with fine forests, composed almost entirely of fir in the interior and of cedar and spruce near the coast.

Logging has been carried on along the two rivers above mentioned, and to some extent immediately on the coast. Altogether only an area of 42 square miles has been logged.

Fires have not been especially prevalent or destructive in this county, having destroyed the timber upon an area of only 59 square miles.

Classification of lands in Pacific County.

	Square miles.
Total area	925
Merchantable-timber area	764
Cut area.....	56
Timberless area.....	40
Burned area	65

Estimate of timber in Pacific County.

	M feet B. M.
Fir.....	5,498,224
Spruce	814,953
Cedar	713,238
Hemlock	786,652
Total.....	7,813,067

Average stand per acre of timbered land in feet B. M., 16,300.

PIERCE COUNTY.

This, one of the western counties of the State, extends from the crest of the Cascade Range westward to Puget Sound, and includes several islands in the sound. In the east it includes Mount Rainier, with an altitude exceeding 14,500 feet, from whose summit radiate great areas of snow and ice. A large area in the eastern part of this county, lying high up in the range, is sparsely timbered. A considerable area has been logged, including nearly all of the islands, large tracts around the city of Tacoma, and others along White and Puyallup rivers.

This county has been singularly free from fires, only a trifling area having as yet been burned. There are, however, large tracts covering many scores of square miles south of the city of Tacoma which are naturally timberless.

Classification of lands in Pierce County.

	Square miles.
Total area	1,554
Merchantable-timber area	1,079
Rocky and barren	40
Timberless area	159
Burned area	76
Cut area	200

Estimate of timber in Pierce County.

	M feet B. M.
Red fir	6,798,950
Spruce	200,871
Cedar	1,192,539
Hemlock	2,099,780
White pine	86,878
Noble fir	93,458
White fir	61,565
Alaska cedar	94,034
Other species	240,365
Total	10,868,440

Average stand per acre of timbered land in feet B. M., 15,700.

SAN JUAN COUNTY.

This, one of the northwestern counties of the State, is composed entirely of islands in Puget Sound, the principal of which are San Juan, Orcas, Lopez, Blakely, Shaw, and Waldron.

All these islands were originally covered with a heavy forest, composed of red fir almost exclusively, but, being easily accessible, the entire area has been logged.

SKAGIT COUNTY.

This is in the northwestern portion of the State, and extends from the crest of the Cascade Range to Puget Sound, including a number of islands in the sound. The eastern portion, including much more than half the county, being mountainous, has a light stand of timber. The western portion, comprising perhaps one-third of the county, was formerly entirely forested, with the exception of a considerable tract of prairie about the mouth of Skagit River.

There have been no fires of magnitude within the county, but logging has been extensively carried on. The islands have been cleared entirely, and the lands in the neighborhood of the coast and the immediate valley of Skagit River have been cleared as far up as the mouth of the Sauk.

Classification of lands in Skagit County.

	Square miles.
Total area	1,874
Merchantable-timber area	1,576
Burned area	12
Cut area.....	196
Timberless area.....	90

Estimate of timber in Skagit County.

	M feet B. M.
Fir.....	6,297,350
Cedar	2,716,326
Hemlock	1,900,339
Spruce	184,096
Total.....	11,098,111

Average stand per acre of timbered land in feet B. M., 11,000.

SKAMANIA COUNTY.

This county is in the southern portion of the State, bordering on Columbia River, and extending thence northward well into the Cascade Range. In the northwestern portion of the county is the extinct volcano of St. Helens, while well into the northeast extend the western spurs of Mount Adams. The northern portion of the county is therefore extremely rugged, mountainous, and elevated, and the spurs from these mountains extend southward nearly to Columbia River.

The northern half of the county has a light stand of merchantable timber, although, with the exception of the summits of the highest mountains, which are above timber line, it is wooded. The southern half was at one time quite heavily timbered, especially toward the west. In recent years, however, fires have destroyed the timber in more than half the area of the county. The fires have invaded the eastern and western portions, leaving between them a narrow belt of forests, together

with a broad strip along Columbia River; indeed, the timber upon more than half the area of the county has been thus destroyed.

But little of the timber of this county has been cut. Logging operations extend along Columbia River across the county, reaching perhaps a mile back from the river and up a few of the streams flowing into it.

The forests of this county consist largely of fir and hemlock. The amount of cedar is trifling, and there is no spruce.

Classification of lands in Skamania County.

	Square miles.
Total area	1,743
Merchantable-timber area	1,209
Burned area	459
Timberless area	44
Cut area	31

Estimate of timber in Skamania County.

	M feet B. M.
Red fir	6,117,212
Cedar	455,115
Hemlock	1,948,042
Noble fir	980,065
Lovely fir	639,605
Tamarack	539,290
White fir	295,207
Yellow pine	230,845
White pine	229,573
Larch	12,700
Other species	423,161
Total	11,870,815

Average stand per acre of timbered land in feet B. M., 15,300.

SNOHOMISH COUNTY.

This county extends from the crest of the Cascade Range to Puget Sound. The eastern part is composed of high and rugged mountains, with a light stand of timber. The western half was originally forested, with the exception of a few tracts of prairie. Logging has, however, been carried on extensively in this county, two-fifths of the area formerly timbered having been stripped by the ax. Burns have not been extensive or destructive.

Classification of lands in Snohomish County.

	Square miles.
Total area	1,651
Merchantable-timber area	1,252
Burned area	119
Timberless area	28
Cut area	252

Estimate of timber in Snohomish County.

	M feet B. M.
Red fir	7, 356, 337
Cedar	2, 050, 630
Hemlock	1, 055, 737
Lovely fir	214, 742
White fir	64, 423
Engelmann spruce	42, 955
Other species	107, 371
Total.....	10, 892, 195

Average stand per acre of timbered land in feet B. M., 13,500.

SPOKANE COUNTY.

This county is situated along the Idaho boundary, and lies about midway between the north and south boundaries of Washington. The eastern part is somewhat hilly and broken, while the western part consists of a portion of the great basaltic plain of the Columbia, intersected by numerous coulees, but traversed by few flowing streams.

Much of the area of this county was formerly timbered, but the timber has been in great part cut away to supply the needs of Spokane and other towns. Very little of the timber has suffered from fire.

Classification of lands in Spokane County.

	Square miles.
Total area	1, 777
Merchantable-timber area	530
Burned area	8
Cut area.....	585
Timberless area.....	654

Estimate of timber in Spokane County.

	M feet B. M.
Pine	532, 400
Larch	121, 360
Fir	32, 680
Cedar	29, 560
Total	716, 000

Average stand per acre of timbered land in feet B. M., 2,100.

In the cut area there is still standing scattered timber estimated altogether at 50 million feet, which, added to the above, gives a total of 766,000 M feet B. M. for the county.

STEVENS COUNTY.

This is the northeastern county of the State. It is bordered on the west by Columbia River, while much of its southern boundary is formed by Spokane River. It is, in the main, a mountainous region, but is intersected by the broad valleys of Clark Fork and other streams. Nearly all of its area is timbered, but nowhere densely. Burned areas are more extensive here than in any other of the eastern counties, and there has been considerable cutting in scattered localities.

The species of timber found in the county consist of pine, in which is included both yellow and Western white pine, which are not distinguished, red fir, larch, and cedar. In the western portion of the county, along Columbia River, the timber consists almost entirely of pine, only 4 per cent being fir and 1 per cent larch. In the neighborhood of Colville River the proportion of pine diminishes to 75 per cent and that of fir and larch increases to 10 per cent each, while the proportion of cedar reaches 5 per cent. In the southeastern part of the county the proportion of pine is still further reduced to 60 per cent, while larch increases to 30 per cent, the remainder being made up of equal proportions of fir and cedar. Along the line of the Great Northern Railroad, in the southern corner of the county, the proportion of larch is still greater, reaching 50 per cent in certain small areas.

Classification of lands in Stevens County.

	Square miles.
Total area	3,945
Merchantable-timber area	3,643
Cut area.....	23
Burned area	159
Timberless area	120

Estimate of timber in Stevens County.

	M feet B. M.
Pine	2,026,260
Larch	351,218
Fir.....	297,185
Cedar	27,017
Total.....	2,701,680

Average stand per acre of timbered land in feet B. M., 1,100.

THURSTON COUNTY.

This county lies in the western part of the State, bordering on the north upon Puget Sound. Its area was, with the exception of numerous prairie tracts, originally covered entirely with fine forests, mainly of fir. At present all the forests in the neighborhood of Puget Sound have been cut away. Fires have not been prevalent, and but little timber has been destroyed by this means.

Classification of lands in Thurston County.

	Square miles.
Total area	763
Merchantable-timber area	430
Burned area	66
Cut area	161
Timberless area	106

Estimate of timber in Thurston County.

	M feet B. M.
Fir	2, 608, 125
Spruce	462
Cedar	108, 949
Hemlock	69, 807
Total	2, 787, 343

Average stand per acre of timbered land in feet B. M., 10,100.

WAHKIAKUM COUNTY.

This county lies in the southwestern part of the State, bordering Columbia River. With the exception of some islands in the Columbia and small tracts about the mouths of certain tributary streams, the entire area was heavily forested. Lumbering has been carried on along the shores of the Columbia and on Gray and Deep rivers. Fires also have been somewhat prevalent in the county, but more than two-thirds of its area is still covered by fine forests.

Classification of lands in Wahkiakum County.

	Square miles.
Total area	273
Merchantable-timber area	173
Burned area	40
Cut area	38
Timberless area	22

Estimate of timber in Wahkiakum County.

	M feet B. M.
Fir	1, 947, 150
Spruce	182, 520
Cedar	301, 757
Hemlock	542, 680
Total	2, 974, 107

Average stand per acre of timbered land in feet B. M., 27,000.

WALLAWALLA COUNTY.

This county lies in the southern part of the State, being bordered on the north by Snake River and on the west by Columbia River. Its surface is an undulating plain, sloping northward and westward from Blue Mountains.

The amount of timber in this county was originally small, and this has been entirely logged off, with the exception of about 4,500,000 feet left standing after logging operations. Of this, about half is pine, one-fourth fir, and one-fourth larch.

Classification of lands in Wallawalla County.

	Square miles.
Total area	1, 277
Merchantable-timber area	33
Cut area	14
Timberless area	1, 230

Estimate of timber in Wallawalla County.

	M feet B. M.
Pine	2, 250
Fir	1, 625
Larch	1, 625
Total	5, 500

Average stand per acre of timbered land in feet B. M., 213.

WHATCOM COUNTY.

This is the most northern county of the State west of the Cascade Range. It extends west from the summit of the range to the shores of Puget Sound. In the eastern half of the county are found Mounts Baker and Shuksan, two great extinct volcanoes, rising high above timber line. This eastern mountainous half of the county has a light stand of timber. The western half was originally very heavily timbered. Its forests were probably as dense as those of any other county in the State, but they have been almost entirely destroyed by fire. Certain areas along the coast, on Nooksak River and on the Bellingham Bay and British Columbia Railroad, have been logged, but the amount of timber thus utilized is small as compared with that destroyed by fire. To illustrate the extent of this devastation, it may be stated that out of a timbered area of 1,387 square miles not less than 636 square miles have been burned; 170 square miles have been logged.

The forest consists almost entirely of fir and cedar, the amounts of hemlock and spruce being trifling.

Classification of lands in Whatcom County.

	Square miles.
Total area	2, 226
Merchantable-timber area	1, 387
Burned area	636
Cut area	170
Timberless area	33

Estimate of timber in Whatcom County.

	M feet B. M.
Fir.....	1,905,962
Cedar.....	596,342
Hemlock.....	188,071
Spruce.....	18,580
Total.....	2,708,955

Average stand per acre of timbered land in feet B. M., 3,000.

WHITMAN COUNTY.

This county is in the eastern part of the State, bordering upon Idaho. Its surface is a broadly undulating plain of basalt sloping to the eastward.

It formerly contained a few small areas of timber land in the eastern and northern parts, but these have been logged over, leaving, however, a small amount of timber still standing.

Classification of lands in Whitman County.

	Square miles.
Total area.....	2,105
Merchantable-timber area.....	19
Cut area.....	109
Timberless area.....	1,977

Estimate of timber in Whitman County.

	M feet B. M.
Yellow pine.....	35,000

Average stand per acre of timbered land in feet B. M., 3,000.

In the cut areas there is still standing a little timber, estimated at 35 million feet, consisting mainly of yellow pine.

YAKIMA COUNTY.

This county lies in the middle-southern portion of the State, being bordered upon the east by the Columbia River, and extending on the west to the crest of the Cascade Range. The western portion of the county is included within the Mount Rainier Forest Reserve. The estimates of area and of stand of timber do not include the reserve portion.

The eastern portion of the county consists of a broadly undulating plain, and is without forests. The western portion lies in the Cascade Range, is mountainous and broken, and is timbered throughout, but for the most part not heavily. There has been considerable cutting in the lower edges of the mountain forests, particularly upon Naches River, where a large area has been logged. There are no burns except in the southwest corner of the county.

THE FORESTS OF WASHINGTON.

Classification of lands in Yakima County.

	Square miles.
Total area	5,784
Merchantable-timber area	1,788
Rocky and barren	2
Burned area	139
Timberless area	3,738
Cut area.....	117

Estimate of timber in Yakima County.

	M feet B. M.
Fir.....	1,261,033
Yellow pine	2,099,788
Tamarack	433,154
White pine	93,406
Mountain fir.....	2,957
Patton hemlock	1,774
Hemlock	121,300
Lodgepole pine	1,183
Cedar.....	60,600
Other species	172,377
Total.....	4,247,572

Average stand per acre of timbered land in feet B. M., 3,620.

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Correspondence should be addressed to—

The DIRECTOR,

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