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Timber Resource Statistics for Southwest Washington

Patricia M. Bassett and Daniel D. Oswald

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Abstract

Bassett, Patricia M., and Daniel D. Oswald.

1981. Timber Resource Statistics for Southwest Washington. USDA For. Serv. Resour. Bull. PNW-91, 24 p. Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

This report summarizes a 1978 timber-resource inventory of six counties in southwest Washington: Clark, Cowlitz, Lewis, Pacific, Skamania, and Wahkiakum. Detailed tables of forest area, timber volume, growth, mortality, and harvest are presented.

KEYWORDS: Forest surveys, statistics (forest), timber resources, resources (forest), southwest Washington, Washington (southwest).

Summary

The southwest Washington resource area (Clark, Cowlitz, Lewis, Pacific, Skamania, and Wahkiakum Counties) totals 4,560,000 acres (1 845 000 ha), of which an estimated 3,870,000 acres (1 566 000 ha) are forested. An estimated 3,652,000 acres (1 478 000 ha) are classified as timberland. The area has 15.8 billion cubic feet (447 million m³) of standing timber with 55 percent of this volume in public ownership.

Preface

This report presents statistics from the latest inventory of timber resources for six counties in southwest Washington: Clark, Cowlitz, Lewis, Pacific, Skamania, and Wahkiakum. Previous inventories of these counties were made in 1931-32, 1938-40, 1949-50, and 1963.

Field data for all lands except National Forests were collected by the Renewable Resources Evaluation Work Unit of the Pacific Northwest Forest and Range Experiment Station. Renewable Resources Evaluation (formerly Forest Survey) is a nationwide project of the Forest Service authorized by the Forest and Rangeland Renewable Resources Research Act of 1978.

Forest resource inventories are conducted throughout the 50 States by the USDA Forest Service Experiment Stations. The Pacific Northwest Forest and Range Experiment Station at Portland, Oregon, is responsible for forest resource inventories in the States of Alaska, California, Hawaii, Oregon, and Washington.

National Forest inventory data included in this report are for all lands administered by the Gifford Pinchot National Forest, including the parts of the Forest that are outside the six counties mentioned and about 80,000 acres (32 000 ha) of the Snoqualmie National Forest. They were collected in 1969 by National Forest personnel and subsequently updated for land exchanges and withdrawals.

The eruption of Mount St. Helens on May 18, 1980, caused damage and destruction to thousands of acres of timberland included in this inventory report. No attempt has been made to change the tables to reflect that damage, because the eruption occurred after the inventory. We have, however, made a preliminary appraisal of the forested area damaged and the volume of timber destroyed or damaged by the May 18 eruption. The appraisal was made using post-eruption aerial photography and pre-eruption forest inventory data.

Our preliminary appraisal indicates that 125,000 acres (50 000 ha) of timberland were directly affected by blast, heat, gases, and mud or debris flows. (Areas affected solely by ashfall were not included.) Timber damaged or destroyed in this area was estimated as 2.7 billion board feet (Scribner rule). The loss of live timber, in terms of cubic volume, was 580 million cubic feet (16.4 million m³).

Scientific names of trees (Little 1978) are listed on page 6 of this report.

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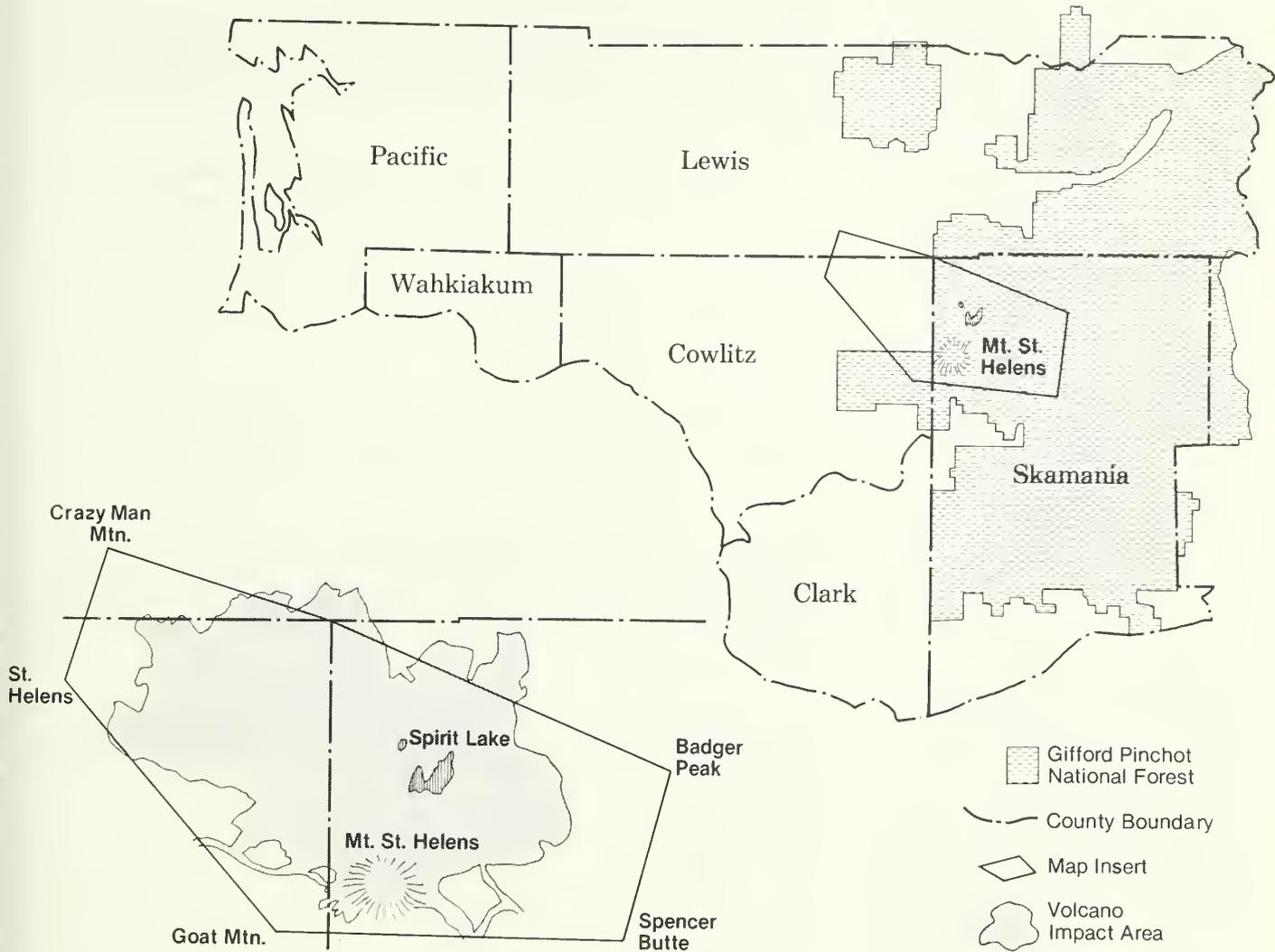
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Map of Southwest Washington Counties



Inventory area in southwest Washington with Mount St. Helens impact area indicated.

This report of southwest Washington's forest resources combines inventory data from two sources: a 1969 inventory of the Gifford Pinchot National Forest updated to 1977 to account for changes in area from land exchanges and withdrawals; an inventory of State, county, municipal, Indian trust, and private forest lands conducted by the Renewable Resources Evaluation Work Unit in the summer and fall of 1978.

On the Gifford Pinchot National Forest, all areas of timberland, other forest land, reserved lands, and nonforest land were mapped by delineation on aerial photos. Timberland areas were systematically sampled with about 570 field plots, arranged in a 1.7-mile (2 736-m) square grid. The field plots, each a cluster of ten variable-radius points distributed over about 1 acre (0.4 ha), are the basis for estimates of timber volume, growth, mortality, and area attributes, such as forest type, site class, and stand size class.¹

For all lands other than National Forest, the design used was double sampling for stratification (Cochran 1963). A total of 6,933 photo points were classified to estimate area by owner group, major land class (timberland, other forest, nonforest), and stand-volume class. We visited 439 field plots, located on a 3.4-mile (5 473-m) square grid, to correct the photo sample and to determine forest characteristics. On timberland locations, part of the 1963 10-point cluster plot was remeasured to determine growth and mortality. At the same general location, a new 5-point cluster plot, spread over about 8 acres (3 ha), was established to determine current volume, growth, and condition of the forest stand (MacLean 1980).

The timberland area of the Gifford Pinchot National Forest was determined from mapping and is not subject to sampling error. With that exception, all area and volume statistics reported are based on sampling and subject to sampling error. Confidence intervals (0.68 probability level) for the estimated timberland area, cubic-foot volume, and net annual cubic-foot growth by ownership class are as follows:

Owner	Timberland area	Net volume	Net annual growth
	<i>Thousand acres</i>	<i>— Million cubic feet —</i>	
National Forest	1,081 ± 0	6,814 ± 198	not available
Other public	427 ± 18	1,834 ± 213	74 ± 9
Forest industry	1,496 ± 23	5,092 ± 344	221 ± 13
Other private	648 ± 17	2,055 ± 185	85 ± 8
All owners	3,652 ± 25	15,795 ± 480	not available

Confidence intervals are quantitative expressions of the reliability of the timberland area, volume, and growth statistics. The above tabulation, for instance, indicates a two-in-three chance that there are between 3,627,000 and 3,677,000 acres of timberland in southwest Washington.

Confidence intervals vary with both size of the estimate and variance of the item being estimated. If variance is assumed constant, confidence bounds can be approximated for estimates of various sizes. The confidence interval guides that follow assume an average relationship between variance and the size of the estimates, and thus provide only an approximation of the reliability of individual estimates.

Timberland area	Confidence interval	
	By owner ²	By type or class ³
	<i>Thousand acres</i>	
1,000	± 19	± 57
800	± 17	± 52
600	± 15	± 45
400	± 13	± 38
200	± 10	± 28
100	± 7	± 20
50	± 5	± 15
25	± 4	± 11
15	± 3	± 8
10	± 3	± 7

¹Unpublished report, "Forest Inventory Statistics for the Gifford Pinchot National Forest (2410)," Branch of Plans and Silviculture, Division of Timber Management, Region Six, 1970, Portland, Oregon, 64 pages.

Definition of Terms

Confidence intervals

For volume estimates of various sizes ²	For net annual growth estimates of various sizes ²
<i>Million cubic feet</i>	<i>Thousand cubic feet</i>
6,000 ± 434	200,000 ± 17,900
4,000 ± 335	100,000 ± 11,289
2,000 ± 216	50,000 ± 7,115
1,000 ± 139	25,000 ± 4,484
800 ± 120	15,000 ± 3,191
600 ± 100	10,000 ± 2,436
400 ± 77	5,000 ± 1,535
200 ± 50	1,000 ± 526
100 ± 32	500 ± 331
50 ± 21	100 ± 113
25 ± 13	
15 ± 10	
10 ± 7	
5 ± 5	

Class of timber—A classification of trees as growing stock, cull, and salvable dead. Growing stock trees are subdivided into poletimber and sawtimber trees.

Codominant trees—Live trees with crowns forming the general level of the crown canopy and receiving full light from above but comparatively little from the sides; usually with medium-size crowns more or less crowded on the sides.

Commercial species—A tree species suitable for industrial wood products.

Cull trees—Live trees of noncommercial species or live trees of commercial species that are more than 75-percent defective and are unlikely to become growing stock.

Cull trees, rotten—Live trees with excessive defect primarily caused by rot.

Cull trees, sound—Live trees of noncommercial species or live trees of commercial species with excessive defect caused by poor form, roughness, etc.

Diameter class—A classification of trees based on diameter outside bark measured at breast height, 4½ feet (1.37 m) above the ground. D.b.h. is the common abbreviation for “diameter at breast height.”

Dominant trees—Live trees with crowns extending above the general level of the crown canopy and receiving full light from above and partly from the side; larger than the average trees in the stand and with crowns dense, comparatively wide and long, but somewhat crowded on the sides.

Forest-industry lands—Lands owned by companies or individuals operating wood-using plants.

Forest land—Land at least 10 percent stocked by live trees or land formerly having such tree cover and not currently developed for nonforest use.

Actual confidence intervals have been calculated for most of the tabular data in this report; they are available on request.

²Constant variance is assumed.

³Applies to breakdowns of the total estimated timberland areas such as site class, stand-size class, and forest type.

Forest types—Stands with 50 percent or more stocking in live conifer trees are classed as softwood types. Stands with a majority of stocking in live hardwood trees are classed as hardwood types. Within these two groups, the individual forest type is determined by plurality of stocking by species of live softwood or hardwood trees.

Growing-stock trees—All live trees with the exception of cull trees.

Growing-stock volume—Net volume in cubic feet of live sawtimber and poletimber growing-stock trees from stump to a minimum 4-inch (10-cm) top (of central stem) outside bark. Net volume equals gross volume less deduction for rot and missing bole sections.

Hardwoods—Trees that are angiosperms, usually broad-leaved and often deciduous.

Industrial wood—All commercial roundwood products except fuelwood.

International ¼-inch rule—The standard board-foot log rule adopted nationally by the USDA Forest Service for the presentation of inventory-volume statistics.

Land area—Area reported as land by the Bureau of the Census. 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 ¼ mile (200 m) wide; and lakes, reservoirs, and ponds less than 40 acres (16 ha) in area.

Land class—A classification of land by major use. The minimum size area for classification is 1 acre (0.4 ha).

Mean annual increment—A measure of the productivity of forest land in terms of the average increase in cubic-foot volume per acre per year. For a given species and site index the average is based on the number of years needed for the mean annual increment to culminate in fully stocked stands.

Mortality—Volume of sound wood in trees dying from natural causes during a specified period.

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

Net annual growth—The net increase in volume of trees during a specified year. Components of net annual growth of trees: (a) the increment in net volume of trees alive at the beginning of the specified year and surviving to the year's end, plus (b) the net volume of trees reaching sawtimber or poletimber size during the year, minus (c) the net volume of trees that died during the year.

Noncommercial species—A tree species not suitable for industrial wood products.

Nonforest land—Land that has never supported forests or was formerly forested and is currently developed for nonforest uses. Included are lands used for agricultural crops, improved pasture, residential areas, city parks, improved roads, operating railroads and their right-of-way clearings, powerline and pipeline clearings, streams over 30 feet (10 m) wide, and 1- to 40-acre (0.4- to 16-ha) areas of water classified by the Bureau of the Census as land. If intermingled in forest areas, unimproved roads and other nonforest strips must be more than 120 feet (35 m) wide, and clearings or other areas must be 1 acre (0.4 ha) or larger to qualify as nonforest land.

Nonstocked areas—Timberland less than 10 percent stocked with growing-stock trees.

Other forest land—Forest land incapable of producing 20 cubic feet per acre per year of industrial wood because of adverse site conditions such as sterile soil, dry climate, poor drainage, high elevation, steepness, or rockiness.

Other private lands—All privately owned lands except those classed as forest-industry lands.

Other private lands, farmer—Lands owned by operators of farms.

Other private lands, miscellaneous—Privately owned lands other than those owned by the forest industry or farmers.

Other public lands—Lands administered by public agencies other than the Forest Service.

Poletimber stands—Stands with a mean diameter (weighted by basal area) from 5.0 inches (12.5 cm) to 9.0 inches (22.5 cm) if softwood and from 5.0 inches (12.5 cm) to 11.0 inches (27.5 cm) if hardwood.

Poletimber trees—Live trees of commercial species at least 5.0 inches (12.5 cm) in diameter at breast height but smaller than sawtimber size, and of good form and vigor.

Roundwood—Logs, bolts, or other round sections cut from trees.

Salvable dead trees—Standing or down trees of commercial species, at least 9.0 inches (22.5 cm) in d.b.h. for softwoods and at least 11.0 inches (27.5 cm) in d.b.h. for hardwoods, containing 25 percent or more soundwood volume and at least one merchantable 12-foot (3.8-m) log if softwood or one merchantable 8-foot (2.5-m) log if hardwood.

Sapling and seedling stands—Stands with a mean diameter (weighted by basal area) less than 5.0 inches (12.5 cm).

Sapling and seedling trees—Live trees of commercial species less than 5 inches (12.5 cm) in d.b.h. with no disease, defects, or deformities likely to prevent their becoming poletimber trees.

Saw-log portion—The bole of sawtimber trees between the stump and the saw-log top.

Sawtimber stands—Stands with a mean diameter (weighted by basal area) larger than 9.0 inches (22.5 cm) if softwood and larger than 11.0 inches (27.5 cm) if hardwood.

Sawtimber trees—Live softwood trees of commercial species at least 9.0 inches (22.5 cm) in d.b.h. and hardwood trees of commercial species at least 11.0 inches (27.5 cm) in d.b.h. At least 25 percent of the board-foot volume in a sawtimber tree must be free from defect. Softwood trees must contain at least one 12-foot (3.8-m) saw log with a top diameter of not less than 6 inches (15 cm) inside the bark; hardwood trees must contain at least one 8-foot (2.5-m) saw log with a top diameter of not less than 8 inches (20 cm) inside the bark.

Sawtimber volume—Net volume of sawtimber trees measured in board feet. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Scribner rule—The common board-foot log rule used locally in determining volume of sawtimber. Scribner volume is estimated in terms of 32-foot (10-m) logs for softwoods and 16-foot (5-m) logs for hardwoods.

Site class—A classification of the potential productivity of forest land in terms of mean annual increment.

Site index—A measure of the productivity of forest land in terms of the average height of dominant and codominant trees at a specified age.

Softwoods—Coniferous trees, usually evergreen.

Timber harvest—Volume of roundwood removed from forest land for products.

Timber volume—Includes the net volume in cubic feet of poletimber and sawtimber trees and salvable dead sawtimber trees of all species, the net volume in cubic feet of cull trees of commercial species, and gross volume of noncommercial species. Volume is measured from stump to a minimum 4-inch (10-cm) top outside bark.

Timberland—Forest land capable of producing 20 cubic feet per acre (1.4 m³/ha) per year of industrial wood.

Timberland, deferred—National Forest timberland temporarily withdrawn from timber utilization and under study for possible inclusion in the wilderness system.

Timberland, reserved—Public land withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as timberland.

Timberland, unreserved—Timberland not withdrawn from timber utilization.

Upper-stem portion—The bole of sawtimber trees above the saw-log top—7.0 inches (18 cm) outside bark for softwoods and 9.0 inches (23 cm) outside bark for hardwoods—to a minimum top diameter of 4.0 inches (10 cm) outside bark, or to the point where the central stem breaks into limbs.

The Washington Department of Natural Resources, a cooperator, prepared maps and aerial photos for use in this inventory and developed equations for estimation of tree volumes; county assessors provided ownership information; the Pacific Northwest Region, USDA Forest Service, and the Gifford Pinchot National Forest provided forest-resource inventory data; and timber companies and many individual landowners allowed access to their forest lands.

Names of Trees

Metric Equivalents

Common name	Scientific name
Softwoods	
Alaska-cedar	<i>Chamaecyparis nootkatensis</i> (D. Don) Spach
Douglas-fir	<i>Pseudotsuga menziesii</i> (Mirb.) Franco
Fir, grand	<i>Abies grandis</i> (Dougl. ex D. Don) Lindl.
Fir, noble	<i>A. procera</i> Rehd.
Fir, Pacific silver	<i>A. amabilis</i> Dougl. ex Forbes
Fir, subalpine	<i>A. lasiocarpa</i> (Hook.) Nutt.
Fir, white	<i>A. concolor</i> (Gord. & Glend.) Lindl. ex Hildebr.
Hemlock, mountain	<i>Tsuga mertensiana</i> (Bong.) Carr.
Hemlock, western	<i>T. heterophylla</i> (Raf.) Sarg.
Larch, western	<i>Larix occidentalis</i> Nutt.
Pine, lodgepole	<i>Pinus contorta</i> Dougl. ex Loud. var. <i>latifolia</i> Engelm.
Pine, ponderosa	<i>P. ponderosa</i> Dougl. ex Laws.
Pine, western white	<i>P. monticola</i> Dougl. ex D. Don
Pine, whitebark	<i>P. albicaulis</i> Engelm.
Redcedar, western	<i>Thuja plicata</i> Donn ex. D. Don
Spruce, Engelmann	<i>Picea engelmannii</i> Parry ex Engelm.
Spruce, Sitka	<i>P. sitchensis</i> (Bong.) Carr.
Hardwoods	
Alder, red	<i>Alnus rubra</i> Bong.
Ash, Oregon	<i>Fraxinus latifolia</i> Benth.
Aspen, quaking	<i>Populus tremuloides</i> Michx.
Cottonwood, black	<i>P. trichocarpa</i> Torr. & Gray
Maple, bigleaf	<i>Acer macrophyllum</i> Pursh
Oak, Oregon white	<i>Quercus garryana</i> Dougl. ex Hook.
Willow	<i>Salix</i> spp.

1,000 acres = 404.7 hectares
 1,000 cubic feet = 28.3 cubic meters
 1 cubic foot per acre = 0.07 cubic
 meters per hectare
 1 foot = 30.48 centimeters
 1 inch = 2.54 centimeters
 1 mile = 1 609.3 meters

Literature Cited

- Cochran, W. G.
 1963. Sampling techniques. 2nd ed.,
 413 p. John Wiley & Sons, Inc., New York.
- Little, E. L., Jr.
 1978. Checklist of United States trees
 (native and naturalized). U. S. Dep. Agric.
 Agric. Handb. 541, 375 p. Washington,
 D.C.
- MacLean, C. D.
 1980. A technique for identifying
 treatment opportunities from western
 Oregon and Washington forest survey
 plots. USDA For. Serv. Gen. Tech. Rep.
 PNW-102, 16 p. Pac. Northwest For. and
 Range Exp. Stn., Portland, Oreg.

Appendix

TABLE 1—AREA BY LAND CLASS AND COUNTY, SOUTHWEST WASHINGTON, JANUARY 1, 1979¹

LAND CLASS	CLARK	COWLITZ	LEWIS	PACIFIC	SKAMANIA	WAHKIAKUM	OTHER COUNTIES ^{2/}	ALL COUNTIES
<u>THOUSAND HECTARES</u>								
FOREST LAND:								
TIMBERLAND--								
UNRESERVED	91	255	485	202	370	57	17	1 478
DEFERRED	--	--	3	--	6	--	--	10
RESERVED	1	3/	23	1	4	--	1	30
OTHER FOREST	2	2	21	5	16	1	2	49
TOTAL	94	257	532	208	397	58	19	1 566
NONFOREST LAND ^{4/}	68	38	97	27	36	9	4	279
ALL LANDS ^{5/}	162	295	629	235	433	68	23	1 845
<u>THOUSAND ACRES</u>								
FOREST LAND:								
TIMBERLAND--								
UNRESERVED	225	630	1,199	500	915	142	41	3,652
DEFERRED	--	--	8	--	16	--	--	24
RESERVED	2	3/	57	2	11	--	2	74
OTHER FOREST	5	4	51	13	40	2	5	120
TOTAL	232	634	1,315	515	982	144	48	3,870
NONFOREST LAND ^{4/}	169	95	239	66	88	23	9	689
ALL LANDS ^{5/}	401	730	1,554	581	1,070	167	57	4,560

^{1/}Totals may be off because of rounding.

^{2/}Includes Gifford Pinchot National Forest land in Klickitat, Yakima, Pierce, and Thurston Counties. For National Forest, the areas by county by land class are approximations based on type maps and previous inventories.

^{3/}Less than 500 acres (202 ha).

^{4/}Includes cropland, pasture and range, swampland, industrial and urban areas, powerline clearings, railroads, and all improved roads and highways, and water as classified by Renewable Resources Evaluation standards but defined by the Bureau of the Census as land.

^{5/}Source: United States Bureau of the Census, Land and Water Area of the United States, 1960.

TABLE 2—AREA OF TIMBERLAND BY OWNERSHIP CLASS AND COUNTY, SOUTHWEST WASHINGTON, JANUARY 1, 1979^{1/}

OWNERSHIP CLASS	CLARK	COWLITZ	LEWIS	PACIFIC	SKAMANIA	WAHKIAKUM	OTHER COUNTIES ^{2/}	ALL COUNTIES
<u>THOUSAND ACRES</u>								
PUBLIC:								
NATIONAL FOREST ^{3/}	1	20	326	--	693	--	41	1,081
OTHER PUBLIC	49	75	114	73	81	34	--	427
TOTAL	50	95	440	73	774	34	41	1,507
PRIVATE:								
FOREST INDUSTRY	52	424	486	355	89	90	--	1,495
OTHER PRIVATE--								
FARMER	35	28	66	26	13	4	--	172
MISCELLANEOUS	88	83	208	46	39	13	--	476
TOTAL	175	535	759	427	141	107	--	2,144
ALL OWNERSHIPS	225	630	1,199	500	915	142	41	3,652

^{1/}Totals may be off because of rounding.

^{2/}Includes Gifford Pinchot National Forest land in Klickitat, Yakima, Pierce, and Thurston Counties.

^{3/}For National Forests, the areas by county are approximations based on type maps and previous inventories.

TABLE 3—AREA OF TIMBERLAND BY CUBIC-FOOT SITE AND OWNERSHIP CLASSES, SOUTHWEST WASHINGTON, JANUARY 1, 1979^{1/}

SITE CLASS ^{2/}	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>CUBIC FEET</u> <u>THOUSAND ACRES</u>					
225 OR MORE	--	59	309	36	404
165 TO 224	82	121	593	201	997
120 TO 164	212	189	345	200	946
85 TO 119	250	45	145	119	559
50 TO 84	470	13	95	83	661
20 TO 49	67	--	8	10	85
ALL CLASSES	1,081	427	1,495	648	3,652

^{1/}Totals may be off because of rounding.

^{2/}Capacity for cubic-foot annual growth per acre at culmination of mean annual growth in fully stocked natural stands.

TABLE 4—AREA OF TIMBERLAND BY STAND-SIZE AND OWNERSHIP CLASSES, SOUTHWEST WASHINGTON, JANUARY 1, 1979^{1/}

STAND-SIZE CLASS	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND HECTARES</u>					
SAWTIMBER STANDS:					
LARGE SAWTIMBER ^{2/}	262	13	33	23	331
SMALL SAWTIMBER ^{3/}	66	74	234	120	494
TOTAL	328	87	267	144	826
POLETIMBER STANDS	28	51	99	62	240
SAPLING AND SEEDLING STANDS	57	30	213	44	344
NONSTOCKED AREAS	25	5	26	13	68
ALL CLASSES	438	173	605	262	1 478
<u>THOUSAND ACRES</u>					
SAWTIMBER STANDS:					
LARGE SAWTIMBER ^{4/}	648	31	81	58	819
SMALL SAWTIMBER ^{5/}	162	184	578	297	1,221
TOTAL	810	215	659	355	2,040
POLETIMBER STANDS	69	125	246	152	592
SAPLING AND SEEDLING STANDS	140	75	527	109	851
NONSTOCKED AREAS	62	13	63	31	169
ALL CLASSES	1,081	427	1,495	648	3,652

^{1/}Totals may be off because of rounding.

^{2/}On National Forests, large sawtimber includes stands 100 years or older. On other ownerships, large sawtimber includes trees 52.5-centimeter d.b.h. and larger.

^{3/}On National Forests, small sawtimber includes stands less than 100 years old. On other ownerships, small sawtimber includes softwood trees 22.5- to 52.4-centimeter d.b.h. and hardwood trees 27.5- to 52.4-centimeter d.b.h.

^{4/}On National Forests, large sawtimber includes stands 100 years or older. On other ownerships, large sawtimber includes trees 21.0-inch d.b.h. and larger.

^{5/}On National Forests, small sawtimber includes stands less than 100 years old. On other ownerships, small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

TABLE 5—AREA OF TIMBERLAND BY FOREST TYPE AND OWNERSHIP CLASS, SOUTHWEST WASHINGTON, JANUARY 1, 1979^{1/}

FOREST TYPE	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND ACRES</u>					
DOUGLAS-FIR	529	224	703	245	1,701
WESTERN HEMLOCK	171	78	413	86	748
PACIFIC SILVER FIR	198	--	27	--	225
LODGEPOLE PINE	25	--	--	--	25
GRAND FIR	17	6	--	--	23
WESTERN REDCEDAR	9	--	5	8	22
MOUNTAIN HEMLOCK	13	--	7	--	20
NOBLE FIR	19	--	--	--	19
SUBALPINE FIR	11	--	--	--	11
SITKA SPRUCE	--	--	11	--	11
WESTERN WHITE PINE	7	--	--	--	7
PONDEROSA PINE	4	--	--	--	4
ENGELMANN SPRUCE	4	--	--	--	4
RED ALDER	6	107	235	202	550
MAPLE	2	--	16	43	61
COTTONWOOD	--	--	15	11	26
OREGON WHITE OAK	2	--	--	--	2
OTHER HARDWOODS	--	--	--	23	23
NONCOMMERCIAL					
HARDWOODS	2	--	--	--	2
UNCLASSIFIED ^{2/}	62	13	63	31	169
ALL TYPES	1,081	427	1,495	648	3,652

^{1/}Totals may be off because of rounding.

^{2/}Unclassified type is less than 10 percent stocked with live trees.

TABLE 6—AREA OF RESERVED AND DEFERRED TIMBERLAND AND OTHER FOREST LAND BY LAND CLASS, FOREST TYPE, AND OWNERSHIP CLASS, SOUTHWEST WASHINGTON, JANUARY 1, 1979^{1/2/}

(THOUSAND ACRES)

LAND CLASS AND FOREST TYPE	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
RESERVED					
TIMBERLAND:					
DOUGLAS-FIR	3	20	--	--	23
TRUE FIRS	34	6	--	--	40
WHITEBARK PINE	--	3	--	--	3
LODGEPOLE PINE	--	3/	--	--	3/
HEMLOCK	6	1	--	--	7
SITKA SPRUCE	--	1	--	--	1
HARDWOODS	--	3/	--	--	3/
TOTAL	43	31	--	--	74
OTHER FOREST:					
UNCLASSIFIED ^{4/}	37	13	--	--	50
ALL RESERVED	80	44	--	--	124
DEFERRED					
TIMBERLAND:					
TRUE FIRS	24	--	--	--	24
ALL DEFERRED	24	--	--	--	24
UNRESERVED					
OTHER FOREST:					
DOUGLAS-FIR	17	--	--	--	17
TRUE FIRS	7	--	--	--	7
HEMLOCK	5	--	--	--	5
WILLOW	--	11	13	--	24
UNCLASSIFIED ^{4/}	3	6	8	--	17
ALL UNRESERVED	32	17	21	--	70

^{1/}Totals may be off because of rounding.

^{2/}Area of timberland (unreserved) by forest type and ownership class is presented in table 5.

^{3/}Less than 500 acres.

^{4/}Information on forest type not available.

TABLE 7—VOLUME OF TIMBER ON TIMBERLAND BY CLASS OF TIMBER AND BY SOFTWOODS AND HARDWOODS, SOUTHWEST WASHINGTON, JANUARY 1, 1979^{1/}

CLASS OF TIMBER	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>MILLION CUBIC FEET</u>		
SAWTIMBER TREES:			
SAW-LOG PORTION	12,753	941	13,693
UPPER-STEM PORTION	390	143	534
TOTAL	13,143	1,085	14,228
POLETIMBER TREES	950	618	1,568
ALL GROWING STOCK	14,093	1,702	15,795
SOUND CULL TREES	36	87	123
ROTTEN CULL TREES	310	17	328
SALVABLE DEAD TREES	319	3	322
ALL TIMBER	14,758	1,810	16,568

^{1/}Totals may be off because of rounding.

TABLE 8— VOLUME OF GROWING STOCK AND SAWTIMBER ON TIMBERLAND BY OWNERSHIP CLASS AND BY SOFTWOODS AND HARDWOODS, SOUTHWEST WASHINGTON, JANUARY 1, 1979^{1/}

OWNERSHIP CLASS	AVERAGE	SOFTWOODS	HARDWOODS	ALL
	VOLUME			SPECIES
	<u>CUBIC METERS</u>			
	<u>PER HECTARE</u>	<u>MILLION CUBIC METERS</u>		
GROWING STOCK: ^{2/}				
NATIONAL FOREST	441	192	1	193
OTHER PUBLIC	301	45	7	52
FOREST INDUSTRY	238	122	22	144
OTHER PRIVATE	221	41	17	58
ALL OWNERSHIPS	302	399	48	447
	<u>CUBIC FEET</u>			
	<u>PER ACRE</u>	<u>MILLION CUBIC FEET</u>		
GROWING STOCK: ^{3/}				
NATIONAL FOREST	6,303	6,780	34	6,814
OTHER PUBLIC	4,297	1,576	259	1,835
FOREST INDUSTRY	3,406	4,297	795	5,092
OTHER PRIVATE	3,170	1,442	614	2,054
ALL OWNERSHIPS	4,325	14,093	1,702	15,795
	<u>BOARD FEET</u>			
	<u>PER ACRE</u>	<u>MILLION BOARD FEET</u>		
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): ^{4/}				
NATIONAL FOREST	37,029	39,838	190	40,028
OTHER PUBLIC	22,473	8,702	894	9,596
FOREST INDUSTRY	17,822	23,724	2,920	26,644
OTHER PRIVATE	15,910	8,350	1,960	10,310
ALL OWNERSHIPS	23,707	80,614	5,965	86,579
SAWTIMBER (SCRIBNER RULE): ^{4/}				
NATIONAL FOREST	28,747	30,943	133	31,076
OTHER PUBLIC	16,443	6,276	745	7,021
FOREST INDUSTRY	13,105	17,157	2,436	19,592
OTHER PRIVATE	11,861	6,035	1,652	7,686
ALL OWNERSHIPS	17,901	60,411	4,965	65,376

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 12.5-centimeter d.b.h. and larger.

^{3/}Includes trees 5.0-inch d.b.h. and larger.

^{4/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

TABLE 9—VOLUME OF GROWING STOCK AND SAWTIMBER ON TIMBERLAND BY COUNTY AND OWNERSHIP CLASS, SOUTHWEST WASHINGTON, JANUARY 1, 1979^{1/}

COUNTY	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION CUBIC METERS</u>					
GROWING STOCK: ^{2/}					
CLARK	^{3/} 3	6	5	10	21
COWLITZ	3	10	43	10	65
LEWIS	64	14	48	25	151
PACIFIC	--	7	30	6	42
SKAMANIA	118	10	9	5	142
WAHKIAKUM	--	5	9	2	17
OTHER COUNTIES ^{4/}	8	--	--	--	8
ALL COUNTIES	193	52	144	58	447
<u>MILLION CUBIC FEET</u>					
GROWING STOCK: ^{5/}					
CLARK	7	209	175	362	753
COWLITZ	106	337	1,507	358	2,308
LEWIS	2,249	509	1,709	880	5,347
PACIFIC	--	250	1,044	205	1,499
SKAMANIA	4,152	346	323	180	5,001
WAHKIAKUM	--	183	335	69	587
OTHER COUNTIES ^{4/}	300	--	--	--	300
ALL COUNTIES	6,814	1,835	5,092	2,054	15,795
<u>MILLION BOARD FEET</u>					
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): ^{6/}					
CLARK	37	1,076	889	1,789	3,791
COWLITZ	741	1,791	8,061	1,826	12,419
LEWIS	12,071	2,675	8,982	4,532	28,260
PACIFIC	--	1,236	5,224	883	7,343
SKAMANIA	25,661	1,803	1,694	909	30,067
WAHKIAKUM	--	1,014	1,794	371	3,179
OTHER COUNTIES ^{4/}	1,518	--	--	--	1,518
ALL COUNTIES	40,028	9,596	26,644	10,310	86,579
SAWTIMBER (SCRIBNER RULE): ^{6/}					
CLARK	33	787	647	1,325	2,792
COWLITZ	483	1,313	5,936	1,357	9,089
LEWIS	10,257	1,955	6,604	3,387	22,203
PACIFIC	--	902	3,831	651	5,384
SKAMANIA	18,935	1,316	1,250	685	22,186
WAHKIAKUM	--	749	1,324	281	2,354
OTHER COUNTIES ^{4/}	1,368	--	--	--	1,368
ALL COUNTIES	31,076	7,021	19,592	7,686	65,376

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 12.5-centimeter d.b.h. and larger.

^{3/}Less than 500 000 cubic meters.

^{4/}Klickitat, Yakima, Pierce, and Thurston Counties.

^{5/}Includes trees 5.0-inch d.b.h. and larger.

^{6/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

TABLE 10—VOLUME OF GROWING STOCK ON TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, SOUTHWEST WASHINGTON, JANUARY 1, 1979^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION CUBIC FEET</u>					
SOFTWOODS:					
DOUGLAS-FIR	3,126	1,220	2,084	840	7,271
WESTERN HEMLOCK	1,285	308	1,770	348	3,710
PACIFIC SILVER FIR	1,387	--	58	55	1,499
WESTERN REDCEDAR	240	29	156	118	542
NOBLE FIR	203	5	35	42	284
MOUNTAIN HEMLOCK	159	--	74	--	233
GRAND FIR	119	10	17	20	165
SITKA SPRUCE	--	4	105	17	126
SUBALPINE FIR	66	--	--	--	66
WESTERN WHITE PINE	58	--	--	2	60
LODGEPOLE PINE	47	--	--	--	47
PONDEROSA PINE	33	--	--	--	33
ENGELMANN SPRUCE	29	--	--	--	29
WESTERN LARCH	11	--	--	--	11
ALASKA-CEDAR	10	--	--	--	10
WHITE FIR	7	--	--	--	7
TOTAL	6,780	1,576	4,297	1,442	14,093
HARDWOODS:					
RED ALDER	20	236	650	411	1,318
BIGLEAF MAPLE	9	23	100	151	283
BLACK COTTONWOOD	5	--	41	24	69
OREGON ASH	--	--	4	27	31
OREGON WHITE OAK	--	--	--	1	1
QUAKING ASPEN	2/	--	--	--	2/
TOTAL	34	259	795	614	1,702
ALL SPECIES	6,814	1,835	5,092	2,054	15,795

^{1/}Totals may be off because of rounding.

^{2/}Less than 500,000 cubic feet.

TABLE 11—VOLUME OF SAWTIMBER, INTERNATIONAL ¼-INCH RULE, ON TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, SOUTHWEST WASHINGTON, JANUARY 1, 1979¹

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION BOARD FEET</u>					
SOFTWOODS:					
DOUGLAS-FIR	19,608	7,130	11,764	4,893	43,396
WESTERN HEMLOCK	7,161	1,354	9,441	1,964	19,920
PACIFIC SILVER FIR	7,805	--	300	343	8,448
WESTERN REDCEDAR	1,280	141	818	667	2,907
NOBLE FIR	1,295	29	213	261	1,798
MOUNTAIN HEMLOCK	836	--	483	--	1,319
GRAND FIR	614	41	81	113	849
SITKA SPRUCE	--	7	624	93	723
SUBALPINE FIR	280	--	--	--	280
WESTERN WHITE PINE	332	--	--	16	348
LOGSPOLE PINE	141	--	--	--	141
PONDEROSA PINE	187	--	--	--	187
ENGELMANN SPRUCE	159	--	--	--	159
WESTERN LARCH	66	--	--	--	66
ALASKA-CEDAR	43	--	--	--	43
WHITE FIR	31	--	--	--	31
TOTAL	39,838	8,702	23,724	8,350	80,614
HARDWOODS:					
RED ALDER	106	821	2,437	1,015	4,379
BIGLEAF MAPLE	33	73	286	693	1,085
BLACK COTTONWOOD	49	--	173	150	372
OREGON ASH	--	--	24	99	123
OREGON WHITE OAK	--	--	--	5	5
QUAKING ASPEN	2	--	--	--	2
TOTAL	190	894	2,920	1,960	5,965
ALL SPECIES	40,028	9,596	26,644	10,310	86,579

¹/Totals may be off because of rounding.

TABLE 12—VOLUME OF SAWTIMBER, SCRIBNER RULE, ON TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, SOUTHWEST WASHINGTON, JANUARY 1, 1979^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION BOARD FEET</u>					
SOFTWOODS:					
DOUGLAS-FIR	15,348	5,235	8,383	3,490	32,457
WESTERN HEMLOCK	5,603	903	6,895	1,452	14,853
PACIFIC SILVER FIR	5,930	--	201	271	6,401
WESTERN REDCEDAR	1,022	85	554	448	2,108
NOBLE FIR	1,039	21	184	216	1,460
MOUNTAIN HEMLOCK	637	--	395	--	1,032
GRAND FIR	443	30	52	83	609
SITKA SPRUCE	--	3	493	60	557
SUBALPINE FIR	196	--	--	--	196
WESTERN WHITE PINE	253	--	--	13	266
LOGEPOLE PINE	95	--	--	--	95
PONDEROSA PINE	150	--	--	--	150
ENGELMANN SPRUCE	118	--	--	--	118
WESTERN LARCH	56	--	--	--	56
ALASKA-CEDAR	30	--	--	--	30
WHITE FIR	23	--	--	--	23
TOTAL	30,943	6,276	17,157	6,035	60,411
HARDWOODS:					
RED ALDER	71	684	2,028	836	3,620
BIGLEAF MAPLE	22	61	236	592	910
BLACK COTTONWOOD	38	--	152	135	324
OREGON ASH	--	--	21	84	105
OREGON WHITE OAK	--	--	--	4	4
QUAKING ASPEN	2	--	--	--	2
TOTAL	133	745	2,436	1,652	4,965
ALL SPECIES	31,076	7,021	19,592	7,686	65,376

^{1/}Totals may be off because of rounding.

TABLE 13—VOLUME OF GROWING STOCK ON TIMBERLAND BY SPECIES AND DIAMETER CLASS, SOUTHWEST WASHINGTON, JANUARY 1, 1979^{1/}

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- 20.9	21.0- 28.9	29.0 AND LARGER	
<u>MILLION CUBIC FEET</u>											
SOFTWOODS:											
DOUGLAS-FIR	140	232	326	479	575	655	647	552	1,719	1,946	7,271
WESTERN HEMLOCK	136	237	307	292	336	319	289	250	663	882	3,710
PACIFIC SILVER FIR	30	57	84	105	90	117	120	118	417	361	1,499
WESTERN REDCEDAR	12	22	29	31	23	25	26	35	108	231	542
NOBLE FIR	3	7	3	6	12	8	11	16	76	144	284
MOUNTAIN HEMLOCK	3	8	6	8	13	14	14	13	51	103	233
GRAND FIR	11	10	13	16	11	22	16	12	35	21	165
SITKA SPRUCE	2	6	7	4	7	3	3	4	13	77	126
SUBALPINE FIR	4	6	7	12	10	7	8	1	8	3	66
WESTERN WHITE PINE	2	3	4	5	4	4	4	2	12	21	60
LODGEPOLE PINE	7	8	6	8	4	6	5	2	2	--	47
PONDEROSA PINE	2	1	1	2	2	1	--	1	7	17	33
ENGELMANN SPRUCE	1	1	2	1	1	4	3	4	8	3	29
WESTERN LARCH	--	--	--	--	--	--	1	--	7	3	11
ALASKA-CEDAR	1	1	1	1	--	--	1	1	1	3	10
WHITE FIR	1	1	--	--	1	--	1	1	2	--	7
TOTAL	354	600	795	970	1,090	1,185	1,148	1,012	3,129	3,813	14,093
HARDWOODS:											
RED ALDER	100	170	239	281	188	154	96	35	52	2	1,318
BIGLEAF MAPLE	12	36	39	33	46	28	17	17	39	17	283
BLACK COTTONWOOD	3	1	8	3	1	2	6	8	26	11	69
OREGON ASH	1	6	2	1	6	3	6	3	3	--	31
OREGON WHITE OAK	--	--	--	--	--	--	--	1	--	--	1
QUAKING ASPEN	--	--	--	2/	--	--	--	--	--	--	2/
TOTAL	116	213	288	318	242	187	124	64	119	30	1,702
ALL SPECIES	470	814	1,083	1,288	1,332	1,371	1,272	1,075	3,248	3,845	15,795

^{1/}Totals may be off because of rounding.

^{2/}Less than 500,000 cubic feet.

TABLE 14—VOLUME OF SAWTIMBER, INTERNATIONAL 1/4-INCH RULE, ON TIMBERLAND BY SPECIES AND DIAMETER CLASS, SOUTHWEST WASHINGTON, JANUARY 1, 1979^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)								
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 AND LARGER	ALL CLASSES
	<u>MILLION BOARD FEET</u>								
SOFTWOODS:									
DOUGLAS-FIR	1,481	2,501	3,280	3,973	4,030	3,527	11,280	13,324	43,396
WESTERN HEMLOCK	1,426	1,497	1,909	1,874	1,795	1,510	4,134	5,773	19,920
PACIFIC SILVER FIR	384	500	519	662	702	733	2,580	2,367	8,448
WESTERN REDCEDAR	116	141	115	134	142	202	636	1,421	2,907
NOBLE FIR	12	25	58	46	57	92	487	1,022	1,798
MOUNTAIN HEMLOCK	29	43	58	70	72	72	310	664	1,319
GRAND FIR	60	74	53	126	96	74	228	138	849
SITKA SPRUCE	32	17	36	16	17	29	79	497	723
SUBALPINE FIR	33	49	49	34	42	7	47	19	280
WESTERN WHITE PINE	14	21	21	24	21	11	82	154	348
LODGEPOLE PINE	22	30	17	29	24	11	8	--	141
PONDEROSA PINE	1	7	8	3	2	7	43	115	187
ENGELMANN SPRUCE	8	5	4	21	20	25	53	23	159
WESTERN LARCH	2	--	--	--	3	--	46	15	66
ALASKA-CEDAR	4	5	2	--	5	3	7	18	43
WHITE FIR	--	--	5	--	3	8	15	--	31
TOTAL	3,624	4,915	6,134	7,014	7,031	6,311	20,034	25,550	80,614
HARDWOODS:									
RED ALDER	--	1,327	1,043	898	569	211	318	14	4,379
BIGLEAF MAPLE	--	158	250	161	95	102	219	101	1,085
BLACK COTTONWOOD	--	14	8	10	39	55	168	78	372
OREGON ASH	--	6	32	18	34	16	18	--	123
OREGON WHITE OAK	--	--	--	--	--	5	--	--	5
QUAKING ASPEN	--	2	--	--	--	--	--	--	2
TOTAL	--	1,508	1,333	1,086	737	389	723	191	5,965
ALL SPECIES	3,624	6,423	7,467	8,099	7,768	6,700	20,757	25,742	86,579

^{1/}Totals may be off because of rounding.

TABLE 15—VOLUME OF SAWTIMBER, SCRIBNER RULE, ON TIMBERLAND BY SPECIES AND DIAMETER CLASS, SOUTHWEST WASHINGTON, JANUARY 1, 1979¹

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)								
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 AND LARGER	ALL CLASSES
	MILLION BOARD FEET								
SOFTWOODS:									
DOUGLAS-FIR	880	1,572	2,151	2,727	2,848	2,575	8,585	11,118	32,457
WESTERN HEMLOCK	851	956	1,292	1,307	1,305	1,117	3,213	4,811	14,853
PACIFIC SILVER FIR	239	317	342	453	498	542	2,014	1,996	6,401
WESTERN REDCEDAR	66	83	71	86	92	131	456	1,123	2,108
NOBLE FIR	8	16	39	31	41	68	385	872	1,460
MOUNTAIN HEMLOCK	23	27	38	48	51	53	241	551	1,032
GRAND FIR	32	46	35	85	68	53	175	114	609
SITKA SPRUCE	17	9	19	10	11	21	53	416	557
SUBALPINE FIR	22	31	32	23	30	5	37	16	196
WESTERN WHITE PINE	9	13	13	17	15	8	64	127	266
LOGEPOLE PINE	14	19	11	20	17	8	6	--	95
PONDEROSA PINE	1	4	6	2	1	6	34	96	150
ENGELMANN SPRUCE	5	3	3	14	14	19	41	19	118
WESTERN LARCH	2	--	--	--	2	--	36	16	56
ALASKA-CEDAR	2	3	1	--	3	2	4	15	30
WHITE FIR	--	--	3	--	2	6	12	--	23
TOTAL	2,172	3,099	4,056	4,823	4,998	4,615	15,357	21,290	60,411
HARDWOODS:									
RED ALDER	--	1,048	854	756	488	182	279	12	3,620
BIGLEAF MAPLE	--	122	205	136	81	88	191	88	910
BLACK COTTONWOOD	--	11	7	9	33	48	150	68	324
OREGON ASH	--	5	26	15	30	13	16	--	105
OREGON WHITE OAK	--	--	--	--	--	4	--	--	4
QUAKING ASPEN	--	2	--	--	--	--	--	--	2
TOTAL	--	1,187	1,092	915	631	336	635	168	4,965
ALL SPECIES	2,172	4,286	5,148	5,739	5,629	4,951	15,992	21,458	65,376

¹/Totals may be off because of rounding.

TABLE 16—NET ANNUAL GROWTH OF GROWING STOCK AND SAWTIMBER ON TIMBERLAND BY OWNERSHIP CLASS AND BY SOFTWOODS AND HARDWOODS, SOUTHWEST WASHINGTON, 1978^{1/}

OWNERSHIP CLASS	AVERAGE VOLUME	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>CUBIC METERS</u>			
	<u>PER HECTARE</u>	- - - - -	<u>THOUSAND CUBIC METERS</u>	- - - - -
GROWING STOCK:				
NATIONAL FOREST	4	1 559	14	1 573
OTHER PUBLIC	12	1 795	311	2 106
FOREST INDUSTRY	10	5 456	812	6 268
OTHER PRIVATE	9	1 668	751	2 419
ALL OWNERSHIPS	8	10 479	1 888	12 367
	<u>CUBIC FEET</u>			
	<u>PER ACRE</u>	- - - - -	<u>THOUSAND CUBIC FEET</u>	- - - - -
GROWING STOCK:				
NATIONAL FOREST	51	55,100	500	55,600
OTHER PUBLIC	174	63,445	10,977	74,421
FOREST INDUSTRY	148	192,794	28,701	221,496
OTHER PRIVATE	132	58,940	26,539	85,478
ALL OWNERSHIPS	120	370,278	66,717	436,995
	<u>BOARD FEET</u>			
	<u>PER ACRE</u>	- - - - -	<u>THOUSAND BOARD FEET</u>	- - - - -
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE):				
NATIONAL FOREST	344	369,800	1,700	371,500
OTHER PUBLIC	908	339,680	48,003	387,683
FOREST INDUSTRY	798	1,052,429	141,059	1,193,489
OTHER PRIVATE	698	369,009	83,536	452,546
ALL OWNERSHIPS	659	2,130,919	274,298	2,405,217

^{1/}Totals may be off because of rounding.

TABLE 17—NET ANNUAL GROWTH OF GROWING STOCK ON TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, SOUTHWEST WASHINGTON, 1978^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND CUBIC FEET</u>					
SOFTWOODS:					
DOUGLAS-FIR	31,900	38,160	98,747	39,261	208,068
WESTERN HEMLOCK	4,806	22,750	80,122	12,192	119,870
PACIFIC SILVER FIR	10,965	--	3,114	1,156	15,235
WESTERN REDCEDAR	1,430	1,248	5,257	4,090	12,024
NOBLE FIR	1,050	193	268	456	1,968
MOUNTAIN HEMLOCK	594	--	68	--	662
GRAND FIR	2,025	489	1,176	1,129	4,819
SITKA SPRUCE	--	604	4,042	633	5,280
SUBALPINE FIR	990	--	--	--	990
WESTERN WHITE PINE	200	--	--	23	223
LODGEPOLE PINE	440	--	--	--	440
PONDEROSA PINE	400	--	--	--	400
ENGELMANN SPRUCE	264	--	--	--	264
ALASKA-CEDAR	66	--	--	--	66
WHITE FIR	2/-30	--	--	--	2/-30
TOTAL	55,100	63,445	192,794	58,940	370,278
HARDWOODS:					
RED ALDER	400	10,303	22,948	21,341	54,992
BIGLEAF MAPLE	105	674	3,387	3,685	7,851
BLACK COTTONWOOD	2/-14	--	2,286	861	3,132
OREGON ASH	--	--	79	640	720
OREGON WHITE OAK	--	--	--	12	12
QUAKING ASPEN	10	--	--	--	10
TOTAL	500	10,977	28,701	26,539	66,717
ALL SPECIES	55,600	74,421	221,496	85,478	436,995

^{1/}Totals may be off because of rounding.

^{2/}Negative net annual growth is the result of annual mortality exceeding gross annual growth.

TABLE 18—NET ANNUAL GROWTH OF SAWTIMBER ON TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, SOUTHWEST WASHINGTON, 1978^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>					
SOFTWOODS:					
DOUGLAS-FIR	219,300	224,201	558,016	253,053	1,254,569
WESTERN HEMLOCK	33,000	105,180	415,874	71,490	625,544
PACIFIC SILVER FIR	64,885	--	19,632	7,599	92,116
WESTERN REDCEDAR	8,816	7,216	27,830	23,930	67,792
NOBLE FIR	9,761	1,372	1,001	1,682	13,816
MOUNTAIN HEMLOCK	4,500	--	480	--	4,980
GRAND FIR	12,824	806	6,296	6,690	26,616
SITKA SPRUCE	--	905	23,300	4,401	28,606
SUBALPINE FIR	8,134	--	--	--	8,134
WESTERN WHITE PINE	400	--	--	166	566
LODGEPOLE PINE	4,560	--	--	--	4,560
PONDEROSA PINE	1,700	--	--	--	1,700
ENGELMANN SPRUCE	1,520	--	--	--	1,520
ALASKA-CEDAR	304	--	--	--	304
WHITE FIR	96	--	--	--	96
TOTAL	369,800	339,680	1,052,429	369,009	2,130,919
HARDWOODS:					
RED ALDER	1,122	44,219	116,090	59,240	220,670
BIGLEAF MAPLE	578	3,784	14,164	16,938	35,464
BLACK COTTONWOOD	2/-16	--	10,255	5,740	15,978
OREGON ASH	--	--	551	1,543	2,095
OREGON WHITE OAK	--	--	--	75	75
QUAKING ASPEN	17	--	--	--	17
TOTAL	1,700	48,003	141,059	83,536	274,298
ALL SPECIES	371,500	387,683	1,193,489	452,546	2,405,217

^{1/}Totals may be off because of rounding.

^{2/}Negative net annual growth is the result of annual mortality exceeding gross annual growth.

**TABLE 19—AVERAGE ANNUAL MORTALITY OF GROWING STOCK ON
TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, SOUTHWEST
WASHINGTON, 1978¹**

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND CUBIC FEET</u>					
SOFTWOODS:					
DOUGLAS-FIR	11,725	1,544	3,133	1,094	17,496
WESTERN HEMLOCK	2,275	560	3,142	613	6,589
PACIFIC SILVER FIR	3,650	--	102	96	3,847
WESTERN REDCEDAR	500	51	272	203	1,026
NOBLE FIR	950	8	59	72	1,089
MOUNTAIN HEMLOCK	275	--	124	--	399
GRAND FIR	1,050	17	30	35	1,132
SITKA SPRUCE	--	8	179	30	217
SUBALPINE FIR	425	--	--	--	425
WESTERN WHITE PINE	3,400	--	--	4	3,404
LOGSPOLE PINE	650	--	--	--	650
WHITE FIR	100	--	--	--	100
TOTAL	25,000	2,188	7,041	2,147	36,376
HARDWOODS:					
RED ALDER	58	1,216	2,954	2,638	6,865
BIGLEAF MAPLE	--	99	599	410	1,108
BLACK COTTONWOOD	42	--	135	2	179
OREGON ASH	--	--	7	115	122
OREGON WHITE OAK	--	--	--	2/	2/
TOTAL	100	1,315	3,694	3,165	8,274
ALL SPECIES	25,100	3,503	10,735	5,312	44,650

¹/Totals may be off because of rounding.

²/Less than 500 cubic feet.

**TABLE 20—AVERAGE ANNUAL MORTALITY OF SAWTIMBER ON TIMBERLAND
BY SPECIES AND OWNERSHIP CLASS, SOUTHWEST WASHINGTON, 1978¹**

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>					
SOFTWOODS:					
DOUGLAS-FIR	47,460	7,108	13,822	5,148	73,538
WESTERN HEMLOCK	11,187	2,416	16,529	3,431	33,563
PACIFIC SILVER FIR	18,080	--	530	591	19,201
WESTERN REDCEDAR	3,164	248	1,414	1,149	5,974
NOBLE FIR	6,780	50	361	447	7,638
MOUNTAIN HEMLOCK	1,017	--	815	--	1,832
GRAND FIR	4,407	72	143	197	4,818
SITKA SPRUCE	--	12	1,062	162	1,235
SUBALPINE FIR	1,469	--	--	--	1,469
WESTERN WHITE PINE	18,193	--	--	27	18,220
LOGSPOLE PINE	904	--	--	--	904
WHITE FIR	339	--	--	--	339
TOTAL	113,000	9,906	34,676	11,152	168,734
HARDWOODS:					
RED ALDER	--	2,097	6,206	2,744	11,048
BIGLEAF MAPLE	--	181	777	831	1,788
BLACK COTTONWOOD	263	--	139	13	414
OREGON ASH	--	--	39	159	198
OREGON WHITE OAK	--	--	--	2	2
TOTAL	263	2,278	7,161	3,749	13,450
ALL SPECIES	113,263	12,184	41,836	14,901	182,184

¹/Totals may be off because of rounding.

TABLE 21—SOUTHWEST WASHINGTON TIMBER HARVEST BY OWNERSHIP CLASS, 1950-78

YEAR	NATIONAL FOREST			OTHER PUBLIC ^{1/}			PRIVATE			ALL OWNERSHIPS		
	LIVE	DEAD ^{2/}	TOTAL	LIVE	DEAD ^{2/}	TOTAL	LIVE	DEAD ^{2/}	TOTAL	LIVE	DEAD ^{2/}	TOTAL
THOUSAND BOARD FEET, SCRIBNER SCALE												
1950	^{3/}	^{3/}	147,000	--	--	--	^{3/}	^{3/}	1,555,167	^{3/}	^{3/}	1,702,167
1951	^{3/}	^{3/}	170,600	--	--	--	^{3/}	^{3/}	1,758,12 ^b	^{3/}	^{3/}	1,928,729
1952	134,243	24,757	159,000	--	--	--	1,152,313	71,410	1,223,723	1,286,556	96,167	1,382,723
1953	^{3/}	^{3/}	172,500	--	--	--	1,499,527	140,234	1,639,761	^{3/}	^{3/}	1,812,261
1954	149,600	45,600	195,200	--	--	--	1,151,478	115,172	1,266,650	1,301,078	160,772	1,461,850
1955	205,142	32,225	237,367	130,755	13,701	144,456	1,223,039	92,444	1,315,483	1,558,936	138,370	1,697,306
1956	227,100	25,800	252,900	195,548	3,717	199,265	1,399,138	69,498	1,468,636	1,821,786	99,015	1,920,801
1957	176,014	8,607	184,621	224,468	2,356	226,824	1,030,698	21,105	1,051,803	1,431,180	32,068	1,463,248
1958	258,649	16,067	274,716	188,291	2,997	191,288	961,357	16,189	977,546	1,408,297	35,253	1,443,550
1959	386,514	61,067	447,581	104,108	1,652	105,760	1,077,008	38,793	1,115,801	1,567,630	101,512	1,669,142
1960	322,538	61,982	384,520	101,751	2,213	103,964	1,083,976	28,828	1,112,804	1,508,265	93,023	1,601,288
1961	379,883	13,987	393,870	129,549	2,139	131,688	1,045,919	35,741	1,081,660	1,555,351	51,867	1,607,218
1962	439,400	41,200	480,600	97,232	2,769	100,001	1,346,358	22,105	1,368,463	1,882,990	66,074	1,949,064
1963	432,300	31,900	464,200	99,677	87,249	186,926	720,077	605,139	1,325,216	1,252,054	724,288	1,976,342
1964	388,590	79,010	467,600	150,012	90,898	240,910	1,032,540	556,389	1,588,929	1,571,142	726,297	2,297,439
1965	471,300	52,400	523,700	168,081	96,423	264,504	1,168,168	613,245	1,781,413	1,807,549	762,068	2,569,617
1966	515,085	10,600	525,685	145,389	44,284	189,673	1,385,337	203,502	1,588,839	2,045,811	258,386	2,304,197
1967	491,489	35,011	526,500	110,273	128	110,401	1,472,609	32,189	1,504,798	2,074,371	67,328	2,141,699
1968	608,143	39,529	647,672	175,238	970	176,208	1,910,983	944	1,911,927	2,694,364	41,443	2,735,807
1969	488,021	42,576	530,597	199,728	3,532	203,260	1,725,913	1,638	1,727,551	2,413,662	47,746	2,461,408
1970	439,501	36,858	476,359	141,571	936	142,507	1,869,923	751	1,870,674	2,450,995	38,545	2,489,540
1971	288,347	70,009	358,356	154,429	1,574	156,003	1,932,239	768	1,933,007	2,375,015	72,351	2,447,366
1972	334,194	68,870	403,064	242,662	1,170	243,832	1,850,094	651	1,850,745	2,426,950	70,691	2,497,641
1973	452,220	44,671	496,891	268,412	653	269,065	2,058,362	649	2,059,011	2,778,994	45,973	2,824,967
1974	371,314	20,282	391,596	105,383	6,434	111,817	1,824,945	1,785	1,826,730	2,301,642	28,501	2,330,143
1975	314,479	32,813	347,292	73,918	1,994	75,912	1,907,531	6,695	1,914,226	2,295,928	41,502	2,337,430
1976	296,515	24,377	320,892	143,272	1,766	145,038	2,142,751	7,238	2,149,989	2,582,538	33,381	2,615,919
1977	271,469	27,541	299,010	161,015	295	161,310	1,982,040	6,153	1,988,193	2,414,524	33,989	2,448,513
1978	300,822	62,512	363,334	184,598	956	185,554	1,961,194	5,922	1,967,116	2,446,614	69,390	2,516,004

^{1/}Data for other public ownership are combined with private ownership for 1950-54.

^{2/}Includes snags and down material before logging.

^{3/}Data not available.

Source: 1950-76: Timber-harvest reports for Washington by year (published by Pacific Northwest Forest and Range Experiment Station); 1977-78: Timber-harvest reports, State of Washington, Department of Natural Resources.

Bassett, Patricia M., and Daniel D. Oswald.
1981. Timber Resource Statistics for Southwest Washington. USDA For.
Serv. Resour. Bull. PNW-91, 24 p. Pacific Northwest Forest and Range
Experiment Station, Portland, Oregon.

This report summarizes a 1978 timber-resource inventory of six
counties in southwest Washington: Clark, Cowlitz, Lewis, Pacific,
Skamania, and Wahkiakum. Detailed tables of forest area, timber
volume, growth, mortality, and harvest are presented.

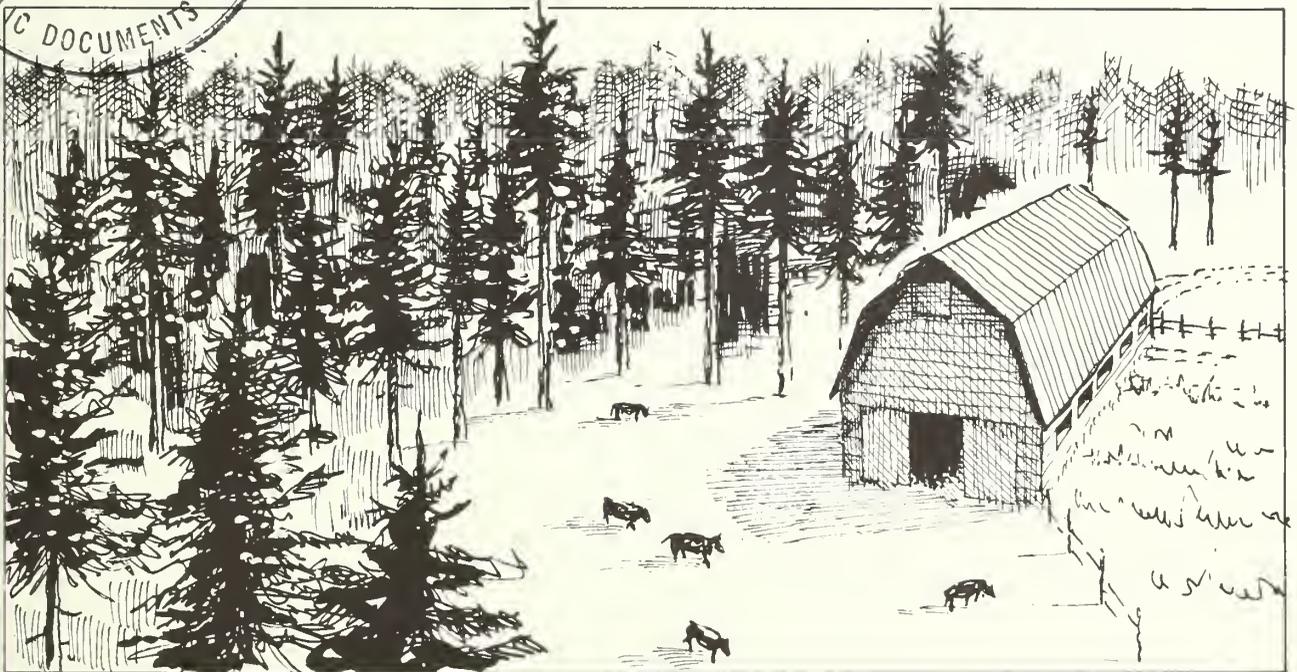
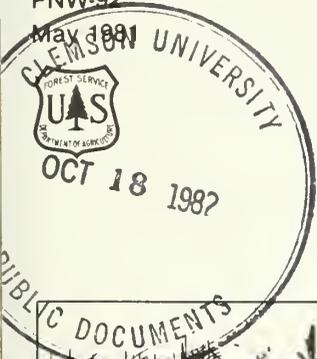
KEYWORDS: Forest surveys, statistics (forest), timber resources,
resources (forest), southwest Washington, Washington (southwest).

The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.

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Change in Area and Ownership of Private Timberland in Western Oregon Between 1961-62 and 1973-76

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Abstract

Gedney, Donald R. Change in area and ownership of private timberland in western Oregon between 1961-62 and 1973-76. USDA For. Serv. Resour. Bull. PNW-92, 8 p. Portland, OR: Pac. Northwest For. and Range Exp. Stn.; 1981.

A reinventory in 1973-76 of permanent inventory plots established in 1961-62 on western Oregon's forest industry and other private timberland provides data, by ownership, of timberland losses to nonforest land uses and changes in private ownership of timberland between inventories.

Keywords: Land owners, timberland, timber resources, land use, Oregon (western).

Summary

Between inventories made in 1961-62 and 1973-76, forest industry converted 17,600 acres of timberland to non-forest uses, and other private owners converted 194,400 acres—forest industry, mainly to roads; other private, mainly to pastures. During this time, purchases and sales of timberland resulted in a net increase of 279,900 acres for forest industry and a net loss of 251,300 acres for other private owners.

Preface

This report presents information on changes in area and ownership of private timberland in western Oregon. Data for this study came from two successive field inventories conducted by the Renewable Resources Evaluation Work Unit (formerly Forest Survey) of the Pacific Northwest Forest and Range Experiment Station.

Renewable Resources Evaluation is a nationwide project of the USDA Forest Service, authorized by the Forest and Rangeland Renewable Resources Act of 1978 (Public Law 95-307).

Evaluations of renewable resources are conducted in the 50 States by the USDA Forest Service Experiment Stations. The Pacific Northwest Forest and Range Experiment Station at Portland, Oregon, is responsible for evaluating resources in the States of Alaska, California, Hawaii, Oregon, and Washington.

Contents

- 1 Introduction**
- 1 Method**
- 3 Change in Land Use**
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 - 6 Forest Industry**
 - 7 Other Private Owners**
- 7 Metric Equivalents**
- 8 Literature Cited**

Introduction

When timberland is bought and sold, some remains timberland under new owners and some is converted to other uses—a road, pasture, or location for a new home.¹ Sometimes an older rural homesite, road, or pasture is abandoned and becomes forested.

When timberland is converted to nonforest land, its potential to produce crops of timber or other forest resources is lost. Conversely, shifts from nonforest land to timberland add to the forest resource potential. Less obvious, but also important, is the impact of changes in ownership; a new owner may have different objectives for use of the land.

Private timberland owners are classified by USDA Forest Service inventories into two categories: forest industry and other private. Forest industry owners own timberland and operate a primary processing plant, such as a sawmill or plywood mill. They invest in forest management, meet payrolls, and provide profits to stockholders. Other private timberland is owned either by farmers or by miscellaneous private owners.

¹In this report, timberland is forest land capable of growing at least 20 cubic feet of wood per acre per year and not withdrawn from timber harvest. It is synonymous with the classification "commercial" used in other USDA Forest Service reports. The term "timberland" is used to avoid the connotation that all these lands are commercial; that is, that they are available and suitable for timber harvesting on a continuing basis.

Farmers' timberland is part of an operating farm. Miscellaneous private owners are a diverse group, varying from large corporations owning many acres to individuals owning a few acres. Other private owners may also manage and harvest timber, although they frequently have interests other than growing timber. Some owners may value timberland more for its scenic and recreational qualities or for grazing livestock. They may also have limited time or capital to invest in forest management.

Changes in ownership of timberland, as well as changes from timberland to nonforest (or the reverse) can be significant if they are frequent or large or if timber is a major part of the State's economy, as it is in Oregon.

Method

Changes in the amount and ownership of private timberland were estimated from a re-examination of a 3.4-mile-square grid of permanent sample points distributed across all private, State, county, and municipal land in western Oregon. The points were classified in 1961 and 1962 and reclassified from 1973 to 1976.²

Western Oregon was inventoried by unit: southwest, west-central, and northwest. Southwest Oregon was inventoried in 1962 and reinventoried in 1974; west-central in 1962 and 1975; and northwest Oregon in 1961 and 1976. Figure 1 shows inventory units and counties in each unit.

There are 1,467 sample points in private, State, county, and municipal lands in the three inventory units; 958 of these are on timberland. Permanent field plots are established at each sample point on timberland. Classification of land and collection of field data were done as part of the inventories made by the Renewable Resources Evaluation Work Unit of the Pacific Northwest Forest and Range Experiment Station.

To compare the 1961-62 and 1973-76 inventories, the Renewable Resources Evaluation Work Unit recompiled the 1961-62 inventory. Some 1961-62 field plots could not be located for re-measurement. In these cases, the Work Unit established new plots in the approximate location and, by back-dating tree measurements, developed a simulated plot and included it in the re-Compilation of the 1961-62 inventory.

²For more detail on sample design, re-measurement, and sampling accuracies see Bassett (1979), Jacobs (1978), and Mei (1979).

Errors in the 1961-62 inventory, such as incorrect classifications, were corrected. A major reason for recompilation was that several definitions and standards had changed between inventories—in 1961-62, roads and streams were classified as nonforest only if they were wider than 120 feet; between 1973 and 1976, the standard was changed to 30 feet. In 1973-76, a minimum productivity of 20 cubic feet of timber per acre per year was required for land to be classified as timberland; this was not a qualification in 1961-62.

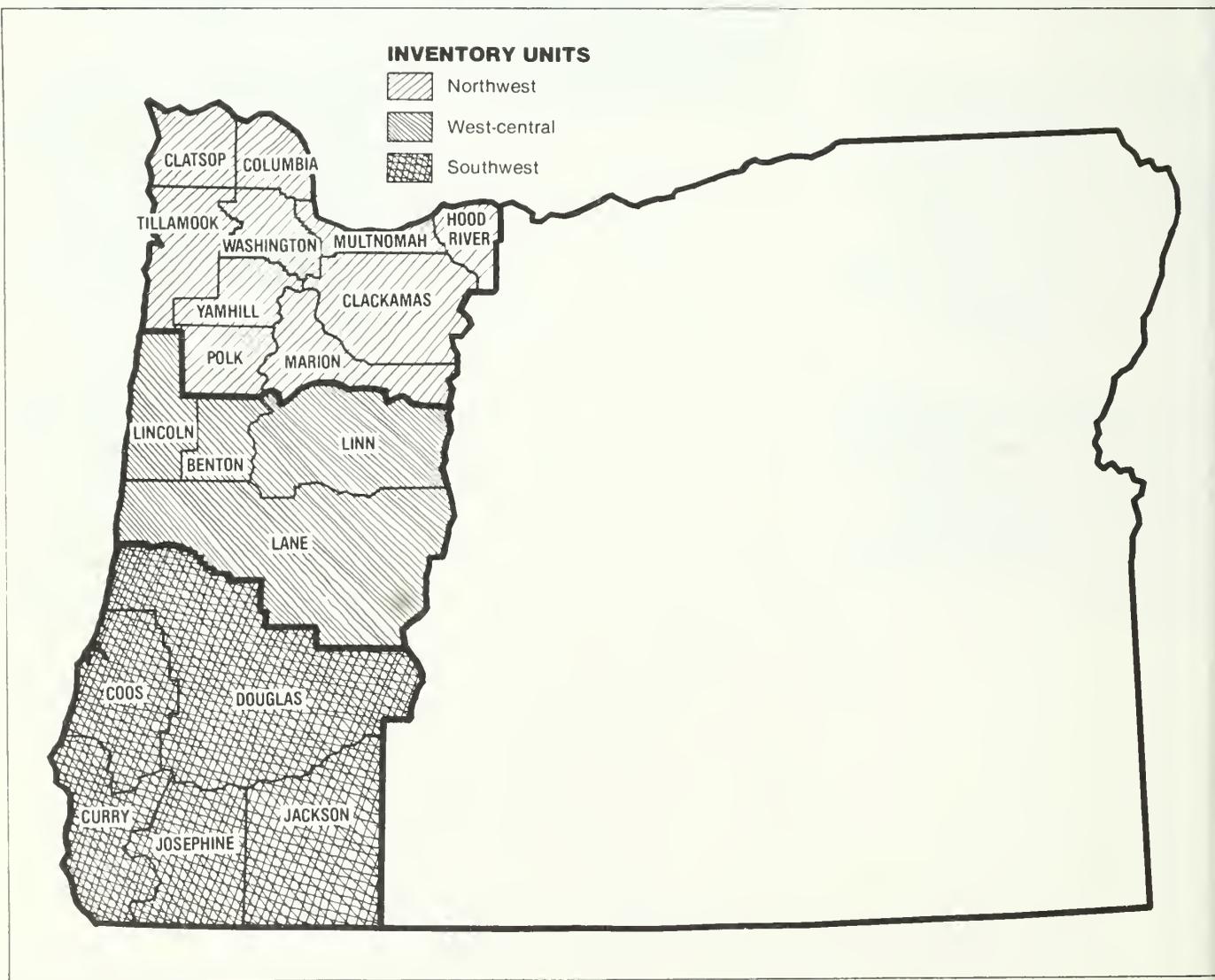


Figure 1.—Inventory units by county in western Oregon.

Change in Land Use

Changes in the total area of timberland occur when timberland is converted to nonforest or when nonforest land is converted to timberland by natural processes or afforestation. Between 1961-62 and 1973-76, 262,000 acres of timberland in private ownership was converted to nonforest land, and 10,000 acres of nonforest land reverted to timberland for a net decrease of 252,000 acres (table 1 presents these statistics; table 2 shows the confidence intervals associated with the estimates in table 1). This is an average annual loss from timberland conversion of 16,000 acres, or 0.25 percent of the 1961-62 timberland area of 6.4 million acres.

Table 1—Change in the ownership and area of private timberland in western Oregon by inventory unit between 1961-62 and 1973-76

Owner and inventory unit	Shifts in timberland ownership	Timberland conversion			Total change in timberland	Annual change ^{1/}
		To nonforest	From nonforest	Net change		
<u>Acres</u>						
Forest industry:						
Southwest Oregon	94,200	—	—	—	94,200	7,800
West-central Oregon	79,900	- 7,300	—	- 7,300	72,600	5,200
Northwest Oregon	105,800	- 32,300	22,000	- 10,300	95,500	6,400
Total	279,900	- 39,600	22,000	- 17,600	262,300	19,400
Other private:						
Southwest Oregon	- 95,600	- 105,000	—	- 105,000	- 200,600	- 16,700
West-central Oregon	- 73,100	- 33,500	12,500	- 21,000	- 94,100	- 6,700
Northwest Oregon	- 82,600	- 83,900	15,500	- 68,400	- 151,000	- 10,100
Total	- 251,300	- 222,400	28,000	- 194,400	- 445,700	- 33,500
All private owners:						
Southwest Oregon	- 1,400	- 105,000	—	- 105,000	- 106,400	- 8,900
West-central Oregon	6,800	- 40,800	12,500	- 28,300	- 21,500	- 1,500
Northwest Oregon	23,200	- 116,200	37,500	- 78,700	- 55,500	- 3,700
Total	^{2/} 28,600	- 262,000	50,000	- 212,000	- 183,400	- 14,100

^{1/}Based on 12 years between inventories in southwest Oregon, 14 years in west-central Oregon, and 15 years in northwest Oregon.

^{2/}The increase of 28,600 acres is the result of sale or transfer of public lands to private ownership.

Table 2—Confidence intervals at the 68-percent level for estimates of change in area and ownership of private timberland in western Oregon by inventory unit between 1961-62 and 1973-76^{1/}

Owner and inventory unit	Shifts in timberland ownership	Timberland conversion		Total change in timberland
		To nonforest	From nonforest	
<u>Acres</u>				
Forest industry:				
Southwest Oregon	± 29,200	—	—	± 29,200
West-central Oregon	± 23,400	± 7,300	—	± 24,500
Northwest Oregon	± 29,600	± 17,000	± 11,100	± 35,900
Western Oregon	± 47,700	± 18,500	± 11,100	± 52,400
Other private:				
Southwest Oregon	± 29,200	± 41,500	—	± 50,700
West-central Oregon	± 22,400	± 15,200	± 9,400	± 28,700
Northwest Oregon	± 27,000	± 25,000	± 11,000	± 38,400
Western Oregon	± 47,000	± 50,000	± 14,500	± 70,700
All private owners	± 67,000	± 54,100	± 18,300	± 88,000

^{1/}Confidence intervals apply to estimates of change shown in table 1.

Forest industry converted timberland at a considerably slower rate than other private owners did. Between 1961-62 and 1973-76, forest industry had a net loss of 17,600 acres or 1,200 acres per year, and other private owners had a net loss of 194,400 acres of timberland to nonforest uses or 14,800 acres per year. These annual

losses are 0.03 percent of the 3.5 million acres of timberland owned by industry in 1961-62 and 0.51 percent of the 2.9 million acres of other private timberlands. Although losses of timberland were negligible for forest industry, they were significant for other private owners, especially in southwest Oregon as is shown in the following tabulation:

Other private owners, by inventory unit	Average annual timberland converted to nonforest uses	Other private timberland, 1961-62	Average annual rate of conversion
	— — — (Thousand acres)	— — —	(Percent)
Southwest Oregon	8.8	1,171.6	0.75
West-central Oregon	1.5	794.8	.18
Northwest Oregon	4.6	917.7	.50
Western Oregon	14.9	2,884.1	.51

Other private timberland converted to nonforest had a higher site potential, a lower softwood volume per acre, but about the same distribution of major forest types as other private timberland not converted to nonforest uses. The average site potential of other private timberland converted to nonforest was 122 cubic feet per acre per year compared with 112 cubic feet for all remaining other private timberland.³ The distribution by site class is shown in table 3.

Almost all the timberland in other private ownership that changed to nonforest uses had lower volumes of softwood per acre than the average volume in timberland not converted. On the other hand, most of the timberland converted to nonforest had above average volumes of hardwood per acre. Lower volumes of softwood may have resulted in part from the sale of softwood timber before conversion, or selection of poorer stands.

The distribution of major forest types in other private ownership converted to nonforest was about the same as on the remaining timberland. About half is in hardwood type and half in softwood type.

³Based on lower limits of each site class.

Table 3—Timberland of other private owners converted to nonforest uses and timberland not converted, by site class, western Oregon

Site class ^{1/}	Converted to nonforest uses, 1961-62 to 1973-76	Other private timberland, 1973-76
Cubic feet per acre	Percent	
225 or more	9	10
165-224	22	13
120-164	34	22
85-119	28	43
50-84	—	8
20-49	7	4
Total	100	100

^{1/}Capacity for cubic-foot annual growth per acre at culmination of mean annual growth in fully stocked natural stands.

Table 4—Forest industry and other private timberland converted to nonforest uses in western Oregon between 1961-62 and 1973-76

Nonforest uses	Forest industry	Other private
	Percent	
Pasture and cropland	—	59
Suburban and urban areas	19	13
Roads	31	7
Water	—	9
Powerline	32	3
Christmas tree farms	18	6
Miscellaneous	—	3
Total	100	100

Of timberland of other private owners converted to nonforest uses, 59 percent was for pastures, including a small amount for cropland (table 4). About 13 percent was used for home-sites in suburban and urban areas, principally in southwest Oregon. Small amounts were lost to water and the remainder to powerlines and Christmas tree farms.⁴ This is a different pattern of losses than occurred between 1945 and 1970. Bolsinger (1973) found that in all of Oregon, from 1945 to 1970, only 20 percent of timberland was lost to pastures and Christmas tree farms, whereas roads, powerlines, and urban-industrial development accounted for 77 percent.

Losses for roads and powerlines accounted for 63 percent of the forest industry converted to nonforest use (table 4). Roads have consistently been a major factor (Bolsinger 1973), accounting for 72 percent of timberland lost by the forest industry between 1945 and 1970.

⁴The loss to water resulted from a changed stream course. Christmas tree farms are not classed as timberland.

Change in Ownership

Forest Industry

Between 1961-62 and 1973-76, forest industry purchased 326,800 acres of timberland and disposed of 46,900 acres for a net increase of 279,900 acres. Throughout western Oregon, the industry had active acquisition programs, especially in northwest Oregon:

Inventory unit	Change in forest industry area from shifts in timberland, 1961-62 to 1973-76	Timberland owned by forest industry, 1961-62	Total increase from 1961-62 to 1973-76
	(Thousand acres)		(Percent)
Southwest Oregon	94.2	1,544.7	6.1
West-central Oregon	79.9	1,029.7	7.8
Northwest Oregon	<u>105.8</u>	<u>946.8</u>	<u>11.2</u>
Western Oregon	279.9	3,521.2	7.9

Ninety percent of the timberland acquired by forest industry came from other private owners; the remainder from publicly owned land.

In general, forest industry purchased timberland with low volumes of timber. This was especially true in southwest Oregon where 77 percent of all timberland acquired from other private owners from 1961-62 to 1973-76 had less than 1,000 cubic feet of softwood growing stock per acre:

Inventory unit	Volume of softwood growing stock from timberland purchased (cubic feet per acre)			
	<1,000	1,000-3,000	>3,000	Total
	(Percent)			
Southwest Oregon	77	8	15	100
West-central Oregon	43	29	28	100
Northwest Oregon	<u>37</u>	<u>40</u>	<u>23</u>	<u>100</u>
Average	53	25	22	100

Although volumes per acre were low, the site quality of purchased timberland was comparable to timberland already owned by the forest industry. The average site quality of timberland acquired by forest industry in western Oregon was 115 cubic feet per acre per year; the site class for all timberland owned by the industry in 1973-76 was 118 cubic feet per acre per year (table 5). This comparability of site appears reasonable, as purchased timberland is frequently close to, adjacent to, or surrounded by the industry's own land.

The forest industry's acquisition program is apparently a long-term investment. The purchased land is not high in volume; more than half is in immature stands; one-third is in hardwood types; but it has good inherent site productivity.

Metric Equivalents

1,000 acres = 404.7 hectares
 1,000 cubic feet = 28.3 cubic meters
 1 cubic foot per acre = 0.07 cubic meter per hectare
 1 square foot of basal area per acre = 0.23 square meter per hectare
 1 foot = 30.48 centimeters
 1 inch = 2.54 centimeters
 1 mile = 1 609.3 meters

Table 5—Site capacity^{1/} of timberland in forest industry and other private ownership, western Oregon

Inventory Unit	Acquired by forest industry, 1961-62 to 1973-76	All timberland, 1973-76	
		Forest industry	Other private
<u>Cubic feet per acre</u>			
Southwest Oregon	101	103	80
West-central Oregon	125	118	110
Northwest Oregon	122	128	110
Average	115	118	101

^{1/}Capacity for cubic-foot annual growth per acre at culmination of mean annual growth in fully stocked natural stands.

Other Private Owners

Other private owners sold 305,600 acres and purchased 54,300 acres, resulting in a net loss of 251,300 acres. With the exception of 7,400 acres of county and municipal land, all timberland acquired had previously been owned by forest industry. The land acquired by other private owners is of relatively high site and has somewhat higher than average volumes per acre. All the timberland sold went to forest industry except 12,500 acres which went mainly to the State.

Of the 46,900 acres of timberland sold by forest industry, 3,800 acres went to farmers and the remainder to miscellaneous private owners. Seventy percent of the timberland sold went to corporations who had an apparent objective of managing timberland for timber production. Some of these owners were former forest industry owners who had disposed of their mills but retained their land. This shift in ownership from forest industry will probably not affect timber supply as timber is likely to be still available from these lands.

Literature Cited

Bassett, Patricia M. Timber resources of southwest Oregon. USDA For. Serv. Resour. Bull. PNW-72 (rev.). Portland, OR: Pac. Northwest For. and Range Exp. Stn.; 1979.

Bolsinger, Charles L. Changes in commercial forest area in Oregon and Washington, 1945-70. USDA For. Serv. Resour. Bull. PNW-46. Portland, OR: Pac. Northwest For. and Range Exp. Stn.; 1973.

Jacobs, David M. Timber resources of west-central Oregon. USDA For. Serv. Resour. Bull. PNW-76. Portland, OR: Pac. Northwest For. and Range Exp. Stn.; 1978.

Mei, Mary A. Timber resources of north-west Oregon. USDA For. Serv. Resour. Bull. PNW-82. Portland, OR: Pac. Northwest For. and Range Exp. Stn.; 1979.

Gedney, Donald R. Change in area and ownership of private timberland in western Oregon between 1961-62 and 1973-76. USDA For. Serv. Resour. Bull. PNW-92, 8 p. Portland, OR: Pac. Northwest For. and Range Exp. Stn.; 1981.

A reinventory in 1973-76 of permanent inventory plots established in 1961-62 on western Oregon's forest industry and other private timberland provides data, by ownership, of timberland losses to nonforest land uses and changes in private ownership of timberland between inventories.

Keywords: Land owners, timberland, timber resources, land use, Oregon (western).

The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.

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Timber Resource Statistics for the Olympic Peninsula, Washington

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Abstract

Bassett, Patricia M.; Oswald, Daniel D.
Timber resource statistics for the Olympic Peninsula, Washington. Resour. Bull. PNW-93. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 31 p.

This report summarizes a 1978-79 timber resource inventory of five counties in the Olympic Peninsula of Washington: Clallam, Grays Harbor, Jefferson, Mason, and Thurston. Detailed tables of forest area, timber volume, growth, mortality, and harvest are presented.

KEYWORDS: Forest surveys, statistics (forest), timber resources, resources (forest), Washington (Olympic Peninsula).

Summary

The Olympic Peninsula, Washington, resource area (Clallam, Grays Harbor, Jefferson, Mason, and Thurston Counties) totals 4,567,000 acres (1 848 000 ha), of which an estimated 3,953,000 acres (1 600 000 ha) are forested. An estimated 3,092,000 acres (1 251 000 ha) are classified as timberland. The area has 14.6 billion cubic feet (414 million m³) of standing timber with 47 percent of this volume in public ownership.

Preface

Renewable Resources Evaluation (formerly Forest Survey) is a nationwide project of the USDA Forest Service authorized by the Forest and Rangeland Renewable Resources Research Act of 1978. Work Units of the project, located at Forest Service Experiment Stations, conduct forest resource inventories throughout the 50 States. The Pacific Northwest Forest and Range Experiment Station at Portland, Oregon, is responsible for inventories in the States of Alaska, California, Hawaii, Oregon, and Washington.

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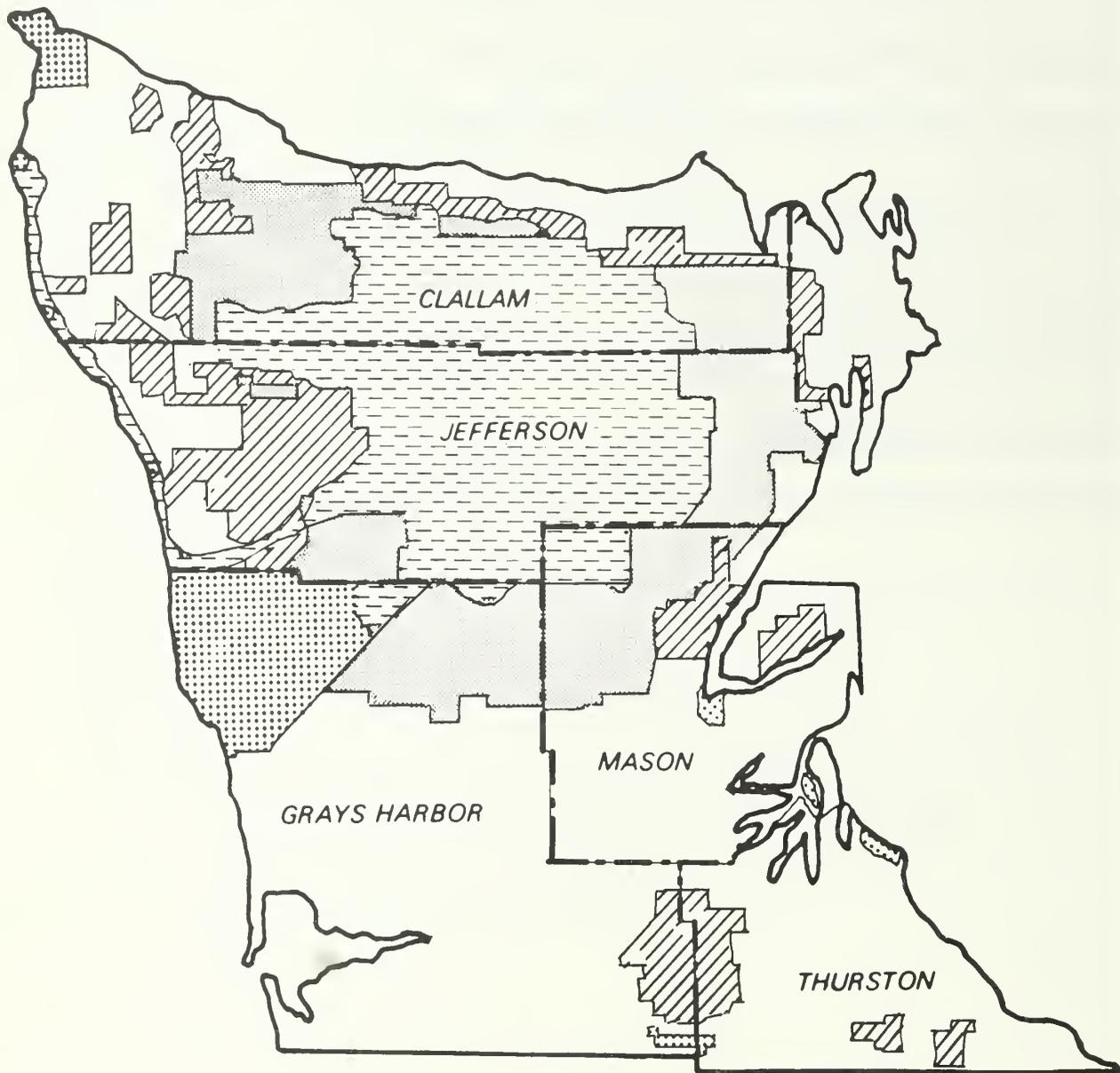
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Map of the Olympic Peninsula, Washington



- | | |
|--|---|
|  OLYMPIC NATIONAL FOREST |  INDIAN RESERVATIONS |
|  OLYMPIC NATIONAL PARK |  STATE OF WASHINGTON |
|  COUNTY BOUNDARIES |  PRIVATE |

Introduction

This report presents statistics from a 1978-79 inventory of timber resources for five counties in the Olympic Peninsula of Washington: Clallam, Grays Harbor, Jefferson, Mason, and Thurston. Previous inventories of these counties were made in 1932, 1937-40, 1951-60, and 1965.

Field data for all lands except National Forests were collected by the Renewable Resources Evaluation Work Unit (RRE) of the Pacific Northwest Forest and Range Experiment Station. National Forest inventory data included in this report are for all lands administered by the Olympic National Forest. The data were collected in 1974 by National Forest personnel and exclude estimates of volume, growth, and mortality on deferred lands.

Scientific names of trees (Little 1978) are listed on page 10 of this report.

Inventory Procedures

This report of forest resources in Washington's Olympic Peninsula combines inventory data from two sources: (1) a 1974 inventory of the Olympic National Forest; (2) an inventory of State, county, municipal, Indian trust, and private forest lands conducted by RRE in the summer and fall of 1978 and 1979.

In the Olympic National Forest, all areas of timberland, other forest land, reserved lands, and nonforest land were mapped by delineation on aerial photos. Timberland areas were systematically sampled with 552 field plots, arranged in a 1.2-mile (1 931-m) square grid. The field plots, each a cluster of ten variable-radius points distributed over about 1 acre (0.4 ha), are the basis for estimates of timber volume, growth, mortality, and area attributes such as forest type, site class, and stand size class.¹

For all lands **other than National Forest**, the sampling design used was double sampling for stratification (Cochran 1963). A total of 6,481 photo points were classified to estimate area by owner group, major land class (timberland, other forest, nonforest), and stand volume class. We visited 411 field plots, located on a 3.4-mile (5 473-m) square grid, to correct the photo sample and to determine forest characteristics. On timberland locations, part of the 1965 10-point cluster plot was remeasured to determine growth and mortality. At the same general location, a new 5-point cluster plot, spread over about 8 acres (3 ha), was established to determine current volume, growth, and condition of the forest stand (MacLean 1980).

¹Resource Planning and Timber Management staffs, Mount Baker-Snoqualmie and Olympic National Forests. Region 6 area one timber inventory project plan (2410). 1974. Unpublished report. 40 pages.

Reliability of Inventory Data

The timberland area of the Olympic National Forest was determined from mapping and is not subject to sampling error. With that exception, all area and volume statistics reported are based on sampling and are subject to sampling error. Confidence intervals (0.68 probability level) for the estimated timberland area, cubic-foot volume, and net annual cubic-foot growth by ownership class are as follows:

Owner	Timberland area	Net volume	Net annual growth
	<i>Thousand acres</i>	<i>Million cubic feet</i>	
National Forest	538 ± 0	2,978 ± 82	15 ± 1
Other public	759 ± 19	3,960 ± 303	145 ± 13
Forest industry	1,215 ± 20	5,893 ± 354	225 ± 11
Other private	580 ± 24	1,791 ± 174	67 ± 6
All owners	3,092 ± 26	14,621 ± 491	452 ± 18

Confidence intervals are quantitative expressions of the reliability of the timberland area, volume, and growth statistics. The above tabulation, for instance, indicates a two-in-three chance that there are between 3,066,000 and 3,118,000 acres of timberland in the Olympic Peninsula, Washington.

Confidence intervals vary with both size of the estimate and variance of the item being estimated. If variance is assumed constant, confidence bounds can be approximated for estimates of various sizes. The confidence interval guides that follow assume an average relationship between variance and the size of the estimates, and thus provide only an approximation of the reliability of individual estimates.

Timberland area	Confidence interval for other than National Forest land	
	By owner ²	By type or class ^{2,3}
<i>Thousand acres</i>		
1,000	± 20	± 74
800	± 18	± 67
600	± 16	± 58
400	± 13	± 48
200	± 10	± 35
100	± 7	± 25
50	± 5	± 18
25	± 4	± 13
15	± 3	± 10
10	± 2	± 9
5	± 2	± 6

Terminology

Confidence intervals

For net volume estimates of various sizes ²			For net annual growth estimates of various sizes ²		
Other than National Forest		National Forest	Other than National Forest		National Forest
----- Million cubic feet -----			----- Thousand cubic feet -----		
6,000	± 378	—	200,000	± 13,100	—
4,000	± 316	—	100,000	± 9,600	—
2,000	± 232	± 70	50,000	± 6,900	—
1,000	± 168	± 52	25,000	± 4,900	—
800	± 151	± 47	15,000	± 3,700	± 1,200
600	± 132	± 42	10,000	± 3,000	± 1,000
400	± 107	± 35	5,000	± 1,900	± 700
200	± 74	± 26	1,000	± 600	± 300
100	± 48	± 19	500	± 300	± 200
50	± 29	± 13	100	± 100	± 100
25	± 14	± 9	10	± 10	± 10
15	± 7	± 7			
10	± 6	± 5			
5	± 4	± 3			
2	± 1	± 1			
1	± 1	± 1			

Actual confidence intervals have been calculated for most of the tabular data in this report; they are available on request.

Constant variance is assumed.

Applies to breakdowns of the total estimated timberland areas such as site class, stand size class, and forest type.

Class of timber—A classification of trees as growing stock, cull, and salvable dead. Growing stock trees are subdivided into poletimber and sawtimber trees.

Codominant trees—Live trees with crowns forming the general level of the crown canopy and receiving full light from above but comparatively little from the sides; usually with medium-size crowns more or less crowded on the sides.

Commercial species—A tree species suitable for industrial wood products.

Cull trees—Live trees of noncommercial species, or live trees of commercial species that are more than 75-percent defective and are unlikely to become growing stock.

Cull trees, rotten—Cull trees with defect caused primarily by rot.

Cull trees, sound—Trees of non-commercial species or cull trees of commercial species with defect caused primarily by poor form, roughness, etc.

Diameter class—A classification of trees based on diameter outside bark measured at breast height, 4-½ feet (1.37 m) above the ground. D.b.h. is the common abbreviation for "diameter at breast height."

Dominant trees—Live trees with crowns extending above the general level of the crown canopy and receiving full light from above and partly from the side; larger than the average trees in the stand and with crowns dense, comparatively wide and long, but somewhat crowded on the sides.

Forest industry lands—Lands owned by companies or individuals operating wood-using plants.

Forest land—Land at least 10 percent stocked by live trees or land formerly having such tree cover and not currently developed for nonforest use.

Forest types—Stands with 50 percent or more stocking in live conifer trees are classed as softwood types. Stands with a majority of stocking in live hardwood trees are classed as hardwood types. Within these two groups, the individual forest type is determined by plurality of stocking by species of live softwood or hardwood trees.

Growing stock trees—All live trees with the exception of cull trees.

Growing stock volume—Net volume in cubic feet of live sawtimber and pole-timber growing stock trees from stump to a minimum 4-inch top (of central stem) outside bark. Net volume equals gross volume less deduction for rot and missing bole sections.

Hardwoods—Trees that are angiosperms, usually broad-leaved and deciduous.

Industrial wood—All commercial roundwood products except fuelwood.

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

Land area—Area reported as land by the Bureau of the Census. 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 1/8-mile (200 m) wide; and lakes, reservoirs, and ponds less than 40 acres (16 ha) in area.

Land class—A classification of land by major use. The minimum size area for classification is 1 acre (0.4 ha).

Mean annual increment—A measure of the productivity of forest land in terms of the average increase in cubic-foot volume per acre per year. For a given species and site index the average is based on the number of years needed for the mean annual increment to culminate in fully stocked stands.

Mortality—Volume of sound wood in trees dying from natural causes during a specified period.

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

Net annual growth—The net increase in volume of trees during a specified year. Components of net annual growth of trees: (a) the increment in net volume of trees alive at the beginning of the specified year and surviving to the year's end, plus (b) the net volume of trees reaching sawtimber or poletimber size during the year, minus (c) the net volume of trees that died during the year.

Noncommercial species—A tree species not suitable for industrial wood products.

Nonforest land—Land that has never supported forests or was formerly forested and is currently developed for nonforest uses. Included are lands used for agricultural crops, Christmas tree farms, improved pasture, residential areas, city parks, improved roads, operating railroads and their right-of-way clearings, powerline and pipeline clearings, streams over 30 feet (10 m) wide, and 1- to 40-acre (0.4- to 16- ha) areas of water classified by the Bureau of the Census as land. If intermingled in forest areas, unimproved roads and other nonforest strips must be more than 120 feet (35 m) wide, and clearings or other areas must be 1 acre (0.4 ha) or larger in size to qualify as nonforest land.

Nonstocked areas—Timberland less than 10 percent stocked with growing stock trees.

Other forest land—Forest land incapable of producing 20 cubic feet per acre per year of industrial wood because of adverse site conditions such as sterile soils, dry climate, poor drainage, high elevation, steepness, or rockiness.

Other private lands—All privately owned lands except those classed as forest industry lands.

Other private lands, farmer—Lands owned by operators of farms.

Other private lands, miscellaneous—Privately owned lands other than those owned by the forest industry or farmers.

Other public lands—Lands administered by public agencies other than the Forest Service.

Poletimber stands—Stands with a mean diameter (weighted by basal area) from 5.0-9.0 inches (12.5-22.5 cm) if softwood and from 5.0-11.0 inches (12.5-27.5 cm) if hardwood.

Poletimber trees—Live trees of commercial species at least 5.0 inches (12.5 cm) in d.b.h. but smaller than sawtimber size, and of good form and vigor.

Roundwood—Logs, bolts, or other round sections cut from trees.

Salvable dead trees—Standing or down trees of commercial species, at least 9.0 inches (22.5 cm) in d.b.h. for softwoods and at least 11.0 inches (27.5 cm) in d.b.h. for hardwoods, containing 25 percent or more sound wood volume and at least one merchantable 12-foot (3.8-m) log if softwood or one merchantable 8-foot (2.5-m) log if hardwood.

Sapling and seedling stands—Stands with a mean diameter (weighted by basal area) less than 5.0 inches (12.5 cm).

Sapling and seedling trees—Live trees of commercial species less than 5 inches (12.5 cm) in d.b.h. with no disease, defects, or deformities likely to prevent their becoming poletimber trees.

Saw log portion—The bole of sawtimber trees between the stump and the saw log top.

Sawtimber stands—Stands with a mean diameter (weighted by basal area) larger than 9.0 inches (22.5 cm) if softwood and larger than 11.0 inches (27.5 cm) if hardwood.

Acknowledgments

Sawtimber trees—Live softwood trees of commercial species at least 9.0 inches (22.5 cm) in d.b.h. and hardwood trees of commercial species at least 11.0 inches (27.5 cm) in d.b.h. At least 25 percent of the board-foot volume in a sawtimber tree must be free from defect. Softwood trees must contain at least one 12-foot (3.8-m) saw log with a top diameter of not less than 6 inches (15 cm) inside bark; hardwood trees must contain at least one 8-foot (2.5-m) saw log with a top diameter of not less than 8 inches (20 cm) inside bark.

Sawtimber volume—Net volume of sawtimber trees measured in board feet. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Scribner rule—The common board-foot log rule used locally in determining volume of sawtimber. Scribner volume is estimated in terms of 32-foot (10-m) logs for softwoods and 16-foot (5-m) for hardwoods.

Site class—A classification of the potential productivity of forest land in terms of mean annual increment.

Site index—A measure of the productivity of forest land in terms of the average height of dominant and codominant trees at a specified age.

Softwoods—Coniferous trees, usually evergreen.

Timber harvest—Volume of roundwood removed from forest land for products.

Timber volume—Includes the net volume in cubic feet of poletimber and sawtimber trees and salvable dead sawtimber trees of all species, the net volume in cubic feet of cull trees of commercial species, and gross volume of non-commercial species. Volume is measured from stump to a minimum 4-inch (10-cm) top outside bark.

Timberland—Forest land capable of producing 20 cubic feet per acre (1.4 m³/ha) per year of industrial wood, and not withdrawn from timber utilization.

Timberland, deferred—National Forest timberland temporarily withdrawn from timber utilization and under study for possible inclusion in the wilderness system.

Timberland, reserved—Public land withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as timberland.

Upper-stem portion—The bole of sawtimber trees above the saw log top—7.0 inches (18 cm) outside bark for softwoods and 9.0 inches (23 cm) outside bark for hardwoods—to a minimum top diameter of 4.0 inches (10 cm) outside bark, or to the point where the central stem breaks into limbs.

This inventory was completed with the cooperation and assistance of many organizations and individuals. The Washington Department of Natural Resources, a cooperator, prepared maps and aerial photos for use in the inventory, and developed equations for estimation of tree volumes; county assessors provided ownership information; the Pacific Northwest Region, USDA Forest Service, and the Olympic National Forest provided forest resource inventory data; timber companies and many individual landowners allowed access to their forest lands.

Metric Equivalent

1,000 acres = 404.7 hectares (ha)
1,000 cubic feet = 28.3 cubic meters (m³)
1 cubic foot per acre = 0.07 cubic meter per hectare (m³/ha)
1 foot = 0.3048 meters (m)
1 inch = 2.54 centimeters (cm)
1 mile = 1.609 kilometers (km)

Names of Trees

Literature Cited

Common name	Scientific name
Softwoods	
Alaska-cedar	<i>Chamaecyparis nootkatensis</i> (D. Don) Spach
Douglas-fir	<i>Pseudotsuga menziesii</i> (Mirb.) Franco
Fir, grand	<i>Abies grandis</i> (Dougl.) Lindl.
Fir, Pacific silver	<i>A. amabilis</i> Dougl. ex Forbes
Fir, subalpine	<i>A. lasiocarpa</i> (Hook.) Nutt.
Hemlock, mountain	<i>Tsuga mertensiana</i> (Bong.) Carr.
Hemlock, western	<i>T. heterophylla</i> (Raf.) Sarg.
Pine, lodgepole	<i>Pinus contorta</i> Dougl. ex Loud. var. <i>latifolia</i> Engelm.
Pine, western white	<i>P. monticola</i> Dougl. ex D. Don
Redcedar, western	<i>Thuja plicata</i> Donn ex D. Don
Spruce, Sitka	<i>P. sitchensis</i> (Bong.) Carr.
Hardwoods	
Alder, red	<i>Alnus rubra</i> Bong.
Ash, Oregon	<i>Fraxinus latifolia</i> Benth.
Cottonwood, black	<i>P. trichocarpa</i> Torr. & Gray
Madrone, Pacific	<i>Arbutus menziesii</i> Pursh
Maple, bigleaf	<i>Acer macrophyllum</i> Pursh
Oak, Oregon white	<i>Quercus garryana</i> Dougl. ex Hook.
Willow	<i>Salix</i> spp.

Cochran, W. G. Sampling techniques. 2nd ed. New York: John Wiley & Sons; 1963. 413 p.

Little, Elbert L., Jr. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture; 1978. 375 p.

MacLean, Colin D. A technique for identifying treatment opportunities from western Oregon and Washington forest survey plots. Gen. Tech. Rep. PNW-102. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1980. 16 p.

Tables

Estimates in this report are developed from statistically based samples and therefore are subject to sampling error. Approximate confidence intervals for estimates of various sizes are presented in the section "Reliability of Inventory Data."

TABLE 1—AREA BY LAND CLASS AND COUNTY, OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980^{1/}

LAND CLASS	CLALLAM	GRAYS HARBOR	JEFFERSON	MASON	THURSTON	ALL COUNTIES
<u>THOUSAND HECTARES</u>						
FOREST LAND:						
TIMBERLAND	286	433	210	195	126	1 251
TIMBERLAND, DEFERRED	3	4	11	3	--	21
TIMBERLAND, RESERVED	69	4	128	8	--	210
OTHER FOREST	42	4	63	8	1	118
TOTAL	401	445	412	214	127	1 600
NONFOREST LAND ^{2/3/}	53	48	55	34	57	248
ALL LANDS ^{4/}	454	493	467	249	185	1 848
<u>THOUSAND ACRES</u>						
FOREST LAND:						
TIMBERLAND	707	1,070	520	483	311	3,092
TIMBERLAND, DEFERRED	8	10	27	7	--	52
TIMBERLAND, RESERVED	171	10	316	21	1	519
OTHER FOREST	104	10	156	19	3	292
TOTAL	990	1,100	1,018	530	315	3,953
NONFOREST LAND ^{2/3/}	131	118	137	85	141	612
ALL LANDS ^{4/}	1,122	1,218	1,155	616	456	4,567

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Includes cropland, pasture and range, swampland, industrial and rural areas, powerline clearings, railroads, and all improved roads and highways, and water as classified by Renewable Resources Evaluation standards but defined by the Bureau of Census as land.

^{3/}Includes approximately 46,000 acres (19,000 ha) of land managed for Christmas tree production.

^{4/}Source: United States Bureau of the Census, Land and Water Area of the United States, 1960.

TABLE 2—AREA OF TIMBERLAND BY OWNERSHIP CLASS AND COUNTY, OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980^{1/}

OWNERSHIP CLASS	CLALLAM	GRAYS HARBOR	JEFFERSON	MASON	THURSTON	ALL COUNTIES
<u>THOUSAND ACRES</u>						
PUBLIC:						
NATIONAL FOREST	184	131	116	107	--	538
OTHER PUBLIC--						
INDIAN	25	127	4	5	--	161
OTHER FEDERAL	1	1	4	2/	17	23
STATE	149	76	180	55	56	516
COUNTY AND MUNICIPAL	1	50	1	4	3	59
TOTAL	360	385	304	171	76	1,296
PRIVATE:						
FOREST INDUSTRY	272	533	154	176	81	1,215
OTHER PRIVATE--						
FARMER	8	14	3	10	23	57
MISCELLANEOUS	67	139	59	126	132	523
TOTAL	347	686	216	312	236	1,797
ALL OWNERSHIPS	707	1,070	520	483	311	3,092

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Less than 500 acres.

TABLE 3—AREA OF TIMBERLAND BY CUBIC-FOOT SITE AND OWNERSHIP CLASSES, OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980^{1/}

SITE CLASS ^{2/}	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>CUBIC FEET</u>	<u>----- THOUSAND ACRES -----</u>				
225 OR MORE	20	156	330	38	543
165 TO 224	114	286	408	179	988
120 TO 164	162	178	304	131	775
85 TO 119	110	103	117	181	511
50 TO 84	109	18	41	37	204
20 TO 49	24	19	16	14	73
ALL CLASSES	538	759	1,215	580	3,092

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Capacity for cubic-foot annual growth per acre at culmination of mean annual growth in fully stocked natural stands.

TABLE 4—AREA OF TIMBERLAND BY STAND SIZE AND OWNERSHIP CLASSES, OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980^{1/}

STAND SIZE CLASS	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND HECTARES</u>					
SAWTIMBER STANDS:					
LARGE SAWTIMBER ^{2/}	89	34	19	10	153
SMALL SAWTIMBER ^{3/}	42	133	235	108	518
TOTAL	131	167	254	118	671
POLETIMBER STANDS	19	82	102	40	243
SAPLING AND SEEDLING STANDS	59	53	125	66	303
NONSTOCKED AREAS	8	5	12	11	35
ALL CLASSES	217	308	493	235	1 252
<u>THOUSAND ACRES</u>					
SAWTIMBER STANDS:					
LARGE SAWTIMBER ^{4/}	221	85	46	25	377
SMALL SAWTIMBER ^{5/}	103	329	580	268	1,279
TOTAL	324	414	626	293	1,656
POLETIMBER STANDS	47	203	251	100	601
SAPLING AND SEEDLING STANDS	147	130	310	162	748
NONSTOCKED AREAS	20	13	29	26	87
ALL CLASSES	538	759	1,215	580	3,092

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Large sawtimber includes trees 52.5-centimeter d.b.h. and larger.

^{3/}Small sawtimber includes softwood trees 22.5- to 52.4-centimeter d.b.h. and hardwood trees 27.5- to 52.4-centimeter d.b.h.

^{4/}Large sawtimber includes trees 21.0-inch d.b.h. and larger.

^{5/}Small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

TABLE 5—AREA OF TIMBERLAND BY FOREST TYPE AND OWNERSHIP CLASS,
OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980^{1/}

FOREST TYPE	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND ACRES</u>					
WESTERN HEMLOCK	213	290	537	68	1,107
DOUGLAS-FIR	196	271	369	187	1,022
WESTERN REDCEDAR	8	57	29	61	155
PACIFIC SILVER FIR	85	14	--	--	99
LOGSPOLE PINE	1	16	16	--	32
WITKA SPRUCE	2	--	19	--	21
GRAND FIR	--	--	--	10	10
ALASKA-CEDAR	2	--	--	--	2
MOUNTAIN HEMLOCK	2	--	--	--	2
SUBALPINE FIR	1	--	--	--	1
RED ALDER	7	100	184	197	487
MAPLE	1	--	14	22	37
COTTONWOOD	1	--	13	--	14
WADRONE	--	--	--	6	6
OTHER HARDWOODS	--	--	7	4	11
UNCLASSIFIED ^{2/}	20	13	29	26	87
ALL TYPES	538	759	1,215	580	3,092

^{1/}Estimates are subject to sampling error.

^{2/}Totals may be off because of rounding.

^{3/}Unclassified type is less than 10 percent stocked with live trees.

TABLE 6—AREA OF RESERVED AND DEFERRED TIMBERLAND AND OTHER FOREST LAND BY LAND CLASS, FOREST TYPE, AND OWNERSHIP CLASS, OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980^{1/2/}

LAND CLASS AND FOREST TYPE	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
	<u>THOUSAND ACRES</u>				
TIMBERLAND, RESERVED:					
HEMLOCK	--	235	--	--	235
DOUGLAS-FIR	--	167	--	--	167
PACIFIC SILVER FIR ^{3/}	1	105	--	--	106
CEDAR	--	2	--	--	2
TRUE FIRS	--	2	--	--	2
LOGEPOLE PINE	--	<u>4/</u>	--	--	<u>4/</u>
SPRUCE	--	<u>4/</u>	--	--	<u>4/</u>
RED ALDER	--	5	--	--	5
HARDWOODS	--	<u>4/</u>	--	--	<u>4/</u>
ALL TIMBERLAND, RESERVED ^{5/}	1	517	--	--	519
TIMBERLAND, DEFERRED:					
DOUGLAS-FIR	39	--	--	--	39
PACIFIC SILVER FIR ^{3/}	13	--	--	--	13
ALL TIMBERLAND, DEFERRED	52	--	--	--	52
OTHER FOREST LAND:					
LOGEPOLE PINE	--	8	--	--	8
DOUGLAS-FIR	8	--	--	--	8
PACIFIC SILVER FIR ^{3/}	7	--	--	--	7
HEMLOCK-SITKA SPRUCE	6	--	--	--	6
WILLOW	--	--	--	7	7
UNCLASSIFIED ^{6/}	--	257	--	--	257
ALL OTHER FOREST LAND ^{7/}	21	265	--	7	292

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Area of timberland by forest type and ownership class is presented in table 5.

^{3/}Includes fir-spruce type for National Forest.

^{4/}Less than 500 acres.

^{5/}Includes approximately 514,000 acres in Olympic National Park.

^{6/}Information on forest type not available.

^{7/}Includes 257,000 acres of reserved areas.

TABLE 7—VOLUME OF TIMBER ON TIMBERLAND BY CLASS OF TIMBER AND
 BY SOFTWOODS AND HARDWOODS, OLYMPIC PENINSULA, WASHINGTON,
 JANUARY 1, 1980^{1/}

CLASS OF TIMBER	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>MILLION CUBIC FEET</u>			
SAW TIMBER TREES:			
SAW LOG PORTION	11,483	1,012	12,495
UPPER-STEM PORTION	313	151	463
TOTAL	11,796	1,163	12,958
POLE TIMBER TREES	952	710	1,663
ALL GROWING STOCK	12,748	1,873	14,621
ROUND CULL TREES	21	87	108
ROT TEN CULL TREES	31	14	45
VALVABLE DEAD TREES	308	1	309
ALL TIMBER	13,107	1,976	15,083

estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

TABLE 8—VOLUME OF GROWING STOCK AND SAWTIMBER ON TIMBERLAND BY OWNERSHIP CLASS AND BY SOFTWOODS AND HARDWOODS, OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980^{1/}

OWNERSHIP CLASS	AVERAGE VOLUME	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>CUBIC METERS PER HECTARE</u>	<u>MILLION CUBIC METERS</u>		
GROWING STOCK: ^{2/}				
NATIONAL FOREST	387	84	1	84
OTHER PUBLIC	365	102	10	112
FOREST INDUSTRY	339	141	25	167
OTHER PRIVATE	216	34	17	51
ALL OWNERSHIPS	331	361	53	414
	<u>CUBIC FEET PER ACRE</u>	<u>MILLION CUBIC FEET</u>		
GROWING STOCK: ^{3/}				
NATIONAL FOREST	5,535	2,952	26	2,978
OTHER PUBLIC	5,217	3,593	366	3,960
FOREST INDUSTRY	4,850	4,997	896	5,893
OTHER PRIVATE	3,088	1,206	585	1,791
ALL OWNERSHIPS	4,729	12,748	1,873	14,621
	<u>BOARD FEET PER ACRE</u>	<u>MILLION BOARD FEET</u>		
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): ^{4/}				
NATIONAL FOREST	29,520	15,809	72	15,882
OTHER PUBLIC	28,026	20,137	1,135	21,272
FOREST INDUSTRY	25,671	28,127	3,063	31,190
OTHER PRIVATE	14,822	6,521	2,076	8,597
ALL OWNERSHIPS	24,884	70,595	6,346	76,941
SAWTIMBER (SCRIBNER RULE): ^{4/}				
NATIONAL FOREST	23,059	12,360	46	12,406
OTHER PUBLIC	20,864	14,888	949	15,836
FOREST INDUSTRY	19,038	20,558	2,573	23,131
OTHER PRIVATE	10,757	4,494	1,745	6,239
ALL OWNERSHIPS	18,633	52,300	5,313	57,613

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 12.5-centimeter d.b.h. and larger.

^{3/}Includes trees 5.0-inch d.b.h. and larger.

^{4/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

TABLE 9—VOLUME OF GROWING STOCK AND SAWTIMBER ON TIMBERLAND BY COUNTY AND OWNERSHIP CLASS, OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980^{1/}

COUNTY	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION CUBIC METERS</u>					
GROWING STOCK: ^{2/}					
CLALLAM	27	27	38	6	99
GRAYS HARBOR	21	27	68	12	128
JEFFERSON	21	34	22	6	83
MASON	15	10	29	13	67
THURSTON	--	13	11	14	37
ALL COUNTIES	84	112	167	51	414
<u>MILLION CUBIC FEET</u>					
GROWING STOCK: ^{3/}					
CLALLAM	970	965	1,339	222	3,497
GRAYS HARBOR	744	968	2,388	421	4,522
JEFFERSON	735	1,214	772	202	2,923
MASON	529	357	1,009	458	2,353
THURSTON	--	454	384	487	1,325
ALL COUNTIES	2,978	3,960	5,893	1,791	14,621
<u>MILLION BOARD FEET</u>					
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): ^{4/}					
CLALLAM	5,011	5,214	7,221	1,054	18,500
GRAYS HARBOR	4,012	4,761	12,258	1,968	22,999
JEFFERSON	3,753	6,981	4,189	996	15,919
MASON	3,106	1,878	5,504	2,245	12,733
THURSTON	--	2,438	2,018	2,334	6,790
ALL COUNTIES	15,882	21,272	31,190	8,597	76,941
SAWTIMBER (SCRIBNER RULE): ^{4/}					
CLALLAM	3,707	3,882	5,390	767	13,746
GRAYS HARBOR	3,297	3,420	9,019	1,422	17,158
JEFFERSON	2,938	5,358	3,136	717	12,149
MASON	2,464	1,378	4,087	1,619	9,548
THURSTON	--	1,798	1,499	1,715	5,012
ALL COUNTIES	12,406	15,836	23,131	6,239	57,613

^{1/} Estimates are subject to sampling error.

^{2/} Totals may be off because of rounding.

^{3/} Includes trees 12.5-centimeter d.b.h. and larger.

^{4/} Includes trees 5.0-inch d.b.h. and larger.

^{5/} Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

TABLE 10—VOLUME OF GROWING STOCK ON TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980¹

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION CUBIC FEET</u>					
SOFTWOODS:					
WESTERN HEMLOCK	1,348	1,840	2,770	318	6,275
DOUGLAS-FIR	847	1,166	1,637	567	4,218
WESTERN REDCEDAR	166	253	159	241	819
PACIFIC SILVER FIR	481	214	67	1	762
SITKA SPRUCE	61	69	305	55	488
LOGEPOLE PINE	2	43	51	2	98
MOUNTAIN HEMLOCK	27	--	1	--	28
GRAND FIR	1	1	6	19	27
ALASKA-CEDAR	16	--	2	--	18
WESTERN WHITE PINE	2	9	--	3	15
SUBALPINE FIR	2	--	--	--	2
TOTAL	2,952	3,593	4,997	1,206	12,748
HARDWOODS:					
RED ALDER	20	328	785	477	1,610
BIGLEAF MAPLE	5	28	70	79	182
BLACK COTTONWOOD	<u>2/</u>	5	28	11	44
OREGON ASH	--	4	12	7	23
PACIFIC MADRONE	<u>2/</u>	1	1	10	13
OREGON WHITE OAK	--	--	--	1	1
TOTAL	26	366	896	585	1,873
ALL SPECIES	2,978	3,960	5,893	1,791	14,621

Estimates are subject to sampling error.

1/Totals may be off because of rounding.

2/Less than 500,000 cubic feet.

TABLE 11—VOLUME OF SAWTIMBER, INTERNATIONAL 1/4-INCH RULE, ON
 TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, OLYMPIC PENINSULA,
 WASHINGTON, JANUARY 1, 1980^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION BOARD FEET</u>					
SOFTWOODS:					
WESTERN HEMLOCK	5,629	10,631	15,401	1,699	33,361
DOUGLAS-FIR	5,360	6,212	9,550	3,095	24,216
WESTERN REDCEDAR	972	1,336	740	1,259	4,308
PACIFIC SILVER FIR	3,149	1,338	376	--	4,863
SITKA SPRUCE	432	408	1,800	355	2,995
LOGSPOLE PINE	10	183	210	8	411
MOUNTAIN HEMLOCK	154	--	4	--	158
GRAND FIR	2	--	35	83	121
ALASKA-CEDAR	82	--	11	--	93
WESTERN WHITE PINE	14	30	--	23	66
SUBALPINE FIR	6	--	--	--	6
TOTAL	15,809	20,137	28,127	6,521	70,595
HARDWOODS:					
RED ALDER	48	979	2,607	1,631	5,265
BIGLEAF MAPLE	24	116	250	330	720
BLACK COTTONWOOD	--	18	167	45	230
OREGON ASH	--	22	34	33	89
PACIFIC MADRONE	--	--	5	38	43
TOTAL	72	1,135	3,063	2,076	6,346
ALL SPECIES	15,882	21,272	31,190	8,597	76,941

estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

TABLE 12—VOLUME OF SAWTIMBER, SCRIBNER RULE, ON TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
<u>MILLION BOARD FEET</u>					
SOFTWOODS:					
WESTERN HEMLOCK	4,335	8,020	11,334	1,211	24,900
DOUGLAS-FIR	4,056	4,426	6,946	2,153	17,581
WESTERN REDCEDAR	788	911	468	781	2,948
PACIFIC SILVER FIR	2,592	1,096	285	--	3,973
SITKA SPRUCE	381	302	1,362	269	2,314
LOGPOLE PINE	7	113	128	4	252
MOUNTAIN HEMLOCK	122	--	2	--	124
GRAND FIR	1	--	25	59	86
ALASKA-CEDAR	63	--	8	--	71
WESTERN WHITE PINE	10	20	--	17	47
SUBALPINE FIR	4	--	--	--	4
TOTAL	12,360	14,888	20,558	4,494	52,300
HARDWOODS:					
RED ALDER	29	816	2,179	1,369	4,393
BIGLEAF MAPLE	17	98	215	279	609
BLACK COTTONWOOD	--	16	147	39	202
OREGON ASH	--	18	28	27	73
PACIFIC MADRONE	--	--	4	32	36
TOTAL	46	949	2,573	1,745	5,313
ALL SPECIES	12,406	15,836	23,131	6,239	57,613

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

TABLE 13—VOLUME OF GROWING STOCK ON TIMBERLAND BY SPECIES AND DIAMETER CLASS, OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)										
	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- 20.9	21.0- 28.9	29.0 AND LARGER	ALL CLASSES
	MILLION CUBIC FEET										
SOFTWOODS:											
WESTERN HEMLOCK	159	315	443	505	540	539	551	478	1,318	1,426	6,275
DOUGLAS-FIR	112	223	291	306	311	345	352	405	1,074	800	4,218
WESTERN REDCEDAR	30	47	48	48	45	64	57	39	157	286	819
PACIFIC SILVER FIR	8	11	18	24	18	30	30	35	133	453	762
SITKA SPRUCE	9	9	22	20	26	32	23	27	79	241	488
LOGEPOLE PINE	5	13	20	24	15	11	8	2/	2	--	98
MOUNTAIN HEMLOCK	2/	1	1	2	2	1	2	2	6	12	28
GRAND FIR	2	4	2	2	3	4	2	2/	6	2	27
ALASKA-CEDAR	2/	1	1	1	3	1	1	1	4	6	18
WESTERN WHITE PINE	--	4	2	1	--	1	1	--	3	4	15
SUBALPINE FIR	2/	2/	2/	--	--	--	--	2/	2/	2/	2
TOTAL	325	628	846	933	963	1,027	1,026	987	2,782	3,232	12,748
HARDWOODS:											
RED ALDER	96	207	342	284	290	153	132	52	51	4	1,610
BIGLEAF MAPLE	11	20	18	27	22	12	13	16	31	11	182
BLACK COTTONWOOD	1	2	4	2	5	9	2	4	10	7	44
OREGON ASH	3	2	1	8	5	2	3	--	1	--	23
PACIFIC MADRONE	1	1	1	1	2	3	1	--	2	--	13
OREGON WHITE OAK	--	1	--	--	--	--	--	--	--	--	1
TOTAL	111	234	365	321	324	179	151	71	95	22	1,873
ALL SPECIES	436	862	1,211	1,254	1,287	1,206	1,177	1,058	2,877	3,254	14,621

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Less than 500,000 cubic feet.

TABLE 14—VOLUME OF SAWTIMBER, INTERNATIONAL 1/4-INCH RULE, ON TIMBERLAND BY SPECIES AND DIAMETER CLASS, OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)								
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 AND LARGER	ALL CLASSE
	<u>MILLION BOARD FEET</u>								
SOFTWOODS:									
WESTERN HEMLOCK	2,107	2,696	3,088	3,191	3,387	3,013	8,276	7,604	33,361
DOUGLAS-FIR	1,558	1,762	1,857	2,110	2,196	2,566	6,990	5,177	24,216
WESTERN REDCEDAR	207	238	244	359	332	223	946	1,759	4,308
PACIFIC SILVER FIR	80	132	106	181	185	222	868	3,091	4,863
SITKA SPRUCE	93	99	147	183	145	172	510	1,646	2,995
LOGEPOLE PINE	92	121	80	64	45	1	8	--	411
MOUNTAIN HEMLOCK	3	6	11	4	7	14	38	76	158
GRAND FIR	8	7	16	21	9	2	43	14	121
ALASKA-CEDAR	3	3	16	5	4	4	19	38	93
WESTERN WHITE PINE	6	6	--	4	5	--	18	27	66
SUBALPINE FIR	1	--	--	--	--	1	1	3	6
TOTAL	4,157	5,070	5,565	6,121	6,315	6,217	17,718	19,434	70,595
HARDWOODS:									
RED ALDER	--	1,321	1,610	894	800	308	308	24	5,265
BIGLEAF MAPLE	--	125	123	67	75	94	181	55	720
BLACK COTTONWOOD	--	8	29	56	10	22	61	45	230
OREGON ASH	--	37	26	12	12	--	2	--	89
PACIFIC MADRONE	--	3	10	13	6	--	11	--	43
TOTAL	--	1,493	1,798	1,041	904	423	563	124	6,346
ALL SPECIES	4,157	6,563	7,364	7,162	7,218	6,640	18,280	19,558	76,941

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

TABLE 15—VOLUME OF SAWTIMBER, SCRIBNER RULE, ON TIMBERLAND BY SPECIES AND DIAMETER CLASS, OLYMPIC PENINSULA, WASHINGTON, JANUARY 1, 1980^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)								ALL CLASSES
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 AND LARGER	
	MILLION BOARD FEET								
SOFTWOODS:									
WESTERN HEMLOCK	1,246	1,753	2,123	2,272	2,497	2,276	6,476	6,258	24,900
DOUGLAS-FIR	873	1,099	1,227	1,452	1,564	1,872	5,267	4,226	17,581
WESTERN REDCEDAR	114	135	148	226	214	144	636	1,332	2,948
PACIFIC SILVER FIR	42	83	69	125	135	168	689	2,661	3,973
SITKA SPRUCE	51	55	95	119	104	125	374	1,393	2,314
LODGEPOLE PINE	53	71	50	41	30	1	6	--	252
MOUNTAIN HEMLOCK	1	3	7	3	5	10	30	66	124
GRAND FIR	4	4	11	14	7	1	34	12	86
ALASKA-CEDAR	2	2	11	4	3	3	15	33	71
WESTERN WHITE PINE	3	4	--	3	3	--	14	21	47
SUBALPINE FIR	2/	--	--	--	--	1	1	2	4
TOTAL	2,389	3,209	3,740	4,257	4,562	4,599	13,540	16,003	52,300
HARDWOODS:									
RED ALDER	--	1,043	1,333	759	694	270	274	22	4,393
BIGLEAF MAPLE	--	99	101	56	64	81	160	48	609
BLACK COTTONWOOD	--	6	24	48	9	19	55	42	202
OREGON ASH	--	30	22	10	10	--	2	--	73
PACIFIC MADRONE	--	2	9	11	6	--	9	--	36
TOTAL	--	1,180	1,489	884	782	370	499	110	5,313
ALL SPECIES	2,389	4,389	5,229	5,141	5,344	4,969	14,039	16,114	57,613

estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Less than 500,000 board feet.

TABLE 16—NET ANNUAL GROWTH OF GROWING STOCK AND SAWTIMBER ON TIMBERLAND BY OWNERSHIP CLASS AND BY SOFTWOODS AND HARDWOODS, OLYMPIC PENINSULA, WASHINGTON, 1979^{1/}

OWNERSHIP CLASS	AVERAGE VOLUME	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>CUBIC METERS PER HECTARE</u>	<u>THOUSAND CUBIC METERS</u>		
GROWING STOCK:				
NATIONAL FOREST	2	387	35	42
OTHER PUBLIC	13	3 671	431	4 10
FOREST INDUSTRY	13	5 406	959	6 36
OTHER PRIVATE	8	1 293	612	1 90
ALL OWNERSHIPS	10	10 757	2 036	12 79
	<u>CUBIC FEET PER ACRE</u>	<u>THOUSAND CUBIC FEET</u>		
GROWING STOCK:				
NATIONAL FOREST	28	13,674	1,226	14,90
OTHER PUBLIC	191	129,709	15,228	144,93
FOREST INDUSTRY	185	191,019	33,886	224,90
OTHER PRIVATE	116	45,689	21,614	67,30
ALL OWNERSHIPS	146	380,091	71,954	452,04
	<u>BOARD FEET PER ACRE</u>	<u>THOUSAND BOARD FEET</u>		
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE):				
NATIONAL FOREST	157	79,635	4,860	84,49
OTHER PUBLIC	987	685,155	64,347	749,50
FOREST INDUSTRY	1,073	1,141,379	162,747	1,304,12
OTHER PRIVATE	638	281,267	88,568	369,83
ALL OWNERSHIPS	811	2,187,435	320,522	2,507,95

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

TABLE 17—NET ANNUAL GROWTH OF GROWING STOCK ON TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, OLYMPIC PENINSULA, WASHINGTON, 1979^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND CUBIC FEET</u>					
SOFTWOODS:					
WESTERN HEMLOCK	6,256	57,105	106,310	11,006	180,677
DOUGLAS-FIR	4,979	59,703	59,908	22,173	146,762
WESTERN REDCEDAR	319	4,987	6,627	9,435	21,367
PACIFIC SILVER FIR	1,923	2,644	2,682	21	7,271
SITKA SPRUCE	144	3,343	13,724	1,928	19,138
LODGEPOLE PINE	2/-9	1,253	1,242	66	2,552
MOUNTAIN HEMLOCK	2/-14	--	30	--	16
GRAND FIR	10	107	456	1,059	1,631
ALASKA-CEDAR	42	--	40	--	82
WESTERN WHITE PINE	2/-1	569	--	1	568
SUBALPINE FIR	28	--	--	--	28
TOTAL	13,674	129,709	191,019	45,689	380,091
HARDWOODS:					
RED ALDER	1,148	13,909	29,617	17,839	62,512
BIGLEAF MAPLE	75	976	2,562	2,181	5,795
BLACK COTTONWOOD	2/-3	202	1,302	1,015	2,516
OREGON ASH	--	72	361	218	650
PACIFIC MADRONE	5	69	45	329	448
OREGON WHITE OAK	--	--	--	33	33
TOTAL	1,226	15,228	33,886	21,614	71,954
TOTAL SPECIES	14,900	144,937	224,905	67,303	452,045

Estimates are subject to sampling error.

Totals may be off because of rounding.

Negative net annual growth is the result of annual mortality exceeding gross annual growth.

TABLE 18—NET ANNUAL GROWTH OF SAWTIMBER ON TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, OLYMPIC PENINSULA, WASHINGTON, 1979^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>					
SOFTWOODS:					
WESTERN HEMLOCK	24,191	320,449	624,815	62,145	1,031,600
DOUGLAS-FIR	47,711	295,456	373,101	145,718	861,986
WESTERN REDCEDAR	<u>2/-305</u>	24,091	34,414	55,335	113,534
PACIFIC SILVER FIR	8,157	17,681	15,569	--	41,407
SITKA SPRUCE	276	19,936	82,822	13,703	116,737
LOGEPOLE PINE	<u>2/-84</u>	6,579	6,870	410	13,774
MOUNTAIN HEMLOCK	<u>27-301</u>	--	191	--	<u>2/-111</u>
GRAND FIR	32	--	3,315	3,943	7,290
ALASKA-CEDAR	30	--	281	--	310
WESTERN WHITE PINE	<u>2/-59</u>	963	--	13	917
SUBALPINE FIR	<u>2/-9</u>	--	--	--	<u>2/-10</u>
TOTAL	79,635	685,155	1,141,379	281,267	2,187,435
HARDWOODS:					
RED ALDER	3,907	56,395	142,233	67,753	270,288
BIGLEAF MAPLE	953	6,230	8,298	13,384	28,864
BLACK COTTONWOOD	--	481	9,923	4,823	15,227
OREGON ASH	--	1,242	1,981	1,315	4,538
PACIFIC MADRONE	--	--	312	1,294	1,606
TOTAL	4,860	64,347	162,747	88,568	320,522
ALL SPECIES	84,495	749,502	1,304,126	369,835	2,507,957

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Negative net annual growth is the result of annual mortality exceeding gross annual growth.

**TABLE 19—AVERAGE ANNUAL MORTALITY OF GROWING STOCK ON
 TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, OLYMPIC PENINSULA,
 WASHINGTON, 1979^{1/}**

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND CUBIC FEET</u>					
SOFTWOODS:					
WESTERN HEMLOCK	10,244	4,184	6,549	768	21,745
DOUGLAS-FIR	6,436	3,143	3,551	1,447	14,578
WESTERN REDCEDAR	1,264	567	401	576	2,807
PACIFIC SILVER FIR	3,653	456	156	3	4,268
SITKA SPRUCE	460	155	686	120	1,421
LODGEPOLE PINE	17	114	139	4	274
MOUNTAIN HEMLOCK	206	--	2	--	208
GRAND FIR	7	2	14	50	72
ALASKA-CEDAR	119	--	5	--	124
WESTERN WHITE PINE	18	23	--	7	48
SUBALPINE FIR	12	--	--	--	12
TOTAL	22,435	8,645	11,502	2,976	45,557
HARDWOODS:					
RED ALDER	138	1,951	4,317	2,534	8,939
BIGLEAF MAPLE	36	128	337	317	818
BLACK COTTONWOOD	3	23	53	47	125
OREGON ASH	--	21	84	21	126
PACIFIC MADRONE	1	7	4	49	61
OREGON WHITE OAK	--	--	--	10	10
TOTAL	177	2,130	4,795	2,977	10,079
TOTAL SPECIES	22,612	10,775	16,296	5,952	55,636

estimates are subject to sampling error.

Totals may be off because of rounding.

TABLE 20—AVERAGE ANNUAL MORTALITY OF SAWTIMBER ON TIMBERLAND BY SPECIES AND OWNERSHIP CLASS, OLYMPIC PENINSULA, WASHINGTON 1979^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>					
SOFTWOODS:					
WESTERN HEMLOCK	45,595	22,714	33,951	3,770	106,029
DOUGLAS-FIR	43,412	11,639	16,307	6,070	77,427
WESTERN REDCEDAR	7,873	2,844	1,743	2,901	15,361
PACIFIC SILVER FIR	25,506	2,835	850	--	29,192
SITKA SPRUCE	3,499	894	3,927	775	9,094
LOGEPOLE PINE	85	462	548	19	1,113
MOUNTAIN HEMLOCK	1,247	--	10	--	1,257
GRAND FIR	18	--	83	194	294
ALASKA-CEDAR	666	--	28	--	694
WESTERN WHITE PINE	110	70	--	47	227
SUBALPINE FIR	44	--	--	--	44
TOTAL	128,054	41,457	57,445	13,776	240,732
HARDWOODS:					
RED ALDER	68	3,553	9,187	5,357	18,164
BIGLEAF MAPLE	34	327	587	792	1,740
BLACK COTTONWOOD	--	12	292	120	423
OREGON ASH	--	104	145	96	345
PACIFIC MADRONE	--	--	20	96	115
TOTAL	101	3,995	10,230	6,460	20,787
ALL SPECIES	128,156	45,452	67,675	20,236	261,519

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

TABLE 21—TIMBER HARVEST BY OWNERSHIP CLASS, OLYMPIC PENINSULA, WASHINGTON, 1950-79

YEAR	NATIONAL FOREST			OTHER PUBLIC ^{1/}			PRIVATE			ALL OWNERSHIPS		
	LIVE	DEAD ^{2/}	TOTAL	LIVE	DEAD ^{2/}	TOTAL	LIVE	DEAD ^{2/}	TOTAL	LIVE	DEAD ^{2/}	TOTAL
	<u>THOUSAND BOARD FEET, SCRIBNER SCALE</u>											
1950	3/	3/	218,700	--	--	--	3/	3/	877,630	3/	3/	1,096,330
1951	3/	3/	241,700	--	--	--	3/	3/	843,922	3/	3/	1,085,622
1952	196,772	105,012	301,784	--	--	--	772,736	18,557	791,293	969,508	123,569	1,093,077
1953	3/	3/	369,100	--	--	--	515,800	68,840	584,640	3/	3/	953,740
1954	310,100	35,800	345,900	--	--	--	612,642	37,647	650,289	922,742	73,447	996,189
1955	124,406	125,773	250,179	315,389	15,350	330,739	543,519	32,548	576,067	983,314	173,671	1,156,985
1956	244,700	22,600	267,300	247,834	7,259	255,093	638,782	20,012	658,794	1,131,316	49,871	1,181,187
1957	228,451	21,513	249,964	133,696	4,679	138,375	524,756	19,201	543,957	886,903	45,393	932,296
1958	233,610	35,318	268,928	156,944	3,630	160,574	442,424	8,639	451,063	832,978	47,587	880,565
1959	297,691	24,608	322,299	190,553	2,477	193,030	636,682	25,391	662,073	1,124,926	52,476	1,177,402
1960	229,629	21,300	250,929	206,085	4,385	210,470	658,599	28,992	687,591	1,094,313	54,677	1,148,990
1961	206,368	13,522	219,890	216,935	4,781	221,716	577,843	29,837	607,680	1,001,146	48,140	1,049,286
1962	253,200	20,100	273,300	236,451	1,027	237,478	558,236	9,212	567,448	1,047,887	30,339	1,078,226
1963	357,500	3,900	361,400	272,729	8,705	281,434	548,961	106,467	655,428	1,179,190	119,072	1,298,262
1964	286,900	116,900	403,800	339,271	9,293	348,564	634,882	156,787	791,669	1,261,053	282,980	1,544,033
1965	308,400	61,400	369,800	447,502	6,177	453,679	664,961	50,796	715,757	1,420,863	118,373	1,539,236
1966	280,714	19,500	300,214	361,971	9,319	371,290	815,672	9,727	825,399	1,458,357	38,546	1,496,903
1967	281,749	9,751	291,500	424,544	3,903	428,447	715,807	4,332	720,139	1,422,100	17,986	1,440,086
1968	315,949	35,465	351,414	541,491	14,013	555,504	796,811	426	797,237	1,654,251	49,904	1,704,155
1969	237,933	10,406	248,339	527,534	8,269	535,803	986,939	1,903	988,842	1,752,406	20,578	1,772,984
1970	239,178	14,769	253,947	478,616	5,700	484,316	815,035	4,735	819,770	1,532,829	25,204	1,558,033
1971	252,886	21,573	274,459	492,065	2,914	494,979	719,827	3,063	722,890	1,464,778	27,550	1,492,328
1972	240,216	35,578	275,794	699,222	4,845	704,067	819,890	806	820,696	1,759,328	41,229	1,800,557
1973	244,990	51,848	296,838	665,983	4,470	670,453	1,135,118	2,959	1,138,077	2,046,091	59,277	2,105,368
1974	257,701	15,688	273,389	565,627	8,295	573,922	1,019,014	12,502	1,031,516	1,842,342	36,485	1,878,827
1975	229,735	12,482	242,217	431,986	17,985	449,971	840,925	14,946	855,871	1,502,646	45,413	1,548,059
1976	278,999	17,076	296,075	671,134	13,767	684,901	853,740	28,630	882,370	1,803,873	59,473	1,863,346
1977	315,139	17,307	332,446	568,465	25,721	594,186	786,833	22,935	809,768	1,670,437	65,963	1,736,400
1978	275,318	27,965	303,283	593,077	22,418	615,495	874,338	23,147	897,485	1,742,733	73,530	1,816,263
1979	304,839	2,895	307,734	796,230	24,881	821,111	928,270	16,730	945,000	2,029,339	44,506	2,073,845

Data for other public ownership are combined with private ownership for 1950-54.

^{1/} Includes snags and down material existing before logging.

^{2/} Data not available.

Source: 1950-76: Washington timber harvest reports by year (published by Pacific Northwest Forest and Range Experiment Station); 1977-79: Timber harvest reports, State of Washington, Department of Natural Resources.

Bassett, Patricia M.; Oswald, Daniel D. Timber resource statistics for the Olympic Peninsula, Washington. Resour. Bull. PNW-93. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 31 p.

This report summarizes a 1978-79 timber resource inventory of five counties in the Olympic Peninsula of Washington: Clallam, Grays Harbor, Jefferson, Mason, and Thurston. Detailed tables of forest area, timber volume, growth, mortality, and harvest are presented.

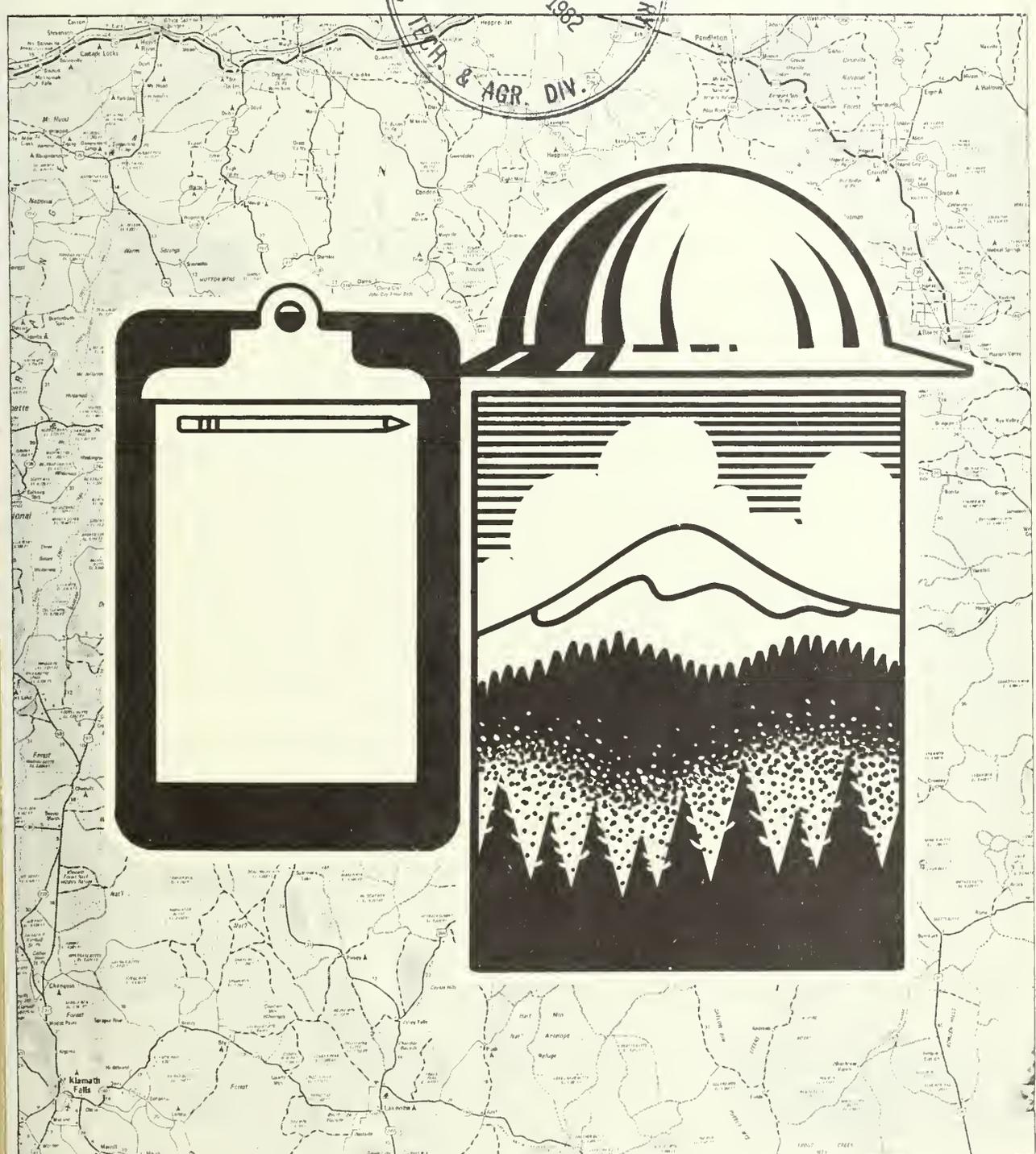
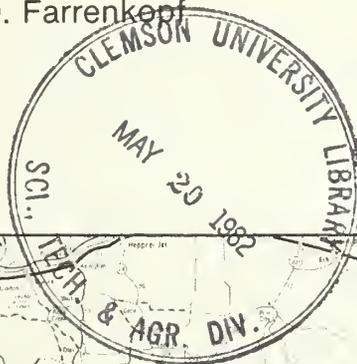
KEYWORDS: Forest surveys, statistics (forest), timber resources, resources (forest), Washington (Olympic Peninsula).

The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.

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Forest Statistics for Eastern Oregon, 1977

Thomas O. Farrenkopf



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Abstract

Farrenkopf, Thomas O. Forest statistics for eastern Oregon, 1977. U.S. Department of Agriculture, Resour. Bull. PNW-94. Portland, OR: Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 28 p.

This report summarizes a 1977 inventory of timber resources in 17 Oregon counties east of the crest of the Cascade Range. Detailed data on forest area, timber volume, growth, mortality, and harvest are presented.

Keywords: Statistics (forest), forest surveys, timber resources, Oregon (eastern).

Summary

The eastern Oregon resource area consists of 17 counties that encompass 42,241,000 acres, of which an estimated 14,363,000 acres are forested. An estimated 10,126,000 acres are classified as unreserved timberland. This area has 21.0 billion cubic feet of standing timber, with 84 percent of the volume in public ownership.

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Purpose of the Inventory

The Forest and Rangeland Renewable Resources Planning Act of 1974 and the Forest and Rangeland Renewable Resources Research Act of 1978 give the USDA Forest Service the responsibility of keeping current inventories of the forest resources of the Nation. Keeping inventories current is essential because this information is used at local, regional, and national levels for public and private planning. Forest land in eastern Oregon not administered by the Forest Service was last inventoried by the Forest Survey¹ in two parts. The Central Oregon Survey Unit, which includes Crook, Deschutes, Gilliam, Jefferson, Klamath, Lake, Sherman, Wheeler, and Wasco counties, was inventoried in 1964; and the Blue Mountain Survey Unit, which includes Baker, Grant, Harney, Malheur, Morrow, Union, Umatilla, and Wallowa counties, was inventoried in 1969. Since the inventories of the 1960's, several changes have altered the structure of the forests and the ownership of forest land: timber has been harvested; trees have grown and then died from insect attacks and other natural causes; and parcels of land have been sold or exchanged. In addition, techniques have improved for measuring forest resources and describing the relation of trees to one another and the land.

¹ Forest Survey is the former name of the Renewable Resources Evaluation Research Work Unit of the Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

Description of the Inventory

The statistics in this report are for all of Oregon east of the crest of the Cascade Range. They include counties previously inventoried in the Central Oregon Survey Unit and the Blue Mountain Survey Unit.

Five sources of information used to compile these statistics are: National Forest System inventories for each of the National Forests, updated from the previous date of inventory to 1977; inventories conducted by the Bureau of Land Management in 1973 and 1974, and a portion of one conducted in 1977; and two inventories conducted in 1977 by the Renewable Resources Evaluation (RRE) Research Work Unit of the Pacific Northwest Forest and Range Experiment Station (PNW).

National Forest System inventories were conducted in accordance with procedures in the Forest Service Manual. To provide statistics for the 1980 Assessment required by the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), inventory statistics for each National Forest were updated from the year of inventory to 1977. This updated information reflects changes in land use classification, forest stand structure, composition, and volume.

The methods used for updating the statistics varied with each National Forest depending on when it was last inventoried. Nine National Forests are located partly or entirely in eastern Oregon. Dates of inventories used are:

Forest	Year of inventory
Deschutes	1971
Fremont	1973
Malheur	1968
Mount Hood	1971
Ochoco	1972
Rogue River	1967
Umatilla	1968
Wallowa-Whitman	1968
Winema	1972

The updated statistics provide the basic framework for the estimates included in this report. Reconciliation of the total acreage in eastern Oregon administered by the National Forest System in 1977 was based on the June 1976 Pacific Northwest Region lands report.²

Updated statistics for National Forests did not contain estimates of area by the forest-type classifications used in eastern Oregon. To obtain this estimate, weighted proportions of the distribution of acreage by forest type were obtained from information in published inventory statistics for eastern Oregon National Forests. The proportions were then applied to the updated acreage to obtain estimates of forest-type areas. Updated statistics of National Forest volume did not contain estimates of board-foot volume in Scribner rule. Where the information was available by species in published inventory statistics, Scribner board-foot — cubic-foot ratios by diameter class were obtained. Where this information was not available by species, ratio predictors were obtained by mathematical manipulation of local volume curves of cubic-foot volume and Scribner board-foot volume that were used to prepare the original published inventory statistics. The ratios obtained by these methods were applied to the updated estimates of cubic-foot volume to obtain estimates of Scribner board-foot volume.

² "Summary of National Forest acreages information sheet", 6-30-76, Region 6, Lands and Minerals Branch.

Comparison of Current and Previous Inventory Methods

Timber inventories of forest land administered by the Bureau of Land Management were done in accordance with agency directives. For the inventories conducted in 1973 and 1974 the basic data of the agency were obtained from the Oregon State Office and processed by PNW through FINSYS³ to obtain the required estimates and associated error statistics. Information from a portion of the third Bureau of Land Management inventory of 1977 was obtained from the State Office in final form and added to the other estimates.

The two inventories conducted by the Renewable Resources Research Work Unit in 1977 covered the area of eastern Oregon not included in the inventories of the National Forest System nor the Bureau of Land Management.

Each of the inventories conducted by PNW covered the same areas covered by inventories of the 1960's; one included the counties in the Blue Mountains Survey Unit, the other the counties in the Central Oregon Survey Unit. Some of the techniques used in the two inventories differed substantially, and unit names are linked with techniques as appropriate in the explanation that follows:

The basic design for each unit was double sampling for stratification as described by Cochran (1963). The primary sample, which was used for stratification, was obtained from aerial photographs and maps and consisted of a classification of each sample point by land use class and ownership. Timberland classes were further classified by cubic-foot volume classes. Included as part of the photo-sample points were the estimated center points of each of the field samples from the inventories of the 1960's. The secondary samples, or field samples, were taken at the same places as the field samples taken in the inventories of the 1960's. The original field samples consisted of a cluster of 10 sample points in a geometric pattern that covered approximately 1 acre.

In the Blue Mountains Survey Unit all 10 points of the field locations were visited to note changes in the status of sample trees present on the previous inventory. Changes were recorded for harvest and mortality. Information on the characteristics of trees needed to assess stocking and to describe the stand was also collected. Height and diameter measurements for new trees were not made. Estimates of diameters for 1977 were made from regression analyses of diameter growth information collected in 1969. Estimates of height were made from proportional changes in height derived from site-index curves.

The previous inventory of the Central Oregon Survey Unit was 13 years old, and a "walk-through" inventory—like the one conducted in the Blue Mountains, where the previous inventory was 8 years old—was not considered appropriate because more extensive changes could have taken place over the longer time period. At the same time, additional field information was needed to evaluate opportunities for silvicultural treatment. A design study⁴ was done to determine an efficient way to utilize remeasurement data and collect data on treatment opportunity. The design selected resulted in a procedure whereby 2, and sometimes 3, of the 10 points of field locations from the previous inventory were remeasured for growth data; and the remeasured points, plus 3 newly established points were measured for volume data and information describing trees and the stand.

⁴ An examination of alternative field plot designs for use in the 1977 inventory of central Oregon, Colin D. MacLean, March 1977, Office Report, Renewable Resources Evaluation Research Work Unit, Portland, Oregon.

The previous inventory of the Blue Mountains Survey Unit was reported by Bolsinger and Berger (1975), and the Central Oregon Survey Unit was reported by Berger (1968). Direct comparison between previous inventories and the current inventory to determine changes in area and timber volume may lead the reader to erroneous conclusions because different techniques were used. Techniques incorporated in inventories of the National Forest System and the Bureau of Land Management have been documented in inventory plans. Major changes in techniques used in inventories done by PNW, in addition to the changes of sampling design, are described below.

In determining timberland area for the current inventory, stocking capacity (MacLean and Bolsinger 1973) was estimated. In the previous inventory of the Blue Mountains Survey Unit, stocking capacity was estimated from less sophisticated guidelines than were used in the current inventory. Guidelines for stocking capacity were not available for the previous inventory of the Central Oregon Survey Unit, so no estimate was made.

The method of determining individual tree stocking (MacLean 1979) was changed between inventories. Aggregated tree stocking is used to classify forest type and stand size class, hence the change in method of determining stocking can produce apparent changes in area.

The identification of white fir and grand fir in the Blue Mountains has always been difficult. Müller (1938) concluded that fir trees in the Blue Mountains, called by either of these names, was a racial variation of grand fir. More recent research (Daniels 1969) indicates that the Blue Mountains Survey Unit is in a zone of intergradation in the geographically defined grand fir-white fir complex. Trees

³ "FINSYS-2: Subsystem TABLE-2 and OUTPUT-2", J. David Born and Joseph E. Barnard, General Technical Report (in press at the NE For. Exp. Stn. Broomall, PA), 1979.

Definition of Terms

from populations in northeast Oregon, identified as one or the other of these fir species, are said to be introgressive hybrids exhibiting characteristics more like grand fir than white fir. In the current inventory of the Blue Mountains Survey Unit, we identified as grand fir, all trees identified as white fir in the previous inventory. No effort was made to recast white fir as grand fir in inventories of the National Forest System or the Bureau of Land Management that are wholly within or extend into the Blue Mountains Survey Unit, nor was any effort made to recast white fir as grand fir in the portion of the Central Oregon Survey Unit within the zone of intergradation. This problem will be considered in future inventories. As a result of this action, however, some areas in the Blue Mountains Survey Unit previously identified as in the white fir forest type are now identified as in the grand fir forest type. In addition, volume, growth, and mortality previously attributed to white fir trees are now part of the statistics for grand fir.

The final change of the major techniques incorporated in the inventories done by PNW was the use of volume equations that better describe tree growth patterns in eastern Oregon. The primary change was elimination of tree-volume equations dependent on form class, and reliance on equations that depended on total height and diameter at breast height. For some species, only form-class equations were available for estimating board-foot volume. In those cases, form class was derived from estimated cubic-foot volume, total tree height, and diameter at breast height.

Class of timber—A characterization of trees as growing stock, cull, and salvable dead. Growing stock trees are subdivided into poletimber trees and sawtimber trees.

Codominant trees—Live trees with crowns forming the general level of the crown canopy and receiving full light from above but comparatively little from the sides; usually with medium-size crowns more or less crowded on the sides.

Commercial species—A tree species suitable for industrial wood products.

Cull trees—Live trees of noncommercial species or live trees of commercial species that are more than 75 percent defective and unlikely to become growing stock.

Cull trees, rotten—Live trees with excessive defect primarily caused by rot.

Cull trees, sound—Live trees of non-commercial species, or live trees of commercial species with excessive defect caused by poor form, roughness, etc.

Diameter class—A classification of tree size based on diameter outside bark measured at breast height, 4½ feet above the ground. D.b.h. is the common abbreviation for "diameter at breast height."

Dominant trees—Live trees with crowns extending above the general level of the crown canopy and receiving full light from above and partly from the side; larger than average trees in the stand and with crowns that are dense, comparatively wide and long, but somewhat crowded on the sides.

Forest-industry lands—Lands owned by companies or individuals operating wood-using plants.

Forest land—Land at least 10 percent stocked by live trees or land formerly having such tree cover and not currently developed for nonforest use.

Forest types—Stands with 50-percent or more stocking in live conifer trees are classed as softwood types. Stands with a majority of stocking in live hardwood trees are classed as hardwood types. Within these two groups, individual forest types are determined by plurality of stocking by species of live softwood or hardwood trees.

Growing stock trees—All live trees, except cull trees.

Growing stock volume—Net volume in cubic feet of live sawtimber and poletimber growing stock trees measured from stump to a minimum 4-inch top of central stem, outside bark. Net volume equals gross volume less deduction for rot and missing bole sections.

Hardwoods—Angiosperms, particularly dicotyledons.

Industrial wood—All commercial roundwood products except fenceposts and fuelwood.

International ¼-inch rule—The standard board-foot log rule adopted nationally by the USDA Forest Service for the presentation of inventory volume statistics.

Land area—Area reported as land by the Bureau of the Census and adjusted for water area reported by the State Water Resources Board. 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 ½ mile wide; and lakes, reservoirs, and ponds of less than 40 acres.

Land class—A classification of land by major use. The minimum classification area is 1 acre.

Mean annual increment—A measure of productivity expressed as the average increase in cubic-foot volume per acre per year. For a given species and site index, the average is based on the number of years needed for the mean annual increment to culminate in stands fully stocked by applicable yield table definition.

Mortality—Volume of sound wood in trees that died from natural causes.

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 USDA Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Net annual growth—The net increase in volume of trees during a specified year. Components of net annual growth of trees: (a) the increment in net volume of trees alive at the beginning of the specified year and surviving to the year's end, plus (b) the net volume of trees reaching sawtimber or poletimber size during the year, minus (c) the net volume of trees that died during the year.

Noncommercial species—A tree species not suitable for industrial wood products.

Nonforest land—Land that has never supported forests or was formerly forest and is currently developed for nonforest uses. Included are lands used for agricultural crops, improved pasture, residential areas, city parks, improved roads, operating railroads and their right-of-way clearings, powerline and pipeline clearings, streams over 30 feet wide, and 1- to 40-acre areas of water classified by the Bureau of the Census as land. If intermingled in forest areas, unimproved roads and other nonforest strips more than 120 feet wide, and clearings or other areas 1 acre or larger qualify as nonforest land.

Nonstocked areas—Timberland less than 10 percent stocked with growing stock conifer, red alder, and black cottonwood trees.

Other forest land—Forest land incapable of yielding crops of industrial wood because of adverse site conditions or stocked predominantly with noncommercial species.

Other forest land, reserved—Public land withdrawn from timber utilization through statute, ordinance, or administrative order, but which otherwise qualifies as other forest land.

Other forest land, unreserved—Other forest land not withdrawn from timber utilization.

Other private lands—All privately owned lands except those classed as forest-industry lands.

Other private lands, farmer—Lands owned by operators of farms.

Other private lands, miscellaneous—Privately owned lands other than those owned by the forest industry or farmers.

Other public lands—Lands administered by public agencies other than the Forest Service and the Bureau of Land Management.

Ownership class—A classification of land based on the public agency or category of private owner administering the land.

Poletimber stands—Stands stocked at least 10 percent with growing stock conifer, red alder, and black cottonwood trees; half or more of which is in poletimber trees and sawtimber trees, with poletimber stocking exceeding sawtimber stocking.

Poletimber trees—Live trees of commercial species at least 5.0 inches in diameter at breast height but smaller than sawtimber size, and of good form and vigor.

Roundwood—Logs, bolts, or other round sections cut from trees.

Salvable dead trees—Standing or down trees of commercial species, at least 9.0 inches in d.b.h. for softwoods and at least 11.0 inches in d.b.h. for hardwoods, containing 25 percent or more sound wood and at least one merchantable 12-foot log, if softwood, or one merchantable 8-foot log, if hardwood.

Sapling and seedling stands—Stands stocked at least 10 percent with growing stock conifer, red alder, and black cottonwood trees; half or more of which is in sapling and seedling trees.

Sapling and seedling trees—Live trees of commercial species less than 5 inches in d.b.h. with no disease, defects, or deformities likely to prevent their becoming poletimber trees.

Saw log portion—The bole of sawtimber trees between the stump and the saw log top.

Sawtimber stands—Stands stocked at least 10 percent with conifer, red alder, and black cottonwood trees; half or more of which is in sawtimber and poletimber trees, with sawtimber stocking equal to or greater than poletimber stocking.

Sawtimber stands, large—Sawtimber stands where more than half the sawtimber stocking is in trees 21.0 inches or more in diameter at breast height.

Sawtimber stands, small—Sawtimber stands where half or more of the sawtimber stocking is in trees less than 21.0 inches in diameter at breast height.

Sawtimber trees—Live softwood trees of commercial species at least 9.0 inches in d.b.h. and hardwood trees of commercial species at least 11.0 inches in d.b.h. At least 25 percent of the board-foot volume in a sawtimber tree is free from defect. Softwood sawtimber trees contain at least one 12-foot saw log with a top diameter at least 6 inches inside the bark; hardwood sawtimber trees contain at least one 8-foot saw log with a top diameter at least 8 inches inside the bark.

Sawtimber volume—Net volume of sawtimber trees measured in board feet. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Scribner rule—The common board-foot log rule used locally in determining volume of sawtimber. Scribner volume is estimated in terms of 16-foot logs.

Site class—A classification of the potential productivity of forest land in terms of mean annual increment.

Site index—A measure of the productivity of forest land in terms of the average height of dominant and codominant trees at a specified age.

Softwoods—Gymnosperms, particularly conifers.

Standard error of the estimate—A statistical measure of the variability in the estimated total. In this report the probability that the true value of the sample estimate lies in the interval between the estimated value plus or minus the standard error of the estimate is 0.682.

Stand-size class—A classification of forest land based on the predominant size of timber present.

Stocking—Stand density expressed as percentage of the density of trees desired to meet a management goal.

Timber harvest—Volume of roundwood removed from forest land for products.

Timberland—Forest land capable of producing 20 cubic feet per acre per year of industrial wood.

Timberland, deferred—National Forest timberland temporarily withdrawn from timber utilization and under study for possible inclusion in the wilderness system.

Timberland, reserved—Public land withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as timberland.

Timberland, unreserved—Timberland not withdrawn from timber utilization.

Timber volume—Includes the net volume, in cubic feet, of live growing stock pole timber and sawtimber trees and salvable dead sawtimber trees of all species, plus the net volume, in cubic feet, of cull trees of commercial species (gross volume of noncommercial species). Volume is measured from stump to a minimum 4-inch top outside bark.

True firs—A general term for trees in the species *Abies*.

Unclassified forest type—Forest land for which information needed to determine forest type is not available.

Unclassified stand-size class—Forest land for which information needed to determine stand-size is not available.

Upper stem portion—The bole of sawtimber trees above the saw log top, of 7.0 inches outside bark for softwoods and 9.0 inches outside bark for hardwoods, to a minimum top diameter of 4.0 inches outside bark, or the point where the central stem breaks into limbs.

Of the five sources of the statistics contained in this report almost 60 percent of the information on forest area and more than three-fourths of the information on unreserved timberland volume comes from the updated National Forest System inventories. Each of the National Forest inventories was conducted according to instructions in the directives system of the Forest Service. These instructions describe minimum levels of accuracy for area and volume in terms of allowable sampling error, at the 68-percent confidence limit, as a percentage of a specified area or volume. These levels are:

- for unreserved timberland, the maximum allowable error is 3 percent per 1 million acres;
- for other forest land, the maximum allowable error is 10 percent per 1 million acres;
- for growing stock on unreserved timberland, the error is to be as close as practicable to 10 percent per 1 billion cubic feet; and,
- for net annual growth of growing stock on unreserved timberland, the error is to be as close as practicable to 10 percent per 1 billion cubic feet.

Procedures used for updating inventory statistics from the year of inventory to a common date introduce unquantifiable technique error into the results. The error of the results may, in fact, exceed the standards described above. Nevertheless these probable errors are not expected to be large enough to negate the utility of the updated statistics for regional analyses. There is danger in disaggregating updated statistics below the regional level because the reliability of such break-downs would be unknown. Therefore, in this report, no attempt has been made to disaggregate in detail the information of the National Forest System at the National Forest, county, or other sublevel of eastern Oregon.

The inventories of the Bureau of Land Management are conducted with the same standards for accuracy as described for the Forest Service. Since the inventories were used without updating, additional error was not introduced in the estimates.

The accuracy of information derived from PNW inventories can be quantified. Shown below are standard errors of the estimated totals (at the 68-percent confidence level) in the measurement units and as percents of estimated totals. In addition, equation coefficients are supplied to allow the reader to approximate the percent error of a proportional part of the estimated total.

The equation form is:⁵

$$\text{Percent error of the proportional part} = e^{a + b \text{ LN (proportion)}}$$

where e is the base of the natural logarithm system

LN (proportion) is the natural logarithm of the proportional part

a and b are equation coefficients listed below:

Ownership class	Estimated total	Standard error of estimate		"a"	"b"
	(Thousand acres)	(Thousand acres)	(Percent)		
Unreserved timberland:					
Other public	388	± 18.9	± 4.9	2.075	-0.611
Forest industry	1,567	± 40.0	± 2.6	1.733	-0.530
Other private:	907	± 70.6	± 7.8	2.266	0.480
Farmer owned	625	± 56.2	± 9.0	2.331	-0.572
Miscellaneous	282	± 42.7	± 15.1	2.723	-0.574
	(Million cubic feet)	(Million cubic feet)	(Percent)		
Net growing stock volume:					
Other public	1,148	± 133	± 11.6	2.736	-0.302
Forest industry	2,253	± 131	± 5.8	1.975	-0.390
Other private	1,018	± 94	± 9.2	2.460	-0.324
	(Thousand cubic feet)	(Thousand cubic feet)	(Percent)		
Net growing stock growth:					
Other public	17,356	± 3,556	± 20.5	3.287	-0.251
Forest industry	53,675	± 3,726	± 6.9	2.243	-0.394
Other private	30,408	± 4,275	± 14.1	2.023	-0.271

⁵ Example: to estimate the percent error of the area of unreserved timberland in the small sawtimber stand-size class owned by forest industry, first obtain the proportion of that cell to the total unreserved timberland owned by forest industry; i.e., 1,009,000 acres/1,567,000 acres = 0.644. Using the forest industry "a" and "b" coefficients —

$e^{1.733 - 0.530 \text{ LN}(.644)} = \pm 7.1$ percent estimated error of the 1,009,000 acres.

Names of Trees

Literature Cited

Scientific name	Common name
Softwoods	
<i>Abies amabilis</i> Dougl. ex Forbes	Pacific silver fir
<i>Abies concolor</i> (Gord. & Glend.) Lindl. ex Hildebr.	white fir
<i>Abies grandis</i> (Dougl. ex D. Don) Lindl.	grand fir
<i>Abies lasiocarpa</i> (Hook.) Nutt	subalpine fir
<i>Abies procera</i> Rehd.	noble fir
<i>Larix occidentalis</i> Nutt.	western larch
<i>Libocedrus decurrens</i> Torr.	incense-cedar
<i>Picea engelmannii</i> Parry ex Engelm.	Engelmann spruce
<i>Pinus contorta</i> Dougl. ex Loud.	lodgepole pine
<i>Pinus lambertiana</i> Dougl.	sugar pine
<i>Pinus monticola</i> Dougl. ex D. Don	western white pine
<i>Pinus ponderosa</i> Dougl. ex Laws.	ponderosa pine
<i>Pseudotsuga menziesii</i> (Mirb.) Franco	Douglas-fir
<i>Thuja plicata</i> Donn ex D. Don	western redcedar
<i>Tsuga heterophylla</i> (Raf.) Sarg.	western hemlock
<i>Tsuga mertensiana</i> (Bong.) Carr	mountain hemlock
Hardwoods	
<i>Alnus rhombifolia</i> Nutt.	white alder
<i>Alnus rubra</i> Bong.	red alder
<i>Populus tremuloides</i> Michx.	quaking aspen
<i>Quercus garryana</i> Dougl. ex Hook	Oregon white oak
<i>Salix</i> spp.	willow

Berger, John M. Timber resource statistics for central Oregon. Resour. Bull. PNW-24. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1968. 38 p.

Bolsinger, Charles L.; Berger, John M. The timber resources of the Blue Mountain Area, Oregon. Resour. Bull. PNW-57. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1975. 62 p.

Cochran, William G. Sampling techniques. 2d ed. New York: John Wiley & Sons; 1963. 413 p.

Daniels, Jess Donald. Variation and intergradation in the grand fir-white fir complex. Moscow: University of Idaho; 1969. [Ann Arbor, MI; University Microfilms Inc.]. 235 p. Ph. D. thesis.

Little, Elbert L., Jr. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, 1979. 375 p.

MacLean, Colin D. Relative density: the key to stocking assessment in a regional analysis—a Forest Survey viewpoint. Gen. Tech. Rep. PNW-78. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1979. 5 p.

MacLean, Colin D.; Bolsinger, Charles L. Estimating productivity on sites with a low stocking capacity. Res. Pap. PNW-152. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1973. 18 p.

Müller, K. M. *Abies grandis* und ihre klimarassen (*Abies grandis* and its climatic races). Translated from a separate reprint from Mitteilungen der Deutscher Dendrologischer Gesellschaft. Washington, DC: U.S. Department of Agriculture, Forest Service Division of Forest Management Research; 1938.

Metric Equivalents

1,000 acres = 404.7 hectares
 1,000 cubic feet = 28.3 cubic meters
 1 cubic foot per acre = 0.07 cubic meters per hectare
 1 foot = 30.48 centimeters
 1 inch = 2.54 centimeters
 1 mile = 1 609.3 meters

Tables

Estimates in this report are developed from statistically based samples and therefore are subject to sampling error. Information concerning approximate confidence intervals for estimates of various sizes is presented under section heading "Accuracy of Statistics", page 5.

Table 1—Area by county and land class, eastern Oregon, January 1, 1978^{1/}

FOREST LAND							
TIMBERLAND							
COUNTY ^{2/}	UNRESERVED	DEFERRED	RESERVED	OTHER FOREST	TOTAL FOREST	NONFOREST LAND	ALL LANDS ^{3/}
THOUSAND ACRES							
BAKER	117	--	---	77	194	1,123	1,318
CROOK	94	--	--	486	580	890	1,469
DESCHUTES	117	--	2	286	405	526	931
GILLIAM	1	--	--	1	2	767	769
GRANT	238	--	--	313	551	785	1,336
HARNEY	21	--	<u>4/</u>	242	264	5,645	5,909
JEFFERSON	213	--	<u>4/</u>	169	382	495	877
KLAMATH	916	--	<u>140</u>	254	1,310	795	2,106
LAKE	297	--	1	274	572	3,605	4,177
MALHEUR	8	--	--	94	102	6,218	6,320
MORROW	65	--	--	16	81	1,093	1,174
SHERMAN	--	--	--	--	--	530	530
UMATILLA	146	--	4	60	210	1,448	1,658
UNION	202	--	1	52	255	429	684
WALLOWA	269	--	1	13	283	612	895
WASCO	232	--	<u>4/</u>	166	398	960	1,358
WHEELER	144	--	<u>4/</u>	209	354	572	926
NATIONAL FORESTS	7,046	175	267	934	8,422	1,372	9,794
TOTAL	10,126	175	416	3,647	14,363	27,865	42,231

^{1/}Totals may be off because of rounding.

^{2/}Estimates of land class area by county are not available for lands in the National Forest System. Table 1A contains estimates of land class area for individual National Forests in Eastern Oregon.

^{3/}Sources: Gross area from Area measurement reports, Areas of Oregon: 1960, GE-20, No. 39, July 1964, U. S. Dept. of Commerce, Bureau of the Census, Washington, D. C. Water area from Surface area of lakes and reservoirs, Oregon, 1973, State Water Resources Board, Salem, OR.

^{4/}Less than 500 acres.

Table 1A—Area by National Forest and land class, eastern Oregon, January 1, 1978^{1/}

NATIONAL FOREST	FOREST LAND							NONFOREST LAND	ALL LANDS
	TIMBERLAND				OTHER FOREST	TOTAL FOREST			
	UNRESERVED	DEFERRED	RESERVED						
THOUSAND ACRES									
DESCHUTES	1,262	25	128	108	1,523	78	1,601		
FREMONT	772	2/	18	200	990	205	1,195		
MALHEUR	1,171	11	22	176	1,380	78	1,458		
MOUNT HOOD	121	--	1	15	137	33	170		
WASCO	673	--	2	58	733	214	947		
ROGUE RIVER	20	39	5	8	72	--	72		
UMATILLA	794	--	--	70	864	216	1,080		
WALLOWA-WHITMAN	1,395	59	72	206	1,732	515	2,247		
WINEMA	838	41	19	93	991	33	1,024		
TOTAL	7,046	175	267	934	8,422	1,372	9,794		

^{1/}Totals may be off because of rounding.

^{2/}Less than 500 acres.

Table 2—Area of unreserved timberland by county and ownership class, eastern Oregon, January 1, 1978^{1/}

COUNTY ^{2/}	PUBLIC				PRIVATE				ALL OWNERSHIPS
	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER	TOTAL	FOREST INDUSTRY	FARMER OWNED	MISCELLANEOUS	TOTAL	
	THOUSAND ACRES								
WASCO	--	21	6	27	14	52	24	90	117
DEKUN	--	9	1	10	56	18	10	84	94
DESCHUTES	--	21	1	22	57	23	16	95	117
WILLIAM	--	--	--	--	--	1	--	1	1
GRANT	--	35	6	41	97	73	28	198	238
WARNEY	--	15	1	16	3	2	--	5	21
JEFFERSON	--	1	129	130	55	15	12	82	213
CLATSOP	--	80	34	114	651	70	80	801	916
CLATSOP	--	9	1	10	229	26	30	286	297
MALHEUR	--	5	3/	5	3/	3	--	3	8
DEKUN	--	1	--	1	32	23	9	64	65
HERMAN	--	--	--	--	--	--	--	--	--
UMATILLA	--	4	18	22	49	74	--	123	146
WASCO	--	4	4	8	94	91	9	194	202
WALLOWA	--	3	6	9	127	100	33	260	269
WASCO	--	2	181	183	16	22	12	50	232
WHEELER	--	7	3/	7	85	32	20	137	144
NATIONAL FORESTS	7,046	--	--	7,046	--	--	--	--	7,046
TOTAL	7,046	218	388	7,652	1,567	625	282	2,474	10,126

^{1/}Totals may be off because of rounding.

^{2/}Estimates of unreserved timberland area by county are not available for lands in the National Forest System. Table 1A contains estimates of unreserved timberland area for individual National Forests in Eastern Oregon.

^{3/}Less than 500 acres.

Table 3—Area of unreserved timberland by cubic-foot site and ownership classes, eastern Oregon, January 1978^{1/}

SITE CLASS	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>CUBIC FEET</u>				<u>THOUSAND ACRES</u>		
225 OR MORE	2/	1	--	--	--	1
165 TO 224	55	9	5	--	--	69
120 TO 164	172	12	2	94	22	302
85 TO 119	1,527	20	47	129	49	1,771
50 TO 84	4,078	59	101	402	279	4,918
20 TO 49	1,215	118	232	943	557	3,065
ALL CLASSES	7,046	218	388	1,567	906	10,126

^{1/}Totals may be off because of rounding.

^{2/}Not available as a separate estimate. Acreage in this class is included in the 165 to 224 cubic-foot site class.

Table 4—Area of unreserved timberland by stand-size and ownership classes, eastern Oregon, January 1978^{1/}

STAND-SIZE CLASS	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
				<u>THOUSAND ACRES</u>		
SAWTIMBER STANDS:						
LARGE SAWTIMBER	2/	30	54	65	14	164
SMALL SAWTIMBER	4,691	114	249	1,009	526	6,589
TOTAL	4,691	144	303	1,075	540	6,753
POLETIMBER STANDS	1,587	27	66	314	244	2,238
SAPLING AND SEEDLING STANDS	610	18	19	111	80	838
NONSTOCKED AREAS	158	29	--	67	42	297
ALL CLASSES	7,046	218	388	1,567	906	10,126

^{1/}Totals may be off because of rounding.

^{2/}Not available as a separate estimate. Both large and small sawtimber are included in the small sawtimber stand-size class.

Table 5—Area of unreserved timberland by forest type and ownership class, eastern Oregon, January 1978^{1/}

FOREST TYPE	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
MONTEREY PINE	3,079	89	157	663	328	4,316
EDGEPOLE PINE	1,337	39	48	233	129	1,786
WHITE FIR	1,052	8	--	234	55	1,349
DOUGLAS-FIR	670	38	123	183	246	1,260
GRAND FIR	240	4	29	161	95	529
MOUNTAIN HEMLOCK	127	--	20	--	--	146
SUBALPINE FIR	139	--	--	6	--	145
ENGELMANN SPRUCE	85	1	7	3	--	95
EASTERN LARCH	74	--	4	11	4	92
PACIFIC CEDAR	33	--	--	7	--	40
EASTERN WHITE PINE	23	1	--	--	--	24
WESTERN RED FIR	8	8	--	--	--	16
UGAR PINE	9	--	--	--	--	9
WHITEBARK PINE	5	--	--	--	--	5
DOBLE FIR	--	1	--	--	--	1
SPEN	--	--	--	--	7	7
OTHER HARDWOODS	7	--	--	--	--	7
UNSTOCKED	158	29	--	67	42	297
ALL TYPES	7,046	218	388	1,567	906	10,126

^{1/}Totals may be off because of rounding.

Table 6—Area of reserved timberland and other forest land by land class and forest type and by ownership class, eastern Oregon, January 1978 ^{1/2/}

(THOUSAND ACRES)

LAND CLASS AND FOREST TYPE	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
RESERVED						
TIMBERLAND:						
FIR-SPRUCE ^{3/}	206	--	--	--	--	206
PONDEROSA PINE	126	1	52	--	--	179
LODGEPOLE PINE	74	--	75	--	--	149
DOUGLAS-FIR	37	--	2	--	--	39
TRUE FIRS	--	--	18	--	--	18
WESTERN LARCH	--	--	<u>4/</u>	--	--	<u>4/</u>
HARDWOODS	--	--	<u>4/</u>	--	--	<u>4/</u>
TOTAL	<u>5/442</u>	1	148	--	--	592
OTHER FOREST:						
PONDEROSA PINE	56	--	--	--	--	56
DOUGLAS-FIR	50	--	--	--	--	50
FIR-SPRUCE ^{3/}	33	--	--	--	--	33
JUNIPER	--	6	5	--	--	11
LODGEPOLE PINE	8	--	--	--	--	8
OAK	--	--	<u>4/</u>	--	--	<u>4/</u>
UNCLASSIFIED	--	--	<u>3</u>	--	--	<u>3</u>
TOTAL	147	6	8	--	--	161
ALL RESERVED	589	7	156	--	--	752
UNRESERVED						
OTHER FOREST:						
JUNIPER	294	679	72	39	1,004	2,088
PONDEROSA PINE	176	4	18	32	93	323
TRUE-FIRS	--	--	9	100	142	251
FIR-SPRUCE ^{3/}	188	--	--	--	--	188
DOUGLAS-FIR	47	1	14	--	11	73
LODGEPOLE PINE	43	2	--	--	--	45
WESTERN LARCH	7	--	--	--	--	7
INCENSE-CEDAR	--	--	5	--	--	5
MOUNTAIN HEMLOCK	--	--	5	--	--	5
OTHER CONIFERS	--	1	--	--	--	1
OAK	--	--	12	8	88	109
WILLOW	--	--	--	--	33	33
OTHER HARDWOODS	6	1	--	--	--	7
UNCLASSIFIED	27	12	6	--	15	60
NONSTOCKED	--	279	--	6	9	294
ALL UNRESERVED	787	978	141	184	1,395	3,486

^{1/}Totals may be off because of rounding.

^{2/}Area of unreserved timberland by forest type and ownership class is presented in table 5.

^{3/}Separate area for true fir and Engelmann spruce forest types not available for National Forests.

^{4/}Less than 500 acres

^{5/}Includes 174,700 acres in deferred category not separable by forest type.

Table 7—Volume of timber on unreserved timberland by class of timber and by softwoods and hardwoods, eastern Oregon, January 1, 1978^{1/}

CLASS OF TIMBER	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>MILLION CUBIC FEET</u>			
SAWTIMBER TREES:			
SAW LOG PORTION	16,546	11	16,557
UPPER STEM PORTION	745	3	748
TOTAL	17,291	14	17,305
POLETIMBER TREES	3,696	18	3,714
ALL GROWING STOCK	20,987	32	21,019
SOUND CULL TREES	182	12	194
ROTTEN CULL TREES	390	2	392
SALVABLE DEAD TREES	303	2/	303
ALL TIMBER	21,862	46	21,908

^{1/}Totals may be off because of rounding.

^{2/}Less than 500,000 cubic feet.

Table 8—Volume of growing stock and sawtimber on unreserved timberland by ownership class and by softwoods and hardwoods, eastern Oregon, January 1, 1978^{1/}

OWNERSHIP CLASS	AVERAGE VOLUMES	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>CUBIC FEET PER ACRE</u>	<u>MILLION CUBIC FEET</u>		
GROWING STOCK: ^{2/}				
NATIONAL FOREST	2,305	16,234	9	16,243
BUREAU OF LAND MANAGEMENT	1,633	356	1	356
OTHER PUBLIC	2,959	1,143	5	1,148
FOREST INDUSTRY	1,437	2,245	8	2,253
OTHER PRIVATE	1,122	1,008	10	1,018
TOTAL	2,076	20,987	32	21,019
	<u>BOARD FEET PER ACRE</u>	<u>MILLION BOARD FEET</u>		
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): ^{3/}				
NATIONAL FOREST	11,120	78,324	25	78,349
BUREAU OF LAND MANAGEMENT	9,000	1,960	2	1,962
OTHER PUBLIC	15,028	5,825	6	5,831
FOREST INDUSTRY	6,551	10,227	39	10,266
OTHER PRIVATE	4,363	3,941	12	3,953
TOTAL	9,911	100,277	84	100,361
	<u>BOARD FEET PER ACRE</u>	<u>MILLION BOARD FEET</u>		
SAWTIMBER (SCRIBNER RULE): ^{4/}				
NATIONAL FOREST	9,099	64,090	25	64,115
BUREAU OF LAND MANAGEMENT	7,509	1,635	2	1,637
OTHER PUBLIC	11,201	4,342	5	4,346
FOREST INDUSTRY	4,791	7,475	33	7,507
OTHER PRIVATE	2,966	2,676	10	2,687
TOTAL	7,929	80,218	74	80,292

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 5.0-inch d.b.h. and larger.

^{3/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

^{4/}Includes trees 11.0-inch d.b.h. and larger.

Table 9—Volume of growing stock and sawtimber on unreserved timberland by county and ownership class, eastern Oregon, January 1, 1978^{1/}

COUNTY ^{2/}	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION CUBIC FEET</u>						
GROWING STOCK: ^{3/}						
BAKER	--	21	13	18	84	136
CROOK	--	8	5/	69	23	100
DESCHUTES	--	21	2	60	29	112
CILLIAM	--	--	--	--	5/	5/
CRANT	--	32	6	107	120	265
HARNEY	--	13	1	3	2	19
JEFFERSON	--	1	388	61	21	471
KLAMATH	--	227	59	863	200	1,349
LAKE	--	5	2	418	69	494
MALHEUR	--	5	5/	5/	3	8
MORROW	--	5/	--	56	38	94
SHERMAN	--	--	--	--	--	--
UMATILLA	--	5	41	85	95	226
UNION	--	5	7	187	135	334
WALLOWA	--	4	7	200	128	339
WASCO	--	2	622	18	25	667
WHEELER	--	7	5/	108	48	163
NATIONAL FORESTS	16,243	--	--	--	--	16,243
TOTAL	16,243	356	1,148	2,253	1,018	21,019
<u>MILLION BOARD FEET</u>						
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): ^{4/}						
BAKER	--	105	53	70	261	489
CROOK	--	45	6/	280	90	415
DESCHUTES	--	83	11	240	108	442
CILLIAM	--	--	--	--	1	1
CRANT	--	159	27	429	481	1,096
HARNEY	--	62	3	14	9	88
JEFFERSON	--	7	1,995	244	83	2,329
KLAMATH	--	1,325	277	4,117	761	6,480
LAKE	--	25	8	2,218	263	2,514
MALHEUR	--	26	1	1	19	47
MORROW	--	2	--	262	156	420
SHERMAN	--	--	--	--	--	--
UMATILLA	--	25	197	366	461	1,049
UNION	--	25	31	700	503	1,259
WALLOWA	--	21	32	806	458	1,317
WASCO	--	12	3,195	72	102	3,381
WHEELER	--	40	6/	446	196	682
NATIONAL FORESTS	78,349	--	--	--	--	78,349
TOTAL	78,349	1,962	5,831	10,266	3,953	100,361
<u>MILLION BOARD FEET</u>						
SAWTIMBER (SCRIBNER RULE): ^{7/}						
BAKER	--	86	38	50	171	345
CROOK	--	39	--	197	61	297
DESCHUTES	--	47	8	167	70	292
CILLIAM	--	--	--	--	1	1
CRANT	--	130	20	305	344	799
HARNEY	--	51	2	10	7	70
JEFFERSON	--	6	1,491	173	56	1,726
KLAMATH	--	1,131	202	3,023	516	4,872
LAKE	--	21	6	1,722	179	1,928
MALHEUR	--	21	1	1	15	38
MORROW	--	2	--	195	111	308
SHERMAN	--	--	--	--	--	--
UMATILLA	--	21	149	259	344	773
UNION	--	20	23	466	318	827
WALLOWA	--	18	22	570	290	900
WASCO	--	10	2,385	50	71	2,516
WHEELER	--	33	--	318	132	483
NATIONAL FORESTS	64,115	--	--	--	--	64,115
TOTAL	64,115	1,637	4,346	7,507	2,687	80,292

^{1/}Totals may be off because of rounding.

^{2/}Estimates of volume by county are not available for lands in the National Forest System. Table 9A contains estimates of volume for individual National Forests in eastern Oregon.

^{3/}Includes trees 5.0-inch d.b.h. and larger.

^{4/}Includes softwoods trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

^{5/}Less than 500,000 cubic board feet.

^{6/}Less than 500,000 board feet.

^{7/}Includes trees 11.0-inch d.b.h. and larger.

Table 9A—Volume of growing stock and sawtimber on unreserved timberland by National Forest, eastern Oregon, January 1, 1978^{1/}

NATIONAL FOREST	VOLUME
	<u>MILLION CUBIC FEET</u>
GROWING STOCK: ^{2/}	
DESCHUTES	3,174
FREMONT	1,479
MALHEUR	2,620
MT HOOD	593
OCHOCO	1,305
ROGUE RIVER	49
UMATILLA	2,439
WALLOWA-WHITMAN	3,013
WINEMA	<u>1,571</u>
TOTAL	16,243
	<u>MILLION BOARD FEET</u>
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): ^{3/}	
DESCHUTES	11,993
FREMONT	7,472
MALHEUR	13,731
MT HOOD	3,428
OCHOCO	7,300
ROGUE RIVER	275
UMATILLA	11,977
WALLOWA-WHITMAN	14,212
WINEMA	<u>7,960</u>
TOTAL	78,349
	<u>MILLION BOARD FEET</u>
SAWTIMBER (SCRIBNER RULE): ^{4/}	
DESCHUTES	9,814
FREMONT	6,115
MALHEUR	11,237
MT HOOD	2,805
OCHOCO	5,974
ROGUE RIVER	225
UMATILLA	9,801
WALLOWA-WHITMAN	11,630
WINEMA	<u>6,514</u>
TOTAL	64,115

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 5.0-inch d.b.h. and larger.

^{3/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

^{4/}Includes trees 11.0-inch d.b.h. and larger.

Table 10—Volume of growing stock on unreserved timberland by species and ownership class, eastern Oregon, 1978^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION CUBIC FEET</u>						
SOFTWOODS:						
PONDEROSA PINE	5,997	99	273	805	406	7,579
LOGEPOLE PINE	3,051	48	148	352	132	3,730
TRUE FIR ^{2/}	3,331	59	--	--	--	3,390
DOUGLAS-FIR	2,068	60	320	358	273	3,079
WESTERN LARCH	737	2	20	65	40	864
MOUNTAIN HEMLOCK	469	--	82	--	1	552
ENGELMANN SPRUCE	435	1	81	16	5	537
WHITE FIR	--	48	11	368	59	485
GRAND FIR	--	16	108	216	89	428
WESTERN WHITE PINE	79	9	2	2	--	92
INCENSE-CEDAR	31	3	8	43	3	88
SUGAR PINE	34	8	1	14	--	57
PACIFIC SILVER FIR	--	--	39	--	--	39
SUBALPINE FIR	--	<u>3/</u>	11	6	2	20
NOBLE FIR	--	<u>3/</u>	12	--	--	15
OTHER SOFTWOODS	<u>3/</u>	<u>3/</u>	10	2	--	12
WESTERN REDCEDAR	<u>2</u>	--	10	--	--	12
WESTERN HEMLOCK	--	--	8	--	--	8
TOTAL	16,234	356	1,144	2,245	1,008	20,987
HARDWOODS:						
QUAKING ASPEN	6	1	--	6	6	19
OREGON WHITE OAK	3	--	3	2	2	10
RED ALDER	<u>3/</u>	--	2	--	--	2
OTHER HARDWOODS	<u>3/</u>	--	--	--	2	2
TOTAL	9	1	5	8	10	32
ALL SPECIES	16,243	356	1,148	2,253	1,018	21,019

^{1/}Totals may be off because of rounding.

^{2/}Estimates for true firs were not separable by individual species for National Forests and portions of Bureau of Land Management forests.

^{3/}Less than 500,000 cubic feet.

Table 11—Volume of sawtimber, International 1/4-inch rule, on unreserved timberland by species and ownership class, eastern Oregon, 1978^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION BOARD FEET</u>						
SOFTWOODS:						
PONDEROSA PINE	35,605	539	1,612	4,034	1,615	43,405
LOGEPOLE PINE	7,258	169	587	1,489	450	9,954
TRUE FIR ^{2/}	15,166	394	--	--	--	15,560
DOUGLAS-FIR	10,874	330	1,712	1,564	1,115	15,595
WESTERN LARCH	4,095	10	105	239	130	4,579
MOUNTAIN HEMLOCK	2,312	--	419	--	1	2,733
ENGELMANN SPRUCE	2,225	4	498	48	12	2,787
WHITE FIR	--	278	43	1,729	235	2,283
GRAND FIR	--	89	470	807	369	1,734
WESTERN WHITE PINE	431	59	14	10	--	513
INCENSE-CEDAR	157	18	35	220	7	437
SUGAR PINE	190	49	6	64	--	308
PACIFIC SILVER FIR	--	--	152	--	--	152
SUBALPINE FIR	--	1	49	19	6	75
NOBLE FIR	--	20	54	--	--	74
OTHER SOFTWOODS	1	^{3/}	14	6	--	21
WESTERN REDCEDAR	11	--	45	--	--	56
WESTERN HEMLOCK	--	--	13	--	--	13
TOTAL	78,324	1,960	5,825	10,227	3,941	100,277
HARDWOODS:						
QUAKING ASPEN	13	2	--	32	7	55
OREGON WHITE OAK	10	--	--	7	3	19
RED ALDER	1	--	6	--	--	6
OTHER HARDWOODS	--	--	--	--	3	3
TOTAL	25	2	6	39	12	84
ALL SPECIES	78,349	1,962	5,831	10,266	3,953	100,361

^{1/}Totals may be off because of rounding.

^{2/}Estimates for true firs were not separable by individual species for National Forests and portions of Bureau of Land Management forests.

^{3/}Less than 500,000 board feet.

Table 12—Volume of sawtimber, Scribner rule, on unreserved timberland by species and ownership class, eastern Oregon, 1978^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SOFTWOODS:						
PONDEROSA PINE	32,528	464	1,276	3,069	1,113	38,450
DOUGLAS-FIR	8,790	274	1,320	1,152	745	12,281
TRUE FIRS 2/	11,592	359	--	--	--	11,951
LOGEPOLE PINE	3,673	85	344	948	298	5,348
WESTERN LARCH	3,231	8	79	130	72	3,521
ENGELMANN SPRUCE	1,782	3	404	38	7	2,234
MOUNTAIN HEMLOCK	1,862	--	317	--	--	2,179
WHITE FIR	--	230	34	1,306	164	1,734
GRAND FIR	--	74	333	584	274	1,266
WESTERN WHITE PINE	362	56	11	8	--	436
INCENSE-CEDAR	102	16	27	176	3	325
SUGAR PINE	160	46	4	50	--	260
PACIFIC SILVER FIR	--	--	73	--	--	73
SUBALPINE FIR	--	3/	43	12	--	55
NOBLE FIR	--	19	32	--	--	51
WESTERN REDCEDAR	8	--	34	--	--	42
OTHER SOFTWOODS	--	--	6	3	--	9
WESTERN HEMLOCK	--	--	5	--	--	5
TOTAL	64,090	1,635	4,342	7,475	2,676	80,218
HARDWOODS:						
QUAKING ASPEN	15	2	--	27	5	49
OREGON WHITE OAK	9	--	--	5	2	17
RED ALDER	1	--	5	--	--	6
OTHER HARDWOODS	--	--	--	--	3	3
TOTAL	25	2	5	33	10	74
ALL SPECIES	64,115	1,637	4,346	7,507	2,687	80,292

^{1/}Totals may be off because of rounding.

^{2/}Estimates for true firs were not separable by individual species for National Forests and portions of Bureau of Land Management forests.

^{3/}Less than 500,000 board feet.

Table 13—Volume of growing stock on unreserved timberland by species and diameter class, eastern Oregon, January 1, 1978^{1/}

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- 20.9	21.0- 28.9	29.0 AND LARGER	
	MILLION CUBIC FEET										
SOFTWOODS:											
PONDEROSA PINE	297	322	347	372	391	415	444	510	2,211	2,270	7,57
LOGPOLE PINE	1,013	740	709	561	316	195	100	51	43	2	3,73
TRUE FIRS 2/	242	291	322	313	295	283	269	233	678	463	3,35
DOUGLAS-FIR	155	219	258	299	267	256	233	201	633	558	3,07
WESTERN LARCH	47	63	83	88	87	82	78	71	177	88	86
MOUNTAIN HEMLOCK	22	33	41	51	55	62	58	48	127	55	55
ENGELMANN SPRUCE	31	28	42	52	48	54	59	42	126	55	55
WHITE FIR	26	33	46	29	45	36	31	29	95	116	48
GRAND FIR	45	40	41	51	47	34	27	28	62	53	42
WESTERN WHITE PINE	4	3	4	7	7	7	7	5	29	20	5
INCENSE-CEDAR	5	4	3	6	4	4	4	3	20	34	8
SUGAR PINE	1	2	3	3	2	1	5	5	12	24	5
PACIFIC SILVER FIR	3	5	14	7	4	2	3	1	--	--	5
SUBALPINE FIR	1	4	2	3	4	3	--	2	1	--	2
NOBLE FIR	1	1	4	--	--	1	1	2	4	3	1
OTHER SOFTWOODS	4	3	2	3/	3/	3/	2	3/	3/	3/	1
WESTERN REDCEDAR	3/	1	1	1	1	2	1	1	3	1	1
WESTERN HEMLOCK	2	3	1	1	--	--	--	--	--	--	1
TOTAL	1,901	1,795	1,921	1,844	1,574	1,436	1,321	1,230	4,220	3,744	20,96
HARDWOODS:											
QUAKING ASPEN	2	3	5	1	4	1	3/	--	3	3/	1
OREGON WHITE OAK	4	2	1	1	2	--	3/	3/	3/	3/	1
RED ALDER	--	3/	3/	1	3/	--	--	3/	--	--	--
OTHER HARDWOODS	3/	1	--	--	1	--	--	--	--	--	--
TOTAL	6	6	7	3	6	1	3/	3/	3	3/	3
ALL SPECIES	1,907	1,801	1,928	1,847	1,580	1,437	1,321	1,231	4,223	3,744	21,01

^{1/}Totals may be off because of rounding.

^{2/}Estimates for true firs were not separable by individual species for National Forests and portions of Bureau of Land Management forests.

^{3/}Less than 500,000 cubic feet.

Table 14—Volume of sawtimber, International 1/4-inch rule, on unreserved timberland by species and diameter class, eastern Oregon, January 1, 1978^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)								
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 AND LARGER	ALL CLASSES
	MILLION BOARD FEET								
SOFTWOODS:									
PONDEROSA PINE	1,410	1,643	1,899	2,181	2,508	3,060	14,464	16,241	43,405
LOGSPOLE PINE	3,152	2,873	1,667	1,088	581	305	272	16	9,954
TRUE FIRS 2/ ¹	1,406	1,449	1,509	1,540	1,513	1,331	4,022	2,790	15,560
DOUGLAS-FIR	1,074	1,384	1,387	1,412	1,350	1,205	4,004	3,777	15,595
WESTERN LARCH	386	450	502	507	508	467	1,176	583	4,579
MOUNTAIN HEMLOCK	173	231	278	324	323	272	766	366	2,733
ENGELMANN SPRUCE	166	235	258	309	358	261	829	370	2,787
WHITE FIR	157	124	218	183	171	161	555	714	2,283
GRAND FIR	161	224	232	176	141	150	357	293	1,734
WESTERN WHITE PINE	15	31	35	36	40	33	184	140	513
INCENSE-CEDAR	14	28	18	19	20	18	112	208	437
SUGAR PINE	7	8	7	3	24	30	70	158	308
PACIFIC SILVER FIR	59	33	21	12	20	7	--	--	152
SUBALPINE FIR	10	13	21	16	--	9	7	--	75
NOBLE FIR	15	--	--	5	5	11	17	19	74
OTHER SOFTWOODS	9	2	3/	3/	7	3/	2	3/	21
WESTERN REDCEDAR	4	4	5	11	6	7	15	4	56
WESTERN HEMLOCK	6	7	--	--	--	--	--	--	13
TOTAL	8,224	8,739	8,056	7,822	7,575	7,327	26,853	25,681	100,277
HARDWOODS:									
QUAKING ASPEN	3/	4	22	5	3/	--	22	1	55
OREGON WHITE OAK	--	6	11	--	1	1	1	1	19
RED ALDER	--	4	1	--	--	1	--	--	6
OTHER HARDWOODS	--	--	3	--	--	--	--	--	3
TOTAL	3/	14	38	5	1	2	23	1	84
ALL SPECIES	8,224	8,754	8,094	7,827	7,576	7,328	26,876	25,682	100,361

^{1/}Totals may be off because of rounding.

^{2/}Estimates for true firs were not separable by individual species for National Forests and portions of Bureau of Land Management forests.

^{3/}Less than 500,000 board feet.

Table 15—Volume of sawtimber, Scribner rule, on unreserved timberland by species and diameter class, eastern Oregon January 1, 1978^{1/}

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- 20.9	21.0- 28.9	29.0 AND LARGER	
	<u>MILLION BOARD FEET</u>							
SOFTWOODS:								
PONDEROSA PINE	1,165	1,501	1,822	2,180	2,695	13,264	15,823	38,450
DOUGLAS-FIR	1,034	1,125	1,182	1,155	1,035	3,386	3,364	12,281
TRUE FIRS ^{2/}	1,102	1,217	1,270	1,270	1,126	3,442	2,524	11,951
LODGEPOLE PINE	2,064	1,378	938	497	246	214	11	5,348
WESTERN LARCH	327	394	416	425	399	1,027	533	3,521
ENGLEMANN SPRUCE	181	208	257	306	225	723	334	2,234
MOUNTAIN HEMLOCK	176	235	285	285	238	660	299	2,179
WHITE FIR	89	171	149	144	137	439	604	1,734
GRAND FIR	162	183	146	121	127	282	244	1,266
WESTERN WHITE PINE	28	31	30	33	28	163	124	436
INCENSE-CEDAR	14	12	13	15	15	88	168	325
SUGAR PINE	5	6	3	22	27	61	136	260
PACIFIC SILVER FIR	23	17	10	17	6	--	--	73
SUBALPINE FIR	10	18	14	--	8	5	--	55
NOBLE FIR	--	--	4	5	10	13	19	51
WESTERN REDCEDAR	2	3	9	5	6	12	4	42
OTHER SOFTWOODS	2	--	--	6	--	1	--	9
WESTERN HEMLOCK	5	--	--	--	--	--	--	5
TOTAL	6,390	6,499	6,548	6,486	6,328	23,780	24,186	80,218
HARDWOODS:								
QUAKING ASPEN	4	19	5	^{3/}	--	20	1	49
OREGON WHITE OAK	5	8	--	1	1	1	1	17
RED ALDER	4	1	--	--	1	--	--	6
OTHER HARDWOODS	--	3	--	--	--	--	--	3
TOTAL	13	30	5	1	2	21	2	74
ALL SPECIES	6,403	6,529	6,553	6,487	6,330	23,801	24,188	80,292

^{1/}Totals may be off because of rounding.

^{2/}Estimates for true firs were not separable by individual species for National Forests and portions of Bureau of Land Management forests.

^{3/}Less than 500,000 board feet.

Table 16—Net annual growth of growing stock and sawtimber on unreserved timberland by ownership class and by softwoods and hardwoods, eastern Oregon, 1977^{1/}

OWNERSHIP CLASS	AVERAGE VOLUME	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>CUBIC FEET PER ACRE</u>	- - - - -	<u>THOUSAND CUBIC FEET</u>	- - - - -
GROWING STOCK:				
NATIONAL FOREST	33	231,600	100	231,700
BUREAU OF LAND MANAGEMENT	25	5,337	15	5,352
OTHER PUBLIC	44	17,081	276	17,357
FOREST INDUSTRY	34	53,660	15	53,675
OTHER PRIVATE	33	29,958	450	30,408
ALL OWNERSHIPS	33	337,636	855	338,491
	<u>BOARD FEET PER ACRE</u>	- - - - -	<u>THOUSAND BOARD FEET</u>	- - - - -
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE):				
NATIONAL FOREST	134	943,300	300	943,600
BUREAU OF LAND MANAGEMENT	136	29,550	70	29,620
OTHER PUBLIC	249	96,557	20	96,578
FOREST INDUSTRY	158	246,976	--	246,976
OTHER PRIVATE	132	119,489	273	119,762
ALL OWNERSHIPS	142	1,435,872	664	1,436,535

^{1/}Totals may be off because of rounding.

Table 17—Net annual growth of growing stock on unreserved timberland by species and ownership class, eastern Oregon 1977^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND CUBIC FEET</u>						
SOFTWOODS:						
PONDEROSA PINE	65,200	1,309	2,930	15,358	12,626	97,423
LODGEPOLE PINE	56,200	806	2,112	6,451	409	65,978
TRUE FIRS ^{2/}	64,700	--	--	--	--	64,700
DOUGLAS-FIR	32,000	1,173	6,699	12,657	10,245	62,773
WHITE FIR	--	1,197	3/-14	9,228	1,676	12,086
GRAND FIR	--	363	2,463	6,428	2,194	11,448
ENGELMANN SPRUCE	7,200	13	201	1,433	562	9,409
MOUNTAIN HEMLOCK	4,400	--	878	--	--	5,278
WESTERN LARCH	100	20	414	776	2,151	3,461
SUGAR PINE	400	371	47	640	--	1,458
INCENSE-CEDAR	250	40	94	570	55	1,009
WESTERN WHITE PINE	900	--	--	--	--	900
WESTERN REDCEDAR	250	--	157	--	--	407
WESTERN HEMLOCK	--	--	325	--	--	325
PACIFIC SILVER FIR	--	--	306	--	--	306
SUBALPINE FIR	--	3	158	84	42	287
NOBLE FIR	--	43	174	--	--	217
WHITEBARK PINE	--	--	137	37	--	173
TOTAL	231,600	5,337	17,081	53,660	29,958	337,636
HARDWOODS:						
QUAKING ASPEN	4	15	--	--	337	356
OREGON WHITE OAK	--	--	266	15	54	335
OTHER HARDWOODS ^{4/}	96	--	--	--	59	155
RED ALDER	--	--	10	--	--	10
TOTAL	100	15	276	15	450	855
ALL SPECIES	231,700	5,352	17,357	53,675	30,408	338,491

^{1/}Totals may be off because of rounding.

^{2/}Estimates for true firs were not separable by individual species for National Forests.

^{3/}Negative net annual growth is the result of annual mortality exceeding gross annual growth.

^{4/}Estimates for National Forests were not separable by individual species. On private land the species is predominantly white alder.

Table 18—Net annual growth of sawtimber on unreserved timberland by species and ownership class, eastern Oregon, 1977^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>						
SOFTWOODS:						
PONDEROSA PINE	286,200	7,129	15,856	76,978	54,925	441,087
LOGPOLE PINE	179,100	3,184	11,658	40,043	3/-802	233,183
TRUE FIRS ^{2/}	269,100	--	--	--	--	269,100
DOUGLAS-FIR	153,300	7,141	39,562	53,822	44,261	298,086
WHITE FIR	--	7,087	3/-13	42,104	8,487	57,665
GRAND FIR	--	2,026	11,688	21,546	6,617	41,878
ENGELMANN SPRUCE	31,500	92	1,369	956	905	34,822
MOUNTAIN HEMLOCK	16,300	--	5,251	--	--	21,551
WESTERN LARCH	300	108	3,333	5,510	4,743	13,994
SUGAR PINE	1,500	2,355	332	2,997	--	7,184
INCENSE-CEDAR	1,300	191	488	2,291	--	4,270
WESTERN WHITE PINE	3,400	--	--	--	--	3,400
WESTERN REDCEDAR	1,300	--	672	--	--	1,972
WESTERN HEMLOCK	--	--	1,301	--	--	1,301
PACIFIC SILVER FIR	--	--	3,355	--	--	3,355
SUBALPINE FIR	--	14	921	600	353	1,888
NOBLE FIR	--	222	596	--	--	818
WHITEBARK PINE	--	--	189	129	--	318
TOTAL	943,300	29,550	96,557	246,976	119,489	1,435,872
HARDWOODS:						
OTHER HARDWOODS ^{4/}	290	--	--	--	--	290
QUAKING ASPEN	10	70	--	--	194	275
OREGON WHITE OAK	--	--	--	--	79	79
RED ALDER	--	--	20	--	--	20
TOTAL	300	70	20	--	273	664
TOTAL SPECIES	943,600	29,620	96,578	246,976	119,762	1,436,535

Totals may be off because of rounding.

Estimates for true firs were not separable by individual species for National Forests.

Negative net annual growth is the result of annual mortality exceeding gross annual growth.

Estimates for National Forests were not separable by individual species.

Table 19—Annual mortality of growing stock on unreserved timberland by species and ownership class, eastern Oregon 1977^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
SOFTWOODS:						
TRUE FIRS ^{2/}	25,154	73	--	--	--	25,227
LOGPOLE PINE	10,706	366	1,553	2,419	5,141	20,185
DOUGLAS-FIR	16,171	151	198	1,036	608	18,164
PONDEROSA PINE	12,203	310	1,734	2,153	1,650	18,050
WESTERN LARCH	5,465	--	103	688	237	6,493
ENGELMANN SPRUCE	2,695	--	393	168	--	3,256
GRAND FIR	--	20	588	1,288	1,293	3,189
MOUNTAIN HEMLOCK	1,722	--	--	--	--	1,722
WHITE FIR	--	6	432	832	--	1,269
WESTERN WHITE PINE	599	--	--	--	--	599
PACIFIC SILVER FIR	--	--	157	--	--	157
INCENSE-CEDAR	75	--	--	41	--	116
SUBALPINE FIR	--	--	--	42	41	83
SUGAR PINE	75	--	--	--	--	75
NOBLE FIR	--	35	--	--	--	35
TOTAL	74,865	962	5,157	8,667	8,970	98,620
HARDWOODS:						
QUAKING ASPEN	53	--	--	--	--	53
OTHER HARDWOODS ^{3/}	22	--	--	--	--	22
TOTAL	75	--	--	--	--	75
ALL SPECIES	74,940	962	5,157	8,667	8,970	98,695

^{1/}Totals may be off because of rounding.

^{2/}Estimates for true firs were not separable by individual species for National Forests and portions of Bureau of Land Management forests.

^{3/}Estimates for National Forests were not separable by individual species.

Table 20—Annual mortality of sawtimber on unreserved timberland by species and ownership class, eastern Oregon, 1977^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>						
SOFTWOODS:						
TRUE FIRS 2/	135,486	492	--	--	--	135,978
DOUGLAS-FIR	96,825	777	117	4,360	1,897	103,975
PONDEROSA PINE	33,630	1,543	9,364	7,683	5,407	57,626
LOGEPOLE PINE	20,674	1,374	5,418	6,721	13,815	48,002
WESTERN LARCH	31,287	--	307	2,767	695	35,056
ENGELMANN SPRUCE	15,299	--	2,458	855	--	18,612
GRAND FIR	--	119	1,853	6,008	6,604	14,583
MOUNTAIN HEMLOCK	7,925	--	--	--	--	7,925
WHITE FIR	--	32	1,782	3,876	--	5,690
WESTERN WHITE PINE	2,928	--	--	--	--	2,928
INCENSE-CEDAR	483	--	--	155	--	638
NOBLE FIR	--	228	--	--	--	228
SUGAR PINE	35	--	--	--	--	35
TOTAL	344,572	4,564	21,299	32,424	28,417	431,276
HARDWOODS:						
QUAKING ASPEN	211	--	--	--	--	211
OTHER HARDWOODS 3/	88	--	--	--	--	88
TOTAL	299	--	--	--	--	299
TOTAL SPECIES	344,871	4,564	21,299	32,424	28,417	431,575

Totals may be off because of rounding.

Estimates for true firs were not separable by individual species for National Forests and portions of Bureau of Land Management forests.

Estimates for National Forests were not separable by individual species.

Table 21—Timber harvest by ownership class, eastern Oregon, 1950-77

YEAR	PRIVATE			STATE	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	ALL OWNERSHIP	
	FOREST INDUSTRY	OTHER	TOTAL PRIVATE						
THOUSAND BOARD FEET, SCRIBNER SCALE									
1950	--	--	1/	493,311	1/	454,600	--	137,000	1,084,911
1951	--	--	1/	717,605	1/	414,400	--	159,000	1,291,005
1952	--	--	1/	568,383	1/	448,600	--	120,496	1,137,479
1953	--	--	1/	634,778	1/	481,700	--	126,204	1,242,682
1954	--	--	1/	762,690	1/	550,300	--	109,380	1,422,370
1955	--	--	1/	818,742	1/	554,645	--	133,405	1,506,792
1956	--	--	1/	783,865	1/	655,200	21,304	162,539	1,622,908
1957	--	--	1/	704,034	1/	586,400	22,811	52,316	1,365,561
1958	2/	2/	694,774	2,686	672,654	29,567	98,928	1,498,609	
1959	2/	2/	741,678	1,875	865,408	36,239	75,658	1,720,828	
1960	2/	2/	622,807	3,464	705,172	48,732	75,942	1,456,115	
1961	2/	2/	529,017	2,160	790,639	31,400	40,636	1,393,852	
1962	371,221	170,573	541,794	1,380	852,700	19,547	53,027	1,468,421	
1963	345,857	144,140	489,997	5,575	966,700	21,456	71,071	1,554,769	
1964	365,577	179,373	544,950	2,477	1,064,700	22,756	90,517	1,725,437	
1965	410,604	171,634	582,238	13,857	1,181,800	11,571	73,869	1,863,338	
1966	497,934	108,165	606,099	3,783	1,089,900	42,559	60,241	1,802,587	
1967	318,368	150,043	468,411	1,360	1,133,900	27,311	109,616	1,740,591	
1968	470,375	147,442	617,817	2,869	1,182,548	39,307	99,768	1,942,529	
1969	584,067	115,552	699,619	8,756	1,230,907	26,326	91,903	2,057,512	
1970	566,239	95,857	662,096	2,397	1,017,762	23,291	78,516	1,784,061	
1971	557,463	286,152	843,615	2,875	1,147,075	35,768	87,086	2,116,439	
1972	590,709	113,806	704,515	9,923	1,319,580	33,961	80,713	2,148,637	
1973	466,434	93,527	559,961	9,716	1,237,425	45,891	94,589	1,947,582	
1974	613,934	233,848	847,782	9,423	1,178,107	25,666	110,577	2,171,555	
1975	602,755	113,029	715,784	--	1,151,508	16,662	119,589	2,003,530	
1976	470,007	101,907	571,914	8,056	1,257,108	29,403	107,558	1,974,038	
1977	383,331	143,311	526,642	6,666	1,123,840	39,060	114,741	1,810,940	

1/Private and state lands are added together.

2/Data not available.

Sources: 1950-76: Timber harvest reports for Oregon by year (published by Pacific Northwest Forest and Range Experiment Station); 1977 -- Oregon Timber Harvest Report 1977 (Revised), Oregon State Department of Forestry.

Farrenkopf, Thomas O. Forest statistics for eastern Oregon, 1977. U.S. Department of Agriculture, Resour. Bull. PNW-94. Portland, OR: Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 28 p.

This report summarizes a 1977 inventory of timber resources in 17 Oregon counties east of the crest of the Cascade Range. Detailed data on forest area, timber volume, growth, mortality, and harvest are presented.

Keywords: Statistics (forest), forest surveys, timber resources, Oregon (eastern).

The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.

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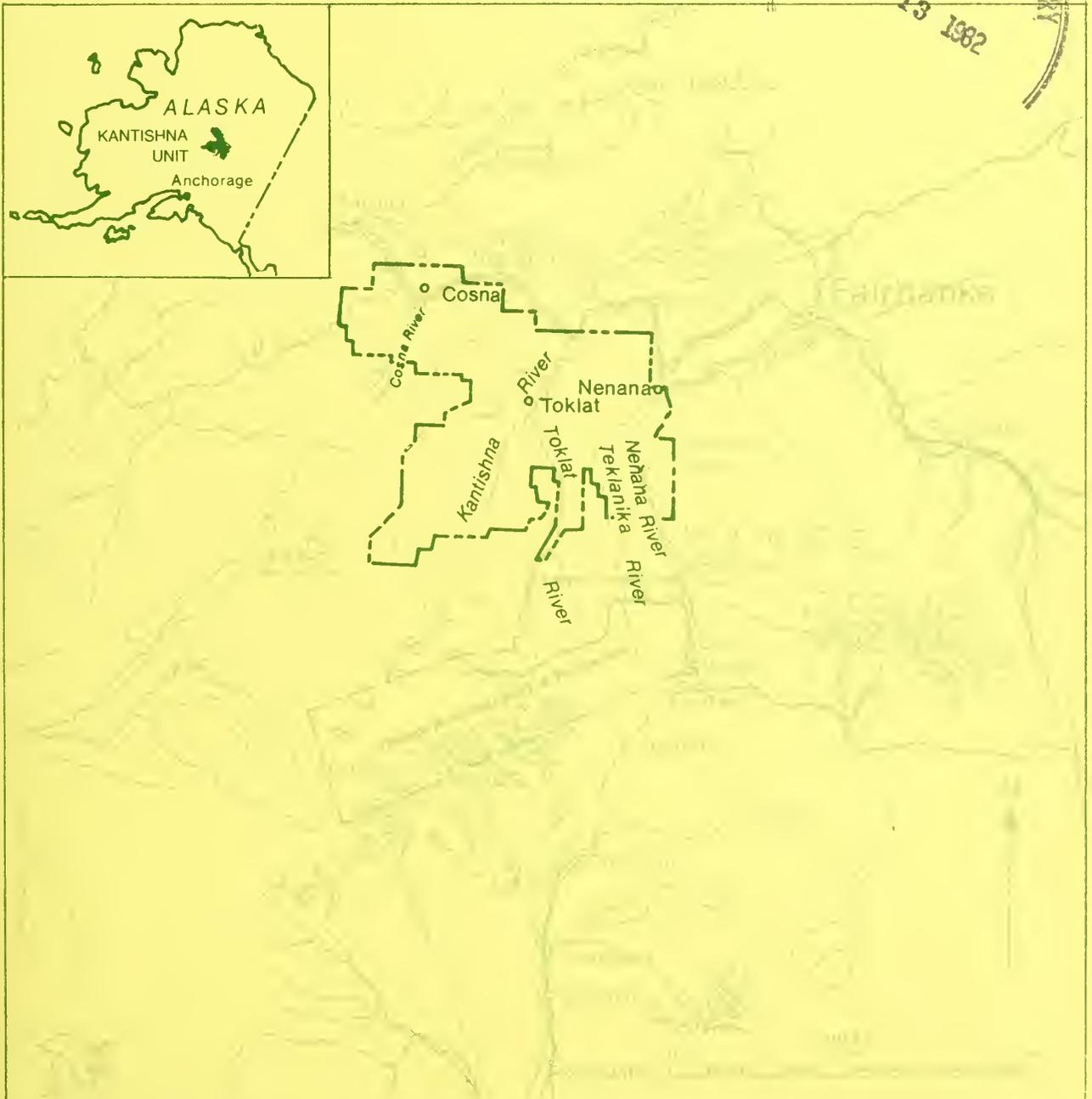
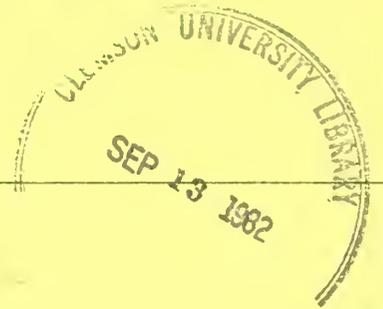
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Timber Resource Statistics for the Kantishna Block, Tanana Inventory Unit, Alaska, 1973

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Abstract

Legg, Karl M. Timber resource statistics for the Kantishna block, Tanana inventory unit, Alaska, 1973. Resour. Bull. PNW-95. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 32 p.

This report for the 2.9-million-acre Kantishna block is the second of four on the 14-million-acre Tanana Valley inventory unit. Comments are made on general landform, timber use, recreational potential, agricultural developments, forest defect, regeneration, and inventory methodology. Tables are provided for commercial forest land and for operable noncommercial forest land. Estimates for commercial forest land total 424,200 acres with 67,300,000 net cubic feet of growing stock volume. Estimates for the operable noncommercial class total 41,500 acres with 42,600,000 net cubic feet of growing stock volume.

Keywords: Forest surveys, timber inventory, timber resources, resources (forest), statistics (forest), Alaska (Tanana Valley).

Summary

This report for the 2.9-million-acre Kantishna block is the second of four on the 14-million-acre Tanana inventory unit. The block is situated about 50 miles west-southwest of Fairbanks and immediately to the north of Denali National Park and Preserve. Statistics for the Fairbanks block are reported in Resource Bulletin PNW-59.

Work in the Kantishna block was completed in 1973 through the cooperative efforts of the U.S. Department of Agriculture, Forest Service; the U.S. Department of the Interior, Bureau of Land Management; and the Alaska Department of Natural Resources, Division of Lands. Estimates for forest area total 2,546,000 acres with commercial forests on 424,200 acres and a special class of 41,500 acres occupying operable noncommercial sites having a gross volume of 800 cubic feet or more per acre. Estimated growing stock volume is 367,300,000 cubic feet for commercial class and 42,600,000 cubic feet for the operable noncommercial class. Although nearly 70 percent of the commercial forest land is classed as hardwood types, the volume of softwood species makes up more than 50 percent of the total cubic-foot volume and 90 percent of the board-foot volume.

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Table 21 — Net volume of growing stock on operable noncommercial forest land by forest type and stand size class, Kantishna block, Tanana inventory unit, Alaska, 1973

Table 22 — Net volume of sawtimber on commercial forest land by forest type and stand size class, Kantishna block, Tanana inventory unit, Alaska, 1973

Table 23 — Net volume of sawtimber on operable noncommercial forest land by forest type and stand size class, Kantishna block, Tanana inventory unit, Alaska, 1973

Table 24 — Net volume of sawtimber on commercial forest land by species and log grade, Kantishna block, Tanana inventory unit, Alaska, 1973

Table 25 — Net volume of sawtimber on operable noncommercial forest land by species and log grade, Kantishna block, Tanana inventory unit, Alaska, 1973

Table 26 — Net annual growth of growing stock by species and forest land class, Kantishna block, Tanana inventory unit, Alaska, 1973

Table 27 — Net annual growth of sawtimber by species and forest land class, Kantishna block, Tanana inventory unit, Alaska, 1973

Table 28 — Annual mortality of growing stock by species and forest land class, Kantishna block, Tanana inventory unit, Alaska, 1973

Table 29 — Annual mortality of sawtimber by species and forest land class, Kantishna block, Tanana inventory unit, Alaska, 1973

Table 30 — Annual mortality of growing stock by cause, forest land class, and by softwoods and hardwoods, Kantishna block, Tanana inventory unit, Alaska, 1973

Table 31 — Annual mortality of sawtimber by cause, forest land class, and by softwoods and hardwoods, Kantishna block, Tanana inventory unit, Alaska, 1973

Highlights

	<i>Thousand acres</i>	<i>Thousand hectares</i>		
Total Kantishna block area:	2,944.2	1 191.5		
with forests	2,546.0	1 030.3		
with nonforest	287.8	116.5		
with noncensus water	72.6	29.4		
with census water	37.8	15.3		
Forested area:				
commercial forest land	424.2	171.7		
noncommercial forest land:				
800 cubic feet or more per acre	41.5	16.8		
less than 800 cubic feet per acre	2,080.3	841.9		
Commercial forest composition:				
sawtimber	75.1	30.4		
poletimber	188.5	76.3		
seedlings and saplings	160.6	65.0		
nonstocked	0	0		
Volumes on commercial forest land:				
	<i>Thousand cubic feet¹</i>	<i>Thousand cubic meters¹</i>	<i>Thousand board feet²</i>	<i>Thousand cubic meters³</i>
Total gross volume	380,025.2	10 761.1	912,610.0	4 694.4
Total net volume	367,256.2	10 399.5	892,274.3	4 599.5
Annual net growth	9,902.9	280.4	27,916.5	50.7
Annual net mortality	1,479.0	41.9	4,766.5	21.9

¹ Volume of roundwood in live trees 5.0-inch d.b.h. and larger.

² Net volume, International 1/4-inch rule.

³ Volume of roundwood for softwood trees 9.0-inch d.b.h. and larger and for hardwood trees 11.0-inch d.b.h. and larger.

Introduction

This resource bulletin reports on the first intensive inventory of that portion of the Tanana River Valley west of Nenana, Alaska and including the area drained by the Kantishna River (fig. 1).

Preparations for the Tanana inventory began in 1968 when a cooperatively funded contract was let to obtain aerial photography of 11.3 million acres of the Tanana River Valley, which, with 2.3 million acres previously photographed in the Fairbanks area, make up the 13.6-million-acre Tanana inventory unit. Cooperators were the Economic Development Administration (EDA), U.S. Department of Commerce; the Bureau of Indian Affairs (BIA) and Bureau of Land Management (BLM), U.S. Department of the Interior; and the Alaska Department of Natural Resources Division of Lands (DNR), State of Alaska. The original intent was to inventory the valley as a unit, but poor flying weather and smoke haze slowed the photo project so "blocks" within the Tanana unit have been inventoried as photos became available.

This report, the second of four, is the Kantishna block, inventoried in 1973. The first report, for the Fairbanks block, was published several years ago (Hegg 1975b). Reports on inventories of the two other blocks, upper Tanana and Wood-Salcha, will be published when the analyses are completed.

Work on the Kantishna block began in 1972 with the classifying of 10,772 one-acre photo points by land type⁴, forest type, and volume class. Photo interpretation, ownership determination, and fieldwork preparation and completion were a cooperative effort of DNR, BLM, and the Forestry Sciences Laboratory (Anchorage) of the Pacific Northwest Forest and Range Experiment Station. Supervision and editing of plot records were done by the Forestry Sciences Laboratory. Data processing was handled by the Pacific Northwest Forest and Range Experiment Station in Portland.

⁴ For definition of this term and others, see the section "Terminology."

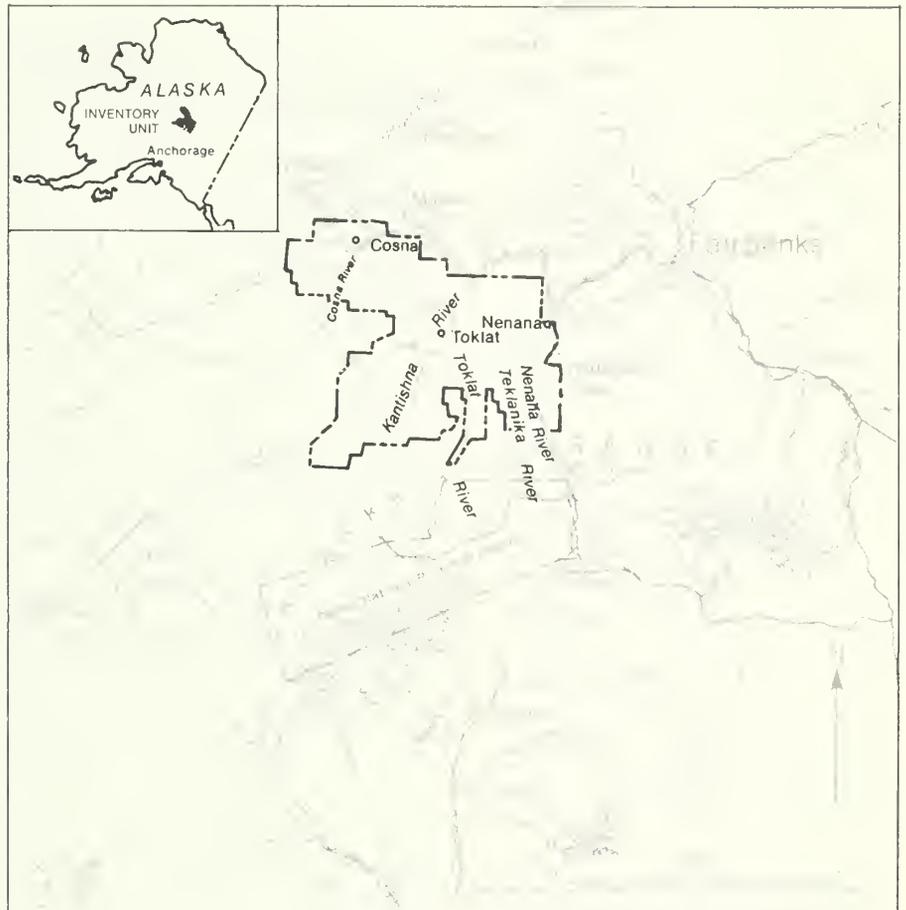


Figure 1. — Kantishna inventory unit.

Renewable Resources Evaluation,⁵ authorized by the McSweeney-McNary Act in 1928 and extended to Alaska in 1954, is a nationwide effort to obtain information on forest lands — their extent, condition, volume, growth, quality, and depletion. The first inventories of interior Alaska were begun in 1956 and completed in 1962 (Hutchison 1967). These were extensive inventories, and subsequently, areas with concentrations of commercial forest land have been defined for more intensive inventory. Areas

⁵ Renewable Resources Evaluation was originally named Forest Survey. The name was officially changed in 1975.

where intensive inventories have been conducted and for which reports are available are: Susitna Valley (Hegg 1970), Koyukuk River (Hegg 1974), Copper River (Hegg 1975a), Tanana unit, Fairbanks block (Hegg 1975b), Tuxedni Bay (Hegg 1979), Kuskokwim River (Hegg 1980), and the Norton Bay Indian Reservation.⁶

The factual data and discussions in this report on forest area, location, condition, volume, growth, and regeneration relate to the supply of wood available for local, regional and national needs. These data are presented for the use of State planners, legislators, land and forest managers, forest industry and other users of forest inventory data.

⁶ Office report on file at the Bureau of Indian Affairs, Juneau, Alaska; 1973.

Observations

Area and Location

The Kantishna block (see fig. 1) lies west of the Anchorage-Fairbanks highway and south of the Tanana River. It includes lands drained by portions of the Tanana, Nenana, Teklanika, Kantishna, and Cosna Rivers. Geographically it lies within 64° and 65° north latitude, and 149° and 152° west longitude. Access to the block is by river, the Alaska railroad, and the Anchorage-Fairbanks (Parks) highway (which constitutes the eastern boundary of the block).

Poor drainage or excess drainage seems characteristic for much of the area. The block lies immediately north of Denali National Park and Preserve and the outwash from the Park's many glaciers produces sterile, gravelly soils or poorly drained areas marked with small ponds, lakes, and muskegs.

In the northeast section of this block, sand and silt from the Tanana River has been reworked by the prevailing winds to create extensive areas of overly well-drained dunes. Some commercial forest land was found in the dune area, but it was generally occupied by poorly stocked, non-commercial stands of white spruce and black spruce. Of 28 plot locations checked in the dune area, only 8 were classified as commercial forest.

Defect

Nearly 90 percent of the hardwood stands in the Kantishna block are less than 80 years old. Consequently, the defect in these young stands was estimated at only 5.8 percent of the gross volume. This is about the same proportion as that estimated for the Fairbanks block (Hegg 1975b). In contrast, the defect in older hardwood stands in the Susitna Valley is estimated at about 20 percent (Hegg 1970).

Defect in softwoods is also fairly low, 1.3 percent of the gross volume, and is close to the 2-3 percent found in other areas of the State.



Figure 2. — The most productive forests are restricted to the better drained soils along rivers like the Cosna.

Regeneration

No nonstocked areas were identified in the Kantishna block although 48,000 acres were classed as poorly stocked. This does not, however, give an accurate picture of stand conditions. Regeneration was adequate, but browse damage caused by snowshoe hare was moderate to severe on nearly all white spruce and black spruce seedlings. Although most of these seedlings will survive, their form development will definitely be impaired. The hare population apparently reached its highest concentration adjacent to the rivers in the Kantishna block; subsequent field observations in two other Tanana blocks noted only scattered occurrence of hare browsing damage.

Forest Uses

Less than 20 percent of the total area of the Kantishna block is occupied by commercial and operable noncommercial forest land with most of this acreage concentrated along the Tanana, Kantishna, and Nenana Rivers. These rivers constitute the chief mode of transportation in the general area since the only surface transport is the Alaska railroad and the Anchorage-Fairbanks highway along the eastern boundary of this 50-mile-square block. Until greater use is made of water transport and winter roads, the timber in the block should be considered inaccessible. The exception is the timber within reach of Nenana, the main population center in the block and location of an operating sawmill that produces houselogs and lumber. Sustained production from this mill may be feasible once transport problems are solved and land ownership stabilizes with the settlement of the Alaska Native Land Claims Act.

The potential for recreation in the Kantishna block is limited only by access — which is either by plane or riverboat. The area is within 1-hour flying time from Fairbanks, so its lakes are within range of recreationists. Most of the lakes are well known for good fishing, and a few have semipermanent camps. Numerous clearwater streams drain the area; one in particular, the Cosna, has good fishing, abundant wildlife, and picturesque scenery (figs. 2, 3, 4). The Cosna is also the access to an area recently homesteaded.

A report by the Alaska Rural Development Council (1974) indicates that a major portion of the Kantishna block may have agricultural potential. An area just west of Nenana, which by Renewable Resources Evaluation (RRE) standards supports mostly noncommercial forest stands, is being studied in particular. If the conclusions of the study are favorable, considerable acreage could be converted to agricultural production.

Inventory Procedures



Figure 3 — Peaceful scenes are numerous on the Cosna River.

Figure 4. — In addition to the moose cow and calf seen in this photo, the area is also inhabited by waterfowl, bear, and wolverine.

The estimates of area and timber volumes are based on a double sampling procedure (Bickford 1952). Enough 1-acre points to satisfy specific levels of statistical precision were uniformly distributed on aerial photographs. Each of these points was classified by land type, forest type, and volume strata. A subsample was then drawn from all land types and reexamined on the photos. All subsample points originally classified as commercial forest land as well as any other points questionably classified were visited on the ground.

For the Kantishna block, we interpreted 10,772 photo points and reexamined 691 noncommercial and nonforest points. This reexamination was equivalent to a ground check and yielded 23 questionable points which, with the 228 commercial forest and operable noncommercial points, totaled 251 locations actually checked on the ground. The ground plot was located at the exact point sampled on the photo. At each ground location a 10-point cluster of plots was measured.⁷ A 40 basal-area factor gage was used to select sample trees at each point for detailed measurements of size and vigor.

⁷ Study plan and field manual are on file at the Forestry Sciences Laboratory, 2221 E. Northern Lights Blvd., Anchorage, AK 99504.

Reliability of Inventory Data

Through data processing procedures, the total sample and the individual tree volumes were expanded to obtain the estimates of the data needed or specified for area and volume. The tables showing the estimates, however, depart from the standard RRE tables with addition of a noncommercial forest category called "operable." During the initial inventory of interior Alaska, we found that much noncommercial forest land had a relatively high per-acre volume. When more intensive inventories were begun in the mid-1960's, we and our cooperators agreed that some of this noncommercial strata had potential value as a commercial wood supply. By extrapolation, from cutting minimums of 3 cords per acre used in the Lake States and Canada, we established 9 cords or 800 cubic feet per acre as a prudent level for Alaska. This threefold increase in the minimum economic operating level should help compensate for the higher production and shipping costs in Alaska.

The operable noncommercial areas presently have more than 800 gross cubic feet per acre in poletimber and sawtimber trees. The area and volume in this classification, although considered adequate for some cutting operations, should not be included in allowable cut computations. Future studies may show, through logging or other silvicultural practices, if these marginal sites can be managed as commercial forest land. None of the reported areas and volumes (whether classed as commercial or other) should be used in any calculation of an allowable cut without consideration of possible management and land use alternatives.

The reliability of the inventory is expressed in terms of relative sampling errors at the 68-percent confidence level.

	<u>Design sampling error</u>	<u>Sampling error achieved</u>	<u>Sampling error of total area or volume reported</u>
	<i>Percent</i>		
<i>Area:</i>			
commercial forest land per million acres	3.0	4.0	± 6.0
noncommercial forest land per million acres	10.0	6.0	± 4.0
<i>Volume:</i>			
commercial forest land per billion cubic feet	6.0	5.0	± 8.0
commercial forest land growth (gross) per billion cubic feet	5.0	1.0	± 11.0

For the Kantishna block, we report 367.3 million cubic feet of growing stock volume, ± 8.0 percent. This means that if repeated samples are taken of this population, the chances are two in three that the true total volume is between 337.9 and 396.7 million cubic feet. We slightly exceeded our design sampling error for commercial forest land area (3.0 percent per million acres) and met the design error (6.0 percent per million acres) for commercial forest land volume.

Terminology⁸

Allowable cut — The volume of timber that could be cut on commercial forest land during a given period under specified management plans for sustained production, such as those in effect in National Forests.

Area condition class — Area condition class provides a general stratification of commercial forest land by management opportunity class as indicated by the stocking or area controlled by tree and cover class.

Area condition classification code —

- 10 Areas 100 percent or more stocked with desirable trees and not overstocked. Stands in this category generally do not require any treatment at present to maintain high level of growth.
- 20 Areas 100 percent or more stocked with desirable trees and overstocked. Stands in this category need a treatment such as thinning to produce maximum levels of growth of desirable trees.
- 30 Areas 60 to 100 percent stocked with desirable trees, and with less than 30 percent of the area controlled by acceptable growing stock trees, cull trees, inhibiting vegetation, slash, or nonstockable conditions. Stands in this category generally have conditions favorable for natural improvement of stocking without special treatment.
- 40 Areas 60 to 100 percent stocked with desirable trees and with 30 percent or more of the area controlled by other trees (or overstocked areas) or conditions that ordinarily prevent occupancy by desirable trees. Stands in this category generally have little prospect for improvement in desirable tree stocking without special treatment such as thinning, cull tree removal, etc.

50 Areas less than 60 percent stocked with desirable trees but with 100 percent or more stocking with growing stock trees. Stands in this category generally have little prospect for improved desirable tree stocking without special treatment. Stands almost to rotation age would usually not be treated.

60 Areas less than 60 percent stocked with desirable trees but with 60- to 100-percent stocking with growing stock trees. Stands in this category generally have little prospect for improved desirable tree stocking without special treatment such as timber stand improvement or planting.

70 Areas less than 60 percent stocked with desirable trees and with less than 60-percent stocking with growing stock trees. Stands in this category generally have little prospect for improved desirable tree or growing stock stocking without treatment such as site preparation and regeneration, etc.

Commercial species — Trees presently or prospectively suitable for industrial products.

Cull — Portions of a tree unusable for industrial products because of rot, form, or other defect.

Cull trees — Live trees of sawtimber or poletimber size unmerchantable for saw logs now or prospectively because of defect, rot, or species.

Rough trees: Live trees of 5.0-inch d.b.h. and larger that do not contain a saw log now or prospectively, primarily because of roughness, poor form, or because they are a non-commercial species.

Rotten trees: Live trees of 5.0-inch d.b.h. and larger that do not contain a saw log or prospectively, primarily because of rot.

Forest land — Land at least 16.7 percent stocked by forest trees of any size, or formerly having such tree cover, and not currently developed for nonforest use.

Commercial forest land: Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. Areas qualifying as commercial forest land have the capability of producing in excess of 20 cubic feet per acre per year of industrial wood under management.

Noncommercial forest land: Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions (producing less than 20 cubic feet per acre per year) and productive forest land withdrawn from commercial timber use through statute or administrative regulation.

Noncommercial operable — noncommercial forest land with a gross volume of 800 cubic feet or more per acre.

Noncommercial inoperable — noncommercial forest land with a gross volume of less than 800 cubic feet per acre.

Forest type — A classification of forest land based on the species forming a plurality of the live tree stocking.

Spruce: Forests in which a plurality of the stand is white spruce. Common associates include birch, aspen, cottonwood, and occasionally black spruce.

Cottonwood: Forests in which a plurality of the stand is black cottonwood or balsam poplar or both. Common associates include white spruce and birch.

Aspen or birch: Forests in which a plurality of the stand is aspen or paper birch or both. Common associates include black cottonwood, white spruce, and black spruce.

⁸ Terminology and definitions are from the USDA Forest Service Handbook, Title 4813.1, 1967, unless otherwise noted.

Growing stock trees — Sawtimber trees, poletimber trees, saplings, and seedlings; that is, all live trees except cull trees.

Desirable trees: Growing stock trees with no serious defects in quality limiting present or prospective use, relatively high vigor, and hosting no pathogens that could result in death or serious deterioration before rotation age. They include the type of trees forest managers aim to grow; that is, the trees left in silvicultural cutting or favored in cultural operations.

Acceptable trees: Trees meeting the specifications for growing stock but not qualifying as desirable.

Hardwoods — Dicotyledonous trees, usually broad leaved and deciduous. Hardwood species in interior Alaska are paper birch, quaking aspen, black cottonwood, and balsam poplar.

Inhibiting vegetation — Cover sufficiently dense to prevent establishment of tree seedlings.

International 1/4-inch rule — A rule used to determine the tree volume in board feet (Bruce and Schumacher 1950).

Land area — The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than 120 feet wide; and lakes, reservoirs, and ponds less than 1 acre in area.

Log grades — A classification of logs based on external characteristics as indicators of quality or value.

Mean annual increment (MAI) — A measure of the volume of wood, in cubic feet, produced on 1 acre during 1 year. RRE minimum standard for commercial forest land is the ability to produce 20 cubic feet per acre per year.

Mortality — Number or sound-wood volume of live trees dying from natural causes during a 5-year period.

Net annual growth of growing stock — The annual change in volume of sound wood in live sawtimber and poletimber trees.

Net annual growth of sawtimber — The annual change in net board-foot volume of live sawtimber trees.

Net volume — The gross volume of a tree less deductions for rot, sweep, or other defect affecting product use.

Growing stock volume: The net volume of sound wood in the bole of growing stock trees 5.0-inch d.b.h. and larger, from stump to a minimum top diameter of 4.0 inches outside bark or to the point where the central stem breaks into limbs.

Noncommercial species — Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial products.

Nonforest land — Land that does not qualify as forest land. Includes land that has never supported forests and lands formerly forested where forest use is precluded by development for nonforest uses, such as crops, improved pasture, residential areas, and city parks. Also includes improved roads and certain areas of water classified by the Bureau of the Census as land. Unimproved roads, streams, canals, and nonforest strips in forest areas must be more than 120 feet wide, and clearings in forest areas must be more than 1 acre in size to qualify as nonforest land.

Nonstockable land — Areas of forest land not capable of supporting forest growth because of rock, water, etc.

Salvable dead trees — Standing dead trees that are considered currently or potentially merchantable by regional standards. A poletimber tree must be more than one-half sound; a sawtimber tree, more than one-third sound (board measure).

Saw log — A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum small end diameter inside bark of 6 inches for softwoods (8 inches for hardwoods).

Saw log portion — That part of the bole of sawtimber trees between the stump and the saw log top.

Saw log top — The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw log top is 7.0-inch d.o.b. (diameter outside bark) for softwoods and 9.0-inch d.o.b. for hardwoods.

Site classes — A classification of forest land by its capacity to grow crops of industrial wood.

Softwoods — Coniferous trees, usually evergreen with needles or scalelike leaves. Softwood species in interior Alaska are white spruce, black spruce, and eastern tamarack.

Stocking — The degree of occupancy of land by trees, measured by basal area and/or the number of trees in a stand by size or age and spacing, compared with the basal area or number of trees required to fully utilize the growth potential of land; that is, the stocking standard.

Overstocked areas: Areas where growth of trees is significantly reduced by excessive numbers of trees.

Nonstocked areas: Commercial forest lands less than 16.7 percent stocked with growing stock trees.

Names of Trees⁹

Stand-size classes — A classification of forest land based on size of the growing stock present; that is, sawtimber, poletimber, or saplings and seedlings.

Sawtimber stands: Stands at least 16.7 percent stocked with growing stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands: Stands at least 16.7 percent stocked with growing stock trees of which half or more of this stocking is in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands: Stands at least 16.7 percent stocked with growing stock trees of which more than half of the stocking is saplings and seedlings.

Tree-size classes — A classification based on the diameter of the tree at breast height (4-1/2 feet above the ground on the uphill side of the tree).

Sawtimber-size tree: Softwood tree of 9.0-inch d.b.h. and larger. Hardwood tree of 11.0-inch d.b.h. and larger.

Poletimber-size tree: Softwood tree of 5.0- to 8.9-inch d.b.h. Hardwood tree of 5.0- to 10.9-inch d.b.h.

Sapling-size tree: A tree of 1.0- to 4.9-inch d.b.h.

Seedling-size tree: An established tree of less than 1.0-inch d.b.h.

Upper stem portion — That part of the main stem or fork of sawtimber trees above the saw log top to a minimum top diameter of 4.0-inch outside bark or to the point where the main stem or fork breaks into limbs.

Water — Bureau of the Census definition: Streams, sloughs, estuaries, and canals more than one-eighth of a statute mile in width; and lakes, reservoirs, and ponds more than 40 acres in area. RRE definition: The same as the Bureau of the Census definition, except minimum width of streams, etc., is 120 feet and minimum size of lakes, etc., is 1 acre.

Softwoods

Black spruce

Tamarack

White spruce

Picea mariana (Mill.) B.S.P.

Larix laricina (Du Roi) K. Koch

Picea glauca (Moench) Voss

Hardwoods

Balsam poplar

Black cottonwood

Paper birch

Quaking aspen

Populus balsamifera L.

Populus trichocarpa Torr. & Gray

Betula papyrifera Marsh.

Populus tremuloides Michx.

⁹ The source for scientific names is Little (1953).

Tables

Estimates in this report are developed from statistically based samples and therefore are subject to sampling error. Sampling errors are presented in the section "Reliability of Inventory Data."

Table 1—Area by land class, Kantishna block, Tanana inventory unit, Alaska, 1973

LAND CLASS	THOUSAND ACRES
FOREST LAND :	
COMMERCIAL	424.2
NONCOMMERCIAL--	
OPERABLE	41.5
INOPERABLE	2,080.3
	<hr/>
TOTAL	2,546.0
NONFOREST LAND	360.4
	<hr/>
ALL LANDS	2906.4
CENSUS WATER	37.8
	<hr/>
TOTAL AREA	2,944.2

Estimates are subject to sampling error.

Table 2—Area of commercial and operable noncommercial forest land by stand size class, Kantishna block, Tanana inventory unit, Alaska, 1973

STAND SIZE CLASS	FOREST LAND		
	COMMERCIAL	OPERABLE NONCOMMERCIAL	TOTAL
	<hr/>		
	<u>THOUSAND ACRES</u>		
SAWTIMBER STANDS	75.1	12.8	87.9
POLETIMBER STANDS	188.5	28.7	217.2
SEEDLING AND SAPLING STANDS	160.6	0	160.6
NONSTOCKED AREAS	0	0	0
	<hr/>		
ALL CLASSES	424.2	41.5	465.7

Estimates are subject to sampling error.

Table 3—Area of commercial and operable noncommercial forest land by stand volume class, Kantishna block, Tanana inventory unit, Alaska, 1973

STAND VOLUME	FOREST LAND		
	COMMERCIAL	OPERABLE NONCOMMERCIAL	TOTAL
	<u>THOUSAND ACRES</u>		
0-1,499	288.7	19.0	307.7
1,500-2,999	44.3	9.6	53.9
3,000-4,999	31.8	6.4	38.2
5,000-6,999	12.5	6.5	19.0
7,000 AND OVER	46.9	0	46.9
ALL CLASSES	424.2	41.5	465.7

Estimates are subject to sampling error.

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

Table 4—Area of commercial and operable noncommercial forest land by stand volume and stand size classes, Kantishna block, Tanana inventory unit, Alaska, 1973

STAND VOLUME CLASS	STAND SIZE CLASS				TOTAL
	NONSTOCKED	SEEDLING- SAPLING	POLETIMBER	SAWTIMBER	
	<u>THOUSAND ACRES</u>				
0-299	0	106.0	9.6	0.0	115.6
300-799	0	51.5	79.9	2.9	134.3
800-1,499	0	3.1	86.2	38.4	127.7
1,500-2,199	0	0	35.0	19.0	54.0
2,200 AND OVER	0	0	6.5	27.6	34.1
ALL CLASSES	0	160.6	217.2	87.9	465.7

Estimates are subject to sampling error.

Table 5—Area of commercial forest land by area condition class, Kantishna block, Tanana inventory unit, Alaska, 1973

CODE	AREA CONDITION CLASS	THOUSAND ACRES
10	Areas 100 percent or more stocked with desirable trees and not overstocked.	3.2
20	Areas 100 percent or more stocked with desirable trees and overstocked.	22.5
30	Areas 60 to 100 percent stocked with desirable trees, and with less than 30 percent of the area controlled by acceptable growing stock trees, cull trees, inhibiting vegetation, slash, or nonstockable conditions.	22.5
40	Areas 60 to 100 percent stocked with desirable trees and with 30 percent or more of the area controlled by other trees (or overstocked areas) or conditions that ordinarily prevent occupancy by desirable trees.	70.7
50	Areas less than 60 percent stocked with desirable trees but with 100 percent or more stocking with growing stock trees.	101.5
60	Areas less than 60 percent stocked with desirable trees but with 60- to 100-percent stocking with growing stock trees.	155.8
70	Areas less than 60 percent stocked with desirable trees and with less than 60-percent stocking with growing stock trees.	48.0
ALL CLASSES		424.2

Estimates are subject to sampling error.

Table 6—Area of commercial forest land by site class, Kantishna block, Tanana inventory unit, Alaska, 1973

SITE CLASS	THOUSAND ACRES
<u>CUBIC FEET</u>	
85 OR MORE <u>1</u> /	0
50-85	0
LESS THAN 50	424.2
ALL CLASSES	424.2

Estimates are subject to sampling error.

1/Potential yield, mean annual increment.

Table 7—Area of commercial and noncommercial forest land by forest type, Kantishna block, Tanana inventory unit, Alaska, 1973

FOREST TYPE	COMMERCIAL FOREST LAND	NONCOMMERCIAL FOREST LAND		TOTAL
		OPERABLE	INOPERABLE	
<u>THOUSAND ACRES</u>				
BALSAM POPLAR	37.9	0	16.1	54.0
BLACK SPRUCE	19.2	15.9	1,524.9	1560.0
PAPER BIRCH	179.3	9.6	250.5	439.4
QUAKING ASPEN	73.8	0	202.3	276.1
TAMARACK	0	0	12.6	12.6
WHITE SPRUCE	114.0	16.0	73.9	203.9
NONSTOCKED	0	0	0	0
ALL TYPES	424.2	41.5	2,080.3	2,546.0

Estimates are subject to sampling error.

Table 8—Area of commercial forest land by forest type and stand size class, Kantishna block, Tanana inventory unit, Alaska, 1973

FOREST TYPE	STAND SIZE CLASS				TOTAL
	NONSTOCKED	SEEDLING- SAPLING	POLETIMBER	SAWTIMBER	
<u>THOUSAND ACRES</u>					
BALSAM POPLAR	0	22.5	6.4	9.0	37.9
BLACK SPRUCE	0	0	19.2	0	19.2
PAPER BIRCH	0	70.7	102.2	6.4	179.3
QUAKING ASPEN	0	48.1	25.7	0	73.8
WHITE SPRUCE	0	19.3	35.0	59.7	114.0
ALL TYPES	0	160.6	188.5	75.1	424.2

Estimates are subject to sampling error.

Table 9—Area of commercial forest land by stand age and stand size class, Kantishna block, Tanana inventory unit, Alaska, 1973

STAND AGE	STAND SIZE CLASS			
	SEEDLING-SAPLING	POLETIMBER	SAWTIMBER	ALL CLASSES
<u>YEARS</u>	<u>THOUSAND ACRES</u>			
NONSTOCKED	0	0	0	0
1-10	19.2	0	0	19.2
10-20	22.5	0	0	22.5
20-30	54.6	2.9	3.2	60.7
30-40	22.6	19.2	0	41.8
40-50	9.6	51.3	0	60.9
50-60	16.1	19.2	0	35.3
60-70	0	31.9	3.2	35.1
70-80	3.2	29.1	9.4	41.7
80-90	0	3.1	0	3.1
90-100	3.2	22.5	3.3	29.0
100-120	3.2	3.2	9.7	16.1
120-140	0	6.1	21.5	27.6
140-160	0	0	6.1	6.1
160-180	0	0	6.0	6.0
180-200	0	0	0	0
200-300	0	0	6.4	6.4
300 AND OVER	0	0	3.1	3.1
MIXED AGES	6.4	0	3.2	9.6
ALL AGES	160.6	188.5	75.1	424.2

Estimates are subject to sampling error.

Table 10—Area of operable noncommercial forest land by stand age and stand size class, Kantishna block, Tanana inventory unit, Alaska, 1973

STAND AGE	STAND SIZE CLASS			
	SEEDLING-SAPLING	POLETIMBER	SAWTIMBER	ALL CLASSES
<u>YEARS</u>	<u>THOUSAND ACRES</u>			
1-10	0	0	0	0
10-20	0	0	0	0
20-30	0	0	0	0
30-40	0	0	0	0
40-50	0	0	0	0
50-60	0	0	0	0
60-70	0	3.2	0	3.2
70-80	0	3.1	0	3.1
80-90	0	0	0	0
90-100	0	3.2	0	3.2
100-120	0	9.6	6.3	15.9
120-140	0	0	0	0
140-160	0	3.1	3.3	6.4
160-180	0	0	0	0
180-200	0	0	0	0
200-300	0	0	0	0
300 AND OVER	0	0	0	0
MIXED AGES	0	6.4	3.2	9.6
ALL AGES	0	28.6	12.8	41.4

Estimates are subject to sampling error.

Table 11—Number of growing stock trees on commercial forest land by diameter class and species, Kantishna block, Tanana inventory unit, Alaska, 1973

DIAMETER CLASS	BALSAM POPLAR	BLACK SPRUCE	PAPER BIRCH	QUAKING ASPEN	WHITE SPRUCE	ALL SPECIES
	<u>THOUSAND TREES</u>					
<u>INCHES AT BREAST HEIGHT</u>						
1.0-2.9	10,837.4	0	76,531.8	30,676.8	26,815.2	144,861.2
3.0-4.9	5,086.8	0	36,826.1	16,479.5	9,625.5	68,017.9
5.0-6.9	2,531.3	3,817.9	19,316.2	5,838.0	5,290.3	36,793.7
7.0-8.9	717.7	531.6	6,977.5	1,445.6	4,431.1	14,103.5
9.0-10.9	531.4	49.5	2,152.6	450.9	3,304.7	6,489.1
11.0-12.9	359.3	31.6	351.8	50.8	1,791.9	2,585.4
13.0-14.9	114.8	0	61.4	0	1,140.9	1,317.1
15.0-16.9	18.7	0	0	0	533.5	552.2
17.0-18.9	0	0	0	0	178.4	178.4
19.0-20.9	6.4	0	0	0	106.1	112.5
21.0-28.9	0	0	0	0	46.0	46.0
29 AND OVER	0	0	0	0	2.5	2.5
ALL CLASSES	20,203.8	4,430.6	142,217.4	54,941.6	53,266.1	275,059.5

Estimates are subject to sampling error.

Table 12—Number of growing stock trees 5.0-inch d.b.h. and larger on commercial and operable noncommercial forest land by 5-foot height class and species, Kantishna block, Tanana inventory unit, Alaska, 1973

5-FOOT HEIGHT CLASS	BALSAM POPLAR	BLACK SPRUCE	PAPER BIRCH	QUAKING ASPEN	WHITE SPRUCE	ALL SPECIES
	<u>THOUSAND TREES</u>					
0-30	151.2	618.6	147.4	242.6	842.9	2,002.7
31-35	617.0	1,181.0	392.7	787.2	1,055.1	4,033.0
36-40	623.3	2,000.8	1,986.6	954.2	1,518.2	7,083.1
41-45	133.6	2,045.7	966.8	1,611.1	2,439.5	7,196.7
46-50	811.7	1,439.3	9,696.0	1,558.0	2,996.1	16,501.1
51-55	561.5	873.2	7,827.0	862.5	2,674.2	12,798.4
56-60	587.5	214.6	5,662.8	1,145.5	1,739.8	9,350.2
61-65	459.5	83.3	3,264.0	386.8	2,085.4	6,279.0
66-70	295.0	70.3	896.5	264.4	1,459.5	2,985.7
71-75	36.5	0	29.9	24.7	1,340.4	1,431.5
76-80	74.3	0	0	26.2	813.7	914.2
81-85	89.8	0	0	0	490.9	580.7
86-90	28.0	0	0	0	255.3	283.3
91-95	42.7	0	0	0	108.9	151.6
96-100	0	0	0	0	78.5	78.5
101 AND OVER	0	0	0	0	10.2	10.2
ALL CLASSES	4,511.6	8,526.8	30,869.7	7,836.2	19,908.6	71,679.9

Estimates are subject to sampling error.

Table 13—Net volume of timber on commercial and operable noncommercial forest land by class of timber and by softwoods and hardwoods, Kantishna block, Tanana inventory unit, Alaska, 1973

CLASS OF TIMBER	COMMERCIAL FOREST LAND			OPERABLE NONCOMMERCIAL FOREST LAND		
	SOFTWOODS	HARDWOODS	TOTAL	SOFTWOODS	HARDWOODS	TOTAL
	<u>MILLION CUBIC FEET</u>					
SAWTIMBER TREES:						
SAW LOG PORTION	136.5	12.3	148.8	13.9	0.5	14.4
UPPER STEM PORTION	10.1	3.7	13.8	1.5	.2	1.7
TOTAL	146.6	16.0	162.6	15.4	.7	16.1
POLETIMBER TREES	51.9	152.8	204.7	18.6	7.9	26.5
ALL GROWING STOCK TREES	198.5	168.8	367.3	34.0	8.6	42.6
ROUGH TREES	1.6	.6	2.2	0	0	
ROTTEN TREES	.2	1.2	1.4	0	.1	.1
SALVABLE DEAD TREES	7.2	.6	7.8	2.4	0	2.4
ALL TIMBER	207.5	171.2	378.7	36.4	8.7	45.1

Estimates are subject to sampling error.

Table 14—Net volume of growing stock on commercial forest land by diameter class and species, Kantishna block, Tanana inventory unit, Alaska, 1973

DIAMETER CLASS	SOFTWOODS			HARDWOODS			TOTAL	ALL SPECIES
	BLACK SPRUCE	WHITE SPRUCE	TOTAL	BALSAM POPLAR	PAPER BIRCH	QUAKING ASPEN		
<u>INCHES AT BREAST HEIGHT</u>	<u>MILLION CUBIC FEET</u>							
5.0-6.9	8.1	13.1	21.2	4.7	51.6	13.6	69.9	91.1
7.0-8.9	2.7	28.0	30.7	3.8	41.2	8.0	53.0	83.7
9.0-10.9	.4	39.9	40.3	4.4	20.2	5.3	29.9	70.2
11.0-12.9	.6	34.5	35.1	5.5	4.6	.8	10.9	46.0
13.0-14.9	0	30.8	30.8	2.9	1.1	0	4.0	34.8
15.0-16.9	0	20.2	20.2	.7	0	0	.7	20.9
17.0-18.9	0	9.2	9.2	0	0	0	0	9.2
19.0-20.9	0	6.9	6.9	.4	0	0	.4	7.3
21.0-26.9	0	3.7	3.7	0	0	0	0	3.7
27.0 AND OVER	0	.4	.4	0	0	0	0	.4
ALL CLASSES	11.8	186.7	198.5	22.4	118.7	27.7	168.8	367.3

Estimates are subject to sampling error.

Table 15—Net volume of growing stock on commercial and operable noncommercial forest land by diameter class and species, Kantishna block, Tanana inventory unit, Alaska, 1973

DIAMETER CLASS	SOFTWOODS			HARDWOODS			TOTAL	ALL SPECIES
	BLACK SPRUCE	WHITE SPRUCE	TOTAL	BALSAM POPLAR	PAPER BIRCH	QUAKING ASPEN		
<u>INCHES AT BREAST HEIGHT</u>	<u>MILLION CUBIC FEET</u>							
5.0-6.9	15.1	16.0	31.1	4.7	53.9	13.7	72.3	103.4
7.0-8.9	6.8	32.6	39.4	4.3	44.6	8.0	56.9	96.3
9.0-10.9	1.7	45.9	47.6	4.4	21.9	5.3	31.6	79.2
11.0-12.9	.6	39.3	39.9	5.6	5.2	.8	11.6	51.5
13.0-14.9	0	32.4	32.4	2.9	1.1	0	4.0	36.4
15.0-16.9	0	20.6	20.6	.7	0	0	.7	21.3
17.0-18.9	0	10.6	10.2	0	0	0	0	10.2
19.0-20.9	0	7.2	7.2	.4	0	0	.4	7.6
21.0-26.9	0	3.6	3.6	0	0	0	0	3.6
27.0 AND OVER	0	.4	.4	0	0	0	0	.4
ALL CLASSES	24.2	208.2	323.4	23.0	126.7	27.8	177.5	409.9

Estimates are subject to sampling error.

Table 16—Net volume of sawtimber on commercial forest land by diameter class and species, Kantishna block, Tanana inventory unit, Alaska, 1973

DIAMETER CLASS	SOFTWOODS			HARDWOODS			ALL SPECIES	
	BLACK SPRUCE	WHITE SPRUCE	TOTAL	BALSAM POPLAR	PAPER BIRCH	QUAKING ASPEN		TOTAL
<u>INCHES AT BREAST HEIGHT</u>	<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>							
9.0-10.9	2.3	210.7	213.0	0	0	3.3	0	213.0
11.0-12.9	3.2	192.2	195.4	19.5	20.3	0	43.1	238.5
13.0-14.9	0	177.1	177.1	13.3	5.2	0	18.5	195.6
15.0-16.9	0	117.8	117.8	3.4	0	0	3.4	121.2
17.0-18.9	0	55.7	55.7	0	0	0	0	55.7
19.0-20.9	0	41.5	41.5	2.1	0	0	2.1	43.6
21.0-28.9	0	22.3	22.3	0	0	0	0	22.3
29.0 AND OVER	0	2.4	2.4	0	0	0	0	2.4
ALL CLASSES	5.5	819.7	825.4	38.3	25.5	3.3	67.1	892.3

Estimates are subject to sampling error.

Table 17—Net volume of sawtimber on commercial and operable noncommercial forest land by diameter class and species, Kantishna block, Tanana inventory unit, Alaska, 1973

DIAMETER CLASS	SOFTWOODS			HARDWOODS			TOTAL	ALL SPECIES
	BLACK SPRUCE	WHITE SPRUCE	TOTAL	BALSAM POPLAR	PAPER BIRCH	QUAKING ASPEN		
<u>INCHES AT BREAST HEIGHT</u>	<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>							
9.0-10.9	9.3	244.5	253.8	0	0	0	0	253.8
11.0-12.9	3.2	219.8	223.0	19.6	22.8	3.4	45.9	268.8
13.0-14.9	0	186.0	186.0	13.3	5.2	0	18.5	204.5
15.0-16.9	0	119.7	119.7	3.4	0	0	3.4	123.1
17.0-18.9	0	61.2	61.2	2.1	0	0	2.1	63.3
19.0-20.9	0	43.1	43.1	0	0	0	0	43.1
21.0-28.9	0	22.3	22.3	0	0	0	0	22.3
29.0 AND OVER	0	2.4	2.4	0	0	0	0	2.4
ALL CLASSES	12.5	899.0	911.5	38.4	28.0	3.4	69.8	981.3

Estimates are subject to sampling error.

Table 18—Gross volume of sawtimber on commercial forest land by diameter class and species, Kantishna block, Tanana inventory unit, Alaska, 1973

DIAMETER CLASS	SOFTWOODS			HARDWOODS			TOTAL	ALL SPECIES
	BLACK SPRUCE	WHITE SPRUCE	TOTAL	BALSAM POPLAR	PAPER BIRCH	QUAKING ASPEN		
<u>INCHES AT BREAST HEIGHT</u>	<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>							
9.0-10.9	2.9	213.3	216.2	0	0	0	0	216.2
11.0-12.9	3.2	195.2	198.4	20.8	24.4	3.3	48.5	246.9
13.0-14.9	0	179.1	179.1	14.2	6.4	0	20.6	199.7
15.0-16.9	0	120.5	120.5	3.4	0	0	3.4	123.9
17.0-18.9	0	56.3	56.3	0	0	0	0	56.3
19.0-20.9	0	42.2	42.2	2.1	0	0	2.1	44.3
21.0-28.9	0	22.9	22.9	0	0	0	0	22.9
29.0 AND OVER	0	2.4	2.4	0	0	0	0	2.4
ALL CLASSES	6.1	831.9	838.0	40.5	30.8	3.3	74.6	912.6

Estimates are subject to sampling error.

Table 19—Gross volume of sawtimber on commercial and operable noncommercial forest land by diameter class and species, Kantishna block, Tanana inventory unit, Alaska, 1973

DIAMETER CLASS	SOFTWOODS			HARDWOODS				ALL SPECIES
	BLACK SPRUCE	WHITE SPRUCE	TOTAL	BALSAM POPLAR	PAPER BIRCH	QUAKING ASPEN	TOTAL	
<u>INCHES AT BREAST HEIGHT</u>	<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>							
9.0-10.9	9.9	247.6	257.5	0	0	0	0	257.5
11.0-12.9	3.2	223.8	227.0	21.1	26.9	3.4	51.4	278.4
13.0-14.9	0	188.2	188.2	14.2	6.4	0	20.6	208.8
15.0-16.9	0	122.5	122.5	3.4	0	0	3.4	125.9
17.0-18.9	0	62.0	62.0	0	0	0	0	62.0
19.0-20.9	0	43.7	43.7	2.1	0	0	2.1	45.8
21.0-28.9	0	22.9	22.9	0	0	0	0	22.9
29.0 AND OVER	0	2.4	2.4	0	0	0	0	2.4
ALL CLASSES	13.1	913.1	926.2	40.8	33.3	3.4	77.5	1,003.7

Estimates are subject to sampling error.

Table 20—Net volume of growing stock on commercial forest land by forest type and stand size class, Kantishna block, Tanana inventory unit, Alaska, 1973

FOREST TYPE	STAND SIZE CLASS			
	SEEDLING AND SAPLING	POLETIMBER	SAWTIMBER	TOTAL
	<u>MILLION CUBIC FEET</u>			
BALSAM POPLAR	8.3	2.2	15.3	25.8
BLACK SPRUCE	0	9.9	0	9.9
PAPER BIRCH	12.9	115.7	6.4	135.0
QUAKING ASPEN	10.6	26.9	0	37.5
WHITE SPRUCE	6.8	31.8	120.5	159.1
ALL TYPES	38.6	186.5	142.2	367.3

Estimates are subject to sampling error.

Table 21—Net volume of growing stock on operable noncommercial forest land by forest type and stand size class, Kantishna block, Tanana inventory unit, Alaska, 1973

FOREST TYPE	STAND SIZE CLASS			
	SEEDLING AND SAPLING	POLETIMBER	SAWTIMBER	TOTAL
	<u>MILLION CUBIC FEET</u>			
BALSAM POPLAR	0	0	0	0
BLACK SPRUCE	0	14.1	0	14.1
PAPER BIRCH	0	8.8	0	8.8
QUAKING ASPEN	0	0	0	0
WHITE SPRUCE	0	3.4	16.3	19.7
ALL TYPES	0	26.3	16.3	42.6

Estimates are subject to sampling error.

Table 22—Net volume of sawtimber on commercial forest land by forest type and stand size class, Kantishna block, Tanana inventory unit, Alaska, 1973

FOREST TYPE	STAND SIZE CLASS			
	SEEDLING AND SAPLING	POLETIMBER	SAWTIMBER	TOTAL
<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>				
BALSAM POPLAR	9.0	0	62.8	71.8
BLACK SPRUCE	0	13.8	0	13.8
PAPER BIRCH	20.2	108.8	21.3	150.3
QUAKING ASPEN	7.0	17.0	0	24.0
WHITE SPRUCE	12.9	56.2	563.3	632.4
ALL TYPES	49.1	195.8	647.4	892.3

Estimates are subject to sampling error.

Table 23—Net volume of sawtimber on operable noncommercial forest land by forest type and stand size class, Kantishna block, Tanana inventory unit, Alaska, 1973

FOREST TYPE	STAND SIZE CLASS			
	SEEDLING AND SAPLING	POLETIMBER	SAWTIMBER	TOTAL
<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>				
BALSAM POPLAR	0	0	0	0
BLACK SPRUCE	0	10.5	0	10.5
PAPER BIRCH	0	10.3	0	10.3
QUAKING ASPEN	0	0	0	0
WHITE SPRUCE	0	5.3	62.9	68.2
ALL TYPES	0	26.1	62.9	89.0

Estimates are subject to sampling error.

Table 24—Net volume of sawtimber on commercial forest land by species and log grade, Kantishna block, Tanana inventory unit, Alaska, 1973

SPECIES	LOG GRADE <u>1/</u>				TOTAL
	1	2	3	4 <u>2/</u>	
MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE					
SOFTWOODS:					
BLACK SPRUCE	0	0	4.1	1.4	5.5
WHITE SPRUCE	1.8	35.6	709.6	72.7	819.7
TOTAL	1.8	35.6	713.7	74.1	825.2
HARDWOODS:					
BALSAM POPLAR	0	8.1	28.9	1.3	38.3
PAPER BIRCH	0	1.9	19.5	4.1	25.5
QUAKING ASPEN	0	.7	2.6	0	3.3
TOTAL	0	10.7	51.0	5.4	67.1
ALL SPECIES	1.8	46.3	764.7	79.5	892.3

Estimates are subject to sampling error.

1/ Forest Products Laboratory. Hardwood log grades for standard lumber. USDA For. Prod. Lab. Rep. R1737; 1959.

Northern Hemlock and Hardwood Manufacturers Association. Official grading rules for northern hardwood and softwood logs and tie cuts. Green Bay, WI; 1959.

2/ Logs for local use.

Table 25—Net volume of sawtimber on operable noncommercial forest land by species and log grade, Kantishna block, Tanana inventory unit, Alaska, 1973

SPECIES	LOG GRADE <u>1/</u>				TOTAL
	1	2	3	4 <u>2/</u>	
<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>					
SOFTWOODS:					
BLACK SPRUCE	0	0	5.3	1.7	7.0
WHITE SPRUCE	0	0	75.3	4.0	79.3
TOTAL	0	0	80.6	5.7	86.3
HARDWOODS:					
BALSAM POPLAR	0	0	.2	0	.2
PAPER BIRCH	.7	0	1.3	0.5	2.5
QUAKING ASPEN	0	0	0	0	0
TOTAL	.7	0	1.5	.5	2.7
ALL SPECIES	.7	0	82.1	6.2	89.0

Estimates are subject to sampling error.

1/ Forest Products Laboratory. Hardwoods log grades for standard lumber. USDA For. Prod. Lab. Rep. R1737; 1959.

Northern Hemlock and Hardwood Manufacturers Association. Official grading rules for northern hardwood and softwood logs and tie cuts. Green Bay, WI; 1959.

2/ Logs for local use.

Table 26—Net annual growth of growing stock by species and forest land class, Kantishna block, Tanana inventory unit, Alaska, 1973

SPECIES	FOREST LAND CLASS		
	COMMERCIAL	OPERABLE NONCOMMERCIAL	TOTAL
	<u>THOUSAND CUBIC FEET</u>		
SOFTWOODS:			
BLACK SPRUCE	1,039.4	488.0	1,527.4
WHITE SPRUCE	2,577.2	457.4	3,034.6
TOTAL	3,616.6	945.4	4,562.0
HARDWOODS:			
BALSAM POPLAR	702.3	8.5	710.8
PAPER BIRCH	3,921.7	214.8	4,136.5
QUAKING ASPEN	1,662.3	1.5	1,663.8
TOTAL	6,286.3	224.8	6,511.1
ALL SPECIES	9,902.9	1,170.2	11,073.1

Estimates are subject to sampling error.

Table 27—Net annual growth of sawtimber by species and forest land class, Kantishna block, Tanana inventory unit, Alaska, 1973

SPECIES	FOREST LAND CLASS		
	COMMERCIAL	OPERABLE NONCOMMERCIAL	TOTAL
	<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>		
SOFTWOODS:			
BLACK SPRUCE	113.1	96.1	209.2
WHITE SPRUCE	21,283.0	3,534.8	24,817.8
TOTAL	21,396.1	3,630.9	25,027.0
HARDWOODS:			
BALSAM POPLAR	3,345.2	5.0	3,350.2
PAPER BIRCH	3,107.5	39.4	3,146.9
QUAKING ASPEN	67.7	0	67.7
TOTAL	6,520.4	44.4	6,564.8
ALL SPECIES	27,916.5	3,675.3	31,591.8

Estimates are subject to sampling error.

Table 28—Annual mortality of growing stock, by species and forest land class, Kantishna block, Tanana inventory unit, Alaska, 1973

SPECIES	FOREST LAND CLASS		
	COMMERCIAL	OPERABLE NONCOMMERCIAL	TOTAL
	<u>THOUSAND CUBIC FEET</u>		
SOFTWOODS:			
BLACK SPRUCE	62.1	22.9	85.0
WHITE SPRUCE	1,259.2	0	1,259.2
TOTAL	1,321.3	22.9	1,344.2
HARDWOODS:			
BALSAM POPLAR	0	0	0
PAPER BIRCH	136.5	0	136.5
QUAKING ASPEN	21.2	0	21.2
TOTAL	157.7	0	157.7
ALL SPECIES	1,479.0	22.9	1,501.9

Estimates are subject to sampling error.

Table 29—Annual mortality of sawtimber by species and forest land class,
 Santishna block, Tanana inventory unit, Alaska, 1973

SPECIES	FOREST LAND CLASS		
	COMMERCIAL	OPERABLE NONCOMMERCIAL	TOTAL
	<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>		
SOFTWOODS:			
BLACK SPRUCE	0	0	0
WHITE SPRUCE	4,766.5	0	4,766.5
TOTAL	4,766.5	0	4,766.5
HARDWOODS:			
BALSAM POPLAR	0	0	0
PAPER BIRCH	0	0	0
QUAKING ASPEN	0	0	0
TOTAL	0	0	0
TOTAL SPECIES	4,766.5	0	4,766.5

estimates are subject to sampling error.

Table 30—Annual mortality of growing stock by cause, forest land class, and by softwoods and hardwoods, Kantishna block, Tanana inventory unit, Alaska, 1973

CAUSE	COMMERCIAL FOREST LAND			OPERABLE NONCOMMERCIAL FOREST LAND		
	SOFTWOODS	HARDWOODS	TOTAL	SOFTWOODS	HARDWOODS	TOTAL
	<u>THOUSAND CUBIC FEET</u>					
FIRE	217.7	75.6	293.3	0	0	0
INSECTS	371.2	0	371.2	0	0	0
DISEASE	0	0	0	0	0	0
WINDTHROW	245.1	21.2	266.3	0	0	0
LOGGING	239.6	0	239.6	0	0	0
OTHER	179.4	60.9	240.3	22.9	0	22.9
UNKNOWN	68.3	0	68.3	0	0	0
TOTAL	1,321.3	157.7	1,479.0	22.9	0	22.9

Estimates are subject to sampling error.

Table 31—Annual mortality of sawtimber by cause, forest land class, and by softwoods and hardwoods, Kantishna block, Tanana inventory unit, Alaska, 1973

CAUSE	COMMERCIAL FOREST LAND			OPERABLE NONCOMMERCIAL FOREST LAND		
	SOFTWOODS	HARDWOODS	TOTAL	SOFTWOODS	HARDWOODS	TOTAL
	<u>THOUSAND CUBIC FEET</u>					
FIRE	701.1	0	701.1	0	0	0
INSECTS	1,735.8	0	1,735.8	0	0	0
DISEASE	367.3	0	367.3	0	0	0
WINDTHROW	1,042.4	0	1,042.4	0	0	0
LOGGING	650.7	0	650.7	0	0	0
OTHER	0	0	0	0	0	0
UNKNOWN	269.2	0	269.2	0	0	0
TOTAL	4,766.5	0	4,766.5	0	0	0

Estimates are subject to sampling error.

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Inventory prepared by: Alaska Renewable Resources Evaluation Project, Anchorage, Alaska.

D. Keith Hutchison, Project Leader
 Carl M. Hegg, Interior Alaska Supervisor
 Rex Baumbach, Acting Field Supervisor

Field measurements:

	Alaska		
	Department of		
Renewable	Natural	Federal-State	
Resources	Resources	Land Use	
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Jim Eberhardt			

Office compilation: John M. Berger, Supervisor, and staff (Portland).

Metric Equivalents

1 acre = 0.4047 hectare
 1 hectare = 2.47 acres
 1 cubic foot = 0.0283 cubic meter
 1 cubic meter = 35.3145 cubic feet
 1 cubic foot per acre = 0.06997 cubic meter per hectare
 1 cubic meter per hectare = 14.2913 cubic feet per acre
 1000 cubic feet per acre = 0.3994 cubic meters per hectare
 1 square foot basal area per acre = 0.2296 square meter per hectare
 1 square meter per hectare = 4.356 square feet per acre

Literature Cited

- Alaska Rural Development Council. Alaska's agricultural potential. Alaska Rural Dev. Conc. 1. Fairbanks, AK: Alaska Rural Development Council; Fairbanks, AK: University of Alaska, Cooperative Extension Service; 1974. 152 p.
- Bickford, C.A. The sampling design used in the forest survey of the Northeast. *J. For.* 50 (4): 290-293; 1952.
- Bruce, Donald; Schumacher, Francis X. Forest mensuration. 3d ed. New York: McGraw-Hill; 1950. 483 p.
- Hegg, Karl M. Forest resources of the Susitna Valley, Alaska. *Resour. Bull.* PNW-32. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1970. 42 p.
- Hegg, Karl M. Forest statistics for the upper Koyukuk River, Alaska, 1971. *Resour. Bull.* PNW-54. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1974. 26 p.
- Hegg, Karl M. Timber resource statistics for the Copper River inventory unit, Alaska, 1968. *Resour. Bull.* PNW-62. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1975a. 55 p.
- Hegg, Karl M. Timber resource statistics for the Fairbanks block, Tanana inventory unit, Alaska, 1970. *Resour. Bull.* PNW-59. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1975b. 36 p.
- Hegg, Karl M. Timber resource statistics for the Tuxedni Bay inventory unit, Alaska, 1971. *Resour. Bull.* PNW-88. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1979. 43 p.
- Hegg, Karl M.; Sieverding, Harold. Timber resources of the Kuskokwim flood plain and adjacent upland. *Resour. Bull.* PNW-87. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1980. 40 p.
- Hutchison, O. Keith. Alaska's forest resource. *Resour. Bull.* PNW-19. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1967. 74 p.
- Little, Elbert L., Jr. Check list of native and naturalized trees of the United States (including Alaska). *Agric. Handb.* 41. Washington, DC; U.S. Department of Agriculture; 1953. 472 p.

Hegg, Karl M. Timber resource statistics for the Kantishna block, Tanana inventory unit, Alaska, 1973. Resour. Bull. PNW-95. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 32 p.

This report for the 2.9-million-acre Kantishna block is the second of four on the 14-million-acre Tanana Valley inventory unit. Comments are made on general landform, timber use, recreational potential, agricultural developments, forest defect, regeneration, and inventory methodology. Tables are provided for commercial forest land and for operable noncommercial forest land. Estimates for commercial forest land total 424,200 acres with 367,300,000 net cubic feet of growing stock volume. Estimates for the operable noncommercial class total 41,500 acres with 42,600,000 net cubic feet of growing stock volume.

Keywords: Forest surveys, timber inventory, timber resources, resources (forest), statistics (forest), Alaska (Tanana Valley).

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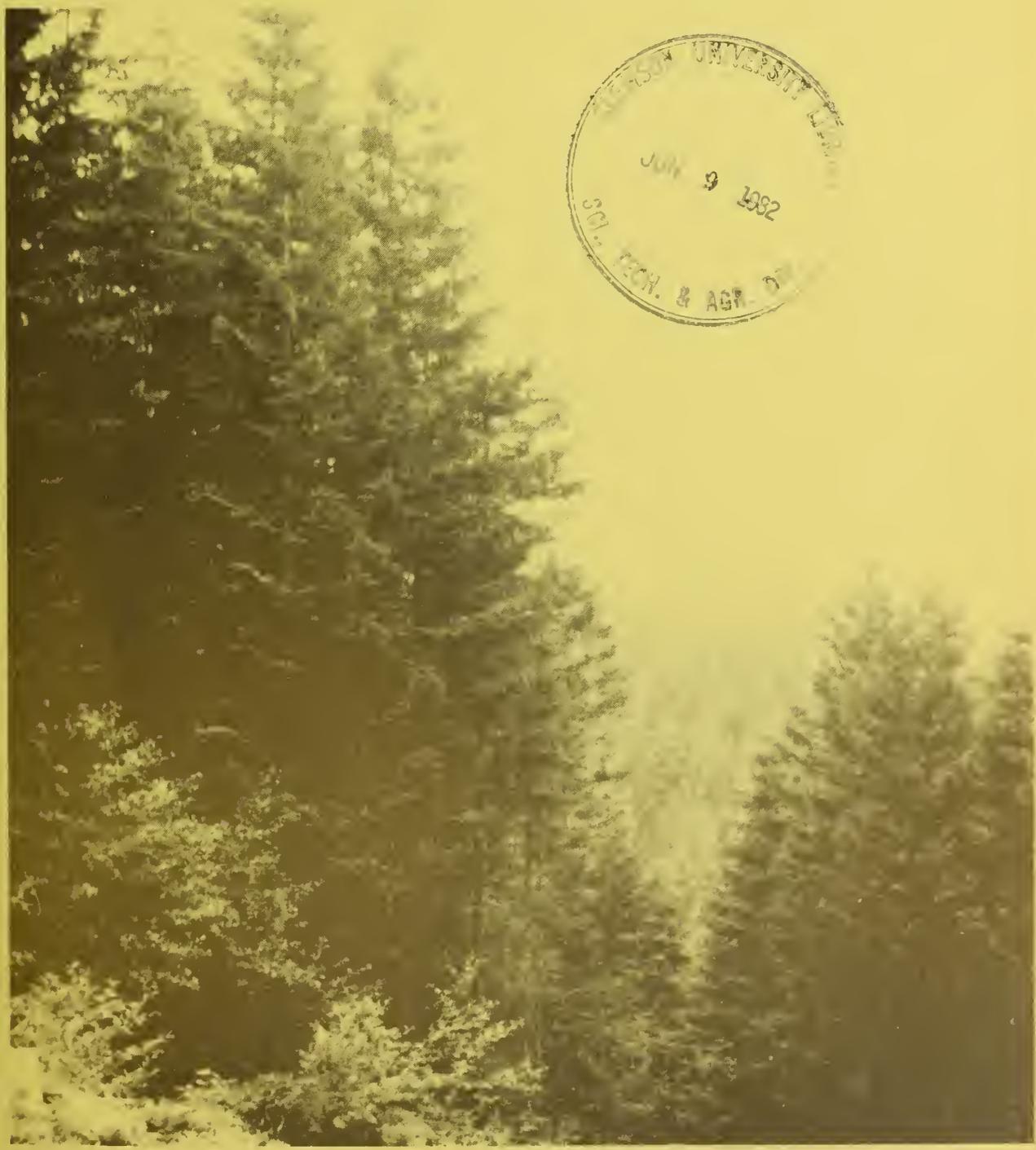
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Timber Resource Statistics for the Puget Sound Area, Washington

Patricia M. Bassett and Daniel D. Oswald



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This report summarizes a 1979 timber
resource inventory of eight counties in
the Puget Sound area of Washington:
Island, King, Kitsap, Pierce, San Juan,
Skagit, Snohomish, and Whatcom.
Detailed tables of forest area, timber
volume, growth, mortality, and harvest
are presented.

KEYWORDS: Forest surveys, statistics
(forest), timber resources, resources
(forest), Washington (Puget Sound).

The Puget Sound, Washington,
resource area (Island, King, Kitsap,
Pierce, San Juan, Skagit, Snohomish,
and Whatcom Counties) totals
6,553,000 acres (2 652 000 ha), of
which an estimated 4,481,000 acres
(1 813 000 ha) are forested. An
estimated 3,462,000 acres
(1 401 000 ha) are classified as
timberland. The area has an estimated
15.5 billion cubic feet (440 million m³)
of standing timber with 52 percent of
this volume in public ownership.

Renewable Resources Evaluation
(formerly Forest Survey) is a
nationwide project of the USDA Forest
Service authorized by the Forest and
Rangeland Renewable Resources
Research Act of 1978. Work Units of
the project, located at Forest Service
Experiment Stations, conduct forest
inventories throughout the 50 States.
The Pacific Northwest Forest and
Range Experiment Station at Portland,
Oregon, is responsible for inventories
in the States of Alaska, California,
Hawaii, Oregon, and Washington.

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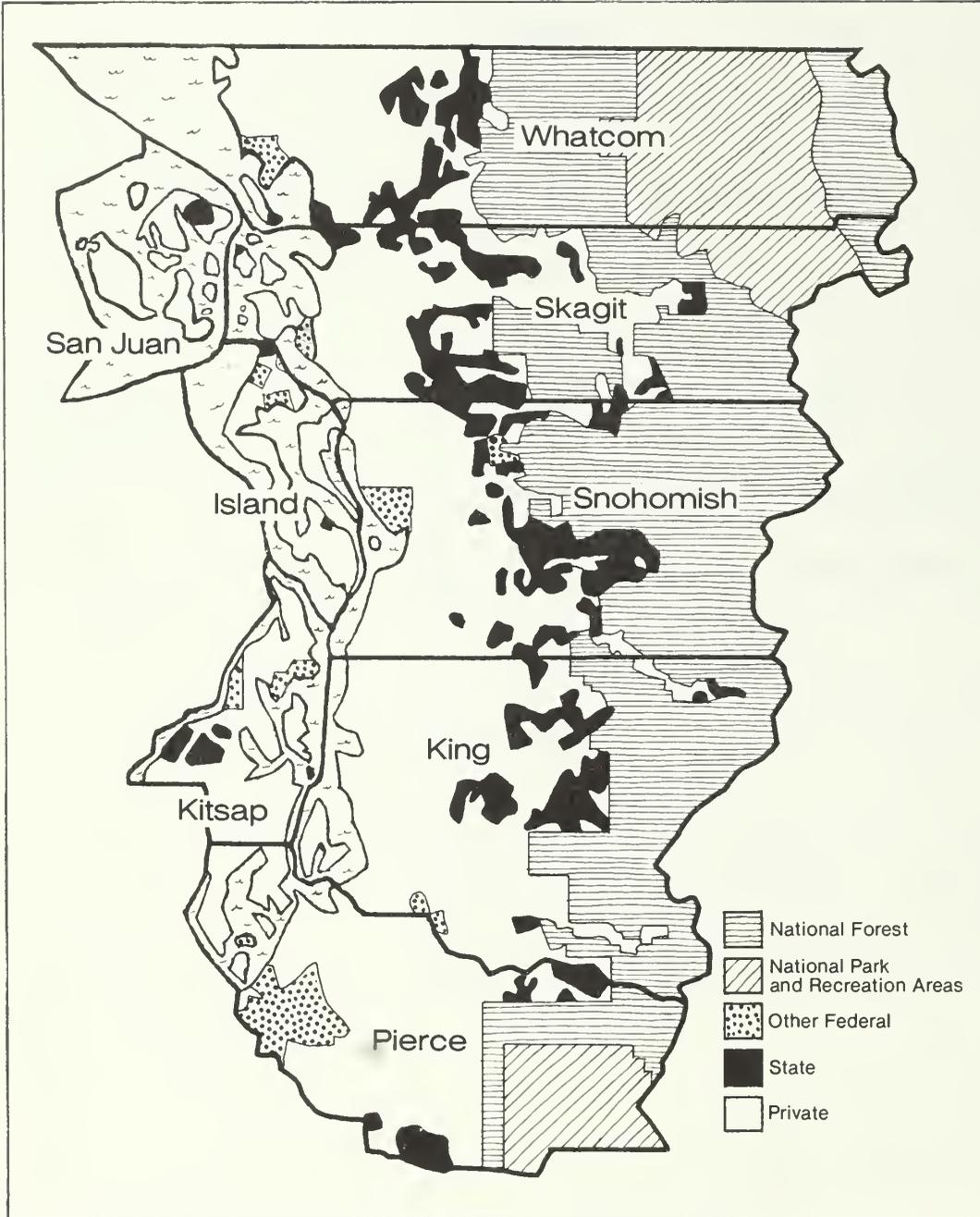
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Map of the Puget Sound Area, Washington



This report presents statistics from the latest inventory of timber resources for eight counties in Washington's Puget Sound area: Island, King, Kitsap, Pierce, San Juan, Skagit, Snohomish, and Whatcom. Previous inventories of the Puget Sound area were made in 1931-33, 1955-60, and 1966-67. King, Kitsap, and Pierce Counties were also inventoried in 1938-41.

Field data for all lands except National Forests were collected in the summer and fall of 1979 by the Renewable Resources Evaluation Work Unit (RRE) of the Pacific Northwest Forest and Range Experiment Station. National Forest inventory data included in this report are for all lands administered by the Mount Baker-Snoqualmie National Forest and were collected in 1976 by National Forest personnel.

Scientific names of trees (Little 1978) are listed on page 10 of this report.

This report of forest resources in Washington's Puget Sound area combines inventory data from two sources: (1) a 1976 inventory of the Mount Baker-Snoqualmie National Forest; (2) an inventory of State, county, municipal, Indian trust, and private forest lands conducted by RRE in the summer and fall of 1979.

In the Mount Baker-Snoqualmie National Forest, all areas of timberland, other forest land, reserved lands, and nonforest land were mapped by delineation on aerial photos. Timberland areas were systematically sampled with 380 field plots, arranged in a 1.7-mile (2 736-m) square grid. The field plots, each a cluster of ten variable-radius points distributed over about 1 acre (0.4 ha), are the basis for estimates of timber volume, growth, mortality, and area attributes such as forest type, site class, and stand size class.¹

For all lands **other than National Forest**, the sampling design used was double sampling for stratification (Cochran 1963.) A total of 8,551 photo points were classified to estimate area by owner group, major land class (timberland, other forest, nonforest), and stand volume class. We visited 547 field plots, located on a 3.4-mile (5 473-m) square grid, to correct the photo sample and to determine forest characteristics. On timberland locations, part of the 1966 10-point cluster plot was remeasured to determine growth and mortality. At the same general location, a new 5-point cluster plot, spread over about 8 acres (3 ha), was established to determine current volume, growth, and condition of the forest stand (MacLean 1980).

¹Resource Planning and Timber Management staffs, Mount Baker-Snoqualmie and Olympic National Forests. Region 6 area one timber inventory project plan (2410). 1974. Unpublished report. 40 pages.

Reliability of Inventory Data

The timberland area of the Mount Baker-Snoqualmie National Forest was determined from mapping and is not subject to sampling error. With that exception, all area and volume statistics reported are based on sampling and are subject to sampling error. Confidence intervals (0.68 probability level) for the estimated timberland area, cubic-foot volume, and net annual cubic-foot growth by ownership class are as follows:

Owner	Timberland area	Net volume	Net annual growth
	<i>Thousand acres</i>	<i>Million cubic feet</i>	
National Forest	835 ± 0	5,132 ± 121	13 ± 2
Other public	628 ± 20	2,964 ± 295	104 ± 9
Forest industry	998 ± 25	3,686 ± 252	146 ± 11
Other private	1,001 ± 35	3,746 ± 231	140 ± 9
All owners	3,462 ± 42	15,529 ± 458	413 ± 16

Confidence intervals are quantitative expressions of the reliability of the timberland area, volume, and growth statistics. The above tabulation, for instance, indicates a two-in-three chance that there are between 3,420,000 and 3,504,000 acres of timberland in the Puget Sound area, Washington.

Confidence intervals vary with both size of the estimate and variance of the item being estimated. If variance is assumed constant, confidence bounds can be approximated for estimates of various sizes. The confidence interval guides that follow are based on the assumption that an average relationship exists between variance and the size of the estimates, and thus provide only an approximation of the reliability of individual estimates.

Timberland area	Confidence interval for other than National Forest land	
	By owner ²	By type or class ^{2 3}
	<i>Thousand acres</i>	
1,000	± 23	± 71
800	± 21	± 65
600	± 18	± 57
400	± 15	± 47
200	± 11	± 35
100	± 7	± 25
50	± 5	± 19
25	± 3	± 14
15	± 2	± 11
10	± 1	± 10
5	± 1	± 5

Terminology

Confidence intervals

For net volume estimates of various sizes²

For net annual growth estimates of various sizes²

Other than
National
Forest

Other than
National
Forest

.....*Million cubic feet*.....

.....*Thousand cubic feet*.....

4,000	± 282	± 118	150,000	± 10,200	
2,000	± 205	± 88	100,000	± 8,300	
1,000	± 146	± 65	50,000	± 5,700	
800	± 130	± 59	25,000	± 4,000	
600	± 112	± 51	15,000	± 3,200	
400	± 89	± 42	10,000	± 2,600	
200	± 58	± 30	5,000	± 1,800	± 1,100
100	± 29	± 21	1,000	± 600	± 400
50	± 20	± 13	500	± 300	± 200
25	± 14	± 9	100	± 100	± 100
15	± 10	± 7			
10	± 7	± 5			
5	± 4	± 3			

Actual confidence intervals have been calculated for most of the tabular data in this report; they are available on request.

Constant variance is assumed.

Applies to breakdowns of the total estimated timberland areas such as site class, stand size class, and forest type.

Class of timber—A classification of trees as growing stock, cull, and salvable dead. Growing stock trees are subdivided into poletimber and sawtimber trees.

Codominant trees—Live trees with crowns forming the general level of the crown canopy and receiving full light from above but comparatively little from the sides; usually with medium-size crowns more or less crowded on the sides.

Commercial species—A tree species suitable for industrial wood products.

Cull trees—Live trees of non-commercial species, or live trees of commercial species that are more than 75 percent defective and are unlikely to become growing stock.

Cull trees, rotten—Cull trees with defect caused primarily by rot.

Cull trees, sound—Trees of non-commercial species or cull trees of commercial species with defect caused primarily by poor form, roughness, etc.

Diameter class—A classification of trees based on diameter outside bark measured at breast height, 4-1/2 feet (1.37 m) above the ground. D.b.h. is the common abbreviation for "diameter at breast height."

Dominant trees—Live trees with crowns extending above the general level of the crown canopy and receiving full light from above and partly from the side; larger than the average trees in the stand and with crowns dense, comparatively wide and long, but somewhat crowded on the sides.

Forest-industry lands—Lands owned by companies or individuals operating wood-using plants.

Forest land—Land at least 10 percent stocked by live trees or land formerly having such tree cover and not currently developed for nonforest use.

Forest types—Stands with 50 percent or more stocking in live conifer trees are classed as softwood types. Stands with a majority of stocking in live hardwood trees are classed as hardwood types. Within these two groups, the individual forest type is determined by plurality of stocking by species of live softwood or hardwood trees.

Growing stock trees—All live trees with the exception of cull trees.

Growing stock volume—Net volume in cubic feet of live sawtimber and poletimber growing stock trees from stump to a minimum 4-inch (10-cm) top (of central stem) outside bark. Net volume equals gross volume less deduction for rot and missing bole sections.

Hardwoods—Trees that are angiosperms, usually broad-leaved and deciduous.

Industrial wood—All commercial roundwood products except fuelwood.

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

Land area—Area reported as land by the Bureau of the Census. 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 1/8-mile (200 m) wide; and lakes, reservoirs, and ponds less than 40 acres (16 ha) in area.

Land class—A classification of land by major use. The minimum size area for classification is 1 acre (0.4 ha).

Mean annual increment—A measure of the productivity of forest land in terms of the average increase in cubic-foot volume per acre per year. For a given species and site index the average is based on the number of years needed for the mean annual increment to culminate in fully stocked stands.

Mortality—Volume of sound wood in trees dying from natural causes during a specified period.

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

Net annual growth—The net increase in volume of trees during a specified year. Components of net annual growth of trees: (a) the increment in net volume of trees alive at the beginning of the specified year and surviving to the year's end, plus (b) the net volume of trees reaching sawtimber or poletimber size during the year, minus (c) the net volume of trees that died during the year.

Noncommercial species—A tree species not suitable for industrial wood products.

Nonforest land—Land that has never supported forests or was formerly forested and is currently developed for nonforest uses. Included are lands used for agricultural crops, Christmas tree farms, improved pasture, residential areas, city parks, improved roads, operating railroads and their right-of-way clearings, powerline and pipeline clearings, streams over 30 feet (10 m) wide, and 1- to 40-acre (0.4- to 16- ha) areas of water classified by the Bureau of the Census as land. If intermingled in forest areas, unimproved roads and other nonforest strips must be more than 120 feet (35 m) wide, and clearings or other areas must be 1 acre (0.4 ha) or larger in size to qualify as nonforest land.

Nonstocked areas—Timberland less than 10 percent stocked with growing stock trees.

Other forest land—Forest land incapable of producing 20 cubic feet per acre per year of industrial wood because of adverse site conditions such as sterile soils, dry climate, poor drainage, high elevation, steepness, or rockiness.

Other private lands—All privately owned lands except those classed as forest-industry lands.

Other private lands, farmer—Lands owned by operators of farms.

Other private lands, miscellaneous—Privately owned lands other than those owned by the forest industry or farmer.

Other public lands—Lands administered by public agencies other than the Forest Service.

Poletimber stands—Stands with a mean diameter (weighted by basal area) from 5.0-9.0 inches (12.5-22.5 cm) if softwood and from 5.0-11.0 inches (12.5-27.5 cm) if hardwood.

Poletimber trees—Live trees of commercial species at least 5.0 inch (12.5 cm) in d.b.h. but smaller than sawtimber size, and of good form and vigor.

Roundwood—Logs, bolts, or other round sections cut from trees.

Salvable dead trees—Standing or down trees of commercial species, at least 9.0 inches (22.5 cm) in d.b.h. for softwoods and at least 11.0 inches (27.5 cm) in d.b.h. for hardwoods, containing 25 percent or more sound wood volume and at least one merchantable 12-foot (3.8-m) log if softwood or one merchantable 8-foot (2.5-m) log if hardwood.

Sapling and seedling stands—Stands with a mean diameter (weighted by basal area) less than 5.0 inches (12.5 cm).

Acknowledgments

Sapling and seedling trees—Live trees of commercial species less than 6 inches (12.5 cm) in d.b.h. with no disease, defects, or deformities likely to prevent their becoming pole timber trees.

Saw log portion—The bole of saw timber trees between the stump and the saw log top.

Sawtimber stands—Stands with a mean diameter (weighted by basal area) larger than 9.0 inches (22.5 cm) if softwood and larger than 11.0 inches (27.5 cm) if hardwood.

Sawtimber trees—Live softwood trees of commercial species at least 9.0 inches (22.5 cm) in d.b.h. and hardwood trees of commercial species at least 11.0 inches (27.5 cm) in d.b.h. At least 25 percent of the board-foot volume in a sawtimber tree must be free from defect. Softwood trees must contain at least one 12-foot (3.8-m) saw log with a top diameter of not less than 6 inches (15 cm) inside bark; hardwood trees must contain at least one 8-foot (2.5-m) saw log with a top diameter of not less than 8 inches (20 cm) inside bark.

Sawtimber volume—Net volume of sawtimber trees measured in board feet. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Scribner rule—The common board-foot log rule used locally in determining volume of sawtimber. Scribner volume is estimated in terms of 32-foot (10-m) logs for softwoods and 16-foot (5-m) for hardwoods.

Site class—A classification of the potential productivity of forest land in terms of mean annual increment.

Site index—A measure of the productivity of forest land in terms of the average height of dominant and codominant trees at a specified age.

Softwoods—Coniferous trees, usually evergreen.

Timber harvest—Volume of roundwood removed from forest land for products.

Timber volume—Includes the net volume in cubic feet of pole timber and sawtimber trees and salvable dead sawtimber trees of all species, the net volume in cubic feet of cull trees of commercial species, and gross volume of noncommercial species. Volume is measured from stump to a minimum 4-inch (10-cm) top outside bark.

Timberland—Forest land capable of producing 20 cubic feet or more per acre (1.4 m³/ha) per year of industrial wood, and not withdrawn from timber utilization.

Timberland, deferred—National Forest timberland temporarily withdrawn from timber utilization and under study for possible inclusion in the wilderness system.

Timberland, reserved—Public land withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as timberland.

Upper stem portion—The bole of sawtimber trees above the saw log top—7.0 inches (18 cm) outside bark for softwoods and 9.0 inches (23 cm) outside bark for hardwoods—to a minimum top diameter of 4.0 inches (10 cm) outside bark, or to the point where the central stem breaks into limbs.

This inventory was completed with the cooperation and assistance of many organizations and individuals. The Washington Department of Natural Resources, a cooperator, prepared maps and aerial photos for use in the inventory, and developed equations for estimation of tree volumes; county assessors provided ownership information; the Pacific Northwest Region, USDA Forest Service, and the Mount Baker-Snoqualmie National Forest provided forest resource inventory data; timber companies and many individual landowners allowed access to their forest lands.

Metric Equivalents

1,000 acres = 404.7 hectares (ha)
1,000 cubic feet = 28.3 cubic meters (m³)
1 cubic foot per acre = 0.07 cubic meter per hectare (m³/ha)
1 foot = 0.3048 meter (m)
1 inch = 2.54 centimeters (cm)
1 mile = 1.609 kilometers (km)

Common Name	Scientific name
-------------	-----------------

Softwoods

Alaska-cedar	<i>Chamaecyparis nootkatensis</i> (D. Don) Spach
Douglas-fir	<i>Pseudotsuga menziesii</i> (Mirb.) Franco
Fir, grand	<i>Abies grandis</i> (Dougl.) Lindl.
Fir, noble	<i>A. procera</i> Rehd.
Fir, Pacific silver	<i>A. amabilis</i> Dougl. ex Forbes
Fir, subalpine	<i>A. lasiocarpa</i> (Hook.) Nutt.
Hemlock, mountain	<i>Tsuga mertensiana</i> (Bong.) Carr.
Hemlock, western	<i>T. heterophylla</i> (Raf.) Sarg.
Pine, lodgepole	<i>Pinus contorta</i> Dougl. ex Loud. var. <i>latifolia</i> Engelm.
Pine, western white	<i>P. monticola</i> Dougl. ex D. Don
Redcedar, western	<i>Thuja plicata</i> Donn ex D. Don
Spruce, Engelmann	<i>Picea engelmannii</i> Parry ex Engelm.
Spruce, sitka	<i>P. sitchensis</i> (Bong.) Carr.

Hardwoods

Alder, red	<i>Alnus rubra</i> Bong.
Ash, Oregon	<i>Fraxinus latifolia</i> Benth.
Birch, western paper	<i>Betula papyrifera</i> var. <i>commutata</i> (Reg.) Fern.
Cottonwood, black	<i>P. trichocarpa</i> Torr. & Gray
Madrone, Pacific	<i>Arbutus menziesii</i> Pursh
Maple, bigleaf	<i>Acer macrophyllum</i> Pursh
Willow	<i>Salix</i> spp.

Cochran, W.G. Sampling techniques. 2d New York: John Wiley & Sons; 1963. 413 p.

Little, Elbert L., Jr. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture; 1978. 375 p.

MacLean, Colin D. A technique for identifying treatment opportunities for western Oregon and Washington forest survey plots. Gen. Tech. Rep. PNW-1 Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1980. 16 p.

Tables

Estimates in this report are developed from statistically based samples and therefore are subject to sampling error. Approximate confidence intervals for estimates of various sizes are presented in the section "Reliability of Inventory Data."

Table 1—Area by land class and county, Puget Sound area, Washington, January 1, 1980^{1/}

LAND CLASS	ISLAND	KING	KITSAP	PIERCE	SAN JUAN	SKAGIT	SNOHOMISH	WHATCOM	ALL COUNTIES
FOREST LAND:									
TIMBERLAND	31	329	66	238	27	245	284	183	1 401
TIMBERLAND, DEFERRED	--	4	--	--	--	6	31	--	41
TIMBERLAND, RESERVED	<u>2/</u>	18	<u>2/</u>	37	1	21	27	52	157
OTHER FOREST	1	32	1	37	2	32	39	71	214
TOTAL	32	384	67	312	30	304	380	306	1 813
NONFOREST LAND <u>3/4/</u>	23	167	35	122	17	131	165	179	839
ALL LANDS <u>5/6/</u>	55	551	102	434	47	435	545	485	2 652
THOUSAND ACRES									
FOREST LAND:									
TIMBERLAND	76	812	162	589	66	606	701	451	3,462
TIMBERLAND, DEFERRED	--	11	--	--	--	14	77	--	102
TIMBERLAND, RESERVED	1	45	1	91	3	52	66	128	387
OTHER FOREST	2	80	2	91	4	78	96	175	528
TOTAL	78	948	165	771	73	751	940	755	4,481
NONFOREST LAND <u>3/4/</u>	58	413	86	302	42	323	407	443	2,074
ALL LANDS <u>5/6/</u>	135	1,361	251	1,073	115	1,074	1,346	1,198	6,553

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Less than 500 hectares.

^{3/}Includes cropland, pasture and range, swampland, industrial and urban areas, powerline clearings, railroads, and all improved roads and highways, and water as classified by Renewable Resources Evaluation standards but defined by the Bureau of Census as land.

^{4/}Includes 21,000 acres (8 500 ha) of land managed for Christmas tree production.

^{5/}Source: United States Bureau of the Census, Land and Water Area of the United States, 1960.

^{6/}Includes all land administered by the Mount Baker-Snoqualmie National Forest. Excludes approximately 160,000 acres (65 000 ha) in Whatcom County and 37,000 acres (15 000 ha) in Skagit County administered by the Okanogan National Forest, and 10,000 acres (4 000 ha) in Pierce County administered by the Gifford Pinchot National Forest.

Table 2—Area of timberland by ownership class and county, Puget Sound area, Washington, January 1, 1980^{1/}

OWNERSHIP CLASS	ISLAND	KING	KITSAP	PIERCE	SAN JUAN	SKAGIT	SNOHOMISH	WHATCOM	ALL COUNTIES
PUBLIC:									
NATIONAL FOREST	--	153	--	99	--	166	235	182	835
OTHER PUBLIC—									
INDIAN	<u>2/</u>	--	2	--	--	3	6	7	18
OTHER FEDERAL	<u>1</u>	4	6	38	2	2	14	<u>2/</u>	67
STATE	7	60	19	39	1	119	114	<u>70</u>	429
COUNTY AND MUNICIPAL	1	79	12	6	1	5	8	3	115
TOTAL	9	296	39	181	4	295	378	262	1,464
PRIVATE:									
FOREST INDUSTRY	4	326	26	239	--	194	124	85	998
OTHER PRIVATE—									
FARMER	11	20	8	18	5	9	13	12	96
MISCELLANEOUS	51	171	90	151	57	107	185	92	905
TOTAL	66	517	124	408	62	310	322	189	1,998
ALL OWNERSHIPS	76	812	162	589	66	606	701	451	3,462

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Less than 500 acres.

Table 3—Area of timberland by cubic-foot site and ownership classes, Puget Sound area, Washington, January 1, 1980^{1/}

SITE CLASS ^{2/}	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>CUBIC FEET</u>	----- THOUSAND ACRES -----				
225 OR MORE	22	60	82	22	185
165 TO 224	171	138	306	233	848
120 TO 164	269	267	300	321	1,157
85 TO 119	234	114	195	302	845
50 TO 84	129	34	85	89	337
20 TO 49	9	17	30	34	91
ALL CLASSES	835	628	998	1,001	3,462

^{1/}Estimates are subject to sampling error.

^{2/}Totals may be off because of rounding.

^{3/}Capacity for cubic-foot annual growth per acre at culmination of mean annual growth in fully stocked natural stands.

Table 4—Area of timberland by stand size and ownership classes, Puget Sound area, Washington, January 1, 1980^{1/}

STAND SIZE CLASS	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
<u>THOUSAND HECTARES</u>					
SAWTIMBER STANDS:					
LARGE SAWTIMBER ^{2/}	149	17	21	13	200
SMALL SAWTIMBER ^{3/}	102	146	180	208	638
TOTAL	251	163	201	221	836
POLETIMBER STANDS	8	38	79	135	250
SAPLING AND					
SEEDLING STANDS	57	47	122	40	266
NONSTOCKED AREAS	22	6	2	9	40
ALL CLASSES	338	254	404	405	1 401
<u>THOUSAND ACRES</u>					
SAWTIMBER STANDS:					
LARGE SAWTIMBER ^{4/}	368	42	51	32	493
SMALL SAWTIMBER ^{5/}	251	360	445	514	1,570
TOTAL	619	402	496	546	2,063
POLETIMBER STANDS	20	94	194	334	642
SAPLING AND					
SEEDLING STANDS	142	117	302	98	659
NONSTOCKED AREAS	55	16	6	23	100
ALL CLASSES	835	628	998	1,001	3,462

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Large sawtimber includes trees 52.5-centimeter d.b.h. and larger.

^{3/}Small sawtimber includes softwood trees 22.5- to 52.4-centimeter d.b.h. and hardwood trees 27.5- to 52.4-centimeter d.b.h.

^{4/}Large sawtimber includes trees 21.0-inch d.b.h. and larger.

^{5/}Small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

Table 5—Area of timberland by forest type and ownership class, Puget Sound area, Washington, January 1, 1980^{1/}

FOREST TYPE	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND ACRES</u>					
DOUGLAS-FIR	161	303	377	360	1,202
EASTERN HEMLOCK	248	108	301	43	700
PACIFIC SILVER FIR	316	69	52	--	437
EASTERN REDCEDAR	13	7	35	63	118
MOUNTAIN HEMLOCK	24	5	39	--	68
GRAND FIR	--	--	--	16	16
DOUBLE FIR	--	--	10	--	10
SUBALPINE FIR	5	--	--	--	5
ALASKA-CEDAR	2	--	--	--	2
RED ALDER	6	104	163	413	686
APPLE	5	--	14	49	69
PITONWOOD	--	8	--	14	22
SPRUCE	--	--	--	6	6
OTHER HARDWOODS	--	--	--	6	6
NONCOMMERCIAL HARDWOODS	--	7	--	8	15
UNCLASSIFIED ^{2/}	55	16	6	23	100
ALL TYPES	835	628	998	1,001	3,462

^{1/} Estimates are subject to sampling error.

^{2/} Totals may be off because of rounding.

Unclassified type is less than 10 percent stocked with live trees.

Table 6—Area of reserved and deferred timberland and other forest land by land class, forest type, and ownership class, Puget Sound area, Washington, January 1, 1980^{1/ 2/}

LAND CLASS AND FOREST TYPE	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND ACRES</u>					
TIMBERLAND, RESERVED:					
DOUGLAS-FIR	--	106	--	--	106
HEMLOCK	--	55	--	--	55
PACIFIC SILVER FIR ^{3/}	123	44	--	--	167
GRAND FIR	--	45	--	--	45
LOGEPOLE PINE	--	1	--	--	1
SPRUCE	--	<u>4/</u>	--	--	<u>4/</u>
CEDAR	--	4	--	--	4
RED ALDER	--	3	--	--	3
HARDWOODS	--	4	--	--	4
ALL TIMBERLAND, RESERVED	123	264	--	--	387
TIMBERLAND, DEFERRED:					
DOUGLAS-FIR	55	--	--	--	55
PACIFIC SILVER FIR ^{3/}	47	--	--	--	47
ALL TIMBERLAND, DEFERRED	102	--	--	--	102
OTHER FOREST LAND:					
DOUGLAS-FIR	59	--	--	--	59
HEMLOCK-SITKA SPRUCE	115	--	--	--	115
FIR-SPRUCE	5	--	--	--	5
HARDWOODS	54	--	--	--	54
WILLOW	--	--	--	8	8
UNCLASSIFIED ^{5/}	2	252	33	--	287
ALL OTHER FOREST LAND ^{6/}	235	252	33	8	528

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Area of timberland by forest type and ownership class is presented in table 5.

^{3/}Includes fir-spruce type for National Forest.

^{4/}Less than 500 acres.

^{5/}Information on forest type not available.

^{6/}Includes 305,000 acres of reserved areas.

Table 7—Volume of timber on timberland by class of timber and by softwoods and hardwoods, Puget Sound area, Washington, January 1, 1980^{1/}

CLASS OF TIMBER	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>MILLION CUBIC FEET</u>			
SAWTIMBER TREES:			
SAW LOG PORTION	11,601	1,462	13,064
UPPER STEM PORTION	333	198	531
TOTAL	11,935	1,660	13,595
POLETIMBER TREES	1,112	821	1,934
ALL GROWING STOCK	13,048	2,481	15,529
SOUND CULL TREES	41	116	157
ROTEN CULL TREES	80	37	117
SALVABLE DEAD TREES	336	6	341
ALL TIMBER	13,505	2,639	16,144

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

Table 8—Volume of growing stock and sawtimber on timberland by ownership class and by softwoods and hardwoods, Puget Sound area, Washington, January 1, 1980^{1/}

OWNERSHIP CLASS	AVERAGE	SOFTWOODS	HARDWOODS	ALL SPECIES
	VOLUME			
	<u>CUBIC METERS</u>			
	<u>PER HECTARE</u>	- - - -	<u>MILLION CUBIC METERS</u>	- - - -
GROWING STOCK: ^{2/}				
NATIONAL FOREST	430	143	2	145
OTHER PUBLIC	330	71	13	84
FOREST INDUSTRY	258	87	17	104
OTHER PRIVATE	262	68	38	106
ALL OWNERSHIPS	314	370	70	440
	<u>CUBIC FEET</u>			
	<u>PER ACRE</u>	- - - -	<u>MILLION CUBIC FEET</u>	- - - -
GROWING STOCK: ^{3/}				
NATIONAL FOREST	6,146	5,064	68	5,132
OTHER PUBLIC	4,720	2,494	470	2,964
FOREST INDUSTRY	3,693	3,086	601	3,686
OTHER PRIVATE	3,742	2,403	1,343	3,746
ALL OWNERSHIPS	4,485	13,048	2,481	15,529
	<u>BOARD FEET</u>			
	<u>PER ACRE</u>	- - - -	<u>MILLION BOARD FEET</u>	- - - -
SAWTIMBER (INTERNATIONAL				
1/4-INCH RULE): ^{4/}				
NATIONAL FOREST	35,601	29,454	274	29,727
OTHER PUBLIC	24,062	13,282	1,829	15,111
FOREST INDUSTRY	18,100	15,890	2,174	18,064
OTHER PRIVATE	17,337	12,549	4,805	17,354
ALL OWNERSHIPS	23,182	71,175	9,082	80,256
SAWTIMBER (SCRIBNER RULE): ^{4/}				
NATIONAL FOREST	28,431	23,559	181	23,740
OTHER PUBLIC	17,583	9,501	1,541	11,042
FOREST INDUSTRY	13,040	11,194	1,820	13,014
OTHER PRIVATE	12,675	8,630	4,059	12,688
ALL OWNERSHIPS	17,471	52,883	7,601	60,484

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 12.5-centimeter d.b.h. and larger.

^{3/}Includes trees 5.0-inch d.b.h. and larger.

^{4/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

Table 9—Volume of growing stock and sawtimber on timberland by county and ownership class, Puget Sound area, Washington, January 1, 1980^{1/}

COUNTY	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION CUBIC METERS</u>					
GROWING STOCK: ^{2/}					
ISLAND	--	1	1	6	8
KING	20	15	34	19	88
KITSAP	--	6	3	11	20
PIERCE	22	10	21	17	71
SAN JUAN	--	3/	--	6	6
SKAGIT	29	18	22	13	82
SNOHOMISH	47	22	16	24	108
WHATCOM	27	10	8	10	55
ALL COUNTIES	145	84	104	106	440
<u>MILLION CUBIC FEET</u>					
GROWING STOCK: ^{4/}					
ISLAND	--	51	22	216	289
KING	699	545	1,203	664	3,111
KITSAP	--	198	114	400	712
PIERCE	788	362	752	604	2,506
SAN JUAN	--	12	--	212	224
SKAGIT	1,036	643	772	460	2,911
SNOHOMISH	1,653	788	551	839	3,831
WHATCOM	956	365	273	352	1,946
ALL COUNTIES	5,132	2,964	3,686	3,746	15,529
<u>MILLION BOARD FEET</u>					
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): ^{5/}					
ISLAND	--	284	114	996	1,394
KING	3,806	2,655	5,799	2,973	15,233
KITSAP	--	1,052	560	1,915	3,527
PIERCE	4,331	1,788	3,597	2,789	12,505
SAN JUAN	--	56	--	974	1,030
SKAGIT	6,254	3,264	3,887	2,156	15,561
SNOHOMISH	9,657	4,172	2,788	4,034	20,651
WHATCOM	5,679	1,840	1,319	1,517	10,355
ALL COUNTIES	29,727	15,111	18,064	17,354	80,256
SAWTIMBER (SCRIBNER RULE): ^{5/}					
ISLAND	--	211	85	730	1,026
KING	2,977	1,916	4,145	2,185	11,223
KITSAP	--	783	402	1,393	2,578
PIERCE	3,387	1,290	2,574	2,035	9,286
SAN JUAN	--	41	--	688	729
SKAGIT	5,056	2,373	2,831	1,579	11,839
SNOHOMISH	7,769	3,082	2,013	2,944	15,808
WHATCOM	4,551	1,346	963	1,134	7,994
ALL COUNTIES	23,740	11,042	13,014	12,688	60,484

^{1/}Estimates are subject to sampling error.

^{2/}Totals may be off because of rounding.

^{3/}Includes trees 12.5-centimeter d.b.h. and larger.

^{4/}Less than 500,000 cubic meters.

^{5/}Includes trees 5.0-inch d.b.h. and larger.

^{6/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

Table 10—Volume of growing stock on timberland by species and ownership class, Puget Sound area, Washington, January 1, 1980^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
<u>MILLION CUBIC FEET</u>					
SOFTWOODS:					
DOUGLAS-FIR	1,125	1,365	961	1,534	4,985
WESTERN HEMLOCK	1,568	576	1,152	476	3,772
PACIFIC SILVER FIR	1,498	317	435	14	2,264
WESTERN REDCEDAR	403	200	270	299	1,172
MOUNTAIN HEMLOCK	279	21	205	--	505
NOBLE FIR	84	5	5	--	94
ALASKA-CEDAR	58	5	17	--	80
GRAND FIR	4	--	11	51	66
SITKA SPRUCE	4	5	22	24	55
SUBALPINE FIR	34	--	--	--	34
LODGEPOLE PINE	--	--	4	8	12
WESTERN WHITE PINE	3	2	4	--	9
ENGELMANN SPRUCE	3	--	--	--	3
TOTAL	5,064	2,494	3,086	2,403	13,047
HARDWOODS:					
RED ALDER	43	301	460	923	1,727
BIGLEAF MAPLE	18	115	82	242	457
BLACK COTTONWOOD	7	34	42	109	192
WESTERN PAPER BIRCH	--	10	14	23	47
PACIFIC MADRONE	--	10	--	19	29
OREGON ASH	--	--	2	27	29
TOTAL	68	470	601	1,343	2,485
ALL SPECIES	5,132	2,964	3,686	3,746	15,532

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

Table 11—Volume of sawtimber, International 1/4-inch rule, on timberland by species and ownership class, Puget Sound area, Washington, January 1, 1980^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION BOARD FEET</u>					
SOFTWOODS:					
DOUGLAS-FIR	5,774	7,600	5,111	8,080	26,564
WESTERN HEMLOCK	9,378	2,599	5,449	2,404	19,830
PACIFIC SILVER FIR	9,120	1,971	2,451	87	13,629
WESTERN REDCEDAR	2,398	920	1,297	1,567	6,182
MOUNTAIN HEMLOCK	1,651	119	1,237	--	3,007
NOBLE FIR	540	24	26	--	591
ALASKA-CEDAR	331	24	86	--	441
GRAND FIR	28	--	69	251	347
SITKA SPRUCE	30	26	125	146	326
SUBALPINE FIR	171	--	--	--	171
LODGEPOLE PINE	--	--	16	15	30
WESTERN WHITE PINE	18	--	24	--	42
ENGELMANN SPRUCE	15	--	--	--	15
TOTAL	29,454	13,282	15,890	12,549	71,175
HARDWOODS:					
RED ALDER	173	1,160	1,598	2,997	5,929
BIGLEAF MAPLE	54	432	311	962	1,758
BLACK COTTONWOOD	47	169	245	627	1,087
WESTERN PAPER BIRCH	--	32	14	37	83
PACIFIC MADRONE	--	36	--	54	90
OREGON ASH	--	--	7	127	134
TOTAL	274	1,829	2,174	4,805	9,082
ALL SPECIES	29,727	15,111	18,064	17,354	80,256

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

Table 12--Volume of sawtimber, Scribner rule, on timberland by species and ownership class, Puget Sound area, Washington, January 1, 1980^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
<u>MILLION BOARD FEET</u>					
SOFTWOODS:					
DOUGLAS-FIR	4,545	5,404	3,552	5,572	19,072
WESTERN HEMLOCK	7,575	1,794	3,784	1,700	14,853
PACIFIC SILVER FIR	7,230	1,599	1,876	67	10,772
WESTERN REDCEDAR	1,981	576	836	995	4,388
MOUNTAIN HEMLOCK	1,325	78	908	--	2,310
NOBLE FIR	443	16	19	--	478
ALASKA-CEDAR	262	15	58	--	334
GRAND FIR	24	--	47	180	251
SITKA SPRUCE	27	19	87	106	239
SUBALPINE FIR	123	--	--	--	123
LODGEPOLE PINE	--	--	9	9	19
WESTERN WHITE PINE	15	--	18	--	33
ENGELMANN SPRUCE	11	--	--	--	11
TOTAL	23,559	9,501	11,194	8,630	52,882
HARDWOODS:					
RED ALDER	111	970	1,326	2,508	4,914
BIGLEAF MAPLE	35	365	261	817	1,478
BLACK COTTONWOOD	36	150	216	551	953
WESTERN PAPER BIRCH	--	27	12	30	69
PACIFIC MADRONE	--	30	--	45	75
OREGON ASH	--	--	6	109	115
TOTAL	181	1,541	1,820	4,059	7,601
ALL SPECIES	23,740	11,042	13,014	12,688	60,482

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

Table 13—Volume of growing stock on timberland by species and diameter class, Puget Sound area, Washington, January 1, 1980^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)											29.0 AND LARGER	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	19.0-20.9	21.0-28.9	21.0-28.9	29.0 AND LARGER			
<u>MILLION CUBIC FEET</u>														
SOFTWOODS:														
DOUGLAS-FIR	129	258	380	481	568	449	436	448	943	895	4,986			
WESTERN HEMLOCK	181	277	385	363	343	336	271	196	582	837	3,771			
PACIFIC SILVER FIR	45	76	81	86	126	124	138	141	614	834	2,263			
WESTERN REDCEDAR	46	69	91	84	74	85	72	72	192	387	1,171			
MOUNTAIN HEMLOCK	2	5	6	11	19	23	30	37	139	232	505			
NOBLE FIR	1	1	2	6	2	1	7	3	25	47	93			
ALASKA-CEDAR	1	1	2	3	3	5	3	6	19	36	80			
GRAND FIR	3	5	4	3	4	7	8	5	14	12	66			
SITKA SPRUCE	2/	1	5	4	5	4	7	--	6	22	55			
SUBALPINE FIR	1	2	1	4	3	5	3	5	9	1	34			
LODGEPOLE PINE	2	3	1	2	3	--	--	--	--	--	11			
WESTERN WHITE PINE	1	1	1	--	--	--	2/	1	4	1	9			
ENGELMANN SPRUCE	--	--	--	--	2/	1	1	2/	1	--	3			
TOTAL	412	701	959	1,046	1,151	1,041	975	913	2,546	3,305	13,048			
HARDWOODS:														
RED ALDER	88	204	334	339	290	223	114	70	61	3	1,726			
BIGLEAF MAPLE	20	38	73	54	61	60	46	18	59	29	457			
BLACK COTTONWOOD	1	7	9	12	15	28	25	29	48	21	193			
WESTERN PAPER BIRCH	4	17	9	8	7	--	--	1	--	--	47			
PACIFIC MADRONE	2	4	6	4	3	6	2	--	2	1	29			
O'EGON ^{2/} SH	2/	2	4	5	4	6	1	3	4	1	29			
TOTAL	115	272	434	422	378	324	188	121	174	53	2,481			
ALL SPECIES	527	973	1,393	1,468	1,529	1,365	1,163	1,034	2,720	3,358	15,529			

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Less than 500,000 cubic feet.

Table 14—Volume of sawtimber, International 1/4-inch rule, on timberland by species and diameter class, Puget Sound area, Washington, January 1, 1980^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)								
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 AND LARGER	ALL CLASSES
<u>MILLION BOARD FEET</u>									
SOFTWOODS:									
DOUGLAS-FIR	1,757	2,545	3,224	2,611	2,614	2,741	5,825	5,249	26,564
WESTERN HEMLOCK	1,781	1,861	1,820	1,842	1,512	1,096	3,548	6,371	19,830
PACIFIC SILVER FIR	376	451	715	743	854	878	3,987	5,625	13,629
WESTERN REDCEDAR	392	421	398	480	418	423	1,160	2,491	6,182
MOUNTAIN HEMLOCK	23	53	96	122	172	213	832	1,496	3,007
NOBLE FIR	7	30	12	8	40	21	160	313	591
ALASKA-CEDAR	10	13	14	27	17	33	109	218	441
GRAND FIR	20	14	26	42	47	31	89	79	347
SITKA SPRUCE	23	22	27	26	39	--	40	147	326
SUBALPINE FIR	3	18	18	28	17	30	49	8	171
LODGEPOLE PINE	6	11	14	--	--	--	--	--	30
WESTERN WHITE PINE	5	--	--	--	1	3	25	8	42
ENGELMANN SPRUCE	--	--	1	5	3	3	4	--	15
TOTAL	4,403	5,439	6,364	5,931	5,735	5,470	15,827	22,005	71,175
HARDWOODS:									
RED ALDER	--	1,566	1,587	1,301	674	419	366	17	5,929
BIGLEAF MAPLE	--	248	319	340	247	98	342	164	1,758
BLACK COTTONWOOD	--	61	84	168	160	185	302	127	1,087
WESTERN PAPER BIRCH	--	32	36	10	--	6	--	--	83
PACIFIC MADRONE	--	17	13	33	10	--	14	4	90
OREGON ASH	--	26	21	32	6	19	22	8	134
TOTAL	--	1,950	2,060	1,884	1,096	727	1,046	320	9,082
ALL SPECIES	4,403	7,388	8,424	7,815	6,831	6,197	16,873	22,325	80,256

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

Table 15—Volume of sawtimber, Scribner rule, on timberland by species and diameter class, Puget Sound area, Washington, January 1, 1980^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)								
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0 AND LARGER	ALL CLASSES
	<u>MILLION BOARD FEET</u>								
SOFTWOODS:									
DOUGLAS-FIR	1,019	1,599	2,140	1,791	1,858	1,985	4,367	4,314	19,072
WESTERN HEMLOCK	1,034	1,182	1,224	1,286	1,096	812	2,757	5,463	14,853
PACIFIC SILVER FIR	200	276	470	518	621	659	3,183	4,845	10,772
WESTERN REDCEDAR	212	244	239	303	271	276	793	2,050	4,388
MOUNTAIN HEMLOCK	11	30	60	82	120	152	632	1,222	2,310
NOBLE FIR	4	19	8	5	29	16	127	271	478
ALASKA-CEDAR	6	7	8	18	12	23	82	179	334
GRAND FIR	12	8	17	28	33	22	67	65	251
SITKA SPRUCE	13	14	19	18	26	--	30	119	239
SUBALPINE FIR	2	11	12	19	13	23	38	6	123
LODGEPOLE PINE	3	7	9	--	--	--	--	--	19
WESTERN WHITE PINE	3	--	--	--	1	3	20	7	33
ENGELMANN SPRUCE	--	--	1	3	2	2	3	--	11
TOTAL	2,519	3,397	4,206	4,071	4,080	3,973	12,097	18,541	52,883
HARDWOODS:									
RED ALDER	--	1,232	1,307	1,098	577	365	322	14	4,914
BIGLEAF MAPLE	--	192	262	286	210	83	300	145	1,478
BLACK COTTONWOOD	--	49	70	143	140	163	271	117	953
WESTERN PAPER BIRCH	--	25	29	9	--	5	--	--	68
PACIFIC MADRONE	--	13	11	27	8	--	12	3	74
OREGON ASH	--	21	17	28	5	17	20	7	115
TOTAL	--	1,532	1,695	1,590	940	633	924	286	7,601
ALL SPECIES	2,519	4,929	5,901	5,661	5,020	4,605	13,022	18,827	60,484

^{1/}Estimates are subject to sampling error.

^{2/}Totals may be off because of rounding.

Table 16—Net annual growth of growing stock and sawtimber on timberland by ownership class and by softwoods and hardwoods, Puget Sound area, Washington, 1979^{1/}

OWNERSHIP CLASS	AVERAGE VOLUME	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>CUBIC METERS PER HECTARE</u>	<u>THOUSAND CUBIC METERS</u>		
GROWING STOCK:				
NATIONAL FOREST	1	360	2/-3	35
OTHER PUBLIC	12	2 450	499	2 94
FOREST INDUSTRY	10	3 444	679	4 12
OTHER PRIVATE	10	2 753	1 497	4 25
ALL OWNERSHIPS	8	9 007	2 671	11 67
	<u>CUBIC FEET PER ACRE</u>	<u>THOUSAND CUBIC FEET</u>		
GROWING STOCK:				
NATIONAL FOREST	15	12,712	2/-113	12,59
OTHER PUBLIC	166	86,581	17,625	104,20
FOREST INDUSTRY	146	121,691	23,988	145,67
OTHER PRIVATE	150	97,283	52,897	150,18
ALL OWNERSHIPS	119	318,267	94,396	412,66
	<u>BOARD FEET PER ACRE</u>	<u>THOUSAND BOARD FEET</u>		
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE):				
NATIONAL FOREST	67	56,217	126	5,34
OTHER PUBLIC	967	516,778	90,365	607,14
FOREST INDUSTRY	782	655,692	125,128	780,82
OTHER PRIVATE	834	579,340	255,363	834,70
ALL OWNERSHIPS	658	1,808,027	470,982	2,279,00

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Negative net annual growth is the result of annual mortality exceeding gross annual growth.

Table 17—Net annual growth of growing stock on timberland by species and ownership class, Puget Sound area, Washington, 1979^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND CUBIC FEET</u>					
SOFTWOODS:					
DOUGLAS-FIR	3,719	45,000	42,527	58,841	150,087
WESTERN HEMLOCK	4,113	27,458	56,452	21,459	109,482
PACIFIC SILVER FIR	4,751	4,479	9,424	210	18,864
WESTERN REDCEDAR	611	8,926	11,097	13,303	33,936
MOUNTAIN HEMLOCK	<u>2/-672</u>	73	828	--	229
NOBLE FIR	29	201	151	--	382
ALASKA-CEDAR	29	18	59	--	107
GRAND FIR	3/	--	496	2,416	2,911
SITKA SPRUCE	<u>2/-12</u>	220	478	755	1,441
SUBALPINE FIR	136	--	--	--	136
LODGEPOLE PINE	--	--	81	299	380
WESTERN WHITE PINE	<u>2/-5</u>	205	100	--	299
ENGELMANN SPRUCE	13	--	--	--	13
TOTAL	12,712	86,581	121,691	97,283	318,267
HARDWOODS:					
RED ALDER	<u>2/-129</u>	10,543	18,301	37,100	65,814
BIGLEAF MAPLE	<u>2/-83</u>	4,348	2,856	7,944	15,065
BLACK COTTONWOOD	99	1,967	2,127	5,003	9,196
WESTERN PAPER BIRCH	--	377	637	1,175	2,189
PACIFIC MADRONE	--	390	--	908	1,298
OREGON ASH	--	--	68	767	834
TOTAL	<u>2/-113</u>	17,625	23,988	52,897	94,396
ALL SPECIES	12,599	104,206	145,679	150,180	412,663

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Negative net annual growth is the result of annual mortality exceeding gross annual growth.

^{3/}Less than 500 cubic feet.

Table 18—Net annual growth of sawtimber on timberland by species and ownership class, Puget Sound area, Washington, 1979^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>					
SOFTWOODS:					
DOUGLAS-FIR	24,378	295,707	246,720	359,698	926,502
WESTERN HEMLOCK	10,701	139,654	286,538	121,087	557,979
PACIFIC SILVER FIR	25,548	28,695	51,450	1,513	107,206
WESTERN REDCEDAR	1,473	49,536	56,099	78,991	186,099
MOUNTAIN HEMLOCK	<u>2/-4,609</u>	523	5,248	--	1,162
NOBLE FIR	<u>2/-339</u>	1,047	842	--	1,549
ALASKA-CEDAR	<u>2/-840</u>	124	356	--	2/-361
GRAND FIR	<u>2/-93</u>	--	3,348	12,337	15,591
SITKA SPRUCE	<u>2/-91</u>	1,494	3,227	5,336	9,965
SUBALPINE FIR	44	--	--	--	44
LODGEPOLE PINE	--	--	791	379	1,171
WESTERN WHITE PINE	<u>2/-33</u>	--	1,074	--	1,041
ENGELMANN SPRUCE	78	--	--	--	78
TOTAL	56,217	516,778	655,692	579,340	1,808,027
HARDWOODS:					
RED ALDER	<u>2/-431</u>	60,516	95,270	167,044	322,398
BIGLEAF MAPLE	<u>2/-156</u>	19,403	14,576	37,475	71,298
BLACK COTTONWOOD	713	7,368	13,872	37,058	59,010
WESTERN PAPER BIRCH	--	1,569	1,216	4,858	7,643
PACIFIC MADRONE	--	1,510	--	4,168	5,678
OREGON ASH	--	--	194	4,761	4,955
TOTAL	126	90,365	125,128	255,363	470,982
ALL SPECIES	56,343	607,143	780,820	834,703	2,279,008

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

^{2/}Negative net annual growth is the result of annual mortality exceeding gross annual growth.

Table 19—Average annual mortality of growing stock on timberland by species and ownership class, Puget Sound area, Washington, 1979^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND CUBIC FEET</u>					
SOFTWOODS:					
DOUGLAS-FIR	8,552	3,598	2,733	4,403	19,286
WESTERN HEMLOCK	11,918	1,532	3,039	1,213	17,701
PACIFIC SILVER FIR	11,382	695	1,017	30	13,124
WESTERN REDCEDAR	3,065	508	668	715	4,957
MOUNTAIN HEMLOCK	2,123	48	439	--	2,610
NOBLE FIR	638	13	10	--	662
ALASKA-CEDAR	444	11	36	--	491
GRAND FIR	30	--	27	124	181
SITKA SPRUCE	32	11	55	53	151
SUBALPINE FIR	262	--	--	--	262
LODGEPOLE PINE	--	--	9	22	31
WESTERN WHITE PINE	22	7	10	--	38
ENGELMANN SPRUCE	20	--	--	--	20
TOTAL	38,489	6,422	8,044	6,561	59,515
HARDWOODS:					
RED ALDER	201	1,458	2,509	5,086	9,254
BIGLEAF MAPLE	83	534	389	976	1,981
BLACK COTTONWOOD	35	94	102	266	496
WESTERN PAPER BIRCH	--	56	111	186	353
PACIFIC MADRONE	--	48	--	105	153
OREGON ASH	--	--	9	100	109
TOTAL	318	2,190	3,120	6,719	12,347
ALL SPECIES	38,807	8,612	11,164	13,280	71,862

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

Table 20—Average annual mortality of sawtimber on timberland by species and ownership class, Puget Sound area, Washington, 1979^{1/}

SPECIES	NATIONAL FOREST	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>					
SOFTWOODS:					
DOUGLAS-FIR	43,302	16,187	11,203	17,920	88,611
WESTERN HEMLOCK	70,333	6,157	12,900	5,606	94,995
PACIFIC SILVER FIR	68,400	4,274	5,519	187	78,380
WESTERN REDCEDAR	17,986	2,200	3,020	3,603	26,809
MOUNTAIN HEMLOCK	12,384	274	2,638	—	15,296
NOBLE FIR	4,051	65	59	—	4,175
ALASKA-CEDAR	2,481	60	188	—	2,728
GRAND FIR	208	—	162	578	948
SITKA SPRUCE	223	57	297	323	900
SUBALPINE FIR	1,284	—	—	—	1,284
LODGEPOLE PINE	—	—	41	38	79
WESTERN WHITE PINE	138	—	56	—	194
ENGELMANN SPRUCE	113	—	—	—	113
TOTAL	220,901	29,272	36,083	28,254	314,510
HARDWOODS:					
RED ALDER	503	4,016	5,824	10,246	20,589
BIGLEAF MAPLE	156	1,166	936	2,243	4,500
BLACK COTTONWOOD	135	230	439	1,287	2,091
WESTERN PAPER BIRCH	—	123	54	176	353
PACIFIC MADRONE	—	118	—	152	270
OREGON ASH	—	—	9	345	354
TOTAL	794	5,653	7,262	14,448	28,157
ALL SPECIES	221,695	34,925	43,346	42,702	342,667

Estimates are subject to sampling error.

^{1/}Totals may be off because of rounding.

ALL OWNERSHIPS

PRIVATE

OTHER PUBLIC 1/

NATIONAL FOREST

YEAR

THOUSAND BOARD FEET, SCRIBNER SCALE

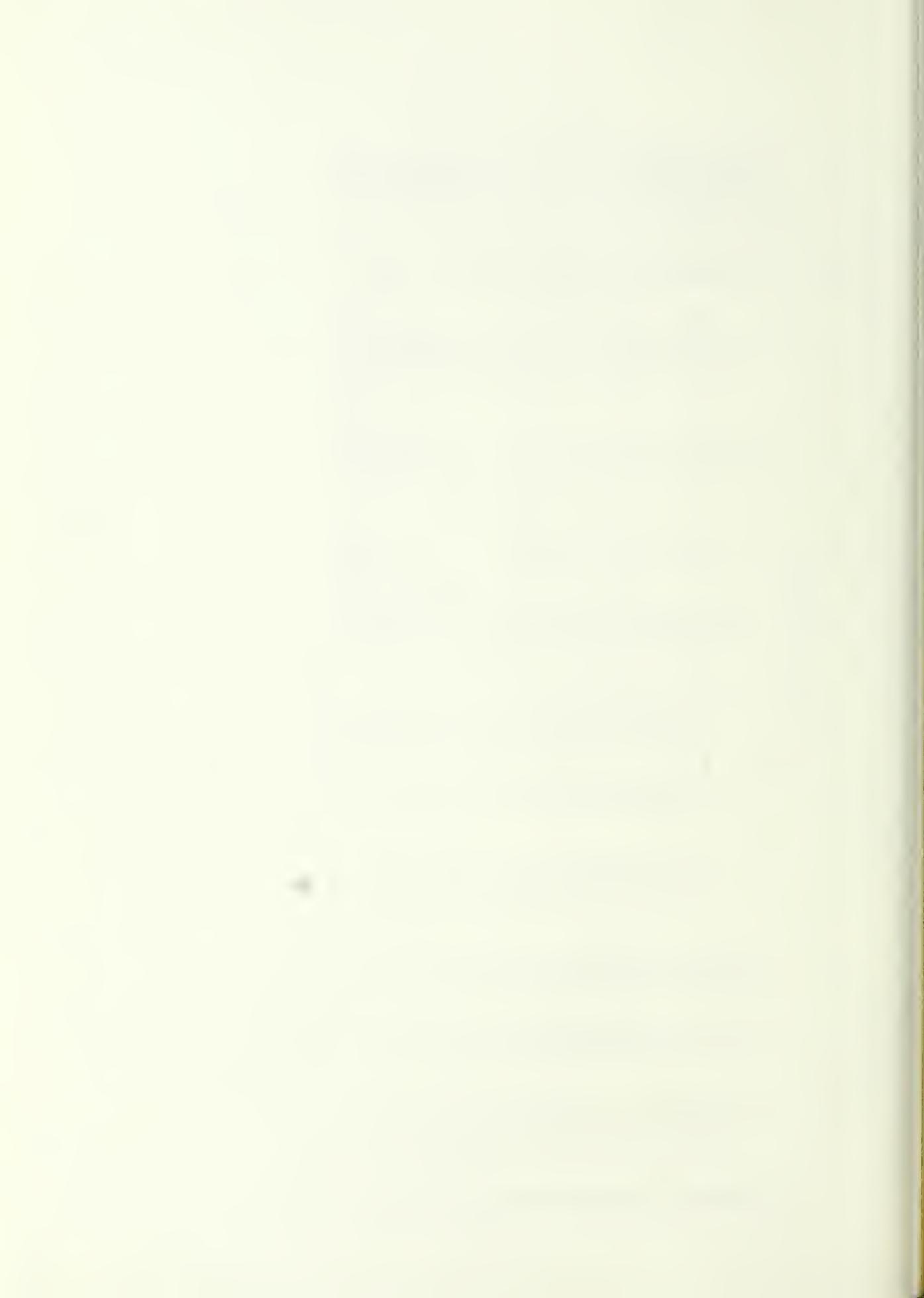
YEAR	NATIONAL FOREST			OTHER PUBLIC 1/			PRIVATE			ALL OWNERSHIPS		
	LIVE	DEAD 2/	TOTAL	LIVE	DEAD 2/	TOTAL	LIVE	DEAD 2/	TOTAL	LIVE	DEAD 2/	TOTAL
1950	3/	3/	202,200	--	--	--	3/	3/	952,263	3/	3/	1,154,463
1951	3/	3/	215,000	--	--	--	3/	3/	897,536	3/	3/	1,112,536
1952	161,997	23,203	185,200	--	--	--	904,924	17,019	921,943	40,222	40,222	1,107,143
1953	3/	3/	199,300	--	--	--	706,718	18,458	725,176	3/	3/	924,476
1954	149,200	38,400	187,600	--	--	--	649,413	19,947	669,360	58,347	58,347	856,960
1955	158,900	43,226	202,126	125,942	5,296	131,238	680,586	24,090	704,676	72,612	72,612	1,038,040
1956	168,000	39,000	207,000	163,777	3,230	167,007	761,221	30,326	791,547	1,092,998	1,092,998	1,165,554
1957	194,958	42,647	237,605	84,773	1,636	86,409	549,246	28,027	577,273	72,310	72,310	901,287
1958	194,332	38,104	232,436	16,375	2,838	19,213	508,219	23,715	531,934	64,657	64,657	783,583
1959	289,973	47,408	337,381	85,439	2,178	87,617	673,431	21,468	694,899	1,048,843	1,048,843	1,119,897
1960	251,475	21,319	272,794	57,351	5,164	62,515	760,638	42,447	803,085	1,069,464	1,069,464	1,138,394
1961	267,122	10,764	277,886	57,670	482	58,152	634,153	11,495	645,648	958,945	958,945	981,686
1962	297,500	44,700	342,200	80,622	619	81,241	696,626	12,340	708,966	1,074,748	1,074,748	1,132,407
1963	307,000	38,800	345,800	153,008	35,179	188,187	539,777	134,971	674,748	999,785	999,785	1,208,735
1964	345,780	57,020	402,800	102,913	32,488	135,401	730,433	94,433	824,866	1,179,126	1,179,126	1,363,067
1965	363,800	29,700	393,500	121,140	21,765	142,905	796,987	39,937	836,924	1,281,927	1,281,927	1,373,329
1966	304,650	14,100	318,750	138,929	8,975	147,904	742,221	34,657	776,878	1,185,800	1,185,800	1,243,532
1967	294,473	38,927	333,400	119,955	2,098	122,053	817,283	17,415	834,698	1,231,711	1,231,711	1,290,151
1968	278,009	45,178	323,187	173,852	442	174,294	854,664	1,781	856,445	1,306,525	1,306,525	1,353,926
1969	246,255	67,223	313,478	149,816	1,294	151,110	1,235,986	849	1,236,835	1,632,057	1,632,057	1,701,423
1970	273,458	41,642	315,100	132,321	39	132,360	1,073,823	331	1,074,154	1,479,602	1,479,602	1,521,614
1971	221,864	20,791	242,655	187,684	838	188,542	1,008,580	947	1,009,527	1,418,128	1,418,128	1,440,724
1972	288,761	38,183	326,944	206,727	703	207,430	1,056,663	970	1,057,633	1,552,151	1,552,151	1,592,007
1973	330,219	50,013	380,232	130,780	3,315	134,095	1,145,691	175	1,145,866	1,606,690	1,606,690	1,660,193
1974	233,319	8,390	241,709	181,393	5,872	187,265	1,095,070	632	1,095,702	1,509,782	1,509,782	1,524,676
1975	160,593	8,396	168,989	161,903	2,217	164,120	944,741	8,819	953,560	1,267,237	1,267,237	1,286,669
1976	217,668	15,913	233,581	157,005	645	157,650	958,541	7,915	966,456	1,333,214	1,333,214	1,357,687
1977	199,763	17,535	217,298	180,796	853	181,649	832,831	5,071	837,902	1,213,390	1,213,390	1,236,849
1978	22,799	31,854	254,653	263,742	751	264,493	706,379	5,298	711,677	1,192,920	1,192,920	1,230,823
1979	270,999	3,404	274,403	254,213	1,310	255,523	838,590	4,200	842,790	1,363,802	1,363,802	1,372,716

1/Data for other public ownership are combined with private ownership for 1950-54.

2/Includes snags and down material existing before logging.

3/Data not available.

Source: 1950-76: Washington timber harvest reports by year (published by Pacific Northwest Forest and Range Experiment Station); 1977-79: Timber harvest reports, State of Washington, Department of Natural Resources.



Bassett, Patricia M.; Oswald, Daniel D. Timber resource statistics for the Puget Sound area, Washington. Resour. Bull. PNW-96. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 31 p.

This report summarizes a 1979 timber resource inventory of eight counties in the Puget Sound area of Washington: Island, King, Kitsap, Pierce, San Juan, Skagit, Snohomish, and Whatcom. Detailed tables of forest area, timber volume, growth, mortality, and harvest are presented.

KEYWORDS: Forest surveys, statistics (forest), timber resources, resources (forest), Washington (Puget Sound).

The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.

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The Timber Resources of Western Oregon— Highlights and Statistics

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Cover: USDA Forest Service photo by Lawrence Hudetz.

Abstract

Gedney, Donald R. Timber resources of western Oregon — Highlights and statistics. Resour. Bull. PNW-97. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 84 p.

This report summarizes and interprets the results of a timber resource inventory of western Oregon made between 1973 and 1976. Detailed tables give land and forest area, timber volume, growth, and mortality for western Oregon and for southwest Oregon, west-central Oregon, and northwest Oregon.

Keywords: Forest survey, statistics (timber), timber resources, resources (timber), Oregon (western), western Oregon.

Summary

There are 19.2 million acres of land in western Oregon, of which an estimated 15.1 million acres are forested and an estimated 13.7 million acres are classified as timberland. The area has an estimated 56.3 billion cubic feet of standing timber with 72 percent of this volume in public ownership. Of this total volume, southwest Oregon contains 41 percent, west-central Oregon 34 percent, and northwest Oregon 25 percent.

Preface

This report presents statistics from an inventory of the timber resources of western Oregon (see map); statistics are shown separately for each of three inventory units, and combined for all of western Oregon. Southwest Oregon was inventoried in 1973-74, west-central Oregon in 1975, and northwest Oregon in 1976. The previous inventory of southwestern Oregon was made in 1962, west-central Oregon in 1961-62, and northwest Oregon in 1961.

This report brings together statistics on the timber resources of western Oregon, provides information on changes since the previous inventory, and presents highlights from the inventories and the general timber resource situation. Statistics from the earlier inventory have been adjusted to provide the best estimate of change.

Statistics for the three inventory units have been published separately (Bassett 1979, Jacobs 1978, and Mei 1979). The timber statistics in this report differ in some instances from those previously published. In the southwest Oregon statistics, a misclassification of one plot was corrected. In northwest Oregon, owners who did not have processing plants but owned and managed large tracts of timberland for timber production were included with forest industry owners in Mei's report; in this report these owners are included with other private owners to conform to traditional ownership classifications used by the Forest Service.

Field data for all lands except National Forests and lands managed by the Bureau of Land Management (BLM), U.S. Department of the Interior, were collected by the Renewable Resources Evaluation Unit of the Pacific Northwest Forest and Range Experiment Station.

Renewable Resources Evaluation (formerly Forest Survey) is a nationwide project of the Forest Service authorized by the Forest and Rangeland Renewable Resources Research Act of 1978. Forest resource inventories are conducted throughout the 50 States by the USDA Forest Service Experiment Stations. The Pacific Northwest Forest and Range Experiment Station at Portland, Oregon, is responsible for forest resource inventories in Alaska, California, Oregon, Hawaii, and Washington.

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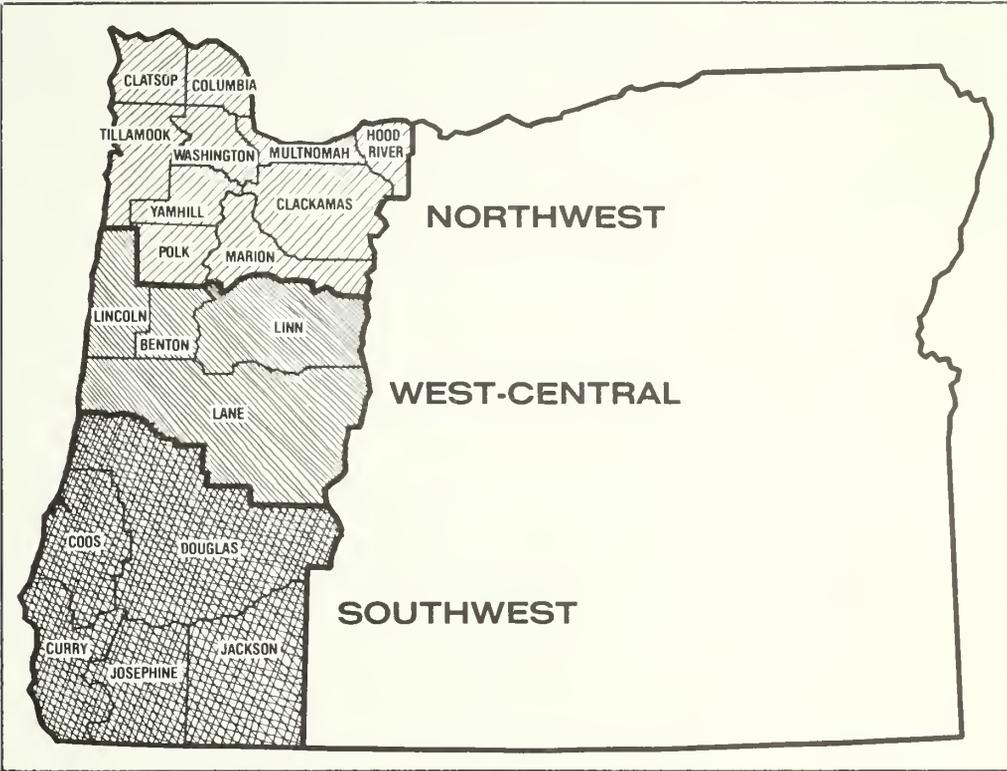
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**Western Oregon
Inventory Units and
Counties**



Timber Resources in Brief

The Timber Resource Situation

Western Oregon is one of the world's most productive forest areas. Its 13.7 million acres of timberland¹ bounded by the Pacific Ocean and the crest of the Cascade Range have soils and climate especially favorable to growing softwood trees. Although western Oregon has only 3 percent of the Nation's timberland its timber resources have far greater national significance. Fifty-seven percent of western Oregon's timberland has the potential to produce at least 120 cubic feet of wood annually. The potential to produce that amount of wood is found in only 5 percent of timberland in the Northern States, 7 percent in the Southern States, and 8 percent in the Rocky Mountain States.

Western Oregon is heavily (79 percent) forested. A high proportion (90 percent) of this forest land is classified as timberland potentially available for and capable of producing timber. Two percent of the forest land is legally reserved from timber production, most of it in designated Wilderness areas. Another 7 percent is not capable of producing timber because of infertile or unstable soils or harsh or difficult sites.

A little more than half (54 percent) of the timberland in western Oregon is in public ownership. Between 49 and 57 percent of each inventory unit is publicly owned. Public ownership is 88 percent Federal, the remainder mainly State. About 70 percent of the Federal land is in National Forests and the remainder is managed by the Bureau of Land Management (BLM). Sixty-one percent of the private forest land is owned by forest industry, 22 percent by miscellaneous private owners, and 17 percent by farmers. Each inventory unit contains about the same mix of private ownership.

Even after many years of timber harvesting, 3 out of every 5 acres of timberland in western Oregon are still classed as having sawtimber stands. Large (21.0 inches and larger in diameter) trees predominate on half these sawtimber stands. Many forest industries in western Oregon depend heavily on large sawtimber. Most of the large sawtimber trees are on public land especially in National Forests of west-central and southwest Oregon.

Much of western Oregon's timberland is suitable for growing coniferous forests. Disturbance by logging, fire, or abandonment, however, favors hardwood species, which do not live as long as conifers but regenerate easily and dominate many areas. Currently 2.7 million acres are in hardwoods, which are replacing potential softwood growth. In southwest and northwest Oregon, 22 and 20 percent, respectively, of the timberland area is in hardwoods; in west-central Oregon 16 percent. Federal timberlands have 9 percent in hardwoods, other public, 27 percent; forest industry, 20 percent; and other private owners, almost 47 percent. Some balance of hardwood is considered desirable; for example, red alder, the dominant hardwood species, returns nitrogen to the soil. Most hardwoods, however, are considered a deterrent to the production of softwood.

Western Oregon has 56.3 billion cubic feet of growing stock. An additional 3.3 billion cubic feet is sound wood in cull and dead trees. Of the total growing stock, 51.6 billion cubic feet is softwoods and 4.8 billion is hardwoods. Almost 54 percent of the softwood growing stock is in National forests; 17 percent is on lands managed by BLM; 4 percent is on land in other public ownerships — primarily State; 18 percent on land owned by forest industry; and 7 percent is on land of other private owners.

¹ Terms used in this report are defined in a separate section.

In western Oregon, annual gross growth of softwoods on all timberland ranges from 65 to 91 cubic feet per acre. National Forests and other private land have the lowest growth and other public land the highest. Older stands on Federal timberland continue to add wood but also lose considerable volume through mortality. This is reflected in the lower net growth on Federal forests.

Annual mortality of softwoods in western Oregon totals 222 million cubic feet. Federal forests with large inventories of old softwood timber have an annual mortality of 25 to 26 cubic feet per acre compared to 5 to 11 cubic feet on other public and private timberland. The mortality rate for all ownerships, except other public, is almost the same — from 0.4 to 0.6 percent. Other public ownerships have a mortality rate of 0.2 percent.

Conversion of private timberland to pastures, urban uses, roads, Christmas tree farms, and other uses between inventories reduced the area of private timberland by 212,000 acres.² Ninety-two percent of these losses were from other private timberlands; the forest industry lost relatively little. During this period the forest industry purchased 280,000 acres of timberland, mainly from other private timberland owners. Net losses of timberland to other uses, and gains or losses of timberland through purchase or sale, resulted in an average annual gain of 19,800 acres to industrial forests, and an average annual decrease of 34,000 acres in other private holdings.

During the same period, the volume of softwood growing stock in forest industry ownership decreased 22 percent, from 12.1 billion cubic feet to 9.4 billion cubic feet. Most of the decrease took place in southwest and west-central Oregon; decreases were 36 and 21 percent respectively. In northwest Oregon the softwood inventory increased 10 percent. Average softwood volume per acre on forest industry timberland decreased from 3,399 cubic feet to 2,484 cubic feet as limited reserves of old-growth timber were harvested.

On other private timberland the softwood inventory decreased 6 percent between inventories. The decrease was largely the result of reductions in timberland area, since other private owners harvested about the same volume as was grown. Volume per acre in this ownership increased from 1,300 cubic feet per acre to 1,500 cubic feet per acre.

The inventory of hardwoods on private timberland decreased by six percent, mainly because timberland area decreased. The average per-acre volume of hardwood increased, however, on forest industry timberland from 286 cubic feet to 325 cubic feet, on other private timberland from 502 cubic feet to 607 cubic feet.

The average size of softwood trees decreased on private timberland. In 1961-62, 75 percent of forest industry softwood sawtimber was in trees more than 21 inches in diameter; by 1973-76 this proportion had decreased to 53 percent. On other private timberland 53 percent of the softwood timber was larger than 21 inches in 1961-62 but by 1973-76 only 41 percent was larger. At the present rate of utilization forest industry lands will sustain cutting of trees 21.0 inches and larger for about 16 years, other private lands about 40 years.

² Unpublished data on file at Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

Inventory Procedures

The estimates of forest land area, volume, growth, and mortality reported here combine data from three sources: a field inventory of private, State, county, and municipal lands done by the Renewable Resources Evaluation Unit; National Forest inventories; and BLM inventories. National Forest and BLM inventories more than 5 years old were updated. The updating was done by stand projection (Larson and Goforth 1970). In addition, inventories were updated to account for cutting and restocking of clearcuts. Separate reports detail procedures for individual National Forests and the BLM (Bassett 1979; Jacobs 1978; and Mei 1979).

Inventories by National Forests and the BLM relied on systematic sampling of field plots. National Forests used plots located on a 1.7-mile square grid, BLM a 0.85-mile grid. On most National Forests, nonforest, noncommercial forest, and clearcut areas were mapped; the field plot samples were restricted to timberland exclusive of clearcuts.

Field plots used in National Forest and BLM inventories were clusters of 10 variable-radius plots distributed over approximately one acre. Seedlings and saplings were sampled on 1/300th-acre, fixed-radius plots located at each of the 10 points.

For all lands, other than National Forest and BLM, the design used was double sampling for stratification (Cochran 1963). Photo points were classified by: owner group, major land class (timberland, other forest, and nonforest), and stand volume class.

The 10-point field plot design used on the National Forest and BLM inventories was used. Most of these field plots had been established in 1961-62 and were remeasured for the 1973-76 inventory. Growth and mortality were determined by comparing old and new tallies. A few new plots were established, either because of ownership change or failure to relocate the old plot.

The 1961-62 inventory data were recalculated to make comparisons meaningful. This was necessary for several reasons.

1. New volume tables used for the reinventory were applied to trees measured in 1961-62 to produce comparable estimates of volume.
2. In instances where the 1961-62 field plots could not be relocated, new plots were established in the approximate same locations and data were reconstructed and included in the recompilation of the 1961-62 inventory.
3. Errors in the 1961-62 inventory, such as missed trees or incorrect owner classification, were corrected and included in the compilation of the inventory.
4. Several definitions had changed by 1973. In 1961-62 roads and streams were classified as nonforest only if they exceeded 120 feet in width; in the 1973-76 inventory, the width standard was 30 feet. In 1973-76 the timberland classification required a minimum potential productivity of 20 cubic feet per acre per year; this was not a qualification in 1961-62.

5. Stocking procedures for the reinventory changed the way forest plots were classified as to type; the 1961-62 inventory was modified accordingly. To make comparisons possible, 1961-62 sample trees were assigned expansion factors based on diameter at time of reinventory.

For all these reasons the 1961-62 inventory statistics for this report are different from those shown in previously published statistics for the 1961-62 inventory (Hazard and Metcalf 1964a, 1964b, 1965).

**liability of
Inventory Data**

The timberland area of the Mt. Hood, Willamette, and Siuslaw National Forests was determined from mapping and is not subject to sampling error. With that exception, all area and volume statistics presented here are based on sampling and are subject to sampling error. Sampling errors and their associated confidence intervals have been calculated for all area and volume estimates except those for National Forest and BLM land. Although procedures used to update older National Forest and BLM inventories made calculation of sampling errors for these owner classes infeasible, the intensive sample and short updating period suggest a high level of precision.

Confidence intervals (0.68 probability level) for the estimated timberland area, cubic-foot volume, and net annual cubic-foot growth by ownership class for western Oregon and for inventory units are as follows:

Owner	Timberland area <i>Thousand acres</i>	Net volume <i>..... Million cubic feet</i>	Net annual growth
Western Oregon:			
Other public	863 ± 28	2,779 ± 219	94 ± 8
Forest industry	3,780 ± 49	10,616 ± 453	327 ± 17
Other private	2,442 ± 47	5,257 ± 309	199 ± 11
All owners	7,085 ± 60	18,652 ± 571	620 ± 21
Southwest Oregon:			
Other public	180 ± 9	699 ± 130	11 ± 3
Forest industry	1,641 ± 29	4,424 ± 302	78 ± 8
Other private	974 ± 21	1,610 ± 174	57 ± 7
All owners	2,795 ± 37	6,733 ± 372	146 ± 11
West-central Oregon:			
Other public	109 ± 7	616 ± 94	16 ± 3
Forest industry	1,097 ± 21	3,050 ± 247	106 ± 10
Other private	701 ± 15	1,663 ± 196	62 ± 6
All owners	1,907 ± 27	5,329 ± 329	184 ± 12
Northwest Oregon:			
Other public	575 ± 26	1,464 ± 149	67 ± 7
Forest industry	1,042 ± 34	3,142 ± 230	142 ± 11
Other private	766 ± 39	1,986 ± 164	80 ± 6
All owners	2,383 ± 38	6,592 ± 282	289 ± 14

Confidence intervals are used here as quantitative expressions of the reliability of statistics on timberland area, volume, and growth. The above tabulation, for instance indicates that there is a two-in-three chance that there are between 7,145,000 and 7,025,000 acres of timberland in other public and private ownership in western Oregon ($7,085 + 60 = 7,145$, and $7,085 - 60 = 7,025$).

Confidence intervals vary with both size of the estimate and variance of the item being estimated. If variance is assumed constant, confidence bounds can be approximated for estimates of various sizes. The individual equations that follow assume an average relationship between variance and the size of the estimates, and thus provide only an approximation of the reliability of individual estimates. The equations are:

Timberland area (by type or class)

$$\text{Confidence interval (M acres)} = 3.32 (A)^{.44}$$

where A is timberland area in M acres.

Timberland volume

$$\text{Confidence interval (M ft}^3\text{)} = 1.796 (V)^{.616}$$

where V is net cubic-foot volume in M ft³.

Timberland growth

$$\text{Confidence interval (M ft}^3\text{)} = 5.81 (V)^{.659}$$

where V is net annual cubic-foot growth in M ft³.

Terminology

Bureau of Land Management (BLM) lands — Federal lands administered by the U.S. Department of the Interior, Bureau of Land Management.

Class of timber — A classification of trees as growing stock, cull, and salvable dead. Growing stock trees are subdivided into poletimber and sawtimber trees.

Commercial species — A tree species suitable for industrial wood products.

Cull trees — Live trees of noncommercial species or live trees of commercial species that are more than 75 percent defective and are unlikely to become growing stock.

Cull trees, rotten — Live trees with excessive defect primarily caused by rot.

Cull trees, sound — Live trees of noncommercial species or live trees of commercial species with excessive defect caused by poor form, roughness, etc,

Diameter class — A classification of trees based on diameter outside bark measured at breast height, 4-½ feet (1.37 m) above the ground. D.b.h. is the common abbreviation for "diameter at breast height."

Forest industry lands — Lands owned by companies or individuals operating wood-using plants.

Forest land — Land at least 10-percent stocked by live trees or land formerly having such tree cover and not currently developed for nonforest use.

Forest types — Stands with 50 percent or more stocking in live conifer trees are classed as softwood types. Stands with a majority of stocking in live hardwood trees are classed as hardwood types. Within these two groups, the individual forest type is determined by plurality of stocking by species of live softwood or hardwood trees.

Growing stock trees — All live trees with the exception of cull trees.

Growing stock volume — Net volume in cubic feet of live sawtimber and poletimber growing stock trees from stump to a minimum 4-inch (10-cm) top (of central stem) outside bark. Net volume equals gross volume less deduction for rot and missing bole sections.

Hardwoods — Angiosperms, usually broad-leaved and often deciduous.

Industrial wood — All commercial roundwood products except fuelwood.

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

Land area — Area reported as land by the Bureau of the Census. 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 (200 m) wide; and lakes, reservoirs, and ponds less than 40 acres (16 ha) in area.

Land class — A classification of land by major use. The minimum size area for classification is 1 acre (0.4 ha).

Mean annual increment — A measure of the productivity of forest land in terms of the average increase in cubic-foot volume per acre per year. For a given species and site index the average is based on the number of years needed for the mean annual increment to culminate in fully stocked stands.

Mortality — Volume of sound wood in trees dying from natural causes during a specified period.

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

Net annual growth — The net increase in volume of trees during a specified year. Components of net annual growth of trees: (a) the increment in net volume of trees alive at the beginning of the specified year and surviving to the year's end, plus (b) the net volume of trees reaching sawtimber or poletimber size during the year, minus (c) the net volume of trees that died during the year.

Noncommercial species — A tree species not suitable for industrial wood products.

Nonforest land — Land that has never supported forests or was formerly forested and is currently developed for nonforest uses. Included are lands used for agricultural crops, improved pasture, residential areas, city parks, improved roads, operating railroads and their right-of-way clearings, powerline and pipeline clearings, streams over 30 feet (10 m) wide, and 1- to 40-acre (0.4- to 16- ha) areas of water classified by the Bureau of the Census as land. If intermingled in forest areas, unimproved roads and other nonforest strips must be more than 120 feet (35 m) wide, and clearings or other areas must be 1 acre (0.4 ha) or larger to qualify as nonforest land.

Nonstocked areas — Timberland less than 10 percent stocked with growing stock trees.

Other forest land — Forest land incapable of producing 20 cubic feet per acre per year of industrial wood because of adverse site conditions such as sterile soil, dry climate, poor drainage, high elevation, steepness, or rockiness.

Other private lands — All privately owned lands except those classed as forest industry lands.

Other private lands, farmer — Lands owned by operators of farms.

Other private lands, miscellaneous — Privately owned lands other than those owned by forest industry or farmers.

Other public lands — Lands administered by public agencies other than the Forest Service and the Bureau of Land Management.

Poletimber stands — Stands with a mean diameter (weighted by basal area) from 5.0 inches (12.5 cm) to 9.0 inches (22.5 cm) if softwood and from 5.0 inches (12.5 cm) to 11.0 inches (27.5 cm) if hardwood.

Poletimber trees — Live trees of commercial species at least 5.0 inches (12.5 cm) in diameter at breast height but smaller than sawtimber size, and of good form and vigor.

Roundwood — Logs, bolts, or other round sections cut from trees.

Salvable dead trees — Standing or down trees of commercial species, at least 9.0 inches (22.5 cm) in d.b.h. for softwoods and at least 11.0 inches (27.5 cm) in d.b.h. for hardwoods, containing 25 percent or more sound wood volume and at least one merchantable 12-foot (3.8 m) log if softwood or one merchantable 8-foot (2.5 m) log if hardwood.

Sapling and seedling stands — Stands with a mean diameter (weighted by basal area) less than 5.0 inches (12.5 cm).

Sapling and seedling trees — Live trees of commercial species less than 5 inches (12.5 cm) in d.b.h. with no disease, defects, or deformities likely to prevent their becoming poletimber trees.

Sawtimber stands — Stands with a mean diameter (weighted by basal area) larger than 9.0 inches (22.5 cm) if softwood and larger than 11.0 inches (27.5 cm) if hardwood.

Sawtimber trees — Live softwood trees of commercial species at least 9.0 inches (22.5 cm) in d.b.h. and hardwood trees of commercial species at least 11.0 inches (27.5 cm) in d.b.h. At least 25 percent of the board-foot volume in a sawtimber tree must be free from defect. Softwood trees must contain at least one 12-foot (3.8-m) sawlog with a top diameter of not less than 6 inches (15 cm) inside the bark; hardwood trees must contain at least one 8-foot (2.5-m) sawlog with a top diameter of not less than 8 inches (20 cm) inside the bark.

Sawtimber volume — Net volume of sawtimber trees measured in board feet. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Scribner rule — The common board-foot log rule used locally in determining volume of sawtimber. Scribner volume is estimated in terms of 32-foot (10-m) logs for softwoods and 16-foot (5-m) for hardwoods.

Site class — A classification of the potential productivity of forest land in terms of mean annual increment.

Site index — A measure of the productivity of forest land in terms of the average height of dominant and codominant trees at a specified age.

Softwoods — Coniferous trees, usually evergreen.

Timber harvest — Volume of roundwood removed from forest land for products.

Timber volume — Includes the net volume in cubic feet of poletimber and sawtimber trees and salvable dead sawtimber trees of all species, the net volume in cubic feet of cull trees of commercial species, and gross volume of noncommercial species. Volume is measured from stump to a minimum 4-inch (10-cm) top outside bark.

Timberland — Forest land capable of producing 20 cubic feet per acre (1.4 m³/ha) of industrial wood.

Timberland, deferred — National Forest timberland temporarily withdrawn from timber utilization and under study for possible inclusion in the wilderness system.

Timberland, reserved — Public land withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as timberland.

Timberland, unreserved — Timberland not withdrawn from timber utilization.

Upper-stem portion — The bole of sawtimber trees above the saw-log top — 7.0 inches (18 cm) outside bark for softwoods and 9.0 inches (23 cm) outside bark for hardwoods — to a minimum top diameter of 4.0 inches (10 cm) outside bark, or to the point where the central stem breaks into limbs.

Western Oregon Trees

This list includes the important tree species found in western Oregon. The source for scientific names is Little (1979).

Common name

Scientific name

Softwoods

Alaska-cedar	<i>Chamaecyparis nootkatensis</i> (D. Don) Spach
Douglas-fir	<i>Pseudotsuga menziesii</i> (Mirb.) Franco
Fir, grand	<i>Abies grandis</i> (Dougl. ex D. Don) Lindl.
Fir, noble	<i>Abies procera</i> Rehd.
Fir, Pacific silver	<i>Abies amabilis</i> Dougl. ex Forbes
Fir, Shasta red	<i>Abies magnifica</i> A. Murr. var. <i>shastensis</i> (Lemm.)
Fir, subalpine	<i>Abies Lasiocarpa</i> (Hook.) Nutt.
Fir, white	<i>Abies concolor</i> (Gord. & Glend.) Lindl. ex Hildebr.
Hemlock, mountain	<i>Tsuga mertensiana</i> (Bong.) Carr.
Hemlock, western	<i>Tsuga heterophylla</i> (Raf.) Sarg.
Incense-cedar	<i>Libocedrus decurrens</i> Torr.
Juniper, western	<i>Juniperus occidentalis</i> Hook.
Larch, western	<i>Larix occidentalis</i> Nutt.
Pine, Jeffrey	<i>Pinus jeffreyi</i> Grev. & Balf.
Pine, knobcone	<i>Pinus attenuata</i> Lemm.
Pine, lodgepole	<i>Pinus contorta</i> Dougl. ex Loud.
Pine, ponderosa	<i>Pinus ponderosa</i> Dougl. ex Laws.
Pine, sugar	<i>Pinus lambertiana</i> Dougl.
Pine, western white	<i>Pinus monticola</i> Dougl. ex D. Don
Pine, whitebark	<i>Pinus albicaulis</i> Engelm.
Port-Orford-cedar	<i>Chamaecyparis lawsoniana</i> (A. Murr.) Parl.
Redcedar, western	<i>Thuja plicata</i> Donn ex D. Don
Redwood	<i>Sequoia sempervirens</i> (D. Don) Endl.
Spruce, Brewer	<i>Picea brewerana</i> Wats.
Spruce, Engelmann	<i>Picea engelmannii</i> Parry ex Engelm.
Spruce, Sitka	<i>Picea sitchensis</i> (Bong.) Carr.

Hardwoods

Alder, red	<i>Alnus rubra</i> Bong.
Alder, white	<i>Alnus rhombifolia</i> Nutt.
Ash, Oregon	<i>Fraxinus latifolia</i> Benth.
California-laurel	<i>Umbellularia californica</i> (Hook. & Arn.) Nutt.
Chinkapin, golden	<i>Castanopsis chrysophylla</i> (Dougl.) A. DC.
Cottonwood, black	<i>Populus trichocarpa</i> Torr. & Gray
Madrone, Pacific	<i>Arbutus menziesii</i> Pursh
Maple, bigleaf	<i>Acer macrophyllum</i> Pursh
Oak, California black	<i>Quercus kelloggii</i> Newb.
Oak, canyon live	<i>Quercus chrysolepis</i> Liebm.
Oak, Oregon white	<i>Quercus garryana</i> Dougl. ex Hook.
Tanoak (Oregon myrtle)	<i>Lithocarpus densiflorus</i> (Hook. & Arn.) Rehd.

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Table 1 — Area by county and land class, western Oregon, January 1, 1977 ^{1/}

COUNTY	FOREST LAND				TOTAL	NONFOREST LAND ^{2/}	ALL LANDS ^{3/}
	TIMBERLAND	DEFERRED TIMBERLAND	RESERVED TIMBERLAND	OTHER			
	THOUSAND ACRES						
COOS	265	--	4/	3	268	160	428
KAMAS	846	--	2	52	900	307	1,206
SOP	415	--	5	11	431	84	515
WASCO	305	--	1	3	309	99	409
DEFOUR	848	--	8	14	870	159	1,027
CLATSOP	756	9	47	138	950	92	1,041
CLATSOP	2,642	--	7	150	2,799	442	3,240
WASCO	223	--	6	40	269	66	335
WASCO	1,167	10	5	309	1,491	309	1,800
WASCO	730	--	12	182	924	114	1,039
WASCO	2,254	--	127	95	2,476	436	2,913
WASCO	553	--	1	1	555	76	631
WASCO	906	--	60	50	1,016	445	1,461
WASCO	314	--	14	39	367	378	746
WASCO	111	--	8	15	134	137	271
WASCO	254	--	1	3	258	213	471
WASCO	606	--	5	4	615	98	714
WASCO	234	--	1	2	237	228	465
WASCO	240	--	4/	1	241	214	455
TOTAL	13,667	19	310	1,112	15,110	4,057	19,167

figures may be off because of rounding.

includes cropland, pasture and range, swampland, industrial and urban areas, powerline clearings, railroads, and all improved roads and highways, and acres classified as water by Forest Survey standards, but defined by the Bureau of Reclamation as land.

Source: United States Bureau of the Census, Land and Water Area of the United States, 1970.

Less than 500 acres.

Table 2 — Area of timberland by county and ownership class, western Oregon, January 1, 1977 ^{1/}

COUNTY	PUBLIC				PRIVATE				ALL OWNERSHIP
	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER	TOTAL	FOREST INDUSTRY	FARMER OWNED	MISCELLANEOUS	TOTAL	
	THOUSAND ACRES								
BENTON	14	56	29	99	52	54		166	265
CLACKAMAS	473	55	27	555	119	52	120	291	846
CLATSOP	--	--	136	136	226	15	38	279	415
COLUMBIA	--	10	12	22	190	28	65	283	305
COOS	64	156	78	298	343	110	97	550	848
CURRY	412	57	4	473	166	60	58	283	756
DOUGLAS	897	609	56	1,562	756	235	89	1,080	2,642
HOOD RIVER	151	--	26	177	30	5	11	46	223
JACKSON	388	277	6	671	332	73	91	496	1,167
JOSEPHINE	258	230	36	524	45	45	117	206	730
LANE	1,119	279	27	1,425	563	66	200	829	2,254
LINCOLN	164	23	25	212	252	8	81	341	553
LINN	333	84	28	445	229	109	122	461	906
MARION	156	19	22	197	49	22	46	117	314
MULTNOMAH	53	5	6	64	10	9	27	47	111
POLK	2/	37	6	43	130	48	32	211	253
TILLAMOOK	78	46	282	406	150	17	34	200	606
WASHINGTON	--	12	52	64	73	53	44	170	234
YAMHILL	25	43	6	74	65	69	31	166	240
TOTAL	4,585	1,997	863	7,445	3,780	1,078	1,364	6,222	13,667

^{1/}Totals may be off because of rounding.

^{2/}Less than 500 acres.

Table 3 — Area of timberland by cubic-foot site and ownership classes, western Oregon, January 1, 1977 ^{1/}

SITE CLASS ^{2/}	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
		THOUSAND ACRES				
225 OR MORE	53	9	46	140	67	315
165-224	520	234	131	634	212	1,722
120-164	1,347	933	494	1,885	1,061	5,720
85-119	1,142	433	104	733	533	2,945
50-84	1,407	374	50	254	310	2,395
20-49	115	14	39	133	259	559
ALL CLASSES	4,585	1,997	863	3,780	2,442	13,667

^{1/}Totals may be off because of rounding.

^{2/}Capacity for cubic-foot annual growth per acre at culmination of mean annual growth in fully stocked natural stands.

Table 4 — Area of timberland by stand-size and ownership classes, western Oregon, January 1, 1977 ^{1/}

STAND-SIZE CLASS	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
	<u>THOUSAND ACRES</u>					
TIMBER STANDS:						
LARGE SAWTIMBER ^{2/}	2,466	949	110	613	245	4,382
SMALL SAWTIMBER ^{3/}	1,045	413	411	1,305	982	4,156
TOTAL	3,511	1,362	521	1,918	1,227	8,538
NETTIMBER STANDS	306	70	146	475	420	1,417
SEEDLING STANDS	638	470	177	1,173	466	2,924
STOCKED AREAS	130	94	19	214	331	788
ALL CLASSES	4,585	1,997	863	3,780	2,442	13,667

Totals may be off because of rounding.

Large sawtimber includes trees 21.0-inch d.b.h. and larger.

Small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

Table 5 — Area of timberland by forest type and ownership class, western Oregon, January 1, 1977 ^{1/}

FOREST TYPE	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP	THOUSAND ACRES									
DOUGLAS-FIR	2,709	1,531	562	2,294	882	7,978										
WESTERN HEMLOCK	366	66	--	163	48	643										
WHITE FIR	133	54	--	37	12	237										
SITKA SPRUCE	15	1	25	117	44	202										
PACIFIC SILVER FIR	194	--	4	--	--	198										
GRAND FIR	52	11	2	62	60	188										
MOUNTAIN HEMLOCK	159	--	--	--	--	159										
WESTERN REDCEDAR	49	14	3	42	45	154										
LODGEPOLE PINE	105	--	8	--	19	132										
INCENSE-CEDAR	24	23	2	39	37	125										
PONDEROSA PINE	39	27	--	9	25	100										
PORT-ORFORD-CEDAR	19	4	9	29	15	76										
SHASTA RED FIR	70	--	--	--	--	70										
NOBLE FIR	36	2	--	20	--	58										
JEFFREY PINE	2	--	--	23	--	25										
SUGAR PINE	9	16	--	--	--	25										
WESTERN WHITE PINE	17	--	--	--	--	17										
KNOBCONE PINE	14	--	--	--	--	14										
REDWOOD	5	--	--	6	--	11										
SUBALPINE FIR	10	--	--	--	--	10										
ENGELMANN SPRUCE	8	--	--	--	--	8										
ALASKA-CEDAR	4	--	--	--	--	4										
WHITEBARK PINE	2	--	--	--	--	2										
RED ALDER	137	54	189	501	412	1,293										
UNCLASSIFIED ^{2/}	130	85	19	160	102	496										
MADRONE	39	38	13	73	194	357										
COMMERCIAL HARDWOODS	1	29	13	114	118	275										
OREGON WHITE OAK	--	1	18	6	172	197										
MAPLE	5	20	--	38	123	186										
TANOAK	162	--	--	--	--	162										
CALIFORNIA BLACK OAK	6	15	--	32	56	109										
NONCOMMERCIAL HARDWOODS	3	5	--	10	60	78										
CHINKAPIN	29	1	--	--	--	30										
CANYON LIVE OAK	22	--	--	--	--	22										
NONCOMMERCIAL CONIFERS	7	--	--	--	9	16										
COTTONWOOD	--	--	--	--	9	9										
CALIFORNIA LAUREL	2	--	--	--	--	2										
ALL TYPES	4,585	1,997	863	3,780	2,442	13,667										

^{1/}Totals may be off because of rounding.

^{2/}Unclassified type is less than 10 percent stocked with live trees.

Table 6 — Area of reserved timberland by forest type and ownership class, western Oregon, January 1, 1977 ^{1/}

FOREST TYPE	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
DOUGLAS-FIR	28	14	31	--	--	73
BLUE FIR	127	--	<u>2/</u>	--	--	127
RED-HEMLOCK	<u>2/</u>	--	<u>4</u>	--	--	4
MENDEZOSA PINE	<u>1</u>	<u>2/</u>	2	--	--	3
LAUREL PINE	<u>2/</u>	--	--	--	--	<u>2/</u>
REDWOOD	<u>12</u>	<u>2/</u>	<u>2/</u>	--	--	<u>12</u>
WESTERN WHITE PINE	1	--	--	--	--	1
DOUGLASS PINE	66	--	2	--	--	68
WESTERN SPRUCE	1	--	8	--	<u>2/</u>	9
PORTLAND-CEEDAR	--	--	<u>2/</u>	--	--	<u>2/</u>
ALDER	--	--	<u>1</u>	--	--	<u>1</u>
ALDERWOOD	--	<u>2/</u>	<u>2/</u>	--	--	<u>2/</u>
ALDER	--	--	<u>2/</u>	--	--	<u>2/</u>
REDWOODS	6	--	<u>3</u>	--	--	<u>9</u>
UNCLASSIFIED	2	--	--	--	--	2
ALL TYPES	245	15	51	--	<u>2/</u>	310

^{1/}Totals may be off because of rounding.

^{2/}Less than 500 acres.

Table 7 — Volume of timber on timberland by class of timber and by softwoods and hardwoods, western Oregon, January 1, 1977 ^{1/}

CLASS OF TIMBER	SOFTWOODS	HARDWOODS	ALL SPECIES
SOFTWOOD TREES:			
SAW-LOG PORTION	45,022	2,654	47,676
UPPER-STEM PORTION	<u>3,536</u>	<u>387</u>	<u>3,923</u>
TOTAL	48,558	3,039	51,596
SOFTWOOD TREES	<u>3,011</u>	<u>1,720</u>	<u>4,731</u>
ALL GROWING STOCK	51,566	4,760	56,327
STUMP CULL TREES	198	548	746
ROTTED CULL TREES	1,327	297	1,623
REMOVABLE DEAD TREES	<u>965</u>	<u>14</u>	<u>978</u>
ALL TIMBER	54,054	5,621	59,675

^{1/}Totals may be off because of rounding.

Table 8 — Volume of growing stock and sawtimber on timberland by ownership class and by softwoods and hardwoods, western Oregon, January 1, 1977 ^{1/}

OWNERSHIP CLASS	AVERAGE	SOFTWOODS	HARDWOODS	ALL SPECIES
	VOLUME			
	<u>CUBIC FEET</u>		<u>MILLION CUBIC FEET</u>	
	<u>PER ACRE</u>			
GROWING STOCK: ^{2/}				
NATIONAL FOREST	6,210	27,618	857	28,472
BUREAU OF LAND MANAGEMENT	4,607	8,566	633	9,186
OTHER PUBLIC	3,220	2,220	559	2,779
FOREST INDUSTRY	2,808	9,388	1,229	10,595
OTHER PRIVATE	2,153	3,775	1,483	5,411
ALL OWNERSHIPS	4,121	51,566	4,760	56,326
SAWTIMBER (INTERNATIONAL				
1/4-INCH RULE): ^{3/}				
NATIONAL FOREST	35,901	161,120	3,485	164,606
BUREAU OF LAND MANAGEMENT	26,456	50,705	2,127	52,888
OTHER PUBLIC	16,604	12,441	1,888	14,933
FOREST INDUSTRY	15,081	53,288	3,720	57,099
OTHER PRIVATE	9,879	19,661	4,465	24,005
ALL OWNERSHIPS	22,895	297,215	15,685	312,795
SAWTIMBER				
(SCRIBNER RULE): ^{4/}				
NATIONAL FOREST	28,408	127,692	2,560	130,250
BUREAU OF LAND MANAGEMENT	23,958	45,774	2,070	47,828
OTHER PUBLIC	11,733	8,629	1,497	10,230
FOREST INDUSTRY	10,726	37,549	2,996	40,271
OTHER PRIVATE	6,799	12,969	3,635	16,403
ALL OWNERSHIPS	17,953	232,613	12,757	245,363

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 5.0-inch d.b.h. and larger.

^{3/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

^{4/}Includes trees 11.0-inch d.b.h. and larger.

Table 9 — Volume of growing stock and sawtimber on timberland by county and ownership class, western Oregon, January 1, 1977 ^{1/}

COUNTY	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION CUBIC FEET</u>						
GROWING STOCK: ^{2/}						
CLATSOP	135	308	154	120	314	1,031
DEKUN	3,153	347	78	210	446	4,234
CLATSOP	--	--	471	653	148	1,272
CLATSOP	--	29	82	729	307	1,147
DEKUN	327	1,012	441	999	490	3,269
DEKUN	1,782	254	11	214	262	2,529
DEKUN	5,537	2,859	189	2,274	436	11,295
DEKUN	919	--	83	60	58	1,120
DEKUN	1,833	988	13	856	207	3,897
DEKUN	1,102	833	45	81	215	2,276
DEKUN	7,569	1,150	173	1,556	500	10,948
DEKUN	1,295	213	138	914	278	2,838
DEKUN	2,600	447	152	460	571	4,230
DEKUN	1,161	93	51	96	155	1,556
DEKUN	369	23	10	22	98	522
DEKUN	--	163	16	462	153	794
DEKUN	501	251	510	442	170	1,874
DEKUN	--	15	147	218	244	624
DEKUN	191	214	15	249	206	875
TOTAL	28,475	9,200	2,779	10,616	5,257	56,327
<u>MILLION BOARD FEET</u>						
SAWTIMBER (INTERNATIONAL 4-INCH RULE): ^{3/}						
CLATSOP	795	1,969	788	635	1,674	5,861
DEKUN	17,381	2,051	377	959	2,067	22,835
CLATSOP	--	--	2,273	3,031	722	6,026
CLATSOP	--	128	511	3,614	1,561	5,814
DEKUN	2,108	6,215	2,595	5,291	2,417	18,626
DEKUN	10,511	1,309	75	876	1,115	13,886
DEKUN	32,689	16,514	1,100	13,921	1,670	65,894
DEKUN	4,907	--	390	285	293	5,875
DEKUN	9,622	4,925	66	4,591	957	20,161
DEKUN	6,065	4,340	199	384	696	11,684
DEKUN	45,236	6,494	1,038	8,864	2,211	63,843
DEKUN	7,268	1,396	787	4,560	1,284	15,295
DEKUN	15,497	2,846	777	2,711	3,128	24,959
DEKUN	6,610	585	247	440	667	8,549
DEKUN	2,066	123	53	98	463	2,803
DEKUN	--	1,032	78	2,357	563	4,030
DEKUN	2,790	1,543	2,245	2,079	876	9,533
DEKUN	--	61	655	1,025	1,004	2,745
DEKUN	1,061	1,300	78	1,280	759	4,475
TOTAL	164,605	52,833	14,329	57,008	24,125	312,900
<u>MILLION BOARD FEET</u>						
SAWTIMBER (SCRIBNER 11.0-INCH RULE): ^{4/}						
CLATSOP	662	1,740	541	441	1,210	4,594
DEKUN	13,523	1,727	241	555	1,440	17,486
CLATSOP	--	--	1,584	1,899	528	4,011
CLATSOP	--	89	384	2,328	1,109	3,910
DEKUN	1,904	5,767	1,933	4,024	1,750	15,378
DEKUN	8,303	1,220	62	649	822	11,056
DEKUN	25,488	15,306	844	10,730	1,088	53,456
DEKUN	3,820	--	245	173	206	4,444
DEKUN	7,433	4,405	45	3,211	552	15,646
DEKUN	4,769	3,916	131	244	423	9,483
DEKUN	36,284	5,827	808	6,463	1,401	50,783
DEKUN	5,826	1,253	603	3,157	899	11,738
DEKUN	12,396	2,536	535	1,997	2,282	19,746
DEKUN	5,187	506	160	256	451	6,560
DEKUN	1,719	102	35	57	331	2,244
DEKUN	--	913	52	1,550	356	2,871
DEKUN	2,165	1,362	1,479	1,302	640	6,948
DEKUN	--	42	392	658	628	1,720
DEKUN	772	1,134	52	846	486	3,290
TOTAL	130,252	47,844	10,126	40,544	16,604	245,370

^{1/} Totals may be off because of rounding.

^{2/} Includes trees 5.0-inch d.b.h. and larger.

^{3/} Includes softwoods trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

^{4/} Includes trees 11.0-inch d.b.h. and larger.

Table 10 — Volume of growing stock on timberland by species and ownership class, western Oregon, January 1, 19

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP	MILLION CUBIC FEET
SOFTWOODS:							
DOUGLAS-FIR	17,803	6,937	1,506	6,651	2,698	35,595	
WESTERN HEMLOCK	3,674	665	567	1,646	344	6,896	
TRUE FIRS ^{2/}	1,917	284	33	304	120	2,658	
WESTERN REDCEDAR	599	157	31	258	193	1,238	
PACIFIC SILVER FIR	959	16	--	12	--	987	
SUGAR PINE	440	155	3/	65	7	660	
PONDEROSA PINE	221	185	5	85	64	560	
MOUNTAIN HEMLOCK	525	5	--	--	--	535	
INCENSE-CEDAR	207	124	8	88	97	526	
WESTERN WHITE PINE	313	4	--	--	--	317	
SHASTA RED FIR	247	--	--	--	2	249	
LODGEPOLE PINE	206	--	8	--	23	237	
JEFFREY PINE	--	--	2	42	--	44	
REDWOOD	47	--	--	15	--	62	
WESTERN LARCH	34	--	--	--	--	34	
OTHER SOFTWOODS ^{4/}	437	34	60	220	227	978	
TOTAL	27,618	8,566	2,220	9,388	3,775	51,567	
HARDWOODS:							
RED ALDER	429	195	475	815	633	2,547	
WHITE ALDER	--	--	--	10	3	13	
OTHER HARDWOODS ^{5/}	428	438	84	405	849	2,204	
TOTAL	857	633	559	1,229	1,485	4,768	
ALL SPECIES	28,475	9,200	2,779	10,616	5,257	56,335	

^{1/}Totals may be off due to rounding.

^{2/}Includes grand fir, white fir, noble fir, and subalpine fir.

^{3/}Less than 500,000 cubic feet.

^{4/}Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

^{5/}Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 11 — Volume of sawtimber, International 1/4-inch rule, on timberland by species and ownership class, western region, January 1, 1977 ^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SOFTWOODS:						
DOUGLAS-FIR	110,239	41,942	8,568	39,126	13,954	213,830
WESTERN HEMLOCK	18,280	3,707	3,202	8,173	1,820	35,181
TRUE FIRS ^{2/}	10,495	1,450	103	1,556	549	14,152
WESTERN REDCEDAR	3,152	803	162	1,495	1,043	6,655
PACIFIC SILVER FIR	4,457	88	--	26	--	4,571
SUGAR PINE	2,800	891	--	416	39	4,146
PONDEROSA PINE	1,319	1,031	28	519	342	3,239
INCENSE-CEDAR	1,090	571	44	447	507	2,659
MOUNTAIN HEMLOCK	2,552	23	--	--	--	2,575
WESTERN WHITE PINE	1,758	20	--	--	--	1,778
SHASTA RED FIR	1,457	--	--	--	7	1,464
LODGEPOLE PINE	534	--	20	--	110	663
REDWOOD	253	--	--	87	--	340
JEFFREY PINE	--	--	15	232	--	247
WESTERN LARCH	188	--	--	--	--	188
OTHER SOFTWOODS ^{3/}	2,549	178	299	1,213	1,291	5,530
TOTAL	161,120	50,705	12,441	53,288	19,661	297,215
HARDWOODS:						
RED ALDER	2,070	800	1,633	2,474	1,926	8,904
WHITE ALDER	--	--	--	58	13	71
OTHER HARDWOODS ^{4/}	1,415	1,326	255	1,188	2,526	6,710
TOTAL	3,485	2,127	1,888	3,720	4,465	15,685
TOTAL SPECIES	164,605	52,833	14,329	57,008	24,125	312,900

^{1/}Totals may be off due to rounding.

^{2/}Includes grand fir, white fir, noble fir, and subalpine fir.

^{3/}Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

^{4/}Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 12 — Volume of sawtimber, Scribner rule on timberland by species and ownership class, western Oregon, January 1, 1977 ^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
<u>MILLION BOARD FEET</u>						
SOFTWOODS:						
DOUGLAS-FIR	89,275	38,048	6,036	28,364	9,297	171,020
WESTERN HEMLOCK	13,867	3,150	2,208	5,077	1,144	25,446
TRUE FIRS ^{2/}	8,065	1,292	49	957	322	10,685
WESTERN REDCEDAR	2,424	714	113	1,092	649	4,992
SUGAR PINE	2,255	833	--	313	27	3,428
PACIFIC SILVER FIR	3,166	72	--	17	--	3,255
PONDEROSA PINE	1,073	938	12	380	211	2,614
INCENSE-CEDAR	763	520	29	313	329	1,954
MOUNTAIN HEMLOCK	1,889	16	--	--	--	1,905
WESTERN WHITE PINE	1,338	17	--	--	--	1,355
SHASTA RED FIR	1,124	--	--	--	2	1,126
LODGEPOLE PINE	290	--	2	--	60	352
REDWOOD	203	--	--	74	--	277
JEFFREY PINE	--	--	11	141	--	152
WESTERN LARCH	141	--	--	--	--	141
OTHER SOFTWOODS ^{3/}	1,821	173	169	822	930	3,915
TOTAL	127,692	45,774	8,629	37,549	12,969	232,613
HARDWOODS:						
RED ALDER	1,395	779	1,293	1,964	1,529	6,960
WHITE ALDER	--	--	--	47	10	57
OTHER HARDWOODS ^{4/}	1,165	1,290	203	985	2,096	5,743
TOTAL	2,560	2,070	1,497	2,996	3,635	12,760
ALL SPECIES	130,252	47,844	10,126	40,544	16,604	245,373

^{1/}Totals may be off due to rounding.

^{2/}Includes grand fir, white fir, noble fir, and subalpine fir.

^{3/}Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

^{4/}Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 13 — Volume of growing stock on timberland by species and diameter class, western Oregon, January 1, 1977^{1/}

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- 20.9	21.0- 28.9	29.0- 38.9	39.0- PLUS	
	MILLION CUBIC FEET											
SOFTWOODS:												
DOUGLAS-FIR	628	996	1,146	1,525	1,577	1,630	1,799	1,725	6,520	7,265	10,784	35,595
WESTERN HEMLOCK	290	401	518	522	541	555	490	490	1,564	1,006	523	6,896
TRUE FIRS ^{2/}	88	134	149	185	182	191	182	191	600	442	315	2,658
WESTERN REDCEDAR	26	52	64	53	56	55	82	72	233	226	318	1,238
PACIFIC SILVER FIR	46	73	90	85	113	104	105	80	208	72	13	987
SUGAR PINE	8	4	8	14	16	12	12	28	105	177	285	667
PONDEROSA PINE	7	12	18	23	24	24	30	35	122	132	135	560
MOUNTAIN HEMLOCK	10	17	27	43	45	49	53	66	153	58	8	530
INCENSE-CEDAR	13	15	16	20	28	20	38	24	105	127	119	525
WESTERN WHITE PINE	7	11	13	14	22	18	23	21	103	52	33	317
SHASTA RED FIR	5	7	9	13	14	13	14	17	61	50	46	249
LOGPOLE PINE	33	48	48	46	26	19	9	4	5	--	--	237
JEFFREY PINE	--	--	3	1	3	21	4	--	10	1	1	44
WESTERN LARCH	1	2	3	1	3	4	5	3	7	4	1	34
REDWOOD	--	--	1	--	2	2	2	3	6	15	24	52
OTHER SOFTWOODS ^{3/}	36	45	48	69	46	49	73	32	161	174	245	978
TOTAL	1,195	1,817	2,161	2,611	2,698	2,767	2,923	2,789	9,963	9,801	12,847	51,566
HARDWOODS:												
RED ALDER	199	266	379	364	372	297	250	160	241	20	--	2,547
WHITE ALDER	--	--	--	1	2	1	7	3	--	--	--	13
OTHER HARDWOODS ^{4/}	264	320	305	303	227	152	135	123	229	114	31	2,200
TOTAL	461	584	684	668	601	449	391	288	472	133	30	4,760
TOTAL SPECIES	1,656	2,401	2,844	3,279	3,299	3,216	3,314	3,077	10,435	9,934	12,877	56,327

^{1/}Totals may be off due to rounding.

^{2/}Includes grand fir, white fir, noble fir, and subalpine fir.

^{3/}Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

^{4/}Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 14 — Volume of sawtimber, International 1/4-inch rule, on timberland by species and diameter class, western Oregon, January 1, 1977 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)									CLAS
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0- 38.9	39.0- PLUS	
MILLION BOARD FEET										
SOFTWOODS:										
DOUGLAS-FIR	5,128	7,565	8,573	9,433	10,795	10,597	41,359	47,161	73,220	213
WESTERN HEMLOCK	2,208	2,592	2,913	3,085	2,799	2,802	9,233	6,167	3,382	31
TRUE FIRS ^{2/}	555	887	942	1,061	1,033	1,079	3,692	2,850	2,058	14
WESTERN REDCEDAR	255	228	265	280	455	386	1,366	1,374	2,046	6
PACIFIC SILVER FIR	366	405	581	548	561	434	1,160	438	80	4
SUGAR PINE	41	53	79	63	71	149	644	1,139	1,908	4
PONDEROSA PINE	59	97	100	135	161	208	742	842	894	4
INCENSE-CEDAR	50	64	115	93	178	119	581	742	716	1
MOUNTAIN HEMLOCK	107	184	213	241	268	342	825	345	50	1
WESTERN WHITE PINE	53	60	115	100	122	135	638	338	217	1
SHASTA RED FIR	34	55	68	78	81	97	392	334	324	1
LODGEPOLE PINE	130	201	135	99	46	28	22	2	--	1
JEFFREY PINE	11	5	16	119	22	--	64	5	4	1
WESTERN LARCH	14	5	16	23	34	18	44	27	7	1
REDWOOD	2	--	8	9	7	18	37	96	163	1
OTHER SOFTWOODS ^{3/}	206	318	240	260	417	195	1,010	1,161	1,726	1
TOTAL	9,216	12,722	14,379	15,630	17,050	16,604	61,806	63,018	86,792	29
HARDWOODS:										
RED ALDER	--	1,601	1,872	1,594	1,390	925	1,411	110	3	1
WHITE ALDER	--	4	8	2	42	16	--	--	--	1
OTHER HARDWOODS ^{4/}	--	1,238	1,051	759	707	694	1,345	731	185	1
TOTAL	--	2,845	2,930	2,354	2,139	1,634	2,756	841	188	1
ALL SPECIES	9,216	15,567	17,309	17,984	19,189	18,237	64,562	63,859	86,981	31

^{1/}Totals may be off due to rounding.

^{2/}Includes grand fir, white fir, noble fir, and subalpine fir.

^{3/}Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

^{4/}Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 15 — Volume of sawtimber, Scribner rule, on timberland by species and diameter class, western Oregon, January 1, 1971

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	19.0-20.9	21.0-28.9	29.0-38.9	39.0 PLUS	
MILLION BOARD FEET									
WOODS:									
GLAS-FIR	4,441	5,613	6,519	7,798	7,986	33,320	40,266	65,077	171,021
WESTERN HEMLOCK	1,594	1,940	2,118	2,052	2,123	7,403	5,262	2,953	25,445
DOUGLASS FIRS 2/	555	627	726	749	805	2,971	2,440	1,808	10,685
WESTERN REDCEDAR	139	163	185	303	271	1,056	1,126	1,747	4,991
DOUGLASS PINE	37	52	48	53	111	516	950	1,658	3,428
PACIFIC SILVER FIR	265	415	399	421	340	962	383	71	3,255
MONTEREY PINE	53	67	92	121	159	613	733	779	2,615
PORTLAND CEDAR	34	64	59	111	85	429	591	582	1,954
MOUNTAIN HEMLOCK	120	147	175	198	259	668	295	44	1,905
WESTERN WHITE PINE	42	77	70	90	100	503	285	187	1,355
SITKA RED FIR	35	44	52	56	70	305	280	284	1,126
OTHER SOFTWOODS 3/	170	141	167	274	132	741	884	1,408	3,914
SIERRA PINE	126	92	68	30	17	16	2	--	352
LAUREL PINE	3	9	73	14	--	46	4	3	152
WESTERN LARCH	3	13	17	25	14	38	24	7	141
WOOD	--	6	6	6	14	28	79	138	277
TOTAL	7,616	9,469	10,772	12,300	12,486	49,616	53,605	76,746	232,613
WOODS:									
ALDER	1,169	1,410	1,236	1,112	753	1,181	98	3	6,960
WHITE ALDER	3	6	1	34	13	--	--	--	57
OTHER HARDWOODS 4/	989	855	638	607	577	1,214	691	175	5,740
TOTAL	2,158	2,270	1,877	1,752	1,343	2,394	788	178	12,757
TOTAL SPECIES	9,774	11,739	12,649	14,052	13,829	52,010	54,392	76,924	245,370

Values may be off due to rounding.

Includes grand fir, white fir, noble fir, and subalpine fir.

Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 16 — Net annual growth of growing stock and sawtimber on timberland by ownership class and by softwoods and hardwoods, western Oregon, 1976 ^{1/}

OWNERSHIP CLASS	AVERAGE VOLUME	SOFTWOODS	HARDWOODS	ALL SPECI
	<u>CUBIC FEET PER ACRE</u>	<u>THOUSAND CUBIC FEET</u>		
GROWING STOCK: ^{2/}				
NATIONAL FOREST	43	185,095	10,755	195,
BUREAU OF LAND MANAGEMENT	57	94,761	18,078	112,
OTHER PUBLIC	109	72,779	21,050	93,
FOREST INDUSTRY	86	278,043	48,631	326,
OTHER PRIVATE	82	148,528	50,717	199,
ALL OWNERSHIPS	68	779,205	149,231	928,
	<u>BOARD FEET PER ACRE</u>	<u>THOUSAND BOARD FEET</u>		
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): ^{3/}				
NATIONAL FOREST	257	1,094,410	83,482	1,177,
BUREAU OF LAND MANAGEMENT	281	492,319	69,765	562,
OTHER PUBLIC	539	400,424	64,871	465,
FOREST INDUSTRY	453	1,544,507	166,860	1,711,
OTHER PRIVATE	385	780,038	159,249	939,
ALL OWNERSHIPS	355	4,311,698	544,227	4,855,

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 5.0-inch d.b.h. and larger.

^{3/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b. and larger.

Table 17 — Net annual growth of growing stock on timberland by species and ownership class, western Oregon, 1976^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SOFTWOODS:						
DUGLAS-FIR	111,122	70,744	50,229	175,221	108,666	515,982
WESTERN HEMLOCK	30,295	12,925	18,207	74,475	15,392	151,294
WESTERN RED CEDAR	6,292	2,043	629	3,931	6,674	19,569
WHITE FIRS ^{2/}	18,521	5,498	1,387	11,526	6,018	42,950
PACIFIC SILVER FIR	9,415	219	--	975	--	10,609
MOUNTAIN HEMLOCK	7,474	38	--	--	--	7,512
MONTEREY PINE	1,952	1,509	3/-32	1,047	1,288	5,764
INCENSE-CEDAR	1,780	930	8	1,040	1,450	5,209
EDGEPOLE PINE	2,636	--	699	--	3/-130	3,205
SPRUCE PINE	1,627	242	3/-174	502	161	2,358
PACIFIC RED FIR	1,560	--	--	--	71	1,631
COTTONWOOD	260	--	--	617	--	877
DOUGLAS PINE	--	--	29	237	--	266
WESTERN LARCH	3/-62	--	--	--	--	3/-62
WESTERN WHITE PINE	3/-12,513	3/-35	--	--	--	3/-12,548
OTHER SOFTWOODS ^{4/}	4,736	648	1,798	8,472	8,938	24,592
TOTAL	185,095	94,761	72,779	278,043	148,528	779,205
HARDWOODS:						
RED ALDER	2,935	4,735	19,006	41,015	27,847	95,538
WHITE ALDER	--	--	--	200	45	245
OTHER HARDWOODS ^{5/}	7,820	13,343	2,044	7,419	22,824	53,449
TOTAL	10,755	18,078	21,050	48,631	50,717	149,231
TOTAL SPECIES	195,850	112,839	93,829	326,675	199,244	928,436

1/ Totals may be off due to rounding.

2/ Includes grand fir, white fir, noble fir, and subalpine fir.

3/ Negative net annual growth is the result of net annual mortality exceeding gross annual growth.

4/ Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann spruce and Sitka spruce.

5/ Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, California laurel.

Table 18 — Net annual growth of sawtimber, International 1/4-inch rule, on timberland by species and ownership in western Oregon, 1976^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OTHER OWNERS	THOUSAND BOARD FEET
SOFTWOODS:							
DOUGLAS-FIR	705,209	385,701	272,739	990,018	550,378	2,904	
WESTERN HEMLOCK	125,920	54,386	103,135	388,501	85,548	757	
WESTERN REDCEDAR	34,048	9,390	3,546	23,026	43,419	113	
TRUE FIRS ^{2/}	127,605	27,003	5,625	71,864	30,048	262	
MOUNTAIN HEMLOCK	41,355	213	--	--	--	41	
PONDEROSA PINE	10,934	6,325	477	7,156	10,596	35	
INCENSE-CEDAR	9,181	3,080	270	3,943	8,294	24	
PACIFIC SILVER FIR	35,840	1,360	--	2,114	--	39	
SUGAR PINE	10,845	2,075	<u>3/-</u> 1,330	3,197	920	15	
LODGEPOLE PINE	11,451	--	2,561	--	<u>3/-</u> 1,910	12	
SHASTA RED FIR	10,607	--	--	--	762	11	
JEFFREY PINE	--	--	194	1,972	--	2	
REDWOOD	1,900	--	--	3,706	--	5	
WESTERN LARCH	<u>3/-</u> 748	--	--	--	--	<u>3/-</u>	
WESTERN WHITE PINE	<u>3/-</u> 59,101	<u>3/-</u> 10	--	--	--	<u>3/-</u> 59	
OTHER SOFTWOODS ^{4/}	29,364	<u>2,</u> 796	13,209	49,011	51,983	146	
TOTAL	1,094,410	492,319	400,424	1,544,507	780,038	4,311	
HARDWOODS:							
RED ALDER	52,111	25,277	55,797	126,866	75,571	335	
WHITE ALDER	--	--	--	1,382	543	1	
OTHER HARDWOODS ^{5/}	31,371	44,488	9,074	38,613	83,138	206	
TOTAL	83,482	69,765	64,871	166,860	159,249	544	
ALL SPECIES	1,177,892	562,084	465,296	1,711,367	939,287	4,855	

^{1/}Totals may be off due to rounding.

^{2/}Includes grand fir, white fir, noble fir, and subalpine fir.

^{3/}Negative net annual growth is the result of net annual mortality exceeding gross annual growth.

^{4/}Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann spruce and Sitka spruce.

^{5/}Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, California laurel.

Table 19 — Average annual mortality of growing stock on timberland by species and ownership class, western Oregon, 1976^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SOFTWOODS:						
DOUGLAS-FIR	53,499	42,089	2,756	26,017	9,648	134,009
WESTERN HEMLOCK	14,689	2,211	1,112	5,585	995	24,592
WESTERN WHITE PINE	13,259	120	--	--	--	13,379
TRUE FIRS ^{2/}	11,439	2,750	466	2,588	441	17,683
SUGAR PINE	3,177	1,716	195	516	--	5,604
PACIFIC SILVER FIR	5,465	--	--	--	--	5,465
PONDEROSA PINE	1,763	1,350	197	589	654	4,552
WESTERN REDCEDAR	1,330	449	198	1,481	392	3,850
LODGEPOLE PINE	1,947	--	--	--	977	2,924
MOUNTAIN HEMLOCK	1,700	--	--	--	--	1,700
INCENSE-CEDAR	257	758	95	377	119	1,606
SHASTA RED FIR	1,565	--	--	--	--	1,565
WESTERN LARCH	512	--	--	--	--	512
JEFFREY PINE	--	--	--	365	--	365
REDWOOD	100	--	--	--	--	100
OTHER SOFTWOODS ^{3/}	1,022	--	511	1,567	612	3,711
TOTAL	111,724	51,443	5,530	39,085	13,837	221,618
HARDWOODS:						
RED ALDER	5,753	910	3,930	6,625	7,102	24,320
OTHER HARDWOODS ^{4/}	751	1,947	678	5,935	8,494	17,804
TOTAL	6,504	2,857	4,608	12,561	15,595	42,125
TOTAL SPECIES	118,228	54,300	10,138	51,645	29,432	263,743

Totals may be off due to rounding.

^{1/}Includes grand fir, white fir, noble fir, and subalpine fir.

^{2/}Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

^{3/}Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 20 — Average annual mortality of sawtimber, International 1/4-inch rule, on timberland by species and owner class, western Oregon, 1976 ^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERS
<u>THOUSAND BOARD FEET</u>						
SOFTWOODS:						
DOUGLAS-FIR	329,432	238,044	13,831	142,410	44,010	767,727
WESTERN HEMLOCK	67,544	12,455	4,468	27,669	4,640	116,776
WESTERN WHITE PINE	77,311	910	--	--	--	78,221
TRUE FIRS ^{2/}	62,385	14,590	1,189	11,049	1,882	91,095
SUGAR PINE	21,108	8,702	1,330	3,182	--	34,322
PACIFIC SILVER FIR	24,808	--	--	--	--	24,808
WESTERN REDCEDAR	6,684	2,272	615	5,387	1,814	16,772
PONDEROSA PINE	4,286	6,834	961	2,463	1,195	15,749
SHASTA RED FIR	10,356	--	--	--	--	10,356
LODGEPOLE PINE	4,889	--	--	--	5,348	10,237
MOUNTAIN HEMLOCK	7,793	--	--	--	--	7,793
INCENSE-CEDAR	1,342	2,782	443	1,253	363	6,183
WESTERN LARCH	2,791	--	--	--	--	2,791
JEFFREY PINE	--	--	--	1,919	--	1,919
REDWOOD	700	--	--	--	--	700
OTHER SOFTWOODS ^{3/}	5,685	314	1,119	7,062	583	14,763
TOTAL	627,114	286,903	23,956	202,390	59,835	1,200,198
HARDWOODS:						
RED ALDER	23,968	3,143	12,443	16,582	19,016	75,152
OTHER HARDWOODS ^{4/}	3,681	4,230	1,680	9,605	19,716	38,914
TOTAL	27,649	7,373	14,122	26,186	38,732	114,066
ALL SPECIES	654,763	294,276	38,078	228,576	98,567	1,314,264

^{1/}Totals may be off due to rounding.

^{2/}Includes grand fir, white fir, noble fir, and subalpine fir.

^{3/}Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

^{4/}Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 21 — Area by county and land class, northwest Oregon, January 1, 1977 ^{1/}

COUNTY	FOREST LAND					NONFOREST LAND ^{2/}	ALL LANDS ^{3/}
	TIMBERLAND	DEFERRED TIMBERLAND	RESERVED TIMBERLAND	OTHER	TOTAL		
	THOUSAND ACRES						
CLATSOP	846	--	2	52	900	307	1,207
DEKALB	415	--	5	11	431	84	515
CLATSOP	305	--	1	3	309	99	408
WASCO	223	--	6	40	269	66	335
WASCO	314	--	14	39	367	378	745
WASCO	111	--	8	15	134	137	271
WASCO	254	--	1	3	258	213	471
WASCO	606	--	5	4	615	98	713
WASCO	234	--	1	2	237	228	465
WASCO	240	--	4	1	241	214	455
TOTAL	3,548	--	43	170	3,761	1,824	5,585

Totals may be off because of rounding.

^{1/}Includes cropland, pasture and range, swampland, industrial and urban areas, powerline clearings, railroads, and all improved roads and highways, and acres classified as water by Forest Survey standards, but defined by the Bureau of Census as land.

Source: United States Bureau of the Census, Land and Water Area of the United States, 1970.

^{2/}Less than 500 acres.

Table 22 — Area of timberland by county and ownership class, northwest Oregon, January 1, 1977 ^{1/}

COUNTY	PUBLIC				PRIVATE				ALL OWNERSHIPS
	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER	TOTAL	FOREST INDUSTRY	FARMER OWNED	MISCELLANEOUS	TOTAL	
	THOUSAND ACRES								
CLATSOP	473	55	27	555	119	52	120	291	846
CLATSOP	--	--	136	136	226	15	38	279	415
CLATSOP	--	10	12	22	190	28	65	283	305
WASCO	151	--	26	177	30	5	11	46	223
WASCO	156	19	22	197	49	22	46	117	314
WASCO	53	5	6	64	10	9	27	47	111
WASCO	27	37	6	43	130	48	32	211	254
WASCO	78	46	282	406	150	17	34	200	606
WASCO	--	12	52	64	73	53	44	170	234
WASCO	25	43	6	74	65	69	31	166	240
TOTAL	936	226	575	1,738	1,042	318	448	1,810	3,548

Totals may be off because of rounding.

^{2/}Less than 500 acres.

Table 23 — Area of timberland by cubic-foot site and ownership classes, northwest Oregon, January 1, 1977 ^{1/}

SITE CLASS ^{2/}	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERS
<u>CUBIC FEET</u>	----- THOUSAND ACRES -----					
225 OR MORE	20	4	46	85	25	
165 TO 224	91	25	64	216	60	
120 TO 164	271	143	352	628	451	1,
85 TO 119	209	42	88	85	176	
50 TO 84	339	13	25	28	49	
20 TO 49	6	--	--	--	7	
ALL CLASSES	936	227	575	1,042	766	3,

^{1/}Totals may be off because of rounding.

^{2/}Capacity for cubic-foot annual growth per acre at culmination of mean annual growth in fully stocked natural stands.

Table 24 — Area of timberland by stand-size and ownership classes, northwest Oregon, January 1, 1977 ^{1/}

STAND-SIZE CLASS	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERS
	<u>THOUSAND ACRES</u>					
SAWTIMBER STANDS:						
LARGE SAWTIMBER ^{2/}	378	63	47	61	97	600
SMALL SAWTIMBER ^{3/}	300	73	239	557	338	1,507
TOTAL	678	136	286	618	435	2,107
POLETIMBER STANDS:						
SAPLING AND SEEDLING STANDS	113	17	134	127	117	508
NONSTOCKED AREAS	111	63	137	280	87	608
	34	10	17	18	128	207
ALL CLASSES	936	226	575	1,042	766	3,500

^{1/}Totals may be off because of rounding.

^{2/}Large sawtimber includes trees 21.0-inch d.b.h. and larger.

^{3/}Small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

Table 25 — Area of timberland by forest type and ownership class, northwest Oregon, January 1, 1977 ^{1/}

FOREST TYPE	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
DOUGLAS-FIR	443	171	412	681	301	2,007
WESTERN HEMLOCK	197	18	--	--	--	215
PORTLAND SPRUCE	5	--	25	109	22	160
PACIFIC SILVER FIR	100	--	--	4	--	104
WESTERN RED CEDAR	12	2	3	12	31	60
GRAND FIR	19	--	--	27	7	53
EDGEPOLE PINE	30	--	8	--	--	38
MOUNTAIN HEMLOCK	34	--	--	--	--	34
WHITE FIR	13	--	--	10	--	23
MONTEROSA PINE	6	--	--	--	--	6
WHITEBARK PINE	2	--	--	--	--	2
MUGELMANN SPRUCE	2	--	--	--	--	2
RED ALDER	39	22	110	183	200	554
APPLE	--	3	--	--	64	67
OREGON WHITE OAK	--	--	--	--	54	53
STATIONWOOD	--	--	--	--	9	9
OTHER HARDWOODS	--	--	--	--	21	21
NONCOMMERCIAL HARDWOODS	--	1	--	--	21	22
UNCLASSIFIED ^{2/}	34	10	17	18	39	117
ALL TYPES	936	227	575	1,042	766	3,546

^{1/}Totals may be off because of rounding.

^{2/}Unclassified type is less than 10 percent stocked with live trees.

Table 26 — Area of reserved timberland by forest type and ownership class, northwest Oregon, January 1, 1977

FOREST TYPE	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
<u>THOUSAND ACRES</u>						
TIMBERLAND:						
DOUGLAS-FIR	1	--	22	--	--	
PACIFIC SILVER FIR	8	--	--	--	--	
TRUE FIRS	--	--	<u>2/</u>	--	--	
PONDEROSA PINE	1	--	<u>2/</u>	--	--	
LODGEPOLE PINE	--	--	<u>2/</u>	--	--	
SITKA SPRUCE	--	--	4	--	<u>2/</u>	
HEMLOCK	--	--	4	--	--	
RED ALDER	--	--	<u>2/</u>	--	--	
COTTONWOOD AND ASPEN	--	--	<u>2/</u>	--	--	
OAKS	--	--	<u>2/</u>	--	--	
OTHER HARDWOODS	--	--	3	--	--	
ALL TYPES	10	--	33	--	<u>2/</u>	

1/Totals may be off because of rounding.

2/Less than 500 acres.

Table 27 — Volume of timber on timberland by class of timber and by softwoods and hardwoods, northwest Oregon, January 1, 1977 ^{1/}

CLASS OF TIMBER	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>MILLION CUBIC FEET</u>			
SAWTIMBER TREES:			
SAW-LOG PORTION	9,691	866	10,557
UPPER-STEM PORTION	1,727	142	1,869
TOTAL	11,419	1,007	12,426
POLETIMBER TREES	993	603	1,596
ALL GROWING STOCK	12,411	1,610	14,021
SOUND CULL TREES	46	86	132
ROTTEN CULL TREES	182	52	234
SALVABLE DEAD TREES	146	10	156
ALL TIMBER	12,786	1,758	14,544

1/Totals may be off because of rounding.

Table 28 — Volume of growing stock and sawtimber on timberland by ownership class and by softwoods and hardwoods, Northwest Oregon, January 1, 1977 ^{1/}

OWNERSHIP CLASS	AVERAGE VOLUME	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>CUBIC FEET</u> <u>PER ACRE</u>	<u>MILLION CUBIC FEET</u>		
GROWING STOCK: ^{2/}				
NATIONAL FOREST	6,724	6,158	136	6,294
BUREAU OF LAND MANAGEMENT	5,004	1,053	83	1,136
OTHER PUBLIC	2,546	1,193	271	1,464
FOREST INDUSTRY	3,015	2,687	455	3,142
OTHER PRIVATE	2,593	1,320	666	1,986
ALL OWNERSHIPS	3,954	12,411	1,610	14,021
	<u>BOARD FEET</u> <u>PER ACRE</u>	<u>MILLION BOARD FEET</u>		
SAWTIMBER (INTERNATIONAL				
4-INCH RULE): ^{3/}				
NATIONAL FOREST	37,194	34,234	580	34,814
BUREAU OF LAND MANAGEMENT	30,066	6,471	354	6,825
OTHER PUBLIC	12,012	6,263	644	6,907
FOREST INDUSTRY	14,558	13,684	1,485	15,169
OTHER PRIVATE	11,717	6,963	2,013	8,975
ALL OWNERSHIPS	20,499	67,614	5,076	72,690
	<u>BOARD FEET</u> <u>PER ACRE</u>	<u>MILLION BOARD FEET</u>		
SAWTIMBER				
SCRIBNER RULE): ^{4/}				
NATIONAL FOREST	29,046	26,796	391	27,187
BUREAU OF LAND MANAGEMENT	25,881	5,527	348	5,875
OTHER PUBLIC	8,043	4,118	507	4,625
FOREST INDUSTRY	9,235	8,449	1,174	9,623
OTHER PRIVATE	8,063	4,532	1,645	6,176
ALL OWNERSHIPS	15,083	49,421	4,064	53,485

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 5.0-inch d.b.h. and larger.

^{3/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

^{4/}Includes trees 11.0-inch d.b.h. and larger.

Table 29 — Volume of growing stock and sawtimber on timberland by county and ownership class, northwest Oregon, January, 1977^{1/}

COUNTY	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERS
<u>MILLION CUBIC FEET</u>						
GROWING STOCK: ^{2/}						
CLACKAMAS	3,153	347	78	210	446	4,234
CLATSOP	--	--	471	653	148	1,272
COLUMBIA	--	29	82	729	307	1,147
HOOD RIVER	919	--	83	60	58	1,120
MARION	1,161	93	51	96	155	1,566
MULTNOMAH	369	23	10	22	98	522
POLK	--	163	16	462	153	794
TILLAMOOK	501	251	510	442	170	1,874
WASHINGTON	--	15	147	218	244	604
YAMHILL	191	214	15	249	206	875
TOTAL	6,294	1,136	1,464	3,142	1,986	14,022
<u>MILLION BOARD FEET</u>						
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): ^{3/}						
CLACKAMAS	17,381	2,051	377	959	2,067	22,835
CLATSOP	--	--	2,273	3,031	722	6,026
COLUMBIA	--	128	511	3,614	1,561	5,814
HOOD RIVER	4,907	--	390	285	293	5,875
MARION	6,610	585	247	440	667	8,559
MULTNOMAH	2,066	123	53	98	463	2,803
POLK	--	1,032	78	2,357	563	4,030
TILLAMOOK	2,790	1,543	2,245	2,079	876	9,533
WASHINGTON	--	61	655	1,025	1,004	2,745
YAMHILL	1,061	1,300	78	1,280	759	4,478
TOTAL	34,814	6,825	6,907	15,169	8,975	72,690
<u>MILLION BOARD FEET</u>						
SAWTIMBER (SCRIBNER RULE): ^{4/}						
CLACKAMAS	13,523	1,727	241	555	1,440	17,486
CLATSOP	--	--	1,584	1,899	528	4,011
COLUMBIA	--	89	384	2,328	1,109	3,900
HOOD RIVER	3,820	--	245	173	206	4,444
MARION	5,187	506	160	256	451	6,500
MULTNOMAH	1,719	102	35	57	331	2,244
POLK	--	913	52	1,550	356	2,811
TILLAMOOK	2,165	1,362	1,479	1,302	640	6,948
WASHINGTON	--	42	392	658	628	1,720
YAMHILL	772	1,134	52	846	486	3,290
TOTAL	27,187	5,875	4,625	9,623	6,176	53,286

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 5.0-inch d.b.h. and larger.

^{3/}Includes softwoods trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

^{4/}Includes trees 11.0-inch d.b.h. and larger.

Table 30 — Volume of growing stock on timberland by species and ownership class, northwest Oregon, January 1, 1977^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS	MILLION CUBIC FEET						
SOFTWOODS:													
DOUGLAS-FIR	3,220	902	555	1,693	966	7,336							
WESTERN HEMLOCK	1,405	107	551	798	123	2,984							
PACIFIC SILVER FIR	511	8	--	12	--	531							
WESTERN REDCEDAR	196	7	31	39	117	390							
SITKA SPRUCE	87	4	20	117	78	305							
NOBLE FIR	233	19	2	21	--	275							
MOUNTAIN HEMLOCK	185	5	--	--	--	190							
GRAND FIR	109	1	26	4	36	176							
LOGEPOLE PINE	69	--	8	--	--	77							
WESTERN WHITE PINE	37	--	--	--	--	37							
WESTERN LARCH	34	--	--	--	--	34							
PONDEROSA PINE	22	--	--	2	2	26							
ENGELMANN SPRUCE	24	--	--	--	--	24							
ALASKA-CEDAR	17	--	--	--	--	17							
SUBALPINE FIR	7	--	--	--	--	7							
WHITE FIR	1	--	--	--	--	1							
INCENSE-CEDAR	1	--	--	--	--	1							
TOTAL	6,158	1,053	1,193	2,687	1,320	12,411							
HARDWOODS:													
RED ALDER	129	68	234	388	294	1,113							
BIGLEAF MAPLE	6	14	37	65	182	304							
OREGON WHITE OAK	--	--	--	3	122	124							
BLACK COTTONWOOD	--	1	--	--	46	47							
OREGON ASH	--	--	--	--	22	22							
GOLDEN CHINKAPIN	1	--	--	--	--	1							
TOTAL	136	83	271	455	666	1,610							
TOTAL SPECIES	6,294	1,136	1,464	3,142	1,986	14,021							

^{1/}Totals may be off due to rounding.

Table 31 — Volume of sawtimber, International 1/4-inch rule, on timberland by species and ownership class, northwest Oregon, January 1, 1977^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
<u>MILLION BOARD FEET</u>						
SOFTWOODS:						
DOUGLAS-FIR	19,183	5,633	2,732	9,015	4,939	41,502
WESTERN HEMLOCK	7,163	589	3,143	3,757	672	15,324
PACIFIC SILVER FIR	2,411	43	--	26	--	2,480
WESTERN REDCEDAR	1,122	31	162	170	625	2,110
SITKA SPRUCE	579	25	123	605	544	1,876
NOBLE FIR	1,366	124	8	82	--	1,580
MOUNTAIN HEMLOCK	917	21	--	--	--	938
GRAND FIR	539	5	76	16	173	809
WESTERN WHITE PINE	204	1	--	--	--	205
LOGEPOLE PINE	176	--	20	--	--	196
WESTERN LARCH	188	--	--	--	--	188
PONDEROSA PINE	146	--	--	14	10	170
ENGELMANN SPRUCE	118	--	--	--	--	118
ALASKA-CEDAR	78	--	--	--	--	78
SUBALPINE FIR	36	--	--	--	--	36
INCENSE-CEDAR	5	--	--	--	--	5
WHITE FIR	3	--	--	--	--	3
TOTAL	34,234	6,471	6,263	13,684	6,963	67,615
HARDWOODS:						
RED ALDER	560	290	515	1,293	878	3,536
BIGLEAF MAPLE	20	60	129	182	569	960
BLACK COTTONWOOD	--	3	--	--	269	272
OREGON WHITE OAK	--	--	--	11	226	237
OREGON ASH	--	--	--	--	70	70
TOTAL	580	354	644	1,485	2,013	5,075
ALL SPECIES	34,814	6,825	6,907	15,169	8,975	72,690

^{1/}Totals may be off due to rounding.

Table 32 — Volume of sawtimber, Scribner rule, on timberland by species and ownership class, northwest Oregon, January 1, 1977 ^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
<u>MILLION BOARD FEET</u>						
SOFTWOODS:						
DOUGLAS-FIR	15,268	4,837	1,701	5,717	3,187	30,711
WESTERN HEMLOCK	5,578	479	2,170	2,165	422	10,814
PACIFIC SILVER FIR	1,727	36	--	17	--	1,780
WESTERN REDCEDAR	898	26	113	105	380	1,522
SITKA SPRUCE	489	22	90	385	434	1,419
NOBLE FIR	1,096	109	4	40	--	1,249
MOUNTAIN HEMLOCK	675	14	--	--	--	689
GRAND FIR	380	5	37	10	103	536
WESTERN WHITE PINE	152	1	--	--	--	153
PONDEROSA PINE	128	--	--	10	6	144
WESTERN LARCH	141	--	--	--	--	141
LOGSPOLE PINE	90	--	2	--	--	92
ENGELMANN SPRUCE	87	--	--	--	--	87
ALASKA-CEDAR	52	--	--	--	--	52
SUBALPINE FIR	30	--	--	--	--	30
INCENSE-CEDAR	3	--	--	--	--	3
WHITE FIR	2	--	--	--	--	2
TOTAL	26,796	5,527	4,118	8,449	4,532	49,421
HARDWOODS:						
RED ALDER	377	285	404	1,018	697	2,780
BIGLEAF MAPLE	14	59	103	147	461	784
BLACK COTTONWOOD	--	3	--	--	247	250
OREGON WHITE OAK	--	--	--	9	181	189
OREGON ASH	--	--	--	--	61	61
TOTAL	391	348	507	1,174	1,645	4,064
ALL SPECIES	27,187	5,875	4,625	9,623	6,176	53,485

Totals may be off due to rounding.

Table 33— Volume of growing stock on timberland by species and diameter class, northwest Oregon, January 1, 197

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)											CL
	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- 20.9	21.0- 28.9	29.0- 38.9	39.0- PLUS	
	MILLION CUBIC FEET											
SOFTWOODS:												
DOUGLAS-FIR	167	290	378	561	536	566	576	525	1,607	1,143	987	7
WESTERN HEMLOCK	128	169	241	225	246	236	205	204	683	425	226	2
PACIFIC SILVER FIR	29	49	47	47	62	57	55	39	101	40	7	
WESTERN REDCEDAR	10	16	25	17	21	18	33	26	71	62	93	
SITKA SPRUCE	6	10	11	20	7	11	18	8	37	59	115	
NOBLE FIR	3	20	14	26	14	18	15	12	59	61	34	
MOUNTAIN HEMLOCK	5	8	11	16	19	19	22	29	48	11	1	
GRAND FIR	17	20	19	24	14	20	18	8	23	11	2	
LODGEPOLE PINE	14	21	16	11	8	4	1	--	2	--	--	
WESTERN WHITE PINE	1	2	3	3	1	2	2	4	8	6	5	
WESTERN LARCH	1	2	3	1	3	4	5	3	7	4	1	
PONDEROSA PINE	--	--	1	2	--	--	2	--	13	7	1	
ENGELMANN SPRUCE	1	2	1	6	2	4	1	2	2	3	--	
ALASKA-CEDAR	--	2	2	3	3	1	--	1	2	2	1	
SUBALPINE FIR	1	1	--	--	1	--	1	1	2	--	--	
WHITE FIR	--	--	--	--	1	--	--	--	--	--	--	
INCENSE-CEDAR	--	--	--	--	1	--	--	--	--	--	--	
TOTAL	382	612	771	960	940	960	955	862	2,664	1,833	1,472	12
HARDWOODS:												
RED ALDER	81	141	190	176	165	116	99	46	90	8	--	1
BICLEAF MAPLE	26	49	34	49	43	17	22	14	28	18	3	
ORECON WHITE OAK	17	14	42	25	10	6	--	4	7	1	--	
BLACK COTTONWOOD	--	--	--	--	2	3	4	6	8	11	12	
ORECON ASH	--	2	7	4	1	2	2	--	3	--	--	
COLDEN CHINKAPIN	1	--	--	--	--	--	--	--	--	--	--	
TOTAL	125	205	274	254	221	144	128	70	138	37	15	1
ALL SPECIES	507	818	1,045	1,214	1,161	1,104	1,083	932	2,801	1,870	1,487	14

1/Totals may be off due to rounding.

Table 34 — Volume of sawtimber, International 1/4-inch rule, on timberland by species and diameter class, northwest Oregon, January 1, 1977 1/

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)									
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0- 38.9	39.0- PLUS	ALL CLASSES
	MILLION BOARD FEET									
SOFTWOODS:										
DOUGLAS-FIR	1,684	2,776	2,919	3,287	3,478	3,240	10,291	7,390	6,438	41,502
WESTERN HEMLOCK	1,128	1,151	1,372	1,350	1,192	1,161	4,000	2,547	1,422	15,323
PACIFIC SILVER FIR	200	228	325	311	302	222	590	258	46	2,480
WESTERN REDCEDAR	104	78	104	96	187	144	425	384	588	2,110
SITKA SPRUCE	52	102	37	64	110	49	243	400	818	1,875
NOBLE FIR	66	125	82	106	91	74	387	416	234	1,580
MOUNTAIN HEMLOCK	49	78	97	102	115	155	269	67	6	938
CRAND FIR	90	123	82	117	106	50	157	69	15	809
WESTERN WHITE PINE	16	13	8	10	11	29	48	39	31	205
LODCEPOLE PINE	72	45	42	22	4	3	6	2	--	196
WESTERN LARCH	14	5	16	23	34	18	44	27	7	188
PONDEROSA PINE	3	7	--	2	9	2	83	53	11	170
ENGELMANN SPRUCE	8	24	9	20	8	10	19	20	--	118
ALASKA-CEDAR	7	12	15	5	2	6	13	13	5	78
SUBALPINE FIR	--	3	6	3	5	6	13	--	--	36
INCENSE-CEDAR	1	--	1	1	--	--	2	--	--	5
WHITE FIR	--	--	3	--	--	--	--	--	--	3
TOTAL	3,492	4,770	5,116	5,520	5,655	5,168	16,589	11,685	9,620	67,614
HARDWOODS:										
RED ALDER	--	755	818	614	537	254	508	49	3	3,536
BICLEAF MAPLE	--	203	204	81	116	78	154	109	14	960
BLACK COTTONWOOD	--	--	12	15	25	32	45	69	73	272
OREGON WHITE OAK	--	97	48	31	--	20	38	3	--	237
OREGON ASH	--	21	4	12	13	--	21	--	--	70
TOTAL	--	1,076	1,086	753	692	384	766	229	90	5,076
ALL SPECIES	3,492	5,846	6,202	6,273	6,347	5,552	17,355	11,914	9,710	72,690

Totals may be off due to rounding.

Table 35 — Volume of sawtimber, Scribner rule, on timberland by species and diameter class, northwest Oregon, January 1, 1977 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)								
	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0- 38.9	39.0 PLUS	ALL CLASSES
<u>MILLION BOARD FEET</u>									
SOFTWOODS:									
DOUGLAS-FIR	1,558	1,850	2,214	2,457	2,387	8,182	6,292	5,771	30,717
WESTERN HEMLOCK	686	909	917	865	871	3,185	2,147	1,234	10,814
PACIFIC SILVER FIR	152	234	228	228	175	495	228	41	1,780
WESTERN REDCEDAR	45	63	63	122	98	314	307	510	1,522
SITKA SPRUCE	56	22	40	70	35	180	321	696	1,416
NOBLE FIR	76	58	81	72	58	323	369	209	1,246
MOUNTAIN HEMLOCK	53	69	75	86	120	223	59	5	689
GRAND FIR	77	58	83	78	37	128	60	14	530
WESTERN WHITE PINE	9	5	8	9	22	39	34	27	151
PONDEROSA PINE	4	--	1	7	2	70	49	11	144
WESTERN LARCH	3	13	17	25	14	38	24	7	147
LODGEPOLE PINE	32	31	17	3	2	5	2	--	92
ENGELMANN SPRUCE	17	7	16	7	8	16	16	--	87
ALASKA-CEDAR	8	10	4	1	4	10	11	4	55
SUBALPINE FIR	2	5	1	4	6	12	--	--	30
INCENSE-CEDAR	--	1	1	--	--	1	--	--	3
WHITE FIR	--	2	--	--	--	--	--	--	2
TOTAL	2,776	3,337	3,764	4,033	3,839	13,222	9,920	8,529	49,421
HARDWOODS:									
RED ALDER	554	621	478	433	212	436	45	3	2,780
BIGLEAF MAPLE	153	159	65	96	66	135	98	12	780
BLACK COTTONWOOD	--	10	13	23	29	41	65	69	250
OREGON WHITE OAK	75	37	25	--	16	33	2	--	181
OREGON ASH	18	3	10	11	--	19	--	--	61
TOTAL	799	830	592	564	323	664	209	85	4,064
ALL SPECIES	3,575	4,167	4,356	4,597	4,162	13,886	10,128	8,614	53,485

^{1/}Totals may be off due to rounding.

Table 36 — Net annual growth of growing stock and sawtimber on timberland by ownership class and by softwoods and hardwoods, northwest Oregon, 1976^{1/}

OWNERSHIP CLASS	AVERAGE VOLUME	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>CUBIC FEET</u> <u>PER ACRE</u>	<u>THOUSAND CUBIC FEET</u>		
GROWING STOCK: 2/				
NATIONAL FOREST	55	49,850	1,669	51,519
BUREAU OF LAND MANAGEMENT	100	20,108	2,702	22,810
OTHER PUBLIC	116	49,678	17,143	66,817
FOREST INDUSTRY	137	123,141	19,310	142,451
OTHER PRIVATE	104	54,486	25,222	79,708
ALL OWNERSHIPS	102	297,257	66,047	363,304
	<u>BOARD FEET</u> <u>PER ACRE</u>	<u>THOUSAND BOARD FEET</u>		
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): 3/				
NATIONAL FOREST	331	289,935	19,874	309,809
BUREAU OF LAND MANAGEMENT	610	124,519	13,985	138,504
OTHER PUBLIC	534	265,877	41,211	307,088
FOREST INDUSTRY	765	721,103	76,452	797,555
OTHER PRIVATE	526	320,321	82,456	402,776
ALL OWNERSHIPS	552	1,721,755	233,977	1,955,732

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 5.0-inch d.b.h. and larger.

^{3/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

Table 37 — Net annual growth of growing stock on timberland by species and ownership class, northwest Oregon, 1970

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP	THOUSAND CUBIC FEET
SOFTWOODS:							
DOUGLAS-FIR	24,089	16,711	29,590	75,576	42,207	188,177	
WESTERN HEMLOCK	9,469	2,481	17,119	38,569	4,834	72,477	
WESTERN REDCEDAR	1,431	398	629	1,138	4,095	7,691	
PACIFIC SILVER FIR	7,643	113	--	975	--	8,731	
SITKA SPRUCE	1,112	46	526	5,376	1,605	8,666	
GRAND FIR	1,631	8	1,009	180	1,718	4,547	
NOBLE FIR	2,743	357	101	1,308	--	4,509	
LOGSPOLE PINE	1,427	--	699	--	--	2,126	
MOUNTAIN HEMLOCK	1,836	37	--	--	--	1,873	
ENGELMANN SPRUCE	354	--	--	--	--	354	
ALASKA CEDAR	330	--	--	--	--	330	
PONDEROSA PINE	89	--	--	19	27	135	
WHITE FIR	36	--	--	--	--	36	
INCENSE-CEDAR	21	--	--	--	--	21	
WESTERN LARCH	2/-62	--	--	--	--	2/-62	
SUBALPINE FIR	27-109	--	--	--	--	27-109	
WESTERN WHITE PINE	2/-2,190	2/-43	--	--	--	2/-2,233	
TOTAL	49,850	20,108	49,673	123,141	54,486	297,258	
HARDWOODS:							
RED ALDER	1,467	2,215	16,054	16,784	14,010	50,530	
BIGLEAF MAPLE	177	465	1,089	2,648	6,866	11,245	
OREGON WHITE OAK	--	--	--	2/-122	2,552	2,430	
BLACK COTTONWOOD	--	22	--	--	1,432	1,454	
OREGON ASH	--	--	--	--	363	363	
GOLDEN CHINKAPIN	25	--	--	--	--	25	
TOTAL	1,669	2,702	17,143	19,310	25,222	66,046	
ALL SPECIES	51,519	22,810	66,817	142,451	79,708	363,304	

1/Totals may be off due to rounding.

2/Negative net annual growth is the result of net annual mortality exceeding gross annual growth.

Table 38 — Net annual growth of sawtimber, International 1/4-inch rule, on timberland by species and ownership class, Northwest Oregon, 1976^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SOFTWOODS:						
DOUGLAS-FIR	152,898	107,282	153,183	475,470	238,958	1,127,792
WESTERN HEMLOCK	52,432	11,991	99,361	200,083	32,328	396,195
GRAND FIR	7,747	79	3,539	1,005	9,489	21,859
SITKA SPRUCE	7,152	366	2,831	30,211	11,931	52,491
WESTERN REDCEDAR	8,141	1,659	3,546	5,406	27,085	45,836
NOBLE FIR	19,332	2,591	857	6,675	--	29,455
PACIFIC SILVER FIR	20,588	598	--	2,114	--	23,300
SUBALPINE FIR	13,360	--	--	--	--	13,360
MOUNTAIN HEMLOCK	11,293	206	--	--	--	11,499
LOGEPOLE PINE	6,754	--	2,561	--	--	9,315
ENGELMANN SPRUCE	1,990	--	--	--	--	1,990
PONDEROSA PINE	494	--	--	140	529	1,163
ALASKA CEDAR	1,068	--	--	--	--	1,068
WHITE FIR	70	--	--	--	--	70
INCENSE-CEDAR	41	--	--	--	--	41
WESTERN LARCH	2/-748	--	--	--	--	2/-748
WESTERN WHITE PINE	2/-12,677	2/-253	--	--	--	2/-12,930
TOTAL	289,935	124,519	265,877	721,103	320,321	1,721,755
HARDWOODS:						
RED ALDER	18,455	11,474	35,866	70,339	38,128	174,262
BIGLEAF MAPLE	1,419	2,384	5,345	5,937	23,082	38,167
BLACK COTTONWOOD	--	127	--	--	10,537	10,664
OREGON WHITE OAK	--	--	--	176	9,080	9,255
OREGON ASH	--	--	--	--	1,630	1,630
TOTAL	19,874	13,985	41,211	76,452	82,456	233,977
TOTAL SPECIES	309,809	138,504	307,088	797,555	402,776	1,955,732

¹Totals may be off due to rounding.

²Negative net annual growth is the result of net annual mortality exceeding gross annual growth.

Table 39—Average annual mortality of growing stock on timberland by species and ownership class, northwest Oregon, 1976 ^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP	THOUSAND CUBIC FEET					
SOFTWOODS:												
DOUGLAS-FIR	8,448	3,531	1,105	3,729	1,841	18,604						
WESTERN HEMLOCK	5,328	317	1,112	3,462	399	10,618						
WESTERN WHITE PINE	2,554	20	--	--	--	2,574						
PACIFIC SILVER FIR	1,850	--	--	--	--	1,850						
GRAND FIR	1,076	--	466	--	--	1,542						
WESTERN REDCEDAR	551	--	198	399	342	1,490						
SITKA SPRUCE	143	--	120	864	--	1,127						
NOBLE FIR	872	--	--	--	--	872						
WESTERN LARCH	512	--	--	--	--	512						
LOGEPOLE PINE	445	--	--	--	--	445						
SUBALPINE FIR	238	--	--	--	--	238						
MOUNTAIN HEMLOCK	217	--	--	--	--	217						
PONDEROSA PINE	43	--	--	--	42	85						
ALASKA-CEDAR	55	--	--	--	--	55						
ENGELMANN SPRUCE	53	--	--	--	--	53						
INCENSE-CEDAR	2	--	--	--	--	2						
TOTAL	22,387	3,868	3,001	8,453	2,624	40,333						
HARDWOODS:												
RED ALDER	1,692	--	1,140	2,723	3,063	8,618						
BIGLEAF MAPLE	18	--	286	80	1,284	1,668						
OREGON WHITE OAK	--	--	--	155	708	863						
BLACK COTTONWOOD	--	--	--	--	707	707						
OREGON ASH	--	--	--	--	292	292						
TOTAL	1,710	--	1,426	2,958	6,052	12,146						
ALL SPECIES	24,097	3,868	4,427	11,411	8,677	52,480						

^{1/}Totals may be off due to rounding.

Table 40 — Average annual mortality of sawtimber, International 1/4-inch rule, on timberland by species and ownership class, northwest Oregon, 1976^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SOFTWOODS:						
DOUGLAS-FIR	46,025	20,092	3,592	13,135	5,974	88,818
WESTERN HEMLOCK	23,545	2,017	4,468	19,873	2,436	52,339
WESTERN WHITE PINE	14,147	110	--	--	--	14,257
PACIFIC SILVER FIR	8,292	--	--	--	--	8,292
GRAND FIR	5,302	--	1,189	--	--	6,491
WESTERN REDCEDAR	2,706	--	615	2,030	1,814	7,164
SITKA SPRUCE	148	--	630	4,434	--	5,212
NOBLE FIR	4,960	--	--	--	--	4,960
WESTERN LARCH	2,791	--	--	--	--	2,791
LODGEPOLE PINE	1,142	--	--	--	--	1,142
SUBALPINE FIR	1,251	--	--	--	--	1,251
MOUNTAIN HEMLOCK	1,068	--	--	--	--	1,068
PONDEROSA PINE	286	--	--	--	--	286
ALASKA-CEDAR	245	--	--	--	--	245
ENGELMANN SPRUCE	255	--	--	--	--	255
INCENSE-CEDAR	8	--	--	--	--	8
TOTAL	112,171	22,219	10,493	39,472	10,224	194,579
HARDWOODS:						
RED ALDER	3,978	--	1,858	7,011	10,426	23,273
BIGLEAF MAPLE	44	--	1,543	364	3,202	5,152
BLACK COTTONWOOD	--	--	--	--	3,524	3,524
OREGON ASH	--	--	--	--	1,395	1,395
OREGON WHITE OAK	--	--	--	--	670	670
TOTAL	4,022	--	3,401	7,374	19,217	34,014
TOTAL SPECIES	116,193	22,219	13,894	46,846	29,441	228,593

^{1/}Totals may be off due to rounding.

Table 41 — Area by county and land class, west-central Oregon, January 1, 1976^{1/}

COUNTY	FOREST LAND					NONFOREST LAND ^{2/}	ALL LANDS
	TIMBERLAND	DEFERRED TIMBERLAND	RESERVED TIMBERLAND	OTHER	TOTAL		
	THOUSAND ACRES						
BENTON	265	--	4/	3	268	160	4
LANE	2,254	--	127	95	2,476	436	2,9
LINCOLN	553	--	1	1	555	76	6
LINN	906	--	60	50	1,016	445	1,4
TOTAL	3,978	--	188	149	4,315	1,117	5,4

^{1/}Totals may be off because of rounding.

^{2/}Includes cropland, pasture and range, swampland, industrial and urban areas, powerline clearings, railroads, and all improved roads and highways, and acres classified as water by Forest Survey standards, but defined by the Bureau of Census as land.

^{3/}Source: United States Bureau of the Census, Land and Water Area of the United States, 1970.

^{4/}Less than 500 acres.

Table 42 — Area of timberland by county and ownership class, west-central Oregon, January 1, 1976^{1/}

COUNTY	PUBLIC				PRIVATE				ALL OWNERS
	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER	TOTAL	FOREST INDUSTRY	FARMER OWNED	MISCELLANEOUS	TOTAL	
	THOUSAND ACRES								
BENTON	14	56	29	99	52	54	61	166	2
LANE	1,119	279	27	1,425	563	66	200	829	2,2
LINCOLN	164	23	25	212	252	8	81	341	5
LINN	333	84	28	445	229	109	122	461	9
TOTAL	1,630	441	109	2,181	1,097	237	464	1,797	3,9

^{1/}Totals may be off because of rounding.

Table 43 — Area of timberland by cubic-foot site and ownership classes, west-central Oregon, January 1, 1976^{1/}

SITE CLASS ^{2/}	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
5 OR MORE	22	2	--	31	22	77
5 TO 224	322	68	29	200	51	670
0 TO 164	582	294	72	563	395	1,905
5 TO 119	363	51	--	239	177	829
0 TO 84	319	26	--	53	48	447
0 TO 49	22	--	9	11	9	51
TOTAL CLASSES	1,630	441	109	1,097	701	3,978

Totals may be off because of rounding.

Capacity for cubic-foot annual growth per acre at culmination of mean annual growth in fully stocked natural stands.

Table 44 — Area of timberland by stand-size and ownership classes, west-central Oregon, January 1, 1976^{1/}

STAND-SIZE CLASS	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SAWTIMBER STANDS:						
LARGE SAWTIMBER ^{2/}	868	158	20	187	79	1,312
SMALL SAWTIMBER ^{3/}	394	92	89	329	293	1,196
TOTAL	1,262	250	109	516	372	2,508
POLETIMBER STANDS:						
SPRING AND SEEDLING	82	28	--	179	106	395
UNSTOCKED AREAS	236	139	--	339	127	841
TOTAL CLASSES	1,630	441	109	1,097	701	3,978

Totals may be off because of rounding.

^{2/}Large sawtimber includes trees 21.0-inch d.b.h. and larger.

^{3/}Small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

Table 45 — Area of timberland by forest type and ownership class, west-central Oregon, January 1, 1976^{1/}

FOREST TYPE	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALI OWNERS
<u>THOUSAND ACRES</u>						
DOUGLAS-FIR	1,102	357	65	742	322	2,1
WESTERN HEMLOCK	133	23	--	123	40	
PACIFIC SILVER FIR	80	--	--	--	--	
MOUNTAIN HEMLOCK	65	--	--	--	--	
WESTERN REDCEDAR	30	5	--	--	8	
GRAND FIR	13	1	--	--	16	
SITKA SPRUCE	10	1	--	--	5	
NOBLE FIR	5	--	--	10	--	
INCENSE-CEDAR	13	1	--	--	--	
LODGEPOLE PINE	7	--	--	--	5	
ENGELMANN SPRUCE	5	--	--	--	--	
SUBALPINE FIR	5	--	--	--	--	
ALASKA-CEDAR	4	--	--	--	--	
PONDEROSA PINE	--	--	--	--	3	
RED ALDER	82	17	35	148	108	
MAPLE	5	9	--	15	41	
OREGON WHITE OAK	--	--	9	--	56	
MADRONE	11	--	--	10	19	
CALIFORNIA BLACK OAK	--	--	--	--	5	
OTHER HARDWOODS	--	4	--	5	19	
NONCOMMERCIAL HARDWOODS	3	2	--	--	17	
NONCOMMERCIAL CONIFERS	7	--	--	--	9	
UNCLASSIFIED ^{2/}	50	21	--	43	30	
ALL TYPES	1,630	441	109	1,097	701	3,1

^{1/}Totals may be off because of rounding.

^{2/}Unclassified type is less than 10 percent stocked with live trees.

Table 46 — Area of reserved timberland, by forest type and ownership class, west-central Oregon, January 1, 1976^{1/}

FOREST TYPE	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
CONIFERLAND:						
DOUGLAS-FIR	--	--	5	--	--	5
PACIFIC SILVER FIR	119	--	--	--	--	119
LOGSPOLE PINE	64	--	<u>2/</u>	--	--	64
SITKA SPRUCE	--	--	<u>2/</u>	--	--	<u>2/</u>
HEMLOCK	--	--	<u>2/</u>	--	--	<u>2/</u>
RED ALDER	--	--	1	--	--	1
COTTONWOOD	--	--	<u>2/</u>	--	--	<u>2/</u>
TOTAL	183	--	6	--	--	188
OTHER FOREST:						
PACIFIC SILVER FIR	23	--	--	--	--	23
BRUSH	--	--	--	--	--	--
UNCLASSIFIED	3	--	<u>2/</u>	--	--	3
TOTAL	26	--	<u>2/</u>	--	--	26
TOTAL RESERVED	209	--	6	--	--	214

Totals may be off because of rounding.

^{1/}Less than 500 acres.

Table 47 — Volume of timber on timberland by class of timber and by softwoods and hardwoods, west-central Oregon, January 1, 1976^{1/}

CLASS OF TIMBER	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>MILLION CUBIC FEET</u>		
SAWTIMBER TREES:			
SAW-LOG PORTION	16,492	703	17,195
UPPER-STEM PORTION	531	119	650
TOTAL	17,023	821	17,844
POLETIMBER TREES	865	338	1,203
ALL GROWING STOCK	17,887	1,159	19,046
SOUND CULL TREES	47	71	118
ROTTEN CULL TREES	330	41	371
SALVABLE DEAD TREES	330	4	334
ALL TIMBER	18,594	1,275	19,869

^{1/}Totals may be off because of rounding.

Table 48 — Volume of growing stock and sawtimber on timberland by ownership class and by softwoods and hardwoods, west-central Oregon, January 1, 1976^{1/}

OWNERSHIP CLASS	AVERAGE	SOFTWOODS	HARDWOODS	ALL SPECIES
	VOLUME			
	<u>CUBIC FEET</u>			
	<u>PER ACRE</u>	- - - - - MILLION CUBIC FEET - - - - -		
GROWING STOCK: ^{2/}				
NATIONAL FOREST	7,117	11,304	296	11,600
BUREAU OF LAND MANAGEMENT	4,803	1,979	139	2,118
OTHER PUBLIC	5,651	513	104	616
FOREST INDUSTRY	2,780	2,808	243	3,050
OTHER PRIVATE	2,372	1,284	379	1,663
ALL OWNERSHIPS	4,788	17,887	1,159	19,047
	<u>BOARD FEET</u>			
	<u>PER ACRE</u>	- - - - - MILLION BOARD FEET - - - - -		
SAWTIMBER (INTERNATIONAL				
1/4-INCH RULE): ^{3/}				
NATIONAL FOREST	42,206	67,476	1,320	68,796
BUREAU OF LAND MANAGEMENT	28,810	12,216	489	12,705
OTHER PUBLIC	31,064	3,056	330	3,386
FOREST INDUSTRY	15,292	16,118	657	16,775
OTHER PRIVATE	11,830	6,893	1,401	8,293
ALL OWNERSHIPS	27,641	105,759	4,197	109,956
	<u>BOARD FEET</u>			
	<u>PER ACRE</u>	- - - - - MILLION BOARD FEET - - - - -		
SAWTIMBER				
(SCRIBNER RULE): ^{4/}				
NATIONAL FOREST	33,845	54,264	904	55,168
BUREAU OF LAND MANAGEMENT	25,751	10,894	462	11,356
OTHER PUBLIC	22,789	2,223	262	2,484
FOREST INDUSTRY	10,996	11,535	528	12,063
OTHER PRIVATE	8,260	4,658	1,133	5,790
ALL OWNERSHIPS	21,835	83,573	3,288	86,861

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 5.0-inch d.b.h. and larger.

^{3/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

^{4/}Includes trees 11.0-inch d.b.h. and larger.

Table 49 — Volume of growing stock and sawtimber on timberland by county and ownership class, west-central Oregon, January 1, 1976 ^{1/}

COUNTY	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERS
<u>MILLION CUBIC FEET</u>						
GROWING STOCK: ^{2/}						
BENTON	135	308	154	120	314	1,0
LANE	7,569	1,150	173	1,556	500	10,9
LINCOLN	1,295	213	138	914	278	2,8
LINN	2,600	447	152	460	571	4,2
TOTAL	11,600	2,118	616	3,050	1,663	19,0
<u>MILLION BOARD FEET</u>						
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): ^{3/}						
BENTON	795	1,969	788	635	1,674	5,8
LANE	45,236	6,494	1,038	8,864	2,211	63,8
LINCOLN	7,268	1,396	787	4,560	1,284	15,2
LINN	15,497	2,846	777	2,711	3,128	24,9
TOTAL	68,796	12,705	3,386	16,775	8,293	109,9
<u>MILLION BOARD FEET</u>						
SAWTIMBER (SCRIBNER RULE): ^{4/}						
BENTON	662	1,740	541	441	1,210	4,5
LANE	36,284	5,827	808	6,463	1,401	50,7
LINCOLN	5,826	1,253	603	3,157	899	11,7
LINN	12,396	2,536	535	1,997	2,282	19,7
TOTAL	55,168	11,356	2,484	12,063	5,790	86,8

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 5.0-inch d.b.h. and larger.

^{3/}Includes softwoods trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

^{4/}Includes trees 11.0-inch d.b.h. and larger.

Table 50 — Volume of growing stock on timberland by species and ownership class, west-central Oregon, January 1, 1976^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SOFTWOODS:						
DOUGLAS-FIR	7,973	1,660	511	2,069	996	13,210
WESTERN HEMLOCK	1,502	243	--	569	157	2,472
WESTERN REDCEDAR	328	40	--	74	38	481
PACIFIC SILVER FIR	448	8	--	--	--	456
MOUNTAIN HEMLOCK	340	--	--	--	--	340
NOBLE FIR	213	6	--	9	--	228
SITKA SPRUCE	66	2	--	60	52	180
GRAND FIR	127	3	--	16	23	170
WESTERN WHITE PINE	111	1	--	--	--	112
INCENSE-CEDAR	51	12	--	9	--	72
SUGAR PINE	51	--	--	--	--	51
ENGELMANN SPRUCE	42	--	--	--	--	42
LODGEPOLE PINE	24	--	--	--	12	36
PONDEROSA PINE	11	--	1	--	4	16
SUBALPINE FIR	12	--	--	--	--	12
ALASKA-CEDAR	3	2	--	--	--	5
WHITE FIR	2	2	--	--	--	4
PORT-ORFORD-CEDAR	--	--	--	1	1	2
TOTAL	11,304	1,979	513	2,808	1,284	17,887
HARDWOODS:						
RED ALDER	246	54	82	180	182	753
BIGLEAF MAPLE	42	58	15	40	59	215
OREGON WHITE OAK	--	1	1	2	83	87
GOLDEN CHINKAPIN	7	13	3	6	18	46
OREGON ASH	--	2	--	--	19	20
PACIFIC MADRONE	1	1	--	10	4	16
CALIFORNIA BLACK OAK	--	--	3	1	9	14
BLACK COTTONWOOD	--	--	--	3	5	8
TOTAL	296	139	104	243	379	1,159
ALL SPECIES	11,600	2,118	616	3,050	1,663	19,047

^{1/}Totals may be off due to rounding.

Table 51 — Volume of sawtimber, International 1/4-inch rule, on timberland by species and ownership class, west-central Oregon, January 1, 1976^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
SOFTWOODS:						
DOUGLAS-FIR	50,361	10,402	3,050	12,188	5,361	81,362
WESTERN HEMLOCK	7,525	1,396	--	2,959	859	12,738
WESTERN REDCEDAR	1,675	219	--	394	200	2,488
PACIFIC SILVER FIR	2,046	45	--	--	--	2,091
MOUNTAIN HEMLOCK	1,635	2	--	--	--	1,637
NOBLE FIR	1,325	42	--	55	--	1,422
SITKA SPRUCE	413	14	--	408	271	1,106
GRAND FIR	745	13	--	77	116	951
WESTERN WHITE PINE	669	3	--	--	--	672
INCENSE-CEDAR	266	63	--	31	--	360
SUGAR PINE	340	--	--	--	--	340
ENGELMANN SPRUCE	249	--	--	--	--	249
LODGEPOLE PINE	96	--	--	--	65	161
PONDEROSA PINE	70	--	6	--	22	98
SUBALPINE FIR	41	--	--	--	--	41
ALASKA-CEDAR	12	10	--	--	--	22
WHITE FIR	8	7	--	--	--	15
PORT-ORFORD-CEDAR	--	--	--	7	--	7
TOTAL	67,476	12,216	3,056	16,118	6,893	105,759
HARDWOODS:						
RED ALDER	1,152	252	279	471	682	2,836
BIGLEAF MAPLE	164	201	52	152	244	813
OREGON WHITE OAK	--	2	--	3	269	274
GOLDEN CHINKAPIN	4	25	--	14	62	105
OREGON ASH	--	7	--	--	73	80
BLACK COTTONWOOD	--	--	--	18	28	46
CALIFORNIA BLACK OAK	--	--	--	--	43	43
PACIFIC MADRONE	--	2	--	--	--	2
TOTAL	1,320	489	330	657	1,401	4,199
ALL SPECIES	68,796	12,705	3,386	16,775	8,293	109,958

^{1/}Totals may be off due to rounding.

Table 52 — Volume of sawtimber, Scribner rule, on timberland by species and ownership class, west-central Oregon, January 1, 1976^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SOFTWOODS:						
DOUGLAS-FIR	41,296	9,352	2,220	8,907	3,697	65,472
WESTERN HEMLOCK	5,738	1,179	--	1,944	551	9,412
WESTERN REDCEDAR	1,266	189	--	264	122	1,841
PACIFIC SILVER FIR	1,439	36	--	--	--	1,475
MOUNTAIN HEMLOCK	1,214	2	--	--	--	1,216
NOBLE FIR	1,073	37	--	34	--	1,144
SITKA SPRUCE	331	13	--	318	171	832
GRAND FIR	569	11	--	47	70	696
WESTERN WHITE PINE	521	2	--	--	--	523
SUGAR PINE	279	--	--	--	--	279
INCENSE-CEDAR	200	57	--	16	--	273
ENGELMANN SPRUCE	192	--	--	--	--	192
LODGEPOLE PINE	46	--	--	--	34	80
PONDEROSA PINE	61	--	3	--	14	78
SUBALPINE FIR	25	--	--	--	--	25
ALASKA-CEDAR	9	9	--	--	--	18
WHITE FIR	5	7	--	--	--	12
PORT-ORFORD-CEDAR	--	--	--	5	--	5
TOTAL	54,264	10,894	2,223	11,535	4,658	83,573
HARDWOODS:						
RED ALDER	785	238	222	371	541	2,157
BIGLEAF MAPLE	117	191	40	125	204	678
OREGON WHITE OAK	--	2	--	3	216	221
GOLDEN CHINKAPIN	2	23	--	11	48	85
OREGON ASH	--	6	--	--	62	69
BLACK COTTONWOOD	--	--	--	17	26	43
CALIFORNIA BLACK OAK	--	--	--	--	34	34
PACIFIC MADRONE	--	2	--	--	--	2
TOTAL	904	462	262	528	1,133	3,288
TOTAL SPECIES	55,168	11,356	2,484	12,063	5,790	86,861

Totals may be off due to rounding.

Table 53 — Volume of growing stock on timberland by species and diameter class, west-central Oregon, January 1, 1976^{1/}

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- 20.9	21.0- 28.9	29.0- 38.9	39.0- PLUS	
<u>MILLION CUBIC FEET</u>												
SOFTWOODS:												
DOUGLAS-FIR	175	326	355	465	522	530	622	597	2,370	2,862	4,386	13,862
WESTERN HEMLOCK	90	136	178	169	183	189	171	176	556	436	187	2,142
WESTERN REDCEDAR	11	23	26	22	23	25	32	30	102	86	100	449
PACIFIC SILVER FIR	17	24	43	38	51	47	50	41	107	32	6	387
MOUNTAIN HEMLOCK	5	9	16	27	26	30	31	37	105	47	7	308
NOBLE FIR	1	3	5	8	10	10	17	18	51	71	34	207
SITKA SPRUCE	3	7	5	12	7	7	16	5	21	38	61	188
GRAND FIR	7	7	10	14	12	10	11	16	50	27	6	173
WESTERN WHITE PINE	1	3	1	5	10	9	8	6	39	25	5	118
INCENSE-CEDAR	1	3	3	5	4	2	5	3	14	20	11	63
SUGAR PINE	--	--	--	1	1	--	--	3	11	12	23	50
ENGELMANN SPRUCE	--	1	1	1	3	5	5	3	15	7	1	42
LODGEPOLE PINE	1	4	8	8	5	6	3	1	--	--	--	30
PONDEROSA PINE	--	--	1	--	--	1	--	1	--	7	6	15
SUBALPINE FIR	1	3	1	3	1	--	1	--	2	--	--	7
ALASKA-CEDAR	1	--	--	--	--	--	--	--	2	1	1	5
WHITE FIR	--	--	1	--	--	--	--	--	1	2	--	3
PORT-ORFORD-CEDAR	--	1	--	--	--	--	--	--	--	1	--	1
TOTAL	316	549	655	777	857	871	972	938	3,446	3,674	4,834	17,862
HARDWOODS:												
RED ALDER	53	54	101	109	118	93	74	58	87	7	--	563
BIGLEAF MAPLE	14	21	18	24	22	24	17	18	37	17	3	156
OREGON WHITE OAK	4	14	13	19	8	5	7	8	8	2	--	71
GOLDEN CHINKAPIN	8	8	5	11	12	1	2	--	--	--	--	37
OREGON ASH	--	--	4	5	--	3	1	5	1	--	--	19
PACIFIC MADRONE	6	6	4	--	--	--	--	--	--	--	--	16
CALIFORNIA BLACK OAK	--	1	4	3	3	1	3	--	--	--	--	12
BLACK COTTONWOOD	--	--	--	--	--	--	--	--	--	8	--	8
TOTAL	84	105	149	170	162	128	103	89	134	34	3	156
ALL SPECIES	399	653	804	947	1,019	999	1,075	1,027	3,579	3,708	4,836	19,418

^{1/}Totals may be off due to rounding.

Table 54 — Volume of sawtimber, Intentional 1/4-inch rule, on timberland by species and diameter class, west-central Oregon, January 1, 1976 1/

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)									ALL CLASSES
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0- 38.9	39.0- PLUS	
	MILLION BOARD FEET									
SOFTWOODS:										
DOUGLAS-FIR	1,549	2,320	2,876	3,112	3,764	3,719	15,135	18,742	30,145	81,362
WESTERN HEMLOCK	741	799	957	1,015	960	1,013	3,281	2,698	1,272	12,738
WESTERN REDCEDAR	101	86	104	122	172	162	588	518	636	2,488
PACIFIC SILVER FIR	166	177	256	237	259	212	570	180	34	2,091
MOUNTAIN HEMLOCK	58	106	116	139	153	187	556	278	44	1,637
NOBLE FIR	21	38	56	57	97	111	331	476	235	1,422
SITKA SPRUCE	21	60	34	37	96	32	137	252	437	1,106
GRAND FIR	42	71	63	61	67	101	319	184	44	951
WESTERN WHITE PINE	6	23	56	51	47	37	257	160	35	672
INCENSE-CEDAR	11	14	15	10	23	19	81	119	68	360
SUGAR PINE	--	2	3	2	2	16	72	83	160	340
ENGELMANN SPRUCE	3	5	18	30	31	16	96	42	8	249
LOGSPOLE PINE	36	38	28	32	15	6	5	--	--	161
PONDEROSA PINE	4	2	--	6	--	3	--	46	37	99
SUBALPINE FIR	6	15	3	--	7	3	7	--	--	41
ALASKA-CEDAR	--	1	--	--	1	3	11	5	1	22
WHITE FIR	2	--	--	--	--	--	7	6	--	15
PORT-ORFORD-CEDAR	--	--	--	--	--	--	--	7	--	7
TOTAL	2,766	3,757	4,587	4,912	5,694	5,638	21,453	23,796	33,156	105,759
RDWOODS:										
RED ALDER	--	494	597	488	396	327	495	39	--	2,836
BIGLEAF MAPLE	--	96	102	119	90	102	202	94	8	812
OREGON WHITE OAK	--	75	34	25	33	46	49	12	--	274
GOLDEN CHINKAPIN	--	37	51	4	5	1	3	--	4	105
OREGON ASH	--	26	--	17	8	26	4	--	--	80
BLACK COTTONWOOD	--	--	--	--	--	--	--	46	--	46
CALIFORNIA BLACK OAK	--	10	14	5	14	--	--	--	--	43
PACIFIC MADRONE	--	--	--	--	--	--	2	--	--	2
TOTAL	--	737	797	658	545	503	755	190	12	4,197
SPECIES	2,766	4,494	5,383	5,570	6,239	6,141	22,208	23,986	33,168	109,956

Totals may be off due to rounding.

Table 55 — Volume of sawtimber, Scribner rule, on timberland by species and diameter class, west-central Oregon, January 1, 1976^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)								ALL CLASS
	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0- 38.9	39.0 PLUS	
<u>MILLION BOARD FEET</u>									
SOFTWOODS:									
DOUGLAS-FIR	1,341	1,856	2,114	2,682	2,769	12,043	15,904	26,762	65,471
WESTERN HEMLOCK	506	633	704	715	775	2,658	2,305	1,114	9,405
WESTERN REDCEDAR	53	64	80	116	113	447	425	543	1,801
PACIFIC SILVER FIR	113	181	171	193	165	467	155	30	1,445
MOUNTAIN HEMLOCK	67	78	100	112	139	445	236	39	1,286
NOBLE FIR	25	39	41	71	84	268	406	210	1,114
SITKA SPRUCE	31	20	22	64	22	105	198	370	872
GRAND FIR	43	43	42	49	74	252	156	39	661
WESTERN WHITE PINE	15	39	36	34	28	203	136	32	577
SUGAR PINE	1	2	1	2	12	56	68	137	279
INCENSE-CEDAR	8	10	6	16	14	64	95	60	233
ENGELMANN SPRUCE	3	12	22	22	12	78	36	7	173
LOGEPOLE PINE	23	18	21	11	4	3	--	--	69
PONDEROSA PINE	1	--	3	--	3	--	38	33	78
SUBALPINE FIR	10	2	--	5	2	6	--	--	25
ALASKA-CEDAR	1	--	--	1	2	10	3	1	18
WHITE FIR	--	--	--	--	--	6	6	--	12
PORT-ORFORD-CEDAR	--	--	--	--	--	--	5	--	5
TOTAL	2,241	2,997	3,363	4,093	4,218	17,111	20,174	29,377	83,585
HARDWOODS:									
RED ALDER	348	438	369	308	259	402	33	--	2,107
BIGLEAF MAPLE	75	80	99	72	86	175	83	8	608
OREGON WHITE OAK	57	27	20	27	39	42	10	--	232
GOLDEN CHINKAPIN	31	40	4	4	1	2	--	3	121
OREGON ASH	21	--	14	7	23	4	--	--	69
BLACK COTTONWOOD	--	--	--	--	--	--	43	--	43
CALIFORNIA BLACK OAK	8	11	4	11	--	--	--	--	34
PACIFIC MADRONE	--	--	--	--	--	2	--	--	2
TOTAL	541	596	510	430	407	626	169	11	3,238
ALL SPECIES	2,782	3,593	3,872	4,523	4,625	17,737	20,343	29,388	86,823

^{1/}Totals may be off due to rounding.

Table 56 — Net annual growth of growing stock and sawtimber on timberland by ownership class and by softwoods and hardwoods, west-central Oregon, 1975^{1/}

OWNERSHIP CLASS	AVERAGE VOLUME	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>CUBIC FEET</u> <u>PER ACRE</u>	<u>THOUSAND CUBIC FEET</u>		
GROWING STOCK: ^{2/}				
NATIONAL FOREST	42	65,405	2,286	67,691
BUREAU OF LAND MANAGEMENT	86	34,188	3,935	38,123
OTHER PUBLIC	146	12,324	3,637	15,961
FOREST INDUSTRY	97	93,487	12,891	106,378
OTHER PRIVATE	89	53,223	8,946	62,169
ALL OWNERSHIPS	73	258,626	31,696	290,322
	<u>BOARD FEET</u> <u>PER ACRE</u>	<u>THOUSAND BOARD FEET</u>		
SAWTIMBER (INTERNATIONAL 1/4-INCH RULE): ^{3/}				
NATIONAL FOREST	289	435,675	34,608	470,283
BUREAU OF LAND MANAGEMENT	446	183,261	13,563	196,824
OTHER PUBLIC	845	76,098	16,038	92,136
FOREST INDUSTRY	458	476,636	26,169	502,804
OTHER PRIVATE	445	268,985	43,069	312,054
ALL OWNERSHIPS	396	1,440,655	133,447	1,574,101

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 5.0-inch d.b.h. and larger.

^{3/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

Table 57 — Net annual growth of growing stock on timberland by species and ownership class, west-central Oregon, 1975 ^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OTHER OWNERS
<u>THOUSAND CUBIC FEET</u>						
SOFTWOODS:						
DOUGLAS-FIR	48,533	26,307	12,254	60,927	41,704	189,185
WESTERN HEMLOCK	12,096	5,516	--	27,500	6,487	51,609
WESTERN REDCEDAR	3,671	647	--	1,886	1,430	7,634
MOUNTAIN HEMLOCK	5,638	1	--	--	--	5,639
SITKA SPRUCE	1,145	20	--	1,589	2,818	5,572
GRAND FIR	1,251	1,244	--	808	1,216	4,519
PACIFIC SILVER FIR	1,772	106	--	--	--	1,878
INCENSE-CEDAR	499	214	--	400	2/-58	1,065
NOBLE FIR	2/-69	70	--	428	--	429
ENGELMANN SPRUCE	294	--	--	--	--	294
PONDEROSA PINE	33	--	69	--	72	274
ALASKA-CEDAR	71	7	--	--	--	78
SUGAR PINE	77	--	--	--	--	77
PORT-ORFORD-CEDAR	--	--	--	2/-50	69	19
WHITE FIR	2/-48	50	--	--	--	2
SUBALPINE FIR	27-134	--	--	--	--	27
LOGEPOLE PINE	129	--	--	--	2/-513	27
WESTERN WHITE PINE	2/-9,553	6	--	--	--	2/-9
TOTAL	65,405	34,188	12,324	93,487	53,223	258,165
HARDWOODS:						
RED ALDER	1,068	1,820	2,927	11,017	5,383	22,235
BIGLEAF MAPLE	955	1,638	422	1,058	1,487	5,560
OREGON WHITE OAK	--	26	103	85	1,750	1,964
PACIFIC MADRONE	14	34	--	358	481	887
GOLDEN CHINKAPIN	245	376	68	257	2/-244	792
CALIFORNIA BLACK OAK	--	--	118	46	63	227
BLACK COTTONWOOD	--	--	--	71	71	142
OREGON ASH	4	--	--	2/-46	2/-1	2
TOTAL	2,286	3,935	3,637	12,891	8,946	31,166
ALL SPECIES	67,691	38,123	15,961	106,378	62,169	290,121

^{1/}Totals may be off due to rounding.

^{2/}Negative net annual growth is the result of net annual mortality exceeding gross annual growth.

Table 58 — Net annual growth of sawtimber, International 1/4-inch rule, on timberland by species and ownership class, West-central Oregon, 1975 ^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SOFTWOODS:						
DOUGLAS-FIR	334,611	142,621	75,699	313,540	202,374	1,068,845
WESTERN HEMLOCK	40,388	30,202	--	136,118	35,850	242,558
WESTERN REDCEDAR	21,307	2,952	--	8,844	8,598	41,701
SITKA SPRUCE	8,812	177	--	9,848	16,992	35,829
MOUNTAIN HEMLOCK	30,062	7	--	--	--	30,069
GRAND FIR	9,487	4,975	--	4,839	6,878	26,179
PACIFIC SILVER FIR	15,252	762	--	--	--	16,014
NOBLE FIR	9,586	544	--	3,012	--	13,142
INCENSE-CEDAR	4,340	804	--	648	--	5,792
SUGAR PINE	2,145	--	--	--	--	2,145
ENGELMANN SPRUCE	1,877	--	--	--	--	1,877
PONDEROSA PINE	240	--	399	--	694	1,333
SUBALPINE FIR	370	--	--	--	--	370
ALASKA-CEDAR	165	52	--	--	--	217
PORT-ORFORD-CEDAR	--	--	--	2/-214	--	2/-214
WHITE FIR	2/-640	129	--	--	--	2/-511
LOGSPOLE PINE	2/-103	--	--	--	2/-2,402	2/-2,505
WESTERN WHITE PINE	2/-42,224	36	--	--	--	27-42,188
TOTAL	435,675	183,261	76,098	476,636	268,985	1,440,655
HARDWOODS:						
RED ALDER	29,656	7,404	13,754	20,164	23,337	94,315
BIGLEAF MAPLE	4,892	5,329	2,285	4,705	4,720	21,931
OREGON WHITE OAK	--	46	--	53	8,562	8,661
GOLDEN CHINKAPIN	60	588	--	1,463	4,558	6,669
CALIFORNIA BLACK OAK	--	--	--	--	1,344	1,344
BLACK COTTONWOOD	--	--	--	440	439	878
OREGON ASH	--	157	--	--	108	265
PACIFIC MADRONE	--	39	--	2/-656	--	2/-617
TOTAL	34,608	13,563	16,038	26,169	43,069	133,447
TOTAL SPECIES	470,283	196,824	92,136	502,804	312,054	1,574,101

^{1/}Totals may be off due to rounding.

^{2/}Negative net annual growth is the result of net annual mortality exceeding gross annual growth.

Table 59 — Average annual mortality of growing stock on timberland by species and ownership class, west-central Oregon, 1975 ^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	AL OWNER
<u>THOUSAND CUBIC FEET</u>						
SOFTWOODS:						
DOUGLAS-FIR	18,181	5,779	764	6,293	2,652	33,
WESTERN WHITE PINE	8,465	--	--	--	--	8,
WESTERN HEMLOCK	6,441	353	--	723	362	7,
PACIFIC SILVER FIR	3,615	--	--	--	--	3,
NOBLE FIR	2,055	--	--	--	--	2,
MOUNTAIN HEMLOCK	1,483	--	--	--	--	1,
LOGEPOLE PINE	452	--	--	--	783	1,
WESTERN REDCEDAR	769	118	--	170	50	1,
GRAND FIR	825	--	--	--	--	
SUBALPINE FIR	548	--	--	--	--	
SUGAR PINE	277	--	--	--	--	
SITKA SPRUCE	110	--	--	130	--	
INCENSE-CEDAR	65	40	--	73	58	
ENGELMANN SPRUCE	91	--	--	--	--	
PORT-ORFORD-CEDAR	--	--	--	87	--	
WHITE FIR	60	--	--	--	--	
TOTAL	43,437	6,290	764	7,476	3,904	61,
HARDWOODS:						
RED ALDER	3,461	310	199	2,093	2,402	8,
GOLDEN CHINKAPIN	--	73	--	86	1,081	1,
BIGLEAF MAPLE	133	301	--	448	251	1,
OREGON ASH	--	8	--	--	675	
OREGON WHITE OAK	--	5	--	--	435	
PACIFIC MADRONE	--	7	--	169	21	
CALIFORNIA BLACK OAK	--	--	--	--	100	
TOTAL	3,594	704	199	2,796	4,964	12,
ALL SPECIES	47,031	6,994	963	10,273	8,868	74,

^{1/}Totals may be off due to rounding.

Table 60 — Average annual mortality of sawtimber, International 1/4-inch rule, on timberland by species and ownership class, west-central Oregon, 1975 ^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS	THOUSAND BOARD FEET						
SOFTWOODS:													
DOUGLAS-FIR	115,707	34,596	4,463	38,445	12,357	205,568							
WESTERN WHITE PINE	50,964	--	--	--	--	50,964							
WESTERN HEMLOCK	32,299	2,361	--	2,660	1,086	38,406							
PACIFIC SILVER FIR	16,516	--	--	--	--	16,516							
NOBLE FIR	12,811	--	--	--	--	12,811							
MOUNTAIN HEMLOCK	6,725	--	--	--	--	6,725							
LODGEPOLE PINE	1,747	--	--	--	4,230	5,977							
WESTERN REDCEDAR	3,878	772	--	851	--	5,501							
GRAND FIR	4,778	--	--	--	--	4,778							
SUBALPINE FIR	1,862	--	--	--	--	1,862							
SUGAR PINE	1,808	--	--	--	--	1,808							
ENGELMANN SPRUCE	1,752	--	--	--	--	1,752							
SITKA SPRUCE	685	--	--	813	--	1,498							
INCENSE-CEDAR	334	208	--	355	--	897							
PORT-ORFORD-CEDAR	--	--	--	445	--	445							
WHITE FIR	277	--	--	--	--	277							
TOTAL	252,143	37,937	4,463	43,569	17,673	355,785							
HARDWOODS:													
RED ALDER	16,090	1,143	--	7,091	6,167	30,490							
BIGLEAF MAPLE	537	843	--	2,327	1,192	4,899							
OREGON ASH	--	26	--	--	4,103	4,129							
OREGON WHITE OAK	--	7	--	--	1,076	1,083							
PACIFIC MADRONE	--	7	--	656	--	663							
GOLDEN CHINKAPIN	--	97	--	--	--	97							
TOTAL	16,627	2,123	--	10,074	12,538	41,361							
TOTAL SPECIES	268,770	40,060	4,463	53,643	30,210	397,146							

Totals may be off due to rounding.

Table 61 — Area by county and land class, southwest Oregon, January 1, 1975^{1/}

COUNTY	FOREST LAND					NONFOREST LAND ^{2/}	ALL LANDS
	TIMBERLAND	DEFERRED TIMBERLAND	RESERVED TIMBERLAND	OTHER	TOTAL		
	<u>THOUSAND ACRES</u>						
COOS	848	--	8	14	870	159	1,029
CURRY	756	9	47	138	950	92	1,042
DOUGLAS	2,642	--	7	150	2,799	442	3,241
JACKSON	1,167	10	5	309	1,491	309	1,800
JOSEPHINE	730	--	12	182	924	114	1,038
TOTAL	6,143	19	79	793	7,034	1,116	8,150

^{1/}Totals may be off because of rounding.

^{2/}Includes cropland, pasture and range, swampland, industrial and urban areas, powerline clearings, railroads, and all improved roads and highways, and acres classified as water by Forest Survey standards, but defined by the Bureau of Census as land.

^{3/}Source: United States Bureau of the Census, Land and Water Area of the United States, 1970.

Table 62 — Area of timberland by county and ownership class, southwest Oregon, January 1, 1975^{1/}

COUNTY	PUBLIC				PRIVATE				ALL OWNERSHIP
	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER	TOTAL	FOREST INDUSTRY	FARMER OWNED	MISCELLANEOUS	TOTAL	
	<u>THOUSAND ACRES</u>								
COOS	64	156	78	298	343	110	97	550	848
CURRY	412	57	4	473	166	60	58	283	756
DOUGLAS	897	609	56	1,562	756	235	89	1,080	2,642
JACKSON	388	277	6	671	332	73	91	496	1,167
JOSEPHINE	258	230	36	524	45	45	117	206	730
TOTAL	2,019	1,329	180	3,528	1,641	523	452	2,615	6,143

^{1/}Totals may be off because of rounding.

Table 63 — Area of timberland by cubic-foot site and ownership classes, southwest Oregon, January 1, 1975^{1/}

SITE CLASS ^{2/}	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
25 OR MORE	11	3	--	24	21	58
55 TO 224	107	141	38	218	102	606
20 TO 164	494	496	70	694	216	1,970
35 TO 119	570	340	16	410	181	1,517
50 TO 84	749	335	25	173	213	1,495
20 TO 49	87	14	30	122	243	495
ALL CLASSES	2,019	1,329	180	1,641	974	6,143

^{1/}Totals may be off because of rounding.

^{2/}Capacity for cubic-foot annual growth per acre at culmination of mean annual growth in fully stocked natural stands.

Table 64 — Area of timberland by stand-size and ownership classes, southwest Oregon, January 1, 1975^{1/}

STAND-SIZE CLASS	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SAWTIMBER STANDS:						
LARGE SAWTIMBER ^{2/}	1,220	728	42	365	69	2,424
SMALL SAWTIMBER ^{3/}	351	248	84	419	352	1,453
TOTAL	1,571	976	126	784	421	3,877
NONSAWTIMBER STANDS:						
SPRING AND SEEDLINGS	111	25	12	170	197	513
UNSTOCKED AREAS	291	268	40	554	252	1,404
ALL CLASSES	46	60	2	134	107	349
ALL CLASSES	2,019	1,329	180	1,641	974	6,143

^{1/}Totals may be off because of rounding.

^{2/}Large sawtimber includes trees 21.0-inch d.b.h. and larger.

^{3/}Small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

Table 65 — Area of timberland by forest type and ownership class, southwest Oregon, January 1, 1975 ^{1/}

FOREST TYPE	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIP
THOUSAND ACRES						
DOUGLAS-FIR	1,164	1,003	85	871	260	3,385
WHITE FIR	133	54	--	37	12	236
INCENSE-CEDAR	11	22	2	39	37	111
WESTERN HEMLOCK	36	25	--	40	8	109
GRAND FIR	20	10	2	35	37	104
PONDEROSA PINE	33	27	--	9	23	92
LODGEPOLE PINE	68	--	--	--	15	83
PORT-ORFORD-CEDAR	19	4	9	29	15	76
SHASTA RED FIR	70	--	--	--	--	70
MOUNTAIN HEMLOCK	60	--	--	--	--	60
WESTERN REDCEDAR	7	7	--	31	6	51
SITKA SPRUCE	--	--	--	9	17	26
JEFFREY PINE	2	--	--	23	--	25
SUGAR PINE	9	16	--	--	--	25
NOBLE FIR	18	2	--	--	--	20
WESTERN WHITE PINE	17	--	--	--	--	17
NOBCCONE PINE	14	--	--	--	--	14
PACIFIC SILVER FIR	14	--	--	--	--	14
REDWOOD	5	--	--	6	--	11
SUBALPINE FIR	5	--	--	--	--	5
ENGELMANN SPRUCE	1	--	--	--	--	1
RED ALDER	16	15	44	170	106	351
MADRONE	28	38	13	63	175	317
TANOAK	162	--	--	--	--	162
CALIFORNIA BLACK OAK	6	15	--	32	51	104
OREGON WHITE OAK	--	1	9	6	62	78
MAPLE	--	8	--	23	18	49
CHINKAPIN	29	1	--	--	--	30
CANYON LIVE OAK	22	--	--	--	--	22
CALIFORNIA LAUREL	2	--	--	--	--	2
OTHER HARDWOODS	1	25	13	109	77	225
NONCOMMERCIAL HARDWOODS	--	2	--	10	22	34
UNCLASSIFIED ^{2/}	46	54	2	99	33	234
ALL TYPES	2,019	1,329	180	1,641	974	6,143

^{1/}Totals may be off because of rounding.

^{2/}Unclassified type is less than 10 percent stocked with live trees.

Table 66 — Area of reserved timberland by forest type and ownership class, southwest Oregon, January 1, 1975^{1/}

FOREST TYPE	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
FORESTLAND:						
DOUGLAS-FIR	27	14	4	--	--	45
PURSE FIR	<u>2/</u>	--	--	--	--	<u>2/</u>
SPRUCE-HEMLOCK	<u>2/</u>	--	--	--	--	<u>2/</u>
MONTEREY PINE	1	<u>2/</u>	2	--	--	<u>3</u>
JEFFREY PINE	<u>2/</u>	--	--	--	--	<u>2/</u>
REDWOOD	<u>12</u>	<u>2/</u>	<u>2/</u>	--	--	<u>12</u>
EASTERN WHITE PINE	1	--	--	--	--	1
KNIFEPOLE PINE	1	--	2	--	--	3
WESTERN SPRUCE	1	--	4	--	--	5
PORTLAND-ORFORD-CEDAR	--	--	<u>2/</u>	--	--	<u>2/</u>
ALDER	--	--	<u>2/</u>	--	--	<u>2/</u>
ALBIONWOOD	--	<u>2/</u>	--	--	--	<u>2/</u>
REDWOOD	6	--	<u>2/</u>	--	--	<u>6</u>
UNCLASSIFIED	2	--	--	--	--	2
TOTAL	52	15	12	--	--	79

Totals may be off because of rounding.

Less than 500 acres.

Table 67 — Volume of timber on timberland by class of timber and by softwoods and hardwoods, southwest Oregon, January 1, 1975 ^{1/}

CLASS OF TIMBER	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>MILLION CUBIC FEET</u>		
SAWTIMBER TREES:			
SAW-LOG PORTION	18,839	1,085	19,924
UPPER-STEM PORTION	1,278	126	1,404
TOTAL	20,116	1,211	21,327
POLETIMBER TREES	1,153	779	1,932
ALL GROWING STOCK	21,268	1,990	23,258
SOUND CULL TREES	105	391	496
ROTTEN CULL TREES	815	204	1,019
SALVABLE DEAD TREES	489	--	489
ALL TIMBER	22,674	2,588	25,262

^{1/}Totals may be off because of rounding.

Table 68 — Volume of growing stock and sawtimber on timberland by ownership class and by softwoods and hardwoods, Northwest Oregon, January 1, 1975^{1/}

OWNERSHIP CLASS	AVERAGE VOLUME	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>CUBIC FEET</u>			
	<u>PER ACRE</u>	<u>MILLION CUBIC FEET</u>		
GROWING STOCK: <u>2/</u>				
INTERNATIONAL FOREST	5,241	10,156	425	10,581
BUREAU OF LAND MANAGEMENT	4,474	5,534	411	5,946
OTHER PUBLIC	3,883	514	185	699
FOREST INDUSTRY	2,696	3,893	531	4,424
OTHER PRIVATE	1,653	1,171	438	1,610
ALL OWNERSHIPS	3,786	21,268	1,990	23,260
	<u>BOARD FEET</u>			
	<u>PER ACRE</u>	<u>MILLION BOARD FEET</u>		
SAWTIMBER (INTERNATIONAL				
5-11-INCH RULE): <u>3/</u>				
INTERNATIONAL FOREST	30,211	59,410	1,585	60,995
BUREAU OF LAND MANAGEMENT	25,059	32,018	1,284	33,303
OTHER PUBLIC	22,422	3,122	914	4,036
FOREST INDUSTRY	15,274	23,486	1,577	25,064
OTHER PRIVATE	7,040	5,805	1,052	6,857
ALL OWNERSHIPS	21,204	123,842	6,412	130,255
	<u>BOARD FEET</u>			
	<u>PER ACRE</u>	<u>MILLION BOARD FEET</u>		
SAWTIMBER				
(STRIBNER RULE): <u>4/</u>				
INTERNATIONAL FOREST	23,723	46,632	1,265	47,897
BUREAU OF LAND MANAGEMENT	23,035	29,353	1,260	30,613
OTHER PUBLIC	16,761	2,289	728	3,017
FOREST INDUSTRY	11,492	17,565	1,295	18,859
OTHER PRIVATE	4,762	3,781	858	4,638
ALL OWNERSHIPS	17,097	99,619	5,405	105,024

Totals may be off because of rounding.

^{1/}Includes trees 5.0-inch d.b.h. and larger.

^{2/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

^{3/}Includes trees 11.0-inch d.b.h. and larger.

Table 71 — Volume of sawtimber, International 1/4-inch rule, on timberland by species and ownership class, south Oregon, January 1, 1975^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	AL OWNER
<u>MILLION BOARD FEET</u>						
SOFTWOODS:						
DOUGLAS-FIR	40,695	25,907	2,787	17,923	3,655	90,
TRUE FIRS ^{2/}	6,432	1,259	19	1,326	259	9,
WESTERN HEMLOCK	3,592	1,722	59	1,458	290	7,
SUGAR PINE	2,460	891	--	416	39	3,
PONDEROSA PINE	1,103	1,031	22	505	309	2,
INCENSE-CEDAR	819	508	44	416	507	2,
WESTERN REDCEDAR	355	553	--	931	218	2,
SHASTA RED FIR	1,457	--	--	--	7	1,
WESTERN WHITE PINE	885	16	--	--	--	1,
LODGEPOLE PINE	262	--	--	--	45	0,
REDWOOD	253	--	--	87	--	4,
JEFFREY PINE	--	--	15	232	--	4,
OTHER SOFTWOODS ^{3/}	1,100	129	176	194	477	2,
TOTAL	59,410	32,018	3,122	23,486	5,805	123,
HARDWOODS:						
RED ALDER	358	258	840	711	366	2,
WHITE ALDER	--	--	--	58	13	2,
OTHER HARDWOODS ^{4/}	1,227	1,026	74	809	671	3,
TOTAL	1,585	1,284	914	1,577	1,052	6,
ALL SPECIES	60,995	33,303	4,036	25,064	6,857	130,

^{1/}Totals may be off due to rounding.

^{2/}Includes grand fir, white fir, noble fir, and subalpine fir.

^{3/}Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

^{4/}Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel

Table 72 — Volume of sawtimber, Scribner rule, on timberland by species and ownership class, southwest Oregon, January 1, 1975 ^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SOFTWOODS:						
DOUGLAS-FIR	32,711	23,859	2,116	13,740	2,413	74,838
BLUE FIRS ^{2/}	4,885	1,123	7	826	149	6,991
WESTERN HEMLOCK	2,551	1,492	37	968	171	5,219
SPAR PINE	1,976	833	--	313	27	3,149
PACIFIC LAMBERT PINE	884	938	9	370	191	2,393
PORTLAND CEDAR	560	463	29	297	329	1,678
WESTERN REDCEDAR	260	499	--	722	148	1,629
PACIFIC RED FIR	1,124	--	--	--	2	1,126
WESTERN WHITE PINE	665	14	--	--	--	679
COTTONWOOD	203	--	--	74	--	277
KNOBPOLE PINE	154	--	--	--	26	180
SPRUE PINE	--	--	11	141	--	152
OTHER SOFTWOODS ^{3/}	661	129	79	114	325	1,307
TOTAL	46,632	29,353	2,289	17,565	3,781	99,619
HARDWOODS:						
RED ALDER	233	256	668	575	291	2,023
WHITE ALDER	--	--	--	47	10	57
OTHER HARDWOODS ^{4/}	1,032	1,004	60	673	557	3,326
TOTAL	1,265	1,260	728	1,295	858	5,405
SPECIES	47,897	30,613	3,017	18,859	4,638	105,024

1/ Totals may be off due to rounding.

2/ Includes grand fir, white fir, noble fir, and subalpine fir.

3/ Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

4/ Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 73 — Volume of growing stock on timberland by species and diameter class, southwest Oregon, January 1, 1952

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)										
	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- 20.9	21.0- 28.9	29.0- 38.9	39.0- PLUS
	MILLION CUBIC FEET										
SOFTWOODS:											
DOUGLAS-FIR	286	380	413	500	520	533	601	603	2,543	3,260	5,411
TRUE FIRS <u>2/</u>	58	80	99	110	129	134	119	136	412	270	239
WESTERN HEMLOCK	72	97	99	128	112	130	114	110	325	145	109
SUGAR PINE	8	4	8	13	15	12	12	25	94	165	262
PONDEROSA PINE	7	12	16	21	24	23	28	34	109	118	128
INCENSE-CEDAR	11	12	13	15	23	18	33	21	91	107	108
WESTERN REDCEDAR	5	13	14	14	12	12	17	15	61	78	126
SHASTA RED FIR	5	7	9	13	14	13	14	17	61	50	46
WESTERN WHITE PINE	5	6	9	6	11	7	13	11	56	21	23
LOGSPOLE PINE	18	23	25	28	13	9	5	3	2	--	--
JEFFREY PINE	--	--	3	1	3	21	4	--	10	1	1
REDWOOD	--	--	1	--	2	2	2	3	6	15	24
OTHER SOFTWOODS <u>3/</u>	25	23	28	27	24	21	33	12	82	64	66
TOTAL	497	656	734	874	902	936	996	989	3,853	4,294	6,541
HARDWOODS:											
RED ALDER	66	71	88	79	89	88	78	56	64	5	--
WHITE ALDER	--	--	--	1	2	1	7	3	--	--	--
OTHER HARDWOODS <u>4/</u>	188	204	174	167	127	89	78	68	137	58	14
TOTAL	252	274	261	244	217	178	160	129	201	62	13
ALL SPECIES	750	930	995	1,118	1,120	1,113	1,155	1,118	4,055	4,356	6,554

1/Totals may be off due to rounding.

2/Includes grand fir, white fir, noble fir, and subalpine fir.

3/Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

4/Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 74 — Volume of sawtimber, International 1/4-inch rule, on timberland by species and diameter class, southwest Oregon, January 1, 1975 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)									
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0- 38.9	39.0- PLUS	ALL CLASSES
	MILLION BOARD FEET									
SOFTWOODS:										
DOUGLAS-FIR	1,895	2,468	2,778	3,033	3,553	3,638	15,934	21,029	36,638	90,966
PINE FIRS ^{2/}	327	512	646	718	660	735	2,472	1,699	1,530	9,295
EASTERN HEMLOCK	339	641	584	720	648	628	1,951	921	688	7,121
SPACED PINE	41	51	76	61	69	133	572	1,056	1,748	3,806
MONTEREY PINE	52	89	100	126	152	203	659	743	846	2,970
INCENSE-CEDAR	39	50	99	82	155	100	498	623	648	2,294
EASTERN REDCEDAR	50	64	57	62	96	80	353	472	822	2,057
PACIFIC RED FIR	34	55	68	78	81	97	392	334	324	1,464
EASTERN WHITE PINE	31	24	51	39	64	69	333	139	151	901
EDGEPOLE PINE	23	118	65	45	27	18	11	--	--	307
COTTONWOOD	2	--	8	9	7	18	37	96	143	340
JEFFREY PINE	11	5	16	119	22	--	64	5	4	247
OTHER SOFTWOODS ^{3/}	116	114	127	104	169	79	491	421	457	2,075
TOTAL	2,960	4,191	4,675	5,196	5,703	5,798	23,767	27,538	43,999	123,842
HARDWOODS:										
RED ALDER	--	353	457	493	457	344	408	22	--	2,533
WHITE ALDER	--	4	8	2	42	16	--	--	--	71
OTHER HARDWOODS ^{4/}	--	674	583	450	404	388	827	400	86	3,808
TOTAL	--	1,155	1,129	984	932	771	1,279	435	90	6,412
TOTAL SPECIES	2,960	5,346	5,804	6,180	6,635	6,569	25,046	27,973	44,089	130,255

Totals may be off due to rounding.

^{1/} Includes grand fir, white fir, noble fir, and subalpine fir.

^{2/} Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

^{3/} Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 75 — Volume of sawtimber, Scribner rule, on timberland by species and diameter class, southwest Oregon, January 1, 1975^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)								
	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 28.9	29.0- 38.9	39.0 PLUS	ALL CLASSES
<u>MILLION BOARD FEET</u>									
SOFTWOODS:									
DOUGLAS-FIR	1,543	1,907	2,191	2,659	2,830	13,095	18,070	32,543	74,338
TRUE FIRS ^{2/}	322	420	478	470	544	1,977	1,443	1,336	6,490
WESTERN HEMLOCK	402	398	497	472	477	1,560	809	605	5,620
SUGAR PINE	36	50	47	51	99	460	882	1,521	3,486
PONDEROSA PINE	48	67	88	114	154	543	646	735	2,388
INCENSE-CEDAR	26	53	52	95	71	364	496	522	1,827
WESTERN REDCEDAR	40	36	43	65	60	296	394	694	1,552
SHASTA RED FIR	35	44	52	56	70	305	280	284	1,326
WESTERN WHITE PINE	18	33	26	47	50	261	115	128	717
REDWOOD	--	6	6	6	14	28	79	138	267
LODCEPOLE PINE	72	43	29	17	11	7	--	--	139
JEFFREY PINE	3	9	73	14	--	46	4	3	132
OTHER SOFTWOODS ^{3/}	54	71	63	109	48	342	293	330	1,339
TOTAL	2,599	3,137	3,645	4,175	4,428	19,284	23,511	38,839	99,538
HARDWOODS:									
RED ALDER	266	351	389	371	283	342	20	--	2,022
WHITE ALDER	3	6	1	34	13	--	--	--	57
OTHER HARDWOODS ^{4/}	551	487	385	354	318	763	389	83	3,330
TOTAL	820	844	775	759	614	1,105	409	83	5,411
ALL SPECIES	3,419	3,981	4,420	4,934	5,042	20,389	23,920	38,922	105,349

^{1/}Totals may be off due to rounding.

^{2/}Includes grand fir, white fir, noble fir, and subalpine fir.

^{3/}Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

^{4/}Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 76 — Net annual growth of growing stock and sawtimber on timberland by ownership class and by softwoods and hardwoods, southwest Oregon, 1974 ^{1/}

OWNERSHIP CLASS	AVERAGE VOLUME	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>CUBIC FEET</u> <u>PER ACRE</u>	<u>THOUSAND CUBIC FEET</u>		
GROWING STOCK: ^{2/}				
NATIONAL FOREST	38	69,840	6,800	76,640
BUREAU OF LAND MANAGEMENT	39	40,465	11,441	51,906
OTHER PUBLIC	61	10,782	269	11,051
FOREST INDUSTRY	47	61,416	16,430	77,845
OTHER PRIVATE	59	40,819	16,549	57,368
ALL OWNERSHIPS	45	223,322	51,489	274,810
	<u>BOARD FEET</u> <u>PER ACRE</u>	<u>THOUSAND BOARD FEET</u>		
SAWTIMBER (INTERNATIONAL 4-INCH RULE): ^{3/}				
NATIONAL FOREST	197	368,800	29,000	397,800
BUREAU OF LAND MANAGEMENT	171	184,539	42,217	226,756
OTHER PUBLIC	367	58,449	7,622	66,072
FOREST INDUSTRY	250	346,768	64,239	411,008
OTHER PRIVATE	230	190,732	33,725	224,457
ALL OWNERSHIPS	216	1,149,289	176,803	1,326,092

^{1/}Totals may be off because of rounding.

^{2/}Includes trees 5.0-inch d.b.h. and larger.

^{3/}Includes softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

Table 77 — Net annual growth of growing stock on timberland by species and ownership class, southwest Oregon, 1974

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OTHER OWNERS	THOUSAND CUBIC FEET
SOFTWOODS:							
DOUGLAS-FIR	38,500	27,726	8,385	38,719	24,756	138	
WESTERN HEMLOCK	8,730	4,928	1,087	8,407	4,072	27	
TRUE FIRS 2/	13,220	3,769	277	8,803	3,083	29	
PONDEROSA PINE	1,830	1,509	3/-101	1,027	1,190	5	
WESTERN REDCEDAR	1,190	998	--	907	1,149	4	
INCENSE-CEDAR	1,260	716	8	640	1,508	4	
SUGAR PINE	1,550	242	3/-174	502	161	2	
SHASTA RED FIR	1,560	--	--	--	71	1	
LODGEPOLE PINE	1,080	--	--	--	383	1	
REDWOOD	260	--	--	617	--		
JEFFREY PINE	--	--	29	237	--		
WESTERN WHITE PINE	3/-770	2	--	--	--	3/-	
OTHER SOFTWOODS 4/	1,430	575	1,272	1,558	4,446	9	
TOTAL	69,840	40,465	10,782	61,416	40,819	223	
HARDWOODS:							
RED ALDER	400	700	25	13,215	8,454	22	
WHITE ALDER	--	--	--	200	45		
OTHER HARDWOODS 5/	6,400	10,741	244	3,016	8,050	28	
TOTAL	6,800	11,441	269	16,430	16,549	51	
ALL SPECIES	76,640	51,906	11,051	77,845	57,368	274	

1/Totals may be off due to rounding.

2/Includes grand fir, white fir, noble fir, and subalpine fir.

3/Negative net annual growth is the result of net annual mortality exceeding gross annual growth.

4/Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann spruce and Sitka spruce.

5/Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California laurel.

Table 78 — Net annual growth of sawtimber, International 1/4-inch rule, on timberland by species and ownership class, southwest Oregon, 1974 ^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SOFTWOODS:						
DOUGLAS-FIR	217,700	135,798	43,857	201,008	109,045	707,408
WESTERN HEMLOCK	33,100	12,193	3,774	52,300	17,370	118,737
TRUE FIRS ^{2/}	68,293	18,685	1,230	56,332	13,681	158,221
PONDEROSA PINE	10,200	6,325	78	7,016	9,373	32,992
WESTERN REDCEDAR	4,600	4,779	--	8,777	7,736	25,892
INCENSE-CEGAR	4,800	2,276	270	3,295	8,294	18,935
SUGAR PINE	8,700	2,075	<u>3/-</u> 1,330	3,197	920	13,562
SHASTA RED FIR	10,607	--	--	--	762	11,369
LODGEPOLE PINE	4,800	--	--	--	492	5,292
REDWOOD	1,900	--	--	3,706	--	5,606
JEFFREY PINE	--	--	194	1,972	--	2,166
WESTERN WHITE PINE	<u>3/-</u> 4,199	207	--	--	--	<u>3/-</u> 3,993
OTHER SOFTWOODS ^{4/}	8,300	2,201	10,378	9,164	23,060	53,103
TOTAL	368,800	184,539	58,449	346,768	190,732	1,149,289
HARDWOODS:						
RED ALDER	4,000	6,399	6,177	36,363	14,106	67,045
WHITE ALDER	--	--	--	1,382	543	1,924
OTHER HARDWOODS ^{5/}	25,000	35,818	1,445	26,495	19,077	107,833
TOTAL	29,000	42,217	7,622	64,239	33,725	176,803
TOTAL SPECIES	397,800	226,756	66,072	411,008	224,457	1,326,092

^{1/}Totals may be off due to rounding.

^{2/}Includes grand fir, white fir, noble fir, and subalpine fir.

^{3/}Negative net annual growth is the result of net annual mortality exceeding gross annual growth.

^{4/}Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann spruce and Sitka spruce.

^{5/}Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California laurel.

Table 79— Average annual mortality of growing stock on timberland by species and ownership class, southwest Oregon 1974^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERS
<u>THOUSAND CUBIC FEET</u>						
SOFTWOODS:						
DOUGLAS-FIR	26,870	32,779	888	15,995	5,155	81,6
TRUE FIRS ^{2/}	5,765	2,750	--	2,588	441	11,5
WESTERN HEMLOCK	2,920	1,541	--	1,400	234	6,0
SUGAR PINE	2,900	1,716	195	516	--	5,3
PONDEROSA PINE	1,720	1,350	197	589	613	4,4
WESTERN WHITE PINE	2,240	100	--	--	--	2,3
SHASTA RED FIR	1,565	--	--	--	--	1,5
INCENSE-CEDAR	190	718	95	304	61	1,3
WESTERN REDCEDAR	10	331	--	912	--	1,2
LODGEPOLE PINE	1,050	--	--	--	194	1,2
JEFFREY PINE	--	--	--	365	--	3
REDWOOD	100	--	--	--	--	1
OTHER SOFTWOODS ^{3/}	570	--	391	486	612	2,0
TOTAL	45,900	41,285	1,765	23,156	7,309	119,4
HARDWOODS:						
RED ALDER	600	600	2,591	1,808	1,638	7,2
OTHER HARDWOODS ^{4/}	600	1,553	392	4,997	2,940	10,4
TOTAL	1,200	2,153	2,984	6,806	4,579	17,7
ALL SPECIES	47,100	43,438	4,749	29,962	11,887	137,1

^{1/}Totals may be off due to rounding.

^{2/}Includes grand fir, white fir, noble fir, and subalpine fir.

^{3/}Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

^{4/}Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 80 — Average annual mortality of sawtimber, International 1/4-inch rule, on timberland by species and ownership class, southwest Oregon, 1974 ^{1/}

SPECIES	NATIONAL FOREST	BUREAU OF LAND MANAGEMENT	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE	ALL OWNERSHIPS
SOFTWOODS:						
DOUGLAS-FIR	167,700	183,356	5,776	90,830	25,679	473,341
TRUE FIRS ^{2/}	31,144	14,590	--	11,048	1,882	58,664
SUGAR PINE	19,300	8,702	1,330	3,182	--	32,514
WESTERN HEMLOCK	11,700	8,077	--	5,136	1,118	26,031
PONDEROSA PINE	4,000	6,834	961	2,463	1,195	15,453
WESTERN WHITE PINE	12,200	800	--	--	--	13,000
SHASTA RED FIR	10,356	--	--	--	--	10,356
INCENSE-CEDAR	1,000	2,574	443	898	363	5,278
WESTERN REDCEDAR	100	1,500	--	2,505	--	4,105
LODGEPOLE PINE	2,000	--	--	--	1,119	3,119
JEFFREY PINE	--	--	--	1,919	--	1,919
REDWOOD	700	--	--	--	--	700
OTHER SOFTWOODS ^{3/}	2,600	314	489	1,370	583	5,356
TOTAL	262,800	226,747	8,999	119,349	31,939	649,834
HARDWOODS:						
RED ALDER	3,900	2,000	10,585	2,480	2,423	21,388
OTHER HARDWOODS ^{4/}	3,100	3,250	137	6,258	4,554	17,300
TOTAL	7,000	5,250	10,722	8,738	6,977	38,688
TOTAL SPECIES	269,800	231,997	19,721	128,088	38,916	688,522

¹Totals may be off due to rounding.

²Includes grand fir, white fir, noble fir, and subalpine fir.

³Includes Port-Orford-cedar, Alaska-cedar, knobcone pine, and Engelmann and Sitka spruces.

⁴Includes bigleaf maple, madrone, golden chinkapin, Oregon ash, cottonwood, oaks, and California-laurel.

Table 81 — Area of timberland by stand-size and ownership classes, western Oregon, January 1, 1963 ^{1/}

STAND-SIZE CLASS	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE
	<u>THOUSAND ACRES</u>		
SAWTIMBER STANDS:			
LARGE SAWTIMBER ^{1/}	112	1,038	348
SMALL SAWTIMBER ^{2/}	304	832	908
TOTAL	416	1,870	1,256
POLETIMBER STANDS:	83	954	416
SAPLINGS AND SEEDLINGS	231	889	676
NONSTOCKED AREAS	198	338	704
ALL CLASSES	928	3,551	3,052

^{1/}Large sawtimber includes trees 21.0-inch d.b.h. and larger.

^{2/}Small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

Table 82 — Volume of growing stock on timberland by species and ownership class,
 Western Oregon, January 1, 1963^{1/}

SPECIES	OTHER PUBLIC	FOREST INDUSTRY	OTHER PRIVATE
	<u>MILLION CUBIC FEET</u>		
SOFTWOODS:			
DUGLAS-FIR	1,173	8,737	2,766
WESTERN HEMLOCK	524	2,045	492
BLUE FIRS	20	231	126
WESTERN REDCEDAR	27	417	173
PACIFIC SILVER FIR	2	21	38
SCAR PINE	2	79	7
MONTEROSA PINE	8	118	56
MOUNTAIN HEMLOCK	--	5	--
JUNIPER-CEDAR	10	112	96
WESTERN WHITE PINE	--	17	--
SIERRA RED FIR	--	--	11
EDGEPOLE PINE	--	--	27
JEFFREY PINE	2	39	--
REDWOOD	--	14	--
WESTERN LARCH	--	--	--
OTHER SOFTWOODS	75	233	216
TOTAL	1,843	12,068	4,008
HARDWOODS:			
RED ALDER	322	489	1,474
WHITE ALDER	--	7	3
OTHER HARDWOODS	97	521	56
TOTAL	419	1,017	1,533
TOTAL SPECIES	2,262	13,085	5,541

^{1/}Includes trees 5.0-inch d.b.h. and larger.

Metric Equivalents

1,000 acres = 404.7 hectares (ha)
1,000 cubic feet = 28.3 cubic meters (m³)
1 cubic foot per acre = 0.07 cubic meter per hectare (m³/ha)
1 foot = 0.3048 meter (m)
1 inch = 2.54 centimeters (cm)
1 mile = 1.609 kilometers (km)

Literature Cited

- Bassett, Patricia M. Timber resources of southwest Oregon. Resour. Bull. PNW-72. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1979. 29 p.
- Cochran, W.G. Sampling techniques. New York: John Wiley & Sons, Inc.; 1963. 41 p.
- Hazard, John W.; Metcalf, Melvin E. Forest statistics for northwest Oregon. Resour. Bull. PNW-7. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1964a. 38 p.
- Hazard, John W.; Metcalf, Melvin E. Forest statistics for southwest Oregon. Resour. Bull. PNW-8. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1964b. 32 p.
- Hazard, John W.; Metcalf, Melvin E. Forest statistics for west-central Oregon. Resour. Bull. PNW-10. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1965. 33 p.
- Jacobs, David M. Timber resources of west-central Oregon. Resour. Bull. PNW-76. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1976. 30 p.
- Larson, Robert W.; Goforth, Marcus H. TRAS, a computer program for the project of timber volume. Agric. Handb. 377. Washington, DC: U.S. Department of Agriculture; 1970. 24 p.
- Little, Elbert L., Jr. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture; 1979. 375 p.
- Mei, Mary A. Timber resources of northwest Oregon. Resour. Bull. PNW-82. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1979. 29 p.

Gedney, Donald R. Timber resources of western Oregon — Highlights and statistics.

Resour. Bull. PNW-97. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 84 p.

This report summarizes and interprets the results of a timber resource inventory of western Oregon made between 1973 and 1976. Detailed tables give land and forest area, timber volume, growth, and mortality for western Oregon and for southwest Oregon, west-central Oregon, and northwest Oregon.

Keywords: Forest survey, statistics (timber), timber resources, resources (timber), Oregon (western), western Oregon.

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Timber Resource Statistics for the Juneau Inventory Unit, Alaska, 1970

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Abstract

LaBau, Vernon J.; van Hees, Willem W.S. Timber resource statistics for the Juneau inventory unit, Alaska, 1970. Resour. Bull.

PNW-98. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 30 p.

Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality are presented for the 1970 timber inventory of the Juneau unit, Alaska. Estimates for commercial forest land area total 1.3 million acres (535 000 ha) with a net growing stock volume of 8.3 billion cubic feet (234 million m³), and annual net growth and mortality of 13.5 and 37.9 million cubic feet (0.4 and 1.1 million m³), respectively.

Keywords: Forest surveys, timber resources, timber inventory, resources (forest), statistics (forest), Alaska (Juneau).

Summary

This report for the 3.2-million-acre (1.3-million-ha) Juneau timber inventory unit is the first in a series of six reports for southeast Alaska. The Juneau inventory unit is situated in the northern panhandle of southeast Alaska, and includes the mainland from the border of the Tongass National Forest at White Pass on the Canadian border, just north of Skagway, south to Port Houghton. The unit also includes all National Forest lands on the Chilkat peninsula, as well as on Admiralty, Douglas, and other small islands in Lynn Canal and Seymour Passage.

This effort is the first general reinventory of the forests in the Juneau unit, originally inventoried in 1954. It is also the second remeasurement of the growth and mortality plots established in 1954 and first remeasured in 1964.

Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality are presented for the 1970 timber resource inventory of the Juneau unit. Estimates for commercial forest land area total 1.3 million acres (535,000 ha) with a net growing stock volume of 8.3 billion cubic feet (234 million m³), and annual net growth and mortality of 13.5 and 37.9 million cubic feet (0.4 and 1.1 million m³), respectively.

Preface

Forest Inventory and Analysis (formerly Forest Survey) is a nationwide project of the USDA Forest Service authorized by the Forest and Rangeland Renewable Resources Research Act of 1978. Work units of the project, located at Forest Service Experiment Stations, conduct forest resource inventories throughout the 50 States. The Pacific Northwest Forest and Range Experiment Station at Portland, Oregon, is responsible for inventories in the States of Alaska, California, Hawaii, Oregon, and Washington.

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Highlights

	<i>Thousand acres</i>		<i>Thousand hectares</i>	
Total Juneau inventory unit area:	3,208.9		1 298.6	
With forests	1,891.1		765.3	
With nonforest	1,311.1		530.6	
With non-Census water	6.7		2.7	
With Census water	1/		1/	
Forested area:				
Timberland	1,321.6		534.9	
Other forest land	569.5		230.5	
Timberland composition:				
Old-growth sawtimber	1,224.6		495.6	
Young-growth sawtimber	67.7		27.4	
Poletimber	6.8		2.7	
Seedlings and saplings, and nonstocked	22.6		9.1	
Timberland forest type composition:				
Sitka spruce	121.4		49.1	
True fir	1/		1/	
Hemlock-spruce	221.7		89.7	
Western hemlock	680.7		275.5	
Mountain hemlock	250.5		101.4	
Alaska-cedar	47.4		19.2	
Lodgepole pine	1/		1/	
Other softwoods	1/		1/	
Red alder	1/		1/	
Black cottonwood	1/		1/	
Other hardwoods	1/		1/	
		<u>All growing stock</u>	<u>Sawtimber growing stock</u>	
	<i>Million cubic feet</i> ^{2/}	<i>Million cubic meters</i> ^{2/}	<i>Million board feet</i> ^{3/}	<i>Million cubic meters</i> ^{4/}
Volumes on timberland:				
Total gross volume	9,217.8	260.9	47,704.8	241.7
Total net volume	8,264.9	233.9	36,795.9	216.0
Annual net growth	13.5	0.4	58.8	.1
Annual net mortality	37.9	1.1	175.0	1.1

^{1/} A sample was not encountered.

^{2/} Volume of roundwood for live trees 5.0 inches (12.7 cm) in d.b.h. and larger.

^{3/} Net volume, International 1/4-inch rule, for trees 11.0 inches (28 cm) in d.b.h. and larger.

^{4/} Volume of roundwood for trees 11.0 inches (12.7 cm) in d.b.h. and larger.

roduction

This report for the 3.2-million-acre (1.3-million-ha) Juneau timber inventory unit is the first in a series of six reports for southeast Alaska. The Juneau inventory unit is situated in the northern panhandle of southeast Alaska, and includes the mainland from the border of the Tongass National Forest at White Pass on the Canadian border, just north of Skagway south to Port Houghton (fig. 1). The unit also includes all National Forest lands on the Chilkat peninsula, as well as on Admiralty, Douglas, and other small islands in Lynn Canal and Seymour Passage.

This effort is the first general reinventory of the forests in the Juneau unit, first inventoried in 1954. It is also the second remeasurement of the growth and mortality plots established in 1954 and first remeasured in 1964.

Inventory Procedures

The estimates of area and timber volumes for the 1970 timber reinventory are based on a double sampling (2-phase) procedure (Bickford 1952). In the first phase of the sampling study, 14,405 photo points were systematically distributed over 1:15,840-scale aerial photographs, and were then interpreted. Each photo point was classified by land type, volume class, stand size class, forest type, crown closure, and operability class. Of the 14,405 photo plots, 214 were measured on the ground in the second phase of sampling. Area classifications and measurements of volume on these ground plots serve as the basis for the area and volume estimates presented here.

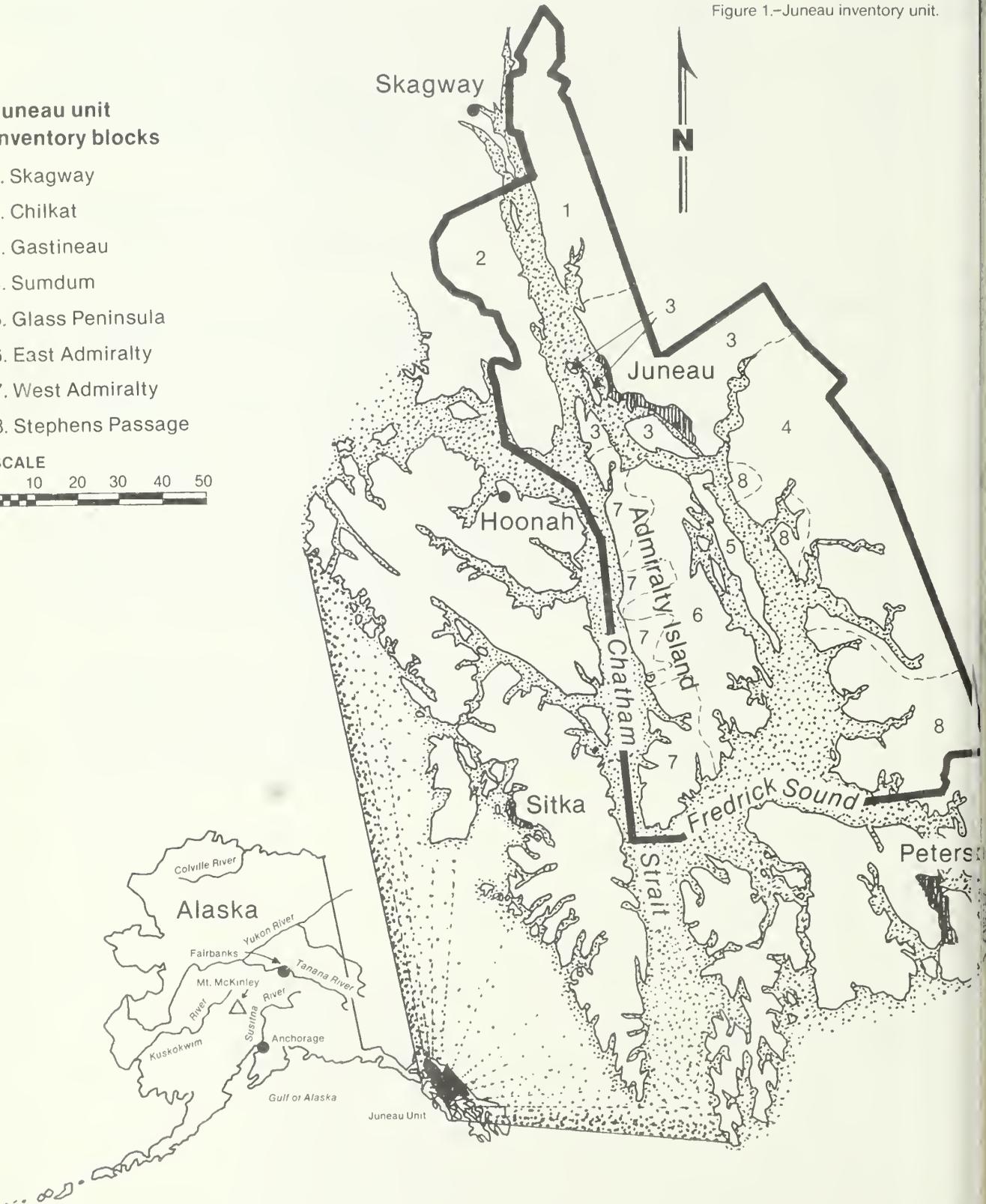
Growth and mortality estimates were available from the 1970 reinventory ground plots. This growth information was based on increment borings; the mortality estimates were based on estimations of the number of years since the tree died. Because mortality information is difficult to obtain in this way, we used both the mortality and growth information from the 1970 remeasurement data rather than that from the 1970 reinventory data.

The 1970 remeasurement study utilized 36 timber inventory plots established in 1954 and originally remeasured in 1964. The total volume base for the 1970 growth and mortality remeasurement study was calibrated to coincide with that found in the 1970 timber reinventory study prior to compiling the remeasurement growth and mortality volumes.

Figure 1.-Juneau inventory unit.

**Juneau unit
inventory blocks**

1. Skagway
2. Chilkat
3. Gastineau
4. Sumdum
5. Glass Peninsula
6. East Admiralty
7. West Admiralty
8. Stephens Passage



Ownership Statistics

Statistics on ownership of the land base are not presented in this report because of uncertainties of land status changes associated with Alaska Native and State of Alaska land selections and wilderness area withdrawals. These land status changes are the result of three national legislative acts (the Alaska Statehood Act of 1958, Public Law 85-508; the Alaska Native Claims Settlement Act of 1971, Public Law 92-203; and the Alaska National Interest Lands Conservation Act, Public Law 96-487). Alaska Native land selections and decisions on wilderness withdrawals were still indefinite at the end of 1981, and the Alaska State selections will remain uncertain for the next 5-10 years. Fieldwork for our study was completed in 1970; we have delayed publishing the results, anticipating that shifts in land ownership would be resolved by now and the information on new ownership patterns could be reprocessed and resummarized for inclusion here.

With the promise of further delays in resolving ownership changes, we decided to release the statistics available now. Statistics on ownership and reserved land status plus a resource analysis will be presented in the future when the status of land shifts is more clear. It is clear now, however, that the Alaska Native and Alaska State land selections are concentrating more on timberlands than previously, which will leave a smaller proportion of the better timberland in Federal ownership.

Timber Harvesting

A summary of timber volumes cut in the Chatham and North Tongass areas of the Tongass National Forest is provided in table 24. Although these areas do not coincide exactly with the inventory boundaries used by Forest Inventory and Analysis (FIA), the volume-cut figures provide an understanding of the amount of logging activity occurring in the area from the time of the Juneau unit inventory, in 1970, through 1980.

Reliability of Inventory Data

All area and volume statistics reported here are estimates based on sampling and are subject to sampling error. Sampling errors for all the estimates presented in the tables are available on request. The reliability of the inventory is expressed in terms of relative sampling error at the 68-percent confidence level.

	<u>Design sampling error</u>	<u>Sampling error achieved</u>	<u>Sampling error of the estimate</u>
	<i>Percent</i>		
Area:			
Timberland, per million acres	3.0	2.39	± 2.08, for 1.321 million acres
Other forest land, per million acres	10.0	3.89	± 5.16, for 0.569 million acres
Net volume:			
Timberland, per billion cubic feet	10.0	8.08	± 2.81, for 8.265 billion ft ³
Net growth:			
Timberland, per billion cubic feet	10.0	9.20	± 79.00 for 0.013 billion ft ³

For the Juneau inventory unit, we estimate 8.265 billion cubic feet of net growing stock volume, \pm 2.81 percent, yielding 68-percent confidence limits of 8.033 and 8.497 billion cubic feet. A 68-percent confidence level means that upon repeated sampling, about 68 percent of the confidence intervals constructed for each sample would capture the true value of the parameter being estimated.

We met our design sampling error for timberland area (3 percent), for other forest land area (10 percent), and for cubic-foot net volume and net growth (both 10 percent).

Terminology ^{5/}

Allowable cut — The volume of timber that could be cut on timberland during a given period under specified management plans for sustained production, such as those in effect on National Forests.

Census water — Areas of water classed as water by the Bureau of the Census that are at least 40 acres (16 ha) in size and a minimum width of one-eighth mile (200 m). (Also see non-Census water).

Class of timber — A classification of trees as growing stock, cull, and salvable dead. Growing stock trees are subdivided into poletimber and sawtimber trees.

Commercial species — A tree species suitable for industrial wood products.

Cull logs — Softwood sawtimber logs with two-thirds or more of the board-foot volume in cull material. Hardwood sawtimber logs with half or more of the volume in cull material.

Cull material — Portions of a tree unusable for industrial products because of rot, form, or other defect.

Cull trees — Live trees of sawtimber or poletimber size that are not merchantable for saw logs nor are they likely to become merchantable because of defect, rot, or species.

D.b.h. — Diameter at breast height, a point 4½ feet (1.37 m) above the ground on the uphill side of a tree, where, on a normally formed tree, the diameter is measured.

Diameter class — A classification of trees based on diameter of the tree outside bark measured at breast height, 4½ feet (1.37 m) above the ground. D.b.h. is the common abbreviation for "diameter at breast height." Each 2-inch diameter class is assigned to the appropriate even inch at midpoint. For example, the 6-inch class includes trees 5.1 through 6.9 inches d.b.h.

Established seedling — A tree 6.0 inches (15.24 cm) tall, up to 1.0 inch (2.54 cm) in diameter, with good coloration, no evidence of disease, and with a root system preferably in contact with the mineral soil. For seedlings growing on stumps or logs to be tallied, they must be well enough established to survive after the supporting material had decayed.

^{5/} Terminology is from USDA Forest Service, Forest Service Handbook, Title 4813.1, 1967, and the manual for field instructions for the forest survey of coastal Alaska, 1970.

Forest land — Land at least 16.7 percent stocked by live trees of any size, or land formerly having such tree cover and not currently developed for nonforest use. Includes chaparral areas in the western United States and afforested areas. The minimum area for classification as forest land or subclasses of forest land is 1 acre (0.4 ha). Roadside, streamside, and shelterbelt strips of timber must be at least 120 feet (36 m) wide to be classified as forest land. Unimproved roads and trails, streams, and clearings in forest areas must be less than 120 feet wide to be classified as forest land. (Also see timberland, other forest land, reserved forest land, and nonforest land.)

Forest trees — Woody plants having a well-developed stem and usually more than 12 feet (3.6 m) tall, including both growing stock and cull trees.

Forest types — A classification of forest land based on the species forming a plurality of stocking on the area currently occupied by tree cover. The following summarizes the forest types of coastal Alaska:

Alaska-cedar — Forests in which Alaska-cedar comprises the plurality of the stocking. Common associates are mountain or western hemlock, lodgepole pine, western redcedar, and occasionally Sitka spruce.

Black cottonwood — Forests in which cottonwood comprises the plurality of the stocking. Common associates are red alder and Sitka spruce.

Fir-spruce — Forests in which subalpine or Pacific silver fir in combination with Sitka spruce comprises the plurality of the stocking. Common associates are black cottonwood, mountain hemlock, and western hemlock.

Hemlock-spruce — Forests in which 50 percent or more of the stand is western hemlock or mountain hemlock and where Sitka spruce comprises 30-49 percent of the stocking. Common associates are Alaska-cedar, western redcedar, and occasionally cottonwood, red alder, or lodgepole pine.

Lodgepole pine — Forests in which lodgepole pine comprises the plurality of the stocking. Common associates are mountain hemlock, Alaska-cedar, and western hemlock.

Mountain hemlock — Forests in which mountain hemlock comprises the plurality of the stocking. Common associates are western hemlock and Alaska-cedar.

Other hardwoods — Forests in which noncommercial hardwoods, such as willow and alder other than red alder, comprise the plurality of the stocking. Common associates are black cottonwood and Sitka spruce.

Other softwoods — Forests in which noncommercial softwoods, such as Pacific yew, and junipers comprise the plurality of the stocking. Common associates are Alaska-cedar and mountain hemlock.

Pacific silver fir — Forests in which Pacific silver fir comprises the plurality of the stocking. Common associates are black cottonwood, Sitka spruce, mountain hemlock, and western hemlock.

Red alder — Forests in which red alder comprises the plurality of the stocking. Common associates are black cottonwood, Sitka spruce, western hemlock, and occasionally western redcedar and/or Alaska-cedar.

Sitka spruce — Forests in which Sitka spruce comprises the plurality of the stocking. Common associates are western hemlock, western redcedar, and occasionally cottonwood, red alder, and Alaska-cedar.

Subalpine fir — Forests in which subalpine fir comprises the plurality of the stocking. Common associates are black cottonwood, Sitka spruce, mountain hemlock, and western hemlock.

True fir — Forests in which Pacific silver and subalpine firs comprise the plurality of the stocking. Common associates are black cottonwood, Sitka spruce, mountain hemlock, and western hemlock.

Western hemlock — Forests in which western hemlock comprises the plurality of the stocking. Common associates are Sitka spruce, Alaska-cedar, western redcedar, mountain hemlock, and occasionally cottonwood, red alder, or lodgepole pine.

Western redcedar — Forests in which western redcedar comprises the plurality of the stocking. Common associates are Sitka spruce, western hemlock, Alaska-cedar, and occasionally cottonwood, red alder, and mountain hemlock.

Gross growth — Net annual growth plus the annual growth on mortality.

Growing stock trees — All live trees except cull trees.

Growing stock volume — Net volume in cubic feet of live sawtimber and poletimber growing stock trees from stump to a minimum 4.0-inch (10-cm) top (of central stem) outside the bark. Net volume equals gross volume less deductions for rot and missing bole sections.

Growth — See net annual growth, gross growth, and ingrowth.

Hardwoods — (1) Trees that are angiosperms, usually broad-leaved and often deciduous. (2) Forests predominantly cottonwood or red alder, singly or in combination.

Ingrowth — The net volume of trees that grew into poletimber or sawtimber growing stock during a specified year.

Inoperable timberland — Includes areas of timberland that are presently inoperable because of marginal volume (usually less than 20,000 board feet per acre) or rough, rocky, cliffy, or otherwise broken terrain. This also includes pockets of high volume timberland that are isolated or more than one-fourth mile (402 m) from operable timberland areas. (Also see operable timberland.)

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

Land area — Area reported as land by the Bureau of the Census. Total land area includes dry land and land temporarily or partially covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than one-eighth mile (200 m) wide; and lakes, reservoirs, and ponds less than 40 acres (16 ha) in area. (Also see non-Census water.)

Land class — A classification of land by major use, such as timberland, other forest, and nonforest. The minimum size area for classification is 1 acre (0.4 ha).

Log grades — A classification of logs based on external characteristics as indicators of quality or value.

Management blocks — Units delineated for timber management by the National Forest System of the USDA Forest Service, usually oriented to islands and/or watershed complexes.

Mean annual increment (MAI) — A measure of the productivity of forest land in terms of the average increase in cubic-foot volume per acre per year. The FIA minimum standard for timberland is the ability to produce 20 cubic feet per acre (1.4 m³/ha) per year.

Merchantable height — Height of a tree expressed in the number of 16-foot (5-m) logs to a merchantable top.

Merchantable saw log — For softwood sawtimber, a merchantable saw log must be at least 12 feet (3.6 m) long to a minimum top of 7.0 inches (18 cm) outside the bark or to a top diameter inside the bark that is 40 percent of d.b.h. At least one-third of its board-foot volume must be in sound, recoverable wood. For hardwood sawtimber, a merchantable saw log must be at least 8 feet (2.5 m) long to a minimum top of 9.0 inches (23 cm) outside the bark or to a top diameter inside the bark that is 40 percent of d.b.h. At least half of its board-foot volume must be in sound, recoverable wood.

Merchantable stem — For softwoods, the portion of the tree between the 1-foot (0.3 m) stump and either the top diameter of 7.0 inches (18 cm) outside the bark or to a top diameter inside the bark that is 40 percent of d.b.h., whichever is larger. For hardwoods, the portion of the tree between the 1-foot stump and either the top diameter of 9.0 inches (23 cm) outside the bark or to a top diameter inside the bark that is 40 percent of d.b.h., whichever is larger.

Merchantable top — The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum merchantable top is 7.0 inches (18 cm) outside the bark for softwoods, an 9.0 inches (23 cm) outside the bark for hardwoods.

Merchantable tree — A merchantable tree must be producing or be capable of producing at least one merchantable saw log that is at least 50-percent sound for hardwoods or 33-percent sound for softwoods, board-foot measure. All poletimber that is less than 50-percent sound, cubic-foot measure, and all saplings with any sign of rot are not considered merchantable trees, but rotten culls. All trees that are of such poor form that they will never produce a merchantable saw log are not classed as merchantable trees, but as sound culls or rough trees.

Mortality — The number of or the sound wood volume from live trees dying from natural causes during a specified period.

Mortality of growing stock — The volume of sound wood in live sawtimber and poletimber trees dying annually from natural causes during a specified period.

Mortality of sawtimber — The net board-foot volume of sawtimber trees dying annually from natural causes during a specified period.

Mortality tree — On plots being measured for the first time, a tree of commercial species, at least 1 inch (2.5 cm) in d.b.h. or larger that has died within the past 5 years; on plots being remeasured, a tree of commercial species at least 1 inch in d.b.h. that has died since the previous measurement was made.

Net annual growth — The increase in net volume of wood for growing stock trees during a specified year. Components of net annual growth are: (a) the increment in net volume of trees alive at the beginning of the specified year, including that on periodic mortality, plus (b) the net volume of trees reaching sawtimber or poletimber size during the year, minus (c) the net volume of trees that died during the year, minus (d) the net volume lost to tree decay during the year.

Net volume — The gross volume of a tree less deductions for rot, sweep, or other defect affecting product use.

Non-Census water — Areas of water classed as land by the Bureau of the Census, but that are 1-40 acres (0.4-16 ha) in size with a minimum width of 120 feet (36 m) and a maximum width of one-eighth mile (200 m). (Also see Census water.)

Noncommercial species — A tree species of typically small size, poor form, or inferior quality that normally is not suitable for industrial products.

Nonforest land — Land that does not qualify as forest land. Includes land that has never supported forests and lands formerly forested where forest use is precluded by development for nonforest uses. Included are lands used for agricultural crops, improved pasture, residential areas, city parks, improved roads, operating railroads and their right-of-way clearings, and pipeline clearings. If intermingled in forest areas, unimproved roads, streams, canals, and nonforest strips must be more than 120 feet (36 m) wide, and clearings or other areas must be 1 acre (0.4 ha) or larger to qualify as nonforest land.

Nonstocked land — Timberland less than 16.7 percent stocked with growing stock trees.

Old-growth stands — Stands with at least 50 percent of the live-tree stocking per acre comprised of old-growth trees.

Old-growth trees — Trees that have reached or passed the age of physiological maturity, assumed to be 150 years for coastal Alaska.

Operable timberland — All timberland considered silviculturally and economically operable. This includes areas on stable soils, on slopes that are not too steep to log without causing serious site damage, and stands valuable enough to pay the logging costs using the methods and costs in effect at the time of the inventory. Stands that require new, undeveloped logging methods are not in the operable class.

Other forest land — Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions. This includes sterile or poorly drained forest land, subalpine forests, and steep rocky areas where topographic conditions are likely to prevent management for timber production indefinitely. In coastal Alaska, this includes forest lands which are not capable of producing 8,000 board feet per acre (net International 1/4-inch rule).

Poletimber stands — Stands at least 16.7 percent stocked with growing stock trees, with half or more of this stocking in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Poletimber trees — Growing stock trees 5.0 to 10.9 inches (12.5 to 27.5 cm) in d.b.h.

Quality saw log — See merchantable saw log.

Reserved forest land — Forest land withdrawn from timber utilization through statute or administrative regulation.

Rotten trees — Live trees at least 5.0 inches (12.7 cm) in d.b.h. that do not contain a saw log and are not likely to, primarily because of rot.

Rotten cull trees — Live trees that do not contain a merchantable saw log and are not likely to, primarily because of rot.

Rough trees — Live trees that do not contain a merchantable saw log and are not likely to, primarily because of roughness, poor form, or they are noncommercial species.

Salvable dead trees — Standing or down dead trees of commercial species at least 11.0 inches (28 cm) in d.b.h., containing at least 50 percent of their volume in sound wood, and with at least one merchantable saw log.

Sapling stands — See seedling and sapling stands.

Sapling trees — Trees 1.0 to 4.9 inches (2.5 to 12.5 cm) in d.b.h.

Saw log — A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet (2.5 m) long, sound and straight, and with a minimum small-end diameter of 6.0 inches (15 cm) inside the bark for softwoods and 8.0 inches (20 cm) for hardwoods.

Saw-log portion — The bole of sawtimber trees between the stump and the saw-log top.

Saw-log top — The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum top diameter is 7.0 inches (18 cm) outside the bark for softwoods and 9.0 inches (23 cm) inches outside the bark for hardwoods.

Sawtimber stands — Stands at least 16.7 percent stocked with growing stock trees, with half or more of this stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to that of poletimber.

Sawtimber trees — Growing stock trees at least 11.0 inches (23 cm) in d.b.h.

Sawtimber volume — Net volume of sawtimber trees measured in board feet. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Scribner, bureau scale — A common timber scaling rule using 32-foot log lengths.

Scribner rule — The common board-foot rule used locally in determining volume of sawtimber.

Seedling and sapling stands — Stands at least 16.7 percent stocked with growing stock trees and with saplings and/or seedlings comprising more than half this stocking.

Seedling — An established tree less than 1.0 inch (2.5 cm) in d.b.h.

Site class — A classification of forest land based on its capacity to grow crops of industrial wood.

Softwoods — Coniferous trees, usually evergreen with needles or scalelike leaves. Species in coastal Alaska are Sitka spruce, western hemlock, mountain hemlock, Alaska-cedar, western redcedar, lodgepole pine, Pacific silver fir, subalpine fir, and Pacific yew.

Sound cull tree — See rough tree.

Stand age class — A classification of forest land based on the predominant age of trees in a given stand.

Stand size class — A classification of forest land based on the predominant size of timber present: sawtimber, poletimber, or seedlings and saplings.

Stocking — A measure of the area occupied by trees of specified classes. FIA forest inventories consider three categories of stocking: all live trees, growing stock trees, and desirable trees. Stocking of all live trees is used to delineate forest land and forest types. Stocking of growing stock trees is used in classifications of stand size and stand age. Stocking of desirable trees is used to delineate area condition classes.

Stump height — For all timber volume estimates 1.0 foot (0.3 m).

Timber harvest — Volume of roundwood removed from forest land for products.

Timberland — Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. Areas qualifying as timberland could produce in excess of 20 cubic feet per acre (1.4 m³/ha) per year of industrial wood under management. In old-growth forests of coastal Alaska, this is equated to stands that could produce 8,000 board feet per acre (net International 1/4-inch rule).

Tree size class — A classification of sawtimber trees, poletimber trees, saplings, and seedlings based on the diameter at breast height.

Upper-stem portion — The bole of sawtimber trees above the saw-log top — 7.0 inches (18 cm) outside the bark for softwoods and 9.0 inches (23 cm) outside the bark for hardwoods — to a minimum top diameter of 4.0 inches (10 cm) outside the bark, or to the point where the central stem breaks into limbs.

Volume of growing stock — Volume of sound wood in the bole of live growing stock sawtimber and poletimber trees from stump to a minimum 4.0-inch (10-cm) top outside the bark or to the point where the central stem breaks into limbs.

Volume of salvable dead sawtimber-sized trees — Net volume of standing or down, dead, sawtimber-sized trees that contain 50-percent sound board-foot volume.

Volume of sawtimber — Net volume of the saw-log portion of live growing stock sawtimber trees, expressed in board feet.

Water — See Census water and non-Census water.

Young-growth stands — Stands with at least 50 percent of the live-tree stocking per acre comprised of young-growth trees.

Young-growth trees — Trees that have not passed the age of physiological maturity, assumed to be 150 years for coastal Alaska.

Names of Trees ^{6/}

Common name	Scientific name
Softwoods:	
Alaska-cedar	<i>Chamaecyparis nootkatensis</i> (D. Don) Spach
Fir, Pacific silver	<i>Abies amabilis</i> (Dougl.) Forbes
Fir, subalpine	<i>A. lasiocarpa</i> (Hook.) Nutt.
Hemlock, mountain	<i>Tsuga mertensia</i> (Bong.) Carr.
Hemlock, western	<i>T. heterophylla</i> (Raf.) Sarg.
Pine, lodgepole	<i>Pinus contorta</i> Dougl.
Redcedar, western	<i>Thuja plicata</i> Donn
Spruce, Sitka	<i>Picea sitchensis</i> (Bong.) Carr.
Yew, Pacific	<i>Taxus brevifolia</i> Nutt.
Hardwoods:	
Alder, red	<i>Alnus rubra</i> Bong.
Cottonwood, black	<i>Populus trichocarpa</i> Torr. & Gray
Willow, Barclay	<i>Salix barclayi</i> Anderss.
Willow, Bebb	<i>S. bebbiana</i> Sarg.
Willow, feltleaf	<i>S. alaxensis</i> (Anderss.) Cov.
Willow, grayleaf	<i>S. glauca</i> L.
Willow, hooker	<i>S. hookeriana</i> Barratt
Willow, Sitka	<i>S. sitchensis</i> Sanson
Willow, Pacific	<i>S. lasiandra</i> Benth.

^{6/} Scientific names are according to Viereck and Little (1972).

ables

Estimates in this report are developed from statistically based samples and therefore are subject to sampling error. Sampling errors for estimates of various sizes are presented in the section "Reliability of Inventory Data."

Table 1 — Area of forest land by forest type and forest land class, Juneau unit, southeast coastal Alaska, 1970^{1/}

FOREST TYPE	TIMBERLAND	OTHER FOREST	ALL CLASSES
	<u>ACRES</u>		
SOFTWOODS:			
TRUE FIR ^{2/}	--	--	--
SITKA SPRUCE	121,432	5,235	173,789
HEMLOCK-SITKA SPRUCE	221,671	31,066	252,737
WESTERN HEMLOCK	680,673	166,319	846,992
MOUNTAIN HEMLOCK	250,480	218,759	469,239
ALASKA-CEDAR	47,378	62,132	109,510
LOGEPOLE PINE	--	38,832	38,832
OTHER SOFTWOODS	--	--	--
TOTAL	1,321,635	569,466	1,891,101
HARDWOODS:			
BLACK COTTONWOOD	--	--	--
RED ALDER	--	--	--
OTHER HARDWOODS	--	--	--
TOTAL	--	--	--
ALL TYPES	1,321,635	569,466	1,891,101

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Subalpine fir and Pacific silver fir.

Table 2 — Area by land class and management block, Juneau unit, southeast coastal Alaska, 1970 1/

LAND CLASS	SKAGWAY	CHILKAT	GASTINEAU	SUNDUM	GLASS PENINSULA	EAST ADMIRALTY	WEST ADMIRALTY	STEPHENS PASSAGE	ALL BLOCKS
	<u>ACRES</u>								
TIMBERLAND:									
SEEDLING AND SAPLING, AND NONSTOCKED POLETIMBER	4,789	13,032	--	--	--	--	4,789	--	22,61
SAWTIMBER VOLUME STRATA 2/--	--	--	--	--	--	--	6,762	--	6,76
8,000-20,000	27,084	20,311	54,209	27,084	27,084	121,901	92,784	60,896	431,35
20,001-30,000	27,091	20,312	40,650	33,871	27,108	108,376	74,571	108,459	440,43
30,001-50,000	13,559	33,895	27,115	13,558	13,542	122,088	94,964	54,265	372,98
50,001 OR MORE	--	6,779	--	6,787	--	--	33,920	--	47,48
TOTAL	72,523	94,329	121,974	81,300	67,734	352,365	307,790	223,620	1,321,63
OTHER FOREST LAND:									
ROCKY	7,766	--	7,768	16,009	--	7,766	--	--	39,30
LOW VOLUME 3/	7,767	29,059	14,528	6,762	21,291	51,829	--	36,842	168,07
MUSKEG FOREST	--	15,532	--	7,766	7,768	46,599	15,533	37,828	131,02
HIGH ELEVATION FOREST	23,362	15,533	--	15,534	7,765	45,595	31,066	38,832	177,68
RECURRENT SLIOW AREA	--	--	--	--	--	--	--	7,767	7,76
OTHER NONPRODUCTIVE	--	--	--	46,599	--	--	--	--	46,59
TOTAL	37,895	60,124	22,296	92,670	36,824	151,789	46,599	121,269	569,46
NONFOREST:									
FARMSTEAD AND PASTURE	--	--	--	--	--	--	--	--	--
NATURAL GRASSLAND	--	--	--	--	--	--	--	--	--
ALOER SHRUBLAND	20,487	6,829	13,658	13,592	--	--	--	--	54,56
NON-ALOER SHRUBLAND	27,316	61,462	34,145	54,633	--	47,804	13,658	--	239,01
ALPINE MEADOW	--	47,804	13,658	13,658	--	40,974	20,488	13,658	150,24
MUSKEG MEADOW	6,829	6,829	--	--	--	--	--	13,658	27,31
URBAN AND OTHER	--	--	--	--	--	--	--	--	--
ALPINE ROCK	143,411	81,949	68,291	218,530	6,829	40,974	13,658	68,291	641,93
ICE AND SNOWFIELDS	68,291	34,145	27,317	54,632	--	--	--	13,658	198,04
TOTAL	266,334	239,018	157,069	355,045	6,829	129,752	47,804	109,265	1,311,11
WATER 4/	3,342	--	3,341	--	--	--	--	--	6,68
ALL LANDS	380,094	393,471	304,680	529,015	111,387	633,906	402,193	454,154	3,208,90

Estimates are subject to sampling error.

-- = no data were collected.

1/ Totals may be off because of rounding.

2/ Board feet, Scribner scale, except base volume of 8,000 board feet, which is International 1/4-inch rule.

3/ Less than 8,000 board feet per acre, International 1/4-inch rule.

4/ Water as classified by Forest Inventory and Analysis.

Table 3 — Number of growing stock trees on timberland by species and diameter class, Juneau unit, southeast coastal Alaska, 1970^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)							
	SEEDLINGS LESS THAN 1.0	1.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>THOUSAND TREES</u>							
SOFTWOODS:								
SUBALPINE FIR	5,283.07	756.99	--	--	--	--	--	6,040.06
ALASKA-CEDAR	31,658.03	17,061.60	6,090.60	1,030.52	109.34	3.99	--	55,954.09
SITKA SPRUCE	264,507.75	47,641.42	14,148.75	5,198.18	1,561.85	339.36	92.43	333,489.74
LOGSPOLE PINE	--	--	--	--	--	--	--	--
WESTERN HEMLOCK	745,734.37	234,007.51	39,019.29	13,419.05	3,307.45	505.32	48.18	1,036,041.16
MOUNTAIN HEMLOCK	193,097.99	85,415.92	15,824.42	4,370.17	553.63	57.63	--	299,319.76
TOTAL	1,240,281.21	384,883.44	75,083.06	24,017.92	5,532.27	906.30	140.61	1,730,844.81
HARDWOODS:								
RED ALDER	4,570.31	3,831.07	119.74	--	--	--	--	8,521.11
BLACK COTTONWOOD	--	--	333.34	16.07	--	--	--	349.41
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	4,570.31	3,831.07	453.08	16.07	--	--	--	8,870.52
TOTAL SPECIES	1,244,851.50	388,714.51	75,536.14	24,033.99	5,532.27	906.31	140.61	1,739,715.32

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 4 — Number of growing stock trees on old-growth timberland by species and diameter class, Juneau unit, southeast coastal Alaska, 1970^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)							
	SEEDLINGS LESS THAN 1.0	1.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>THOUSAND TREES</u>							
SOFTWOODS:								
SUBALPINE FIR	--	--	--	--	--	--	--	--
ALASKA-CEDAR	31,658.03	17,061.60	6,090.60	1,030.52	109.34	3.99	--	55,954.08
SITKA SPRUCE	238,212.77	36,459.07	10,723.34	4,506.06	1,428.83	319.57	90.53	291,740.14
LODGEPOLE PINE	--	--	--	--	--	--	--	--
WESTERN HEMLOCK	687,254.79	219,937.58	37,376.34	13,347.94	3,242.33	492.70	48.18	961,699.85
MOUNTAIN HEMLOCK	193,097.99	84,125.10	15,585.98	4,370.17	553.63	57.63	--	297,790.57
TOTAL	1,150,223.58	357,583.35	69,776.26	23,254.69	5,334.13	873.89	138.71	1,607,184.58
HARDWOODS:								
RED ALDER	--	2,861.66	119.74	--	--	--	--	2,981.40
BLACK COTTONWOOD	--	--	--	--	--	--	--	--
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	--	2,861.66	119.74	--	--	--	--	2,981.40
ALL SPECIES	1,150,223.57	360,445.01	69,895.99	23,254.69	5,334.13	873.89	138.70	1,610,165.98

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 5 — Number of growing stock trees on young-growth timberland by species and diameter class, Juneau unit, southeast coastal Alaska, 1970

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)							
	SEEDLINGS LESS THAN 1.0	1.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>THOUSAND TREES</u>							
SOFTWOODS:								
SUBALPINE FIR	5,283.07	756.99	--	--	--	--	--	6,040.06
ALASKA-CEDAR	--	--	--	--	--	--	--	--
SITKA SPRUCE	26,294.98	11,182.36	3,425.41	692.12	133.01	19.79	2.91	41,750.57
LOGSPOLE PINE	--	--	--	--	--	--	--	--
WESTERN HEMLOCK	58,479.58	14,069.93	1,642.96	71.11	65.12	12.62	--	74,341.33
MOUNTAIN HEMLOCK	--	1,290.82	238.44	--	--	--	--	1,529.26
TOTAL	90,057.63	27,300.10	5,306.81	763.23	198.13	32.41	2.91	123,661.22
HARDWOODS:								
RED ALDER	4,570.31	969.41	--	--	--	--	--	5,539.71
BLACK COTTONWOOD	--	--	333.34	16.07	--	--	--	349.41
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	4,570.31	969.41	333.34	16.07	--	--	--	5,889.12
TOTAL SPECIES	94,627.93	28,269.50	5,640.15	779.30	198.14	32.42	2.91	129,550.34

Estimates are subject to sampling error.

-- = no data were collected.

Totals may be off because of rounding.

Table 6 -- Number of growing stock mortality trees per year on timberland by species and diameter class, Juneau unit, southeast coastal Alaska, 1970^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)							
	SEEDLINGS LESS THAN 1.0	1.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>THOUSAND TREES</u>							
SOFTWOODS:								
SUBALPINE FIR	--	--	--	--	--	--	--	
ALASKA-CEDAR	--	--	115.03	51.16	6.70	--	--	172.
SITKA SPRUCE	--	3,093.86	423.73	57.01	64.54	--	--	3,639.
LOGEPOLE PINE	--	--	--	--	--	--	--	
WESTERN HEMLOCK	--	13,122.55	1,661.93	583.16	153.14	32.95	1.90	15,555.
MOUNTAIN HEMLOCK	--	1,590.66	202.97	45.20	27.10	--	--	1,865.
TOTAL	--	17,807.07	2,403.66	736.53	251.48	32.95	1.90	21,233.
HARDWOODS:								
RED ALDER	--	219.55	--	--	--	--	--	219.
BLACK COTTONWOOD	--	--	52.20	--	--	--	--	52.
OTHER HARDWOODS	--	--	--	--	--	--	--	
TOTAL	--	219.55	52.20	--	--	--	--	271.
ALL SPECIES	--	18,026.62	2,455.86	736.52	251.47	32.95	1.90	21,505.

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 7 — Net volume of growing stock on timberland, in cubic feet and volume per acre, by forest type and stand size class, Juneau unit, southeast coastal Alaska, 1970^{1/}

FOREST TYPE AND UNIT	SAWTIMBER		POLETIMBER	SEEDLINGS AND SAPLINGS	NONSTOCKED	ALL CLASSES
	OLD GROWTH	YOUNG GROWTH				
ALASKA FIR: 2/ FT ³	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FT ³ /ACRE	--	--	--	--	--	--
HEMLOCK-SPRUCE:						
FT ³	1,230,105,723	120,635,486	--	0	--	1,350,741,209
ACRES	196,570	20,312	--	4,789	--	221,671
FT ³ /ACRE	6,258	5,939	--	0	--	6,093
WESTERN RED CEDAR:						
FT ³	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FT ³ /ACRE	--	--	--	--	--	--
ALASKA SPRUCE:						
FT ³	447,082,944	304,424,675	--	6,927,070	--	758,252,689
ACRES	61,013	47,388	--	13,032	--	121,432
FT ³ /ACRE	7,328	6,420	--	532	--	6,244
MOUNTAIN HEMLOCK:						
FT ³	1,266,001,984	--	--	--	--	1,266,001,984
ACRES	250,480	--	--	--	--	250,480
FT ³ /ACRE	5,054	--	--	--	--	5,054
WESTERN HEMLOCK:						
FT ³	4,595,909,011	--	29,760,372	0	--	4,625,669,383
ACRES	669,122	--	6,762	4,789	--	680,673
FT ³ /ACRE	6,869	--	4,401	0	--	6,796
ALASKA CEDAR:						
FT ³	264,103,421	--	--	--	--	264,103,421
ACRES	47,379	--	--	--	--	47,379
FT ³ /ACRE	5,574	--	--	--	--	5,574
EDGEPOLE PINE:						
FT ³	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FT ³ /ACRE	--	--	--	--	--	--
WID ALDER:						
FT ³	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FT ³ /ACRE	--	--	--	--	--	--
BLACK COTTONWOOD:						
FT ³	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FT ³ /ACRE	--	--	--	--	--	--
ALL TYPES:						
FT ³	7,803,203,083	424,878,162	29,760,372	6,927,070	--	8,264,768,687
ACRES	1,224,563	67,700	6,762	22,610	--	1,321,636
FT ³ /ACRE	6,372	6,276	4,401	306	--	6,253

Estimates are subject to sampling error.

-- = no data were collected.

Totals may be off because of rounding.

^{1/} Subalpine fir and Pacific silver fir.

Table 8 — Net volume of sawtimber on timberland, in board feet International 1/4-inch rule and volume per acre, by forest type and stand size class, Juneau unit, southeast coastal Alaska, 1970^{1/}

FOREST TYPE AND UNIT	SAWTIMBER		POLETIMBER	SEEDLINGS AND SAPLINGS	NONSTOCKED	ALL CLASSES
	OLD GROWTH	YOUNG GROWTH				
TRUE FIR: ^{2/}						
FBM ^{3/}	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FBM/ACRE	--	--	--	--	--	--
HEMLOCK-SPRUCE:						
FBM	5,678,273,984	468,005,088	--	0	--	6,146,279,072
ACRES	196,570	20,312	--	4,789	--	221,671
FBM/ACRE	28,887	23,041	--	0	--	27,727
WESTERN REDCEDAR:						
FBM	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FBM/ACRE	--	--	--	--	--	--
SITKA SPRUCE:						
FBM	2,174,802,330	1,490,184,083	--	7,803,933	--	3,672,790,346
ACRES	61,013	47,388	--	13,032	--	121,432
FBM/ACRE	35,645	31,446	--	599	--	30,246
MOUNTAIN HEMLOCK:						
FBM	5,257,046,950	--	--	--	--	5,257,046,950
ACRES	250,480	--	--	--	--	250,480
FBM/ACRE	20,988	--	--	--	--	20,988
WESTERN HEMLOCK:						
FBM	20,776,588,883	--	19,730,518	0	--	20,796,319,401
ACRES	669,122	--	6,762	4,789	--	680,673
FBM/ACRE	31,051	--	2,918	0	--	30,553
ALASKA-CEDAR:						
FBM	923,450,534	--	--	--	--	923,450,534
ACRES	47,379	--	--	--	--	47,379
FBM/ACRE	19,491	--	--	--	--	19,491
LODGEPOLE PINE:						
FBM	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FBM/ACRE	--	--	--	--	--	--
RED ALDER:						
FBM	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FBM/ACRE	--	--	--	--	--	--
BLACK COTTONWOOD:						
FBM	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FBM/ACRE	--	--	--	--	--	--
ALL TYPES:						
FBM	34,810,162,682	1,958,189,171	19,730,518	7,803,933	--	36,795,886,304
ACRES	1,224,563	67,700	6,762	22,610	--	1,321,636
FBM/ACRE	28,427	28,925	2,918	345	--	27,841

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Subalpine fir and Pacific silver fir.

^{3/} FBM = Board-foot measure, International 1/4-inch rule.

Table 9 — Net volume of timber, cubic feet, on timberland by class of timber and by softwoods and hardwoods, Juneau unit, southeast coastal Alaska, 1970^{1/}

CLASS OF TIMBER	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>MILLION CUBIC FEET</u>		
SAW-TIMBER TREES:			
SAW-LOG PORTION	7,415.37	14.99	7,430.36
UPPER-STEM PORTION	203.27	0.52	203.79
TOTAL	7,618.64	15.51	7,634.15
POLE-TIMBER TREES	629.93	0.70	630.62
ALL GROWING STOCK	8,248.56	16.21	8,264.77
POUGH TREES	4.68	--	4.68
ROTTEN TREES	224.94	0.80	225.74
REMOVABLE DEAD TREES	159.08	--	159.08
ALL TIMBER	8,637.27	17.00	8,654.27

Estimates are subject to sampling error.

-- = no data were collected.

Totals may be off because of rounding.

Table 10 — Net volume of sawtimber, International 1/4-inch rule, on timberland by species and diameter class, Juneau unit, southeast coastal Alaska, 1970^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)					
	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLAS
	MILLION BOARD FEET					
SOFTWOODS:						
SUBALPINE FIR	--	--	--	--	--	
ALASKA-CEDAR	503.28	311.98	53.63	4.46	--	87
SITKA SPRUCE	2,679.16	3,944.10	2,673.01	1,056.27	457.78	10,81
LOGEPOLE PINE	--	--	--	--	--	
WESTERN HEMLOCK	6,884.40	8,082.32	4,001.11	989.21	115.80	20,07
MOUNTAIN HEMLOCK	2,273.34	2,132.08	488.17	76.04	--	4,96
TOTAL	12,340.19	14,470.48	7,215.93	2,125.98	573.58	36,72
HAROWOODS:						
RED ALDER	15.77	--	--	--	--	1
BLACK COTTONWOOD	48.52	5.45	--	--	--	5
OTHER HAROWOODS	--	--	--	--	--	
TOTAL	64.29	5.45	--	--	--	6
ALL SPECIES	12,404.48	14,475.93	7,215.93	2,125.98	573.58	36,79

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 11 — Net volume of old growth, International 1/4-inch rule, on timberland by species and diameter class, Juneau unit, southeast coastal Alaska, 1970^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)					
	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSI
	MILLION BOARD FEET					
SOFTWOODS:						
SUBALPINE FIR	--	--	--	--	--	
ALASKA-CEDAR	503.28	311.98	53.63	4.46	--	873.1
SITKA SPRUCE	1,939.82	3,385.60	2,495.80	1,001.11	450.68	9,273.1
LOGEPOLE PINE	--	--	--	--	--	
WESTERN HEMLOCK	6,634.11	8,049.58	3,933.35	962.93	115.80	19,695.1
MOUNTAIN HEMLOCK	2,255.99	2,132.08	488.17	76.04	--	4,952.1
TOTAL	11,333.20	13,879.23	6,970.94	2,044.54	566.48	34,794.1
HARDWOODS:						
RED ALDER	15.77	--	--	--	--	15.1
BLACK COTTONWOOD	--	--	--	--	--	
OTHER HAROWOODS	--	--	--	--	--	
TOTAL	15.77	--	--	--	--	15.1
ALL SPECIES	11,348.97	13,879.23	6,970.94	2,044.54	566.48	34,810.1

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 12 — Net volume of young growth, International 1/4-inch rule, on timberland by species and diameter class, Juneau unit, southeast coastal Alaska, 1970^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)					
	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
<u>MILLION BOARD FEET</u>						
SOFTWOODS:						
SUBALPINE FIR	--	--	--	--	--	--
ALASKA-CEGAR	--	--	--	--	--	--
SITKA SPRUCE	739.34	558.51	177.22	55.16	7.10	1,537.33
LOGEPOLE PINE	--	--	--	--	--	--
WESTERN HEMLOCK	250.29	32.74	67.77	26.28	--	377.08
MOUNTAIN HEMLOCK	17.35	--	--	--	--	17.35
TOTAL	1,006.98	591.25	244.98	81.44	7.10	1,931.75
HAROWOODS:						
RED ALDER	--	--	--	--	--	--
BLACK COTTONWOOD	48.52	5.45	--	--	--	53.97
OTHER HAROWOODS	--	--	--	--	--	--
TOTAL	48.52	5.45	--	--	--	53.97
ALL SPECIES	1,055.51	596.70	244.98	81.44	7.10	1,985.72

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 13 — Net volume of growing stock, cubic feet, on timberland by species and diameter class, Juneau unit, southeast coastal Alaska, 1970^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)						
	5.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
<u>MILLION CUBIC FEET</u>							
SOFTWOODS:							
SUBALPINE FIR	2.71	--	--	--	--	--	2.71
ALASKA-CEDAR	47.20	139.23	73.61	12.53	0.86	--	273.43
SITKA SPRUCE	91.67	571.00	715.84	466.67	181.08	78.64	2,104.89
LOGEPOLE PINE	--	--	--	--	--	--	--
WESTERN HEMLOCK	371.19	1,513.05	1,676.70	833.14	204.44	25.91	4,624.42
MOUNTAIN HEMLOCK	117.14	528.63	468.72	110.83	17.80	--	1,243.11
TOTAL	629.92	2,751.92	2,934.85	1,423.16	404.16	104.55	8,248.56
HAROWOODS:							
RED ALDER	0.70	3.53	--	--	--	--	4.23
BLACK COTTONWOOD	--	10.85	1.12	--	--	--	11.98
OTHER HAROWOODS	--	--	--	--	--	--	--
TOTAL	0.70	14.38	1.12	--	--	--	16.21
ALL SPECIES	630.62	2,766.30	2,935.97	1,423.16	404.16	104.55	8,264.77

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 14 — Net volume of old growth, cubic feet, on timberland by species and diameter class, Juneau unit, southeast coastal Alaska, 1970 1/

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)						
	5.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
MILLION CUBIC FEET							
SOFTWOODS:							
SUBALPINE FIR	--	--	--	--	--	--	--
ALASKA-CEDAR	47.20	139.23	73.61	12.53	0.86	--	273.4
SITKA SPRUCE	58.61	432.13	622.33	434.28	171.66	77.30	1,796.3
LOGEPOLE PINE	--	--	--	--	--	--	--
WESTERN HEMLOCK	319.46	1,460.59	1,669.64	817.88	198.95	25.91	4,492.4
MOUNTAIN HEMLOCK	115.43	524.03	468.72	110.83	17.80	--	1,236.8
TOTAL	540.71	2,555.99	2,834.29	1,375.51	389.26	103.21	7,798.9
HARDWOODS:							
RED ALDER	0.70	3.53	--	--	--	--	4.2
BLACK COTTONWOOD	--	--	--	--	--	--	--
OTHER HARDWOODS	--	--	--	--	--	--	--
TOTAL	0.70	3.53	--	--	--	--	4.2
ALL SPECIES	541.41	2,559.52	2,834.29	1,375.51	389.26	103.21	7,803.2

Estimates are subject to sampling error.

-- = no data were collected.

1/ Totals may be off because of rounding.

Table 15 — Net volume of young growth, cubic feet, on timberland by species and diameter class, Juneau unit, southeast coastal Alaska, 1970 1/

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)						
	5.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
MILLION CUBIC FEET							
SOFTWOODS:							
SUBALPINE FIR	2.71	--	--	--	--	--	2.7
ALASKA-CEDAR	--	--	--	--	--	--	--
SITKA SPRUCE	33.06	138.87	93.51	32.39	9.42	1.34	308.5
LOGEPOLE PINE	--	--	--	--	--	--	--
WESTERN HEMLOCK	51.73	52.46	7.06	15.26	5.49	--	131.9
MOUNTAIN HEMLOCK	1.71	4.60	--	--	--	--	6.3
TOTAL	89.21	195.93	100.56	47.65	14.90	1.34	449.5
HARDWOODS:							
RED ALDER	--	--	--	--	--	--	--
BLACK COTTONWOOD	--	10.85	1.12	--	--	--	11.9
OTHER HARDWOODS	--	--	--	--	--	--	--
TOTAL	--	10.85	1.12	--	--	--	11.9
ALL SPECIES	89.21	206.78	101.69	47.65	14.90	1.34	461.5

Estimates are subject to sampling error.

-- = no data were collected.

1/ Totals may be off because of rounding.

Table 16 — Net annual growth of growing stock, cubic feet, on timberland by species and stand size class, Juneau unit, southeast coastal Alaska, 1970^{1/}

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND CUBIC FEET</u>					
SOFTWOODS:					
SUBALPINE FIR	--	--	6.12	--	6.12
ALASKA-CEDAR	--	--	--	485.75	485.75
SITKA SPRUCE	--	^{2/} -3.69	1,734.78	6,242.61	7,973.71
LOGEPOLE PINE	--	--	--	40.44	40.44
WESTERN HEMLOCK	--	650.55	1,852.58	2,007.68	4,510.81
MOUNTAIN HEMLOCK	--	--	--	507.70	507.70
TOTAL	--	646.86	3,593.47	9,284.18	13,524.41
HARDWOODS:					
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	-55.86	65.34	9.48
OTHER HARDWOODS	--	--	--	--	--
TOTAL	--	--	-55.86	65.34	9.48
ALL SPECIES	--	646.86	3,537.62	9,349.51	13,533.99

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Negative net annual growth indicates that annual mortality exceeded gross annual growth.

Table 17 — Net annual growth of sawtimber, International 1/4-inch rule, on timberland by species and stand size class, Juneau unit, southeast coastal Alaska, 1970 ^{1/}

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
SOFTWOODS:					
SUBALPINE FIR	--	--	28.01	--	28.0
ALASKA-CEDAR	--	--	--	844.97	844.9
SITKA SPRUCE	--	116.86	8,043.39	38,328.73	46,488.9
LOGEPOLE PINE	--	--	--	161.45	161.4
WESTERN HEMLOCK	--	355.88	5,102.66	3,844.72	9,303.2
MOUNTAIN HEMLOCK	--	--	--	1,728.86	1,728.8
TOTAL	--	472.75	13,174.06	44,908.72	58,555.5
HARDWOODS:					
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	2/ -201.90	418.83	216.9
OTHER HARDWOODS	--	--	--	--	--
TOTAL	--	--	-201.90	418.83	216.9
ALL SPECIES	--	472.75	12,972.16	45,327.55	58,772.4

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Negative net annual growth indicates that annual mortality exceeded gross annual growth.

Table 18 — Net annual growth of growing stock, cubic feet, on timberland by forest type and stand size class, Juneau unit, southeast coastal Alaska, 1970 ^{1/}

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
HEMLOCK-SPRUCE	--	--	244.58	69.53	314.11
SITKA SPRUCE	--	--	1,214.85	3,596.52	4,811.37
TRUE FIR ^{2/}	--	--	--	--	--
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	646.86	2,078.19	5,683.46	8,408.51
ALASKA-CEDAR	--	--	--	--	--
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	--	--	--
ALL TYPES	--	646.86	3,537.62	9,349.51	13,533.99

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Subalpine fir and Pacific silver fir.

Table 19 — Net annual growth of sawtimber, International 1/4-inch rule, on timberland by forest type and stand size class, Juneau unit, southeast coastal Alaska, 1970 ^{1/}

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND BOARD FEET</u>					
HEMLOCK-SPRUCE	--	--	1,286.32	1,686.56	2,972.88
SITKA SPRUCE	--	--	5,098.99	20,125.45	25,224.43
TRUE FIR ^{2/}	--	--	--	--	--
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	472.75	6,586.85	23,515.54	30,575.14
ALASKA-CEDAR	--	--	--	--	--
LOGPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	--	--	--
ALL TYPES	--	472.75	12,972.16	45,327.55	58,772.45

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Subalpine fir and Pacific silver fir.

Table 20 — Average annual mortality of growing stock, cubic feet, on timberland by species and stand size class, Juneau unit, southeast coastal Alaska, 1970 ^{1/}

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND CUBIC FEET</u>					
SOFTWOODS:					
SUBALPINE FIR	--	--	--	--	--
ALASKA-CEDAR	--	--	--	547.95	547.95
SITKA SPRUCE	--	--	264.35	10,893.62	11,157.98
LOGPOLE PINE	--	--	--	--	--
WESTERN HEMLOCK	--	40.18	164.89	25,895.11	26,100.17
MOUNTAIN HEMLOCK	--	--	--	--	--
TOTAL	--	40.18	429.24	37,336.68	37,806.10
HARDWOODS:					
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	110.71	--	110.71
OTHER HARDWOODS	--	--	--	--	--
TOTAL	--	--	110.71	--	110.71
ALL SPECIES	--	40.18	539.95	37,336.68	37,916.80

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 21 — Average annual mortality of sawtimber, International 1/4-inch rule, on timberland by species and stand size class, Juneau unit, southeast coastal Alaska, 1970^{1/}

SPECIES	SEEDLING AND SAPLING		POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
	<u>THOUSAND BOARD FEET</u>					
SOFTWOODS:						
SUBALPINE FIR	--	--	--	--	--	--
ALASKA-CEDAR	--	--	--	--	1,966.77	1,966.77
SITKA SPRUCE	--	--	--	1,270.90	50,597.94	51,868.84
LOGEPOLE PINE	--	--	--	--	--	--
WESTERN HEMLOCK	--	--	64.60	271.97	120,301.22	120,637.79
MOUNTAIN HEMLOCK	--	--	--	--	--	--
TOTAL	--	--	64.60	1,542.87	172,865.93	174,473.40
HARDWOODS:						
RED ALDER	--	--	--	--	--	--
BLACK COTTONWOOD	--	--	--	536.63	--	536.63
OTHER HARDWOODS	--	--	--	--	--	--
TOTAL	--	--	--	536.63	--	536.63
ALL SPECIES	--	--	64.60	2,079.51	172,865.93	175,010.04

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 22 — Average annual mortality of growing stock, cubic feet, on timberland by forest type and stand size class, Juneau unit, southeast coastal Alaska, 1970^{1/}

FOREST TYPE	SEEDLING AND SAPLING		POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
	<u>THOUSAND CUBIC FEET</u>					
HEMLOCK-SPRUCE	--	--	--	260.33	8,805.16	9,065.49
SITKA SPRUCE	--	--	--	110.71	2,582.83	2,693.54
TRUE FIR ^{2/}	--	--	--	--	--	--
MOUNTAIN HEMLOCK	--	--	--	--	--	--
WESTERN HEMLOCK	--	--	40.18	168.91	25,948.68	26,157.78
ALASKA-CEDAR	--	--	--	--	--	--
LOGEPOLE PINE	--	--	--	--	--	--
RED ALDER	--	--	--	--	--	--
BLACK COTTONWOOD	--	--	--	--	--	--
ALL TYPES	--	--	40.18	539.95	37,336.68	37,916.80

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Subalpine fir and Pacific silver fir.

Table 23 — Average annual mortality of sawtimber, International 1/4-inch rule, on timberland by forest type and stand size class, Juneau unit, southeast coastal Alaska, 1970^{1/}

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
THOUSAND BOARD FEET					
HEMLOCK-SPRUCE	--	--	1,170.69	40,518.06	41,688.75
SITKA SPRUCE	--	--	536.63	11,624.57	12,161.20
TRUE FIR 2/	--	--	--	--	--
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	64.60	372.19	120,723.29	121,160.08
ALASKA-CEDAR	--	--	--	--	--
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	--	--	--
ALL TYPES	--	64.60	2,079.51	172,865.93	175,010.04

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Subalpine fir and Pacific silver fir.

Table 24 — Summary of timber harvest, Scribner and International 1/4-inch rules, in the Chatham and North Tongass working circles of the Tongass National Forest, southeast coastal Alaska, 1970-80

WORKING CIRCLE AND YEAR OF HARVEST	VOLUME CUT, INTERNATIONAL 1/4-INCH RULE	VOLUME CUT, SCRIBNER RULE, BUREAU SCALE ^{1/}	VALUE
	- - THOUSAND BOARD FEET - -		DOLLARS
NORTH TONGASS:			
1970	2,974,062.60	2,520,259.60	\$1,517,364.19
1971	2,700,787.70	2,288,682.90	1,621,128.19
1972	2,677,856.80	2,269,250.90	1,612,678.56
1973	2,766,105.10	2,344,033.70	1,700,122.04
CHATHAM:			
1974	1,103,448.10	935,076.40	571,006.82
1975	1,524,337.30	1,291,743.40	398,758.96
1976	1,680,595.90	1,424,159.00	598,060.06
1977	1,906,058.20	1,615,218.70	386,239.23
1978	1,482,783.10	1,256,529.80	186,210.70
1979	1,786,677.20	1,514,053.70	220,225.95
1980	1,632,575.30	1,383,465.70	207,111.05
TOTAL	22,235,287.30	18,842,473.80	9,018,905.75

^{1/} Scribner, Bureau Scale volume = International 1/4-inch volume x 0.84. (Bones, James E. Relating products output to inventory estimates on the Tongass Forest. Juneau, AK: Northern Forest Experiment Station; 1963. Office report.)

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Statistical report prepared by: Vernon J. LaBau, Willem W.S. van Hees, Louis Naumar and Dwight Emery.

Metric Equivalents

1 inch = 2.54 centimeters (cm)

1 foot = 0.3048 meter (m)

1 mile = 1.609 kilometers (km)

1 acre = 0.4047 hectares (ha)

1 cubic foot = 0.0283 cubic meter (m³)

1 cubic foot per acre = 0.07 cubic meter per hectare (m³/ha)

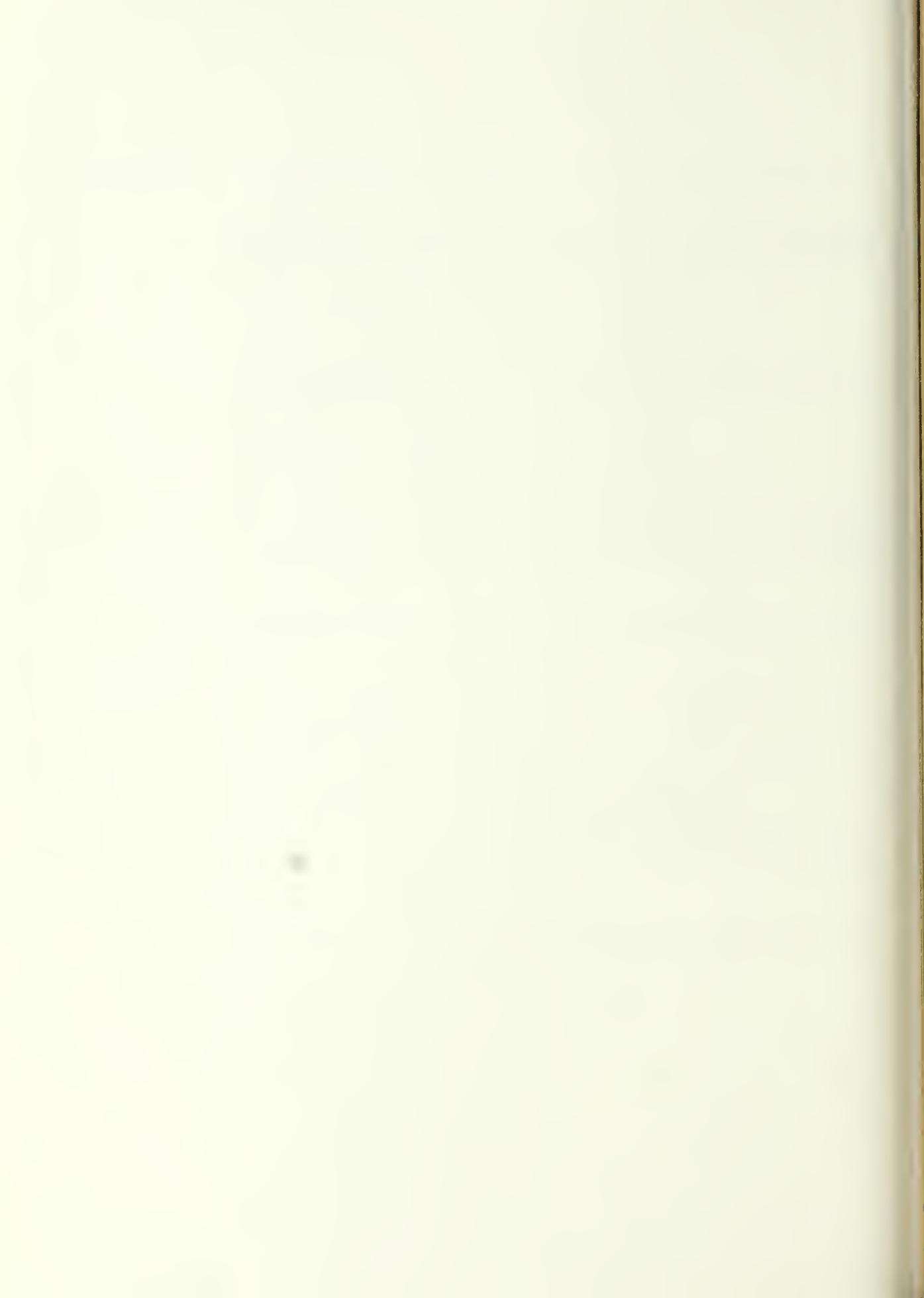
20 cubic feet per acre = 1.3994 cubic meters per hectare (m³/ha)

1 square foot of basal area per acre = 0.2296 square meters per hectare (m²/ha)

Literature Cited

Bickford, C.A. The sampling design used in the forest survey of the Northeast. *J. For.* 50(4): 290-393; 1952.

Viereck, Leslie A.; Little, Elbert E., Jr. Alaska trees and shrubs. *Agric. Handb.* 410. Washington, DC: U.S. Department of Agriculture; 1972. 265 p.



LaBau, Vernon J.; van Hees, Willem W.S. Timber resource statistics for the Juneau inventory unit, Alaska, 1970. Resour. Bull. PNW-98. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 30 p.

Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality are presented for the 1970 timber inventory of the Juneau unit, Alaska. Estimates for commercial forest land area total 1.3 million acres (535 000 ha) with a net growing stock volume of 8.3 billion cubic feet (234 million m³), and annual net growth and mortality of 13.5 and 37.9 million cubic feet (0.4 and 1.1 million m³), respectively.

Keywords: Forest surveys, timber resources, timber inventory, resources (forest), statistics (forest), Alaska (Juneau).

The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.

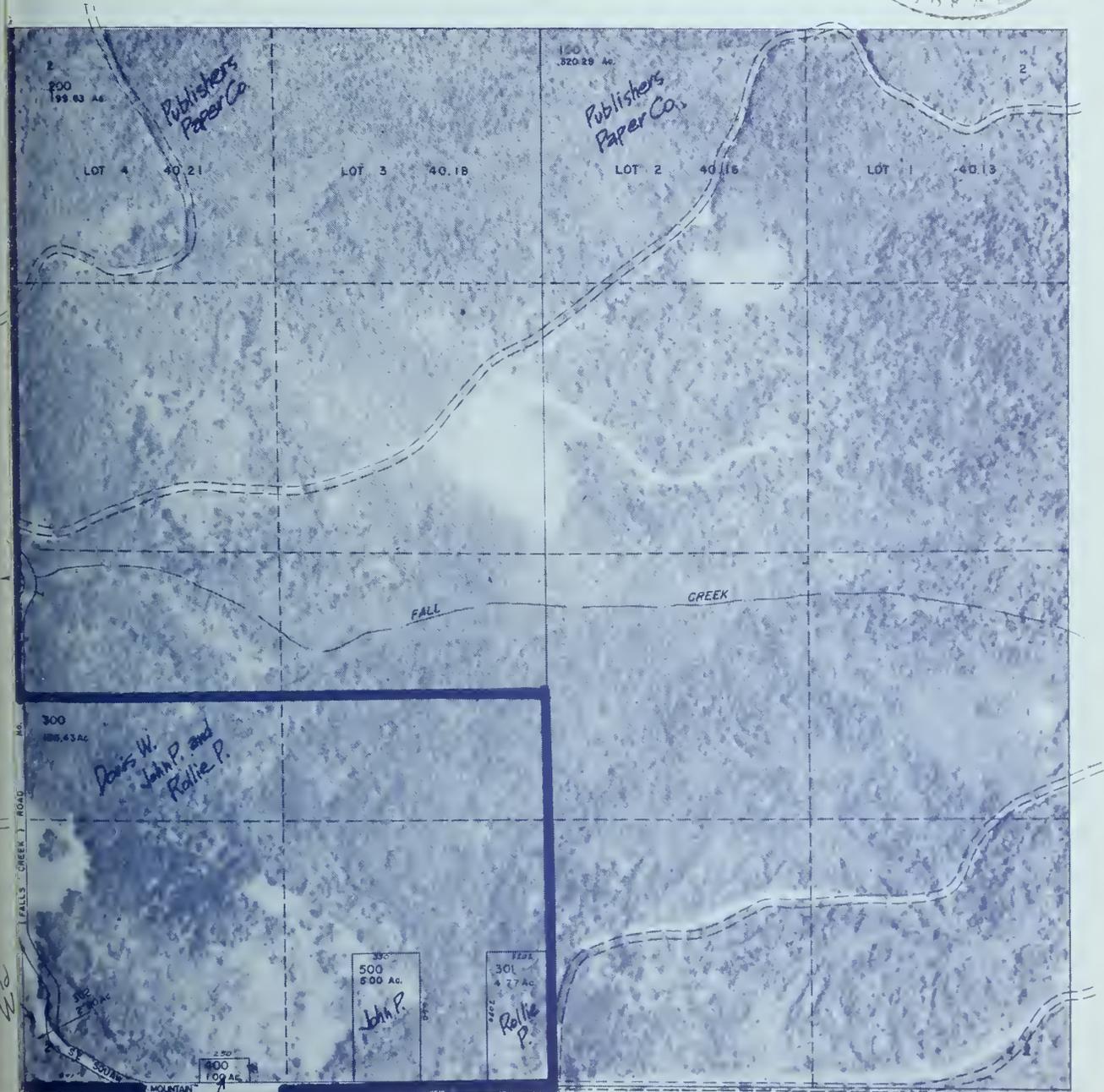
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The Privately Owned Timber Resources of Western Oregon

Donald R. Gedney



SECTION 2 T.4S. R.5E. W.M.
CLACKAMAS COUNTY

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Abstract

Gedney, Donald R. The privately owned timber resources of western Oregon. Resour. Bull. PNW-99. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 29 p.

Timber resource statistics from a 1973-76 inventory are presented for private timberland in western Oregon. Inventories usually classify private owners as either forest industry or nonindustrial private. For this report, however, the nonindustrial private classification has been further disaggregated into farmer, individual, and corporate owners. For all private owner classes, the statistics are presented by size of the holding.

Keywords: Forest surveys, timberland, timber resources, statistics (forest), ownership (forest), nonindustrial private ownership, western Oregon.

Summary

Timber resource statistics from a 1973-76 inventory are presented for private timberland in western Oregon. Inventories usually classify private owners as either forest industry or nonindustrial private. For this report, however, the nonindustrial private classification has been further disaggregated into farmer, individual, and corporate owners. For all private owner classes, the statistics are presented by size of holding.

In western Oregon, 61 percent of all private timberland is owned by forest industry, 17 percent by farmers, 16 percent by individuals, and 6 percent by corporations. Of the timberland owned by forest industry, 96 percent is in holdings of more than 5,000 acres; 84 percent of the farmer-owned timberland is in holdings of 11-1,000 acres; and 94 percent of individual holdings are less than 1,000 acres — with 17 percent less than 10 acres. The size of corporate holdings encompasses a wide range, with 47 percent more than 5,000 acres. Site productivity frequently does not increase with size of holding; an exception is forest industry whose larger holdings have the greater proportion of high-site timberland.

Preface

Forest Inventory and Analysis (formerly Forest Survey) is a nationwide project of the USDA Forest Service authorized by the Forest and Rangeland Renewable Resources Research Act of 1978. Work units of the project, located at Forest Service Experiment Stations, conduct forest inventories throughout the 50 States. The Pacific Northwest Forest and Range Experiment Station at Portland, Oregon, is responsible for inventories in the States of Alaska, California, Hawaii, Oregon, and Washington.

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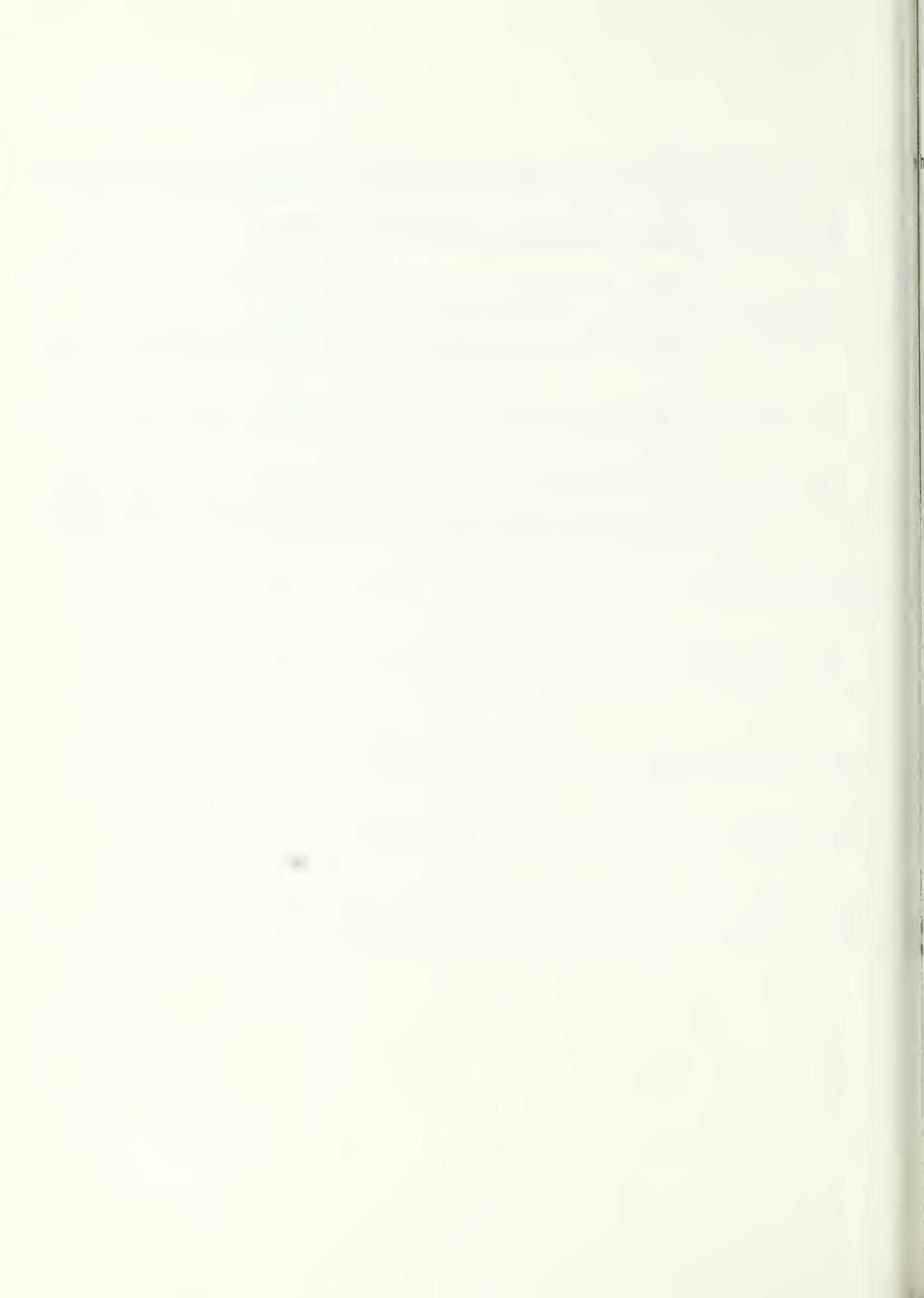
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Table 44 — Volume of growing stock on farmer-owned timberland by size of holding class and by softwoods and hardwoods, southwest Oregon, January 1, 1975



This report presents statistics for private timberland from a 1973-76 inventory of western Oregon (for area inventoried, see figure 1; for owner classes, see figure 2). It differs from previous reports on this inventory (Bassett 1977, Gedney 1982, Jacobs 1978, Mei 1979) in that the ownership classification of nonindustrial private is disaggregated into farmer, individual, and corporate owners. For all private owner classes, including forest industry, the statistics are presented by size of holding.

Field data for all private timberland were collected by the Portland work unit of Forest Inventory and Analysis (FIA), Pacific Northwest Forest and Range Experiment Station. The statistical tables presented in this report follow the same general format as that used in the publications previously referenced. Limitations in the reliability of data result in presentation of only selected tables.

The Forest Service has traditionally inventoried private timberland by two ownership classes: forest industry and nonindustrial private. The selection of which private owner classes to inventory is important because each class is treated as homogeneous and portraying a common attitude toward management and use of timberland. Although it is commonly agreed that forest industry has generally similar objectives, nonindustrial private is a catchall class that includes all other private owners: some are interested in timber management, but others may own timberland simply for recreational or esthetic enjoyment. In this report, the traditional nonindustrial private classification is disaggregated into farmer, individual, and corporate owners. These classes were selected prior to the inventory of western Oregon because they appeared to represent owners who hold timberland for different reasons. In another report,¹ these ownership classes are examined to assess the owners' apparent attitude toward management of their timberland for timber production.

Size of timberland holding has long been related to the forest management objectives of the owner. Generally, the smaller the holding, the more the owner is concerned with recreational and esthetic values; the larger the holding, the more the owner is concerned with economic returns through land appreciation or timber harvest. Public and private programs of assistance to nonindustrial timberland owners frequently use size of holding as a requirement for participation. For instance, the Forest Incentives Program in western Oregon is limited to owners of less than 1,000 acres and more than 10 acres.

Private owners hold about 46 percent, or 6,222,000 of the 13,667,000 acres of timberland in all ownerships in western Oregon and 28 percent, or 15,807 of the 56.3 billion cubic feet of growing stock in western Oregon.

¹ Gedney, Donald R. The nonindustrial private ownership in western Oregon. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station. (Manuscript in preparation.)

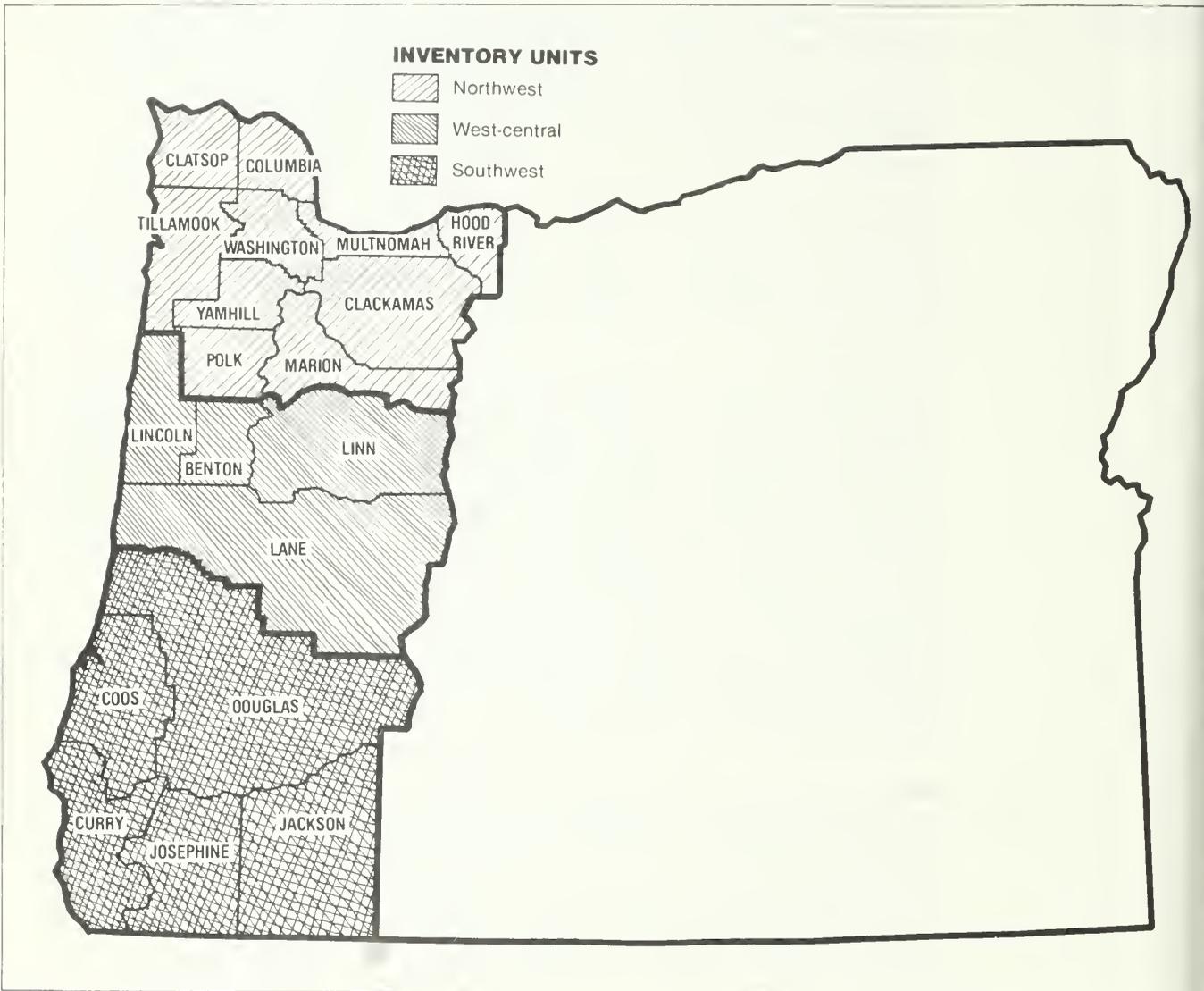


Figure 1. — Area inventoried in western Oregon, 1973-76.

Forest Industry Owned

In western Oregon, forest industry owns 61 percent of all private timberland and 67 percent of all private growing stock. Almost all (96 percent) of forest industry timberland is owned by companies with more than 5,000 acres in Oregon, and 72 percent is owned by companies that have more than 100,000 acres.

In general, the larger the size of the timber holding, the more productive the timberland. Almost one-quarter of the forest industry lands in holdings of over 100,000 acres are on sites of high productivity, whereas only about 13 percent of the smaller holdings are on similar sites.

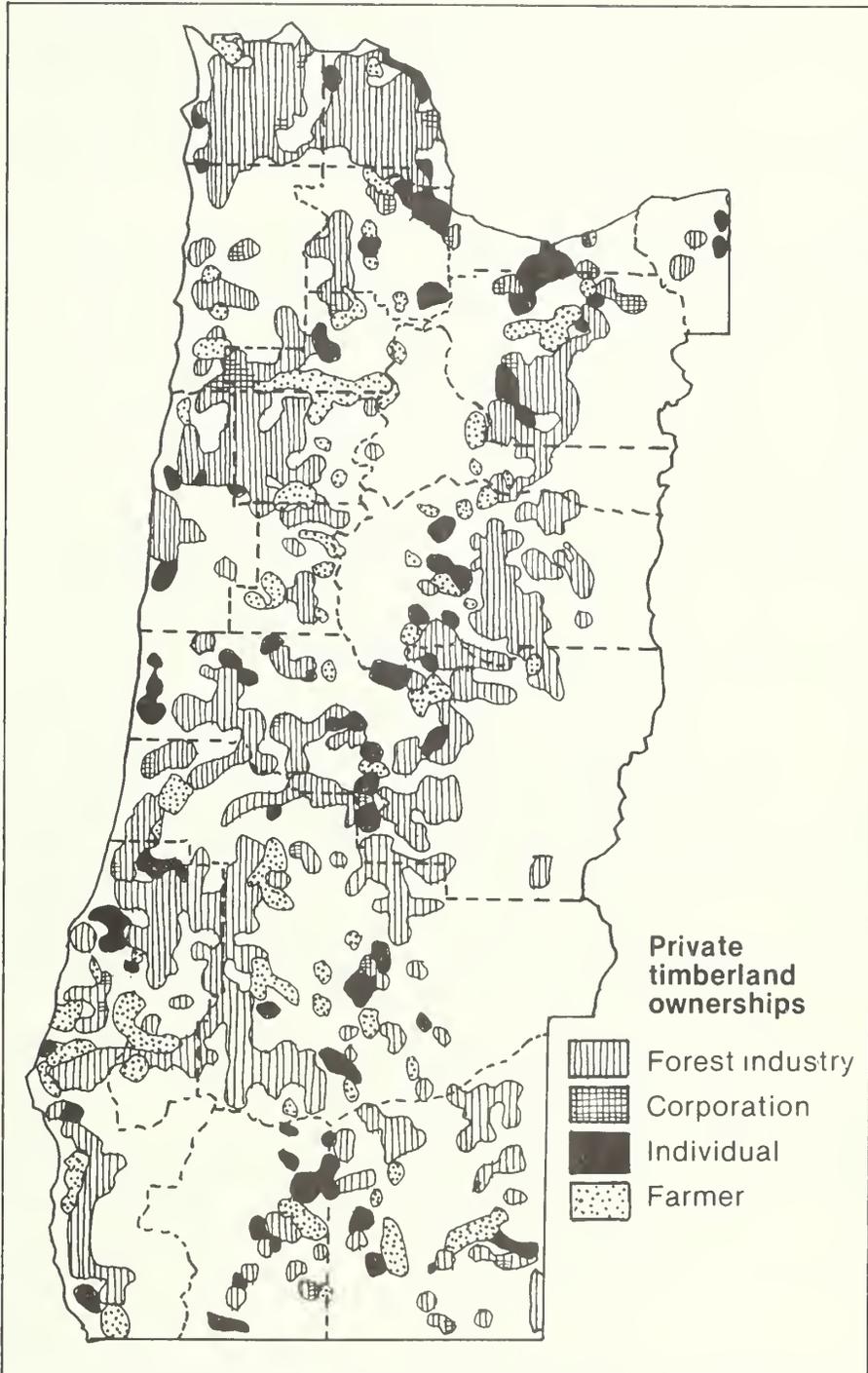


Figure 2. — Private timberland owner classes in western Oregon, 1973-76.

In northwest Oregon, an area of high site productivity, 93 percent of all forest industry-owned timberland is owned by companies having holdings of more than 100,000 acres. In west-central Oregon, which generally has lower site productivity than northwest Oregon, 79 percent of forest industry-owned timberland is owned by firms having more than 100,000 acres. In southwest Oregon, where average site productivity is still lower, 54 percent of forest industry timberland is in holdings of more than 100,000 acres.

Farmer Owned

In western Oregon, 17 percent of all private timberland and 13 percent of all private growing stock is owned by farmers. Eighty-four percent of farmer-owned timberland is in holdings between 11 and 1,000 acres, 2 percent in holdings of 10 acres or less, and 13 percent in holdings between 1,001 and 5,000 acres in size. Forty-eight percent of farmer-owned timberland is on sites of low productivity, 40 percent on sites of medium productivity, and 11 percent on sites of high productivity. Holdings of 501 to 5,000 acres are 35 percent in medium- to high-productivity timberland, whereas 66 percent of the holdings between 11 and 500 acres are on similar sites.

Individually Owned

Sixteen percent of all private timberland and 13 percent of all private growing stock is owned by individuals. Timberland owned by individuals is in small holdings, with 94 percent of all holdings 1,000 acres or less in size. This is the only owner class with a substantial proportion (18 percent) in holdings of 10 acres or less in size. The 1- to 10-acre tracts are concentrated in northwest and west-central Oregon.

Forty-seven percent of individually owned timberland is on sites of low productivity, 4 percent medium productivity, and 12 percent high productivity. Productivity varies by size of ownership, with holdings of 500 acres or less having a higher proportion of high-productivity timberland, decreasing with increasing size. This is the opposite of forest industry, where productivity increases with increasing size of holding.

Corporate Owned

Corporate-owned timberland is 6 percent of all private timberland and contains 7 percent of all private growing stock. Holdings range in size from 10 acres or less to more than 100,000 acres. Not quite half (48 percent) of the corporate-owned timberland is in holdings of more than 5,000 acres.

Fifty-seven percent of all corporate-owned timberland is of medium site productivity, with each size of holding class dominated by sites of medium productivity.

Inventory Procedures

The general inventory procedure is described in four reports (Gedney 1982, Bassett 1977, Jacobs 1978, and Mei 1979). The sampling design used was double sampling for stratification (Cochran 1963). The 20,400 photo points on private timberland were classified as forest industry or nonindustrial private, by major land class (timberland, other forest, or nonforest), and by stand volume class. Each of the 1,275 field plot locations was visited. Forest industry-owned timberland was identified through maps where available. Other owners were identified from information furnished by the county tax assessors, from records of tree farmers enrolled with the Industrial Forestry Association, and from other local sources. Information by size of holding was obtained from forest industries and from the other sources previously mentioned.

Estimates for farmer, individual, and corporate owners were based on proportioning of the field plots in the nonindustrial private stratum.

Reliability of Inventory Data

All area and volume statistics reported are based on sampling and are subject to sampling error. Confidence intervals (0.68-probability level) for each estimate are presented in each statistical table.

Terminology

Class of timber — A classification of trees as growing stock, cull, and salvable dead. Growing stock trees are subdivided into poletimber and sawtimber trees.

Corporate-owned timberland — Timberland owned by companies, individuals identified as tree farmers by the Industrial Forestry Association, and individual owners of large areas, who manage their timberland for commercial timber production.

Diameter class — A classification of trees based on diameter outside bark measured at breast height, 4-1/2 feet (1.37 m) above the ground. D.b.h. is the common abbreviation for "diameter of breast height."

Farmer-owned timberland — Timberland owned by companies or individuals who own a farm.

Forest industry-owned timberland — Timberland owned by companies or individuals operating wood-using plants.

Forest land — Land at least 10 percent stocked by live trees or land formerly having such tree cover and not currently developed for nonforest use.

Growing stock trees — All live trees with the exception of cull trees.

Growing stock volume — Net volume in cubic feet of live sawtimber and poletimber growing stock trees from stump to a minimum 4-inch (10-cm) top (of central stem) outside bark. Net volume equals gross volume less deduction for rot and missing bole sections.

Hardwoods — Trees that are angiosperms, usually broad-leaved, and often deciduous.

Individually owned timberland — Timberland owned by individuals who do not own a farm or a primary wood processing plant.

Land area — Area reported as land by the Bureau of the Census. 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 (200 m) wide; and lakes, reservoirs, and ponds less than 40 acres (16 ha) in area.

Land class — A classification of land by major use. The minimum size area for classification is 1 acre (0.4 ha).

Mean annual increment — A measure of the productivity of forest land in terms of the average increase in cubic-foot volume per acre per year. For a given species and site index the average is based on the number of years needed for the mean annual increment to culminate in fully stocked stands.

Mortality — Volume of sound wood in trees dying from natural causes during a specified period.

Net annual growth — The net increase in volume of trees during a specified year. Components of net annual growth of trees: (a) the increment in net volume of trees alive at the beginning of the specified year and surviving to the year's end, plus (b) the net volume of trees reaching sawtimber or poletimber size during the year, minus (c) the net volume of trees that died during the year.

Nonstocked areas — Timberland less than 10 percent stocked with growing-stock trees.

Other private lands — All privately owned lands except those classed as forest-industry lands.

Poletimber stands — Stands with a mean diameter (weighted by basal area) from 5.0 inches (12.5 cm) to 9.0 inches (22.5 cm) if softwood and from 5.0 inches (12.5 cm) to 11.00 inches (27.5 cm) if hardwood.

Sapling and seedling stands — Stands with a mean diameter (weighted by basal area) less than 5.0 inches (12.5 cm).

Sawtimber stands — Stands with a mean diameter (weighted by basal area) larger than 9.0 inches (22.5 cm) if softwood and larger than 11.0 inches (27.5 cm) if hardwood.

Site class — A classification of the potential productivity of forest land in terms of mean annual increment. High site includes timberland having the potential to produce 165 cubic feet or more per acre per year; medium site, 120-164 cubic feet per acre per year; and low site, 20-119 cubic feet per acre per year.

Size of holding — A classification of amount of timberland owned. Size classes were arrived at by first identifying owners who owned more than 5,000 acres in Oregon and then identifying owners of lessor holdings on a county-wide basis.

Softwoods — Coniferous trees, usually evergreen with needles or scalelike leaves.

Timberland — Forest land capable of producing 20 cubic feet per acre (1.4 m³/ha) per year of industrial wood.

ables

Table 1 — Area of privately owned timberland by size of holding class and owner, western Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	-THOUSAND ACRES-				
	FOREST INDUSTRY	CORPORATE	INDIVIDUAL	FARMER	ALL OWNERS
0-10	--	4 ± 4	173 ± 35	21 ± 12	198 ± 37
11-100	--	33 ± 16	292 ± 46	268 ± 39	593 ± 57
101-500	--	58 ± 26	227 ± 39	291 ± 48	577 ± 60
501-1,000	13 ± 9	26 ± 13	235 ± 38	349 ± 44	623 ± 52
1,001-5,000	144 ± 36	79 ± 23	58 ± 21	140 ± 36	421 ± 59
5,001-50,000	769 ± 67	66 ± 23	--	7 ± 7	842 ± 69
50,001-100,000	138 ± 29	49 ± 19	--	--	187 ± 35
100,001-500,000	1,553 ± 82	66 ± 19	--	--	1,619 ± 84
500,001 OR MORE	1,163 ± 74	--	--	--	1,163 ± 74
ALL CLASSES	3,780 ± 49	380 ± 52	984 ± 67	1,078 ± 68	6,222 ± 56

¹Totals may be off because of rounding.

²Confidence intervals are at the 0.68-probability level.

Table 2 — Area of privately owned timberland by size of holding class and siteclass, western Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	SITE CLASS <u>3/</u> (CUBIC FEET)			
	LOW	MEDIUM	HIGH	ALL CLASSES
0-10	79 ± 23	93 ± 29	26 ± 14	198 ± 37
11-500	468 ± 56	578 ± 57	124 ± 29	1,170 ± 65
501-5,000	568 ± 49	348 ± 48	128 ± 27	1,045 ± 66
5,001-100,000	503 ± 59	393 ± 54	132 ± 34	1,029 ± 76
100,001 OR MORE	604 ± 64	1,534 ± 91	643 ± 59	2,781 ± 85
ALL CLASSES	2,222 ± 98	2,946 ± 110	1,054 ± 78	6,222 ± 56

¹Totals may be off because of rounding.

²Confidence intervals are at the 0.68-probability level.

³Capacity for cubic-foot annual growth per acre at culmination of mean annual growth on fully-stocked natural stands.

Table 3 — Area of forest industry-owned timberland by size of holding class and site class, western Oregon, January 1, 1977^{1/ 2/}

SIZE OF HOLDING CLASS	SITE CLASS <u>3/</u> (CUBIC FEET)			
	LOW	MEDIUM	HIGH	ALL CLASSES
<u>ACRES</u>	- - - - - <u>THOUSAND ACRES</u> - - - - -			
1-10	--	--	--	--
11-500	--	--	--	--
501-5,000	74 ± 27	65 ± 24	19 ± 11	158 ± 38
5,001-100,000	462 ± 58	328 ± 50	118 ± 32	907 ± 71
100,001 OR MORE	585 ± 63	1,492 ± 90	638 ± 59	2,715 ± 83
ALL CLASSES	1,120 ± 75	1,885 ± 92	775 ± 67	3,780 ± 49

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

^{3/}Capacity for cubic-foot annual growth per acre at culmination of mean annual growth on fully-stocked natural stands.

Table 4 — Area of corporate-owned timberland by size of holding class and site class, western Oregon, January 1, 1977^{1/ 2/}

SIZE OF HOLDING CLASS	SITE CLASS <u>3/</u> (CUBIC FEET)			
	LOW	MEDIUM	HIGH	ALL CLASSES
<u>ACRES</u>	- - - - - <u>THOUSAND ACRES</u> - - - - -			
1-10	4 ± 4	--	--	4 ± 4
11-500	36 ± 16	50 ± 25	5 ± 5	91 ± 30
501-5,000	18 ± 9	69 ± 23	18 ± 11	105 ± 27
5,001-100,000	42 ± 18	58 ± 21	15 ± 11	114 ± 29
100,001 OR MORE	19 ± 14	42 ± 15	5 ± 5	66 ± 19
ALL CLASSES	119 ± 30	218 ± 42	43 ± 17	380 ± 52

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

^{3/}Capacity for cubic-foot annual growth per acre at culmination of mean annual growth on fully-stocked natural stands.

Table 5 — Area of individually owned timberland by size of holding class and site class, western Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	SITE CLASS ^{3/} (CUBIC FEET)			
	LOW	MEDIUM	HIGH	ALL CLASSES
<u>ACRES</u>	- - - - - THOUSAND ACRES - - - - -			
1-10	61 ± 21	85 ± 28	26 ± 14	173 ± 35
11-500	241 ± 42	203 ± 34	75 ± 24	519 ± 55
501-5,000	159 ± 32	117 ± 27	16 ± 11	293 ± 42
5,001-100,000	--	--	--	--
100,001 OR MORE	--	--	--	--
ALL CLASSES	461 ± 51	405 ± 49	118 ± 30	984 ± 67

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

^{3/}Capacity for cubic-foot annual growth per acre at culmination of mean annual growth on fully-stocked natural stands.

Table 6 — Area of farmer-owned timberland by size of holding class and site class, western Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	SITE CLASS ^{3/} (CUBIC FEET)			
	LOW	MEDIUM	HIGH	ALL CLASSES
<u>ACRES</u>	- - - - - THOUSAND ACRES - - - - -			
1-10	14 ± 10	7 ± 7	--	21 ± 12
11-500	190 ± 41	326 ± 45	44 ± 18	560 ± 58
501-5,000	318 ± 34	98 ± 26	74 ± 21	490 ± 44
5,001-100,000	--	7 ± 7	--	7 ± 7
100,001 OR MORE	--	--	--	--
ALL CLASSES	522 ± 52	438 ± 51	118 ± 27	1,078 ± 68

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

^{3/}Capacity for cubic-foot annual growth per acre at culmination of mean annual growth on fully-stocked natural stands.

Table 7 — Area of privately owned timberland by size of holding class and stand size class, western Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	LARGE SAWTIMBER ^{3/}	SMALL SAWTIMBER ^{3/}	POLETIMBER, SAPLINGS AND SEEDLINGS	NONSTOCKED AREAS	ALL CLASSES
ACRES	-----THOUSAND ACRES-----				
1-10	30 ± 16	78 ± 20	69 ± 26	21 ± 12	198 ± 37
11-500	94 ± 24	498 ± 49	383 ± 50	195 ± 38	1,170 ± 65
501-5,000	100 ± 34	397 ± 49	436 ± 53	112 ± 31	1,045 ± 66
5,001-100,000	249 ± 43	331 ± 50	354 ± 51	95 ± 24	1,029 ± 76
100,001 OR MORE	385 ± 50	983 ± 70	1,292 ± 73	122 ± 28	2,781 ± 85
ALL CLASSES	857 ± 66	2,287 ± 97	2,534 ± 100	545 ± 61	6,222 ± 56

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

^{3/}Large sawtimber includes trees 21.0-inch d.b.h. and larger; small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

Table 8 — Area of forest industry-owned timberland by size of holding class and stand size class, western Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	LARGE SAWTIMBER ^{3/}	SMALL SAWTIMBER ^{3/}	POLETIMBER, SAPLINGS AND SEEDLINGS	NONSTOCKED AREAS	ALL CLASSES
ACRES	-----THOUSAND ACRES-----				
1-11	--	--	--	--	--
11-500	--	--	--	--	--
501-5,000	19 ± 17	86 ± 25	46 ± 20	7 ± 5	158 ± 38
5,001-100,000	218 ± 40	278 ± 47	326 ± 50	85 ± 23	907 ± 71
100,001 OR MORE	376 ± 49	941 ± 68	1,276 ± 72	122 ± 28	2,715 ± 83
ALL CLASSES	613 ± 51	1,305 ± 76	1,649 ± 78	214 ± 36	3,780 ± 49

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

^{3/}Large sawtimber includes trees 21.0-inch d.b.h. and larger; small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

Table 9 — Area of corporate-owned timberland by size of holding class and stand size class, western Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	LARGE SAWTIMBER <u>3/</u>	SMALL SAWTIMBER <u>3/</u>	POLETIMBER, SAPLINGS AND SEEDLINGS	NONSTOCKED AREAS	ALL CLASSES
ACRES					
----- THOUSAND ACRES -----					
0-10	4 ± 4	--	--	--	4 ± 4
1-500	9 ± 9	25 ± 13	58 ± 26	--	91 ± 30
501-5,000	6 ± 6	55 ± 20	27 ± 12	17 ± 11	105 ± 27
5,001-100,000	24 ± 13	53 ± 20	28 ± 11	9 ± 7	114 ± 29
100,001 OR MORE	9 ± 9	42 ± 15	15 ± 12	--	66 ± 19
ALL CLASSES	51 ± 19	175 ± 34	128 ± 33	26 ± 13	380 ± 52

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

^{3/}Large sawtimber includes trees 21.0-inch d.b.h. and larger; small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

Table 10 — Area of individually owned timberland by size of holding class and stand size class, western Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	LARGE SAWTIMBER <u>3/</u>	SMALL SAWTIMBER <u>3/</u>	POLETIMBER, SAPLINGS AND SEEDLINGS	NONSTOCKED AREAS	ALL CLASSES
ACRES					
----- THOUSAND ACRES -----					
0-110	26 ± 15	78 ± 20	56 ± 24	13 ± 9	173 ± 35
1-500	39 ± 13	255 ± 39	160 ± 34	64 ± 22	519 ± 55
501-5,000	28 ± 14	89 ± 23	154 ± 33	21 ± 12	293 ± 42
5,001-100,000	--	--	--	--	--
100,001 OR MORE	--	--	--	--	--
ALL CLASSES	93 ± 25	423 ± 47	370 ± 49	98 ± 27	984 ± 67

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

^{3/}Large sawtimber includes trees 21.0-inch d.b.h. and larger; small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

Table 11 — Area of farmer-owned timberland by size of holding class and stand size class, western Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	LARGE SAWTIMBER ^{3/}	SMALL SAWTIMBER ^{3/}	POLETIMBER, SAPLINGS AND SEEDLINGS	NONSTOCKED AREAS	ALL CLASSES
ACRES	----- THOUSAND ACRES -----				
1-10	--	--	14 ± 10	8 ± 7	21 ± 12
11-500	46 ± 18	217 ± 37	165 ± 36	131 ± 32	560 ± 58
501-5,000	47 ± 25	167 ± 34	209 ± 38	67 ± 26	490 ± 44
5,001-100,000	7 ± 7	--	--	--	7 ± 7
100,001 OR MORE	--	--	--	--	--
ALL CLASSES	101 ± 32	384 ± 49	387 ± 52	206 ± 41	1,078 ± 68

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

^{3/}Large sawtimber includes trees 21.0-inch d.b.h. and larger; small sawtimber includes softwood trees 9.0- to 20.9-inch d.b.h. and hardwood trees 11.0- to 20.9-inch d.b.h.

Table 12 — Volume of growing stock on privately owned timberland by size of holding class and owner, western Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	FOREST INDUSTRY	CORPORATE	INDIVIDUAL	FARMER	ALL OWNERS
ACRES	----- MILLION CUBIC FEET -----				
1-10	--	12 ± 12	464 ± 117	17 ± 13	493 ± 119
11-100	--	123 ± 58	634 ± 118	478 ± 100	1,235 ± 152
101-500	--	95 ± 45	551 ± 117	664 ± 131	1,310 ± 167
501-1,000	17 ± 12	118 ± 84	362 ± 72	410 ± 88	907 ± 134
1,001-5,000	340 ± 118	193 ± 71	54 ± 22	397 ± 155	984 ± 208
5,001-50,000	1,812 ± 268	314 ± 213	--	98 ± 98	2,224 ± 354
50,001-100,000	596 ± 147	105 ± 59	--	--	700 ± 158
100,001-500,000	4,416 ± 429	167 ± 54	--	--	4,584 ± 432
500,001 OR MORE	3,431 ± 370	--	--	--	3,431 ± 370
ALL CLASSES	10,611 ± 453	1,126 ± 252	2,066 ± 184	2,065 ± 239	15,867 ± 531

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 13 — Volume of growing stock on forest industry-owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, January 1, 1977^{1/} ^{2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>MILLION CUBIC FEET</u>		
1-10	--	--	--
11-500	--	--	--
501-5,000	325 ± 115	31 ± 11	356 ± 118
5,001-100,000	2,116 ± 278	292 ± 46	2,408 ± 299
100,001 OR MORE	6,942 ± 492	905 ± 91	7,847 ± 506
ALL CLASSES	9,383 ± 448	1,229 ± 95	10,611 ± 453

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 14 — Volume of growing stock on corporate-owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, January 1, 1977^{1/} ^{2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>MILLION CUBIC FEET</u>		
1-10	9 ± 9	3 ± 3	12 ± 12
11-500	113 ± 45	104 ± 46	217 ± 73
501-5,000	245 ± 96	66 ± 29	311 ± 110
5,001-100,000	355 ± 206	63 ± 26	418 ± 210
100,001 OR MORE	143 ± 48	25 ± 11	167 ± 54
ALL CLASSES	866 ± 234	260 ± 62	1,126 ± 252

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 15 — Volume of growing stock on individually owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>MILLION CUBIC FEET</u>		
1-10	386 ± 114	78 ± 29	464 ± 117
11-500	801 ± 116	384 ± 72	1,185 ± 153
501-5,000	285 ± 55	132 ± 29	417 ± 71
5,001-100,000	--	--	--
100,001 OR MORE	--	--	--
ALL CLASSES	1,472 ± 154	594 ± 79	2,066 ± 184

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 16 — Volume of growing stock on farmer-owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>MILLION CUBIC FEET</u>		
1-10	2 ± 1	15 ± 13	17 ± 13
11-500	748 ± 120	395 ± 73	1,142 ± 152
501-5,000	598 ± 147	209 ± 47	808 ± 168
5,001-100,000	88 ± 88	10 ± 10	98 ± 98
100,001 OR MORE	--	--	--
ALL CLASSES	1,436 ± 204	629 ± 86	2,065 ± 239

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 17 — Net annual growth of growing stock on privately owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, 1976^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
ACRES	--THOUSAND CUBIC FEET--		
1-10	17,834 ± 4,978	2,633 ± 1,185	20,467 ± 5,308
11-500	70,170 ± 6,966	29,111 ± 5,161	99,282 ± 8,993
501-5,000	57,353 ± 7,855	16,147 ± 3,135	73,500 ± 9,001
5,001-100,000	56,873 ± 8,562	12,628 ± 2,875	69,501 ± 9,358
100,001 OR MORE	224,340 ± 15,601	38,828 ± 4,978	263,168 ± 16,235
ALL CLASSES	426,571 ± 18,567	99,348 ± 8,165	525,919 ± 19,966

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 18 — Net annual growth of growing stock on forest industry-owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, 1976^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
ACRES	--THOUSAND CUBIC FEET--		
1-10	--	--	--
11-500	--	--	--
501-5,000	12,430 ± 5,302	1,126 ± 575	13,556 ± 5,385
5,001-100,000	49,212 ± 8,198	9,300 ± 2,674	58,512 ± 8,791
100,001 OR MORE	216,402 ± 15,338	38,205 ± 4,972	254,607 ± 15,957
ALL CLASSES	278,043 ± 16,507	48,631 ± 5,599	326,675 ± 17,139

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 19 — Net annual growth of growing stock on corporate-owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, 1976^{1/ 2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
ACRES	--THOUSAND CUBIC FEET--		
1-10	202 ± 202	4 ± 4	205 ± 205
11-500	7,352 ± 3,877	4,887 ± 2,852	12,239 ± 4,963
501-5,000	10,003 ± 3,096	2,678 ± 1,400	12,681 ± 4,078
5,001-100,000	7,202 ± 2,525	2,830 ± 1,024	10,032 ± 3,274
100,001 OR MORE	7,938 ± 2,884	623 ± 257	8,561 ± 3,025
ALL CLASSES	32,697 ± 6,132	11,022 ± 3,346	43,718 ± 7,681

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 20 — Net annual growth of growing stock on individually owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, 1976^{1/ 2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
ACRES	-- THOUSAND CUBIC FEET --		
1-10	17,405 ± 4,971	2,162 ± 1,127	19,568 ± 5,285
11-500	29,572 ± 5,106	12,629 ± 3,009	42,201 ± 6,499
501-5,000	13,924 ± 3,168	2,243 ± 988	16,167 ± 3,399
5,001-100,000	--	--	--
100,001 OR MORE	--	--	--
ALL CLASSES	60,902 ± 7,316	17,034 ± 3,345	77,936 ± 8,538

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 21 — Net annual growth of growing stock on farmer-owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, 1976^{1/} ^{2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
ACRES	--THOUSAND CUBIC FEET--		
1-10	228 ± 164	467 ± 351	694 ± 432
11-500	33,246 ± 5,073	11,595 ± 3,356	44,842 ± 6,600
501-5,000	20,996 ± 4,419	10,101 ± 2,616	31,097 ± 5,608
5,001-100,000	459 ± 459	498 ± 498	957 ± 957
100,001 OR MORE	--	--	--
ALL CLASSES	54,929 ± 6,663	22,661 ± 4,216	77,590 ± 8,490

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 22 — Average annual mortality of growing stock on privately owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, 1976^{1/} ^{2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
ACRES	--THOUSAND CUBIC FEET--		
1-10	654 ± 346	1,426 ± 579	2,080 ± 687
11-500	8,252 ± 2,513	9,820 ± 2,191	18,072 ± 3,356
501-5,000	5,573 ± 1,227	4,636 ± 1,091	10,209 ± 1,815
5,001-100,000	11,294 ± 2,624	3,948 ± 1,232	15,242 ± 3,237
100,001 OR MORE	27,149 ± 5,608	8,326 ± 2,086	35,475 ± 6,362
ALL CLASSES	52,922 ± 6,428	28,156 ± 3,339	81,077 ± 7,545

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 23 — Average annual mortality of growing stock on forest industry-owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, 1976^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
ACRES	- - - - - THOUSAND CUBIC FEET - - - - -		
1-10	--	--	--
11-500	--	--	--
501-5,000	914 ± 512	406 ± 349	1,320 ± 620
5,001-100,000	11,214 ± 2,624	3,828 ± 1,229	15,042 ± 3,236
100,001 OR MORE	26,957 ± 5,604	8,326 ± 2,086	35,283 ± 6,360
ALL CLASSES	39,085 ± 5,870	12,561 ± 2,339	51,645 ± 6,717

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 24 — Average annual mortality of growing stock on corporate-owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, 1976^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
ACRES	- - - - - THOUSAND CUBIC FEET - - - - -		
1-10	--	43 ± 43	43 ± 43
11-500	302 ± 214	1,166 ± 847	1,468 ± 874
501-5,000	542 ± 334	720 ± 487	1,261 ± 603
5,001-100,000	80 ± 80	119 ± 84	199 ± 116
100,001 OR MORE	192 ± 192	--	192 ± 192
ALL CLASSES	1,115 ± 447	2,048 ± 982	3,164 ± 1,086

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 25 — Average annual mortality of growing stock on individually owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, 1976^{1/ 2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
ACRES	- - - - - THOUSAND CUBIC FEET - - - - -		
1-10	654 ± 346	1,383 ± 577	2,036 ± 685
11-500	5,771 ± 2,426	2,797 ± 974	8,568 ± 2,646
501-5,000	1,306 ± 516	2,003 ± 774	3,309 ± 1,065
5,001-100,000	--	--	--
100,001 OR MORE	--	--	--
ALL CLASSES	7,730 ± 2,478	6,183 ± 1,336	13,913 ± 2,869

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 26 — Average annual mortality of growing stock on farmer-owned timberland by size of holding class and by softwoods and hardwoods, western Oregon, 1976^{1/ 2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
ACRES	- - - - - THOUSAND CUBIC FEET - - - - -		
1-10	--	--	--
11-500	2,179 ± 642	5,857 ± 1,811	8,036 ± 1,958
501-5,000	2,813 ± 947	1,507 ± 529	4,319 ± 1,249
5,001-100,000	--	--	--
100,001 OR MORE	--	--	--
ALL CLASSES	4,991 ± 1,129	7,364 ± 1,882	12,355 ± 2,296

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 27 — Area of privately owned timberland by size of holding class and owner, northwest Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	FOREST INDUSTRY	CORPORATE	INDIVIDUAL	FARMER	ALL OWNERS
ACRES					
-----THOUSAND ACRES-----					
1-10	--	4 ± 4	77 ± 20	21 ± 12	102 ± 24
11-100	--	25 ± 13	124 ± 27	124 ± 26	273 ± 35
101-500	--	30 ± 15	78 ± 22	135 ± 30	243 ± 35
501-1,000	7 ± 7	12 ± 9	6 ± 5	16 ± 11	40 ± 16
1,001-5,000	15 ± 12	62 ± 22	4 ± 4	22 ± 13	103 ± 28
5,001-50,000	34 ± 15	27 ± 13	--	--	61 ± 19
50,001-100,000	18 ± 13	--	--	--	18 ± 11
100,001-500,000	413 ± 43	--	--	--	413 ± 43
500,001 OR MORE	556 ± 44	--	--	--	556 ± 44
ALL CLASSES	1,042 ± 34	159 ± 33	289 ± 35	318 ± 35	1,809 ± 37

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 28 — Volume of growing stock on privately owned timberland by size of holding class and by softwood and hardwoods, northwest Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
ACRES			
-----MILLION CUBIC FEET-----			
1-10	133 ± 49	53 ± 23	186 ± 62
11-500	887 ± 105	512 ± 75	1,400 ± 131
501-5,000	365 ± 128	89 ± 34	454 ± 138
5,001-100,000	119 ± 51	17 ± 8	137 ± 56
100,001 OR MORE	2,495 ± 219	449 ± 66	2,944 ± 227
ALL CLASSES	4,000 ± 236	1,121 ± 103	5,121 ± 242

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 29 — Volume of growing stock on forest industry-owned timberland by size of holding class and by softwoods and hardwoods, northwest Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>MILLION CUBIC FEET</u>		
1-10	--	--	--
11-500	--	--	--
501-5,000	108 ± 85	4 ± 4	112 ± 85
5,001-100,000	79 ± 45	2 ± 2	81 ± 46
100,001 OR MORE	2,495 ± 219	449 ± 66	2,944 ± 227
ALL CLASSES	2,682 ± 224	455 ± 66	3,137 ± 229

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 30 — Volume of growing stock on corporate-owned timberland by size of holding class and by softwoods and hardwoods, northwest Oregon, January 1, 1977^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>MILLION CUBIC FEET</u>		
1-10	9 ± 9	3 ± 3	12 ± 12
11-500	64 ± 28	90 ± 45	155 ± 59
501-5,000	186 ± 88	49 ± 26	234 ± 98
5,001-100,000	41 ± 25	16 ± 8	56 ± 32
100,001 OR MORE	--	--	--
ALL CLASSES	299 ± 95	157 ± 53	456 ± 118

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 31 — Volume of growing stock on individually owned timberland by size of holding class and by softwoods and hardwoods, northwest Oregon, January 1, 1977.

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>- - - - - MILLION CUBIC FEET - - - - -</u>		
1-10	122 ± 49	35 ± 19	157 ± 60
11-500	326 ± 75	192 ± 43	518 ± 97
501-5,000	27 ± 20	--	27 ± 20
5,001-100,000	--	--	--
100,001 OR MORE	--	--	--
ALL CLASSES	475 ± 86	227 ± 46	701 ± 101

1/Totals may be off because of rounding.

2/Confidence intervals are at the 0.68-probability level.

Table 32 — Volume of growing stock on farmer-owned timberland by size of holding class and by softwoods and hardwoods, northwest Oregon, January 1, 1977.^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>- - - - - MILLION CUBIC FEET - - - - -</u>		
1-10	2 ± 1	15 ± 13	17 ± 13
11-500	498 ± 106	230 ± 57	727 ± 133
501-5,000	46 ± 30	37 ± 22	82 ± 42
5,001-100,000	--	--	--
100,001 OR MORE	--	--	--
ALL CLASSES	545 ± 109	282 ± 60	827 ± 135

1/Totals may be off because of rounding.

2/Confidence intervals are at the 0.68-probability level.

Table 33 — Area of privately owned timberland by size of holding class and owner, west-central Oregon, January 1, 1976^{1/2/}

SIZE OF HOLDING CLASS	FOREST INDUSTRY	CORPORATE	INDIVIDUAL	FARMER	ALL OWNERS
ACRES	- - - - - THOUSAND ACRES - - - - -				
1-10	--	--	63 ± 26	--	63 ± 26
11-100	--	9 ± 9	100 ± 29	119 ± 26	227 ± 37
101-500	--	28 ± 21	100 ± 27	100 ± 31	227 ± 40
501-1,000	--	--	29 ± 15	14 ± 11	43 ± 19
1,001-5,000	42 ± 18	--	5 ± 5	5 ± 5	52 ± 19
5,001-50,000	169 ± 34	16 ± 12	--	--	184 ± 36
50,001-100,000	17 ± 12	49 ± 19	--	--	66 ± 23
100,001-500,000	672 ± 45	66 ± 19	--	--	737 ± 49
500,001 OR MORE	198 ± 33	--	--	--	198 ± 33
ALL CLASSES	1,097 ± 21	167 ± 36	297 ± 40	238 ± 40	1,798 ± 27

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 34 — Volume of growing stock on privately owned timberland by size of holding class and by softwoods and hardwoods, west-central Oregon, January 1, 1976^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
ACRES	- - - - - MILLION CUBIC FEET - - - - -		
1-10	195 ± 94	13 ± 12	208 ± 97
11-500	594 ± 89	307 ± 67	901 ± 113
501-5,000	164 ± 63	26 ± 13	190 ± 66
5,001-100,000	830 ± 254	59 ± 21	889 ± 257
100,001 OR MORE	2,309 ± 274	215 ± 45	2,524 ± 275
ALL CLASSES	4,092 ± 319	621 ± 79	4,713 ± 317

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 35 — Volume of growing stock on forest industry-owned timberland by size of holding class and by softwoods and hardwoods, west-central Oregon, January 1, 1976^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>MILLION CUBIC FEET</u>		
1-10	--	--	--
11-500	--	--	--
501-5,000	108 ± 52	9 ± 5	117 ± 54
5,001-100,000	534 ± 151	43 ± 17	577 ± 157
100,001 OR MORE	2,166 ± 270	191 ± 43	2,357 ± 270
ALL CLASSES	2,808 ± 250	243 ± 46	3,050 ± 247

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 36 — Volume of growing stock on corporate-owned timberland by size of holding class and by softwoods and hardwoods, west-central Oregon, January 1, 1976^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>MILLION CUBIC FEET</u>		
1-10	--	--	--
11-500	49 ± 35	14 ± 11	63 ± 43
501-5,000	--	--	--
5,001-100,000	296 ± 204	16 ± 11	313 ± 204
100,001 OR MORE	143 ± 48	25 ± 11	167 ± 54
ALL CLASSES	488 ± 211	55 ± 19	543 ± 214

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 37 — Volume of growing stock on individually owned timberland by size of holding class and by softwoods and hardwoods, west-central Oregon, January 1, 1976^{1/} ^{2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>MILLION CUBIC FEET</u>		
1-10	195 ± 94	13 ± 12	208 ± 97
11-500	345 ± 75	145 ± 56	490 ± 106
501-5,000	8 ± 6	17 ± 12	25 ± 13
5,001-100,000	--	--	--
100,001 OR MORE	--	--	--
ALL CLASSES	548 ± 103	175 ± 56	723 ± 127

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 38 — Volume of growing stock on farmer-owned timberland by size of holding class and by softwoods and hardwoods, west-central Oregon, January 1, 1976^{1/} ^{2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>MILLION CUBIC FEET</u>		
1-10	--	--	--
11-500	200 ± 49	148 ± 44	349 ± 70
501-5,000	47 ± 36	1 ± 1	48 ± 36
5,001-100,000	--	--	--
100,001 OR MORE	--	--	--
ALL CLASSES	248 ± 58	149 ± 44	397 ± 76

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 39 — Area of privately owned timberland by size of holding class and owner, southwest Oregon, January 1, 1975 ^{1/2/}

SIZE OF HOLDING CLASS	FOREST INDUSTRY	CORPORATE	INDIVIDUAL	FARMER	ALL OWNERS
<u>ACRES</u>	- - - - - <u>THOUSAND ACRES</u> - - - - -				
1-10	--	--	32 ± 11	--	32 ± 11
11-100	--	--	68 ± 23	25 ± 15	93 ± 27
101-500	--	--	49 ± 19	57 ± 21	106 ± 28
501-1,000	6 ± 6	14 ± 10	201 ± 34	320 ± 41	540 ± 46
1,001-5,000	87 ± 30	17 ± 9	49 ± 20	114 ± 33	266 ± 49
5,001-50,000	567 ± 56	23 ± 14	--	7 ± 7	597 ± 56
50,001-100,000	103 ± 23	--	--	--	103 ± 23
100,001-500,000	469 ± 53	--	--	--	469 ± 53
500,001 OR MORE	409 ± 50	--	--	--	409 ± 50
ALL CLASSES	1,641 ± 29	54 ± 19	399 ± 42	522 ± 43	2,615 ± 37

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 40 — Volume of growing stock on privately owned timberland by size of holding class and by softwoods and hardwoods, southwest Oregon, January 1, 1975 ^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	- - - - - <u>MILLION CUBIC FEET</u> - - - - -		
1-10	69 ± 41	31 ± 19	99 ± 29
11-500	180 ± 52	64 ± 19	244 ± 59
501-5,000	925 ± 155	323 ± 48	1,247 ± 179
5,001-100,000	1,610 ± 245	287 ± 48	1,898 ± 270
100,001 OR MORE	2,281 ± 347	265 ± 44	2,546 ± 362
ALL CLASSES	5,064 ± 337	969 ± 73	6,034 ± 350

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 41 — Volume of growing stock on forest industry-owned timberland by size of holding class and by softwoods and hardwoods, southwest Oregon, January 1, 1975 ^{1/} ^{2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>MILLION CUBIC FEET</u>		
1-10	--	--	--
11-500	--	--	--
501-5,000	109 ± 56	19 ± 9	128 ± 62
5,001-100,000	1,504 ± 228	247 ± 43	1,750 ± 251
100,001 OR MORE	2,281 ± 347	265 ± 44	2,546 ± 362
ALL CLASSES	3,893 ± 296	531 ± 50	4,424 ± 302

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 42 — Volume of growing stock on corporate-owned timberland by size of holding class and by softwoods and hardwoods, southwest Oregon, January 1, 1975 ^{1/} ^{2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>MILLION CUBIC FEET</u>		
1-10	--	--	--
11-500	--	--	--
501-5,000	60 ± 37	18 ± 13	77 ± 50
5,001-100,000	18 ± 14	31 ± 23	49 ± 37
100,001 OR MORE	--	--	--
ALL CLASSES	78 ± 40	49 ± 26	127 ± 62

^{1/}Totals may be off because of rounding.

^{2/}Confidence intervals are at the 0.68-probability level.

Table 43 — Volume of growing stock on individually owned timberland by size of holding class and by softwoods and hardwoods, southwest Oregon, January 1, 1975

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>- - - - - MILLION CUBIC FEET - - - - -</u>		
1-10	69 ± 41	31 ± 19	99 ± 29
11-500	131 ± 47	47 ± 16	177 ± 55
501-5,000	250 ± 51	115 ± 26	365 ± 67
5,001-100,000	--	--	--
100,001 OR MORE	--	--	--
ALL CLASSES	449 ± 75	192 ± 33	641 ± 80

1/Totals may be off because of rounding.

2/Confidence intervals are at the 0.68-probability level.

Table 44 — Volume of growing stock on farmer-owned timberland by size of holding class and by softwoods and hardwoods, southwest Oregon, January 1, 1975 ^{1/2/}

SIZE OF HOLDING CLASS	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>ACRES</u>	<u>- - - - - MILLION CUBIC FEET - - - - -</u>		
1-10	--	--	--
11-500	50 ± 26	17 ± 10	66 ± 27
501-5,000	506 ± 139	172 ± 41	677 ± 159
5,001-100,000	88 ± 88	10 ± 10	98 ± 98
100,001 OR MORE	--	--	--
ALL CLASSES	644 ± 162	198 ± 42	842 ± 182

1/Totals may be off because of rounding.

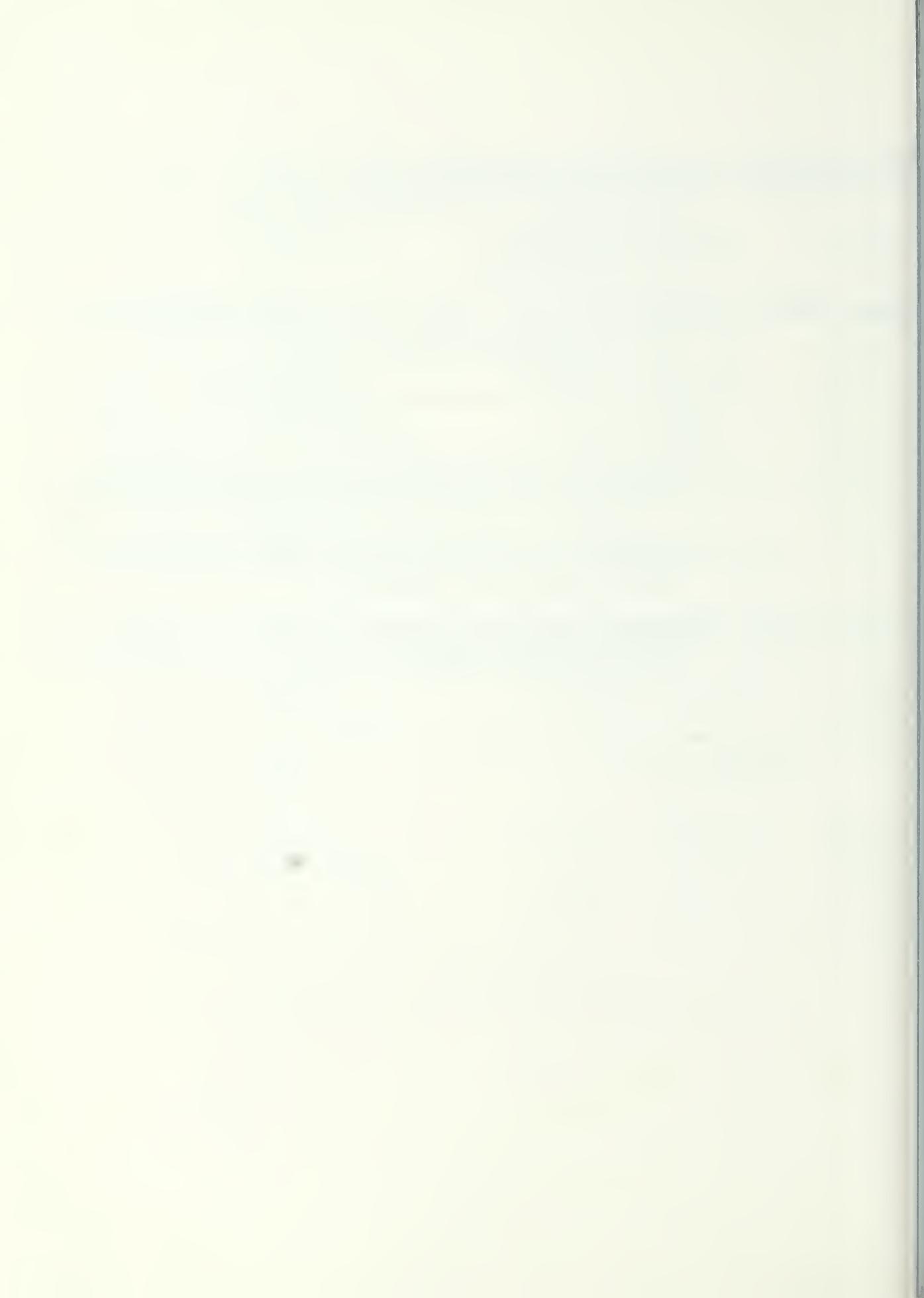
2/Confidence intervals are at the 0.68-probability level.

Metric Equivalents

1,000 acres = 404.7 hectares (ha)
1,000 cubic feet = 28.3 cubic meters (m³)
1 cubic foot per acre = 0.07 cubic meters per hectare (m³/ha)
1 foot = 0.3048 meter (m)
1 inch = 2.54 centimeters (cm)
1 mile = 1.609 kilometers (km)

Literature Cited

- Bassett, Patricia M.** Timber resources of southwest Oregon. Resour. Bull. PNW-72. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; **1977**. 29 p.
- Cochran, W.G.** Sampling techniques. 2d ed. New York: John Wiley & Sons; **1963**. 413 p.
- Gedney, Donald R.** The timber resources of western Oregon — highlights and statistics. Resour. Bull. PNW-97. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; **1982**. 84 p.
- Jacobs, David M.** Timber resources of west-central Oregon. Resour. Bull. PNW-76. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; **1978**. 30 p.
- Mei, Mary A.** Timber resources of northwest Oregon. Resour. Bull. PNW-82. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; **1979**. 29 p.



Gedney, Donald R. The privately owned timber resources of western Oregon. Resour. Bull. PNW-99. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 29 p.

Timber resource statistics from a 1973-76 inventory are presented for private timberland in western Oregon. Inventories usually classify private owners as either forest industry or nonindustrial private. For this report, however, the nonindustrial private classification has been further disaggregated into farmer, individual, and corporate owners. For all private owner classes, the statistics are presented by size of the holding.

Keywords: Forest surveys, timberland, timber resources, statistics (forest), ownership (forest), nonindustrial private ownership, western Oregon.

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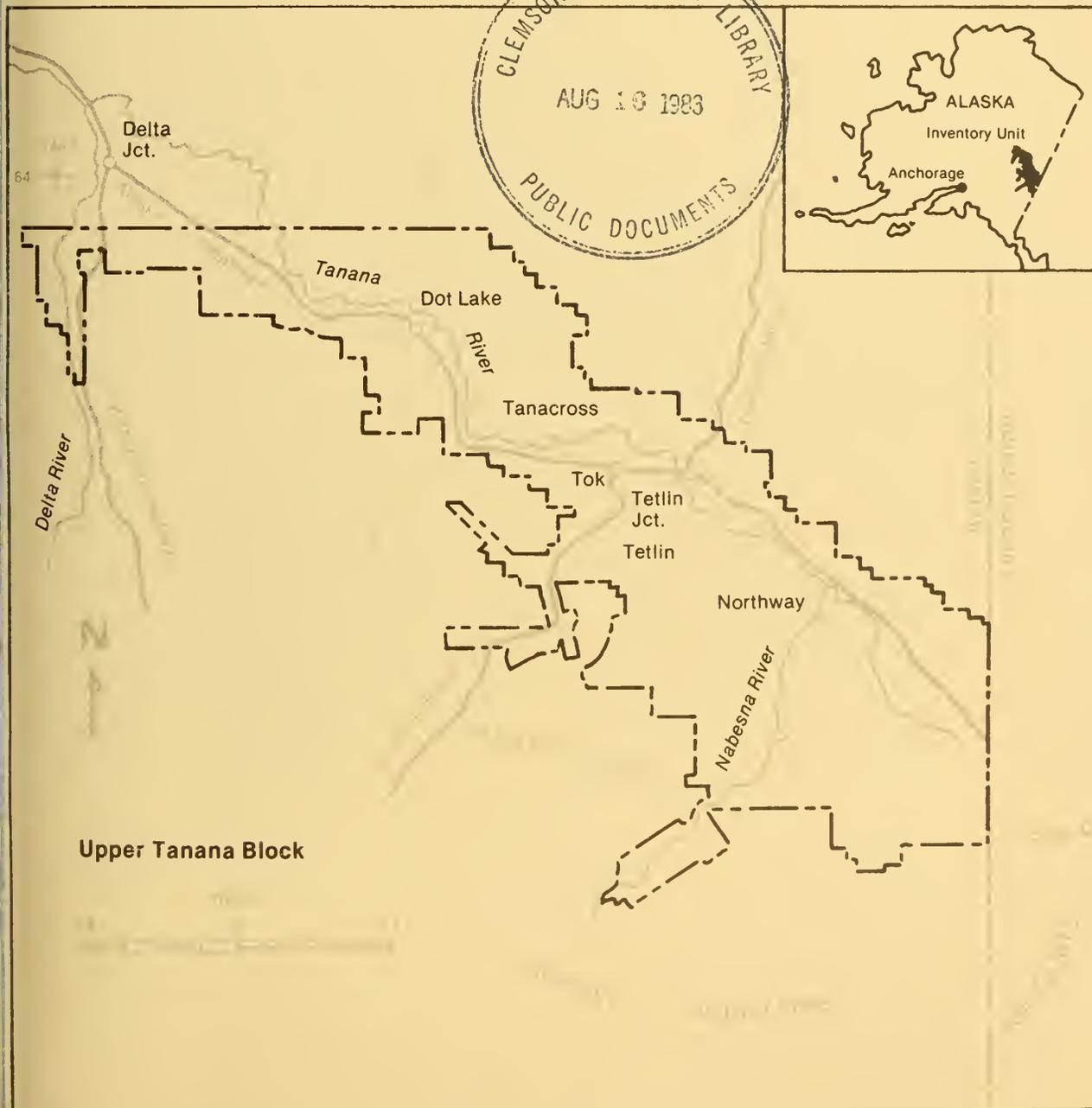
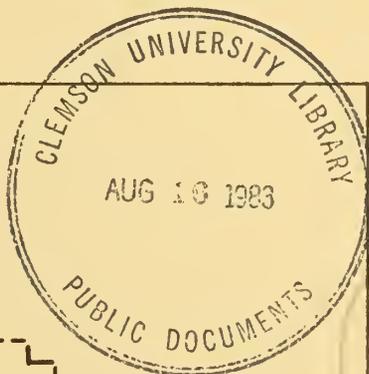
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Timber Resource Statistics for the Upper Tanana Block, Tanana Inventory Unit, Alaska, 1974

Karl M. Hegg



Upper Tanana Block

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Abstract

Hegg, Karl M. Timber resource statistics for the Upper Tanana block, Tanana inventory unit, Alaska, 1974. Resour. Bull. PNW-100. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 34 p.

This report for the 3.6-million-acre Upper Tanana block is the third of four on the 14-million-acre Tanana Valley forest inventory unit. Descriptions of area, climate, forest, general resource use, and inventory methodology are presented. Area and volume tables are provided for commercial and operable noncommercial forest lands. Estimates for commercial forest land total 396,200 acres with 528.7 million cubic feet of growing stock volume. Estimates for the operable noncommercial class total 97,400 acres with 131 million net cubic feet of growing stock volume.

Keywords: Timber resources, resources (forest), statistics (forest), Alaska (Tanana River valley).

Summary

This report for the 3.6-million-acre Upper Tanana block is the third of four on the 14-million-acre Tanana Valley forest inventory unit. The block is located about 100 miles southeast of Fairbanks, Alaska, in the upper portion of the Tanana River valley. It extends from Delta Junction southeast to the Canadian border. The north and south boundaries are at the elevational limit of tree growth — about 2,500 feet on the north and at lower elevations on the south where the boundary is along drainages reaching into the Wrangell Mountains.

Data collection in the Upper Tanana block was completed in 1974 through the cooperative efforts of the U.S. Department of Agriculture, Forest Service; U.S. Department of the Interior, Bureau of Land Management; and the Alaska Department of Natural Resources, Division of Lands. Resource photography was acquired for the Tanana River valley from 1968-74. Data processing for this block was completed in 1976.

Estimated total forest area is 2,802,900 acres. Commercial forests cover an estimated 396,200 acres with 528,644,300 cubic feet of growing stock and a net volume of 1,657,300 board feet, International 1/4-inch rule. A noncommercial area, with a gross cubic volume of 800 cubic feet per acre or more, was also identified and sampled. This operable noncommercial class covered an estimated 97,400 acres with 130,956,600 cubic feet of growing stock. This class has the potential to support a harvest cut, but further study is needed to determine if these sites can be managed for wood production. About 68 percent of the commercial forest land is classed as softwood types, which make up about 81 percent of the net cubic-foot volume and about 92 percent of the net board-foot volume.

Descriptions of area, climate, soils, topography, general resource use, inventory methodology, and reliability of the data are presented, including the rationale for extending the work to noncommercial forest areas. Comments are made on the effects of fire, permafrost, and drainage on forest growth and location.

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Highlights

	<i>Thousand acres</i>	<i>Thousand hectares</i>		
Total Upper Tanana inventory block area:	3,602.8	1 458.0		
with forests	2,802.9	1 134.3		
with nonforest	605.9	245.2		
with noncensus water	65.6	26.5		
with census water	128.4	52.0		
Forested area:				
commercial forest land	396.2	160.3		
noncommercial forest land —				
800 cubic feet or more per acre	97.4	39.4		
less than 800 cubic feet per acre	2,309.3	934.5		
Commercial forest stand-size composition:				
sawtimber	151.7	61.4		
poletimber	143.7	58.2		
seedlings and saplings	98.4	39.8		
nonstocked	2.4	1.0		
Commercial forest type composition:				
balsam poplar	12.4	5.0		
black spruce	8.7	3.5		
paper birch	64.0	25.9		
quaking aspen	46.2	18.7		
white spruce	262.6	106.3		
nonstocked	2.3	0.9		
Volumes on commercial forest land:				
	<i>Thousand cubic feet¹</i>	<i>Thousand cubic meters¹</i>	<i>Thousand board feet²</i>	<i>Thousand cubic meters³</i>
Total gross volume	542,117.9	15 341.9	1,703,926.4	8 653.9
Total net volume	528,664.3	14 961.2	1,657,257.0	8 495.5
Annual net growth	10,937.3	309.5	36,286.5	94.0
Annual net mortality	542.7	15.4	1,456.1	8.2

¹ Volume of roundwood in live trees 5.0-inch d.b.h. and larger.

² Net volume, International 1/4-inch rule.

³ Volume of roundwood for softwood trees 9.0-inch d.b.h. and larger and for hardwood trees 11.0-inch d.b.h. and larger.

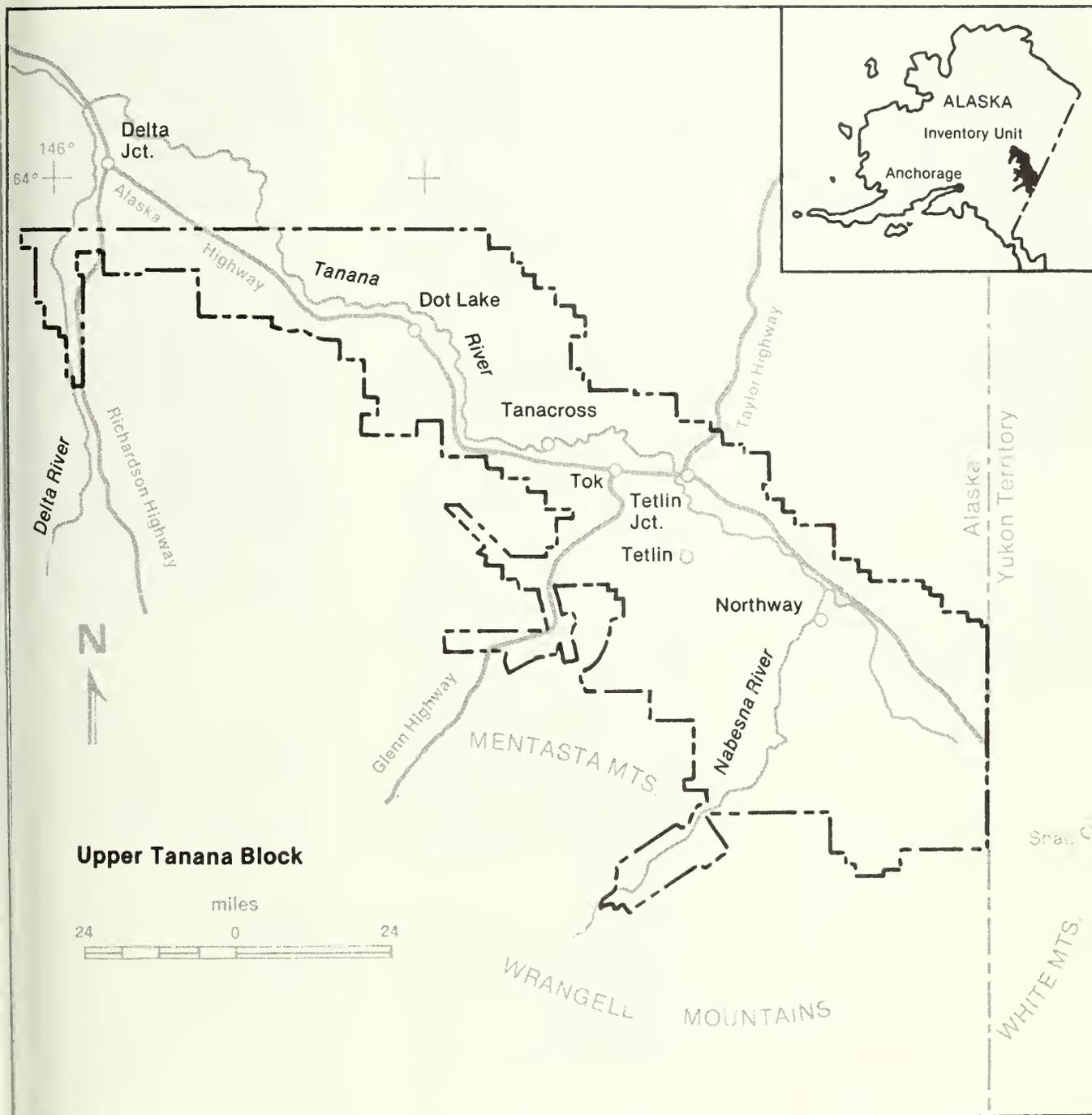


Figure 1. — The Upper Tanana Block.

This resource bulletin reports on the first intensive inventory of that portion of the Tanana river drainage between 33° 45' north latitude and the Canadian border. This 3.6-million-acre area is identified as the Upper Tanana block (fig. 1).

Preparations for the Tanana forest inventory began in 1968 when a cooperatively funded contract was let for aerial photography of 11.3 million acres of the Tanana River valley, which, with 2.3 million acres previously photographed in the Fairbanks area, make up the 13.6-million-acre Tanana inventory unit. Cooperators were the Economic Development Administration (EDA), U.S. Department of Commerce; the Bureau of Indian Affairs (BIA) and Bureau of Land Management (BLM), U.S. Department of the Interior; and the Alaska Department of Natural Resources Division of Lands (DNR), State of Alaska. The original intent was to inventory the valley as a unit, but poor flying weather and smoke haze slowed the photo project, so "blocks" within the Tanana unit have been inventoried as photos became available.

This report, the third of four, is on the Upper Tanana block, inventoried in 1974. The first report, for the Fairbanks block, was published several years ago (Hegg 1975b). The second report, the Kantishna block, was published recently (Hegg 1982). A report on the inventory of the other block, the Wood-Salcha, will be published when the analysis is complete.

Work on the Upper Tanana block began in 1973 with photo interpretation of 14,799 one-acre photo points. Photo interpretation, ownership determination, and fieldwork preparation and completion were a cooperative effort of DNR, BLM, BIA, and the Forestry Sciences Laboratory (Anchorage) of the Pacific Northwest Forest and Range Experiment Station. Supervision and editing of plot records were done by the Forestry Sciences Laboratory. Data processing was handled by the Pacific Northwest Forest and Range Experiment Station in Portland.

Forest Inventory and Analysis (FIA),⁴ authorized by the McSweeney-McNary Act in 1928 and extended to Alaska in 1954, is a nationwide effort conducted at various locations to obtain information on forest lands — their extent, condition, volume, growth, and depletion. The first inventories of interior Alaska were begun in 1956 and completed in 1962 (Hutchison 1967). These were extensive inventories, and subsequently, areas with concentrations of commercial forest land have been defined for more intensive measurements. Areas where intensive inventories have been conducted and for which reports are available or pending are: Susitna Valley (Hegg 1970); Norton Bay Indian Reservation;⁵ Koyukuk River (Hegg 1974); Copper River (Hegg 1975a); Tuxedni Bay (Hegg 1979); Kuskokwim River (Hegg and Sieverding 1980); and the Fairbanks (Hegg 1975b), Kantishna (Hegg 1982), and Wood-Salcha blocks of the Tanana unit.

The factual data and discussions in this report on forest area, location, condition, volume, growth, and regeneration relate to the supply of wood available for local, regional, and national needs. These data are presented for the use of State planners, legislators, land and forest managers, forest industry, and other users of forest inventory data.

⁴ Forest Inventory and Analysis was originally named Forest Survey. The name was officially changed in 1975 to Renewable Resources Evaluation; it was last changed in 1982.

⁵ Office report on file at the Bureau of Indian Affairs, Juneau, Alaska; 1973.

Area and Location

The 3.6-million-acre Upper Tanana block extends from the Alaska-Canadian border near Snag, Yukon Territory, west and north to about 63° 45' north latitude or just south of Delta Junction (see fig. 1). The north and south boundaries are at the limits of potential commercial forest land along the highlands of the Tanana River drainage at an elevation of about 2,500 feet. The southern boundary is marked by the ice- and snow-covered Wrangell Mountains whose dramatic peaks rise fairly abruptly from the valley floor. The north side is bounded by high hills that reach above tree line with tributary rivers stretching dozens of miles into the hills.

The elevation of the valley floor is about 2,000 feet at the Canadian border, gradually dropping to about 1,300 feet at Delta Junction. The topography is a mix of well-drained alluvial bottomlands and south- to southwest-facing hillsides that support the best tree growth. Most of the area, however, is made up of poorly drained north-facing slopes with discontinuous permafrost areas of bogs and ponds (such as around Tetlin) and thin, gravelly, permafrost soils extending for many square miles around Tok and Tetlin Junction. These areas bear a mix of noncommercial⁶ black spruce and birch and extensive areas of shrubs (fig. 2), bogs and wet sedges, and wet tundra.

The climate of the area is a dry, continental type with most of the precipitation falling during the summer months. At Snag, only a short distance away, has recorded the coldest winter temperatures in North America. Summer temperatures in the Upper Tanana area are mild with normal highs between 75° and 85° F. Freezing temperatures, however, can and do occur in the summer. Field operations for this inventory were shut down during early August by blizzard-like conditions that lasted 2 days. The average frost-free season in the Upper Tanana area is only 140 days.

⁶ For definition of this term and others, see the section "Terminology."



Figure 2. — A typical north slope, underlain with permafrost, supporting mostly black spruce with a mixture of birch, aspen, and shrubs.

Forest

The Tanana River valley, like most of interior Alaska, has had repeated wildfires, leaving a patchwork vegetation pattern (fig. 3). On the more productive sites, this means a pattern of paper birch, quaking aspen, and white spruce, with white spruce regenerating under the hardwoods. Few mature white spruce stands are found, except adjacent to the Tanana River. On less productive sites, there are extensive areas of alder mixed with birch. Although these areas may have once supported mixed spruce stands, it appears that it may be some time before they do so again.



Figure 3. — Fire swept through this area, leaving a patchwork of dead snags and brush reproduction (foreground) with islands of the original spruce stand (background).

The effect of permafrost, drainage, and good soils is evident when comparing white spruce tree growth on different sites. On well-drained sites near the Tanana River, white spruce trees with diameters of 12-14 inches taper so gradually that the 6-inch top is 85-95 feet up the bole. In contrast, white spruce on fairly well-drained sites but at slightly higher elevation are subject to strong, cold, downriver winds from icefields. These trees may grow to 30 inches in diameter but only 45 feet total height. Extensive areas around Tok are covered with outwash gravel and support a mixture of white and black spruce that vary in quality (fig. 4). Permafrost occurs there at a depth of 12-18 inches. The white spruce trees of those sites are mixed with black spruce and appear similar to black spruce. Where 3-5 inches of fine textured deposits with a light organic layer had formed over the gravel, the sites appeared to be productive and the trees of good form.



Figure 4. — Vegetation beginning to establish on outwash gravel of Stone Creek, a tributary of the Nabesna River east of Tok.

The poorer quality sites in the Upper Tanana block are occupied by noncommercial black spruce, paper birch, and quaking aspen. Black spruce with some paper birch is found on the poorly drained, level to gently sloping sites. These sites are intermixed with large, nonforest areas of wet and mesic tundra and shrubs (alder, willow, bog birch, and blueberry). Overdrained south-facing slopes are usually occupied by short, stunted aspen and grass. North- and easterly-facing slopes, particularly those with northerly valley drainages, are almost exclusively occupied by black spruce and shrubs. Several stands of commercial quality white spruce and birch were found, however, on north-facing slopes. Although there are exceptions, north-facing slopes in interior Alaska are generally occupied by noncommercial species.

Inventory Procedures

Other Resource Uses

The Upper Tanana block is not considered a prime recreation area, except for hunting. Moose are found in the inventory area, and Dall sheep and caribou occur immediately outside the block in the Wrangell Mountains and the Canadian White Mountains. The Wrangells are accessible to hunters only by light plane because the rivers emanating from that area are of glacial origin and are silty, braided, and generally not navigable. The Tanana River itself is only navigable from about the vicinity of Northway downstream.

Game trails were found on many of the ridges, particularly near Tetlin and Dot Lake. These trails were so heavily used they appeared to be maintained by humans.

The estimates of area and timber volumes are based on a double sampling procedure (Bickford 1952). Enough 1-acre points to satisfy specific levels of statistical precision were uniformly distributed on aerial photographs. Each of these photo points was classified by land type, forest type, and volume strata. A subsample was then drawn from all land types and reexamined on the photos. All points in the subsample that were originally classified as commercial forest land as well as any other points questionably classified were visited on the ground.

For the Upper Tanana block, we interpreted 14,799 photo points and reexamined 1,063 noncommercial and nonforest points. This reexamination was equivalent to a ground check and yielded 23 questionable points which, with the 164 commercial forest and operable noncommercial points, totaled 187 locations actually checked on the ground. The ground plot was located at the exact point established on the photo. At each ground location a 10-point cluster of plots was measured.⁷ A 40 basal-area factor gage was used to select sample trees at each point for detailed measurements of size and vigor.

Through data processing procedures, the total sample and the individual tree volumes were expanded to obtain the estimates of the data needed or specified for area and volume. The tables showing the estimates, however, depart from the standard FIA tables with addition of a noncommercial forest category called "operable."

⁷ Study plan and field manual are on file at the Forest Sciences Laboratory, 2221 E. Northern Lights Blvd., Anchorage, AK 99504.

During the initial inventory of interior Alaska, we found that much noncommercial forest land had a relatively high per-acre volume. When more intensive inventories were begun in the mid-1960's, we and our cooperators agreed that some of this noncommercial strata had potential value as a commercial wood supply. By extrapolation, from cutting minimums of 3 cords per acre used in the Lake States and Canada, we established 9 cords or 800 cubic feet per acre as a prudent level for Alaska. This threefold increase in the minimum economic operating level should help compensate for the higher production and shipping costs in Alaska.

The operable noncommercial areas presently have more than 800 gross cubic feet per acre in pole timber and saw timber trees. The area and volume in this classification, although considered adequate for some cutting operations, should not be included in allowable cut computations. Future studies may show, through logging or other silvicultural practices, if these marginal sites can be managed as commercial forest land. None of the reported areas and volumes (whether classed as commercial or other) should be used in any calculation of an allowable cut without consideration of possible management and land use alternatives. When these operable noncommercial areas are in proximity to populated areas, they could be considered a supply source for firewood and be managed for that purpose.

Reliability of Inventory Data

The reliability of the inventory data is expressed in terms of relative sampling errors at the 68-percent confidence level.

	Design sampling error	Sampling error achieved	Sampling error of total area or volume reported
	----- Percent -----		
Area:			
Commercial forest land, per million acres	3.0	3.8	± 6.0
Noncommercial forest land, per million acres	10.0	12.4	± 3.0
Volume:			
Commercial forest land, per billion cubic feet	6.0	5.8	± 8.0
Commercial forest land, growth (net annual) per billion cubic feet	5.0	1.0	± 9.0

For the Upper Tanana block, we report 528.7 million cubic feet of net growing-stock volume, ± 8 percent. This means that if repeated samples were taken of this population, the chances are two in three that the true total volume is between 486.4 and 571.0 million cubic feet. We exceeded our design sampling error for area (3.0 percent per million acres) and met the design error (6.0 percent per billion cubic feet) for commercial forest land volume.

Terminology⁸

Allowable cut — The volume of timber that could be cut on commercial forest land during a given period under specified management plans for sustained production, such as those in effect in National Forests.

Area condition class — Area condition class provides a general stratification of commercial forest land by management opportunity class as indicated by the stocking or area controlled by tree and cover class.

Area condition classification code —

- 10** Areas 100 percent or more stocked with desirable trees and not overstocked. Stands in this category generally do not require any treatment at present to maintain high level of growth.
- 20** Areas 100 percent or more stocked with desirable trees and overstocked. Stands in this category need a treatment such as thinning to produce maximum levels of growth of desirable trees.
- 30** Areas 60 to 100 percent stocked with desirable trees, and with less than 30 percent of the area controlled by acceptable growing stock trees, cull trees, inhibiting vegetation, slash, or nonstockable conditions. Stands in this category generally have conditions favorable for natural improvement of stocking without special treatment.
- 40** Areas 60 to 100 percent stocked with desirable trees and with 30 percent or more of the area controlled by other trees (or overstocked areas) or conditions that ordinarily prevent occupancy by desirable trees. Stands in this category generally have little prospect for improvement in desirable tree stocking without special treatment such as thinning, cull tree removal, etc.

⁸ Terminology and definitions are from the USDA Forest Service Handbook, Title 4813.1, 1967, unless otherwise noted.

50 Areas less than 60 percent stocked with desirable trees but with 100 percent or more stocking with growing stock trees. Stands in this category generally have little prospect for improved desirable tree stocking without special treatment. Stands almost to rotation age would usually not be treated.

60 Areas less than 60 percent stocked with desirable trees but with 60- to 100-percent stocking with growing stock trees. Stands in this category generally have little prospect for improved desirable tree stocking without special treatment such as timber stand improvement or planting.

70 Areas less than 60 percent stocked with desirable trees and with less than 60-percent stocking with growing stock trees. Stands in this category generally have little prospect for improved desirable tree or growing stock stocking without treatment such as site preparation and regeneration, etc.

Commercial species — Trees presently or prospectively suitable for industrial products.

Cull — Portions of a tree unusable for industrial products because of rot, form, or other defect.

Cull trees — Live trees of sawtimber or poletimber size unmerchantable for saw logs now or prospectively because of defect, rot, or species.

Rough trees: Live trees of 5.0-inch d.b.h. and larger that do not contain a saw log now or prospectively, primarily because of roughness, poor form, or because they are a non-commercial species.

Rotten trees: Live trees of 5.0-inch d.b.h. and larger that do not contain a saw log now or prospectively, primarily because of rot.

Forest land — Land at least 16.7 percent stocked by forest trees of any size, or formerly having such tree cover, and not currently developed for nonforest use.

Commercial forest land: Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. Areas qualifying as commercial forest land have the capability of producing in excess of 20 cubic feet per acre per year of industrial wood under management.

Noncommercial forest land: Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions (producing less than 20 cubic feet per acre per year) and productive forest land withdrawn from commercial timber use through statute or administrative regulation.

Noncommercial operable — noncommercial forest land with a gross volume of 800 cubic feet or more per acre.

Noncommercial inoperable — noncommercial forest land with a gross volume of less than 800 cubic feet per acre.

Forest type — A classification of forest land based on the species forming a plurality of the live tree stocking.

Spruce: Forests in which a plurality of the stand is white spruce. Common associates include birch, aspen, cottonwood, and occasionally black spruce.

Cottonwood: Forests in which a plurality of the stand is black cottonwood or balsam poplar or both. Common associates include white spruce and birch.

Aspen or birch: Forests in which a plurality of the stand is aspen or paper birch or both. Common associates include black cottonwood, white spruce, and black spruce.

Growing stock trees — Sawtimber trees, poletimber trees, saplings, and seedlings; that is, all live trees except cull trees.

Desirable trees: Growing stock trees with no serious defects in quality limiting present or prospective use, relatively high vigor, and hosting no pathogens that could result in death or serious deterioration before rotation age. They include the type of trees forest managers aim to grow; that is, the trees left in silvicultural cutting or favored in cultural operations.

Acceptable trees: Trees meeting the specifications for growing stock but not qualifying as desirable.

Hardwoods — Dicotyledonous trees, usually broad leaved and deciduous. Hardwood species in interior Alaska are paper birch, quaking aspen, black cottonwood, and balsam poplar.

Inhibiting vegetation — Cover sufficiently dense to prevent establishment of tree seedlings.

International 1/4-inch rule — A rule used to determine the tree volume in board feet (Bruce and Schumacher 1950).

Land area — The area of dry land and land temporarily or partly covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than 120 feet wide; and lakes, reservoirs, and ponds less than 1 acre in area.

Log grades — A classification of logs based on external characteristics as indicators of quality or value.

Mean annual increment (MAI) — A measure of the volume of wood, in cubic feet, produced on 1 acre during 1 year. FIA minimum standard for commercial forest land is the ability to produce 20 cubic feet per acre per year.

Mortality — Number or sound-wood volume of live trees dying from natural causes during a 5-year specified period.

Net annual growth of growing stock — The annual change in volume of sound wood in live sawtimber and poletimber trees.

Net annual growth of sawtimber — The annual change in net board-foot volume of live sawtimber trees.

Net volume — The gross volume of a tree less deductions for rot, sweep, or other defect affecting product use.

Growing stock volume: The net volume of sound wood in the bole of growing stock trees 5.0-inch d.b.h. and larger, from stump to a minimum top diameter of 4.0 inches outside the bark or to the point where the central stem breaks into limbs.

Noncommercial species — Tree species of typically small size, poor form, or inferior quality which normally do not develop into trees suitable for industrial products.

Nonforest land — Land that does not qualify as forest land. Includes land that has never supported forests and lands formerly forested where forest use is precluded by development for nonforest uses, such as crops, improved pasture, residential areas, and city parks. Also includes improved roads and certain areas of water classified by the Bureau of the Census as land. Unimproved roads, streams, canals, and nonforest strips in forest areas must be more than 120 feet wide, and clearings in forest areas must be more than 1 acre in size to qualify as nonforest land.

Nonstockable land — Areas of forest land not capable of supporting forest growth because of rock, water, etc.

Salvable dead trees — Standing dead trees that are considered currently or potentially merchantable by regional standards. A poletimber tree must be more than one-half sound; a sawtimber tree more than one-third sound (board measure).

Saw log — A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with a minimum small end diameter inside bark of 6 inches for softwoods (8 inches for hardwoods).

Saw log portion — That part of the bole of sawtimber trees between the stump and the saw log top.

Saw log top — The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw log top is 7.0-inch d.o.b. (diameter outside bark) for softwoods and 9.0-inch d.o.b. for hardwoods.

Site classes — A classification of forest land by its capacity to grow crops of industrial wood.

Softwoods — Coniferous trees, usually evergreen with needles or scalelike leaves. Softwood species in interior Alaska are white spruce, black spruce, and eastern tamarack.

Stocking — The degree of occupancy of land by trees, measured by basal area and/or the number of trees in a stand by size or age and spacing, compared with the basal area or number of trees required to fully utilize the growth potential of the land; that is, the stocking standard.

Overstocked areas: Areas where growth of trees is significantly reduced by excessive numbers of trees.

Nonstocked areas: Commercial forest lands less than 16.7 percent stocked with growing stock trees.

Stand size classes — A classification of forest land based on size of the growing stock present; that is, sawtimber, poletimber, or saplings and seedlings.

Sawtimber stands: Stands at least 16.7 percent stocked with growing stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands: Stands at least 16.7 percent stocked with growing stock trees of which half or more of this stocking is in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Seedling-sapling stands: Stands at least 16.7 percent stocked with growing stock trees of which more than half of the stocking is saplings and seedlings.

Tree-size classes — A classification based on the diameter of the tree at breast height (4-1/2 feet above the ground on the uphill side of the tree).

Sawtimber-size tree: Softwood tree of 9.0-inch d.b.h. and larger. Hardwood tree of 11.0-inch d.b.h. and larger.

Poletimber-size tree: Softwood tree of 5.0- to 8.9-inch d.b.h. Hardwood tree of 5.0- to 10.9-inch d.b.h.

Sapling-size tree: A tree of 1.0- to 4.9-inch d.b.h.

Seedling-size tree: An established tree of less than 1.0-inch d.b.h.

Upper stem portion — That part of the main stem or fork of sawtimber trees above the saw log top to a minimum top diameter of 4.0-inches outside the bark or to the point where the main stem or fork breaks into limbs.

Water — Bureau of the Census definition: Streams, sloughs, estuaries, and canals more than one-eighth of a statute mile in width; and lakes, reservoirs, and ponds more than 40 acres in area. FIA definition: Streams, etc., more than 120 feet wide and lakes, etc., more than 1 acre in size up to the minimum sizes specified in the Bureau of the Census definition.

Names of Trees⁹

Softwoods:

Black spruce
Tamarack
White spruce

Picea mariana (Mill.) B.S.P.
Larix laricina (Du Roi) K. Koch
Picea glauca (Moench) Voss

Hardwoods:

Balsam poplar
Black cottonwood
Paper birch
Quaking aspen

Populus balsamifera L.
Populus trichocarpa Torr. & Gray
Betula papyrifera Marsh.
Populus tremuloides Michx.

⁹ The source for scientific names is Little (1953).

Tables

Estimates in this report are developed from statistically based samples and therefore are subject to sampling error. Sampling errors are presented in the section "Reliability of Inventory Data."

Table 1 — Area by land class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

LAND CLASS	THOUSAND ACRES
FOREST LAND:	
COMMERCIAL	396.2
NONCOMMERCIAL --	
OPERABLE	97.4
INOPERABLE	2,309.3
	<hr/>
TOTAL	2,802.9
NONFOREST LAND <u>1/</u>	671.5
	<hr/>
ALL LANDS	3,474.4
CENSUS WATER	128.4
	<hr/>
TOTAL AREA	3,602.8

Estimates are subject to sampling error.

1/ Includes swampland, industrial and urban areas, other nonforest land, and 65,600 acres classified as water by Forest Inventory and Analysis standards but defined by the Bureau of the Census as land.

Table 2 — Area of commercial and operable noncommercial forest land by stand size class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

STAND SIZE CLASS	FOREST LAND		
	COMMERCIAL	OPERABLE NONCOMMERCIAL	TOTAL
	<u>THOUSAND ACRES</u>		
SAWTIMBER STANDS	151.7	28.8	180.5
POLETIMBER STANDS	143.7	68.6	212.3
SEEDLING AND SAPLING STANDS	98.4	--	98.4
NONSTOCKED AREAS	2.4	--	2.4
ALL CLASSES	396.2	97.4	493.6

Estimates are subject to sampling error.

-- = no data.

Table 3 — Area of commercial and operable noncommercial forest land by stand volume class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

STAND VOLUME	FOREST LAND		
	COMMERCIAL	OPERABLE NONCOMMERCIAL	TOTAL
	<u>THOUSAND ACRES</u>		
BOARD FEET PER ACRE ^{1/}			
0-799	114.4	11.5	125.9
800-1,499	14.3	20.4	34.7
1,500-2,999	63.5	22.8	86.3
3,000-4,999	79.1	22.8	101.9
5,000-6,999	26.1	5.5	31.6
7,000 AND OVER	98.8	14.4	113.2
ALL CLASSES	396.2	97.4	493.6

Estimates are subject to sampling error.

^{1/} Net volume, International 1/4-inch rule.

Table 4 — Area of commercial and operable noncommercial forest land by stand volume and stand size class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

STAND VOLUME CLASS	STAND SIZE CLASS				TOTAL
	NONSTOCKED	SEEDLING-SAPLING	POLETIMBER	SAWTIMBER	
THOUSAND ACRES					
0-299	2.4	49.8	--	--	52.2
300-799	--	35.4	39.3	2.3	77.0
800-1,499	--	13.1	126.7	52.2	192.0
1,500-2,199	--	--	43.7	48.2	91.9
2,200 AND OVER	--	--	2.7	77.8	80.5
ALL CLASSES	2.4	98.3	212.4	180.5	493.6

Estimates are subject to sampling error.

-- = no data.

Table 5 —Area of commercial forest land by area condition class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

CODE	AREA CONDITION CLASS	THOUSAND ACRES
10	Areas 100 percent or more stocked with desirable trees and not overstocked.	--
20	Areas 100 percent or more stocked with desirable trees and overstocked.	2.4
30	Areas 60 to 100 percent stocked with desirable trees and with less than 30 percent of the area controlled by acceptable growing stock trees, cull trees, inhibiting vegetation, slash, or nonstockable conditions.	7.7
40	Areas 60 to 100 percent stocked with desirable trees and with 30 percent or more of the area controlled by other trees (or overstocked areas) or conditions that ordinarily prevent occupancy by desirable trees.	51.7
50	Areas less than 60 percent stocked with desirable trees but with 100 percent or more stocking with growing stock trees.	161.6
60	Areas less than 60 percent stocked with desirable trees but with 60- to 100-percent stocking with growing stock trees.	144.3
70	Areas less than 60 percent stocked with desirable trees and with less than 60-percent stocking with growing stock trees.	28.5
ALL CLASSES		396.2

Estimates are subject to sampling error.

Table 6 — Area of commercial forest land by site class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

SITE CLASS	THOUSAND ACR
<u>CUBIC FEET</u>	
85 OR MORE ^{1/}	--
50-85	--
LESS THAN 50	396.2
ALL CLASSES	396.2

Estimates are subject to sampling error.

^{1/} Potential yield, mean annual increment.

-- = no data.

Table 7 — Area of commercial and noncommercial forest land by forest type, Upper Tanana block, Tanana inventory unit, Alaska, 1974

FOREST TYPE	COMMERCIAL FOREST LAND	NONCOMMERCIAL FOREST LAND		TOTAL
		OPERABLE	INOPERABLE	
<u>THOUSAND ACRES</u>				
BALSAM POPLAR	12.4	--	21.3	33.7
BLACK SPRUCE	8.7	9.0	1,452.0	1,469.7
PAPER BIRCH	64.0	8.4	181.1	253.5
QUAKING ASPEN	46.2	5.4	135.9	187.5
TAMARACK	--	--	3.0	3.0
WHITE SPRUCE	262.6	74.6	515.9	853.1
NONSTOCKED	2.3	--	--	2.3
ALL TYPES	396.2	97.4	2,309.2	2,802.8

Estimates are subject to sampling error.

-- = no data.

Table 8 — Area of commercial forest land by stand age and stand size class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

STAND AGE	STAND SIZE CLASS				
	NONSTOCKED	SEEDLING-SAPLING	POLETIMBER	SAWTIMBER	ALL CLASSES
YEARS	THOUSAND ACRES				
1-10	2.4	4.7	--	--	7.1
10-20	--	17.8	--	3.0	20.8
20-30	--	34.9	--	--	34.9
30-40	--	15.7	10.0	--	25.7
40-50	--	7.3	15.4	--	22.7
50-60	--	2.3	10.7	2.7	15.7
60-70	--	10.4	11.6	--	22.0
70-80	--	5.3	25.3	7.4	38.0
80-90	--	--	3.0	11.4	14.4
90-100	--	--	24.3	24.0	48.3
100-120	--	--	15.4	26.0	41.4
120-140	--	--	5.7	18.1	23.8
140-160	--	--	8.2	11.0	19.2
160-180	--	--	3.0	10.0	13.0
180-200	--	--	--	5.7	5.7
200-300	--	--	5.4	18.0	23.4
300 AND OVER	--	--	--	3.0	3.0
MIXED AGES	--	--	5.7	11.4	17.1
ALL AGES	2.4	98.4	143.7	151.7	396.2

Estimates are subject to sampling error.

-- = no data.

Table 9 — Area of operable noncommercial forest land by stand age and stand size class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

STAND AGE	STAND SIZE CLASS				
	NONSTOCKED	SEEDLING- SAPLING	POLETIMBER	SAWTIMBER	ALL CLASSES
YEARS	THOUSAND ACRES				
1-10	--	--	--	--	--
10-20	--	--	--	--	--
20-30	--	--	--	--	--
30-40	--	--	--	--	--
40-50	--	--	--	--	--
50-60	--	--	--	--	--
60-70	--	--	3.0	--	3.0
70-80	--	--	5.7	--	5.7
80-90	--	--	2.3	--	2.3
90-100	--	--	6.1	2.8	8.9
100-120	--	--	23.7	8.4	32.1
120-140	--	--	2.7	5.9	8.6
140-160	--	--	5.0	3.0	8.0
160-180	--	--	--	--	--
180-200	--	--	8.7	--	8.7
200-300	--	--	11.4	8.7	20.1
300 AND OVER	--	--	--	--	--
MIXED AGES	--	--	--	--	--
ALL AGES	--	--	68.6	28.8	97.4

Estimates are subject to sampling error.

-- = no data.

Table 10 — Number of growing stock trees on commercial forest land by diameter class and species, Upper Tanana block, Tanana inventory unit, Alaska, 1974

DIAMETER CLASS	BALSAM POPLAR	BLACK SPRUCE	PAPER BIRCH	QUAKING ASPEN	WHITE SPRUCE	ALL SPECIES
INCHES AT BREAST HEIGHT	THOUSAND TREES					
1.0-2.9	5,588.8	--	17,193.9	16,980.0	62,718.2	102,480.9
3.0-4.9	2,869.9	--	11,124.9	14,376.2	30,712.1	59,083.1
5.0-6.9	1,480.0	2,846.7	8,423.9	7,527.4	18,644.7	38,922.7
7.0-8.9	617.9	901.2	4,074.2	1,950.8	12,577.4	20,121.5
9.0-10.9	493.6	216.7	1,729.6	529.9	7,933.0	10,902.8
11.0-12.9	158.0	30.8	234.0	104.8	4,447.6	4,975.2
13.0-14.9	94.6	10.1	58.4	--	2,228.9	2,392.0
15.0-16.9	24.7	--	--	--	899.5	924.2
17.0-18.9	--	--	--	--	347.9	347.9
19.0-20.9	--	--	--	--	114.9	114.9
21.0-28.9	--	--	--	--	69.0	69.0
29 AND OVER	--	--	--	--	--	--
ALL CLASSES	11,327.5	4,005.5	42,838.9	41,469.1	140,693.2	240,334.2

Estimates are subject to sampling error.

-- = no data.

Table 11 — Number of growing stock trees 5.0-inch d.b.h. and larger on commercial and operable noncommercial forest land by 5-foot height class and species, Upper Tanana block, Tanana inventory unit, Alaska, 1974

5-FOOT HEIGHT CLASS	BALSAM POPLAR	BLACK SPRUCE	PAPER BIRCH	QUAKING ASPEN	WHITE SPRUCE	ALL SPECI
	<u>THOUSAND TREES</u>					
0-30	455.5	690.4	1,639.2	682.6	4,851.3	8,319.
31-35	543.4	958.8	1,604.9	751.4	5,873.8	9,732.
36-40	437.5	2,005.5	3,129.8	1,569.7	10,427.6	17,570.
41-45	531.6	1,852.0	3,142.7	1,875.1	10,211.7	17,613.
46-50	554.6	939.5	4,164.0	3,097.2	10,621.2	19,376.
51-55	351.2	288.9	2,808.3	2,254.4	7,856.2	13,559.
56-60	167.3	263.1	1,351.2	1,038.2	5,579.5	8,399.
61-65	15.8	18.7	272.4	169.5	4,384.2	4,860.
66-70	12.3	27.2	140.4	38.2	3,109.5	3,327.
71-75	7.5	--	36.7	--	1,579.8	1,624.
76-80	12.3	16.1	9.6	56.2	939.8	1,034.
81-85	--	--	--	--	320.6	320.
86-90	--	--	--	--	269.5	269.
91-95	--	--	--	--	109.0	109.
96-100	--	--	--	--	83.8	83.
101 AND OVER	--	--	--	--	31.7	31.
ALL CLASSES	3,089.0	7,060.2	18,299.2	11,532.5	66,249.2	106,230.

Estimates are subject to sampling error.

-- = no data.

Table 12 — Net volume of timber on commercial and operable noncommercial forest land by class of timber and by softwoods and hardwoods, Upper Tanana block, Tanana Inventory unit, Alaska, 1974

CLASS OF TIMBER	COMMERCIAL FOREST LAND			OPERABLE NONCOMMERCIAL FOREST LAND		
	SOFTWOODS	HARDWOODS	TOTAL	SOFTWOODS	HARDWOODS	TOTAL
	<u>MILLION CUBIC FEET</u>					
SAWTIMBER TREES:						
SAW LOG PORTION	268.8	7.1	275.9	50.4	0.9	51.3
UPPER STEM PORTION	22.2	2.1	24.3	5.3	.2	5.5
	<hr/>					
TOTAL	291.0	9.2	300.2	55.7	1.1	56.8
POLETIMBER TREES	133.9	94.6	228.5	57.8	16.4	74.2
	<hr/>					
ALL GROWING STOCK TREES	424.9	103.8	528.7	113.5	17.5	131.0
ROUGH TREES	2.4	.5	2.9	1.4	--	1.4
ROTTEN TREES	.3	1.6	1.9	.5	.5	1.0
SALVABLE DEAD TREES	4.6	.1	4.7	1.7	.1	1.8
	<hr/>					
ALL TIMBER	432.2	106.0	538.2	117.1	18.1	135.2

Estimates are subject to sampling error.

-- = no data.

Table 13 — Net volume of growing stock on commercial forest land by diameter class and species, Upper Tanana block, Tanana inventory unit, Alaska, 1974

DIAMETER CLASS	SOFTWOODS			HARDWOODS				ALL SPECIES
	BLACK SPRUCE	WHITE SPRUCE	TOTAL	BALSAM POPLAR	PAPER BIRCH	QUAKING ASPEN	TOTAL	
<u>INCHES AT BREAST HEIGHT</u>	<u>MILLION CUBIC FEET</u>							
5.0-6.9	6.2	44.9	51.1	1.9	18.1	18.7	38.7	89.8
7.0-8.9	5.0	77.9	82.9	2.6	20.0	10.8	33.4	116.3
9.0-10.9	2.5	91.4	93.9	3.7	14.4	4.3	22.4	116.3
11.0-12.9	.4	78.5	78.9	2.0	2.7	1.4	6.1	85.0
13.0-14.9	.2	57.4	57.6	1.6	1.0	--	2.6	60.0
15.0-16.9	--	32.0	32.0	.6	--	--	.6	32.0
17.0-18.9	--	15.8	15.8	--	--	--	--	15.8
19.0-20.9	--	7.1	7.1	--	--	--	--	7.1
21.0-28.9	--	5.6	5.6	--	--	--	--	5.6
29.0 AND OVER	--	--	--	--	--	--	--	--
ALL CLASSES	14.3	410.6	424.9	12.4	56.2	35.2	103.8	528.7

Estimates are subject to sampling error.

-- = no data.

Table 14 — Net volume of growing stock on commercial and operable noncommercial forest land by diameter class and species, Upper Tanana block, Tanana inventory unit, Alaska, 1974

DIAMETER CLASS	SOFTWOODS			HARDWOODS			ALL SPECIES	
	BLACK SPRUCE	WHITE SPRUCE	TOTAL	BALSAM POPLAR	PAPER BIRCH	QUAKING ASPEN		TOTAL
<u>INCHES AT</u>								
<u>BREAST HEIGHT</u>								<u>MILLION CUBIC FEET</u>
5.0-6.9	10.8	66.0	76.8	1.9	23.3	20.8	46.0	122.8
7.0-8.9	9.0	105.9	114.9	3.0	23.7	13.4	40.1	155.0
9.0-10.9	3.6	118.1	121.7	4.1	15.3	5.5	24.9	146.6
11.0-12.9	.4	93.5	93.9	2.0	2.9	1.9	6.8	100.7
13.0-14.9	.5	65.6	66.1	1.6	1.0	--	2.6	68.7
15.0-16.9	.2	34.8	35.0	.6	--	.1	.7	35.7
17.0-18.9	--	16.5	16.5	--	--	--	--	16.5
19.0-20.9	--	7.9	7.9	--	--	--	--	7.9
21.0-28.9	--	5.6	5.6	.1	--	--	.1	5.7
29.0 AND OVER	--	--	--	--	--	--	--	--
ALL CLASSES	24.5	513.9	538.4	13.3	66.2	41.7	121.2	659.6

Estimates are subject to sampling error.

-- = no data.

Table 15 — Net volume of sawtimber on commercial forest land by diameter class and species, Upper Tanana block, Tanana inventory unit, Alaska, 1974

DIAMETER CLASS	SOFTWOODS			HARDWOODS				ALL SPECIES TOTAL
	BLACK SPRUCE	WHITE SPRUCE	TOTAL	BALSAM POPLAR	PAPER BIRCH	QUAKING ASPEN	TOTAL	
<u>INCHES AT BREAST HEIGHT</u>	<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>							
9.0-10.9	14.3	492.2	506.5	--	--	--	--	506.5
11.0-12.9	2.7	436.6	439.3	5.7	12.5	5.2	23.4	462.2
13.0-14.9	1.3	324.0	325.3	6.2	4.9	--	11.1	336.4
15.0-16.9	--	185.8	185.8	3.0	--	--	3.0	188.8
17.0-18.9	--	89.4	89.4	--	--	--	--	89.4
19.0-20.9	--	41.1	41.1	--	--	--	--	41.1
21.0-28.9	--	32.4	32.4	--	--	--	--	32.4
29.0 AND OVER	--	--	--	--	--	--	--	--
ALL CLASSES	18.3	1,601.5	1,619.8	14.9	17.4	5.2	37.5	1,657.3

Estimates are subject to sampling error.

-- = no data.

Table 16 — Net volume of sawtimber on commercial and operable noncommercial forest land by diameter class and species, Upper Tanana block, Tanana inventory unit, Alaska, 1974

DIAMETER CLASS	SOFTWOODS			HARDWOODS			ALL SPECIES	
	BLACK SPRUCE	WHITE SPRUCE	TOTAL	BALSAM POPLAR	PAPER BIRCH	QUAKING ASPEN		TOTAL
<u>INCHES AT BREAST HEIGHT</u>								
<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>								
9.0-10.9	20.7	647.1	667.8	--	--	--	--	667.8
11.0-12.9	2.7	520.3	523.0	5.7	13.5	7.2	26.4	549.3
13.0-14.9	2.8	368.3	371.1	6.2	4.9	--	11.1	382.2
15.0-16.9	.7	201.4	202.1	3.1	--	.4	3.5	205.6
17.0-18.9	--	93.3	93.3	--	--	--	--	93.3
19.0-20.9	--	45.9	45.9	--	--	--	--	45.9
21.0-28.9	--	32.4	32.4	1.0	--	--	1.0	33.4
29.0 AND OVER	--	--	--	--	--	--	--	--
ALL CLASSES	26.9	1,908.7	1,935.6	16.0	18.4	7.6	42.0	1,977.6

Estimates are subject to sampling error.

-- = no data.

Table 17 — Gross volume of sawtimber on commercial forest land by diameter class and species, Upper Tanana block, Tanana inventory unit, Alaska, 1974

DIAMETER CLASS	SOFTWOODS			HARDWOODS			TOTAL	ALL SPECIES
	BLACK SPRUCE	WHITE SPRUCE	TOTAL	BALSAM POPLAR	PAPER BIRCH	QUAKING ASPEN		
<u>INCHES AT BREAST HEIGHT</u>	<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>							
9.0-10.9	14.3	501.1	515.4	--	--	--	--	515.4
11.0-12.9	2.8	445.6	448.4	6.0	14.7	6.2	26.9	475.3
13.0-14.9	1.3	334.0	335.3	7.3	6.6	--	13.9	349.2
15.0-16.9	--	189.9	189.9	3.0	--	--	3.0	192.9
17.0-18.9	--	94.5	94.5	--	--	--	--	94.5
19.0-20.9	--	43.2	43.2	--	--	--	--	43.2
21.0-28.9	--	33.4	33.4	--	--	--	--	33.4
29.0 AND OVER	--	--	--	--	--	--	--	--
ALL CLASSES	18.4	1,641.7	1,660.1	16.3	21.3	6.2	43.8	1,703.9

Estimates are subject to sampling error.

-- = no data.

Table 18 — Gross volume of sawtimber on commercial and operable noncommercial forest land by diameter class and species, Upper Tanana block, Tanana inventory unit, Alaska, 1974

DIAMETER CLASS	SOFTWOODS			HARDWOODS			ALL SPECIES	
	BLACK SPRUCE	WHITE SPRUCE	TOTAL	BALSAM POPLAR	PAPER BIRCH	QUAKING ASPEN		TOTAL
<u>INCHES AT BREAST HEIGHT</u>	<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>							
1.0-10.9	20.9	659.1	680.0	--	--	--	--	680.0
1.0-12.9	2.8	531.8	534.6	5.9	15.8	8.7	30.4	565.0
3.0-14.9	2.8	381.3	384.1	7.3	6.6	--	13.9	398.0
5.0-16.9	1.2	206.9	208.1	3.1	--	1.1	4.2	212.3
7.0-18.9	--	99.3	99.3	--	--	--	--	99.3
9.0-20.9	--	47.9	47.9	--	--	--	--	47.9
1.0-28.9	--	33.4	33.4	1.0	--	--	1.0	34.4
9.0 AND OVER	--	--	--	--	--	--	--	--
ALL CLASSES	27.7	1,959.7	1,987.4	17.3	22.4	9.8	49.5	2,036.9

estimates are subject to sampling error.

- = no data.

Table 19 — Net volume of growing stock on commercial forest land by forest type and stand size class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

FOREST TYPE	STAND SIZE CLASS				TOTAL
	NONSTOCKED	SEEDLING AND SAPLING	POLETIMBER	SAWTIMBER	
<u>MILLION CUBIC FEET</u>					
BALSAM POPLAR	--	1.2	8.5	--	9.7
BLACK SPRUCE	--	.4	3.9	2.7	7.0
PAPER BIRCH	--	4.4	45.5	6.6	56.5
QUAKING ASPEN	--	12.4	20.5	--	32.9
WHITE SPRUCE	--	19.2	91.9	311.5	422.6
ALL TYPES	--	37.6	170.3	320.8	528.7

Estimates are subject to sampling error.

-- = no data.

Table 20 — Net volume of growing stock on operable noncommercial forest land by forest type and stand size class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

FOREST TYPE	STAND SIZE CLASS				TOTAL
	NONSTOCKED	SEEDLING AND SAPLING	POLETIMBER	SAWTIMBER	
<u>MILLION CUBIC FEET</u>					
BALSAM POPLAR	--	--	--	--	--
BLACK SPRUCE	--	--	11.2	--	11.2
PAPER BIRCH	--	--	8.0	--	8.0
QUAKING ASPEN	--	--	7.8	--	7.8
WHITE SPRUCE	--	--	57.8	46.2	104.0
ALL TYPES	--	--	84.8	46.2	131.0

Estimates are subject to sampling error.

-- = no data.

Table 21 — Net volume of sawtimber on commercial forest land by forest type and stand size class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

FOREST TYPE	STAND SIZE CLASS				TOTAL
	NONSTOCKED	SEEDLING AND SAPLING	POLETIMBER	SAWTIMBER	
<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>					
BALSAM POPLAR	--	1.5	16.5	--	18.0
BLACK SPRUCE	--	--	6.5	9.5	16.0
PAPER BIRCH	--	7.8	53.1	28.7	89.6
QUAKING ASPEN	--	13.0	18.4	--	31.4
WHITE SPRUCE	--	51.1	200.2	1,251.0	1,502.3
ALL TYPES	--	73.4	294.7	1,289.2	1,657.3

Estimates are subject to sampling error.

-- = no data.

Table 22 — Net volume of sawtimber on operable noncommercial forest land by forest type and stand size class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

FOREST TYPE	STAND SIZE CLASS				TOTAL
	NONSTOCKED	SEEDLING AND SAPLING	POLETIMBER	SAWTIMBER	
<u>MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>					
BALSAM POPLAR	--	--	--	--	--
BLACK SPRUCE	--	--	11.6	--	11.6
PAPER BIRCH	--	--	11.0	--	11.0
QUAKING ASPEN	--	--	2.4	--	2.4
WHITE SPRUCE	--	--	106.9	188.4	295.3
ALL TYPES	--	--	132.9	188.4	320.3

Estimates are subject to sampling error.

-- = no data.

Table 23 — Net volume of sawtimber on commercial forest land by species and log grade, Upper Tanana block, Tanana inventory unit, Alaska, 1974

SPECIES	LOG GRADE <u>1/</u>				TOTAL
	1	2	3	4 <u>2/</u>	
	MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE				
SOFTWOODS:					
BLACK SPRUCE	--	--	13.6	4.7	18.3
WHITE SPRUCE	1.8	19.6	1,173.2	406.9	1,601.5
TOTAL	1.8	19.6	1,186.8	411.6	1,619.8
HARDWOODS:					
BALSAM POPLAR	.7	1.9	9.2	3.0	14.8
PAPER BIRCH	--	2.0	14.7	.6	17.3
QUAKING ASPEN	.6	.7	3.7	.2	5.2
TOTAL	1.3	4.6	27.6	3.8	37.3
ALL SPECIES	3.1	24.2	1,214.4	415.4	1,657.1

Estimates are subject to sampling error.

-- = no data.

1/ Forest Product Laboratory. Hardwood log grades for standard Timber. USDA For. Prod. Lab. Rep. R1737; 1959. 61 p.

Northern Hemlock and Hardwood Manufacturers Association. Official grading rules for northern hardwood and softwood logs and tie cuts. Green Bay, WI; 1959. 12 p.

2/ Logs for local use.

Table 24 — Net volume of sawtimber on operable noncommercial forest land by species and log grade, Upper Tanana block, Tanana inventory unit, Alaska, 1974

SPECIES	LOG GRADE <u>1/</u>				TOTAL
	1	2	3	4 <u>2/</u>	
MILLION BOARD FEET, INTERNATIONAL 1/4-INCH RULE					
SOFTWOODS:					
BLACK SPRUCE	--	--	0.9	7.1	8.0
WHITE SPRUCE	--	0.6	191.6	114.6	306.8
TOTAL	--	.6	192.5	121.7	314.8
HARDWOODS:					
BALSAM POPLAR	--	--	1.0	--	1.0
PAPER BIRCH	--	--	.7	.3	1.0
QUAKING ASPEN	--	--	.4	2.0	2.4
TOTAL	--	--	2.1	2.3	4.4
ALL SPECIES	--	.6	194.6	124.0	319.2

Estimates are subject to sampling error.

-- = no data.

1/ Forest Product Laboratory. Hardwood log grades for standard Lumber. USDA For. Prod. Lab. Rep. R1737; 1959. 61 p.

Northern Hemlock and Hardwood Manufacturers Association. Official grading rules for northern hardwood and softwood logs and tie cuts. Green Bay, WI; 1959. 12 p.

2/ Logs for local use.

Table 25 — Net annual growth of growing stock by species and forest land class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

SPECIES	FOREST LAND CLASS		
	COMMERCIAL	OPERABLE NONCOMMERCIAL	TOTAL
	<u>THOUSAND CUBIC FEET</u>		
SOFTWOODS:			
BLACK SPRUCE	509.2	377.2	886.4
WHITE SPRUCE	7,086.0	1,445.5	8,531.5
TOTAL	7,595.2	1,822.7	9,417.9
HARDWOODS:			
BALSAM POPLAR	271.1	10.3	281.4
PAPER BIRCH	1,511.1	127.0	1,638.1
QUAKING ASPEN	1,559.9	229.8	1,789.7
TOTAL	3,342.1	367.1	3,709.2
ALL SPECIES	10,937.3	2,189.8	13,127.1

Estimates are subject to sampling error.

Table 26 — Net annual growth of sawtimber by species and forest land class, upper Tanana block, Tanana inventory unit, Alaska, 1974

SPECIES	FOREST LAND CLASS		
	COMMERCIAL	OPERABLE NONCOMMERCIAL	TOTAL
<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>			
SOFTWOODS:			
BLACK SPRUCE	1,145.7	61.9	1,207.6
WHITE SPRUCE	32,425.6	13,522.4	45,948.0
TOTAL	33,571.3	13,584.3	47,155.6
HARDWOODS:			
BALSAM POPLAR	617.9	14.0	631.9
PAPER BIRCH	1,373.6	82.6	1,456.2
QUAKING ASPEN	723.7	66.0	789.7
TOTAL	2,715.2	162.6	2,877.8
ALL SPECIES	36,286.5	13,746.9	50,033.4

Estimates are subject to sampling error.

Table 27 — Annual mortality of growing stock by species and forest land class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

SPECIES	FOREST LAND CLASS		
	COMMERCIAL	OPERABLE NONCOMMERCIAL	TOTAL
	<u>THOUSAND CUBIC FEET</u>		
SOFTWOODS:			
BLACK SPRUCE	15.9	--	15.9
WHITE SPRUCE	508.8	227.1	735.9
TOTAL	524.7	227.1	751.8
HARDWOODS:			
BALSAM POPLAR	18.0	--	18.0
PAPER BIRCH	--	26.2	26.2
QUAKING ASPEN	--	--	--
TOTAL	18.0	26.2	44.2
ALL SPECIES	542.7	253.3	796.0

Estimates are subject to sampling error.

-- = no data.

Table 28 — Annual mortality of sawtimber by species and forest land class, Upper Tanana block, Tanana inventory unit, Alaska, 1974

SPECIES	FOREST LAND CLASS		
	COMMERCIAL	OPERABLE NONCOMMERCIAL	TOTAL
	<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>		
SOFTWOODS:			
BLACK SPRUCE	--	--	--
WHITE SPRUCE	1,456.1	860.5	2,316.6
TOTAL	1,456.1	860.5	2,316.6
HARDWOODS:			
BALSAM POPLAR	--	--	--
PAPER BIRCH	--	--	--
QUAKING ASPEN	--	--	--
TOTAL	--	--	--
ALL SPECIES	1,456.1	860.5	2,316.6

Estimates are subject to sampling error.

-- = no data.

Table 29 — Annual mortality of growing stock by cause, forest land class, and by softwoods and hardwoods, Upper Tanana block, Tanana inventory unit, Alaska, 1974

CAUSE	COMMERCIAL FOREST LAND			OPERABLE NONCOMMERCIAL FOREST LAND		
	SOFTWOODS	HARDWOODS	TOTAL	SOFTWOODS	HARDWOODS	TOTAL
<u>THOUSAND CUBIC FEET</u>						
FIRE	--	--	--	--	--	--
INSECTS	92.5	--	92.5	67.3	--	67.3
DISEASE	--	--	--	--	--	--
WINDTHROW	175.7	--	175.7	118.0	--	118.0
OTHER	125.8	--	125.8	--	--	--
UNKNOWN	130.7	18.0	148.7	41.8	26.2	68.0
TOTAL	524.7	18.0	542.7	227.1	26.2	253.3

Estimates are subject to sampling error.

-- = no data.

Table 30 — Annual mortality of sawtimber by cause, forest land class and by softwoods and hardwoods, Upper Tanana block, Tanana inventory unit, Alaska, 1974

CAUSE	COMMERCIAL FOREST LAND			OPERABLE NONCOMMERCIAL FOREST LAND		
	SOFTWOODS	HARDWOODS	TOTAL	SOFTWOODS	HARDWOODS	TOTAL
<u>THOUSAND BOARD FEET, INTERNATIONAL 1/4-INCH RULE</u>						
FIRE	--	--	--	167.9	--	167.9
INSECTS	197.0	--	197.0	--	--	--
DISEASE	--	--	--	--	--	--
WINDTHROW	742.9	--	742.9	464.4	--	464.4
OTHER	266.0	--	266.0	--	--	--
UNKNOWN	250.2	--	250.2	228.2	--	228.2
TOTAL	1,456.1	--	1,456.1	860.5	--	860.5

Estimates are subject to sampling error.

-- = no data.

Acknowledgments

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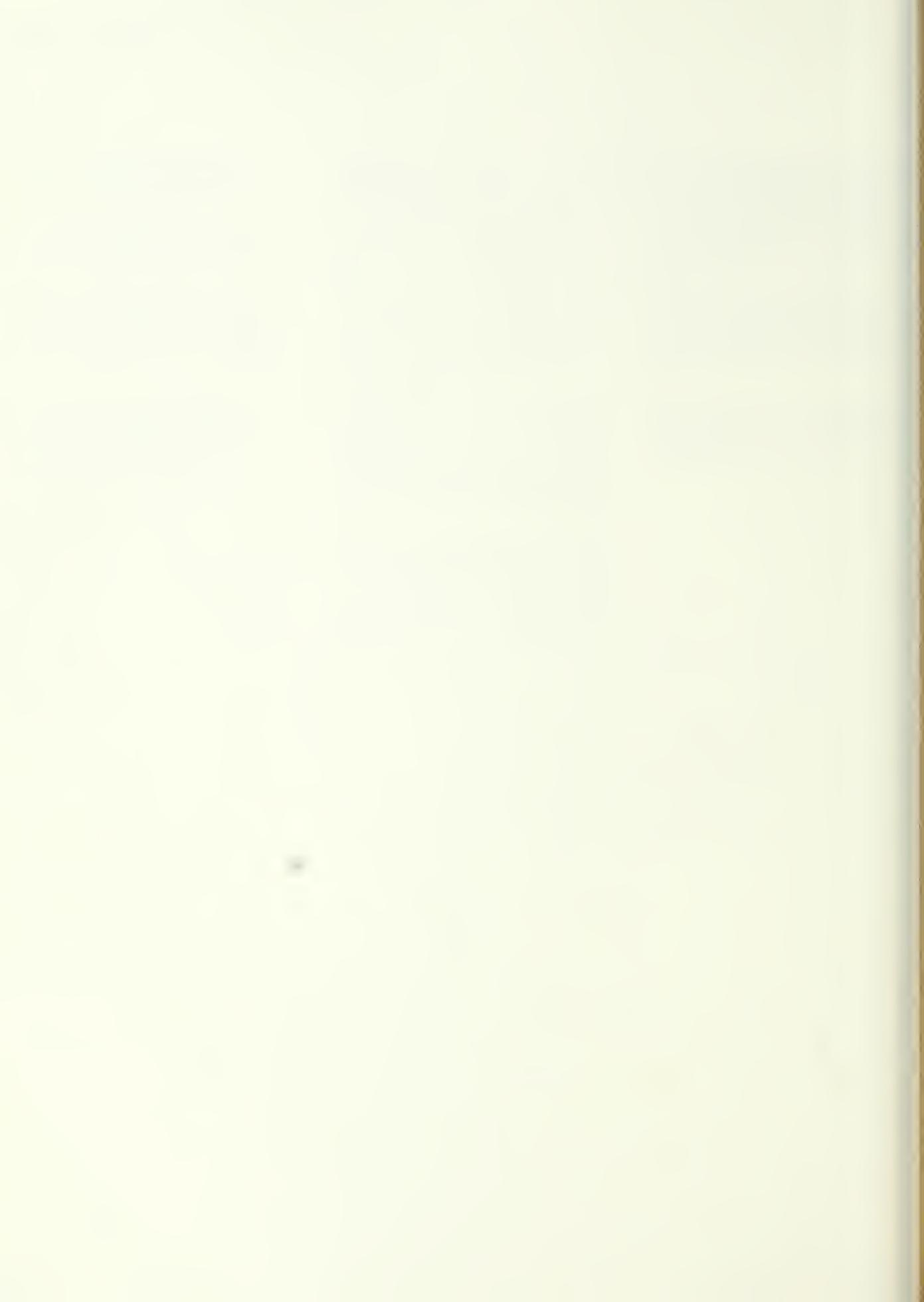
Office compilation: John M. Berger, Supervisor, and staff (Portland).

Metric Equivalents

acre = 0.4047 hectare
hectare = 2.47 acres
cubic foot = 0.0283 cubic meter
cubic meter = 35.3145 cubic feet
cubic foot per acre = 0.06997 cubic meter per hectare
cubic meter per hectare = 14.2913 cubic feet per acre
0 cubic feet per acre = 1.3994 cubic meter per hectare
square foot basal area per acre = 0.2296 square meter per hectare
square meter per hectare = 4.356 square feet per acre

Literature Cited

- Bickford, C.A. The sampling design used in the forest survey of the Northeast. *J. For.* 50 (4): 290-293; 1952.
- Bruce, Donald; Schumacher, Francis X. *Forest mensuration*. 3d ed. New York: McGraw-Hill; 1950. 483 p.
- Hegg, Karl M. Forest resources of the Susitna Valley, Alaska. *Resour. Bull.* PNW-32. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1970. 42 p.
- Hegg, Karl M. Forest statistics for the upper Koyukuk River, Alaska, 1971. *Resour. Bull.* PNW-54. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1974. 26 p.
- Hegg, Karl M. Timber resource statistics for the Copper River inventory unit, Alaska, 1968. *Resour. Bull.* PNW-62. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1975a. 55 p.
- Hegg, Karl M. Timber resource statistics for the Fairbanks block, Tanana inventory unit, Alaska, 1970. *Resour. Bull.* PNW-59. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1975b. 36 p.
- Hegg, Karl M. Timber resource statistics for the Tuxedni Bay inventory unit, Alaska, 1971. *Resour. Bull.* PNW-88. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1979. 43 p.
- Hegg, Karl M. Timber resource statistics for the Kantishna block, Tanana inventory unit, Alaska, 1973. *Resour. Bull.* PNW-95. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 32 p.
- Hegg, Karl M.; Sieverding, Harold. Timber resources of the Kuskokwim flood plain and adjacent upland. *Resour. Bull.* PNW-87. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1980. 40 p.
- Hutchison, O. Keith. Alaska's forest resource. *Resour. Bull.* PNW-19. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1967. 74 p.
- Little, Elbert L., Jr. Check list of native and naturalized trees of the United States (including Alaska). *Agric. Handb.* 41. Washington, DC: U.S. Department of Agriculture; 1953. 472 p.



Hegg, Karl M. Timber resource statistics for the Upper Tanana block, Tanana inventory unit, Alaska, 1974. Resour. Bull. PNW-100. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 34 p.

This report for the 3.6-million-acre Upper Tanana block is the third of four on the 14-million-acre Tanana Valley forest inventory unit. Descriptions of area, climate, forest, general resource use, and inventory methodology are presented. Area and volume tables are provided for commercial and operable noncommercial forest lands. Estimates for commercial forest land total 396,200 acres with 528.7 million cubic feet of growing stock volume. Estimates for the operable noncommercial class total 97,400 acres with 131 million net cubic feet of growing stock volume.

Keywords: Timber resources, resources (forest), statistics (forest), Alaska (Tanana River valley).

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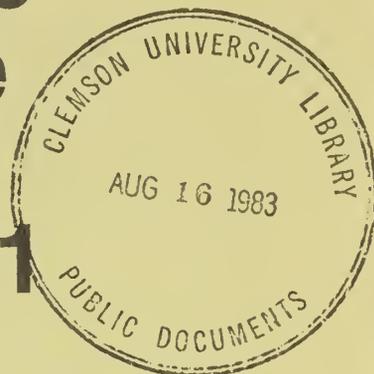
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Timber Resource Statistics for the Sitka Inventory Unit, Alaska, 1971

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Abstract

van Hees, Willem W.S.; LaBau, Vernon J. Timber resource statistics for the Sitka inventory unit, 1971. Resour. Bull. PNW-101. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 35 p.

This report summarizes a 1971 timber resource inventory of the Sitka unit in southeast Alaska. Estimates for timberland total 821,700 acres (332 500 ha) with 4.8 billion cubic feet (137.6 million m³) of net growing stock volume. Annual net growth is estimated at -36.8 million cubic feet and mortality at 59.7 million cubic feet (-1.0 and 1.7 million m³, respectively). Detailed tables of forest area, timber volume, growth, and mortality are presented.

Keywords: Forest surveys, timber resources, statistics (forest), timber inventory, resources (forest), Alaska (southeast).

Summary

This report for the 2.6-million-acre (1.0-million-ha) Sitka timber inventory unit is the second in a series of six reports for southeast Alaska. The Sitka inventory unit includes all of Chichagof and Baranof Islands. Except for cities, towns, and private in-holdings, the unit is entirely within the Tongass National Forest.

This is the first general reinventory of the forests in the Sitka unit, which were first inventoried in 1956. It is also the second remeasurement of the growth and mortality plots established in 1956; they were first remeasured in 1965.

Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality statistics are presented from the 1971 timber resource inventory of the Sitka unit. Estimates for timberland total 821,700 acres (332 500 ha) with a net growing stock volume of 4.8 billion cubic feet (137.6 million m³). Net annual growth and mortality are estimated at -36.8 and 59.7 million cubic feet (-1.0 and 1.7 million m³), respectively.

Preface

Forest Inventory and Analysis (formerly Forest Survey) is a nationwide project of the USDA Forest Service authorized by the Forest and Rangeland Renewable Resources Research Act of 1978. Work units of the project, located at Forest Service Experiment Stations, conduct forest resource inventories throughout the 50 States. The Pacific Northwest Forest and Range Experiment Station at Portland, Oregon, is responsible for inventories in Alaska, California, Hawaii, Oregon, and Washington.

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Highlights

	<i>Thousand acres</i>	<i>Thousand hectares</i>
Total Sitka inventory unit area:	2,571.8	1 040.8
With forest	1,665.5	674.0
With nonforest	893.0	361.4
With non-Census water	13.3	5.4
With Census water	34.9	14.1
Forested area:		
Timberland	821.7	332.5
Other forest land	843.8	341.5
Timberland composition:		
Old-growth sawtimber	751.9	304.3
Young-growth sawtimber	36.2	14.6
Poletimber	3.7	1.5
Seedlings and saplings, and nonstocked	29.9	12.1
Timberland forest type composition:		
Sitka spruce	94.3	38.2
Hemlock-spruce	161.1	65.2
Western hemlock	358.3	145.0
Mountain hemlock	127.0	51.4
Alaska-cedar	63.7	25.8
Lodgepole pine	1/	1/
Other softwoods	1/	1/
Red alder	12.5	5.1
Cottonwood-poplar	4.6	1.9
Other hardwoods	1/	1/

	<i>All growing stock</i>		<i>Sawtimber growing stock</i>	
	<i>Million cubic feet^{2/}</i>	<i>Million cubic meters^{2/}</i>	<i>Million board feet^{3/}</i>	<i>Million cubic meters^{4/}</i>
Volumes of timberland:				
Total gross volume	14,543.4	411.8	32,180.1	143.9
Total net volume	4,858.1	137.6	22,870.5	129.5
Annual net growth	-36.8	-1.0	-186.0	-.9
Annual net mortality	59.7	1.7	312.1	1.7

^{1/} No data were collected.

^{2/} Volume of roundwood for live trees 5.0 inches (12.7 cm) in d.b.h. and larger.

^{3/} Net volume, International 1/4-inch rule, for trees 11.0 inches (28 cm) in d.b.h. and larger.

^{4/} Volume of roundwood for trees 11.0 inches (28 cm) in d.b.h. and larger.

Introduction

This report for the 2.6-million-acre (1.0-million-ha) Sitka timber inventory unit is the second in a series of six reports for southeast Alaska. The Sitka inventory unit lies between 56° and 58°30' north latitude, and 134°30' and 136°40' west longitude in the panhandle of southeast Alaska and includes all of Chichagof and Baranof Islands (fig. 1). Except for cities, towns, and private in-holdings, the unit is entirely within the Tongass National Forest.

Soils of the Sitka unit are generally well drained and strongly acidic, causing only slight or moderate restrictions to tree growth. Predominant soil parent materials include graywacke, slate, schist, limestone, siltstone, gabbro, and dolomite. Additionally, much of Baranof Island and parts of Chichagof Island are covered by ancient deposits of volcanic ash. In places, this ash layer is over 3 feet (0.9 m) thick. Deposits of copper, nickel, and chromium have been found.

The dominant vegetative type is the coastal western hemlock-Sitka spruce forest with alpine tundra and barren ground appearing at elevations above 2,500-3,000 feet (750-900 m).

This is the first general reinventory of the forests in the Sitka unit, which were first inventoried in 1956. It is also the second remeasurement of the growth and mortality plots established in 1956; they were first remeasured in 1965.

Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality statistics are presented for the 1971 timber resource inventory of the Sitka unit. Estimates for timberland total 821,700 acres (332,500 ha) with a net growing stock volume of 4.8 billion cubic feet (137.6 million m³). Net annual growth and mortality are estimated at -36.8 and 59.7 million cubic feet (-1.0 and 1.7 million m³), respectively.

Inventory Procedures

The estimates of area and timber volumes for the 1971 timber reinventory are based on a double sampling (2-phase) procedure (Bickford 1952). In the first phase of the sampling study, 11,925 photo points were systematically distributed over 1:15,840-scale aerial photographs, then interpreted. Each photo point was classified by land type, volume class, stand size, forest type, crown closure and operability class. Of the 11,925 photo plots, 189 were measured on the ground in the second phase of the sampling effort. Corrected area classifications and measurements of volume on these ground plots serve as the basis for the area and volume estimates presented in this report.

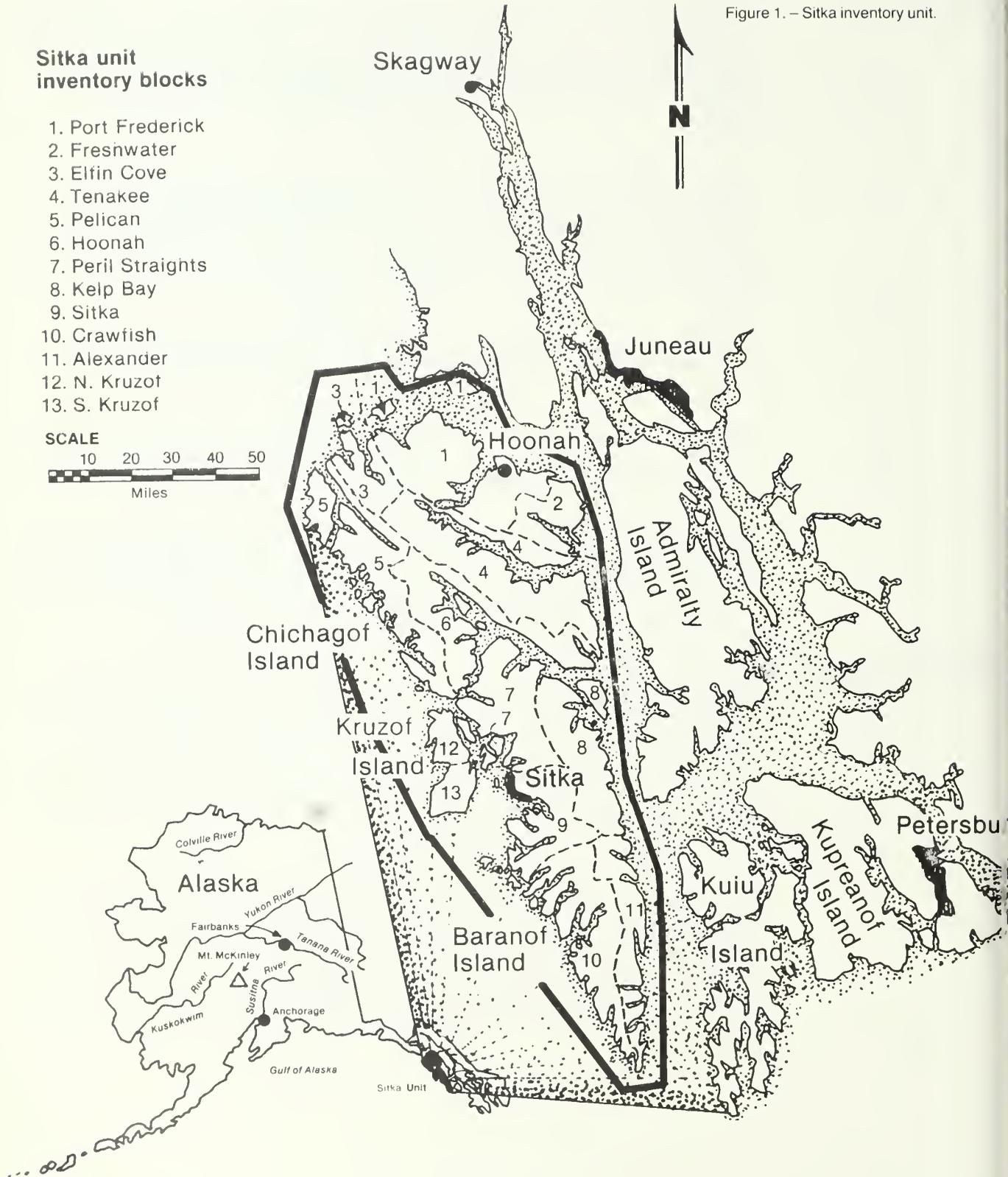
The estimates of growth and mortality volumes presented are from 1971 remeasurements of 33 timber inventory plots established in 1956. Growth information from the reinventory plots was based on increment borings; the mortality estimates were based on estimates of the number of years since the trees died. Because mortality information is difficult to obtain this way, we used both the mortality and growth information from the remeasurement data rather than that from the reinventory data. The area base for the 1971 estimates of growth and mortality was calibrated to coincide with the area found in the 1971 timber reinventory.

Figure 1. - Sitka inventory unit.

**Sitka unit
inventory blocks**

1. Port Frederick
2. Freshwater
3. Elfin Cove
4. Tenakee
5. Pelican
6. Hoonah
7. Peril Straights
8. Kelp Bay
9. Sitka
10. Crawfish
11. Alexander
12. N. Kruzof
13. S. Kruzof

SCALE



Ownership Statistics

Statistics on land ownership are not presented in this report because of uncertainties of land status changes associated with Alaska Native and State of Alaska land selections and wilderness area withdrawals. These land status changes are the result of federal legislation: the Alaska Statehood Act of 1958, Public Law 85-508; the Alaska Native Claims Settlement Act of 1971, Public Law 92-203; and the Alaska National Interest Lands Conservation Act, Public Law 96-487. Alaska Native land selections and decisions on wilderness withdrawals were nearly complete at the end of 1982, but Alaska State selections will remain uncertain for the next 5-10 years. Fieldwork for our study was completed in 1971; we have delayed publishing the results, anticipating that shifts in land ownership would be resolved by now and the information gathered on ownership could be reprocessed and resummarized for inclusion here.

With the promise of further delays in resolving ownership changes, we decided to release the statistics available now. Statistics on ownership and reserved land status plus a resource analysis will be presented in the future when the status of land shifts is more clear. It is clear now, however, that the Alaska Native and Alaska State land selections are concentrating more on timberlands than previously, which will leave a smaller proportion of the better timberland in Federal ownership.

Timber Harvesting

A summary of timber volumes cut in the Sitka area of the Tongass National Forest is provided in table 24. Although this area does not coincide exactly with the inventory boundaries used by Forest Inventory and Analysis (FIA), the volume-cut figures provide an understanding of the amount of logging activity occurring in the area from the time of the Sitka unit inventory, in 1971, through 1980.

Reliability of Inventory Data

All area and volume statistics reported here are estimates based on sampling and are subject to sampling error. Sampling errors for all the estimates presented in the tables are available on request. The reliability of the inventory is expressed in terms of relative sampling error at the 68-percent confidence level:

	<u>Design sampling error</u>	<u>Sampling error achieved</u>	<u>Sampling error of the estimate</u>
	----- Percent -----		
Area:			
Timberland, per million acres	3.0	2.2	2.4, for 0.821 million acres
Other forest land, per million acres	10.0	2.6	2.8, for 0.844 million acres
Net volume:			
Timberland, per billion cubic feet	10.0	7.0	3.2, for 4.858 billion ft ³
Net growth:			
Timberland, per billion cubic feet	10.0	16.4	86.2, for -0.036 billion ft ³

For the Sitka inventory unit, we estimate 4.858 billion cubic feet of net growing stock volume \pm 3.2 percent, yielding 68-percent confidence limits of 4.703 and 5.013 billion cubic feet. A 68-percent confidence level means that upon repeated sampling, about 68 percent of the confidence intervals constructed for each sample would capture the true total value of the parameter being estimated.

We met our design sampling error for timberland area (3 percent), forest land area (10 percent), and net volume on timberland (10 percent).

Terminology^{5/}

Allowable cut — The volume of timber that could be cut on timberland during a given period under specified management plans for sustained production, such as those in effect on National Forests.

Census water — Areas of water classed as water by the Bureau of the Census that are at least 40 acres (16 ha) in size and a minimum width of one-eighth mile (200 m). (Also see non-Census water.)

Class of timber — A classification of trees as growing stock, cull, and salvable dead. Growing stock trees are subdivided into poletimber and sawtimber trees.

Commercial species — A tree species suitable for industrial wood products.

Cull logs — Softwood sawtimber logs with two-thirds or more of the board-foot volume in cull material. Hardwood sawtimber logs with half or more of the volume in cull material.

Cull material — Portions of a tree unusable for industrial products because of rot, form, or other defect.

Cull trees — Live trees of sawtimber or poletimber size that are not merchantable for saw logs nor are they likely to become merchantable because of defect, rot, or species.

D.b.h. — Diameter at breast height, a point 4½ feet (1.37 m) above the ground on the uphill side of a tree, where, on a normally formed tree, the diameter is measured.

Diameter class — A classification of trees based on diameter of the tree outside bark measured at breast height, 4½ feet (1.37 m) above the ground. D.b.h. is the common abbreviation for “diameter at breast height.” Each 2-inch diameter class is assigned to the appropriate even inch at midpoint. For example, the 6-inch class includes trees 5.0 through 6.9 inches d.b.h.

Established seedling — A tree 6.0 inches (15.24 cm) tall, up to 1.0 inch (2.54 cm) in diameter, with good coloration, no evidence of disease, and with a root system preferably in contact with the mineral soil. For seedlings growing on stumps or logs to be tallied, they must be well enough established to survive after the supporting material has decayed.

^{5/} Terminology is from USDA Forest Service, Forest Service Handbook, Title 4613.1, 1967, and the manual of field instructions for the forest survey of coastal Alaska, 1970.

Forest land — Land at least 16.7 percent stocked by live trees of any size, or land formerly having such tree cover and not currently developed for nonforest use. Includes chaparral areas in the western United States and afforested areas. The minimum area for classification as forest land or subclasses of forest land is 1 acre (0.4 ha). Roadside, streamside, and shelterbelt strips of timber must be at least 120 feet (36 m) wide to be classified as forest land. Unimproved roads and trails, streams, and clearings in forest areas must be less than 120 feet wide to be classified as forest land. (Also see timberland, other forest land, reserved forest land, and nonforest land.)

Forest trees — Woody plants having a well-developed stem and usually more than 12 feet tall, including both growing stock and cull trees.

Forest types — A classification of forest land based on the species forming a plurality of stocking on the area currently occupied by tree cover. The following summarizes the forest types of coastal Alaska:

Alaska-cedar — Forests in which Alaska-cedar comprises the plurality of the stocking. Common associates are mountain or western hemlock, lodgepole pine, western redcedar, and occasionally Sitka spruce.

Black cottonwood — Forests in which cottonwood comprises the plurality of the stocking. Common associates in southeast Alaska are red alder and Sitka spruce.

Fir-spruce — Forests in which subalpine or Pacific silver fir in combination with Sitka spruce comprises the plurality of the stocking. Common associates are black cottonwood, mountain hemlock, and western hemlock.

Hemlock-spruce — Forests in which 50 percent or more of the stand is western hemlock or mountain hemlock and where Sitka spruce comprises 30-49 percent of the stocking. Common associates are Alaska-cedar, western redcedar, and occasionally cottonwood, red alder, or lodgepole pine.

Lodgepole pine — Forests in which lodgepole pine comprises the plurality of the stocking. Common associates are mountain hemlock, Alaska-cedar, and western hemlock.

Mountain hemlock — Forests in which mountain hemlock comprises the plurality of the stocking. Common associates are western hemlock and Alaska-cedar.

Other hardwoods — Forests in which noncommercial hardwoods, such as willow and alder other than red alder, comprise the plurality of the stocking. Common associates are black cottonwood and Sitka spruce.

Other softwoods — Forests in which noncommercial softwoods, such as Pacific yew, and junipers comprise the plurality of the stocking. Common associates are Alaska-cedar and mountain hemlock.

Pacific silver fir — Forests in which Pacific silver fir comprises the plurality of the stocking. Common associates are black cottonwood, Sitka spruce, mountain hemlock, and western hemlock.

Red alder — Forests in which red alder comprises the plurality of the stocking. Common associates are black cottonwood, Sitka spruce, western hemlock, and occasionally western redcedar and/or Alaska-cedar.

Sitka spruce — Forests in which Sitka spruce comprises the plurality of the stocking. Common associates are western hemlock, western redcedar, and occasionally cottonwood, red alder, and Alaska-cedar.

Subalpine fir — Forests in which subalpine fir comprises the plurality of the stocking. Common associates are black cottonwood, Sitka spruce, mountain hemlock, and western hemlock.

True fir — Forests in which Pacific silver and subalpine firs comprise the plurality of the stocking. Common associates are black cottonwood, Sitka spruce, mountain hemlock, and western hemlock.

Western hemlock — Forests in which western hemlock comprises the plurality of the stocking. Common associates are Sitka spruce, Alaska-cedar, western redcedar, mountain hemlock, and occasionally cottonwood, red alder, or lodgepole pine.

Western redcedar — Forests in which western redcedar comprises the plurality of the stocking. Common associates are Sitka spruce, western hemlock, Alaska-cedar, and occasionally cottonwood, red alder, and mountain hemlock.

Gross growth — Net annual growth plus the annual growth on mortality.

Growing stock trees — All live trees except cull trees.

Growing stock volume — Net volume in cubic feet of live sawtimber and poletimber growing stock trees from stump to a minimum 4.0-inch (10-cm) top (of central stem) outside the bark. Net volume equals gross volume less deductions for rot and missing bole sections.

Growth — See net annual growth, gross growth, and ingrowth.

Hardwoods — (1) Trees that are angiosperms, usually broad-leaved and often deciduous. (2) Forests predominantly cottonwood or red alder, singly or in combination.

Ingrowth — The net volume of trees that grew into poletimber or sawtimber growing stock during a specified year.

Inoperable timberland — Includes areas of timberland that are presently inoperable because of marginal volume (usually less than 20,000 board feet per acre) or rough, rocky, cliffy, or otherwise broken terrain. This also includes pockets of high volume timberland that are isolated or more than one-fourth mile (396 m) from operable timberland areas. (Also see operable timberland.)

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

Land area — Area reported as land by the Bureau of the Census. Total land area includes dry land and land temporarily or partially covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than one-eighth mile (200 m) wide; and lakes, reservoirs, and ponds less than 40 acres (16 ha) in area. (Also see non-Census water.)

Land class — A classification of land by major use, such as timberland, other forest, and nonforest. The minimum size area for classification is 1 acre (0.4 ha).

Log grades — A classification of logs based on external characteristics as indicators of quality or value.

Management blocks — Units delineated for timber management by the National Forest System of the USDA Forest Service, usually oriented to islands and/or watershed complexes.

Mean annual increment (MAI) — A measure of the productivity of forest land in terms of the average increase in cubic-foot volume per acre per year. The FIA minimum standard for timberland is the ability to produce 20 cubic feet per acre (1.4 m³/ha) per year.

Merchantable height — Height of a tree expressed in the number of 16-foot (5-m) logs to a merchantable top.

Merchantable saw log — For softwood sawtimber, a merchantable saw log must be at least 12 feet (3.6 m) long to a minimum top of 7.0 inches (18 cm) outside the bark or to a top diameter inside the bark that is 40 percent of d.b.h. At least one-third of its board-foot volume must be in sound, recoverable wood. For hardwood sawtimber, a merchantable saw log must be at least 8 feet (2.5 m) long to a minimum top of 9.0 inches (23 cm) outside the bark or to a top diameter inside the bark that is 40 percent of d.b.h. At least half of its board-foot volume must be in sound, recoverable wood.

Merchantable stem — For softwoods, the portion of the tree between the 1-foot (0.3-m) stump and either the top diameter of 7.0 inches (18 cm) outside the bark or to a top diameter inside the bark that is 40 percent of d.b.h., whichever is larger. For hardwoods, the portion of the tree between the 1-foot stump and either the top diameter of 9.0 inches (23 cm) outside the bark or to a top diameter inside the bark that is 40 percent of d.b.h., whichever is larger.

Merchantable top — The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum merchantable top is 7.0 inches (18 cm) outside the bark for softwoods, and 9.0 inches (23 cm) outside the bark for hardwoods.

Merchantable tree — A merchantable tree must be producing or be capable of producing at least one merchantable saw log that is at least 50-percent sound for hardwoods or 33-percent sound for softwoods, board-foot measure. All poletimber that is less than 50-percent sound, cubic-foot measure, and all saplings with any sign of rot are not considered merchantable trees, but rotten culls. All trees that are of such poor form that they will never produce a merchantable saw log are not classed as merchantable trees, but as sound culls or rough trees.

Mortality — The number of or the sound wood volume from live trees dying from natural causes during a specified period.

Mortality of growing stock — The volume of sound wood in live sawtimber and pole-timber trees dying annually from natural causes during a specified period.

Mortality of sawtimber — The net board-foot volume of sawtimber trees dying annually from natural causes during a specified period.

Mortality tree — On plots being measured for the first time, a tree of commercial species, at least 1 inch (2.54 cm) in d.b.h. or larger that has died within the past 5 years; on plots being remeasured, a tree of commercial species at least 1 inch in d.b.h. that has died since the previous measurement was made.

Net annual growth — The increase in net volume of wood for growing stock trees during a specified year. Components of net annual growth are: (a) the increment in net volume of trees alive at the beginning of the specified year, including that on periodic mortality, plus (b) the net volume of trees reaching sawtimber or pole-timber size during the year, minus (c) the net volume of trees that died during the year, minus (d) the net volume lost to tree decay during the year.

Net volume — The gross volume of a tree less deductions for rot, sweep, or other defects affecting product use.

Non-Census water — Areas of water classed as land by the Bureau of the Census, but that are 1-40 acres (0.4-16 ha) in size with a minimum width of 120 feet (36 m) and a maximum width of one-eighth mile (200 m). (Also see Census water.)

Noncommercial species — A tree species of typically small size, poor form, or inferior quality that normally is not suitable for industrial products.

Nonforest land — Land that does not qualify as forest land. Includes land that has never supported forests and lands formerly forested where forest use is precluded by development for nonforest uses. Included are lands used for agricultural crops, improved pasture, residential areas, city parks, improved roads, operating railroads and their right-of-way clearings, and pipeline clearings. If intermingled in forest areas, unimproved roads, streams, canals, and nonforest strips must be more than 120 feet (36 m) wide, and clearings or other areas must be 1 acre (0.4 ha) or larger to qualify as nonforest land.

Nonstocked land — Timberland less than 16.7 percent stocked with growing stock trees

Old-growth stands — Stands with at least 50 percent of the live-tree stocking per acre comprised of old-growth trees.

Old-growth trees — Trees that have reached or passed the age of physiological maturity, assumed to be 150 years for coastal Alaska.

Operable timberland — All timberland considered silviculturally and economically operable. This includes areas on stable soils, on slopes that are not too steep to log without causing serious site damage, and stands valuable enough to pay the logging costs using the methods and costs in effect at the time of the inventory. Stands that require new, undeveloped logging methods are not in the operable class.

Other forest land — Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions. This includes sterile or poorly drained forest land, subalpine forests, and steep rocky areas where topographic conditions are likely to prevent management for timber production indefinitely. In coastal Alaska, this includes forest lands which are not capable of producing 8,000 board feet per acre (net International ¼-inch rule).

Poletimber stands — Stands at least 16.7 percent stocked with growing stock trees, with half or more of this stocking in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Poletimber trees — Growing stock trees 5.0 to 10.9 inches (12.5 to 27.5 cm) in d.b.h.

Quality saw log — See merchantable saw log.

Reserved forest land — Forest land withdrawn from timber utilization through statute or administrative regulation.

Rotten trees — Live trees at least 5.0 inches (12.7 cm) in d.b.h. that do not contain a saw log and are not likely to, primarily because of rot.

Rotten cull trees — Live trees that do not contain a merchantable saw log and are not likely to, primarily because of rot.

Rough trees — Live trees that do not contain a merchantable saw log and are not likely to, primarily because of roughness, poor form, or they are noncommercial species.

Salvable dead trees — Standing or down dead trees of commercial species at least 11.0 inches (28 cm) in d.b.h., containing at least 50 percent of their volume in sound wood, and with at least one merchantable saw log.

Sapling stands — See seedling and sapling stands.

Sapling trees — Trees 1.0 to 4.9 inches (2.5 to 12.5 cm) in d.b.h.

Saw log — A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet (2.5 m) long, sound and straight, and with a minimum small-end diameter of 6.0 inches (15 cm) inside the bark for softwoods and 8.0 inches (20 cm) for hardwoods.

Saw-log portion — The bole of sawtimber trees between the stump and the saw-log top.

Saw-log top — The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum top diameter is 7.0 inches (18 cm) outside the bark for softwoods and 9.0 inches (23 cm) outside the bark for hardwoods.

Sawtimber stands — Stands at least 16.7 percent stocked with growing stock trees, with half or more of this stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to that of poletimber.

Sawtimber trees — Growing stock trees at least 11.0 inches (28 cm) in d.b.h.

Sawtimber volume — Net volume of sawtimber trees measured in board feet. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Scribner, bureau scale — A common timber scaling rule using 32-foot log lengths.

Scribner rule — The common board-foot rule used locally in determining volume of sawtimber.

Seedling and sapling stands — Stands at least 16.7 percent stocked with growing stock trees and with saplings and/or seedlings comprising more than half this stocking.

Seedling — An established tree less than 1.0 inch (2.5 cm) in d.b.h.

Site class — A classification of forest land based on its capacity to grow crops of industrial wood.

Softwoods — Coniferous trees, usually evergreen with needles or scalelike leaves. Species in coastal Alaska are Sitka spruce, western hemlock, mountain hemlock, Alaska cedar, western redcedar, lodgepole pine, Pacific silver fir, subalpine fir, and Pacific yew.

Sound cull tree — See rough tree.

Stand age class — A classification of forest land based on the predominant age of trees in a given stand.

Stand size class — A classification of forest land based on the predominant size of timber present: sawtimber, poletimber, or seedlings and saplings.

Stocking — A measure of the area occupied by trees of specified classes. FIA forest inventories consider three categories of stocking: all live trees, growing stock trees, and desirable trees. Stocking of all live trees is used to delineate forest land and forest types. Stocking of growing stock trees is used in classifications of stand size and stand age. Stocking of desirable trees is used to delineate area condition classes.

Stump height — For all timber volume estimates, 1 foot (0.3 m).

Timber harvest — Volume of roundwood removed from forest land for products.

Timberland — Forest land producing or capable of producing crops in industrial wood and not withdrawn from timber utilization. Areas qualifying as timberland could produce in excess of 20 cubic feet per acre (1.4 m³/ha) per year of industrial wood under management. In old-growth forests of coastal Alaska, this is equated to stands that could produce 8,000 board feet per acre (net International ¼-inch rule).

Tree size class — A classification of sawtimber trees, poletimber trees, saplings, and seedlings based on the diameter at breast height.

Upper-stem portion — The bole of sawtimber trees above the saw-log top — 7.0 inches (18 cm) outside the bark for softwoods and 9.0 inches (23 cm) outside the bark for hardwoods — to a minimum top diameter of 4.0 inches (10 cm) outside the bark, or to the point where the central stem breaks into limbs.

Volume of growing stock — Volume of sound wood in the bole of live growing stock sawtimber and poletimber trees from stump to a minimum 4.0-inch (10-cm) top outside the bark or to the point where the central stem breaks into limbs.

Volume of salvable dead sawtimber-sized trees — Net volume of standing or down, dead, sawtimber-sized trees that contain 50-percent sound board-foot volume.

Volume of sawtimber — Net volume of the saw-log portion of live growing stock sawtimber trees, expressed in board feet.

Water — See Census water and non-Census water.

Young-growth stands — Stands with at least 50 percent of the live-tree stocking per acre comprised of young-growth trees.

Young-growth trees — Trees that have not passed the age of physiological maturity, assumed to be 150 years for coastal Alaska.

Common name	Scientific name
Softwoods:	
Alaska-cedar	<i>Chamaecyparis nootkatensis</i> (D. Don) Spach
Fir, Pacific silver	<i>Abies amabilis</i> (Dougl.) Forbes
Fir, subalpine	<i>A. lasiocarpa</i> (Hook.) Nutt.
Hemlock, mountain	<i>Tsuga mertensiana</i> (Bong.) Carr.
Hemlock, western	<i>T. heterophylla</i> (Raf.) Sarg.
Pine, lodgepole	<i>Pinus contorta</i> Dougl.
Redcedar, western	<i>Thuja plicata</i> Donn
Spruce, Sitka	<i>Picea sitchensis</i> (Bong.) Carr.
Yew, Pacific	<i>Taxus brevifolia</i> Nutt.
Hardwoods:	
Alder, red	<i>Alnus rubra</i> Bong.
Cottonwood, black	<i>Populus trichocarpa</i> Torr. & Gray
Willow, Barclay	<i>Salix barclayi</i> Anderss.
Willow, Bebb	<i>S. bebbiana</i> Sarg.
Willow, feltleaf	<i>S. alaxensis</i> (Anderss.) Cov.
Willow, grayleaf	<i>S. glauca</i> L.
Willow, hooker	<i>S. hookeriana</i> Barratt
Willow, Sitka	<i>S. sitchensis</i> Sanson
Willow, Pacific	<i>S. lasiandra</i> Benth.

^{6/} Scientific names are according to Viereck and Little (1972).

Tables

Estimates in this report are developed from statistically based samples and therefore are subject to sampling error. Sampling errors for estimates of various sizes are presented in the section "Reliability of Inventory Data."

Table 1 — Area of forest land by forest type and forest land class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

FOREST TYPE	TIMBERLAND	OTHER FOREST	ALL CLASSES
	<u>THOUSAND ACRES</u>		
SOFTWOODS:			
SITKA SPRUCE	94.35	63.14	157.49
HEMLOCK-SITKA SPRUCE	161.14	135.29	296.43
WESTERN HEMLOCK	358.35	166.86	525.21
MOUNTAIN HEMLOCK	126.99	162.35	289.34
ALASKA-CEDAR	63.71	289.09	352.80
LOGEPOLE PINE	--	27.06	27.06
OTHER SOFTWOODS	--	--	--
TOTAL	804.54	843.79	1,648.33
HARDWOODS:			
BLACK COTTONWOOD	4.59	--	4.59
RED ALDER	12.55	--	12.55
OTHER HARDWOODS	--	--	--
TOTAL	17.14	--	17.14
ALL TYPES	821.68	843.79	1,665.47

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 2 — Area by land class and management block, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

LAND CLASS	PORT FREDERICK	FRESHWATER	ELFIN COVE	TENAKEE	PELICAN	HOONAH	PERIL STRAITS	NORTH KRUZOF	SOUTH KRUZOF	SITKA	KELP BAY	CRAWFISH	ALEXANDER	AL 8LC
ACRES														
TIMBERLAND:														
SEEDLING AND SAPLING, AND NONSTOCKED POLETIMBER	4,245	--	--	--	--	4,245	16,979	4,409	--	--	--	--	--	29
SAWTIMBER VOLUME STRATA ^{2/}	--	--	--	--	--	--	--	--	--	3,714	--	--	--	3
8,000 to 20,000	31,758	21,887	4,588	40,708	22,683	31,937	4,510	4,588	13,765	13,765	4,510	31,758	8,997	235
20,001 to 30,000	40,575	40,669	4,588	27,084	22,582	22,503	31,859	4,588	8,817	8,918	9,098	22,763	13,499	257
30,001 to 50,000	62,738	13,320	4,409	53,356	13,405	22,137	22,582	17,908	4,502	13,499	22,316	8,910	9,091	268
50,001 OR MORE	8,911	9,005	--	8,997	--	--	--	--	--	--	--	--	--	26
TOTAL	148,227	84,881	13,585	130,145	58,670	80,822	75,930	31,493	27,084	39,896	35,924	63,431	31,587	821
OTHER FOREST LAND:														
ROCKY	--	--	--	--	--	--	--	--	--	4,510	4,510	18,039	9,019	36
LOW VOLUME 3/	18,039	9,019	--	22,627	27,058	27,215	9,019	4,510	9,019	9,098	--	36,156	4,510	176
MUSKEG FOREST	58,626	9,019	18,039	18,039	81,175	45,097	27,058	9,019	13,608	4,509	9,019	9,020	4,510	306
HIGH ELEVATION FOREST	13,529	9,019	18,039	54,116	27,058	27,058	36,078	4,510	--	27,058	40,587	18,039	13,529	288
RECURRENT SLIDE ZONE	18,039	4,510	--	--	--	--	--	4,509	--	--	--	4,510	4,510	36
OTHER NONPRODUCTIVE	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL	108,233	31,567	36,078	94,782	135,291	99,370	72,155	22,548	22,627	45,175	54,116	85,764	36,078	843
NONFOREST:														
FARMS AND GRASSLANDS	9,020	--	--	--	--	--	--	--	--	--	--	--	--	9
ALOER SHRUBLAND	--	4,510	--	22,551	22,550	9,020	27,061	4,510	--	4,510	18,041	--	9,021	121
NON-ALOER SHRUBLAND	22,551	13,531	--	27,061	9,020	9,020	--	--	--	4,510	18,040	36,082	18,041	157
ALPINE MEADOW	31,571	--	18,041	40,591	45,102	27,061	18,041	--	--	4,510	27,061	31,571	13,530	257
MUSKEG MEADOW	4,510	--	--	4,510	27,062	4,510	9,020	4,510	9,021	9,020	--	--	--	72
URBAN AND OTHER	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ALPINE ROCK	9,020	13,531	13,531	18,041	40,591	4,510	13,531	--	4,510	18,041	18,041	31,571	45,101	230
ICE AND SNOWFIELDS	--	--	--	--	--	--	--	--	--	9,020	31,572	--	--	45
TOTAL	76,672	31,572	31,572	112,754	148,835	54,121	67,653	9,020	13,531	49,611	112,755	99,224	85,693	893
NON-CENSUS WATER ^{4/}	--	--	4,443	--	4,443	--	--	--	--	--	--	4,442	--	13
ALL LANDS	333,132	148,020	85,678	337,681	347,239	234,313	215,738	63,061	63,242	134,682	202,795	252,861	153,358	2,571

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Board feet Scribner scale, except base value of 8,000 board feet is International 1/4-inch rule.

^{3/} Less than 8,000 board feet per acre, International 1/4-inch rule.

^{4/} Water as classified by Forest Inventory and Analysis standards.

Table 3 — Number of growing stock trees on timberland by species and diameter class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)							
	SEEDLINGS LESS THAN 1.0	1.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>THOUSAND TREES</u>							
SOFTWOODS:								
ALASKA-CEDAR	50,597.50	23,252.46	6,695.58	1,312.25	93.40	5.03	--	81,956.23
SITKA SPRUCE	244,316.72	33,033.58	6,380.68	2,834.23	1,097.34	312.64	118.59	288,093.79
LOGEPOLE PINE	--	--	--	--	--	--	--	--
WESTERN HEMLOCK	445,678.36	114,022.84	19,751.00	7,046.83	1,844.66	312.55	59.26	588,715.51
MOUNTAIN HEMLOCK	115,423.95	47,209.18	7,614.88	2,197.85	267.89	24.54	7.91	172,746.21
TOTAL	856,016.53	217,518.06	40,442.14	13,391.16	3,303.29	654.76	185.76	1,131,511.74
HARDWOODS:								
RED ALDER	11,675.10	5,897.75	410.88	17.43	--	--	--	18,001.17
BLACK COTTONWOOD	972.92	--	--	75.11	26.11	--	--	1,074.14
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	12,648.02	5,897.75	410.88	92.54	26.11	--	--	19,075.31
ALL SPECIES	868,664.56	223,415.81	40,853.03	13,483.72	3,329.40	654.76	185.76	1,150,587.04

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 4 — Number of growing stock trees on old-growth timberland by species and diameter class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)							
	SEEDLINGS LESS THAN 1.0	1.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
<u>THOUSAND TREES</u>								
SOFTWOODS:								
ALASKA-CEDAR	50,597.50	23,252.47	6,679.80	1,303.17	93.40	5.03	--	81,931.37
SITKA SPRUCE	214,758.15	28,801.48	5,543.97	2,568.98	1,024.06	291.76	113.68	253,102.09
LOGSPOLE PINE	--	--	--	--	--	--	--	--
WESTERN HEMLOCK	392,953.80	109,278.53	18,723.81	6,951.48	1,840.99	312.55	59.26	530,120.41
MOUNTAIN HEMLOCK	113,006.43	45,515.27	7,432.29	2,185.51	264.67	24.54	7.91	168,436.61
TOTAL	771,315.88	206,847.75	38,379.87	13,009.14	3,223.12	633.88	180.85	1,033,590.48
HARDWOODS:								
RED ALDER	--	3,091.59	56.16	--	--	--	--	3,147.74
BLACK COTTONWOOD	--	--	--	--	--	--	--	--
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	--	3,091.59	56.16	--	--	--	--	3,147.74
ALL SPECIES	771,315.88	209,939.32	38,436.03	13,009.14	3,223.12	633.88	180.85	1,036,738.22

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 5— Number of growing stock trees on young-growth timberland by species and diameter class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)							
	SEEDLINGS LESS THAN 1.0	1.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>THOUSAND TREES</u>							
SOFTWOODS:								
ALASKA-CEDAR	--	--	15.78	9.08	--	--	--	24.86
SITKA SPRUCE	29,558.57	4,232.10	836.71	265.25	73.28	20.88	4.91	34,991.70
LOGEPOLE PINE	--	--	--	--	--	--	--	--
WESTERN HEMLOCK	52,724.57	4,744.31	1,027.19	95.36	3.67	--	--	58,595.10
MOUNTAIN HEMLOCK	2,417.52	1,693.92	182.60	12.34	3.22	--	--	4,309.59
TOTAL	84,700.66	10,670.33	2,062.28	382.03	80.17	20.88	4.91	97,921.25
HARDWOODS:								
RED ALDER	11,675.10	2,806.16	354.73	17.44	--	--	--	14,853.42
BLACK COTTONWOOD	972.93	--	--	75.11	26.11	--	--	1,074.14
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	12,648.03	2,806.16	354.73	92.55	26.11	--	--	15,927.56
ALL SPECIES	97,348.68	13,476.50	2,417.00	474.58	106.28	20.88	4.91	113,848.82

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 6 — Number of growing stock mortality trees per year on timberland by stand size class and diameter class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

STAND SIZE CLASS	DIAMETER CLASS (INCHES AT BREAST HEIGHT)						
	1.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>THOUSAND TREES</u>						
SAWTIMBER STANDS:							
YOUNG GROWTH	1,873.32	19.18	--	1.09	--	--	1,893.60
OLD GROWTH	8,080.12	245.87	178.73	31.33	20.86	--	8,556.93
POLETIMBER	247.60	--	--	--	--	--	247.60
SEEDLINGS AND SAPLINGS	--	--	--	--	--	--	--
NONSTOCKED	--	--	--	--	--	--	--
ALL CLASSES	10,201.04	265.06	178.73	32.43	20.86	--	10,698.13

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 7 — Net volume of growing stock on timberland, in cubic feet and volume per acre, by forest type and stand size class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

FOREST TYPE AND UNIT	SAWTIMBER		POLETIMBER	SEEDLINGS AND SAPLINGS	NONSTOCKED	ALL CLASSES
	OLD GROWTH	YOUNG GROWTH				
TRUE FIR: ^{2/}						
FT ³	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FT ³ /ACRE	--	--	--	--	--	--
HEMLOCK-SPRUCE:						
FT ³	1,024,288,678	--	--	521,610	0	1,024,810,288
ACRES	148,406	--	--	8,490	4,245	161,141
FT ³ /ACRE	6,902	--	--	61	0	6,360
WESTERN REDCEDAR:						
FT ³	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FT ³ /ACRE	--	--	--	--	--	--
SITKA SPRUCE:						
FT ³	432,321,971	109,634,795	--	47,160	--	542,003,926
ACRES	71,928	18,173	--	4,245	--	94,346
FT ³ /ACRE	6,010	6,033	--	11	--	5,244
MOUNTAIN HEMLOCK:						
FT ³	631,582,797	--	--	--	--	631,582,797
ACRES	126,992	--	--	--	--	126,992
FT ³ /ACRE	4,973	--	--	--	--	4,973
WESTERN HEMLOCK:						
FT ³	2,291,242,496	43,920,859	--	1,048,911	0	2,336,212,265
ACRES	340,879	8,817	--	4,409	4,245	358,348
FT ³ /ACRE	6,722	4,981	--	238	0	6,519
ALASKA-CEDAR:						
FT ³	273,897,667	--	--	--	--	273,897,667
ACRES	63,712	--	--	--	--	63,712
FT ³ /ACRE	4,299	--	--	--	--	4,299
LODGEPOLE PINE:						
FT ³	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FT ³ /ACRE	--	--	--	--	--	--
RED ALDER:						
FT ³	--	24,238,446	1,805,615	0	--	26,044,062
ACRES	--	4,588	3,714	4,245	--	12,547
FT ³ /ACRE	--	5,283	486	0	--	2,076
BLACK COTTONWOOD:						
FT ³	--	23,563,613	--	--	--	23,563,613
ACRES	--	4,588	--	--	--	4,588
FT ³ /ACRE	--	5,136	--	--	--	5,136
ALL TYPES:						
FT ³	4,653,333,609	201,357,714	1,805,615	1,617,682	0	4,858,114,616
ACRES	751,917	36,167	3,714	21,388	8,490	821,675
FT ³ /ACRE	6,189	5,567	486	76	0	5,912

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Subalpine fir and Pacific silver fir.

Table 8 — Net volume of sawtimber on timberland, in board feet International 1/4-inch rule and volume per acre, by forest type and stand size class, Sitka unit, southeast coastal Alaska, 1971^{1/}

FOREST TYPE AND UNIT	SAWTIMBER		POLETIMBER	SEEDLINGS AND SAPLINGS	NONSTOCKED	ALL CLASSES
	OLD GROWTH	YOUNG GROWTH				
TRUE FIR: ^{2/}						
FBM 3/	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FBM/ACRE	--	--	--	--	--	--
HEMLOCK-SPRUCE:						
FBM	5,085,446,029	--	--	0	0	5,085,446,029
ACRES	148,406	--	--	8,490	4,245	161,141
FBM/ACRE	34,267	--	--	0	0	34,267
WESTERN REDCEDAR:						
FBM	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FBM/ACRE	--	--	--	--	--	--
SITKA SPRUCE:						
FBM	2,192,692,826	559,486,918	--	0	--	2,752,179,743
ACRES	71,928	18,173	--	4,245	--	94,346
FBM/ACRE	30,485	30,787	--	0	--	29,171
MOUNTAIN HEMLOCK:						
FBM	2,805,748,998	--	--	--	--	2,805,748,998
ACRES	126,992	--	--	--	--	126,992
FBM/ACRE	22,094	--	--	--	--	22,094
WESTERN HEMLOCK:						
FBM	10,735,220,582	184,652,546	--	0	0	10,919,873,128
ACRES	340,879	8,817	--	4,409	4,245	358,348
FBM/ACRE	31,493	20,943	--	0	0	30,472
ALASKA-CEGAR:						
FBM	1,033,802,880	--	--	--	--	1,033,802,880
ACRES	47,379	--	--	--	--	47,379
FBM/ACRE	21,820	--	--	--	--	21,820
LODGEPOLE PINE:						
FBM	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FBM/ACRE	--	--	--	--	--	--
RED ALDER:						
FBM	--	137,206,274	4,406,603	--	--	141,612,876
ACRES	--	4,588	3,714	--	--	12,547
FBM/ACRE	--	29,905	1,186	--	--	11,287
BLACK COTTONWOOD:						
FBM	--	131,852,800	--	--	--	131,852,800
ACRES	--	4,588	--	--	--	4,588
FBM/ACRE	--	28,739	--	--	--	28,739
ALL TYPES:						
FBM	21,852,911,315	1,013,198,537	4,406,603	--	--	22,870,513,312
ACRES	1,224,563	67,700	6,762	--	--	1,321,636
FBM/ACRE	17,845	14,966	652	--	--	17,305

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Subalpine fir and Pacific silver fir.

^{3/} FBM = board-foot measure, International 1/4-inch rule.

Table 9— Net volume of timber, cubic feet, on timberland by class of timber and by softwoods and hardwoods, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

CLASS OF TIMBER	SOFTWOODS	HARDWOODS	ALL SPECIES
<u>MILLION CUBIC FEET</u>			
SAWTIMBER TREES:			
SAW-LOG PORTION	4,434.58	25.60	4,460.17
UPPER-STEM PORTION	115.98	0.73	116.71
TOTAL	4,550.56	26.33	4,576.88
POLETIMBER TREES	280.48	0.75	281.23
ALL GROWING STOCK	4,831.04	27.08	4,858.11
ROUGH TREES	0.67	--	0.67
ROTTEN TREES	146.61	0.46	147.07
SALVABLE DEAD TREES	102.51	--	102.51
ALL TIMBER	5,080.83	27.54	5,108.36

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 10 — Net volume of sawtimber, International 1/4-inch rule, on timberland by species and diameter class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)					
	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
<u>THOUSAND BOARD FEET</u>						
SOFTWOODS:						
ALASKA-CEGAR	579,666.61	371,987.60	46,693.61	5,809.77	--	1,004,157.58
SITKA SPRUCE	1,302,081.82	2,241,877.87	2,051,037.71	1,064,557.18	715,842.41	7,375,396.99
LOGEPOLE PINE	--	--	--	--	--	--
WESTERN HEMLOCK	3,702,820.50	4,732,600.10	2,334,475.52	682,155.06	173,463.58	11,625,514.77
MOUNTAIN HEMLOCK	1,191,646.86	1,189,080.47	294,048.98	43,312.64	15,647.65	2,733,736.61
TOTAL	6,594,496.68	8,535,546.04	4,726,255.82	1,630,109.98	904,953.64	22,738,805.95
HARWOODS:						
RED ALDER	50,760.30	5,116.17	--	--	--	55,876.48
BLACK COTTONWOOD	--	38,275.06	37,562.33	--	--	75,837.39
OTHER HARDWOODS	--	--	--	--	--	--
TOTAL	50,760.30	40,948.06	37,562.33	--	--	131,713.87
ALL SPECIES	6,826,976.09	8,578,937.27	4,763,818.16	5,242,155.75	904,953.64	22,870,519.83

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 11 — Net volume of old growth, International 1/4-inch rule, on timberland by species and diameter class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)					
	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
<u>MILLION BOARD FEET</u>						
SOFTWOODS:						
ALASKA-CEDAR	577.69	370.41	46.69	5.81	--	1,000.60
SITKA SPRUCE	1,113.39	2,034.96	1,902.85	1,004.53	686.92	6,742.66
LOGSPOLE PINE	--	--	--	--	--	--
WESTERN HEMLOCK	3,541.67	4,679.71	2,331.20	682.16	173.46	11,408.19
MOUNTAIN HEMLOCK	1,173.80	1,175.55	288.38	43.31	15.65	2,696.69
TOTAL	6,406.55	8,260.62	4,569.13	1,735.81	876.03	21,848.15
HARDWOODS:						
RED ALDER	4.77	--	--	--	--	4.77
BLACK COTTONWOOD	--	--	--	--	--	--
OTHER HARDWOODS	--	--	--	--	--	--
TOTAL	4.77	--	--	--	--	4.77
ALL SPECIES	6,411.32	8,260.62	4,569.13	1,735.81	876.03	21,852.91

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 12 — Net volume of young growth, International 1/4-inch rule, on timberland by species and diameter class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)					
	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>MILLION BOARD FEET</u>					
SOFTWOODS:						
ALASKA-CEGAR	1.97	1.58	--	--	--	3.55
SITKA SPRUCE	188.68	206.92	148.19	60.03	28.92	632.74
LOGEPOLE PINE	--	--	--	--	--	--
WESTERN HEMLOCK	161.16	52.89	3.27	--	--	217.32
MOUNTAIN HEMLOCK	17.85	13.53	5.66	--	--	37.04
TOTAL	369.66	274.92	157.13	60.03	28.92	890.66
HARDWOODS:						
RED ALDER	45.99	5.12	--	--	--	51.11
BLACK COTTONWOOD	--	38.28	37.56	--	--	75.84
OTHER HARDWOODS	--	--	--	--	--	--
TOTAL	45.99	43.39	37.56	--	--	126.95
ALL SPECIES	415.65	318.31	194.69	60.03	28.92	1,017.61

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 13 — Net volume of growing stock, cubic feet, on timberland by species and diameter class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)						
	5.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>MILLION CUBIC FEET</u>						
SOFTWOODS:							
ALASKA-CEGAR	41.28	156.10	88.12	10.78	1.12	--	297.40
SITKA SPRUCE	42.71	269.99	404.80	350.84	176.10	121.63	1,366.07
LOGEPOLE PINE	--	--	--	--	--	--	--
WESTERN HEMLOCK	145.52	788.86	943.28	475.52	135.35	37.54	2,526.06
MOUNTAIN HEMLOCK	50.97	267.13	247.96	62.47	9.23	3.74	641.50
TOTAL	280.48	1,482.09	1,684.16	899.60	321.80	162.90	4,831.04
HARDWOODS:							
RED ALDER	0.75	11.34	1.17	--	--	--	13.26
BLACK COTTONWOOD	--	--	7.24	6.57	--	--	13.82
OTHER HARDWOODS	--	--	--	--	--	--	--
TOTAL	0.75	11.34	8.42	6.57	--	--	27.08
ALL SPECIES	281.23	1,493.43	1,692.57	906.18	321.80	162.90	4,858.12

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 14 — Net volume of old growth, cubic feet, on timberland by species and diameter class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)						
	5.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	MILLION CUBIC FEET						
SOFTWOODS:							
ALASKA-CEDAR	41.28	155.60	87.69	10.78	1.12	--	296.47
SITKA SPRUCE	35.93	235.28	370.07	327.07	166.12	116.82	1,251.28
LOGEPOLE PINE	--	--	--	--	--	--	--
WESTERN HEMLOCK	138.02	755.37	932.21	474.70	135.35	37.54	2,473.18
MOUNTAIN HEMLOCK	48.67	262.81	245.60	61.25	9.23	3.74	631.29
TOTAL	263.90	1,409.06	1,635.56	873.79	311.82	158.09	4,652.22
HARDWOODS:							
RED ALDER	--	1.11	--	--	--	--	1.11
BLACK COTTONWOOD	--	--	--	--	--	--	--
OTHER HARDWOODS	--	--	--	--	--	--	--
TOTAL	--	1.11	--	--	--	--	1.11
ALL SPECIES	263.90	1,410.17	1,635.56	873.79	311.82	158.09	4,653.33

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 15 — Net volume of young growth, cubic feet, on timberland by species and diameter class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)						
	5.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>THOUSAND CUBIC FEET</u>						
SOFTWOODS:							
ALASKA-CEDAR	--	500.63	432.03	--	--	--	932.66
SITKA SPRUCE	6,783.01	34,718.90	34,725.52	23,775.17	9,980.41	4,809.18	114,792.18
LOGEPOLE PINE	--	--	--	--	--	--	--
WESTERN HEMLOCK	7,491.41	33,495.39	11,070.97	821.24	--	--	52,879.01
MOUNTAIN HEMLOCK	2,307.40	4,316.14	2,365.33	1,219.34	--	--	10,208.21
TOTAL	16,581.82	73,031.06	48,593.85	25,815.75	9,980.41	4,809.18	178,812.06
HARWOODS:							
RED ALOER	751.92	10,227.38	1,171.00	--	--	--	12,150.30
BLACK COTTONWOOD	--	--	7,244.87	6,573.80	--	--	13,818.67
OTHER HARWOODS	--	--	--	--	--	--	--
TOTAL	751.92	10,227.38	8,415.87	6,573.80	--	--	25,968.97
ALL SPECIES	17,333.73	83,258.44	57,009.72	32,389.55	9,980.41	4,809.18	204,781.03

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 16 — Net annual growth of growing stock, cubic feet, on timberland by species and stand size class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND CUBIC FEET</u>					
SOFTWOODS:					
ALASKA-CEDAR	--	--	7.57	-249.22 ^{2/}	-241.64
SITKA SPRUCE	--	12.38	547.93	-9,458.36	-8,898.05
LOGEPOLE PINE	--	--	--	--	--
WESTERN HEMLOCK	--	150.21	621.16	-30,649.66	-29,878.29
MOUNTAIN HEMLOCK	--	--	--	2,396.37	2,396.37
TOTAL	--	162.59	1,176.66	-37,960.86	-36,621.61
HARDWOODS:					
RED ALDER	--	--	-178.91	--	-178.91
BLACK COTTONWOOD	--	--	28.73	--	28.73
OTHER HARDWOODS	--	--	--	--	--
TOTAL	--	--	-150.18	---	-150.18
ALL SPECIES	--	162.59	1,026.47	-37,960.86	-36,771.79

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Negative net annual growth indicates that annual mortality exceeded gross annual growth.

Table 17 — Net annual growth of sawtimber, International 1/4-inch rule, on timberland by species and stand size class, Sitka unit, southeast coastal Alaska, 1971 1/

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND BOARD FEET</u>					
SOFTWOODS:					
ALASKA-CEDAR	--	--	36.92	-1,823.78 2/	-1,786.86
SITKA SPRUCE	--	7.06	6,477.41	-66,778.09	-60,293.61
LOGGEDLE PINE	--	--	--	--	--
WESTERN HEMLOCK	--	546.81	4,171.53	-145,940.51	-141,222.16
MOUNTAIN HEMLOCK	--	--	--	17,467.85	17,467.85
TOTAL	--	553.87	10,685.86	-197,074.52	-185,834.79
HARDWOODS:					
RED ALDER	--	--	-432.06	--	-432.06
BLACK COTTONWOOD	--	--	238.09	--	238.09
OTHER HARDWOODS	--	--	--	--	--
TOTAL	--	--	-193.97	--	-193.97
ALL SPECIES	--	553.87	10,491.89	-197,074.52	-186,028.76

estimates are subject to sampling error.

-- = no data were collected.

/ Totals may be off because of rounding.

/ Negative net annual growth indicates that annual mortality exceeded gross annual growth.

Table 18 — Net annual growth of growing stock, cubic feet, on timberland by forest type and stand size class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND CUBIC FEET</u>					
HEMLOCK-SPRUCE	--	162.59	337.45	3,434.24	3,934.28
SITKA SPRUCE	--	--	180.90	--	180.90
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	--	508.12	<u>2/</u> -35,960.49	-35,452.37
ALASKA-CEDAR	--	--	--	-5,434.61	-5,434.61
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	--	--	--
ALL TYPES	--	162.59	1,026.47	-37,960.86	-36,771.79

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Negative net annual growth indicates that annual mortality exceeded gross annual growth.

Table 19 — Net annual growth of sawtimber, International 1/4-inch rule, on timberland by forest type and stand size class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND BOARD FEET</u>					
HEMLOCK-SPRUCE	--	553.87	4,840.89	13,013.56	18,408.31
SITKA SPRUCE	--	--	1,844.11	--	1,844.11
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	--	3,806.90	<u>2/</u> -186,048.21	-182,241.31
ALASKA-CEDAR	--	--	--	-24,039.87	-24,039.87
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	--	--	--
ALL TYPES	--	553.87	10,491.89	-197,074.52	-186,028.76

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Negative net annual growth indicates that annual mortality exceeded gross annual growth.

Table 20 — Average annual mortality of growing stock, cubic feet, on timberland by species and stand size class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

SPECIES	SEEDLING AND SAPLING	POLE TIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND CUBIC FEET</u>					
SOFTWOODS:					
ALASKA-CEDAR	--	--	--	1,781.51	1,781.51
SITKA SPRUCE	--	--	581.71	18,327.14	18,908.84
LOGGEDLE PINE	--	--	--	--	--
WESTERN HEMLOCK	--	--	389.91	38,483.91	38,873.82
MOUNTAIN HEMLOCK	--	--	--	--	--
TOTAL	--	--	971.62	58,592.55	59,564.17
HARDWOODS:					
RED ALDER	--	--	118.34	--	118.34
BLACK COTTONWOOD	--	--	--	--	--
OTHER HARDWOODS	--	--	--	--	--
TOTAL	--	--	118.34	--	118.34
ALL SPECIES	--	--	1,089.96	58,592.55	59,682.51

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 21 — Average annual mortality of sawtimber, International 1/4-inch rule, on timberland by species and stand size class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND BOARD FEET</u>					
SOFTWOODS:					
ALASKA-CEDAR	--	--	--	6,864.34	6,864.34
SITKA SPRUCE	--	--	2,548.44	111,665.35	114,213.78
LODGEPOLE PINE	--	--	--	--	--
WESTERN HEMLOCK	--	--	827.03	189,515.51	190,342.54
MOUNTAIN HEMLOCK	--	--	--	--	--
<hr/>					
TOTAL	--	--	3,375.46	308,045.20	311,420.67
HARDWOODS:					
RED ALDER	--	--	674.16	--	674.16
BLACK COTTONWOOD	--	--	--	--	--
OTHER HARDWOODS	--	--	--	--	--
<hr/>					
TOTAL	--	--	674.16	--	674.16
<hr/>					
ALL SPECIES	--	--	4,049.62	308,045.20	312,094.83

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 22 — Average annual mortality of growing stock, cubic feet, on timberland by forest type and stand size class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND CUBIC FEET</u>					
HEMLOCK-SPRUCE	--	--	228.04	1,205.81	1,433.85
SITKA SPRUCE	--	--	490.54	--	490.54
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	--	371.38	49,830.91	50,202.29
ALASKA-CEDAR	--	--	--	7,555.83	7,555.83
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	--	--	--
ALL TYPES	--	--	1,039.96	58,592.55	59,682.51

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 23 — Average annual mortality of sawtimber, International 1/4-inch rule, on timberland by forest type and stand size class, Sitka unit, southeast coastal Alaska, 1971 ^{1/}

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND BOARD FEET</u>					
HEMLOCK-SPRUCE	--	--	23.66	6,892.10	6,915.76
SITKA SPRUCE	--	--	3,166.45	--	3,166.45
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	--	855.51	267,142.96	268,002.46
ALASKA-CEDAR	--	--	--	34,010.15	34,010.15
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	--	--	--
ALL TYPES	--	--	4,049.62	308,045.20	312,094.83

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 24 — Summary of timber harvest, Scribner and International 1/4-inch rules, in the Sitka working circle of the Tongass National Forest, southeast coastal Alaska, 1971-80

YEAR OF HARVEST	VOLUME CUT, INTERNATIONAL 1/4-INCH RULE	VOLUME CUT, SCRIBNER RULE, BUREAU SCALE <u>1/</u>
- - THOUSAND BOARD FEET - -		
1971	58,612.23	49,522.35
1972	98,869.06	83,535.95
1973	96,987.72	81,946.38
1974	88,330.46	74,631.73
1975	77,788.87	65,724.98
1976	106,509.84	89,991.76
1977	104,669.17	88,436.55
1978	92,302.79	77,988.01
1979	100,957.41	85,300.43
1980	42,473.15	35,886.20
TOTAL	968,475.37	818,279.37

1/Scribner, bureau scale volume = International 1/4-inch volume x 0.84. (Bones, James E. Relating products output to inventory estimates on the Tongass Forest. Juneau, AK: Northern Forest Experiment Station; 1963. Office report.)

Acknowledgments

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Timber operability classification by: Okla H. Duffel.

Office compilation by: John M. Berger, supervisor (Portland); David Jacobs, reinventory edit and compilations (Portland); Patti Bassett, remeasurement edit and compilations (Portland); Marion Simons, table and output compilations (Portland); Vernon J. LaBau, supervisor (Anchorage); Gary Carroll, table and output compilations (Anchorage).

Statistical report prepared by: Willem W.S. van Hees and Vernon J. LaBau.

Metric Equivalents

1 inch = 2.54 centimeters (cm)

1 foot = 0.3048 meter (m)

1 mile = 1.609 kilometers (km)

1 acre = 0.4047 hectares (ha)

1 cubic foot = 0.0283 cubic meter (m³)

1 cubic foot per acre = 0.07 cubic meter per hectare (m³/ha)

20 cubic feet per acre = 1.3994 cubic meters per hectare (m³/ha)

1 square foot of basal area per acre = 0.2296 square meter per hectare (m²/ha)

Literature Cited

Bickford, C. A. The sampling design used in the forest survey of the Northeast. *J. For.* 50(4): 290-393; 1952.

Viereck, Leslie A.; Little, Elbert E., Jr. Alaska trees and shrubs. Agric. Handb. 410. Washington, DC: U.S. Department of Agriculture; 1972. 265 p.

van Hees, Willem W.S.; LaBau, Vernon J. Timber resource statistics for the Sitka inventory unit, 1971. Resour. Bull. PNW-101. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 35 p.

This report summarizes a 1971 timber resource inventory of the Sitka unit in southeast Alaska. Estimates for timberland total 821,700 acres (332 500 ha) with 4.8 billion cubic feet (137.6 million m³) of net growing stock volume. Annual net growth is estimated at -36.8 million cubic feet and mortality at 59.7 million cubic feet (-1.0 and 1.7 million m³, respectively). Detailed tables of forest area, timber volume, growth, and mortality are presented.

Keywords: Forest surveys, timber resources, statistics (forest), timber inventory, resources (forest), Alaska (southeast).

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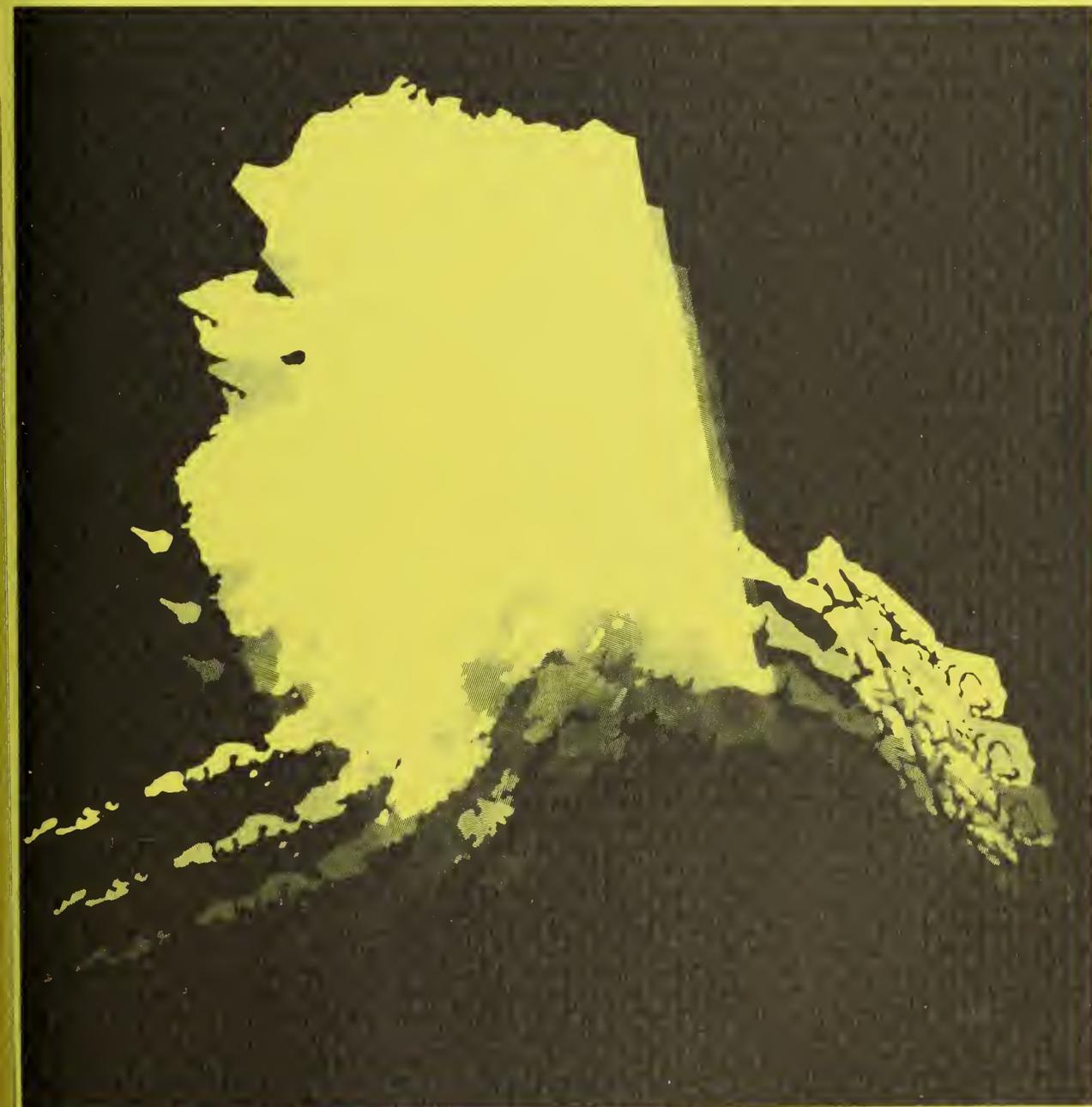
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Timber Resource Statistics for the Petersburg/Wrangell Inventory Unit, Alaska, 1972

Willem W.S. van Hees and Vernon J. LaBau



Authors

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Abstract

van Hees, Willem W. S.; LaBau, Vernon J. Timber resource statistics for the Petersburg/Wrangell inventory unit, Alaska, 1972. Resour. Bull. PNW-102. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 36 p.

Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality are presented from the 1972 timber inventory of the Petersburg/Wrangell unit, Alaska. Timberland area is estimated at 1.3 million acres (520 770 ha), net growing stock volume at 7.1 billion cubic feet (200.2 million m³), and annual net growth and mortality at -40.0 and 69.2 million cubic feet (-1.1 and 1.9 million m³), respectively.

Keywords: Forest surveys, timber inventory, statistics (forest), resources (forest), Alaska (southeast).

Summary

This report for the 3.0-million-acre (1.2-million-ha) Petersburg/Wrangell timber inventory unit is the third in a series of six reports for southeast Alaska. The Petersburg/Wrangell unit is in the panhandle of southeast Alaska, and includes Kupreanof, Kuiu, Zarembo, Etolin, Woronofski, and Wrangell Islands. The eastern border of the unit is coincident with the United States-Canadian border. Except for cities, towns, and private in-holdings, the unit is entirely within the Tongass National Forest.

This is the first general reinventory of the forests in the Petersburg/Wrangell unit, which were first inventoried in 1956. It is also the second remeasurement of the growth and mortality plots established in 1956; they were first remeasured in 1966.

Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality are presented from the 1972 timber resource inventory of the Petersburg/Wrangell unit. Timberland area is estimated at 1.3 million acres (520 770 ha), net growing stock volume at 7.1 billion cubic feet (200.2 million m³), and annual net growth and mortality at -40.0 and 69.2 million cubic feet (-1.1 and 1.9 million m³), respectively.

Preface

Forest Inventory and Analysis (formerly Forest Survey) is a nationwide project of the USDA Forest Service authorized by the Forest and Rangeland Renewable Resources Research Act of 1978. Work units of the project, located at Forest Service Experiment Stations, conduct forest resource inventories throughout the 50 States. The Pacific Northwest Forest and Range Experiment Station at Portland, Oregon, is responsible for inventories in Alaska, California, Hawaii, Oregon, and Washington.

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Table 22 — Average annual mortality of growing stock, cubic feet, on timberland by forest type and stand size class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972

Table 23 — Average annual mortality of sawtimber, International 1/4-inch rule, on timberland by forest type and stand size class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972

Table 24 — Summary of timber harvest, Scribner and International 1/4-inch rules, in the Stikine working circle of the Tongass National Forest, southeast coastal Alaska, 1974-80

Highlights

	<i>Thousand acres</i>	<i>Thousand hectares</i>
Total Petersburg/Wrangell inventory unit area:	3,014.36	1 219.87
With forest	2,229.81	902.37
With nonforest	769.35	311.35
With non-Census water	15.21	6.15
With Census water	1/	1/
Forested area:		
Timberland	1,286.85	520.77
Other forest land	942.96	381.60
Timberland composition:		
Old-growth sawtimber	1,199.08	485.25
Young-growth sawtimber	40.78	16.50
Poletimber	5.29	2.14
Seedlings and saplings, and nonstocked	41.70	16.88
Timberland forest type composition:		
Sitka spruce	68.82	27.85
Hemlock-spruce	160.81	65.08
Western redcedar	6.75	2.73
Western hemlock	892.02	360.99
Mountain hemlock	33.78	13.67
Alaska-cedar	115.05	46.56
Lodgepole pine	1/	1/
Other softwoods	1/	1/
Red alder	2.65	1.07
Cotton/poplar	6.99	2.83
Other hardwoods	1/	1/

	All growing stock		Sawtimber growing stock	
	<i>Million cubic feet^{2/}</i>	<i>Million cubic meters^{2/}</i>	<i>Million board feet^{3/}</i>	<i>Million cubic meters^{4/}</i>
Volumes of timberland:				
Total gross volume	7,923.20	224.36	50,173.49	209.19
Total net volume	7,068.93	200.17	32,539.65	185.60
Annual net growth	-40.02	-1.13	-168.08	-1.23
Annual net mortality	69.19	1.96	318.91	1.74

1/ No data were collected.

2/ Volume of roundwood for live trees 5.0 inches (12.7 cm) in d.b.h. and larger.

3/ Net volume, International 1/4-inch rule, for trees 11.0 inches (28 cm) in d.b.h. and larger.

4/ Volume of roundwood for trees 11.0 inches (28 cm) in d.b.h. and larger.

Introduction

This report for the 3.0-million-acre (1.2-million-ha) Petersburg-Wrangell timber inventory unit is the third in a series of six reports for southeast Alaska. The Petersburg-Wrangell unit is in the panhandle of southeast Alaska, and includes Kupreanof, Kuiu, Zarembo, Etolin, and Wrangell Islands (fig. 1). The eastern border of the unit is coincident with the United States-Canadian border. Except for cities, towns, and private in-holdings, the unit is entirely within the Tongass National Forest.

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Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality statistics are presented from the 1972 timber resource inventory of the Petersburg-Wrangell unit. Timberland area is estimated at 1.3 million acres (520 790 ha), net growing stock volume at 7.1 billion cubic feet (200.1 million m³), and annual net growth and mortality at -40.0 and 69.2 million cubic feet (-1.1 and 1.9 million m³), respectively.

Inventory Procedures

The sampling design used to derive area and timber volume estimates from the 1972 Petersburg-Wrangell timber reinventory used a double sampling (2-phase) technique (Bickford 1952). In the first phase of the sampling study, 13,677 photo points were systematically distributed over a 1:15,840 aerial photo sample base, and were then interpreted. Each photo point was classified by land type, volume class, stand size class, forest type, crown closure, and operability class. From the 13,677 photo points, a field sample of 209 ground plots was selected. Corrected area classifications and tree measurements made on these ground plots served as the basis for the area and volume estimates presented in this report.

Estimates of growth and mortality volumes presented are from remeasurements of 47 timber inventory plots established in 1956 and remeasured for the second time in 1972. The growth information from the reinventory plots was based on increment borings; the mortality estimates were based on estimations of the number of years since the tree died. Because mortality information is difficult to obtain this way, we used both the mortality and growth information from the remeasurement data rather than that from the reinventory data. The area base for the 1972 growth and mortality remeasurement estimates was calibrated to coincide with that found in the 1972 timber reinventory.

Petersburg/Wrangell unit inventory blocks

1. Kuiu
2. Kupreanof
3. Lindenberg
4. Thomas Bay
5. Mitkoff
6. Zarembo
7. Stikine
8. Garnet
9. Etolin
10. Wrangell
11. Aaron
12. Anan
13. Bradfield

Scale

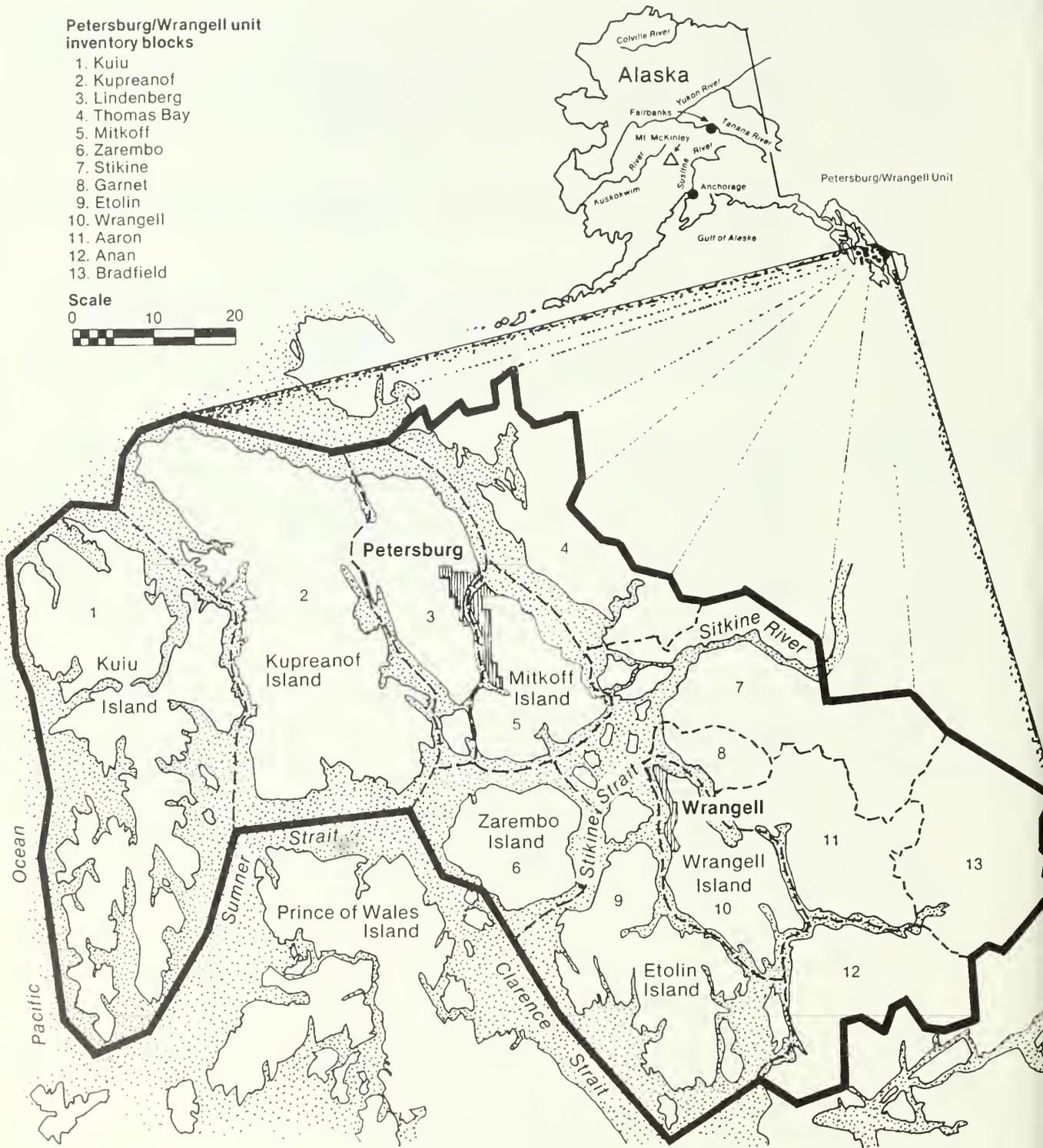
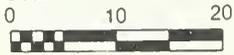


Figure 1. — Petersburg/Wrangell inventory unit.

Ownership Statistics

Statistics on land ownership are not presented in this report because of uncertainties of land status changes associated with Alaska Native and State of Alaska land selections and wilderness area withdrawals. These changes in land status are the result of Federal legislation: the Alaska Statehood Act of 1958, Public Law 85-508; the Alaska Native Claims Settlement Act of 1971, Public Law 92-203; and the Alaska National Interest Lands Conservation Act, Public Law 96-487. Alaska Native land selections and decisions on wilderness withdrawals were still indefinite at the end of 1981, and the Alaska State selections will remain uncertain for the next 5-10 years. Fieldwork for our study was completed in 1972; we have delayed publishing the results, anticipating that shifts in land ownership would be resolved by now and the information on new ownership patterns could be reprocessed and resummarized for inclusion here.

With the promise of further delays in resolving ownership changes, we decided to release the statistics available now. Statistics on ownership and reserved land status plus resource analyses will be presented in the future when the status of land shifts is more clear. It is clear now, however, that the Alaska Native and State of Alaska land selections have concentrated more on timberlands than previously, which will leave a smaller proportion of the better timberland in Federal ownership when selections are completed.

Timber Harvesting

A summary of timber volumes cut in the Stikine area of the Tongass National Forest is provided in table 24. Although this area does not coincide exactly with the inventory boundaries used by Forest Inventory and Analysis (FIA), the volume-cut figures provide an understanding of the amount of logging activity occurring in the area from shortly after the 1972 inventory of the Petersburg/Wrangell unit through 1980.

Reliability of Inventory Data

All area and volume statistics reported here are estimates based on sampling and are subject to sampling error. Sampling errors for all the estimates presented in the tables are available on request. The reliability of the inventory is expressed in terms of relative sampling errors at the 68-percent confidence level:

	<u>Design sampling error</u>	<u>Sampling error achieved</u>	<u>Sampling error of the estimate</u>
	-----Percent-----		
Area:			
Timberland, per million acres	3.0	2.9	2.5, for 1.286 million acres
Other forest land, per million acres	10.0	4.1	4.2, for 0.942 million acres
Net volume:			
Timberland, per billion cubic feet	10.0	8.4	3.2, for 7.068 billion ft ³
Net growth:			
Timberland, per billion cubic feet	10.0	11.9	59.6, for -0.040 billion ft ³

For the Petersburg/Wrangell inventory unit, we estimate 7.068 billion cubic feet of net growing-stock volume, ± 3.15 percent, yielding 68-percent confidence limits of 6.846 and 7.292 billion cubic feet. A 68-percent confidence level means that upon repeated sampling, about 68 percent of the confidence intervals constructed for each sample would capture the true value of the parameter being estimated.

We met our design sampling error for timberland area (3 percent), for other forest land (10 percent), and for net volume on timberland (10 percent).

Terminology^{5/}

Allowable cut — The volume of timber that could be cut on timberland during a given period under specified management plans for sustained production, such as those in effect on National Forests.

Census water — Areas of water classed as water by the Bureau of the Census that are at least 40 acres (16 ha) in size and a minimum width of one-eighth mile (200 m). (Also see non-Census water.)

Class of timber — A classification of trees as growing stock, cull, and salvable dead. Growing stock trees are subdivided into poletimber and sawtimber trees.

Commercial species — A tree species suitable for industrial wood products.

Cull logs — Softwood sawtimber logs with two-thirds or more of the board-foot volume in cull material. Hardwood sawtimber logs with one-half or more of the volume in cull material.

Cull material — Portions of a tree unusable for industrial products because of rot, form, or other defect.

Cull trees — Live trees of sawtimber or poletimber size that are not merchantable for saw logs nor are they likely to become merchantable because of defect, rot, or species.

D.b.h. — Diameter at breast height, a point 4½ feet (1.37 m) above the ground on the uphill side of a tree, where, on a normally formed tree, the diameter is measured.

Diameter class — A classification of trees based on diameter of the tree outside bark measured at breast height, 4½ feet (1.37 m) above the ground. D.b.h. is the common abbreviation for "diameter at breast height." Each 2-inch diameter class is assigned to the appropriate even inch at midpoint. For example, the 6-inch class includes trees 5.0 through 6.9 inches d.b.h.

Established seedling — A tree 6.0 inches (15.24 cm) tall, up to 1.0 inch (2.54 cm) in diameter, with good coloration, no evidence of disease, and with a root system preferably in contact with the mineral soil. For seedlings growing on stumps or logs to be tallied, they must be well enough established to survive after the supporting material has decayed.

^{5/} Terminology is from USDA Forest Service, Forest Service Handbook, Title 4813.1, 1967, and the manual of field instructions for the forest survey of coastal Alaska, 1970.

Forest land — Land at least 16.7 percent stocked by live trees of any size, or land formerly having such tree cover and not currently developed for nonforest use. Includes chaparral areas in the western United States and afforested areas. The minimum area for classification as forest land or subclasses of forest land is 1 acre (0.4 ha). Roadside, streamside, and shelterbelt strips of timber must be at least 120 feet (36 m) wide to be classified as forest land. Unimproved roads and trails, streams, and clearings in forest areas must be less than 120 feet wide to be classified as forest land. (Also see timberland, other forest land, reserved forest land, and nonforest land.)

Forest trees — Woody plants having a well-developed stem and usually more than 12 feet tall, including both growing stock and cull trees.

Forest types — A classification of forest land based on the species forming a plurality of stocking on the area currently occupied by tree cover. The following summarizes the forest types of coastal Alaska:

Alaska-cedar — Forests in which Alaska-cedar comprises the plurality of the stocking. Common associates are mountain or western hemlock, lodgepole pine, western redcedar, and occasionally Sitka spruce.

Black cottonwood — Forests in which cottonwood comprises the plurality of the stocking. Common associates are red alder and Sitka spruce.

Fir-spruce — Forests in which subalpine or Pacific silver fir in combination with Sitka spruce comprises the plurality of the stocking. Common associates are black cottonwood, mountain hemlock, and western hemlock.

Hemlock-spruce — Forests in which 50 percent or more of the stand is western hemlock or mountain hemlock and where Sitka spruce comprises 30-49 percent of the stocking. Common associates are Alaska-cedar, western redcedar, and occasionally cottonwood, red alder, or lodgepole pine.

Lodgepole pine — Forests in which lodgepole pine comprises the plurality of the stocking. Common associates are mountain hemlock, Alaska-cedar, and western hemlock.

Mountain hemlock — Forests in which mountain hemlock comprises the plurality of the stocking. Common associates are western hemlock and Alaska-cedar.

Other hardwoods — Forests in which noncommercial hardwoods, such as willow and alder other than red alder, comprise the plurality of the stocking. Common associates are black cottonwood and Sitka spruce.

Other softwoods — Forests in which noncommercial softwoods, such as Pacific yew, and junipers comprise the plurality of the stocking. Common associates are Alaska-cedar and mountain hemlock.

Pacific silver fir — Forests in which Pacific silver fir comprises the plurality of the stocking. Common associates are black cottonwood, Sitka spruce, mountain hemlock, and western hemlock.

Red alder — Forests in which red alder comprises the plurality of the stocking. Common associates are black cottonwood, Sitka spruce, western hemlock, and occasionally western redcedar and/or Alaska-cedar.

Sitka spruce — Forests in which Sitka spruce comprises the plurality of the stocking. Common associates are western hemlock, western redcedar, and occasionally cottonwood, red alder, and Alaska-cedar.

Subalpine fir — Forests in which subalpine fir comprises the plurality of the stocking. Common associates are black cottonwood, Sitka spruce, mountain hemlock, and western hemlock.

True fir — Forests in which Pacific silver and subalpine firs comprise the plurality of the stocking. Common associates are black cottonwood, Sitka spruce, mountain hemlock, and western hemlock.

Western hemlock — Forests in which western hemlock comprises the plurality of the stocking. Common associates are Sitka spruce, Alaska-cedar, western redcedar, mountain hemlock, and occasionally cottonwood, red alder, or lodgepole pine.

Western redcedar — Forests in which western redcedar comprises the plurality of the stocking. Common associates are Sitka spruce, western hemlock, Alaska-cedar, and occasionally cottonwood, red alder, and mountain hemlock.

Gross growth — Net annual growth plus the annual growth on mortality.

Growing stock trees — All live trees except cull trees.

Growing stock volume — Net volume in cubic feet of live sawtimber and poletimber growing stock trees from stump to a minimum 4.0-inch (10-cm) top (of central stem) outside the bark. Net volume equals gross volume less deductions for rot and missing bole sections.

Growth — See net annual growth, gross growth, and ingrowth.

Hardwoods — (1) Trees that are angiosperms, usually broad-leaved and often deciduous. (2) Forests predominantly cottonwood or red alder, singly or in combination.

Ingrowth — The net volume of trees that grew into poletimber or sawtimber growing stock during a specified year.

Inoperable timberland — Includes areas of timberland that are presently inoperable because of marginal volume (usually less than 20,000 board feet per acre) or rough, rocky, cliffy, or otherwise broken terrain. This also includes pockets of high volume timberland that are isolated or more than one-fourth mile (396 m) from operable timberland areas. (Also see operable timberland.)

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

Land area — Area reported as land by the Bureau of the Census. Total land area includes dry land and land temporarily or partially covered by water such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than one-eighth mile (200 m) wide; and lakes, reservoirs, and ponds less than 40 acres (16 ha) in area. (Also see non-Census water.)

Land class — A classification of land by major use, such as timberland, other forest, and nonforest. The minimum size area for classification is 1 acre (0.4 ha).

Log grades — A classification of logs based on external characteristics as indicators of quality or value.

Management blocks — Units delineated for timber management by the National Forest System of the USDA Forest Service, usually oriented to islands and/or watershed complexes.

Mean annual increment (MAI) — A measure of the productivity of forest land in terms of the average increase in cubic-foot volume per acre per year. The FIA minimum standard for timberland is the ability to produce 20 cubic feet per acre (1.4 m³/ha) per year.

Merchantable height — Height of a tree expressed in the number of 16-foot (5-m) logs to a merchantable top.

Merchantable saw log — For softwood sawtimber, a merchantable saw log must be at least 12 feet (3.6 m) long to a minimum top of 7.0 inches (18 cm) outside the bark or to a top diameter inside the bark that is 40 percent of d.b.h. At least one-third of its board-foot volume must be in sound, recoverable wood. For hardwood sawtimber, a merchantable saw log must be at least 8 feet (2.5 m) long to a minimum top of 9.0 inches (23 cm) outside the bark or to a top diameter inside the bark that is 40 percent of d.b.h. At least half of its board-foot volume must be in sound, recoverable wood.

Merchantable stem — For softwoods, the portion of the tree between the 1-foot (0.3-m) stump and either the top diameter of 7.0 inches (18 cm) outside the bark or to a top diameter inside the bark that is 40 percent of d.b.h., whichever is larger. For hardwoods, the portion of the tree between the 1-foot stump and either the top diameter of 9.0 inches (23 cm) outside the bark or to a top diameter inside the bark that is 40 percent of d.b.h., whichever is larger.

Merchantable top — The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum merchantable top is 7.0 inches (18 cm) outside the bark for softwoods, and 9.0 inches (23 cm) outside the bark for hardwoods.

Merchantable tree — A merchantable tree must be producing or be capable of producing at least one merchantable saw log that is at least 50-percent sound for hardwoods or 33-percent sound for softwoods, board-foot measure. All poletimber that is less than 50-percent sound, cubic-foot measure, and all saplings with any sign of rot are not considered merchantable trees, but rotten culls. All trees that are of such poor form that they will never produce a merchantable saw log are not classed as merchantable trees, but as sound culls or rough trees.

Mortality — The number of or the sound wood volume from live trees dying from natural causes during a specified period.

Mortality of growing stock — The volume of sound wood in live sawtimber and poletimber trees dying annually from natural causes during a specified period.

Mortality of sawtimber — The net board-foot volume of sawtimber trees dying annually from natural causes during a specified period.

Mortality tree — On plots being measured for the first time, a tree of commercial species, at least 1 inch (2.54 cm) in d.b.h. or larger that has died within the past 5 years; on plots being remeasured, a tree of commercial species at least 1 inch in d.b.h. that has died since the previous measurement was made.

Net annual growth — The increase in net volume of wood for growing stock trees during a specified year. Components of net annual growth are: (a) the increment in net volume of trees alive at the beginning of the specified year, including that on periodic mortality, plus (b) the net volume of trees reaching sawtimber or poletimber size during the year, minus (c) the net volume of trees that died during the year, minus (d) the net volume lost to tree decay during the year.

Net volume — The gross volume of a tree less deductions for rot, sweep, or other defect affecting product use.

Non-Census water — Areas of water classed as land by the Bureau of the Census, but that are 1-40 acres (0.4-16 ha) in size with a minimum width of 120 feet (36 m) and a maximum width of one-eighth mile (200 m). (Also see Census water.)

Noncommercial species — A tree species of typically small size, poor form, or inferior quality that normally is not suitable for industrial products.

Nonforest land — Land that does not qualify as forest land. Includes land that has never supported forests and lands formerly forested where forest use is precluded by development for nonforest uses. Included are lands used for agricultural crops, improved pasture, residential areas, city parks, improved roads, operating railroads and their right-of-way clearings, and pipeline clearings. If intermingled in forest areas, unimproved roads, streams, canals, and nonforest strips must be more than 120 feet (36 m) wide, and clearings or other areas must be 1 acre (0.4 ha) or larger to qualify as nonforest land.

Nonstocked land — Timberland less than 16.7 percent stocked with growing stock trees.

Old-growth stands — Stands with at least 50 percent of the live-tree stocking per acre comprised of old-growth trees.

Old-growth trees — Trees that have reached or passed the age of physiological maturity, assumed to be 150 years for coastal Alaska.

Operable timberland — All timberland considered silviculturally and economically operable. This includes areas on stable soils, on slopes that are not too steep to log without causing serious site damage, and stands valuable enough to pay the logging costs using the methods and costs in effect at the time of the inventory. Stands that require new, undeveloped logging methods are not in the operable class.

Other forest land — Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions. This includes sterile or poorly drained forest land, subalpine forests, and steep rocky areas where topographic conditions are likely to prevent management for timber production indefinitely. In coastal Alaska, this includes forest lands which are not capable of producing 8,000 board feet per acre (net International ¼-inch rule).

Poletimber stands — Stands at least 16.7 percent stocked with growing stock trees, with half or more of this stocking in poletimber and sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Poletimber trees — Growing stock trees 5.0 to 10.9 inches (12.5 to 27.5 cm) in d.b.h.

Quality saw log — See merchantable saw log.

Reserved forest land — Forest land withdrawn from timber utilization through statute or administrative regulation.

Rotten trees — Live trees at least 5.0 inches (12.7 cm) in d.b.h. that do not contain a saw log and are not likely to, primarily because of rot.

Rotten cull trees — Live trees that do not contain a merchantable saw log and are not likely to, primarily because of rot.

Rough trees — Live trees that do not contain a merchantable saw log and are not likely to, primarily because of roughness, poor form, or they are noncommercial species.

Salvable dead trees — Standing or down dead trees of commercial species at least 11.0 inches (28 cm) in d.b.h., containing at least 50 percent of their volume in sound wood, and with at least one merchantable saw log.

Sapling stands — See seedling and sapling stands.

Sapling trees — Trees 1.0 to 4.9 inches (2.5 to 12.5 cm) in d.b.h.

Saw log — A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet (2.5 m) long, sound and straight, and with a minimum small-end diameter of 6.0 inches (15 cm) inside the bark for softwoods and 8.0 inches (20 cm) for hardwoods.

Saw-log portion — The bole of sawtimber trees between the stump and the saw-log top.

Saw-log top — The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum top diameter is 7.0 inches (18 cm) outside the bark for softwoods and 9.0 inches (23 cm) inches outside the bark for hardwoods.

Sawtimber stands — Stands at least 16.7 percent stocked with growing stock trees, with half or more of this stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to that of poletimber.

Sawtimber trees — Growing stock trees at least 11.0 inches (28 cm) in d.b.h.

Sawtimber volume — Net volume of sawtimber trees measured in board feet. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Scribner, bureau scale — A common timber scaling rule using 32-foot log lengths.

Scribner rule — The common board-foot rule used locally in determining volume of sawtimber.

Seedling and sapling stands — Stands at least 16.7 percent stocked with growing stock trees and with saplings and/or seedlings comprising more than half this stocking.

Seedling — An established tree less than 1.0 inch (2.5 cm) in d.b.h.

Site class — A classification of forest land based on its capacity to grow crops of industrial wood.

Softwoods — Coniferous trees, usually evergreen with needles or scalelike leaves. Species in coastal Alaska are Sitka spruce, western hemlock, mountain hemlock, Alaska-cedar, western redcedar, lodgepole pine, Pacific silver fir, subalpine fir, and Pacific yew.

Sound cull tree — See rough tree.

Stand age class — A classification of forest land based on the predominant age of trees in a given stand.

Stand size class — A classification of forest land based on the predominant size of timber present: sawtimber, poletimber, or seedlings and saplings.

Stocking — A measure of the area occupied by trees of specified classes. FIA forest inventories consider three categories of stocking: all live trees, growing stock trees, and desirable trees. Stocking of all live trees is used to delineate forest land and forest types. Stocking of growing stock trees is used in classifications of stand size and stand age. Stocking of desirable trees is used to delineate area condition classes.

Stump height — For all timber volume estimates, 1 foot (0.3 m).

Timber harvest — Volume of roundwood removed from forest land for products.

Timberland — Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. Areas qualifying as timberland could produce in excess of 20 cubic feet per acre (1.4 m³/ha) per year of industrial wood under management. In old-growth forests of coastal Alaska, this is equated to stands that could produce 8,000 board feet per acre (net International 1/4-inch rule).

Tree size class — A classification of sawtimber trees, poletimber trees, saplings, and seedlings based on the diameter at breast height.

Upper-stem portion — The bole of sawtimber trees above the saw-log top — 7.0 inches (18 cm) outside the bark for softwoods and 9.0 inches (23 cm) outside the bark for hardwoods — to a minimum top diameter of 4.0 inches (10 cm) outside the bark, or to the point where the central stem breaks into limbs.

Volume of growing stock — Volume of sound wood in the bole of live growing stock sawtimber and poletimber trees from stump to a minimum 4.0-inch (10-cm) top outside the bark or to the point where the central stem breaks into limbs.

Volume of salvable dead sawtimber-sized trees — Net volume of standing or down, dead, sawtimber-sized trees that contain 50-percent sound board-foot volume.

Volume of sawtimber — Net volume of the saw-log portion of live growing stock sawtimber trees, expressed in board feet.

Water — See Census water and non-Census water.

Young-growth stands — Stands with at least 50 percent of the live-tree stocking per acre comprised of young-growth trees.

Young-growth trees — Trees that have not passed the age of physiological maturity, assumed to be 150 years for coastal Alaska.

Names of Trees^{6/}

Common name	Scientific name
Softwoods:	
Alaska-cedar	<i>Chamaecyparis nootkatensis</i> (D. Don) Spach
Fir, Pacific silver	<i>Abies amabilis</i> (Dougl.) forbes
Fir, subalpine	<i>A. lasiocarpa</i> (Hook.) Nutt.
Hemlock, mountain	<i>Tsuga mertensiana</i> (Bong.) Carr.
Hemlock, western	<i>T. heterophylla</i> (Raf.) Sarg.
Pine, lodgepole	<i>Pinus contorta</i> Dougl.
Redcedar, western	<i>Thuja plicata</i> Donn
Spruce, Sitka	<i>Picea sitchensis</i> (Bong.) Carr.
Yew, Pacific	<i>Taxus brevifolia</i> Nutt.
Hardwoods:	
Alder, red	<i>Alnus rubra</i> Bong.
Cottonwood, black	<i>Populus trichocarpa</i> Torr. & Gray
Willow, Barclay	<i>Salix barclayi</i> Anderss.
Willow, Bebb	<i>S. bebbiana</i> Sarg.
Willow, feltleaf	<i>S. alaxensis</i> (Anderss.) Cov.
Willow, grayleaf	<i>S. glauca</i> L.
Willow, hooker	<i>S. hookeriana</i> Barratt
Willow, Sitka	<i>S. sitchensis</i> Sanson
Willow, Pacific	<i>S. lasiandra</i> Benth.

^{6/} Scientific names are according to Viereck and Little (1972).

Tables

Estimates in this report are developed from statistically based samples and therefore are subject to sampling error. Sampling errors for estimates of various sizes are presented in the section "Reliability of Inventory Data."

Table 1 — Area of forest land by forest type and forest land class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

FOREST TYPE	TIMBERLAND	OTHER FOREST	ALL CLASSES
	<u>ACRES</u>		
SOFTWOODS:			
SITKA SPRUCE	68,812	27,155	95,967
HEMLOCK-SITKA SPRUCE	160,807	67,906	228,713
WESTERN REDCEDAR	6,753	6,753	13,506
WESTERN HEMLOCK	892,024	203,826	1,095,850
MOUNTAIN HEMLOCK	33,775	265,027	298,802
ALASKA-CEDAR	115,053	285,068	400,121
LOGPOLE PINE	--	81,392	81,392
OTHER SOFTWOODS	--	--	--
<hr/>			
TOTAL	1,277,224	937,126	2,214,350
HARDWOODS:			
BLACK COTTONWOOD	6,985	5,825	12,810
RED ALDER	2,645	--	2,645
OTHER HARDWOODS	--	--	--
<hr/>			
TOTAL	9,630	5,825	15,455
ALL TYPES	1,286,854	942,951	2,229,805

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 2 — Area by land class and management block, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

LAND CLASS	THOMAS 8AY	MITKOFF	LINDENBERG	KUPREANOF	KUIU	STIKINE	ZAREMBO	WRANGELL	ETOLIN	GARNET	AARON	BRAOFIELD	ANAN	ALL BLOCKS
														ACRES
TIMBERLAND:														
SEEDLING AND SAPLING, AND NONSTOCKED	5,825	--	--	11,650	5,825	--	5,825	12,578	--	--	--	--	--	41,702
POLETIMBER	--	2,645	--	--	--	--	--	--	2,645	--	--	--	--	5,290
SAWTIMBER VOLUME														
STRATA 2/														
8,000-20,000	6,753	33,785	33,775	94,592	108,155	27,254	47,281	74,323	40,624	13,506	13,516	27,022	33,765	554,340
20,001-30,000	13,516	20,279	47,320	54,093	101,374	6,763	6,763	61,068	41,011	6,763	13,748	--	20,269	392,965
30,001-50,000	6,763	27,052	20,279	40,567	95,124	6,763	20,501	--	--	6,985	6,763	6,763	6,763	244,320
50,001 OR MORE	13,748	6,985	6,985	6,985	13,526	--	--	6,985	--	--	--	--	--	48,222
TOTAL	46,605	83,761	108,539	207,887	324,004	40,780	80,370	142,376	96,858	27,254	34,027	33,785	60,797	1,286,855
OTHER FOREST LAND:														
ROCKY	--	--	--	--	--	--	--	--	--	--	--	--	--	--
LOW VOLUME 3/	13,602	--	6,753	40,662	6,753	6,801	13,602	34,004	20,355	6,801	--	6,801	13,602	169,730
MUSKEG FOREST	13,602	6,801	20,402	244,242	67,899	6,753	27,203	54,359	13,602	--	6,801	6,801	20,402	488,860
HIGH ELEVATION FOREST	27,203	20,403	20,348	13,602	20,348	33,949	6,801	34,004	--	6,801	33,956	27,203	20,355	264,970
SLIPE ZONE	--	--	--	6,753	--	--	--	--	--	--	6,801	--	--	13,550
OTHER NONPRODUCTIVE	--	--	--	--	--	5,825	--	--	--	--	--	--	--	5,825
TOTAL	54,407	27,204	47,503	305,259	95,000	53,328	47,606	122,367	33,957	13,602	47,558	40,805	54,359	942,950
NONFOREST:														
FARMS AND GRASSLANDS	6,746	--	--	--	--	6,746	--	--	--	--	--	--	--	13,492
ALOER SHRUBLAND	--	--	6,746	--	--	6,746	--	6,801	--	6,746	--	--	6,801	33,840
NON-ALDER SHRUBLAND	13,439	--	--	6,746	--	60,716	--	6,746	--	--	40,478	26,985	--	155,160
ALPINE MEADOW	20,239	--	--	6,746	13,492	40,478	--	--	6,746	--	6,746	13,547	--	107,990
MUSKEG MEADOW	6,746	13,493	--	20,239	--	--	--	6,746	--	--	6,746	--	6,746	60,710
URBAN AND OTHER	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ALPINE ROCK	47,224	--	--	--	6,746	87,756	--	13,547	--	6,746	20,239	87,702	13,493	283,450
ICE AND SNOWFIELDS	13,493	--	--	--	--	13,493	--	--	--	--	20,239	67,463	--	114,680
TOTAL	107,941	13,493	6,746	33,731	20,238	215,935	--	33,840	6,746	13,492	94,448	195,697	27,040	769,340
NON-CENSUS WATER 4/	--	--	--	--	7,604	--	--	--	--	--	--	7,604	--	15,208
ALL LANDS	208,951	124,456	162,608	546,876	446,845	310,043	127,975	298,582	137,560	54,348	176,032	277,890	142,195	3,014,360

Estimates are subject to sampling error.

-- = no data were collected.

1/ Totals may be off because of rounding.

2/ Board feet, Scribner scale, except base value of 8,000 board feet, which is International 1/4-inch rule.

3/ Less than 8,000 board feet per acre, International 1/4-inch rule.

4/ Water as classified by Forest Inventory and Analysis standards.

Table 3 — Number of growing stock trees on timberland by species and diameter class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)							
	SEEDLINGS LESS THAN 1.0	1.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>THOUSAND TREES</u>							
SOFTWOODS:								
ALASKA-CEDAR	81,435.50	20,391.91	10,639.53	2,085.84	273.56	38.47	--	114,864.80
SITKA SPRUCE	327,822.47	38,488.62	5,629.69	3,522.65	1,472.48	495.10	163.25	377,594.27
LOGPOLE PINE	619.12	333.20	101.09	43.69	--	--	--	1,097.10
WESTERN REDCEDAR	309.56	1,196.30	1,498.57	432.98	108.84	12.37	--	3,558.61
WESTERN HEMLOCK	1,730,192.94	285,936.49	37,485.06	11,556.43	2,912.11	530.18	30.20	2,068,643.41
MOUNTAIN HEMLOCK	140,871.48	30,829.34	4,445.34	1,013.35	152.03	6.90	--	177,318.43
TOTAL	2,281,251.07	377,175.85	59,799.28	18,654.94	4,919.01	1,083.02	193.45	2,743,076.62
HARDWOODS:								
RED ALDER	--	3,065.29	546.92	--	--	--	--	3,612.21
BLACK COTTONWOOD	--	320.19	--	35.13	31.50	4.61	--	391.43
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	--	3,385.48	546.92	35.13	31.50	4.61	--	4,003.64
ALL SPECIES	2,281,251.07	380,561.33	60,346.19	18,690.07	4,950.51	1,087.63	193.45	2,747,080.26

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 4 — Number of growing stock trees on old-growth timberland by species and diameter class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)							
	SEEDLINGS LESS THAN 1.0	1.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>THOUSAND TREES</u>							
SOFTWOODS:								
ALASKA-CEDAR	81,435.50	20,391.90	10,639.53	2,085.84	273.56	38.47	--	114,864.80
SITKA SPRUCE	275,056.74	32,436.75	4,266.95	2,783.80	1,352.96	471.55	163.26	316,532.01
LOGSPOLE PINE	619.12	333.20	101.09	43.70	--	--	--	1,097.10
WESTERN REDCEDAR	309.56	981.79	1,498.57	432.98	108.84	12.37	--	3,344.09
WESTERN HEMLOCK	1,646,392.16	277,682.57	36,567.81	11,322.17	2,877.32	526.13	30.20	1,975,398.34
MOUNTAIN HEMLOCK	140,252.36	30,519.78	4,445.34	1,013.35	152.03	6.90	--	176,389.75
TOTAL	2,144,065.44	362,345.99	57,519.29	17,681.84	4,764.71	1,055.42	193.46	2,587,626.09
HARDWOODS:								
RED ALDER	--	2,425.50	376.13	--	--	--	--	2,801.62
BLACK COTTONWOOD	--	320.20	--	35.13	31.50	4.61	--	391.43
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	--	2,745.70	376.13	35.13	31.50	4.61	--	3,193.05
ALL SPECIES	2,144,065.44	365,091.69	57,895.42	17,716.97	4,796.21	1,060.03	193.46	2,590,819.14

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 5 — Number of growing stock trees on young-growth timberland by species and diameter class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)							
	SEEDLINGS LESS THAN 1.0	1.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>THOUSAND TREES</u>							
SOFTWOODS:								
ALASKA-CEDAR	--	--	--	--	--	--	--	--
SITKA SPRUCE	52,765.73	6,051.87	1,362.75	738.85	119.51	23.55	--	61,062.26
LODGEPOLE PINE	--	--	--	--	--	--	--	--
WESTERN REDCEDAR	--	214.52	--	--	--	--	--	214.52
WESTERN HEMLOCK	83,800.78	8,253.92	917.25	234.28	34.79	4.06	--	93,245.07
MOUNTAIN HEMLOCK	619.12	309.56	--	--	--	--	--	928.68
TOTAL	137,185.63	14,829.87	2,280.00	973.13	154.30	27.61	--	155,450.53
HARDWOODS:								
RED ALDER	--	639.79	170.80	--	--	--	--	810.59
BLACK COTTONWOOD	--	--	--	--	--	--	--	--
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	--	639.79	170.80	--	--	--	--	810.59
ALL SPECIES	137,185.63	15,469.66	2,450.80	973.13	154.30	27.61	--	156,261.12

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 6 — Number of growing stock mortality trees per year on timberland by species and diameter class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)							
	SEEDLINGS LESS THAN 1.0	1.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>THOUSAND TREES</u>							
SOFTWOODS:								
ALASKA-CEDAR	--	222.31	242.55	137.68	26.63	3.99	--	533.16
SITKA SPRUCE	--	222.85	64.18	28.57	79.01	11.61	19.91	426.13
LOGEPOLE PINE	--	--	--	--	--	--	--	--
WESTERN REDCEDAR	--	--	74.96	--	--	--	--	74.96
WESTERN HEMLOCK	--	2,765.99	1,298.61	508.95	116.37	57.28	--	4,747.20
MOUNTAIN HEMLOCK	--	591.84	144.18	34.85	4.73	--	--	775.59
TOTAL	--	3,802.99	1,824.48	710.04	226.73	72.88	19.91	6,657.03
HARDWOODS:								
RED ALDER	--	81.46	--	--	--	--	--	81.46
BLACK COTTONWOOD	--	--	--	--	--	--	--	--
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	--	81.46	--	--	--	--	--	81.46
ALL SPECIES	--	3,884.45	1,824.48	710.04	226.73	72.88	19.91	6,738.49

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 7 — Net volume of growing stock on timberland, in cubic feet and volume per acre, by forest type and stand size class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

FOREST TYPE AND UNIT	SAWTIMBER			SEEDLINGS AND SAPLINGS	NONSTOCKEO	ALL CLASSES
	OLD GROWTH	YOUNG GROWTH	POLETIMBER			
TRUE FIR: ^{2/}						
FT ³	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FT ³ /ACRE	--	--	--	--	--	--
HEMLOCK-SPRUCE:						
FT ³	831,568,128	161,322,565	--	0	--	992,890,693
ACRES	135,410	13,748	--	11,650	--	160,807
FT ³ /ACRE	6,141	11,734	--	0	--	6,174
WESTERN REDCEDAR:						
FT ³	27,494,599	--	--	--	--	27,494,599
ACRES	6,753	--	--	--	--	6,753
FT ³ /ACRE	4,071	--	--	--	--	4,071
SITKA SPRUCE:						
FT ³	263,039,075	83,044,156	9,536,115	33,237,062	--	388,856,408
ACRES	27,495	20,269	2,645	18,403	--	68,812
FT ³ /ACRE	9,567	4,097	3,605	1,806	--	5,651
MOUNTAIN HEMLOCK:						
FT ³	119,948,808	--	--	--	--	119,948,808
ACRES	33,775	--	--	--	--	33,775
FT ³ /ACRE	3,551	--	--	--	--	3,551
WESTERN HEMLOCK:						
FT ³	4,989,149,562	26,552,692	--	0	0	5,015,702,253
ACRES	873,612	6,763	--	5,825	5,825	892,024
FT ³ /ACRE	5,711	3,926	--	0	0	5,622
ALASKA-CEDAR:						
FT ³	499,087,814	--	--	--	--	499,087,814
ACRES	115,053	--	--	--	--	115,053
FT ³ /ACRE	4,338	--	--	--	--	4,338
LODGEPOLE PINE:						
FT ³	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FT ³ /ACRE	--	--	--	--	--	--
RED ALDER:						
FT ³	--	--	9,824,155	--	--	9,824,155
ACRES	--	--	2,645	--	--	2,645
FT ³ /ACRE	--	--	3,714	--	--	3,714
BLACK COTTONWOOD:						
FT ³	15,125,729	--	--	--	--	15,125,729
ACRES	6,985	--	--	--	--	6,985
FT ³ /ACRE	2,165	--	--	--	--	2,165
ALL TYPES:						
FT ³	6,745,413,715	270,919,413	19,360,270	33,237,062	0	7,068,930,459
ACRES	1,199,083	40,779	5,290	35,876	5,825	1,286,854
FT ³ /ACRE	5,625	6,644	3,660	926	0	5,493

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Subalpine fir and Pacific silver fir.

Table 8 — Net volume of sawtimber on timberland, in board feet International 1/4-inch rule and volume per acre, by forest type and stand size class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 1/

FOREST TYPE AND UNIT	SAWTIMBER					
	OLD GROWTH	YOUNG GROWTH	POLETIMBER	SEEOLINGS AND SAPLINGS	NONSTOCKED	ALL CLASSES
TRUE FIR: 2/ FBM 3/ ACRES FBM/ACRE	-- -- --	-- -- --	-- -- --	-- -- --	-- -- --	-- -- --
HEMLOCK-SPRUCE: FBM ACRES FBM/ACRE	4,039,116,179 135,410 29,829	956,181,651 13,748 69,551	-- -- --	0 11,650 0	-- -- 0	4,995,297,830 160,807 31,064
WESTERN REDCEDAR: FBM ACRES FBM/ACRE	101,841,189 6,753 15,081	-- -- --	-- -- --	-- -- --	-- -- --	101,841,189 6,753 15,081
SITKA SPRUCE: FBM ACRES FBM/ACRE	1,427,333,997 27,495 51,912	440,537,107 20,269 21,734	25,784,804 2,645 9,748	169,295,592 18,403 9,199	-- -- --	2,062,951,500 68,812 29,980
MOUNTAIN HEMLOCK: FBM ACRES FBM/ACRE	486,724,742 33,775 14,411	-- -- --	-- -- --	-- -- --	-- -- --	486,724,742 33,775 14,411
WESTERN HEMLOCK: FBM ACRES FBM/ACRE	22,944,379,667 873,612 26,264	104,595,066 6,763 15,466	-- -- --	0 5,825 0	0 5,825 0	23,048,974,734 892,024 25,839
ALASKA-CEDAR: FBM ACRES FBM/ACRE	1,741,416,972 115,053 15,136	-- -- --	-- -- --	-- -- --	-- -- --	1,741,416,973 115,053 15,136
LODGEPOLE PINE: FBM ACRES FBM/ACRE	-- -- --	-- -- --	-- -- --	-- -- --	-- -- --	-- -- --
RED ALDER: FBM ACRES FBM/ACRE	-- -- --	-- -- --	15,636,851 2,645 5,912	-- -- --	-- -- --	15,636,851 2,645 5,912
BLACK COTTONWOOD: FBM ACRES FBM/ACRE	86,801,984 6,985 12,427	-- -- --	-- -- --	-- -- --	-- -- --	86,801,984 6,985 12,427
ALL TYPES: FBM ACRES FBM/ACRE	30,827,614,721 1,199,083 25,709	1,501,313,824 40,779 36,816	41,421,655 5,290 7,830	169,295,592 35,876 4,719	0 5,825 0	32,539,645,803 1,286,854 25,286

Estimates are subject to sampling error.

-- = no data were collected.

1/ Totals may be off because of rounding.

2/ Subalpine fir and Pacific silver fir.

3/ FBM = board-foot measure, International 1/4-inch rule.

Table 9 — Net volume of timber, cubic feet, on timberland by class of timber and by softwoods and hardwoods, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

CLASS OF TIMBER	SOFTWOODS	HARDWOODS	ALL SPECIES
	<u>MILLION CUBIC FEET</u>		
SANTIMBER TREES:			
SAW-LOG PORTION	6,366.19	24.09	6,390.29
UPPER-STEM PORTION	165.81	.76	166.57
TOTAL	6,532.00	28.85	6,556.86
POLETIMBER TREES	502.06	10.01	512.08
ALL GROWING STOCK	7,034.07	34.86	7,068.93
ROUGH TREES	3.15	.23	3.38
ROTTEN TREES	329.72	1.74	331.47
SALVABLE DEAD TREES	132.86	--	132.86
ALL TIMBER	7,499.80	36.84	7,536.64

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 10 — Net volume of sawtimber, International 1/4-inch rule, on timberland by species and diameter class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)					
	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>MILLION BOARD FEET</u>					
SOFTWOODS:						
ALASKA-CEDAR	1,040.53	654.87	173.63	48.10	--	1,917.13
SITKA SPRUCE	1,308.39	3,016.73	2,673.26	1,426.14	787.47	9,211.99
LOGEPOLE PINE	20.17	25.95	--	--	--	46.12
WESTERN REDCEDAR	151.62	137.42	60.52	11.97	--	361.53
WESTERN HEMLOCK	6,910.96	7,542.29	3,698.12	1,228.10	104.75	19,484.22
MOUNTAIN HEMLOCK	671.83	550.57	153.76	12.68	--	1,388.84
TOTAL	10,103.50	11,927.83	6,759.29	2,726.99	892.22	32,409.83
HARDWOODS:						
RED ALDER	62.32	--	--	--	--	62.32
BLACK COTTONWOOD	--	17.02	40.93	9.55	--	67.51
OTHER HARDWOODS	--	--	--	--	--	--
TOTAL	62.32	17.02	40.93	9.55	--	129.83
ALL SPECIES	10,165.81	11,944.86	6,800.22	2,736.54	892.22	32,539.65

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 11 — Net volume of old growth, International 1/4-inch rule, on timberland by species and diameter class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)					
	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>MILLION BOARD FEET</u>					
SOFTWOODS:						
ALASKA-CEDAR	1,040.53	654.87	173.63	48.09	--	1,917.13
SITKA SPRUCE	968.26	2,373.05	2,474.36	1,371.63	787.47	7,974.77
LOGEPOLE PINE	20.17	25.95	--	--	--	46.12
WESTERN REDCEDAR	151.62	137.42	60.52	11.97	--	361.53
WESTERN HEMLOCK	6,661.95	7,385.00	3,649.85	1,219.96	104.75	19,021.51
MOUNTAIN HEMLOCK	671.83	550.57	153.76	12.68	--	1,388.84
TOTAL	9,514.37	11,126.86	6,512.11	2,644.35	892.22	30,709.91
HARDWOODS:						
RED ALDER	50.20	--	--	--	--	50.20
BLACK COTTONWOOD	--	17.02	40.93	9.55	--	67.51
OTHER HARDWOODS	--	--	--	--	--	--
TOTAL	50.20	17.02	40.93	9.55	--	117.71
ALL SPECIES	9,564.57	11,143.88	6,553.05	2,673.90	892.22	30,827.62

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 12 — Net volume of young growth, International 1/4-inch rule, on timberland by species and diameter class Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)					
	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>MILLION BOARD FEET</u>					
SOFTWOODS:						
ALASKA-CEDAR	--	--	--	--	--	--
SITKA SPRUCE	340.12	643.68	198.90	54.50	--	1,237.21
LOGEPOLE PINE	--	--	--	--	--	--
WESTERN REDCEDAR	--	--	--	--	--	--
WESTERN HEMLOCK	249.01	157.29	48.27	8.14	--	462.70
MOUNTAIN HEMLOCK	--	--	--	--	--	--
TOTAL	589.13	800.97	247.18	62.64	--	1,699.92
HARDWOODS:						
RED ALDER	12.11	--	--	--	--	12.11
BLACK COTTONWOOD	--	--	--	--	--	--
OTHER HARDWOODS	--	--	--	--	--	--
TOTAL	12.11	--	--	--	--	12.11
ALL SPECIES	601.24	800.97	247.18	62.64	--	1,712.03

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 13 — Net volume of growing stock, cubic feet, on timberland by species and diameter class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)						
	5.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>MILLION CUBIC FEET</u>						
SOFTWOODS:							
ALASKA-CEDAR	52.95	280.62	151.56	37.37	9.17	--	531.67
SITKA SPRUCE	46.62	262.56	529.45	458.30	248.55	138.56	1,684.04
LOGEPOLE PINE	0.72	4.08	4.54	--	--	--	9.34
WESTERN REDCEDAR	5.41	44.34	35.60	14.79	2.59	--	102.72
WESTERN HEMLOCK	346.39	1,483.15	1,514.06	751.75	238.72	21.05	4,355.11
MOUNTAIN HEMLOCK	48.36	152.44	115.16	32.41	2.81	--	351.18
TOTAL	500.45	2,227.19	2,350.38	1,294.62	501.84	159.61	7,034.07
HARDWOODS:							
RED ALDER	10.01	13.20	--	--	--	--	23.21
BLACK COTTONWOOD	--	--	3.31	6.81	1.52	--	11.65
OTHER HARDWOODS	--	--	--	--	--	--	--
TOTAL	10.01	13.20	3.31	6.81	1.52	--	34.86
ALL SPECIES	510.46	2,240.39	2,353.69	1,301.43	503.36	159.61	7,068.94

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 14 — Net volume of old growth, cubic feet, on timberland by species and diameter class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)						
	5.0-10.9	11.0-20.9	21.0-30.9	31.0-40.9	41.0-50.9	51.0 AND LARGER	ALL CLASSES
	<u>MILLION CUBIC FEET</u>						
SOFTWOODS:							
ALASKA-CEDAR	52.95	280.62	151.56	37.37	9.17	--	531.6
SITKA SPRUCE	38.00	200.46	422.78	424.74	238.85	138.55	1,463.3
LOGSPOLE PINE	.72	4.08	4.54	--	--	--	9.3
WESTERN REDCEDAR	5.23	44.34	35.60	14.79	2.59	--	102.5
WESTERN HEMLOCK	339.17	1,436.01	1,483.92	742.85	237.02	21.05	4,260.0
MOUNTAIN HEMLOCK	48.36	152.44	115.17	32.41	2.81	--	351.1
TOTAL	484.42	2,117.95	2,213.58	1,252.16	490.44	159.60	6,718.1
HARDWOODS:							
RED ALDER	5.23	10.40	--	--	--	--	15.6
BLACK COTTONWOOD	--	--	3.30	6.81	1.52	--	11.6
OTHER HARDWOODS	--	--	--	--	--	--	--
TOTAL	5.23	10.40	3.30	6.81	1.52	--	27.2
ALL SPECIES	489.65	2,128.34	2,216.89	1,258.97	491.96	159.60	6,745.4

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 15 — Net volume of young growth, cubic feet, on timberland by species and diameter class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	DIAMETER CLASS (INCHES AT BREAST HEIGHT)						
	5.0- 10.9	11.0- 20.9	21.0- 30.9	31.0- 40.9	41.0- 50.9	51.0 AND LARGER	ALL CLASSES
	<u>MILLION CUBIC FEET</u>						
SOFTWOODS:							
ALASKA-CEDAR	--	--	--	--	--	--	--
SITKA SPRUCE	8.62	62.10	106.67	33.56	9.70	--	220.65
LOGEPOLE PINE	--	--	--	--	--	--	--
WESTERN REDCEDAR	.18	--	--	--	--	--	.18
WESTERN HEMLOCK	7.22	47.14	30.13	8.91	1.69	--	95.09
MOUNTAIN HEMLOCK	--	--	--	--	--	--	--
TOTAL	16.02	109.24	136.80	42.47	11.39	--	315.92
HARDWOODS:							
RED ALDER	4.78	2.81	--	--	--	--	7.59
BLACK COTTONWOOD	--	--	--	--	--	--	--
OTHER HARDWOODS	--	--	--	--	--	--	--
TOTAL	4.78	2.81	--	--	--	--	7.59
ALL SPECIES	20.80	112.05	136.80	42.47	11.39	--	323.52

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 16 — Net annual growth of growing stock, cubic feet, on timberland by species and stand size class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972^{1/}

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND CUBIC FEET</u>					
SOFTWOODS:					
ALASKA-CEDAR	--	--	<u>2/</u> -79.16	-445.64	-524.80
SITKA SPRUCE	--	92.25	96.75	-7,540.56	-7,351.56
LOGEPOLE PINE	--	--	--	--	--
WESTERN REDCEDAR	--	--	--	-2,312.57	-2,312.57
WESTERN HEMLOCK	--	-171.59	874.55	-30,975.99	-30,273.04
MOUNTAIN HEMLOCK	--	--	--	851.47	851.47
TOTAL	--	-79.34	486.32	-40,426.55	-40,019.88
HARDWOODS:					
RED ALDER	--	- .30	16.93	-3.24	13.40
BLACK COTTONWOOD	--	--	-276.83	--	-276.83
WILLOW	--	--	-145.93	--	-145.93
TOTAL	--	- .30	-405.82	-3.24	-409.36
ALL SPECIES	--	-79.65	486.32	-40,426.55	-40,019.88

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Negative net annual growth indicates that annual mortality exceeded gross annual growth.

Table 17 — Net annual growth of sawtimber, International 1/4-inch rule, on timberland by species and stand size class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND BOARD FEET</u>					
SOFTWOODS:					
ALASKA-CEDAR	--	--	138.94	825.22	964.15
SITKA SPRUCE	--	<u>2/</u> -774.08	2,955.33	-48,677.05	-46,495.79
LOGEPOLE PINE	--	--	--	--	--
WESTERN REDCEDAR	--	--	--	-3,593.28	-3,593.28
WESTERN HEMLOCK	--	-1,415.06	4,791.46	122,306.28	118,929.89
MOUNTAIN HEMLOCK	--	--	--	2,202.70	2,202.70
TOTAL	--	-2,189.14	5,682.83	171,576.42	168,082.73
HARDWOODS:					
RED ALDER	--	--	21.19	-27.73	-6.53
BLACK COTTONWOOD	--	--	-1,926.17	--	-1,926.17
WILLOW	--	--	-297.92	--	-297.92
TOTAL	--	--	-2,202.89	--	-2,230.62
ALL SPECIES	--	-2,189.14	5,682.83	171,576.42	-168,082.73

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Negative net annual growth indicates that annual mortality exceeded gross annual growth.

Table 18 — Net annual growth of growing stock, cubic feet, on timberland by forest type and stand size class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND CUBIC FEET</u>					
HEMLOCK-SPRUCE	--	<u>2/</u> -176.96	--	-7,699.38	-7,876.34
WESTERN REDCEDAR	--	--	--	48.09	48.09
SITKA SPRUCE	--	72.77	-541.47	896.13	427.43
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	24.55	935.56	-32,126.86	-31,166.76
ALASKA-CEDAR	--	--	--	-1,544.52	-1,544.52
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	92.23	--	92.23
ALL TYPES	--	-79.65	486.32	-40,426.55	-40,019.87

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

^{2/} Negative net annual growth indicates that annual mortality exceeded gross annual growth.

Table 19 — Net annual growth of sawtimber, International 1/4-inch rule, on timberland by forest type and stand size class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND BOARD FEET</u>					
HEMLOCK-SPRUCE	--	<u>2/</u> -2,443.70	--	43,095.53	-45,539.24
WESTERN REDCEDAR	--	--	--	2,386.35	2,386.35
SITKA SPRUCE	--	103.01	-3,702.98	-38.18	-3,638.14
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	151.55	66,039.99	127,263.08	121,071.55
ALASKA-CEDAR	--	--	--	-3,565.97	-3,565.97
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	3,345.83	--	3,345.83
ALL TYPES	--	-2,189.14	5,682.83	171,576.42	168,082.73

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 20 — Average annual mortality of growing stock, cubic feet, on timberland by species and stand size class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND CUBIC FEET</u>					
SOFTWOODS:					
ALASKA-CEDAR	--	--	--	1,121.42	1,121.42
SITKA SPRUCE	--	124.90	266.41	16,091.26	16,482.57
LOGEPOLE PINE	--	--	--	--	--
WESTERN REDCEDAR	--	--	--	2,252.69	2,252.69
WESTERN HEMLOCK	--	200.30	489.39	48,622.00	49,311.69
MOUNTAIN HEMLOCK	--	--	--	--	--
TOTAL	--	325.20	755.79	68,087.37	69,168.36
HARDWOODS:					
RED ALDER	--	.30	--	--	.30
BLACK COTTONWOOD	--	--	--	--	--
WILLOW	--	--	22.16	--	22.16
TOTAL	--	.30	22.16	--	22.46
ALL SPECIES	--	325.50	777.95	68,087.37	69,190.82

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 21 — Average annual mortality of sawtimber, International 1/4-inch rule, on timberland by species and stand size class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<u>THOUSAND BOARD FEET</u>					
SOFTWOODS:					
ALASKA-CEDAR	--	--	4,108.25	--	4,108.25
SITKA SPRUCE	--	916.51	1,517.84	87,144.02	89,578.37
LOGEPOLE PINE	--	--	--	--	--
WESTERN REDCEDAR	--	--	--	8,523.08	8,523.08
WESTERN HEMLOCK	--	1,456.44	1,868.31	213,252.10	216,576.85
MOUNTAIN HEMLOCK	--	--	--	--	--
TOTAL	--	2,372.95	3,386.15	313,027.45	318,786.55
HARDWOODS:					
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	--	--	--
OTHER HARDWOODS	--	--	121.14	--	121.14
TOTAL	--	--	121.14	--	121.14
ALL SPECIES	--	2,372.95	3,507.29	313,027.45	318,907.69

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 22 — Average annual mortality of growing stock, cubic feet, on timberland by forest type and stand size class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
THOUSAND CUBIC FEET					
HEMLOCK-SPRUCE	--	325.20	--	12,913.07	13,238.26
WESTERN REDCEDAR	--	--	--	180.84	180.84
SITKA SPRUCE	--	.30	266.41	--	266.71
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	--	489.39	52,233.30	52,722.69
ALASKA-CEDAR	--	--	--	2,760.16	2,760.16
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	22.16	--	22.16
ALL TYPES	--	325.50	777.95	68,087.37	69,190.82

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 23 — Average annual mortality of sawtimber, International 1/4-inch rule, on timberland by forest type and stand size class, Petersburg/Wrangell unit, southeast coastal Alaska, 1972 ^{1/}

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
THOUSAND BOARD FEET					
HEMLOCK-SPRUCE	--	2,372.95	--	73,429.48	75,802.43
WESTERN REDCEDAR	--	--	--	716.73	716.73
SITKA SPRUCE	--	--	1,517.84	--	1,517.84
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	--	1,868.31	228,711.48	230,579.79
ALASKA-CEDAR	--	--	--	10,169.75	10,169.75
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	121.14	--	121.14
ALL TYPES	--	2,372.95	3,507.29	313,027.45	318,907.69

Estimates are subject to sampling error.

-- = no data were collected.

^{1/} Totals may be off because of rounding.

Table 24 — Summary of timber harvest, Scribner and International 1/4-inch rules, in the Stikine working circle of the Tongass National Forest, southeast coastal Alaska, 1974-80

YEAR OF HARVEST	VOLUME CUT, INTERNATIONAL 1/4-INCH RULE	VOLUME CUT, SCRIBNER RULE, BUREAU SCALE 1/	VALUE
	- - MILLION BOARD FEET - -		DOLLARS
1974	166,806.36	140,117.34	\$1,558,058.28
1975	108,783.44	91,378.09	2,490,103.57
1976	87,959.95	73,886.36	856,089.20
1977	100,176.05	84,147.88	893,674.73
1978	79,148.61	66,484.83	251,588.19
1979	77,193.95	64,842.92	390,132.93
1980	104,236.85	87,558.95	16,302,088.67
TOTAL	608,416.37	724,305.21	22,741,735.57

1/ Scribner, Bureau scale volume = International 1/4-inch volume x 0.84. (Bones, James E. Relating products output to inventory estimates on the Tongass Forest. Juneau, AK: Northern Forest Experiment Station; 1963. Office report.)

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Metric Equivalents

1 inch = 2.54 centimeters (cm)

1 foot = 0.3048 meter (m)

1 mile = 1.609 kilometers (km)

1 acre = 0.4047 hectares (ha)

1 cubic foot = 0.0283 cubic meter (m³)

1 cubic foot per acre = 0.07 cubic meter per hectare (m³/ha)

20 cubic feet per acre = 1.3994 cubic meters per hectare (m³/ha)

1 square foot of basal area per acre = 0.2296 square meter per hectare (m²/ha)

Literature Cited

Bickford, C. A. The sampling design used in the forest survey of the Northeast. *J. For.* 50(4): 290-393; 1952.

Viereck, Leslie A.; Little, Elbert E., Jr. Alaska trees and shrubs. *Agric. Handb.* 410. Washington, DC: U.S. Department of Agriculture; 1972. 265 p.

van Hees, Willem W. S.; LaBau, Vernon J. Timber resource statistics for the Petersburg/Wrangell inventory unit, Alaska, 1972. Resour. Bull. PNW-102. Portland, OR: U.S. Department of Agriculture, Forest Service. Pacific Northwest Forest and Range Experiment Station; 1983. 36 p.

Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality are presented from the 1972 timber inventory of the Petersburg/Wrangell unit, Alaska. Timberland area is estimated at 1.3 million acres (520 770 ha), net growing stock volume at 7.1 billion cubic feet (200.2 million m³), and annual net growth and mortality at -40.0 and 69.2 million cubic feet (-1.1 and 1.9 million m³), respectively.

Keywords: Forest surveys, timber inventory, statistics (forest), resources (forest), Alaska (southeast).

The **Forest Service** of the U.S. Department of Agriculture is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives — as directed by Congress — to provide increasingly greater service to a growing Nation.

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