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VAN HEES

Timber Resource Statistics for the Yakutat Inventory Unit, Alaska, 1975

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Abstract

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Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality are presented from the 1975 timber inventory of the Yakutat unit, Alaska. Area of timberland is estimated at 236.3 thousand acres (95.6 thousand ha), net volume of growing stock at 1.1 billion cubic feet (29.9 million m³), and annual net growth and mortality at 5.7 and 1.4 million cubic feet (159.9 and 40.8 thousand m³), respectively.

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

Summary

This report for the 236.3-thousand-acre (95.6-thousand ha) Yakutat timber inventory unit is the sixth in a series of six reports for southeast Alaska. The Yakutat unit is in the northwestern end of the southeast Alaska panhandle and stretches from Yakutat Bay on the west to Deception Hills on the east. The Gulf of Alaska establishes the coastal limit of the unit and the Tongass National Forest boundary the inland limit. Except for cities, towns, and private in-holdings, the unit is entirely within the Tongass National Forest.

This is the first general reinventory of forests in the Yakutat unit since the first inventory in 1952. It is also the second remeasurement of the growth and mortality plots established in 1958; the plots were first remeasured in 1967.

Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality are presented from the 1975 timber resource inventory of the Yakutat unit. Area of timberland is estimated at 236.3 thousand acres (95.6 thousand ha), net volume of growing stock at 1.1 billion cubic feet (29.9 million m³), and net annual growth and mortality at 5.7 and 1.4 million cubic feet (159.9 and 40.8 thousand m³), respectively.

Preface

Forest Inventory and Analysis (FIA) 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 forest inventories in Alaska, California, Hawaii, Oregon, and Washington.

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Highlights

	Thousand acres	Thousand hectares
Total Yakutat		
inventory unit area:	749.84	303.46
With forests	331.25	134.06
With nonforest	410.17	165.99
With non-Census water	<u>1/</u>	<u>1/</u>
With Census water	8.41	3.41
Forested area:		
Timberland	236.29	95.62
Other forest land	94.96	38.43
Timberland composition:		
Old-growth sawtimber	99.34	40.20
Young-growth sawtimber	87.35	35.35
Poletimber	13.59	5.49
Seedlings and saplings, and nonstocked	36.02	14.58
Timberland forest type composition:		
Sitka spruce	155.04	62.74
Hemlock-spruce	10.51	4.25
Western hemlock	15.23	6.16
Mountain hemlock	9.97	4.03
Lodgepole pine	<u>1/</u>	<u>1/</u>
Other softwoods	<u>1/</u>	<u>1/</u>
Red alder	<u>1/</u>	<u>1/</u>
Black cottonwood	45.55	18.44
Other hardwoods	<u>1/</u>	<u>1/</u>

1/ No data were collected.

	<u>All growing stock</u>		<u>Sawtimber growing stock</u>	
	Million cubic feet <u>2/</u>	Million cubic meters <u>2/</u>	Million board feet <u>3/</u>	Million cubic meters <u>4/</u>
Volumes on timberland:				
Total gross volume	1,111.97	31.47	5,527.48	28.54
Total net volume	1,056.75	29.91	5,263.15	27.01
Annual net growth	5.65	1.59	38.78	.81
Annual net mortality	1.26	.04	4.45	.02

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 236.3-thousand-acre (95.6-thousand-ha) Yakutat timber inventory unit is the sixth in a series of six reports for southeast Alaska. The Yakutat unit is in the northwestern end of the southeast Alaska panhandle and stretches from Yakutat Bay on the west to Deception Hills on the east. The Gulf of Alaska establishes the coastal limit of the unit and the Tongass National Forest boundary the inland limit (fig. 1). Except for cities, towns, and private in-holdings, the unit is entirely within the Tongass National Forest.

The Yakutat unit has a marine climate characterized by moderately cool temperatures and relatively high precipitation. In nearby Yakataga, temperatures vary from 22 °F (-5 °C) in the winter to 58 °F (14 °C) in the summer. Annual precipitation is approximately 100 inches (254 cm) including 109 inches (277 cm) of snow.

Geologically, the Yakutat unit is very young. Approximately 10,000 years ago most of the unit was covered with ice. As a result, the entire coastal zone is composed of glacial drift, outwash deposits, glacial moraines, and slightly modified versions of all three.

Although the resultant soils are not very old, the flood plain and older outwash soils are generally well-drained and stratified loamy gravels. At higher elevations, soils tend to be poorly drained, partially decomposed peat. Most of the soils in the Yakutat unit moderately to severely restrict tree growth. Soils good for tree growth occur mainly along the coast and old outwash plains.

This is the first general reinventory of forests in the Yakutat unit since the first inventory in 1958. It is also the second remeasurement of the growth and mortality plots established in 1958; the plots were first remeasured in 1967.

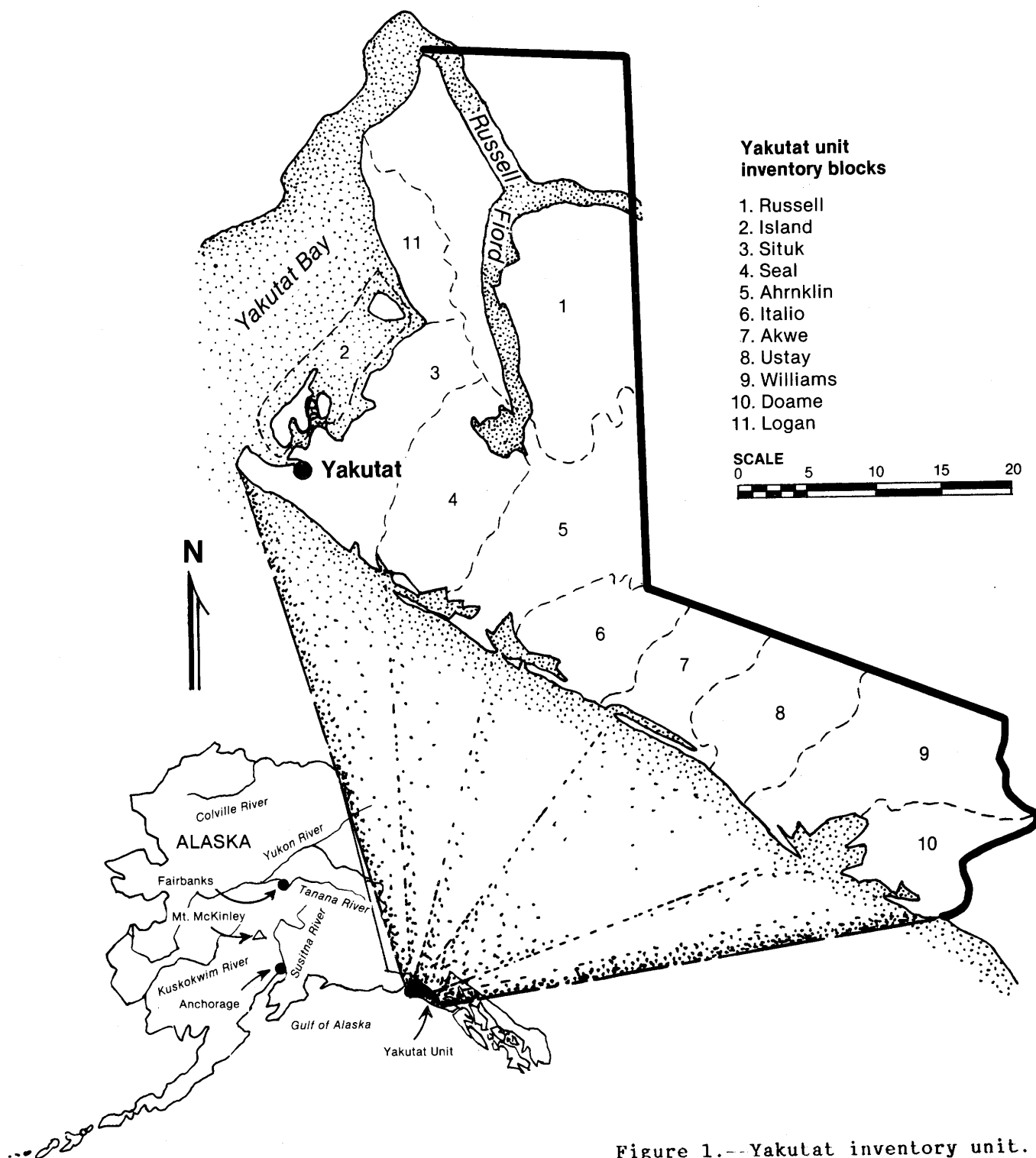


Figure 1.--Yakutat inventory unit.

Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality are presented from the 1975 timber resource inventory of the Yakutat unit. Timberland area is estimated at 236.3 thousand acres (95.6 thousand ha), net growing stock volume at 1.1 billion cubic feet (29.9 million m³), and net annual growth and mortality at 5.7 and 1.4 million cubic feet (159.9 and 40.8 thousand m³), respectively.

Inventory Procedures

The estimates of area and timber volumes from the 1975 timber reinventory are based on a double sampling (2-phase) technique (Bickford 1952). In the first phase of the sampling study, 4,684 photo points were systematically distributed over 1:15,840 scale aerial photographs, then interpreted. Each photo point was classified by land type. From the 4,684 photo points, a field sample of 132 ground plots was selected. Tree measurements were made on these plots in the second phase of the sampling. Corrected area classifications and measurements of volume 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 1975 remeasurements of 57 timber inventory plots established in 1958. 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 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 1975 estimates of growth and mortality was calibrated to coincide with the area found in the 1975 timber reinventory.

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 seemed nearly settled 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 1975; we have delayed publishing the results, anticipating that shifts in land ownership would be resolved by now and the information on ownership could be reprocessed and resummamrized 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 State of Alaska land selections are concentrating on timberlands, which will leave less of the better timberland in Federal ownership.

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 total estimate</u>
	- - - - - Percent - - - - -		
Timberland area:			
Per million acres	3.0	1.7	
For the total			
236.3 thousand acres			3.4
Other forest land area:			
Per million acres	10.0	5.9	
For the total			
28.8 thousand acres			34.8
Net growing stock volume on timberland:			
Per billion cubic feet	10.0	4.2	
For the total			
1.1 billion ft ³			4.1
Net growth of growing stock on timberland:			
Per billion cubic feet	10.0	1.6	
For the total			
12.1 million ft ³			15.0

For the Yakutat inventory unit, we estimate 1.057 billion cubic feet of net growing-stock volume, ± 4.07 percent, yielding 68-percent confidence limits of 1.013 and 1.099 billion cubic feet. This confidence level means that upon repeated sampling, about 68 percent of the confidence limits constructed for each sample would capture the true value of the parameter being estimated.

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 with 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 4-1/2 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 the 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." 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 road 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 red-cedar 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 fir and subalpine fir 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 ($1.4 \text{ m}^3/\text{ha}$) 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 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 which 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--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 area by the Bureau of the Census, but that are either 1-40 acres (0.4-16 ha) in area or have a minimum width of 120 feet (36 m) and a maximum width of one-eighth mile (200 m). (Also see Census water.)

Noncommercial species--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, and 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 that 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 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 timber scaling 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 ($1.4 \text{ m}^3/\text{ha}$) 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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 1/

FOREST TYPE	TIMBERLAND	OTHER FOREST	ALL CLASSES
<i>THOUSAND ACRES</i>			
SOFTWOODS:			
SITKA SPRUCE	155.04	37.74	192.78
HEMLOCK-SITKA SPRUCE	10.51	5.82	16.33
WESTERN HEMLOCK	15.23	3.88	19.11
MOUNTAIN HEMLOCK	9.96	1.94	11.90
LODGEPOLE PINE	--	--	--
OTHER SOFTWOODS	--	--	--
TOTAL	190.74	49.38	240.12
HARDWOODS:			
RED ALDER	--	--	--
BLACK COTTONWOOD	45.55	45.58	91.13
OTHER HARDWOODS	--	--	--
TOTAL	45.55	45.58	91.13
ALL TYPES	236.29	94.96	331.25

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 1/

LAND CLASS	LOGAN	ISLAND	SITUK	SEAL	AHRNKLIN	ITALIO	AKWE	USTAY	WILLIAMS	DOAME	RUSSELL	ALL BLOCKS
ACRES												
TIMBERLAND:												
SEEDLING AND SAPLING, AND NONSTOCKED	--	--	1,993	--	2,430	--	--	2,376	6,273	22,945	--	36,018
POLETIMBER	--	--	--	1,878	1,993	--	--	--	1,943	7,772	--	13,586
SAWTIMBER VOLUME												
STRATA 2/--	--	--	--	--	--	--	--	--	--	--	--	--
LESS THAN 8,000	--	--	--	--	3,871	1,993	--	1,878	--	3,756	--	11,499
8,000-20,000	1,993	--	11,908	10,240	17,737	2,268	6,199	1,993	6,204	3,986	7,742	70,270
20,001-30,000	2,268	--	10,765	11,066	4,537	4,511	4,261	2,268	--	--	--	39,676
30,001-50,000	--	4,280	4,485	10,732	6,753	--	4,261	10,732	8,739	2,242	2,268	54,492
50,001 OR MORE	--	--	--	--	--	--	8,509	2,242	--	--	--	10,751
TOTAL	4,261	4,280	29,151	33,916	37,321	8,772	23,230	21,489	23,159	40,701	10,010	236,292
OTHER FOREST LAND:												
ROCKY	--	--	--	--	--	--	--	--	--	--	--	--
LOW VOLUME 3/	--	--	3,881	8,212	7,693	6,044	1,938	4,106	5,819	8,469	23,138	69,300
MUSKEG FOREST	--	--	2,168	3,876	7,753	4,106	3,876	3,881	--	--	--	25,659
HIGH ELEVATION FOREST	--	--	--	--	--	--	--	--	--	--	--	--
SLIDE ZONE	--	--	--	--	--	--	--	--	--	--	--	--
OTHER NONPRODUCTIVE	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL	--	--	6,049	12,088	15,446	10,150	5,814	7,987	5,819	8,469	23,138	94,959
NEW LANDS:												
GLACIAL OUTWASH	--	--	--	--	--	--	--	--	--	--	--	--
GLACIAL TILL	--	--	--	--	--	--	--	3,531	--	--	3,351	7,061
UPLIFTED BEACH	--	--	1,765	1,765	7,061	--	--	--	--	--	1,765	12,357
SAND DUNE	--	--	--	--	--	1,765	--	--	--	--	--	1,765
RIVER FILL	--	--	--	--	1,765	--	--	--	--	3,531	--	5,296
TOTAL	--	--	1,765	1,765	8,826	1,765	--	3,531	--	3,351	5,116	26,479
NONFOREST:												
FARMS AND GRASSLANDS	--	--	1,889	--	--	1,889	1,889	--	--	1,889	--	7,555
ALDER SHRUBLAND	--	--	--	--	1,889	1,889	--	1,889	1,889	1,889	13,221	22,665
NON-ALDER SHRUBLAND	7,555	--	3,777	13,221	11,332	7,834	9,444	15,110	18,887	3,777	37,774	128,712
ALPINE MEADOW	--	--	--	--	--	--	--	--	--	--	--	--
MUSKEG MEADOW	--	--	7,555	7,555	5,666	5,666	1,889	--	1,889	--	--	30,220
URBAN AND OTHER	--	--	--	--	--	--	--	--	--	--	--	--
ALPINE ROCK	3,777	--	--	--	5,666	--	3,777	5,666	13,221	--	73,660	105,768
ICE AND SNOWFIELDS	1,889	--	--	--	3,777	--	1,889	5,666	13,221	--	62,328	88,770
TOTAL	13,221	--	13,221	20,776	28,330	17,278	18,888	28,331	49,107	7,555	186,983	383,690
NON-CENSUS WATER 4/	--	--	--	--	2,805	2,805	--	--	2,805	--	--	8,415
ALL LANDS	17,482	4,280	50,185	68,545	92,728	40,769	47,932	61,338	80,890	60,257	225,428	749,836

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 ^{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
THOUSAND TREES								
SOFTWOODS:								
SITKA SPRUCE	76,703.38	27,129.28	9,451.75	1,851.87	388.38	71.95	15.70	115,612.30
LOGEPOLE PINE	--	--	--	--	--	--	--	--
WESTERN HEMLOCK	21,654.20	6,895.56	2,107.94	409.51	68.75	2.72	--	31,138.69
MOUNTAIN HEMLOCK	12,069.74	2,394.07	541.96	141.68	5.96	--	--	15,153.40
TOTAL	110,427.32	36,418.91	12,101.64	2,403.06	463.09	74.68	15.70	161,904.39
HARDWOODS:								
RED ALDER	44.68	--	--	--	--	--	--	44.68
BLACK COTTONWOOD	9,022.19	8,062.46	1,970.50	131.37	10.58	--	--	19,737.09
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	9,066.87	8,062.46	1,970.50	131.37	10.58	--	--	19,737.09
ALL SPECIES	119,494.19	45,021.37	14,072.14	2,534.43	473.67	74.68	15.70	181,686.17

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 ^{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
THOUSAND TREES								
SOFTWOODS:								
SITKA SPRUCE	27,672.38	6,404.76	3,625.07	1,157.68	292.92	56.88	15.70	39,225.39
LOGEPOLE PINE	--	--	--	--	--	--	--	--
WESTERN HEMLOCK	18,055.72	5,980.44	1,948.90	395.72	68.75	2.72	--	26,452.25
MOUNTAIN HEMLOCK	8,313.45	2,033.50	501.51	131.14	5.96	--	--	10,985.55
TOTAL	54,041.54	14,418.69	6,075.48	1,684.54	367.63	59.61	15.70	76,663.19
HARDWOODS:								
RED ALDER	--	--	--	--	--	--	--	--
BLACK COTTONWOOD	--	40.68	192.65	51.48	8.55	--	--	293.36
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	--	40.68	192.65	51.48	8.55	--	--	293.36
ALL SPECIES	54,041.54	14,459.37	6,268.13	1,736.01	376.18	59.61	15.70	76,956.55

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 ^{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
THOUSAND TREES								
SOFTWOODS:								
SITKA SPRUCE	49,030.99	20,724.52	5,826.67	694.19	95.46	15.07	--	73,386.90
LOGSPOLE PINE	--	--	--	--	--	--	--	--
WESTERN HEMLOCK	3,598.49	915.12	159.04	13.79	--	--	--	4,686.43
MOUNTAIN HEMLOCK	3,756.29	360.57	40.45	10.54	--	--	--	4,167.86
TOTAL	56,385.77	22,000.21	6,026.16	718.52	95.46	15.07	--	85,241.19
HARDWOODS:								
RED ALDER	44.68	--	--	--	--	--	--	44.68
BLACK COTTONWOOD	9,022.19	8,561.78	1,777.84	79.90	2.03	--	--	19,443.74
OTHER HARDWOODS	--	--	--	--	--	--	--	--
TOTAL	9,066.87	8,561.78	1,777.84	79.90	2.03	--	--	19,488.42
ALL SPECIES	65,452.64	30,561.99	7,804.00	798.41	97.49	15.07	--	104,729.61

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 ^{1/}

SPECIES	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
THOUSAND TREES							
SOFTWOODS:							
SITKA SPRUCE	1,078.21	27.10	2.84	4.37	1.46	--	1,113.97
LOGSPOLE PINE	--	--	--	--	--	--	--
WESTERN HEMLOCK	95.97	--	--	--	--	--	95.97
MOUNTAIN HEMLOCK	42.22	--	--	--	--	--	42.22
TOTAL	1,216.40	27.10	2.84	4.37	1.46	--	1,252.17
HARDWOODS:							
RED ALDER	--	--	--	--	--	--	--
BLACK COTTONWOOD	--	16.84	4.51	--	--	--	21.34
OTHER HARDWOODS	--	--	--	--	--	--	--
TOTAL	--	16.84	4.51	--	--	--	21.34
ALL SPECIES	1,216.40	43.94	7.35	4.37	1.46	--	1,273.53

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 ^{1/}

FOREST TYPE AND UNIT	SAWTIMBER		POLETIMBER	SEEDLINGS AND SAPLINGS	NONSTOCKED	ALL CLASSES
	OLD GROWTH	YOUNG GROWTH				
HEMLOCK-SPRUCE:						
FT ³	74,425,662	--	--	--	--	74,425,662
ACRES	10,509	--	--	--	--	10,509
FT ³ /ACRE	7,082	--	--	--	--	7,082
SITKA SPRUCE:						
FT ³	389,738,800	372,925,216	9,523,495	5,943,914	--	778,131,405
ACRES	63,592	69,920	7,707	13,821	--	155,041
FT ³ /ACRE	6,129	5,334	1,236	430	--	5,019
MOUNTAIN HEMLOCK:						
FT ³	35,222,316	--	--	--	--	35,222,316
ACRES	9,965	--	--	--	--	9,965
FT ³ /ACRE	6,129	--	--	--	--	3,535
WESTERN HEMLOCK:						
FT ³	102,730,362	9,433,883	--	--	--	112,164,248
ACRES	13,282	1,943	--	--	--	15,225
FT ³ /ACRE	7,735	4,855	--	--	--	7,367
LODGEPOLE PINE:						
FT ³	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FT ³ /ACRE	--	--	--	--	--	--
RED ALDER:						
FT ³	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FT ³ /ACRE	--	--	--	--	--	--
BLACK COTTONWOOD:						
FT ³	6,356,714	39,650,021	8,722,365	2,086,356	0	56,815,456
ACRES	1,993	15,485	5,879	21,710	487	45,554
FT ³ /ACRE	3,190	2,561	1,484	96	0	1,247
ALL TYPES:						
FT ³	608,473,843	422,009,110	18,245,860	8,030,270	0	1,056,759,046
ACRES	99,341	87,349	13,586	35,531	487	236,293
FT ³ /ACRE	6,125	4,831	1,343	226	0	4,472

Estimates are subject to sampling error.

-- = no data were collected.

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

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 ^{1/}

FOREST TYPE AND UNITS	SAWTIMBER			SEEDLINGS AND SAPLINGS	NONSTOCKED	ALL CLASSES
	OLD GROWTH	YOUNG GROWTH	POLETIMBER			
HEMLOCK-SPRUCE:						
FBM 2/	362,286,022	--	--	--	--	362,286,022
ACRES	10,509	--	--	--	--	10,509
FBM/ACRE	34,474	--	--	--	--	34,474
SITKA SPRUCE:						
FBM	2,181,533,429	1,846,391,136	11,366,512	8,782,747	--	4,048,073,677
ACRES	63,592	69,920	7,707	13,821	--	155,041
FBM/ACRE	34,305	26,407	1,475	635	--	26,111
MOUNTAIN HEMLOCK:						
FBM	146,064,664	--	--	--	--	146,064,664
ACRES	9,965	--	--	--	--	9,965
FBM/ACRE	14,658	--	--	--	--	14,658
WESTERN HEMLOCK:						
FBM	504,479,552	21,713,630	--	--	--	526,193,184
ACRES	13,282	1,943	--	--	--	152,225
FBM/ACRE	37,982	11,175	--	--	--	34,561
LODGEPOLE PINE:						
FBM	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FBM/ACRE	--	--	--	--	--	--
RED ALDER:						
FBM	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FBM/ACRE	--	--	--	--	--	--
BLACK COTTONWOOD:						
FBM	25,537,844	139,449,434	15,037,278	455,556	0	180,530,109
ACRES	1,993	15,485	5,879	21,710	487	45,554
FBM/ACRE	12,814	9,009	2,558	21	0	3,963
ALL TYPES:						
FBM	3,219,901,485	2,007,604,173	26,403,789	9,238,303	0	5,263,147,616
ACRES	99,341	87,349	13,586	35,531	487	236,293
FBM/ACRE	32,413	22,984	1,943	260	0	22,274

Estimates are subject to sampling error.

-- = no data were collected.

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

^{2/} 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, YAKUTAT
UNIT, SOUTHEAST COASTAL ALASKA, 1975 1/

CLASS OF TIMBER	SOFTWOODS	HARDWOODS	ALL SPECIES
<i>MILLION CUBIC FEET</i>			
SAWTIMBER TREES:			
SAW-LOG PORTION	867.39	59.99	927.38
UPPER-STEM PORTION	24.96	2.19	27.15
TOTAL	892.35	62.19	954.54
POLETIMBER TREES	84.48	17.74	102.22
ALL GROWING STOCK	976.83	79.93	1,056.76
ROUGH TREES	.75	.46	1.21
ROTTEN TREES	15.40	1.33	16.73
SALVABLE DEAD TREES	3.36	.37	3.73
ALL TIMBER	996.34	81.68	1,078.02

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 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
MILLION BOARD FEET						
SOFTWOODS:						
SITKA SPRUCE	1,838.53	1,369.97	607.22	217.82	57.99	4,091.53
LODGEPOLE PINE	--	--	--	--	--	--
WESTERN HEMLOCK	403.60	248.85	83.35	4.84	--	740.65
MOUNTAIN HEMLOCK	94.16	59.26	3.88	--	--	157.31
TOTAL	2,366.29	1,678.08	694.45	222.66	57.99	4,989.49
HARDWOODS:						
RED ALDER	--	--	--	--	--	--
BLACK COTTONWOOD	213.19	53.09	7.38	--	--	273.66
OTHER HARDWOODS	--	--	--	--	--	--
TOTAL	213.19	53.09	7.38	--	--	273.66
ALL SPECIES	2,549.48	1,731.17	701.83	222.66	57.99	5,263.15

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 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
<i>MILLION BOARD FEET</i>						
SOFTWOODS:						
SITKA SPRUCE	772.79	857.43	459.91	166.58	57.99	2,314.71
LOGEPOLE PINE	--	--	--	--	--	--
WESTERN HEMLOCK	380.70	241.49	83.35	4.84	--	710.37
MOUNTAIN HEMLOCK	85.11	53.70	3.88	--	--	142.69
TOTAL	1,238.59	1,152.61	547.15	171.43	57.99	3,167.78
HARDWOODS:						
RED ALDER	--	--	--	--	--	--
BLACK COTTONWOOD	25.93	20.95	5.24	--	--	52.12
OTHER HARDWOODS	--	--	--	--	--	--
TOTAL	25.93	20.95	5.24	--	--	52.12
ALL SPECIES	1,264.52	1,173.57	552.39	171.43	57.99	3,219.90

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, YAKUTAT UNIT, SOUTHEAST COASTAL
ALASKA, 1975 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
<i>MILLION BOARD FEET</i>						
SOFTWOODS:						
SITKA SPRUCE	1,065.74	512.54	147.31	51.24	--	1,776.82
LOGEPOLE PINE	--	--	--	--	--	--
WESTERN HEMLOCK	22.90	7.37	--	--	--	30.27
MOUNTAIN HEMLOCK	9.05	5.56	--	--	--	14.62
TOTAL	1,097.70	525.47	147.31	51.24	--	1,821.71
HARDWOODS:						
RED ALDER	--	--	--	--	--	--
BLACK COTTONWOOD	187.26	32.13	2.14	--	--	221.54
OTHER HARDWOODS	--	--	--	--	--	--
TOTAL	187.26	32.13	2.14	--	--	221.54
ALL SPECIES	1,284.96	557.60	149.45	51.24	--	2,043.25

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 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
<i>MILLION CUBIC FEET</i>							
SOFTWOODS:							
SITKA SPRUCE	63.00	344.81	223.66	94.02	32.97	9.05	767.51
LODGEPOLE PINE	--	--	--	--	--	--	--
WESTERN HEMLOCK	17.37	84.57	49.97	17.24	0.97	--	170.11
MOUNTAIN HEMLOCK	4.11	21.00	13.24	.86	--	--	39.21
TOTAL	84.48	450.38	286.86	112.12	33.95	9.05	976.83
HARDWOODS:							
RED ALDER	--	--	--	--	--	--	--
BLACK COTTONWOOD	17.74	49.79	10.90	1.50	--	--	79.93
OTHER HARDWOODS	--	--	--	--	--	--	--
TOTAL	17.74	49.79	10.90	1.50	--	--	79.93
ALL SPECIES	102.22	500.16	297.77	113.62	33.95	9.05	1,056.76

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 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
<i>MILLION CUBIC FEET</i>							
SOFTWOODS:							
SITKA SPRUCE	15.38	141.52	139.56	71.30	25.53	9.05	402.34
LOGEPOLE PINE	--	--	--	--	--	--	--
WESTERN HEMLOCK	13.02	79.75	48.59	17.24	.97	--	159.58
MOUNTAIN HEMLOCK	2.26	19.23	12.18	0.86	--	--	34.53
TOTAL	30.65	240.51	200.33	89.41	26.51	9.05	596.45
HARDWOODS:							
RED ALDER	--	--	--	--	--	--	--
BLACK COTTONWOOD	.51	6.03	4.37	1.12	--	--	12.03
OTHER HARDWOODS	--	--	--	--	--	--	--
TOTAL	.51	6.03	4.37	1.12	--	--	12.03
ALL SPECIES	31.16	246.53	204.70	90.53	26.51	9.05	608.47

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 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
<i>MILLION CUBIC FEET</i>							
SOFTWOODS:							
SITKA SPRUCE	47.63	203.29	84.10	22.72	7.44	--	365.17
LOGEPOLE PINE	--	--	--	--	--	--	--
WESTERN HEMLOCK	4.35	4.81	1.38	--	--	--	10.54
MOUNTAIN HEMLOCK	1.85	1.77	1.06	--	--	--	4.68
TOTAL	53.82	209.87	86.53	22.72	7.44	--	380.38
HARDWOODS:							
RED ALDER	--	--	--	--	--	--	--
BLACK COTTONWOOD	17.23	43.76	6.54	.38	--	--	67.90
OTHER HARDWOODS	--	--	--	--	--	--	--
TOTAL	17.23	43.76	6.54	.38	--	--	67.90
ALL SPECIES	71.05	253.63	93.07	23.09	7.44	--	448.29

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 1/

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<i>THOUSAND CUBIC FEET</i>					
SOFTWOODS:					
ALASKA-CEDAR	--	--	--	--	--
SITKA SPRUCE	447.74	199.13	2,984.35	698.05	4,329.27
LODGEPOLE PINE	--	--	--	--	--
WESTERN REDCEDAR	--	--	--	--	--
WESTERN HEMLOCK	--	44.03	122.86	282.96	449.85
MOUNTAIN HEMLOCK	--	--	69.88	133.18	203.06
TOTAL	447.74	243.16	3,177.10	1,114.19	4,982.19
HARDWOODS:					
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	198.34	248.67	223.79	.14	670.94
OTHER HARDWOODS	--	--	--	--	--
TOTAL	198.34	248.67	223.79	.14	670.94
ALL SPECIES	646.08	491.83	3,400.88	1,114.33	5,653.12

Estimates are subject to sampling error.

-- = no data were collected.

1/ Totals may be off because of rounding.

TABLE 17--NET ANNUAL GROWTH OF SAWTIMBER, INTERNATIONAL 1/4-INCH RULE, ON TIMBERLAND BY SPECIES AND STAND SIZE CLASS, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 1/

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<i>THOUSAND BOARD FEET</i>					
SOFTWOODS:					
ALASKA-CEDAR	--	--	--	--	--
SITKA SPRUCE	--	570.24	25,409.47	7,552.39	33,532.10
LODGEPOLE PINE	--	--	--	--	--
WESTERN REDCEDAR	--	--	--	--	--
WESTERN HEMLOCK	--	213.18	136.67	2,030.89	2,380.74
MOUNTAIN HEMLOCK	--	--	93.50	569.41	662.91
TOTAL	--	783.41	25,639.64	10,152.69	36,575.74
HARDWOODS:					
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	10.91	264.84	1,924.25	1.24	2,201.24
OTHER HARDWOODS	--	--	--	--	--
TOTAL	10.91	264.84	1,924.25	1.24	2,201.24
ALL SPECIES	10.91	1,048.26	27,563.89	10,153.92	38,776.98

Estimates are subject to sampling error.

-- = no data were collected.

1/ Totals may be off because of rounding.

TABLE 18--NET ANNUAL GROWTH OF GROWING STOCK, CUBIC FEET, ON TIMBERLAND BY FOREST TYPE AND STAND SIZE CLASS, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 1/

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
THOUSAND CUBIC FEET					
HEMLOCK-SPRUCE	--	--	--	177.86	177.86
WESTERN REDCEDAR	--	--	--	--	--
SITKA SPRUCE	100.82	270.04	2,718.14	1,229.93	4,318.93
MOUNTAIN HEMLOCK	--	--	--	<u>2/</u> -50.87	-50.87
WESTERN HEMLOCK	--	--	--	-242.59	-242.59
ALASKA-CEDAR	--	--	--	--	--
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	542.26	221.78	682.74	--	1,449.79
ALL TYPES	646.08	491.83	3,400.88	1,114.33	5,653.12

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 1/

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
THOUSAND BOARD FEET					
HEMLOCK-SPRUCE	--	--	--	2,905.38	2,905.38
WESTERN REDCEDAR	--	--	--	--	--
SITKA SPRUCE	--	729.22	23,341.90	8,395.59	32,466.71
MOUNTAIN HEMLOCK	--	--	--	854.03	854.03
WESTERN HEMLOCK	--	--	--	<u>2/</u> -2,001.08	-2,001.08
ALASKA-CEDAR	--	--	--	--	--
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	10.91	319.04	4,221.99	--	4,551.94
ALL TYPES	10.91	1,048.26	27,563.89	10,153.92	38,776.98

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 1/

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
THOUSAND CUBIC FEET					
SOFTWOODS:					
ALASKA-CEDAR	--	--	--	--	--
SITKA SPRUCE	--	--	295.13	304.76	599.89
LOGEPOLE PINE	--	--	--	--	--
WESTERN REDCEDAR	--	--	--	--	--
WESTERN HEMLOCK	--	--	--	262.74	262.74
MOUNTAIN HEMLOCK	--	--	--	--	--
TOTAL	--	--	295.13	567.50	862.63
HARDWOODS:					
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	577.48	--	577.48
OTHER HARDWOODS	--	--	--	--	--
TOTAL	--	--	577.48	--	577.48
ALL SPECIES	--	--	872.61	567.50	1,440.11

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 1/

SPECIES	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
THOUSAND BOARD FEET					
SOFTWOODS:					
ALASKA-CEDAR	--	--	--	--	--
SITKA SPRUCE	--	--	420.53	1,617.96	2,038.49
LOGEPOLE PINE	--	--	--	--	--
WESTERN REDCEDAR	--	--	--	--	--
WESTERN HEMLOCK	--	--	--	1,483.03	1,483.03
MOUNTAIN HEMLOCK	--	--	--	--	--
TOTAL	--	--	420.53	3,100.99	3,521.52
HARDWOODS:					
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	1,646.47	--	1,646.47
OTHER HARDWOODS	--	--	--	--	--
TOTAL	--	--	1,646.47	--	1,646.47
ALL SPECIES	--	--	2,067.00	3,100.99	5,167.99

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 1/

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<i>THOUSAND CUBIC FEET</i>					
HEMLOCK-SPRUCE	--	--	--	83.42	83.42
WESTERN REDCEDAR	--	--	--	--	--
SITKA SPRUCE	--	--	569.78	247.05	816.84
TRUE FIR	--	--	--	--	--
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	--	--	237.02	237.02
ALASKA-CEDAR	--	--	--	--	--
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	302.82	--	302.82
ALL TYPES	--	--	872.61	567.50	1,440.11

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, YAKUTAT UNIT, SOUTHEAST COASTAL ALASKA, 1975 1/

FOREST TYPE	SEEDLING AND SAPLING	POLETIMBER	YOUNG-GROWTH SAWTIMBER	OLD-GROWTH SAWTIMBER	ALL CLASSES
<i>THOUSAND BOARD FEET</i>					
HEMLOCK-SPRUCE	--	--	--	468.48	468.48
WESTERN REDCEDAR	--	--	--	--	--
SITKA SPRUCE	--	--	1,759.05	1,240.71	2,999.76
TRUE FIR	--	--	--	--	--
MOUNTAIN HEMLOCK	--	--	--	--	--
WESTERN HEMLOCK	--	--	--	1,391.81	1,391.81
ALASKA CEDAR	--	--	--	--	--
LOGEPOLE PINE	--	--	--	--	--
RED ALDER	--	--	--	--	--
BLACK COTTONWOOD	--	--	307.95	--	307.95
ALL TYPES	--	--	2,067.00	3,100.99	5,167.99

Estimates are subject to sampling error.

-- = no data were collected.

1/ Totals may be off because of rounding.

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Inventory supervision: Tongass National Forest, Ketchikan Area-- John Standerwick, Timber Management staff officer; Kerry Martin, field supervisor; Ron Dippold, R-10, technical assistance; Vernon J. LaBau, PNW, technical assistant.

Photo interpretation: Richard M. Funk, Vernon J. LaBau, George Hudak, and Kerry Martin.

Field measurements: Paul Alabeck, Richard M. Funk, James Henderson, George Hudak, and Steve Quadry.

Timber operability classification: Ronald Welch and Richard Baker.

Office compilation: George F. Hudak (Ketchikan); Vernon J. LaBau (Juneau, now in Anchorage); David Jacobs and Patti Bassett, reinventory edit and compilations (Portland); Marion Simons (Portland) and Gary Carroll (Anchorage), table and output compilations.

Statistical report preparation: 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 = 0.06997 cubic meter per hectare (m³/ha)
20 cubic feet per acre = 1.3994 cubic meter per hectare (m³/ha)
1 square foot 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): 290-293; 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 Yakutat inventory unit, Alaska, 1975. Resour. Bull. PNW-105. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1984. 31 p.

Statistics on forest area, total gross and net timber volumes, and annual net growth and mortality are presented from the 1975 timber inventory of the Yakutat unit, Alaska. Area of timberland is estimated at 236.3 thousand acres (95.6 thousand ha), net volume of growing stock at 1.1 billion cubic feet (29.9 million m³), and annual net growth and mortality at 5.7 and 1.4 million cubic feet (159.9 and 40.8 thousand 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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