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Timber Resource Statistics for the Petersburg/Wrangell Inventory Unit, Alaska, 1972

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Abstract

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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.

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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

	Thousand acres	*Thousand hectares*
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	
	Million cubic feet[2]/	*Million cubic meters*[2]/	*Million board feet*[3]/	*Million cubic meters*[4]/
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

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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 m^3), and annual net growth and mortality at -40.0 and 69.2 million cubic feet (-1.1 and 1.9 million m^3), 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.

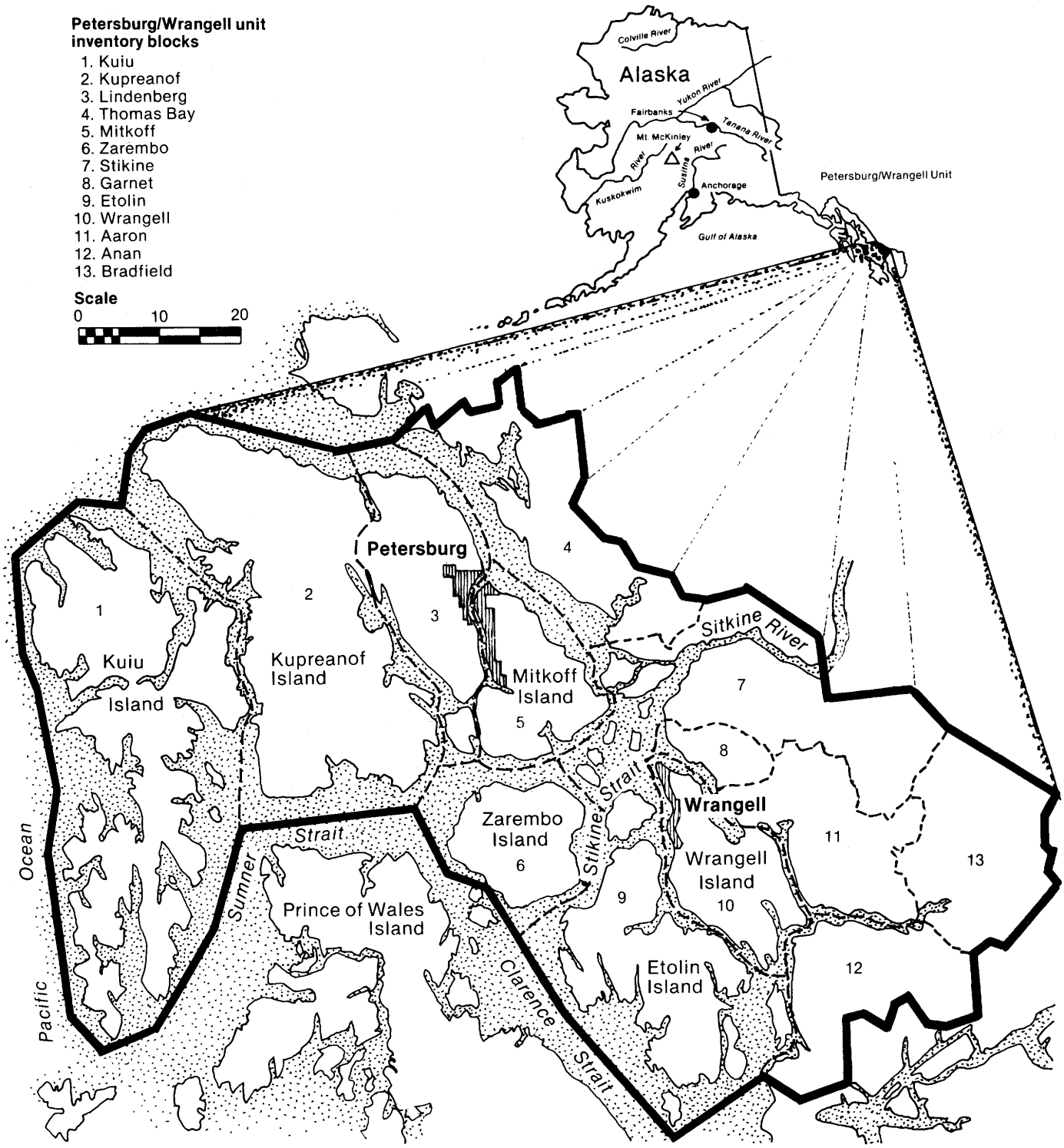

Figure 1. – Petersburg/Wrangell inventory unit.

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:

	Design sampling error	Sampling error achieved	Sampling error of the estimate
	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 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 (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 m^3/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 m^3/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.

Names of Trees[6/]

Common name	Scientific name
Softwoods:	
Alaska-cedar	*Chamaecyparis nootkatensis* (D. Don) Spach
Fir, Pacific silver	*Abies amabilis* (Dougl.) forbes
Fir, subalpine	*A. lasiocarpa* (Hook.) Nutt.
Hemlock, mountain	*Tsuga mertensiana* (Bong.) Carr.
Hemlock, western	*T. heterophylla* (Raf.) Sarg.
Pine, lodgepole	*Pinus contorta* Dougl.
Redcedar, western	*Thuja plicata* Donn
Spruce, Sitka	*Picea sitchensis* (Bong.) Carr.
Yew, Pacific	*Taxus brevifolia* Nutt.
Hardwoods:	
Alder, red	*Alnus rubra* Bong.
Cottonwood, black	*Populus trichocarpa* Torr. & Gray
Willow, Barclay	*Salix barclayi* Anderss.
Willow, Bebb	*S. bebbiana* Sarg.
Willow, feltleaf	*S. alaxensis* (Anderss.) Cov.
Willow, grayleaf	*S. glauca* L.
Willow, hooker	*S. hookeriana* Barratt
Willow, Sitka	*S. sitchensis* Sanson
Willow, Pacific	*S. lasiandra* 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
		ACRES	
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
LODGEPOLE PINE	--	81,392	81,392
OTHER SOFTWOODS	--	--	--
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	--	--	--
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 BAY	MITKOFF	LINDENBERG	KUPREANOF	KUIU	STIKINE	ZAREMBO	WRANGELL	ETOLIN	GARNET	AARON	BRADFIELD	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	554,344
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	--	--	--	--	--	48,228
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	169,733
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	488,867
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	264,972
SLIDE ZONE	--	--	--	6,753	--	--	--	--	--	--	6,801	--	--	13,554
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	942,951
NONFOREST:														
FARMS AND GRASSLANDS	6,746	--	--	--	--	6,746	--	--	--	--	--	--	--	13,493
ALDER 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	--	155,164
ALPINE MEADOW	20,239	--	--	6,746	13,492	40,478	--	--	6,746	--	6,746	13,547	--	107,995
MUSKEG MEADOW	6,746	13,493	--	20,239	--	--	--	6,746	--	--	6,746	--	6,746	60,716
URBAN AND OTHER	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ALPINE ROCK	47,224	--	--	--	6,746	87,756	--	13,547	--	6,746	20,239	87,702	13,493	283,453
ICE AND SNOWFIELDS	13,493	--	--	--	--	13,493	--	--	--	--	20,239	67,463	--	114,687
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	769,348
NON-CENSUS WATER 4/	--	--	--	--	7,604	--	--	--	--	--	--	7,604	--	15,207
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
	THOUSAND TREES							
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
LODGEPOLE 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
	THOUSAND TREES							
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
LODGEPOLE 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
	THOUSAND TREES							
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
	THOUSAND TREES							
SOFTWOODS:								
ALASKA-CEDAR	--	222.31	242.55	137.68	26.63	3.99	--	633.15
SITKA SPRUCE	--	222.85	64.18	28.57	79.01	11.61	19.91	426.13
LODGEPOLE 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		POLETIMBER	SEEDLINGS AND SAPLINGS	NONSTOCKED	ALL CLASSES
	OLD GROWTH	YOUNG GROWTH				
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 ¼-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		POLETIMBER	SEEDLINGS AND SAPLINGS	NONSTOCKED	ALL CLASSES
	OLD GROWTH	YOUNG GROWTH				
TRUE FIR: 2/						
FBM 3/	--	--	--	--	--	
ACRES	--	--	--	--	--	--
FBM/ACRE	--	--	--	--	--	--
HEMLOCK-SPRUCE:						
FBM	4,039,116,179	956,181,651	--	0	--	4,995,297,830
ACRES	135,410	13,748	--	11,650	--	160,807
FBM/ACRE	29,829	69,551	--	0	0	31,064
WESTERN REDCEDAR:						
FBM	101,841,189	--	--	--	--	101,841,189
ACRES	6,753	--	--	--	--	6,753
FBM/ACRE	15,081	--	--	--	--	15,081
SITKA SPRUCE:						
FBM	1,427,333,997	440,537,107	25,784,804	169,295,592	--	2,062,951,500
ACRES	27,495	20,269	2,645	18,403	--	68,812
FBM/ACRE	51,912	21,734	9,748	9,199	--	29,980
MOUNTAIN HEMLOCK:						
FBM	486,724,742	--	--	--	--	486,724,742
ACRES	33,775	--	--	--	--	33,775
FBM/ACRE	14,411	--	--	--	--	14,411
WESTERN HEMLOCK:						
FBM	22,944,379,667	104,595,066	--	0	0	23,048,974,734
ACRES	873,612	6,763	--	5,825	5,825	892,024
FBM/ACRE	26,264	15,466	--	0	0	25,839
ALASKA-CEDAR:						
FBM	1,741,416,972	--	--	--	--	1,741,416,973
ACRES	115,053	--	--	--	--	115,053
FBM/ACRE	15,136	--	--	--	--	15,136
LODGEPOLE PINE:						
FBM	--	--	--	--	--	--
ACRES	--	--	--	--	--	--
FBM/ACRE	--	--	--	--	--	--
RED ALDER:						
FBM	--	--	15,636,851	--	--	15,636,851
ACRES	--	--	2,645	--	--	2,645
FBM/ACRE	--	--	5,912	--	--	5,912
BLACK COTTONWOOD:						
FBM	86,801,984	--	--	--	--	86,801,984
ACRES	6,985	--	--	--	--	6,985
FBM/ACRE	12,427	--	--	--	--	12,427
ALL TYPES:						
FBM	30,827,614,721	1,501,313,824	41,421,655	169,295,592	0	32,539,645,803
ACRES	1,199,083	40,779	5,290	35,876	5,825	1,286,854
FBM/ACRE	25,709	36,816	7,830	4,719	0	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
		MILLION CUBIC FEET	
SAWTIMBER 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 ¼-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
	MILLION BOARD FEET					
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
LODGEPOLE 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 ¼-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
	MILLION BOARD FEET					
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
LODGEPOLE 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 ¼-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
	MILLION BOARD FEET					
SOFTWOODS:						
ALASKA-CEDAR	--	--	--	--	--	--
SITKA SPRUCE	340.12	643.68	198.90	54.50	--	1,237.21
LODGEPOLE 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
	MILLION CUBIC FEET						
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
LODGEPOLE 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
	MILLION CUBIC FEET						
SOFTWOODS:							
ALASKA-CEDAR	52.95	280.62	151.56	37.37	9.17	--	531.67
SITKA SPRUCE	38.00	200.46	422.78	424.74	238.85	138.55	1,463.39
LODGEPOLE PINE	.72	4.08	4.54	--	--	--	9.34
WESTERN REDCEDAR	5.23	44.34	35.60	14.79	2.59	--	102.55
WESTERN HEMLOCK	339.17	1,436.01	1,483.92	742.85	237.02	21.05	4,260.02
MOUNTAIN HEMLOCK	48.36	152.44	115.17	32.41	2.81	--	351.18
TOTAL	484.42	2,117.95	2,213.58	1,252.16	490.44	159.60	6,718.15
HARDWOODS:							
RED ALDER	5.23	10.40	--	--	--	--	15.63
BLACK COTTONWOOD	--	--	3.30	6.81	1.52	--	11.65
OTHER HARDWOODS		--	--	--	--	--	--
TOTAL	5.23	10.40	3.30	6.81	1.52	--	27.28
ALL SPECIES	489.65	2,128.34	2,216.89	1,258.97	491.96	159.60	6,745.42

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
	MILLION CUBIC FEET						
SOFTWOODS:							
ALASKA-CEDAR	--	--	--	--	--	--	--
SITKA SPRUCE	8.62	62.10	106.67	33.56	9.70	--	220.65
LODGEPOLE 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
			THOUSAND CUBIC FEET		
SOFTWOODS:					
ALASKA-CEDAR	--	--	2/ -79.16	-445.64	-524.80
SITKA SPRUCE	--	92.25	96.75	-7,540.56	-7,351.56
LODGEPOLE 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 ¼-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
			THOUSAND BOARD FEET		
SOFTWOODS:					
ALASKA-CEDAR	--	--	138.94	825.22	964.15
SITKA SPRUCE	--	2/ -774.08	2,955.33	-48,677.05	-46,495.79
LODGEPOLE 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
			THOUSAND CUBIC FEET		
HEMLOCK-SPRUCE	--	2/ -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
LODGEPOLE 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 ¼-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/ -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
LODGEPOLE 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
			THOUSAND CUBIC FEET		
SOFTWOODS:					
ALASKA-CEDAR	--	--	--	1,121.42	1,121.42
SITKA SPRUCE	--	124.90	266.41	16,091.26	16,482.57
LODGEPOLE 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 ¼-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
			THOUSAND BOARD FEET		
SOFTWOODS:					
ALASKA-CEDAR	--	--	4,108.25	--	4,108.25
SITKA SPRUCE	--	916.51	1,517.84	87,144.02	89,578.37
LODGEPOLE 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
LODGEPOLE 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 ¼-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
LODGEPOLE 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 ¼-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 $\bar{x}$ 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 (m^3)
1 cubic foot per acre = 0.07 cubic meter per hectare (m^3/ha)
20 cubic feet per acre = 1.3994 cubic meters per hectare (m^3/ha)
1 square foot of basal area per acre = 0.2296 square meter per hectare (m^2/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 m^3), and annual net growth and mortality at -40.0 and 69.2 million cubic feet (-1.1 and 1.9 million m^3), 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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