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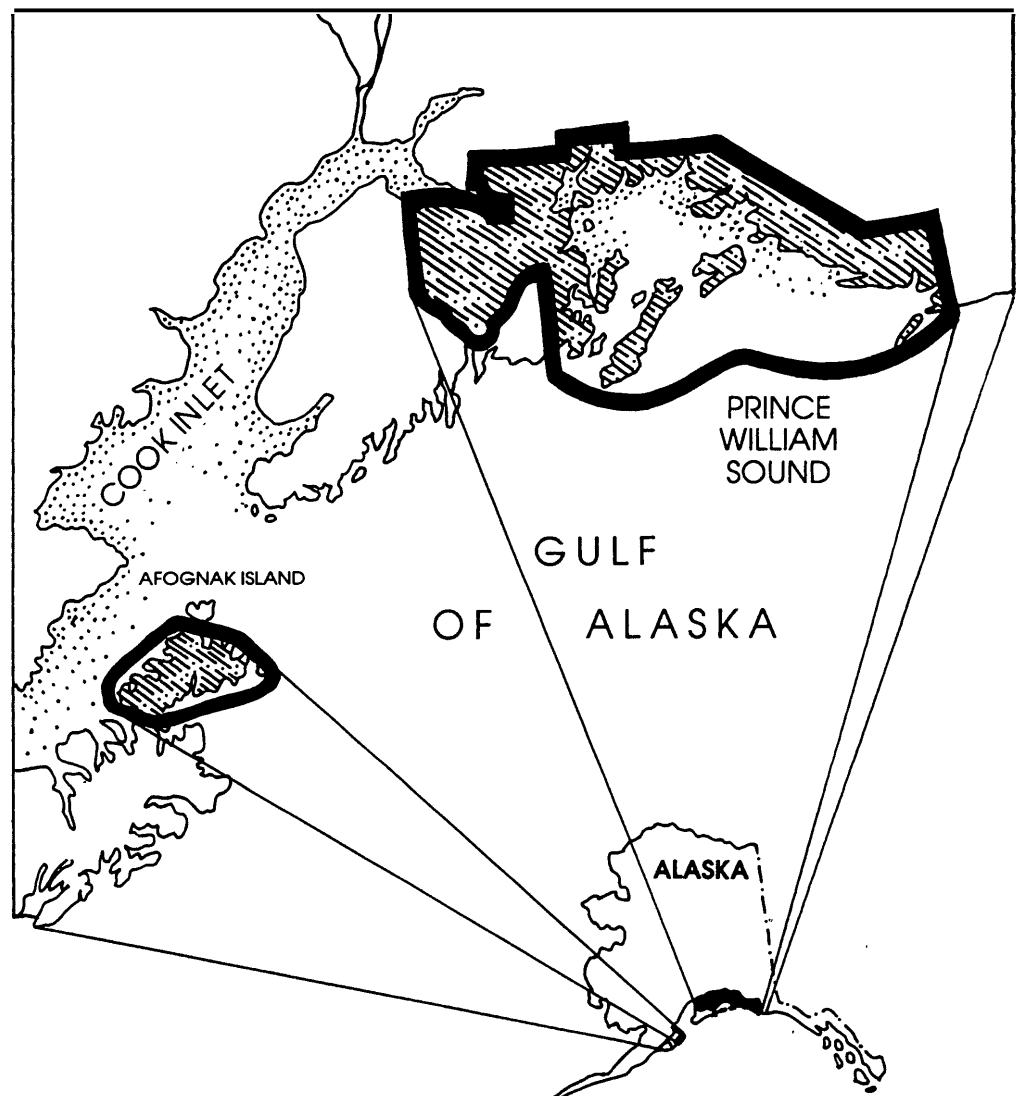
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Forest Resources of Prince William Sound and Afognak Island, Alaska: Their Character and Ownership, 1978

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Abstract

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The 1978 inventory of the forest resources of Prince William Sound and Afognak Island was designed to produce estimates of timberland area, volumes of timber, and growth and mortality of timber. Estimates of timber resource quantities were also categorized by owner. Nearly 56 percent of the available timberland area is under Forest Service management, and almost 40 percent is held by private interests. Total available timberland area was estimated at 648,454 acres. Cubic-foot volume on this timberland was estimated at 2.93 billion cubic feet. Timber growth and mortality were estimated at 19.51 million and 3.13 million cubic feet, respectively. Detailed tables provide additional breakdowns of inventory results. The inventory was conducted in 1977 and 1978; data compilation progressed through final update in 1988 to include current ownership summaries.

Keywords: Forest surveys, timber resources, statistics (forest), Alaska (south-central).

Summary

A double sampling (two-phase) procedure was used to make estimates of area and volume. The first phase interpreted 26,745 aerial-photo sample plots. The plots on these photos were stratified by land class (timberland, other forest land, nonforest, and water). From the 26,745 photo points, a random sample was selected for visits on the ground. Tree measurements were made on these 361 plots in the second phase of the sampling to provide data for derived volume estimates. Area estimates were derived from proportional distribution of photo plots adjusted to ground information.

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 Research Station at Portland, Oregon, has responsibility for forest inventories in Alaska, California, Hawaii, Oregon, and Washington and the American Pacific Trust Islands.

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Highlights

	<i>Thousand acres</i>		<i>Thousand hectares</i>	
Total Prince William Sound and Afognak Island areas:	4,639		1,077	
Forest land	1,794		726	
Nonforest land	2,795		1,131	
Non-Census water	49		20	
Census water	106		43	
Forested area:				
Timberland	718		291	
Available timberland	648		262	
Other forest land	1,075		435	
Forest land type composition:				
Black spruce	8		3	
White spruce	52		21	
Hemlock-spruce	174		70	
Sitka spruce	656		266	
Mountain hemlock	676		274	
Western hemlock	149		60	
Alaska-cedar	22		9	
Black cottonwood	18		7	
Birch	11		5	
Nonstocked	26		10	
		Growing stock	Sawtimber	
	<i>Thousand cubic feet^a</i>	<i>Thousand cubic meters^a</i>	<i>Thousand board feet^b</i>	<i>Thousand cubic meted</i>
Volumes on available timberland:				
Net volume	2,928,983	82,890	14,383,720	78,506
Net annual growth	19,512	552	76,700	317
Annual mortality	3,134	89	14,113	04

^a Net volume of roundwood for growing stock trees 5.0 inches in d.b.h. (diameter at breast height) and larger.

^b Net volume, International 1/4-inch rule, for softwood trees 9.0 inches and larger and for hardwood trees 11.0 inches in d.b.h. and larger.

^c Net volume of roundwood for softwood trees 9.0 inches and larger and for hardwood trees 11.0 inches in d.b.h. and larger.

Introduction

The Prince William Sound and Afognak Island inventory unit is in south-central Alaska between 58° and $61^{\circ} 10'$ north latitude and between $145^{\circ} 45'$ and $153^{\circ} 30'$ west longitude (fig. 1). The inventory unit is influenced by a maritime climate. In contrast to areas of northern Alaska, such as the interior, winters are warmer, summers cooler, and precipitation heavier. Precipitation, including the water equivalent of snow, is typically between 60 and 200 inches per year. Surface winds can be strong and persistent in this region, and average temperatures range from 5 to 60°F (Selkregg 1974).

Some relatively major communities are found within the inventory unit: Seward, Homer, Whittier, Cordova, and Valdez. Although much of the economy of these towns is based on fishing, Seward and Whittier have deep, ice-free saltwater ports that serve a variety of foreign and domestic vessels. Seward now has a coal-loading facility and will be the location of a new lumber mill having a capacity of 40 million board feet per year.

Although oil-based industry began in the Cordova area with the drilling of the State's first oil-producing well at Katalla (50 miles southeast of Cordova) (U.S. Dept. of Health and Human Services 1980), the majority of jobs connected with oil in the region are at Valdez, the southern terminus of the Trans-Alaska Oil Pipeline.

This paper summarizes results of forest resource inventories conducted between 1977 and 1978 in the Cordova/Whittier, Kenai, and Afognak inventory blocks of Prince William Sound and Afognak Island.

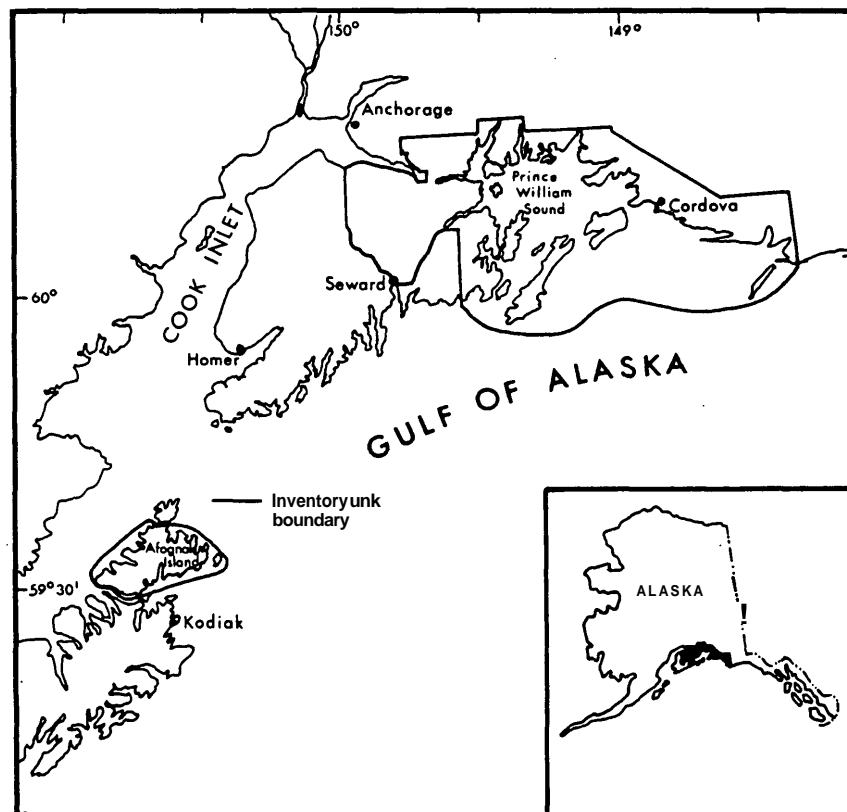


Figure 1—Prince William Sound and Afognak Island timber inventory unit, 1978.

Inventory Procedures

The estimates of area and timber volumes from the **1978** timber inventory were based on a double sampling (two-phase) technique (Bickford **1952**). In the first phase of the sampling study, **26,745** photo points were systematically distributed over 1:15,840-scale aerial photographs and then interpreted. Each photo point was classified by land class. Of the **26,745** photo points, **361** were visited on the ground. 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 were the basis for the area and volume estimates presented in this paper.

Although photo interpretation for vegetative and land-use characteristics was performed before the field work, final allocation of photo and ground points according to land owner was not completed until **1988** (information current to **1986** was used). Comparing the results presented here with prior compilations of the same inventory data will reveal differences among estimates of individual owner quantities. These differences are not significantly different statistically.

Results Area

The Prince William Sound and Afognak Island inventory unit is largely nonforest land—in fact, almost **60** percent of the area is nonforested. Productive timberland makes up roughly 16 percent of the total; however, 10 percent of the timberland area is unavailable for producing timber because it is reserved or deferred from such use as a result of various administrative statutes.

The available timberland component of the inventory unit is mostly (**52** percent) covered with stands of Sitka spruce.¹ The second largest component is western hemlock, which is followed by hemlock-spruce and mountain hemlock forest types (fig. 2). Almost all (**93** percent) the available timberland area has sawtimber stands on it (fig. 3).

Two owner groups dominate control of the available timberland area in the unit: the USDA Forest Service (National Forest) and private owners. Ninety-five percent of the available timberland is in these two owner classes. Private owners have control of slightly less area than does the National Forest; **256,932** versus **360,933** acres (fig. 4). This ownership distribution is relatively recent and results mainly from the Alaska Native Claims Settlement Act of **1971** (Public Law **92-203**) and the Alaska National Interest Lands Conservation Act (Public Law **96-487**). Private owners, as a forest management entity, are relative newcomers to the timber business in this area, but timber management actions taken by this sector in the future will have a substantial impact on local timber economies.

¹ See "Names of Trees" for scientific nomenclature.

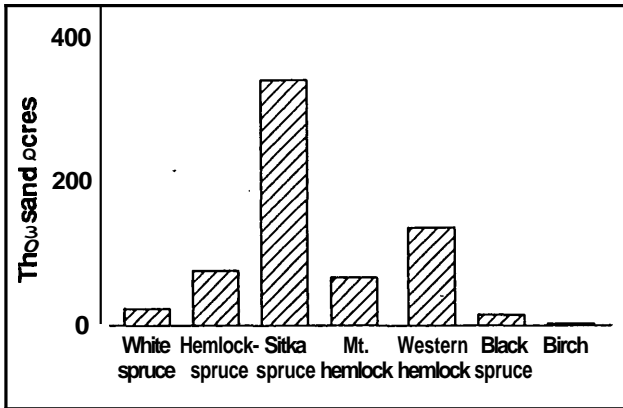


Figure 2—Area of available timberland by forest type, Prince William Sound and Afognak Island, 1970

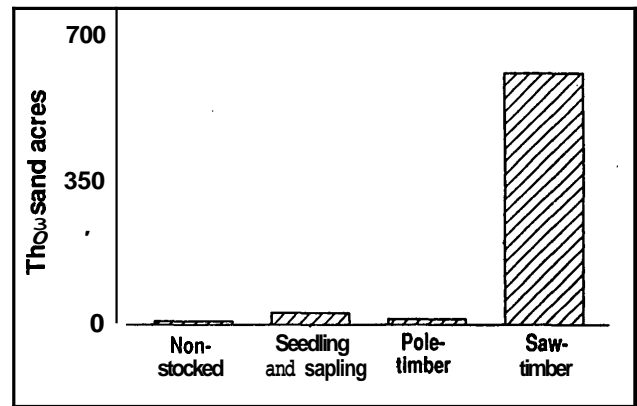


Figure 3—Area of available timberland by stand-size class, Prince William Sound and Afognak Island, 1978.

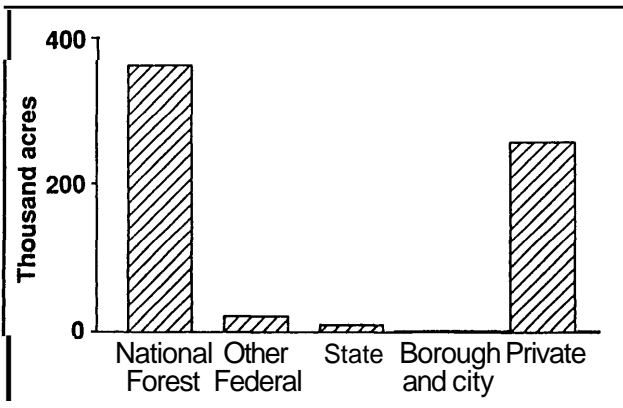


Figure 4—Area of available timberland by owner, Prince William Sound and Afognak Island, 1978.

Volume

In the south-central inventory unit, there is little hardwood volume of merchantable size. Estimates from this inventory indicated that about 1 percent of the cubic-foot volume on available timberland (2,929 million cubic feet) is in hardwood trees.

Just as timberland area reflects a majority ownership by the USDA Forest Service, most of the volume is managed by the Forest Service (fig. 5). A closer examination shows, however, that the majority of the volume in the most extensive forest type, Sitka spruce, is controlled by private owners. Of the 2,929 million cubic feet of wood on available timberland, 56 percent (1,628 million cubic feet) is in the Sitka spruce type. Sixty-five percent of this volume (1,059 million cubic feet), is controlled by private owners. This is slightly more than 36 percent of the total volume on available timberland. On a per-acre basis, the average timberland acre in the south-central inventory unit has about 4,517 cubic feet on it. The acreage with Sitka spruce that is controlled by private owners is more heavily stocked than that held by the National Forest: 5,059 cubic feet per acre versus 4,411 cubic feet.

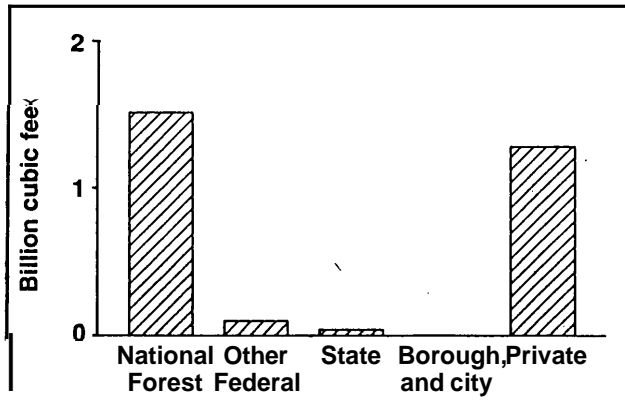


Figure 5—Net volume of growing stock on available timberland by owner, Prince William Sound and Afognak Island, 1978.

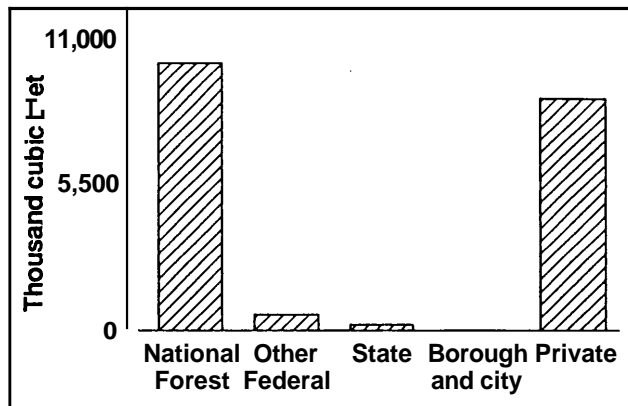


Figure 6—Average net annual growth on growing stock, on available timberland, by owner, Prince William Sound and Afognak Island, 1978.

Growth

Average annual growth on growing stock in the south-central unit was positive overall. The only instances of negative net growth (mortality exceeding gross growth) were on some small acreages of white spruce held by the State and National Forest owners. Total net growth for the unit was about 19.5 million cubic feet; 9.9 million was on National Forest lands and 8.7 million was on private lands (fig. 6).

In recent years, the spruce bark beetle, *Dendroctonus rufipennis* (Kirby), has caused significant mortality in the south-central region of Alaska. Mortality, in excess of gross growth on white spruce, in 1978, was likely an early indicator of the infestation.

Overall growth on available timberland was about 30 cubic feet per acre per year. The Sitka spruce stands held by the National Forest were showing about 23 cubic feet per acre per year on average, whereas the private owner holdings of Sitka spruce were growing at nearly 35 cubic feet per acre per year.

As mentioned above, the date of inventory was 1978. The growth rates shown here can provide only a rough estimate of how much the standing timber inventory has changed since then. No account has been made of insect and disease impacts since the inventory.

Mortality

Average annual mortality exceeded gross growth for white spruce on State and National Forest lands. In fact, the cubic-foot mortality rate (mortality volume as a percentage of standing tree volume) for white spruce was roughly 15 times that of Sitka spruce and about 8 times that of all species other than white spruce. These high rates of mortality support the hypothesis that these estimates reflect an early indication of spruce beetle infestation.

Average annual mortality of growing stock is not as evenly divided between the two major owners, National Forest and private, as is net growth. Of the total 3.1 million cubic feet of mortality, 2.1 million cubic feet was on National Forest lands and 0.9 million was on private lands (fig. 7.)

If mortality is examined as a percentage of gross growth (that is, net growth plus mortality), a disparity becomes apparent. On National Forest lands, mortality is roughly 17 percent of gross growth compared with 9 percent on private lands.

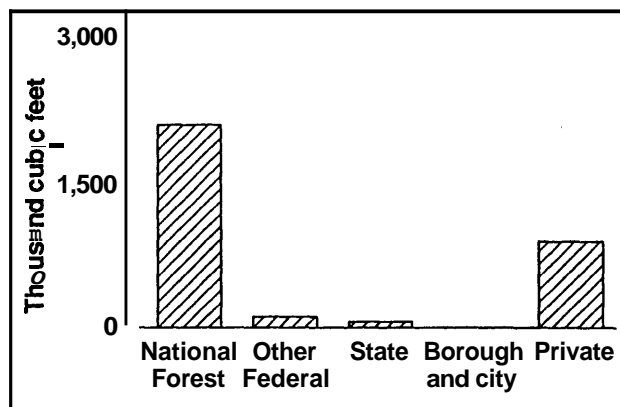


Figure 7—Average annual mortality of growing stock, on available timberland, by owner, Prince William Sound and Afognak Island, 1978.

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 estimates presented in the tables are available from the research unit. The reliability of the inventory is expressed in terms of relative sampling error at the 68-percent confidence level.

	Design sampling error	Sampling error achieved	Sampling error of the total estimate
	(Percent)	(Percent)	(Percent)
Available timberland area:			
Per million acres	3.0	4.7	
For the total 648,454 acres			5.9
Other forest land area:			
Per million acres	10.0	4.4	
For the total 1,075,166 acres			4.3
Net growing stock volume:			
Per billion cubic feet	10.0	10.5	
For the total 2,928,983,478 cubic feet			6.1
Net growth of growing stock:			
Per billion cubic feet	10.0	2.6	
For the total 19,511,842 cubic feet			18.4

For the Prince William Sound and Afognak Island inventory unit, growing stock volume was estimated at 2,928,983,478 cubic feet, ± 6.13 percent, with 68-percent confidence limits of 3,108,530,165 and 2,749,436,791 cubic feet. A 68-percent confidence level means that if repeated samples were taken of this population, the estimate of total volume would be between 3.108 and 2.749 billion cubic feet 68 percent of the time.

For estimates of other forest land area and net growth of growing stock, design sampling error goals were met; goals for estimates of timberland area and net growing stock volume were not met.

Terminology

Available timberland—Timberland not withdrawn from use in production of timber products as a result of administrative statute or regulation.

² Terminology is from USDA Forest Service, Forest Service Handbook, Title 4813.1, 1967; and the manual of field instructions for the forest survey of Prince William Sound and Afognak Island, 1977.

Census **water**—Streams, sloughs, estuaries, and canals more than one-eighth of a mile wide; and lakes, reservoirs and ponds more than 40 acres in area. (Also see noncensus water.)

Commercial **species**—Trees currently or prospectively suitable for industrial products.

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 unmerchantable for saw logs now or prospectively because of defect, rot, or species.

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

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

Alaska-cedar—Forests in which Alaska-cedar comprises the plurality of the stocking. Common associates are mountain or western hemlock and Sitka spruce.

Black ***cottonwood***—Forests in which a plurality of the stand is black cottonwood. Black cottonwood is found south of the Alaska Range in pure stands along the major rivers. Black cottonwood stands are replaced as they age by white spruce or Sitka spruce.

Black ***spruce***—Forests in which a plurality of the stand is black spruce. Black spruce most often occurs in nearly pure stands but can be found mixed with white spruce, paper birch, and quaking aspen. Black spruce is fairly characteristic of poorer forest land.

Hemlock-spruce—Forests in which 50 percent or more of the stand is western or mountain hemlock and where Sitka spruce comprises 30-49 percent of the stocking. A common associate is Alaska-cedar.

Mountain hemlock—Forests in which a plurality of the stand is mountain hemlock. Associates are Alaska-cedar and western hemlock.

Paper birch—Forests in which a plurality of the stand is paper birch. Paper birch can occur in pure stands but is more often mixed with white spruce, quaking aspen, or black spruce.

Sitka spruce—Forests in which a plurality of the stand is Sitka spruce. An associated species is western hemlock..

Western hemlock—Forests in which a plurality of the stand is western hemlock. Associates are Sitka spruce, Alaska-cedar, and mountain hemlock.

White **spruce**—Forests in which a plurality of the stand is white spruce. Common associates include paper birch and, occasionally, black spruce or quaking aspen.

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

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

Hardwoods—Broad-leaved trees that are usually deciduous. "Commercial" south-central Alaska hardwood species are black cottonwood, paper birch, and quaking aspen.

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

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.

Mean annual Increment (MAI)—A measure of the volume of wood, in cubic feet, produced on 1 acre during 1 year. Forest Inventory and Analysis minimum standard for timberland is the ability to produce 20 cubic feet per acre per year.

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 pole timber less than 50-percent sound, cubic-foot measure, and all saplings with any sign of rot are not considered merchantable trees but rotten culls. Trees of such poor form that they will never produce a merchantable saw log are not classified as merchantable trees but as sound culls or rough trees.

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

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

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

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

Noncensus water—Streams, sloughs, estuaries, and canals between 120 feet and one-eighth of a mile wide; and lakes, reservoirs, and ponds between 1 and 40 acres in area. (Also see census water.)

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

Nonstocked areas—Timberland less than 16.7-percent stocked with growing-stock trees.

Other forest land—Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions (producing less than 20 cubic feet per acre per year). This includes sterile or poorly drained forest land, subalpine forests, and steep rocky areas where topographic conditions are likely to prevent indefinitely management for timber production.

Poletimber-sized tree—Softwood tree 5.0 to 8.9 inches in d.b.h.; hardwood tree from 5.0 to 10.9 inches in d.b.h.

Poletimber stand —stands at least 16.7-percent stocked with growing-stock trees of which half or more is in poletimber- and sawtimber-size trees, with poletimber stocking exceeding that of sawtimber.

Rough trees—Live trees 5.0 inches and larger in d.b.h. that do not contain a saw log, now or prospectively, primarily because of roughness or poor form, or because they are a noncommercial species.

Rotten trees—Live trees 5.0 inches and larger in d.b.h. that do not contain a saw log, now or prospectively, primarily because of rot.

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

Sapling-sized tree—A tree 1.0 to 4.9 inches in d.b.h.

Saw log—A log meeting minimum standards of diameter, length, and defect, including logs at least 12 feet long for softwoods (8 feet for hardwoods), sound and straight, and with a minimum small-end diameter inside bark of 6 inches for softwoods (8 inches for hardwoods).

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

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

Sawtimber-sized tree—Softwood tree 9.0 inches d.b.h. and larger; hardwood tree 11.0 inches in d.b.h. and larger.

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

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 affecting use for lumber.

Seedling-sapling stand —stands at least 16.7-percent stocked with growing stock trees of which more than half of the stocking is saplings and seedling-size trees.

Seedling-sized tree—An established tree less than 1.0 inch d.b.h.

Site productivity class—A classification of forest land based on capacity to grow crops of industrial wood.

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

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

Timberland—Forest land producing or capable of producing crops of industrial wood. Areas qualifying as timberland can produce more than 20 cubic feet per acre per year of industrial wood at culmination of mean annual increment.

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

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

Names of Trees³

Common name

Scientific name

Softwoods:

Alaska-cedar
Black spruce
Mountain hemlock
Sitka spruce
Western hemlock
White spruce

Chamaecyparis nootkatensis (D. Don) Spach
Picea mariana (Mill.) B.S.P.
Tsuga mertensiana (Bong.) Carr.
Picea sitchensis (Bong.) Carr.
Tsugaheterophylla (Raf.) Sarg.
Picea glauca (Moench) Voss

Hardwoods:

Black cottonwood
Paper birch
Quaking aspen

Populus trichocarpa Torr. & Gray
Betula papyrifera Marsh.
Populus tremuloides Michx.

Tables

Estimates in this report were developed from statistically based samples and therefore are subject to sampling error. Sampling errors for estimates of various resource quantities are presented in the section, "Reliability of Inventory Data."

Table 1—Area by land class, Prince William Sound and Afognak Island, 1978

Land class	Area
	Acres
Timberland	
Reserved	75,646
Available	648,454
Other forest land	1,075,168
Nonforest land	2,790,264
Noncensus water ^a	49,476
Total	4,639,008

Estimates are subject to sampling error.

Totals may be off because of rounding.

^a Census water not part of sample. Independent estimate indicates 106,000 acres of census water.

³ Scientific names are according to Viereck and Little (1972).

Table 2—Area of forest land by forest type and availability class, Prince William Sound and Afognak Island, 1978

Forest type	Availability class		All classes
	Unreserved	Resewed	
	-----Acres-----		
Black spruce	8,383	—	8,383
White spruce	52,194	—	52,194
Hemlock-spruce	139,726	34,058	173,784
Sitka spruce	625,210	31,282	656,492
Mountain hemlock	533,398	143,083	676,481
Western hemlock	143,440	5,676	149,117
Alaska-cedar	21,825	—	21,825
Black cottonwood	16,821	1,251	18,073
Birch	11,463	—	11,463
Other	3,953	21,825	25,778
Total	1,556,414	237,176	1,793,590

— = no data collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 3—Area of forest land by cubic-foot site productivity class and individual owner, Prince William Sound and Afognak island, 1978

Cubic-foot site productivity class	Owner					All owners
	National Forest	Other Federal	State	Borough and city	Private	
	-----Acres-----					
165+	—	—	—	—	—	—
120-164	—	—	9	—	239	248
85-119	8,119	650	175	6	8,483	17,433
50-84	78,360	8,363	2,397	83	105,759	194,962
20-49	315,053	13,454	7,609	377	169,286	505,779
Less than 20	845,453	14,928	11,218	651	202,918	1,075,168
Total	1,246,985	37,394	21,408	1,117	486,685	1,793,590

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 4—Area of available timberland by forest types, stand-size class, and Individual owner, Prince William Sound and Afognak Island, 1978

Individual owner and stand-size class	Forest type							All forest types
	White spruce	Hemlock-spruce	Sitka spruce	Mountain hemlock	Western hemlock	Black Cottonwood	Birch.	
-----Acres-----								
National Forest:								
Nonstocked	—	—	1,217	1,217	—	—	—	2,434
Seedling and sapling	7,724	—	8,757	3,729	—	3,478	—	23,688
Poletimber	—	—	2,901	—	—	3,945	2,282	9,127
Sawtimber	12,914	60,687	90,670	49,002	106,720	5,689	—	325,685
Total	20,639	60,687	103,545	53,947	106,720	13,113	2,282	360,933
Other Federal:								
Nonstocked	—	—	390	—	—	—	—	390
Seedling and sapling	709	—	185	158	—	—	—	1,051
Poletimber	—	—	—	—	—	—	206	206
Sawtimber	845	321	16,820	640	—	320	206	19,152
Total	1,553	321	17,395	798	—	320	412	20,799
State:								
Nonstocked	—	—	36	—	—	—	—	36
Seedling and sapling	206	—	117	57	—	9	—	389
Poletimber	—	—	—	—	138	9	62	210
Sawtimber	436	1,070	4,417	1,177	1,497	79	62	8,737
Total	642	1,070	4,569	1,235	1,635	98	125	9,372
Borough and city:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	1	—	6	1	—	—	—	8
Poletimber	—	—	—	—	13	—	—	13
Sawtimber	1	76	115	57	146	—	—	395
Total	2	76	121	59	159	—	—	416
Private:								
Nonstocked	—	—	5,051	35	—	—	—	5,086
Seedling and sapling	78	—	2,310	9	—	274	—	2,670
Poletimber	—	—	325	—	2,417	530	19	3,289
Sawtimber	139	12,152	201,766	9,328	22,195	289	19	245,888
Total	217	12,152	209,451	9,371	24,610	1,093	38	256,932

Table 4—Area of available timberland by forest types, stand-size class, and Individual owner, Prince William Sound and Afognak Island, 1978 (continued)

Individual owner and stand-size class	Forest type							All forest types
	White spruce	Hemlock-spruce	Sitka spruce	Mountain hemlock	Western hemlock	Black Cottonwood	Birch	
----- Acres -----								
All owners:								
Nonstocked	—	—	6,694	1,252	—	—	—	7,946
Seedling and sapling	8,718	—	11,375	3,954	—	3,761	—	27,806
Poletimber	—	—	3,226	—	2,568	4,484	2,569	12,845
Sawtimber	14,335	74,306	313,788	60,204	130,558	6,377	287	599,857
Total	23,053	74,306	335,081	65,410	133,124	14,624	2,857	648,454

— = no data were collected.

Estimates are subject to sampling error.

Totals may be off because of rounding.

Table 5—Area of available timberland by forest type and cubic-foot stand volume class, Prince William Sound and Afognak Island, 1978

Forest type	Cubic-foot stand volume class					All classes
	0 to 799	800 to 2,199	2,200 to 4,999	5,000 to 9,999	10,000+	
----- Acres -----						
White spruce	8,498	8,937	5,618	—	—	23,052
Hemlock-spruce	—	—	41,918	32,389	—	74,307
Sitka spruce	13,978	37,520	128,568	146,472	8,547	335,082
Mountain hemlock	1,251	30,768	25,642	7,749	—	65,410
Western hemlock	—	8,243	51,088	73,793	—	133,124
Black cottonwood	5,735	5,020	3,868	—	—	14,623
Birch	—	2,856	—	—	—	2,856
Total	29,459	93,344	256,701	260,403	8,547	648,454

— = no data were collected.

Estimates are subject to sampling error.

Totals may be off because of rounding.

Table 6—Area of available timberland by forest type and board-foot stand volume class, Prince William Sound and Afognak Island, 1978

Forest type	Board-foot ^a stand volume class					All classes
	0 to 6,999	7,000 to 9,999	20,000 to 29,999	30,000 to 49,999	50,000+	
----- <i>Acres</i> -----						
White spruce	8,717	14,335	—	—	—	23,052
Hemlock-spruce	—	41,919	7,610	24,778	—	74,307
Sitka spruce	41,009	84,777	98,128	102,372	8,795	335,082
Mountain hemlock	6,241	45,744	12,389	1,036	—	65,410
Western hemlock	2,567	51,087	17,029	62,440	—	133,124
Black cottonwood	10,755	1,934	1,934	—	—	14,623
Birch	2,569	287	—	—	—	2,856
Total	71,858	240,082	137,091	190,627	8,795	648,454

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.
^a Board-feet International 1/4-inch tulle.

Table 7—Area of available timberland by cubic-foot site productivity class and cubic-foot stand volume class, Prince William Sound and Afognak island, 1978

Cubic-foot site productivity class	Cubic-foot stand volume class					All classes
	0 to 799	800 to 2,199	2,200 to 4,999	5,000 to 9,999	10,000+	
----- <i>Acres</i> -----						
165+	—	—	—	—	—	—
120-164	—	—	249	—	—	249
85-119	1,251	—	5,676	6,232	4,273	17,433
50-84	4,048	19,237	88,315	64,884	—	176,483
20-49	24,160	74,107	162,461	189,287	4,273	454,288
Total	29,459	93,344	256,701	260,403	8,547	648,454

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 8—Number of growing stock trees on available timberland by individual owner and species, Prince William Sound and Afognak Island, 1978

Individual owner	Species							All species
	White spruce	Sitka spruce	Western hemlock	Mountain hemlock	Birch	Aspen	Black cottonwood	
----- <i>Thousand trees</i> -----								
National Forest	12,593	120,897	165,471	134,417	2,913	1,203	3,223	440,717
Other Federal	997	6,714	—	2,014	279	103	124	10,231
State	353	3,059	2,562	3,197	81	32	34	9,316
Borough and city	1	155	246	166	—	0 ^a	0	568
Private	112	99,954	39,275	26,874	33	9	209	166,466
Total	14,056	230,779	207,554	166,668	3,306	1,347	3,590	627,298

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.
^a 0 = less than 500 trees.

Table 9—Number of growing stock trees on available timberland by diameter class and species, Prince William Sound and Afognak Island, 1978

Diameter class	Species							All species
	White spruce	Sitka spruce	Western hemlock	Mountain hemlock	Birch	Aspen	Black cottonwood	
----- <i>Thousand trees</i> -----								
Seedlings	7,184	155,984	153,069	134,900	1,948	1,022	1,834	455,941
1.0-10.9 inches	5,991	45,897	44,851	24,588	1,311	325	1,121	124,084
11.0-20.9 inches	774	21,347	6,913	5,702	47	—	583	35,366
21.0-30.9 inches	107	6,027	2,174	1,256	—	—	52	9,616
31.0-40.9 inches	—	1,284	484	218	—	—	—	1,986
41.0-50.9 inches	—	202	59	4	—	—	—	265
51.0+ inches	—	35	4	—	—	—	—	39
Total	14,056	230,779	207,554	166,668	3,306	1,347	3,590	627,298

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 10—Number of rough trees on available timberland by diameter class and species, Prince William Sound and Afognak Island, 1978

Diameter class	Species								All species
	White spruce	Black spruce	Sitka spruce	Western hemlock	Mountain hemlock	Birch	Aspen	Black cottonwood	
----- <i>Thousand trees</i> -----									
Seedlings	1,388	303	7,296	3,643	1,776	798	—	—	15,204
1.0-10.9 inches	237	90	12,994	14,381	6,792	181	—	—	34,675
11.0-20.9 inches	—	—	998	376	157	—	—	—	1,531
21.0-30.9 inches	—	—	85	36	51	—	—	—	172
31.0-40.9 inches	—	—	12	7	10	—	—	—	29
41.0-50.9 inches	—	—	7	4	—	—	—	—	11
51.0+ inches	—	—	—	—	—	—	—	—	—
Total	1,625	394	21,392	18,446	8,786	979	—	—	51,623

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 11—Number of rotten trees on available timberland by diameter class and species, Prince William Sound and Afognak Island, 1978

Diameter class	Species							All species
	White spruce	Sitka spruce	Western hemlock	Mountain hemlock	Birch	Aspen	Black cottonwood	
----- <i>Thousand trees</i> -----								
Seedlings	—	—	—	—	1,358	1,660	1,133	4,151
1.0-10.9 inches	259	748	1,342	663	259	145	276	3,692
11.0-20.9 inches	36	219	882	602	35	—	23	1,797
21.0-30.9 inches	—	68	198	161	—	—	4	431
31.0-40.9 inches	—	5	75	5	—	—	—	85
41.0-50.9 inches	—	7	3	7	—	—	—	17
51.0+ inches	—	—	7	—	—	—	—	7
Total	295	1,047	2,508	1,436	1,653	1,805	1,436	10,180

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 12—Number of mortality trees on available timberland by diameter class and species, Prince William Sound and Afognak Island, 1978

Diameter class	Species							All species
	White spruce	Sitka spruce	Western hemlock	Mountain hemlock	Birch	Aspen	Black cottonwood	
----- <i>Thousand trees</i> -----								
Seedlings	—	—	—	—	—	—	—	—
1.0-10.9 inches	26	22	259	28	30	—	5	370
11.0-20.9 inches	13	21	24	24	—	—	1	83
21.0-30.9 inches	0 ^a	5	—	—	—	—	—	5
31.0-40.9 inches	—	—	—	—	—	—	—	—
41.0-50.9 inches	—	0 ^a	—	—	—	—	—	0 ^a
51.0+ inches	—	—	—	—	—	—	—	—
Total	38	48	283	52	30	—	6	457

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.
^a 0 = less than 500 trees.

Table 13—Net volume of growing stock by forest type and land class, Prince William Sound and Afognak Island, 1978

Forest type	Land class			All classes
	Timberland	Other forest land	Nonforest land	
----- <i>Thousand cubic feet</i> -----				
Unclassified	—	—	69	69
Black spruce	—	320	—	320
White spruce	33,941	21,546	—	55,487
Hemlock-spruce	506,182	65,783	—	571,965
Sitka spruce	1,771,253	63,256	—	1,834,509
Mountain hemlock	242,658	502,733	—	745,391
Western hemlock	707,449	23,363	—	730,813
Black cottonwood	19,323	1,060	—	20,382
Birch	4,576	4,319	—	8,895
Total	3,285,381	682,380	69	3,967,831

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 14—Net volume of sawtimber by forest type and land class, Prince William Sound and Afognak Island, 1978

Forest type	Land class			All classes
	Timberland	Other forest land	Nonforest land	
- - - Thousand hard feet, International V4-inch rule - - -				
Unclassified	—	—	—	—
Black spruce	—	1,747	—	1,747
White spruce	158,934	95,873	—	254,809
Hemlock-spruce	2,397,323	261,973	—	2,659,296
Sitka spruce	8,931,062	213,555	—	9,144,617
Mountain hemlock	1,072,210	2,010,690	—	3,082,899
Western hemlock	3,542,365	89,481	—	3,631,846
Black cottonwood	72,535	2,178	—	74,713
Birch	15,371	21,268	—	36,639
Total	16,189,802	2,696,765	—	18,886,567

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 15—Net volume of growing stock on available timberland by diameter class and species, Prince William Sound and Afognak Island, 1978

Diameter class	Species							All species
	White spruce	Sitka spruce	Western hemlock	Mountain hemlock	Birch	Aspen	Black cottonwood	
- - - - - Thousand cubic feet - - - - -								
5.0-10.9 inches	6,887	155,374	102,297	34,476	1,492	718	6,323	307,567
11.0-20.9 inches	21,031	715,466	232,497	154,288	592	—	15,284	1,139,158
21.0-30.9 inches	8,534	611,092	224,852	101,809	—	—	4,220	950,507
31.0-40.9 inches	—	272,408	94,687	36,861	—	—	—	403,956
41.0-50.9 inches	—	82,162	19,736	1,029	—	—	—	102,927
51.0+ inches	—	21,868	2,999	—	—	—	—	24,867
Total	36,452	1,858,370	677,069	328,464	2,084	718	25,826	2,928,983

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 16—Net volume of growing stock on available timberland by diameter class and species, Prince William Sound and Afognak Island, 1978

Diameter class	Species							All species
	White spruce	Sitka spruce	Western hemlock	Mountain hemlock	Birch	Aspen	Black cottonwood	
----- <i>Thousand board feet, International 1/4-inch rule</i> -----								
9.0-10.9 inches	20,900	297,224	136,967	65,935	—	—	—	521,026
11.0-20.9 inches	112,317	3,468,558	1,148,707	695,920	2,165	—	67,980	5,495,647
21.0-30.9 inches	46,318	3,405,788	1,259,746	521,865	—	—	22,180	5,255,897
31.0-40.9 inches	—	1,584,699	551,953	205,760	—	—	—	2,342,412
41.0-50.9 inches	—	502,500	108,997	5,743	—	—	—	617,240
51.0+ inches	—	133,106	18,392	—	—	—	—	151,498
Total	179,534	9,391,876	3,224,762	1,495,223	2,165	—	90,159	14,383,720

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 17—Net volume of growing stock on available timberland by Individual owner and species, Prince William Sound and Afognak Island, 1978

Diameter class	Species							All species
	White spruce	Sitka spruce	Western hemlock	Mountain hemlock	Birch	Aspen	Black cottonwood	
----- <i>Thousand cubic feet</i> -----								
National Forest	32,280	645,070	548,130	260,651	1,654	638	22,734	1,511,157
Other Federal	2,393	90,491	—	2,952	306	58	1,291	97,490
State	1,357	24,273	7,984	6,544	94	17	315	40,584
Borough and city	1	860	772	374	—	—	—	2,007
Private	421	1,097,676	120,184	57,943	30	5	1,487	1,277,745
Total	36,452	1,858,370	677,070	328,464	2,084	718	25,827	2,928,985

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 18—Net volume of sawtimber on available timberland by individual owner and species, Prince William Sound and Afognak Island, 1978

Individual owner	Species							
	White spruce	Sitka spruce	Western hemlock	Mountain hemlock	Birch	Aspen	Black cottonwood	All species
----- <i>Thousand board feet, International 1/4-inch rule</i> -----								
National Forest	159,167	3,260,591	2,607,312	1,177,482	1,303	—	79,420	7,285,276
Other Federal	11,441	458,089	—	12,248	619	—	5,394	487,790
State	6,825	122,208	38,471	29,688	184	—	1,291	198,668
Borough and City	6	4,568	3,731	1,774	—	—	—	10,079
Private	2,095	5,546,420	575,248	274,030	58	—	4,055	6,401,907
Total	179,534	9,391,876	3,224,762	1,495,222	2,164	—	90,160	14,383,718

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 19—Net volume of growing stock on available timberland by individual owner, stand-size class, and forest type, Prince William Sound and Afognak Island, 1978

Individual owner and stand-size class	Forest type							All forest types
	White spruce	Hemlock-spruce	Sitka spruce	Mountain hemlock	Western hemlock	Black cottonwood	Birch	
----- <i>Thousand cubic feet</i> -----								
National Forest:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	2,563	—	8,560	7,048	—	2,077	—	20,249
Poletimber	—	—	8,227	—	—	2,306	3,603	14,137
Sawtimber	27,584	295,116	439,948	153,087	548,283	12,753	—	1,476,771
Total	30,147	295,116	456,735	160,136	548,283	17,136	3,603	1,511,157
Other Federal:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	351	—	169	298	—	—	—	818
Poletimber	—	—	—	—	—	—	325	325
Sawtimber	1,936	1,466	89,703	1,748	—	1,122	372	96,346
Total	2,286	1,466	89,872	2,047	—	1,122	698	97,490
State:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	100	—	146	108	—	8	—	363
Poletimber	—	—	—	—	284	9	99	391
Sawtimber	1,028	5,123	21,449	4,180	7,689	248	113	39,829
Total	1,128	5,123	21,595	4,288	7,973	265	211	40,584

Table 19—Net volume of growing stock on available timberland by individual owner, stand-size class, and forest type, Prince William Sound and Afognak Island, 1978 (continued)

Individual owner and stand-size class	Forest type							All forest types
	White spruce	Hemlock-spruce	Sitka spruce	Mountain hemlock	Western hemlock	Black cottonwood	Birch	
----- <i>Thousand cubic feet</i> -----								
Borough and city:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	0 ^a	—	10	2	—	—	—	11
Poletimber	—	—	—	—	26	—	—	26
Sawtimber	1	394	600	225	750	—	—	1,970
Total	1	394	610	226	776	—	—	2,008
Private:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	41	—	2,529	17	—	220	—	2,808
Poletimber	—	—	1,385	—	4,972	258	30	6,644
Sawtimber	337	62,490	1,055,672	35,485	114,025	252	34	1,268,294
Total	379	62,490	1,059,586	35,502	118,997	729	63	1,277,745
All owners:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	3,055	—	11,414	7,473	—	2,305	—	24,249
Poletimber	—	—	9,612	—	5,282	2,573	4,057	21,523
Sawtimber	30,886	364,589	1,607,372	194,725	670,747	14,375	519	2,883,210
Total	33,941	364,589	1,628,398	202,199	676,029	19,252	4,575	2,928,984

— = no data were collected.

Estimates are subject to sampling error.

Totals may be off because of rounding.

0 = less than 500 cubic feet.

Table 20—Net volume of sawtimber on available timberland by individual owner, stand-size class, and forest type, Prince William Sound and Afognak Island, 1998

Individual owner and stand-size class	Forest type							All forest types
	White spruce	Hemlock-spruce	Sitka spruce	Mountain hemlock	Western hemlock	Black cottonwood	Birch	
..... <i>Thousand board feet, International 1/4-inch rule</i>								
National Forest:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	3,564	—	28,523	24,723	—	8,551	—	65,360
Poletimber	—	—	21,193	—	—	3,285	11,750	36,229
Sawtimber	137,821	1,378,977	2,193,524	655,117	2,765,569	52,678	—	7,183,688
Total	141,385	1,378,977	2,243,241	679,840	2,765,569	64,513	11,750	7,285,276
Other Federal:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	915	—	822	1,047	—	—	—	2,783
Poletimber	—	—	—	—	—	—	1,061	1,061
Sawtimber	9,299	6,477	454,313	7,575	—	4,745	1,537	483,946
Total	10,214	6,477	455,135	8,622	—	4,745	2,598	487,790
State:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	251	—	591	379	—	35	—	1,256
Poletimber	—	—	—	—	835	13	322	1,170
Sawtimber	5,271	24,582	107,297	18,796	38,785	1,045	466	196,242
Total	5,521	24,582	107,889	19,175	39,620	1,093	787	198,668
Borough and city:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	1	—	37	5	—	—	—	43
Poletimber	—	—	—	—	76	—	—	76
Sawtimber	6	1,951	3,192	1,027	3,784	—	—	9,960
Total	7	1,951	3,229	1,032	3,860	—	—	10,079
Private:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	119	—	7,820	59	—	905	—	8,903
Poletimber	—	—	3,650	—	14,620	348	96	18,714
Sawtimber	1,690	306,822	5,328,188	161,367	575,151	931	140	6,374,290
Total	1,809	306,822	5,339,660	161,426	589,770	2,183	236	6,401,907

Table 20—Net volume of sawtimber on available timberland by Individual owner, stand-size class, and forest type, Prince William Sound and Afognak Island, 1978 (continued)

Individual owner and stand-size class	Forest type							
	White spruce	Hemlock-spruce	Sitka spruce	Mountain hemlock	Western hemlock	Black cottonwood	Birch	All forest types
----- Thousand board feet, International 1/4-inch rule -----								
All owners:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	4,850	—	37,793	26,213	—	9,491	—	78,345
Poletimber	—	—	24,843	—	15,531	3,646	13,229	57,250
Sawtimber	154,089	1,718,809	8,086,514	843,882	3,383,289	59,399	2,143	14,248,126
Total	158,936	1,718,809	8,149,154	870,095	3,398,819	72,534	15,371	14,383,720

— = no data were collected.

Estimates are subject to sampling error.

Totals may be off because of rounding.

Table 21—Net volume of timber on available timberland by class of timber and species group, Prince William Sound and Afognak Island, 1978

Class of timber	Species group		All groups
	Softwood	Hardwood	
----- Thousand cubic feet -----			
Growing stock:			
Sawtimber—			
Sawlog portion	2,677,279	19,412	2,696,691
Upper stem	76,701	684	77,385
Total sawtimber	2,753,980	20,096	2,774,076
Poletimber	146,375	8,532	154,908
All growing stock	2,900,355	28,628	2,928,983
Rough	33,359	605	33,964
Rotten	23,964	456	24,419
Salvable dead	15,760	—	15,760
All timber	2,973,438	29,688	3,003,127

— = no data were collected.

Estimates are subject to sampling error.

Totals may be off because of rounding.

Table 22—Net volume of growing stock, per acre, on available timberland by Individual owner, stand-size class, and forest type, Prince Willlam Sound and Afognak Island, 1978

Individual owner and stand-size class	Forest type							All forest types
	White spruce	Hemlock-spruce	Sitka spruce	Mountain hemlock	Western hemlock	Black cottonwood	Birch	
----- <i>Cubic feet</i> -----								
National Forest:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	332	—	978	1,890	—	597	—	855
Poletimber	—	—	2,836	—	—	585	1,578	1,549
Sawtimber	2,136	4,863	4,852	3,124	5,137	2,241	—	4,534
Total	1,461	4,863	4,411	2,968	5,137	1,307	1,578	4,187
Other Federal:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	496	—	914	1,890	—	—	—	778
Poletimber	—	—	—	—	—	—	1,578	1,580
Sawtimber	2,291	4,564	5,333	2,730	—	3,509	1,806	5,031
Total	1,472	4,564	5,167	2,564	—	3,509	1,693	4,687
State:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	483	—	1,255	1,890	—	918	—	932
Poletimber	—	—	—	—	2,058	933	1,579	1,866
Sawtimber	2,358	4,789	4,856	3,551	5,136	3,138	1,806	4,559
Total	1,758	4,789	4,726	3,473	4,877	2,721	1,693	4,330
Borough and city:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	302	—	1,526	1,890	—	—	—	1,439
Poletimber	—	—	—	—	2,058	—	—	2,058
Sawtimber	1,534	5,179	5,217	3,947	5,136	—	—	4,987
Total	918	5,179	5,033	3,857	4,894	—	—	4,825
Private:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	526	—	1,095	1,889	—	803	—	1,052
Poletimber	—	—	4,262	—	2,057	487	1,579	2,020
Sawtimber	2,424	5,142	5,232	3,804	5,137	872	1,789	5,158
Total	1,746	5,142	5,059	3,788	4,835	667	1,658	4,973

Table 22—Net volume of growing stock, per acre, on available timberland by Individual owner, stand-size class, and forest type, Prince William Sound and Afognak Island, 1978 (continued)

Individual owner and stand-size class	Forest type							All forest types
	White spruce	Hemlock-spruce	Sitka spruce	Mountain hemlock	Western hemlock	Black cottonwood	Birch	
----- <i>Cubic feet</i> -----								
All owners:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	350	—	1,003	1,890	—	613	—	872
Poletimber	—	—	2,980	—	2,057	574	1,579	1,676
Sawtimber	2,155	4,907	5,122	3,234	5,138	2,254	1,808	4,806
Total	1,472	4,907	4,860	3,091	5,078	1,316	1,601	4,517

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 23—Net volume of sawtimber, per acre, on available timberland by Individual owner, stand-size class, and forest type, Prince William Sound and Afognak Island, 1978

Individual owner and stand-size class	Forest type							All forest types
	White spruce	Hemlock-spruce	Sitka spruce	Mountain hemlock	Western hemlock	Black cottonwood	Birch	
----- <i>Board feet, International 1/4-inch rule</i> -----								
National Forest:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	461	—	3,257	6,631	—	2,458	—	2,759
Poletimber	—	—	7,307	—	—	833	5,150	3,969
Sawtimber	10,672	22,723	24,192	13,369	25,914	9,259	—	22,057
Total	6,850	22,723	21,664	12,602	25,914	4,920	5,150	20,185
Other Federal:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	1,291	—	4,447	6,631	—	—	—	2,647
Poletimber	—	—	—	—	—	—	5,150	5,150
Sawtimber	11,005	20,168	27,010	11,828	—	14,845	7,458	25,269
Total	6,575	20,168	26,165	10,800	—	14,845	6,304	23,452
State:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	1,216	—	5,067	6,631	—	3,781	—	3,226
Poletimber	—	—	—	—	6,050	1,453	5,150	5,580
Sawtimber	12,089	22,982	24,292	15,969	25,908	13,228	7,516	22,461
Total	8,605	22,982	23,612	15,531	24,236	11,211	6,304	21,198

Table 23—Net volume of sawtimber, per acre, on available timberland by Individual owner, stand-size class, and forest type, Prince William Sound and Afognak Island, 1978 (continued)

Individual owner and stand-size class	Forest type							All forest types
	White spruce	Hemlock-spruce	Sitka spruce	Mountain hemlock	Western hemlock	Black cottonwood	Birch	
..... <i>Board feet, International 1/4-inch rule</i>								
Borough and city:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	792	—	5,761	6,631	—	—	—	5,346
Poletimber	—	—	—	—	6,050	—	—	6,050
Sawtimber	7,513	25,657	27,756	18,018	25,918	—	—	25,215
Total	4,153	25,657	26,623	17,613	24,342	—	—	24,222
Private:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	1,526	—	3,385	6,556	—	3,303	—	3,334
Poletimber	—	—	11,231	—	6,049	657	5,053	5,690
Sawtimber	12,158	25,305	26,408	17,299	25,914	3,221	7,368	25,924
Total	8,336	25,305	25,494	17,226	23,965	1,997	6,211	24,918
All owners:								
Nonstocked	—	—	—	—	—	—	—	—
Seedling and sapling	556	—	3,322	6,629	—	2,524	—	2,818
Poletimber	—	—	7,701	—	6,048	813	5,149	4,457
Sawtimber	10,749	23,131	25,771	14,017	25,914	9,315	7,467	23,753
Total	6,894	23,131	24,320	13,302	25,531	4,960	5,380	22,182

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 24—Average net annual growth of growing stock, on available timberland, by species and individual owner, Prince William Sound and Afognak Island, 1978

Species	Owner					All owners
	National Forest	Other Federal	State	Borough and city	Private	
----- <i>Thousand cubic feet</i> -----						
White spruce	39	9	-4 ^a	0 ^b	0	44
Sitka spruce	3,304	577	133	4	7,330	11,348
Western hemlock	5,647	—	68	6	1,084	6,806
Mountain hemlock	837	15	26	2	236	1,116
Paper birch	11	2	1	—	0	13
Quaking aspen	60	5	2	—	0	67
Black cottonwood	99	7	2	—	12	119
Total	9,996	615	227	12	8,661	19,512

— = no data were collected.

Estimates are subject to sampling error.

Totals may be off because of rounding.

^a Negative net annual growth indicates that annual mortality exceeded gross annual growth.

^b 0 = less than 500 cubic feet.

Table 25—Average net annual growth of sawtimber, on available timberland, by species and individual owner, Prince William Sound and Afognak island, 1978

Species	Owner					All owners
	National Forest	Other Federal	State	Borough and city	Private	
. . . . <i>Thousand board feet, International 1/4-inch rule</i>						
White spruce	-472 ^a	158	15	0 ^b	21	-278
Sitka spruce	19,792	3,073	674	22	37,959	61,520
Western hemlock	9,487	—	144	14	2,169	11,813
Mountain hemlock	2,454	40	76	4	689	3,264
Paper birch	—	2	1	—	0	3
Quaking aspen	—	—	—	—	—	—
Black cottonwood	371	34	9	—	52	466
Total	31,632	3,306	918	40	40,891	76,788

— = no data were collected.

Estimates are subject to sampling error.

Totals may be off because of rounding.

^a Negative net annual growth indicates that annual mortality exceeded gross annual growth.

^b 0 = less than 500 board feet, International 1M-inch rule.

Table 26—Average net annual growth of growing stock, on available timberland, by species and stand-size class, Prince William Sound and Afognak Island, 1978

Species	Stand-size class				All classes
	Seedling and sapling	Poletimber	Sawtimber		
			Young growth	Old growth	
----- <i>Thousand cubic feet</i> -----					
White spruce	239	22	112	-328 ^a	44
Sitka spruce	132	118	6,639	4,459	11,348
Western hemlock	89	103	3,667	2,947	6,806
Mountain hemlock	144	—	-51	1,023	1,116
Paper birch	0 ^b	12	1	0	13
Quaking aspen	67	—	—	—	67
Black cottonwood	—	40	79	—	119
Total	671	293	10,446	8,101	19,512

— = no data were collected.

Estimates are subject to sampling error.

Totals may be off because of rounding.

^a Negative net annual growth indicates that annual mortality exceeded gross annual growth.

^b 0 = less than 500 cubic feet.

Table 27—Average net annual growth of sawtimber, on available timberland, by species and stand-size class, Prince William Sound and Afognak Island, 1978

Species	Stand-size class				All classes
	Seedling and sapling	Poletimber	Sawtimber		
			Young growth	Old growth	
----- <i>Thousand board feet, International 1/4-inch rule</i> -----					
White spruce	302	113	592	-1,285 ^a	-278
Sitka spruce	578	160	33,911	26,870	61,520
Western hemlock	—	79	2,807	0,927	11,813
Mountain hemlock	82	—	-190	3,372	3,264
Paper birch	—	—	2	0 ^b	3
Quaking aspen	—	—	—	—	—
Black cottonwood	—	—	466	—	466
Total	963	352	37,588	37,885	76,788

— = no data were collected.

Estimates are subject to sampling error.

Totals may be off because of rounding.

^a Negative net annual growth indicates that annual mortality exceeded gross annual growth.

^b 0 = less than 500 cubic feet.

Table 28—Average net annual growth of growing stock, on available timberland, by forest type and Individual owner, Prince William Sound and Afognak Island, 1978

Forest type	Owner					All owners
	National Forest	Other Federal	State	Borough and city	Private	
----- Thousand cubic feet -----						
White spruce	88	13	-3 ^a	0 ^b	0	98
Hemlock-spruce	3,714	3	30	3	536	4,285
Sitka Spruce	2,404	577	131	3	7,220	10,335
Mountain hemlock	911	12	21	1	214	1,160
Western hemlock	2,736	—	45	4	683	3,468
Black cottonwood	114	7	2	—	6	128
Birch	30	4	1	—	0	36
Total	9,996	615	227	12	8,661	19,512

— = no data were collected.

Estimates are subject to sampling error.

Totals may be off because of rounding.

^a Negative net annual growth indicates that annual mortality exceeded gross annual growth

^b 0 = less than 500 cubic feet.

Table 29—Average net annual growth of sawtimber, on available timberland, by forest type and Individual owner, Prince William Sound and Afognak Island, 1978

Forest type	Owner					All owners
	National Forest	Other Federal	State	Borough and city	Private	
----- Thousand board feet, International 1/4-inch rule -----						
White spruce	-673 ^a	143	5	0 ^b	19	-507
Hemlock-spruce	10,252	12	90	9	1,635	11,999
Sitka spruce	10,141	3,070	605	14	36,578	50,408
Mountain hemlock	2,450	32	75	4	701	3,263
Western hemlock	9,001	—	131	13	1,951	11,096
Black cottonwood	361	34	7	—	5	407
Birch	101	16	5	—	1	122
Total	31,632	3,306	918	40	40,891	76,788

— = no data were collected.

Estimates are subject to sampling error.

Totals may be off because of rounding.

^a Negative net annual growth indicates that annual mortality exceeded gross annual growth

^b 0 = less than 500 board feet, International 1M-inch rule.

Table 30—Average net annual mortality of growing stock, on available timberland, by species and individual owner, Prince William Sound and Afognak Island, 1978

Species	Owner					All owners
	National Forest	Other Federal	State	Borough and city	Private	
----- <i>Thousand cubic feet</i> -----						
White spruce	366	26	49	—	6	416
Sitka spruce	631	84	29	0 ^a	663	1,407
Western hemlock	441	—	6	1	92	539
Mountain hemlock	583	2	40	1	111	706
Paper birch	—	—	—	—	—	—
Quaking aspen	—	—	—	—	—	—
Black cottonwood	56	2	0	—	7	65
Total	2,076	113	64	2	878	3,134

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.
^a 0 = less than 500 cubic feet.

Table 31—Average net annual mortality of sawtimber, on available timberland, by species and individual owner, Prince William Sound and Afognak Island, 1978

Species	Owner					All owners
	National Forest	Other Federal	State	Borough and city	Private	
----- <i>Thousand board feet, International 1/4-inch rule</i> -----						
White spruce	1,535	116	81	—	26	1,758
Sitka spruce	3,082	400	137	2	3,201	6,822
Western hemlock	1,708	—	24	2	355	2,089
Mountain hemlock	2,777	8	48	3	526	3,363
Paper birch	—	—	—	—	—	—
Quaking aspen	—	—	—	—	—	—
Black cottonwood	72	7	1	—	1	81
Total	9,174	530	291	8	4,110	14,113

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 32—Average net annual mortality of growing stock, on available timberland, by species and stand-size class, Prince Willam Sound and Afognak Island, 1978

Species	Stand-size class				All classes
	Seedling and sapling	Poletimber	Sawtimber		
			Young growth	Old growth	
----- <i>Thousand cubic feet</i> -----					
White spruce	—	—	—	416	416
Sitka spruce	—	—	292	1,115	1,407
Western hemlock	—	—	—	539	539
Mountain hemlock	—	—	141	565	706
Paper birch	—	—	—	—	—
Quaking aspen	—	—	—	—	—
Black cottonwood	—	—	65	—	65
Total	—	—	498	2,636	3,134

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 33—Average net annual mortality of sawtimber, on available timberland, by species and stand-size class, Prince Willam Sound and Afognak Island, 1978

Species	Stand-size class				All classes
	Seedling and sapling	Poletimber	Sawtimber		
			Young growth	Old growth	
. . . . <i>Thousand board feet, International 1/4-inch rule</i>					
White spruce	—	—	—	1,758	1,758
Sitka spruce	—	—	1,579	5,243	6,822
Western hemlock	—	—	—	2,089	2,089
Mountain hemlock	—	—	649	2,714	3,363
Paper birch	—	—	—	—	—
Quaking aspen	—	—	—	—	—
Black cottonwood	—	—	81	—	81
Total	—	—	2,309	11,804	14,113

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 34—Average net annual mortality of growing stock, on available timberland, by forest type and individual owner, Prince William Sound and Afognak Island, 1978

Forest type	Owner					All owners
	National Forest	Other Federal	State	Borough and city	Private	
----- <i>Thousand cubic feet</i> -----						
White spruce	366	28	18	—	6	418
Hemlock-spruce	530	5	15	1	112	662
Sitka spruce	687	78	23	0 ^a	668	1,457
Mountain hemlock	32	4	2	—	0	36
Western hemlock	441	—	6	1	92	539
Black cottonwood	20	2	0	—	0	22
Birch	—	—	—	—	—	—
Total	2,076	113	64	2	878	3,134

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.
 0 = less than 500 cubic feet.

Table 35—Average net annual mortality of sawtimber, on available timberland, by forest type and individual owner, Prince William Sound and Afognak Island, 1978

Forest type	Owner					All owners
	National Forest	Other Federal	State	Borough and city	Private	
----- <i>Thousand Board feet, International 1/4-inch rule</i> -----						
White spruce	1,654	126	84	—	27	1,893
Hemlock-spruce	2,514	22	69	3	531	3,141
Sitka spruce	3,224	375	112	2	3,195	6,909
Mountain hemlock	—	—	—	—	—	—
Western hemlock	1,708	—	24	2	355	2,089
Black cottonwood	72	7	1	—	1	81
Birch	—	—	—	—	—	—
Total	9,174	530	291	8	4,110	14,113

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 36—Average net annual mortality of growing stock, on available timberland, by species and cause of death, Prince William Sound and Afognak Island, 1978

Species	Cause of death					All causes
	Insects	Disease	Animal	Weather	Unknown	
<i>----- Thousand cubic feet -----</i>						
White spruce	11	—	—	368	30	416
Sitka spruce	44	28	—	845	490	1,407
Western hemlock	—	90	213	—	236	539
Mountain hemlock	—	—	—	420	278	706
Paper birch	—	—	—	—	—	—
Quaking aspen	—	—	—	—	—	—
Black cottonwood	—	—	42	22	—	65
Total	55	119	256	1,663	1,042	3,134

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Table 37—Average net annual mortality of sawtimber, on available timberland, by species and cause of death, Prince William Sound and Afognak Island, 1978

Species	Cause of death					All causes
	Insects	Disease	Animal	Weather	Unknown	
<i>..... Thousand board feet, International 1/4-inch rule -----</i>						
White spruce	58	—	—	1,700	—	1,758
Sitka spruce	174	8	—	4,470	2,170	6,822
Western hemlock	—	237	721	—	1,131	2,089
Mountain hemlock	—	—	—	2,142	1,220	3,363
Paper birch	—	—	—	—	—	—
Quaking aspen	—	—	—	—	—	—
Black cottonwood	—	—	—	81	—	81
Total	331	245	721	8,394	4,521	14,113

— = no data were collected.
 Estimates are subject to sampling error.
 Totals may be off because of rounding.

Metric Equivalents

1 inch = 2.54 centimeters
1 foot = 0.3048 meter
1 acre = 0.4047 hectare
1 cubic foot = 0.0283 cubic meter
1 cubic foot per acre = 0.07 cubic meter per hectare
1 mile = 1.609 kilometers
 $^{\circ}\text{F} = 1.8\ ^{\circ}\text{C} + 32$

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The 1978 inventory of the forest resources of Prince William Sound and Afognak Island was designed to produce estimates of timberland area, volumes of timber, and growth and mortality of timber. Estimates of timber resource quantities were also categorized by owner. Nearly 56 percent of the available timberland area is under Forest Service management, and almost 40 percent is held by private interests. Total available timberland area was estimated at 648,454 acres. Cubic-foot volume on this timberland was estimated at 2.93 billion cubic feet. Timber growth and mortality were estimated at 19.51 million and 3.13 million cubic feet, respectively. Detailed tables provide additional breakdowns of inventory results. The inventory was conducted in 1977 and 1978; data compilation progressed through final update in 1988 to include current ownership summaries.

Keywords: Forest surveys, timber resources, statistics (forest), Alaska (south-central).

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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