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Stand-Density Study of Spruce-Hemlock Stands in Southeastern Alaska

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Abstract

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The lack of growth and yield information for young even-aged western hemlock (*Tsuga heterophylla* (Raf.) Sarg.)-Sitka spruce (*Picea sitchensis* (Bong.) Carr.) stands in southeastern Alaska served as the impetus for a long-term stand-density study begun in 1974. The study has followed permanent growth plots in managed stands under various thinning regimes. Between 1974 and 1987, 272 plots were established at 59 locations throughout southeastern Alaska. Remeasurement of the plots occurs every two to four years and will continue until harvest. Additional thinnings will occur on a portion of the plots. Future plans include extending the study through establishment of installations in stand types not currently represented. Once data for an entire rotation are obtained, a comprehensive set of growth and yield tables for various management regimes can be developed. This information will answer questions forest managers have on whether and when to thin a stand, at what level of intensity, and how frequently to enter the stand.

Keywords: Thinning, stand density, southeastern Alaska, western hemlock, Sitka spruce.

Summary

Extensive harvesting of old-growth stands in the Tongass National Forest began in the 1950s. A sufficient number of young-growth stands were not available to initiate a comprehensive growth and yield study until the 1970s. In 1974 research began to study the effects of stand density on the growth and yield of young even-aged hemlock-spruce stands in coastal Alaska. The main objectives of the study are to:

- Obtain information on tree growth following thinning of dense, unthinned stands of western hemlock and Sitka spruce.

- Integrate findings into a set of interim stand growth and yield tables based on the following independent variables: site, age, density, and possibly species composition.

- Obtain information over an extended time on the development of stands under various thinning regimes that might be applied in the future and refine the interim estimates.

The study plan design called for the distribution of installations in well-stocked, even-aged western hemlock-Sitka spruce stands across three broad site classes and four stand age classes so that the effects of site index and stand age at the time of thinning could be investigated. Four 1-acre plots (each with a 1/5-acre interior measurement plot) were established at each installation and randomly assigned one of four treatments: control (no thinning) or light, medium, or heavy thinning. Each installation was to be replicated four times so that different management treatments could be applied to replicates sometime in the future. Tree spacings were not held constant for a specified treatment; the number of trees per acre left after thinning for a given treatment is determined not only by the thinning intensity applied to a plot but also is dependent on the quadratic mean diameter of the

stand before thinning. By treatment type, the average amount of basal area removed was 47.7 percent on lightly thinned plots, 60.9 percent on medium thinned plots, and 73.5 percent on heavily thinned plots.

Data collected to date represent only the growth response of trees immediately after thinning. Growth of residual trees is usually rapid immediately after thinning but slows with the closure of the forest canopy, increasing tree competition, and advancing tree age. More data are needed before the shapes of the basal area and volume growth curves over stand age can be determined for various combinations of site index and thinning treatments. Results from this study will increase in value the longer the research plots are followed.

Preliminary observations from the stand-density study are, first, precommercial thinning is usually beneficial and, in most cases, necessary when managing for wood production—the reduction of competition enhances stand volume growth. Second, stand basal area can be severely reduced with little mortality of leave trees; tree mortality in thinned stands is minimal and seems to be unrelated to the amount of basal area removed. Third, medium to heavy thinnings should be favored when treating stands for wood production, based on the speed of crown closure and the resumption of tree competition that occurs in lightly thinned plots. Fourth, heavy thinning usually reduces stand gross volume yield and could reduce wood quality but may benefit wildlife by allowing the development of understory vegetation.

Introduction

The hemlock-spruce forest type occupies the coastal mountains of Oregon, Washington, British Columbia, and southeastern Alaska. The north-south range of the forest type is about 1,800 miles long, with a limited east-west range extending inland from the coast about 25 to 30 miles in Oregon and Washington, 100 miles in British Columbia, and 130 miles in southeastern Alaska (Meyer 1937). High precipitation, frequent fogs, absence of summer droughts, moderate temperatures, and mild winters are typical climatic characteristics found within the range of the hemlock-spruce forest type. Within this forest type, the most favorable growing conditions are along the northern coast of Oregon and coastal Washington. Productivity declines as the range extends north from Washington, but even at the northern end of the range, growing conditions are more than adequate for the development of high-volume stands.[1]

Across the Tongass National Forest in southeastern Alaska, annual precipitation averages 120 inches, ranging from a low of 50 inches in the northwest to 160 inches around the Ketchikan area. Annual average temperatures are around 41 °F, summer temperatures average 55 to 60 °F, the lowest winter temperature is between 20 to 30 °F, and the number of frost-free months is about nine (Meyer 1937).

The Tongass National Forest has a land area of about 17 million acres with 10 million acres forested. Of the forested acres, 4.3 million acres are not capable of producing industrial forest products, and 5.7 million acres are considered to be productive forest lands biologically capable of producing industrial wood products and are classified as old growth. Land dedicated for the production of wood fiber was 4.1 million acres in 1980 but had been reduced to about 670,000 acres by 1997. The land base for wood production contains about 500,000 acres of old-growth forest and 170,000 acres of young-growth stands. Almost all the young-growth stands have been created since the 1950s through clearcut harvesting, but some scattered young-growth stands date to the 1930s.

Major issues for the Tongass National Forest include the amount of wood volume harvested each year, the method of harvest, sustainability of harvest, location of harvest areas, and the impact harvesting has on other forest resources and uses. These issues, along with a limited landbase dedicated to wood production, point out the need for accurate information on the growth and yield of young managed stands, possible alternative silvicultural treatments, impacts of various harvest methods on other forest resources, and how best to reduce impacts while satisfying demand for wood products. This study will provide estimates on the growth and yield of young, even-aged managed stands to serve as guidelines for even-aged management and to provide standards to evaluate relative costs and benefits of alternative silvicultural treatments.

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[1] Farr, Wilbur A. March 1976. The effect of stand density upon growth and yield of hemlock-spruce stands in coastal Alaska. Revised study plan. On file with: Pacific Northwest Research Station, 2770 Sherwood Lane, Suite 2A, Juneau, AK, 99801-8545.

Regeneration of hemlock-spruce stands usually is not a problem in southeastern Alaska (Harris and Farr 1974). Favorable site and climatic conditions and frequent seed years produce dense regeneration within a short time after harvesting activities. Most of the time, regeneration is so dense that severe competition for light, nutrients, and growing space quickly develops among individual trees. Young, even-aged stands of spruce and hemlock are not generally thought to stagnate because mortality rates are high, but a great deal of wood volume is lost as growth is placed on many individual trees that eventually die and are never used for wood production. Typical young, even-aged stands are overstocked for optimum development, and some form of stand-density control is a desirable management activity when production of wood products is the desired goal.

Guidelines for the management of young, even-aged, thinned hemlock-spruce stands in southeastern Alaska are limited. Yield tables for unmanaged second-growth western hemlock (*Tsuga heterophylla* (Raf.) Sarg.)-Sitka spruce (*Picea sitchensis* (Bong.) Carr.) stands of southeastern Alaska were developed by Taylor (1934), who used data from 288 temporary plots established in even-aged stands of normal stocking. Meyer (1937) used Taylor's plot data and additional temporary plot data from British Columbia, Oregon, and Washington to develop tables that applied to the geographic range of the western hemlock-Sitka spruce type. Barnes (1962) produced new growth and yield tables for western hemlock after it became apparent that Meyer's tables did not allow for regional discrepancies in yields and site index that occurred within the range of the forest type. Hemlock-spruce stands in Alaska have more stems per acre, smaller average diameter, and less volume than stands in the Pacific Northwest (Barnes 1962). Whether the perceived decrease in productivity is related to overstocking remains unclear.

Barnes (1962) used Meyer's Oregon and Washington data plus new data from Oregon, Washington, British Columbia, and southeastern Alaska as the basis for revision of the western hemlock yield tables. Barnes screened the plot data to ensure that 40 percent or more of the basal area was western hemlock and from this screened data produced separate growth and yield tables for Oregon-Washington, British Columbia, and southeastern Alaska. Chambers and Wilson (1972) developed yield tables for coniferous stands in the western hemlock type of western Washington that are applicable only to stands where western hemlock, Sitka spruce, and western redcedar (*Thuja plicata* Donn D. Don) are the primary species. All the tables from these publications forecast net yield of young, unmanaged stands but are not applicable in predicting growth and yield of intensively managed stands.

A search of the literature revealed little information on the growth and yield of managed even-aged western hemlock-Sitka spruce stands. Hoyer (1967) converted British thinning yield tables for managed pure western hemlock stands to American units of measure. Dilworth (1980) gives growth statistics for the first 10 years following precommercial thinning of western hemlock stands in the Oregon Coast Range; the precommercial thinnings were conducted in 18- to 22-year-old stands and produced four levels of growing stock. Hoyer and Swanzy (1986) present results of two studies of thinned western hemlock stands in Oregon and Washington. Omule (1988) reports on the early growth of Douglas-fir (*Pseudotsuga menziesii* (Mirb.) Franco), western hemlock, Sitka spruce, and western redcedar at three spacings on Vancouver Island. All these publications present results for specific geographic areas and are limited in scope as to the site index range covered, age of the stands at the time of thinning, and number of spacing treatments tested. None of the results can be used in southeastern Alaska to guide management of young, even-aged stands of hemlock-spruce.

Methods of Study

Area

Potential study sites along with information on the location, size, stand origin, and stand age of each site and the range of site index of each site were provided by National Forest System personnel. Each potential site was evaluated based on this information and other needs of the stand-density study (see footnote 1). Candidate study areas were identified and ranked as to their possible inclusion in the study.

Actual plot locations were established after site reconnaissance by a team consisting of a soil scientist, mensurationist, timber staff officer, and a specialist in entomology and pathology. A location was selected as a study site if the stand was of logging origin, was even aged, was located on a single soil series, was free of large residual trees, had uniform stocking, and was well stocked (basal area within ± 15 percent of estimated normal). Stands had to be of sufficient size to accommodate four 1-acre plots. After it became apparent that there were not enough older stands of logging origin to meet the needs of the study, the stand origin criteria for older stands (30 years or more) were expanded to include stands originating from fire or blowdown.

The installation distribution reflects the harvesting patterns from the 1950s onward, which were concentrated in the Ketchikan Area, followed by the Stikine and Chatham Areas. More young-growth stands were available for the establishment of installations in the southern part of the Tongass. There are 31 installations in the Ketchikan administrative area (fig. 1), 19 in the Stikine Area (fig. 2), and 9 in the Chatham Area (fig. 3).

Figure 1—Stand-density installation locations in the Ketchikan Area, Tongass National Forest.

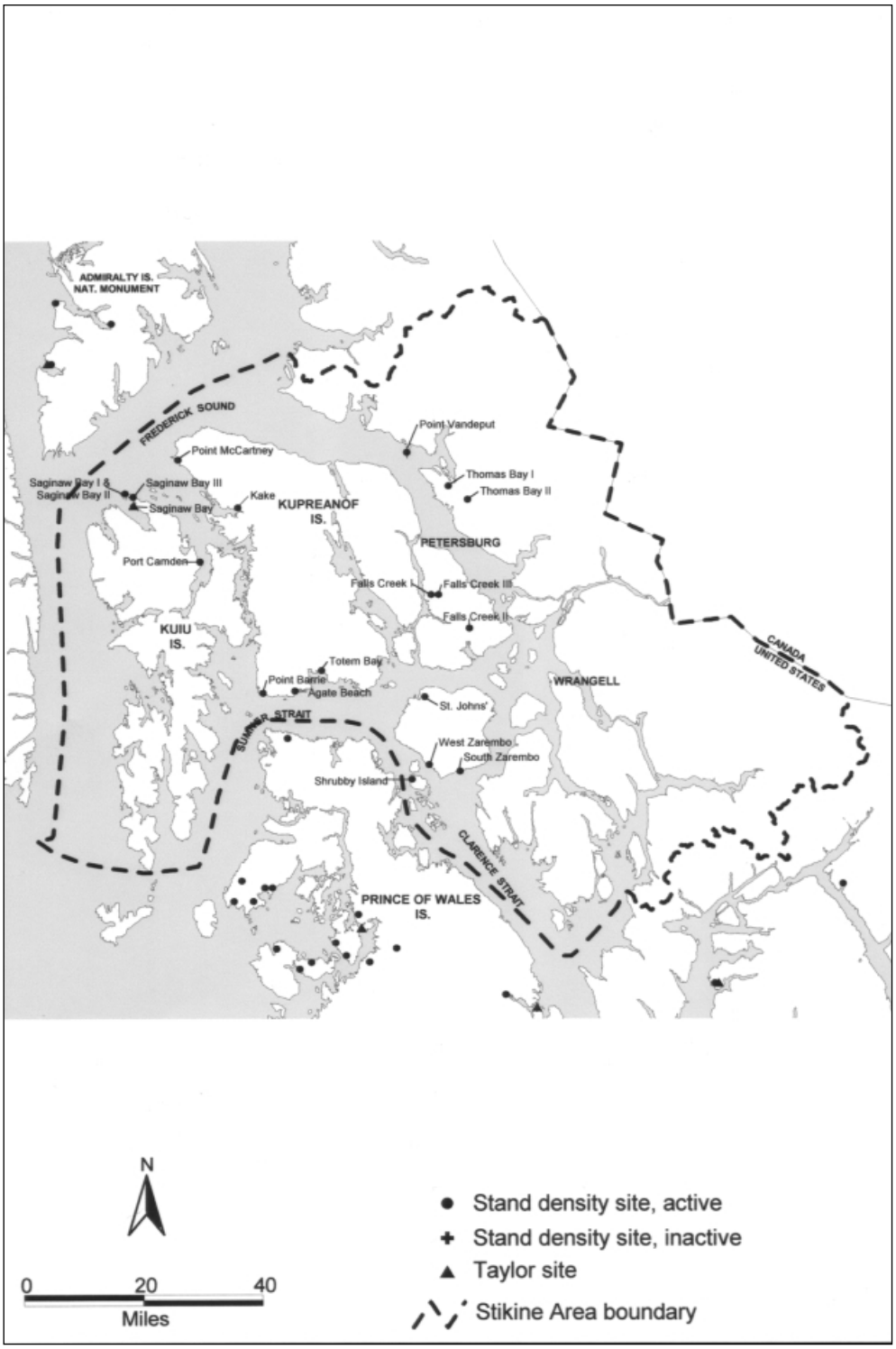

Figure 2—Stand-density installation locations in the Stikine Area, Tongass National Forest.

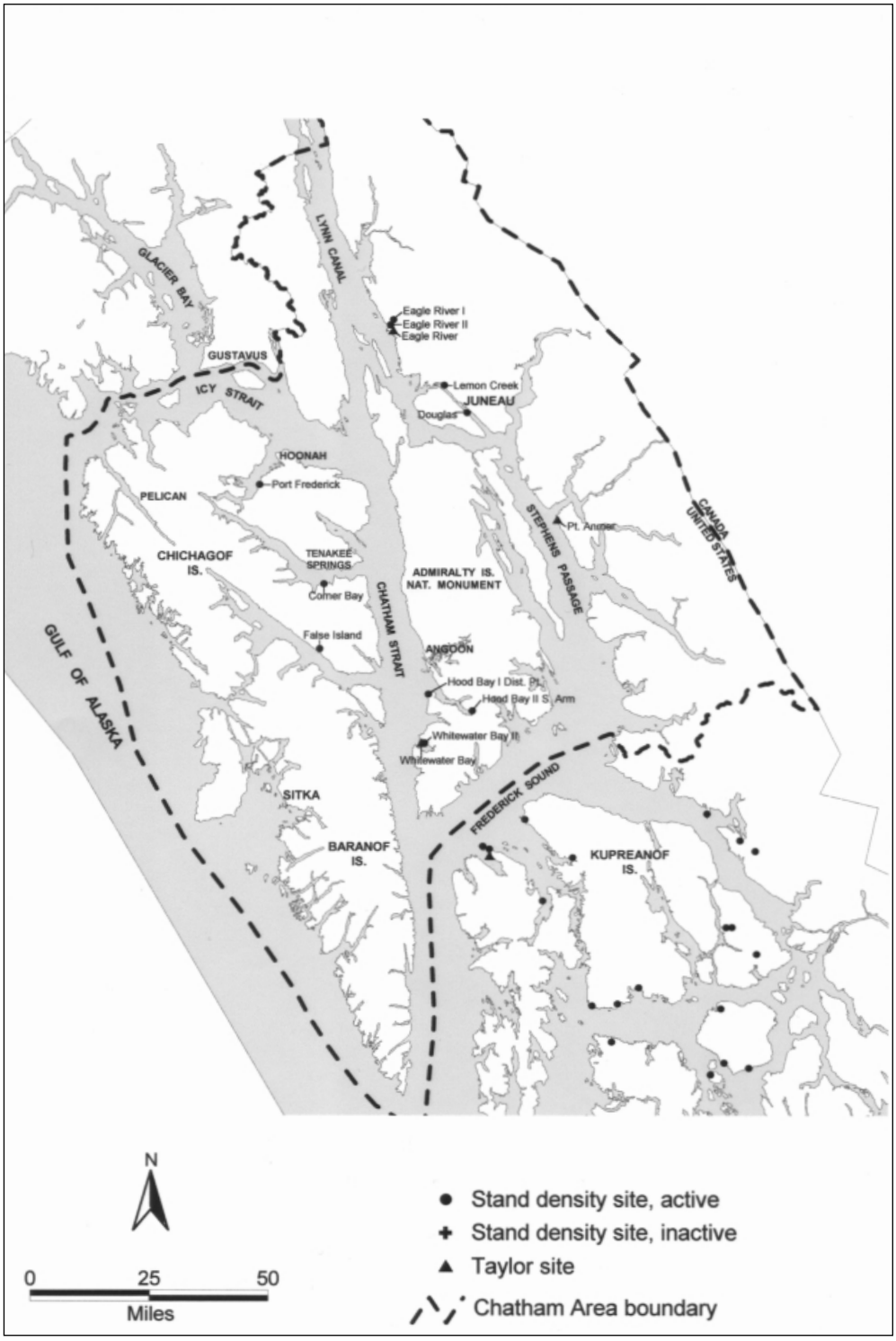

Figure 3—Stand-density installation locations in the Chatham Area, Tongass National Forest.

Design

The study plan called for the establishment of 192 permanent growth plots in well-stocked, even-aged western hemlock-Sitka spruce stands at 48 installations throughout the Tongass. Installations were to be distributed across three broad site classes and four stand age classes so that the effects of site index and stand age at the time of thinning could be investigated. Usually, four 1-acre plots (each with a 1/5-acre interior measurement plot) were established at each installation (location) and randomly assigned one of four spacing treatments (no thinning or light, medium, or heavy thinning). Each installation was to be replicated four times so that different management treatments could be applied to replicates sometime in the future.

All plots were in stands of uniform tree spacing with no large holes in the forest canopy. A typical measurement plot in the study is square, one-fifth of an acre in size, and surrounded by a buffer that extends to a square 1-acre area (fig. 4) to minimize border effects. Because the ranges of site, stand age, and residual density are quite wide, several plot sizes were considered for the study. There is no single most desirable plot size, but it was determined that a plot size of one-fifth of an acre was satisfactory.

Usually, too many trees occur in young, unthinned stands of hemlock-spruce to measure in a reasonable amount of time on a 1/5-acre plot; therefore nine interior points were located within the plot (fig. 4). All trees taller than 4.5 feet within a circular 4-milacre plot centered on each interior point were measured. The interior points were used as sampling points for selecting sample trees in young unthinned stands and also as sampling points for a related study on understory vegetation. For larger diameter stands with fewer trees, all trees on the 1/5-acre plot were tallied before and after treatment. All residual trees on thinned plots were tallied and measured.

Access trails to the plots were cut and then marked with yellow flagging. Aluminum pipes were used to mark the corners of the 1/5-acre plots, and permanent aluminum stakes sprayed with blue paint and tied with red flagging were used to mark the nine interior points. Trails along the boundaries of the 1/5-acre plots also were cut and marked with yellow paint to facilitate access to trees within the plots. Trees along the plot edges were marked with blue paint to delineate boundaries for the full 1-acre plots.

For each installation, number and name were recorded along with longitude and latitude, stand origin, and comments on any unusual stand characteristics. A map of the installation's location, individual plot locations within the installation, and access trails was drawn. Boundaries of individual plots were documented by recording compass bearings and length of plot sides. Plot number, plot size, elevation, aspect, steepness of slope as a percentage, position on slope, habitat type, soil characteristics, and pertinent comments about individual plots also were recorded.

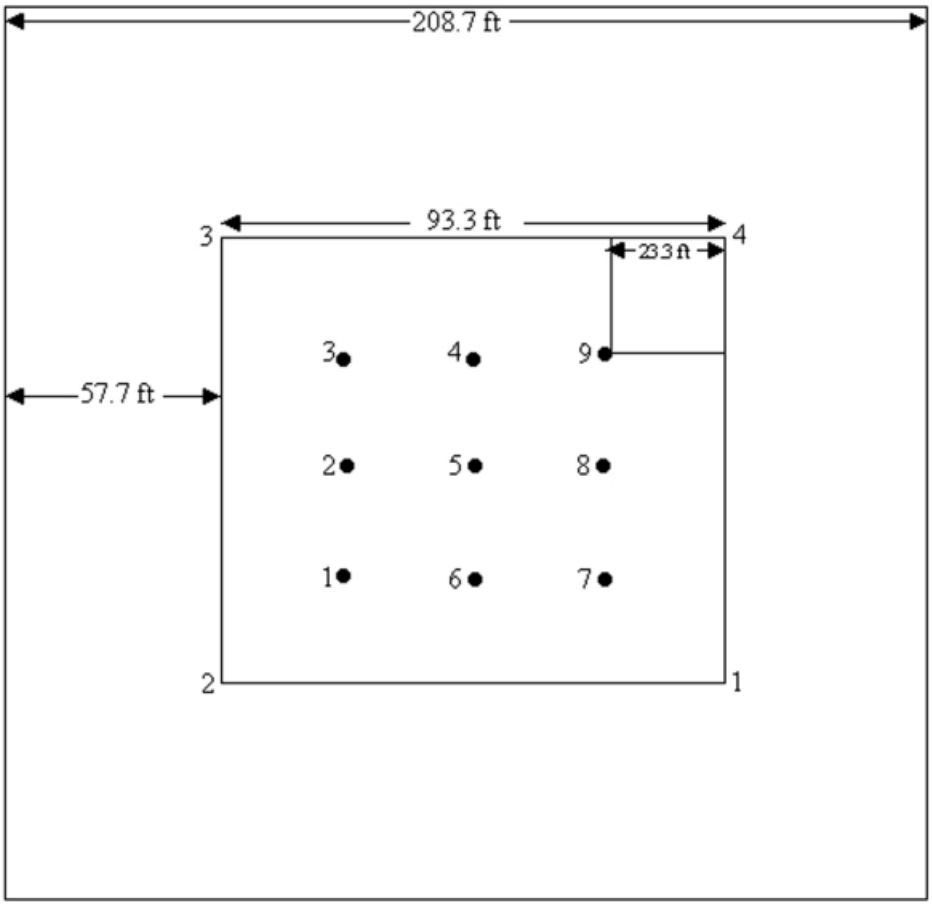

Figure 4—Layout of a 1-acre stand-density plot showing location of the interior 1/5-acre plot and nine permanently marked sampling points.

Treatments

Random numbers were drawn and used to assign thinning treatments (none, light, medium, or heavy) to plots. All live sample trees within a plot were tallied by species and by 1-inch diameter classes. In dense young stands, a sample tree had to have a diameter 0.6 inch or larger and be located in one of the nine 4-milacre point plots. In older and less dense stands, all trees 0.6 inch or larger on the 1/5-acre plot are sample trees. From these data, the before-thinning stand characteristics of number of trees per acre, basal area per acre, and quadratic mean diameter (QMD) were calculated for each plot.

Quadratic mean diameter of the stand before thinning, selected thinning intensity, and the appropriate thinning guide (table 1, 2, or 3) were used to determine the desired basal area, number of trees, and average spacing of trees after thinning. Guide tables for thinning were constructed from information gathered in marking plots for thinning in 1974 and 1975.[2] Table values for desired basal area and number of trees left after thinning were derived from the assumption that large-diameter stands should be thinned more conservatively than stands of small or average diameter.

Using the tables to determine after-thinning values is relatively easy. For example, if a medium-intensity thinning treatment is assigned to a plot having a 9.0-inch average diameter before thinning, then table 2 shows the average diameter after thinning is estimated to be 12.2 inches, the number of trees per acre after thinning is 203, and the desired basal area after thinning is 165 square feet per acre. For a 1/5-acre plot, 41 equally spaced leave trees would produce about the desired basal area.

To mark the 41 leave trees in this example, the plot is divided into four strips with 10 leave trees selected per strip and 1 additional tree selected in the plot to achieve the desired number. Diameters of marked trees are measured and the basal area per acre of the plot calculated and compared to the target basal area. Adjustments in the selection of some leave trees might be needed if plot basal area does not meet the desired basal area level. Buffer strip (outer 0.8 acre) leave trees also are marked according to the same marking guides as for the 1/5-acre measurement plot.

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[2] Tables 1, 2, and 3 are from the revised study plan of Farr (see footnote 1).

Table 1—Thinning guide for heavily thinned stands given average diameter at breast height (d.b.h.) of all trees 0.5 inch and larger before thinning

	Desired stand statistics after thinning				
Average d.b.h. before thinning	Average d.b.h.	Basal area per acre	Average spacing	Trees per acre	Trees per 1/5-acre plot
----------*Inches*----------		*Square feet*	*Feet*		
2.0	4.0	15	16.0	170	34
2.5	4.6	20	16.0	170	34
3.0	6.1	34	16.0	170	34
3.5	7.0	46	16.0	170	34
4.0	7.8	57	16.0	170	34
4.5	8.5	67	16.0	170	34
5.0	9.2	75	16.4	162	32
5.5	9.9	85	16.6	159	32
6.0	10.5	92	16.9	153	31
6.5	11.0	97	17.2	147	29
7.0	11.5	103	17.5	143	29
7.5	12.0	108	17.8	138	28
8.0	12.5	114	18.0	134	27
8.5	13.0	118	18.4	128	27
9.0	13.5	123	18.8	124	25
9.5	14.0	127	19.2	119	24
10.0	14.5	131	19.5	114	23
10.5	15.0	135	19.9	110	22
11.0	15.6	140	20.3	105	21
11.5	16.2	145	20.7	101	20
12.0	16.7	148	21.2	97	19
12.5	17.2	153	21.4	95	19
13.0	17.7	157	21.8	92	18
13.5	18.2	161	22.1	89	18
14.0	18.8	164	22.6	85	17
14.5	19.3	168	23.0	83	17
15.0	19.8	172	23.3	80	16

Table 2—Thinning guide for medium thinned stands given average diameter at breast height (d.b.h.) of all trees 0.5 inch and larger before thinning

	Desired stand statistics after thinning				
Average d.b.h. before thinning	Average d.b.h.	Basal area per acre	Average spacing	Trees per acre	Trees per 1/5-acre plot
----------*Inches*----------		*Square feet*	*Feet*		
2.0	3.7	22	12.0	300	60
2.5	4.7	36	12.0	300	60
3.0	5.6	51	12.0	300	60
3.5	6.4	67	12.0	300	60
4.0	7.1	83	12.0	300	60
4.5	7.6	95	12.0	300	60
5.0	8.1	107	12.0	300	60
5.5	8.6	117	12.2	290	58
6.0	9.2	128	12.5	277	55
6.5	9.7	137	12.8	267	53
7.0	10.2	144	13.1	254	51
7.5	10.7	147	13.6	235	47
8.0	11.2	153	14.0	224	45
8.5	11.7	159	14.3	213	43
9.0	12.2	165	14.6	203	41
9.5	12.8	172	15.0	192	38
10.0	13.4	178	15.5	182	36
10.5	13.9	185	15.8	176	35
11.0	14.5	190	16.2	166	33
11.5	15.0	195	16.6	159	32
12.0	15.5	199	16.9	152	30
12.5	16.0	202	17.4	145	29
13.0	16.5	206	17.7	139	28
13.5	17.0	210	18.1	133	27
14.0	17.5	212	18.5	127	25
14.5	18.0	215	18.9	122	24
15.0	18.7	219	19.5	115	23

Table 3—Thinning guide for lightly thinned stands given average diameter at breast height (d.b.h.) of all trees 0.5 inch and larger before thinning

	Desired stand statistics after thinning				
Average d.b.h. before thinning	Average d.b.h.	Basal area per acre	Average spacing	Trees per acre	Trees per 1/5-acre plot
----------*Inches*----------		*Square feet*	*Feet*		
2.0	3.5	45	8.0	680	136
2.5	4.5	75	8.0	680	136
3.0	5.5	112	8.0	680	136
3.5	6.0	134	8.0	680	136
4.0	6.5	145	8.3	629	126
4.5	7.0	155	8.7	580	116
5.0	7.5	165	9.0	538	108
5.5	8.1	171	9.5	478	96
6.0	8.7	177	10.0	429	86
6.5	9.2	185	10.4	401	80
7.0	9.7	190	10.8	370	74
7.5	10.2	195	11.3	344	69
8.0	10.8	200	11.8	314	63
8.5	11.4	205	12.3	289	58
9.0	12.0	212	12.7	270	54
9.5	12.5	218	13.0	256	51
10.0	13.0	223	13.4	242	48
10.5	13.5	228	13.8	229	46
11.0	14.0	233	14.1	218	44
11.5	14.6	237	14.6	204	41
12.0	15.2	240	15.1	190	38
12.5	15.8	244	15.6	179	36
13.0	16.3	247	16.0	170	34
13.5	16.8	250	16.4	162	32
14.0	17.3	253	16.8	155	31
14.5	17.8	256	17.1	148	30
15.0	18.4	259	17.6	140	28

Implementation

Tree marking guidelines were designed to leave the best growing stock on the plot. Thinnings in older stands concentrated on improving spacing of overstory trees and removing merchantable size trees contributing little to stand growth. Thinnings in young stands focused on the removal of rough, limby dominants of poor tree form and quality and on improving growing space around selected crop trees. Thinnings in young stands were precommercial, almost all removed trees were nonmerchantable in size.

After tree marking was completed, all leave trees (except small trees) were pruned to 6 feet. They were numbered with aluminum tags and nails and marked with a band of blue paint at stump height and breast height. A line was painted at breast height (4.5 feet) to establish where all future diameter measurements would be made, and tree numbers were painted on the stem above breast height to facilitate locating trees during remeasurement. Measurements were taken from sample trees in the control plot and from all marked residual trees in plots scheduled for thinning. Species, diameter to the nearest one-tenth of an inch, crown class, tree class,[3] tree damage location (if any), severity of damage, and general and specific causes of damage were recorded for each tree. A subsample of trees (10 to 15 trees of each species) was selected across the range of diameters in the stand with about two-thirds of the sample being above QMD. Subsample trees were measured for total height and height to live crown. A stem map of selected residual trees on the 1/5-acre measurement plot also was made at this time. This map is used to help locate residual trees after thinning to check for mistakes in tree removal. It is also used to help locate trees during remeasurement and might be used during data analysis to establish spatial relationships.

The Alaska Region of the National Forest System arranged and supervised most of the thinning operations. Thinnings were completed before the first growing season after establishment of an installation. All thinned trees of commercial size were removed from most 1-acre plots to simulate a commercial thinning operation. Unfortunately, it was not possible to simulate the disturbance a stand would experience from equipment used in normal commercial thinnings. Removal of merchantable trees from research plots was accomplished either by hand or with portable yarding equipment.

A tree was considered to be of commercial size if its diameter at breast height (d.b.h.) was 9.6 inches or larger and it contained at least one 16-foot log with a small-end diameter (outside bark) of 5 inches. Trees not meeting the merchantability definition were not removed after cutting and were left where they fell. Thus, for plots located in young stands with no trees of commercial size, thinnings actually mirrored precommercial thinnings. An exception is installation 61 where plots were “thinned” by girdling select “cut” trees and not by cutting. Many trees marked for thinning on these plots were trees of poor stem form that had large crowns with many large limbs. Selected leave trees would have been seriously damaged had these large trees been felled; therefore, girdling was used to avoid this type of damage. It is unknown what effect “thinning” trees by girdling (instead of cutting) will have on results; this will be investigated when the data are analyzed.

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[3] Tree classes are live, live cut, dead, ingrowth, new tree, dead cut, live tree, site and crop tree, site tree, and crop tree.

Measurements After Thinning

All plots on an installation were remeasured immediately after thinning and before the next growing season. This provided an opportunity to verify that trees selected for cutting were removed and those marked for retention actually remained. The postthinning measurement ensured the accuracy of initial plot and tree data. Measurement standards were identical to those used to measure the plots after marking. For each tree, the species, diameter to the nearest one-tenth of an inch, crown class, tree class, tree damage location (if any), severity of damage, and general and specific causes of damage were checked for accuracy. Sample height trees were remeasured to confirm previous measurements of total height and height to live crown. The sample of height trees does not change from one remeasurement to the next; the same trees are measured for height each time. The sample of height trees can change, however, when a height tree dies or experiences top damage; it is replaced by another tree. Replacement trees should be comparable in diameter, crown class, and height to the tree being replaced.

Remeasurement cycles for plots differ over time and from installation to installation. Plots in installations established at the start of the study were measured every year for 3 years after thinning. After inclusion of more installations, it became apparent that plots did not need to be measured this frequently, and a remeasurement cycle of 2 years became the standard for recently thinned plots. Most installations, however, had to be remeasured every 2 years because the fast growth of tree diameters on thinned plots required that nails holding tree tags be pulled so that the tags would not become embedded in the wood. Remeasurement schedules for installations change to a 4-year cycle as tree diameter growth slows with increasing stand age and stand density.

Progress and Status

A comprehensive statistical analysis of the stand density data is in the planning stage. A preliminary examination of the data has revealed that the data structure limits hypothesis testing and the use of analysis of variance. Tree spacing was not held constant for a specified treatment. The number of trees per acre left after thinning for a given treatment is determined not only by the thinning intensity applied to a plot but also depends on the QMD of the stand before thinning. Because tree spacing is not the same across the ranges of site index and stand age for a given treatment intensity (light, medium, or heavy thinning), analysis of variance cannot be used on the complete data set.

Regression analysis will have to be used to analyze the data. The development of a set of interim growth and yield tables, one of the objectives of the study, will occur when data representing the growth response of stands over a sufficient period have been collected. Even though the current data will not allow development of equations to predict growth and yield over the entire length of a rotation, regression equations that predict growth responses of thinned stands for a limited, 20- to 30-year period after thinning can be derived. The analysis along with results will be published when completed.

To date, most of the research activity in the stand density growth study has centered on establishment, measurement, and remeasurement of plots; data editing; database management; and the production of stand summary tables. Fieldwork started in spring 1974 with establishment of 21 plots at six locations (installations). The majority of installations and plots were established between spring 1974 and fall

1977, with 163 plots at 44 installations being located, thinned, and measured. Another 15 installations and 109 plots were established between 1978 and 1987 as new areas were located, evaluated, and selected for inclusion into the study. A total of 272 plots at 59 locations have been established since 1974.

At the time of establishment, all installations were located on land managed by the USDA Forest Service. This changed when the City and Borough of Juneau, the State of Alaska, and Alaskan Native corporations exercised their rights to select and acquire ownership of about 1.7 million acres of National Forest land. Fourteen installations are now located on city, state, and Native corporation land:

Entity	No. of installations
State of Alaska	5
City and Borough of Juneau	1
Kake Tribal Corp.	1
Kavilco Corp.	3
Sealaska	1
Klukwan, Inc.	3

Agreements between owners of the land where installations occur and the Pacific Northwest Research Station have been made to allow remeasurement of plots.

Four installations no longer exist: one was destroyed by road construction in 1985 and three were harvested in 1997. Two of the harvested installations became part of a research study designed to evaluate the wood quality potential of young-growth western hemlock and Sitka spruce. Scientists from the USDA Forest Service Forest Products Laboratory, Madison, Wisconsin, and the Pacific Northwest Research Station's Portland and Juneau Forestry Sciences Laboratories are conducting this study.

Additional data have been included in the stand density database. Remeasurement data for 12 plots (from 9 locations) established in unmanaged stands by Taylor in the late 1920s, early 1930s, and 1963 have been entered into the database. All locations, except one, are being remeasured on a 5-year cycle. The one location not on this remeasurement schedule was terminated in 1964. As of 1998, three of Taylor's plots (one location) are about 70 years old (total age), and the rest of Taylor's plots are between 100 and 170 years of age. Site index at index age 100 ranges from 70 to around 110 and stand QMD ranges from 14 to 22 inches. Locations of Taylor's plots are shown in figures 1, 2, and 3.

Table 4 shows the actual distribution of plots over the ranges of site indexes, stand ages, and thinning treatments. Stand age is total age, and site index[4] is the average height of dominant trees at index age 100 as defined by Taylor (1934). From table 4, it is evident that the planned distribution of four plots per cell was not achieved. Few plots are located in areas with a site index under 100, and thinnings for stand ages above 60 years are not fully represented. This result is not unexpected given that most harvesting in the Tongass National Forest within the last 50 years has occurred

[4] The calculation of site index is explained more fully in the appendix of this report.

Table 4—Actual plot distribution by site index, initial stand age, and thinning treatment

Site index classes	Initial stand age	Thinning treatment			
		Control	Light	Medium	Heavy
	Years				
70–100	10 to 30	2	1	2	2
	31 to 50	0	1	0	1
	51 to 70	2	2	2	1
	71 to 95	1	1	1	2
101–120	10 to 30	7	3	9	8
	31 to 50	1	4	3	4
	51 to 70	1	1	2	3
	71 to 95	0	1	1	0
121+	10 to 30	23	23	30	34
	31 to 50	14	16	17	16
	51 to 70	5	5	9	7
	71 to 95	1	1	1	1

on more productive sites. Very few young-growth stands of logging origin were older than 60 years, and very few young stands of low productivity existed in the Tongass when the stand-density plots were established. Most logging in the Tongass has occurred at lower elevations where sites tend to have better growing conditions and productivity is higher. Logging of the lower elevations first was probably a consequence of a combination of economics, management objectives, and the fact that road systems start at tidewater and usually follow valley bottoms; then, at a later date, they branch out to upper elevations where poorer growing conditions exist.

The appendix of this report contains one or more tables for each installation in the study and presents before-thinning (when available) and after-thinning stand statistics for each plot in the installation. The following summary information on initial stand conditions was compiled from the tables in the appendix. Total age of stands at the time of thinning ranged from 10 to 93 years with about 80 percent of the stands being under age 50 (fig. 5). Site index at a breast height index age of 50 years ranged from 43 to 120 (Farr 1984), and site index based on a total index age of 100 years ranged from 74 to 165 (Taylor 1934). There are substantially more plots with high site indexes than low site indexes (figs. 6 and 7). As stated previously, this reflects the history of harvesting in the Tongass, which limited the range of site indices that could be selected for the study and produced a sample skewed toward the more productive stands. With the exception of one installation located at 1,500 feet in elevation, all plots were below 500 feet.

The number of trees per acre on unthinned (control) plots ranged from 340 to 13,028. The number of trees per acre on treatment plots before thinning ranged from 230 to 11,528 and after thinning ranged from 80 to 680. Quadratic mean diameter in stands before thinning ranged from 0.9 inch to more than 15.0 inches. The proportion of Sitka spruce present in stands ranged from 0.5 to 100 percent. In control plots, about 28.8 percent of the trees were Sitka spruce at time of plot establishment; in treatment plots, stands averaged 29.3 percent spruce before thinning. This difference in species composition between control plots and plots selected for treatment is insignificant.

Thinning treatments were randomly assigned to plots in an installation—there was no attempt to use stand attributes to determine treatment type. Treated plots averaged 41.4 percent Sitka spruce after thinning. Thinning guidelines did not intentionally favor Sitka spruce but did favor the selection of larger diameter and faster growing trees. This caused an increase in the percentage of spruce in stands after thinning because young spruce trees tended to be larger than young western hemlock trees (Taylor 1934).

At the time of plot establishment, basal area per acre on control plots ranged from 13.8 to 418.5 square feet. On plots selected for treatment, stand basal area before thinning ranged from 8.9 to 467.7 square feet. Basal area removed by thinning ranged from 8.2 to 94.5 percent with an average of 61.9 percent. By treatment type, the average amount of basal area removed was 47.7 percent on lightly thinned plots, 60.9 percent on medium thinned plots, and 73.5 percent on heavily thinned plots.

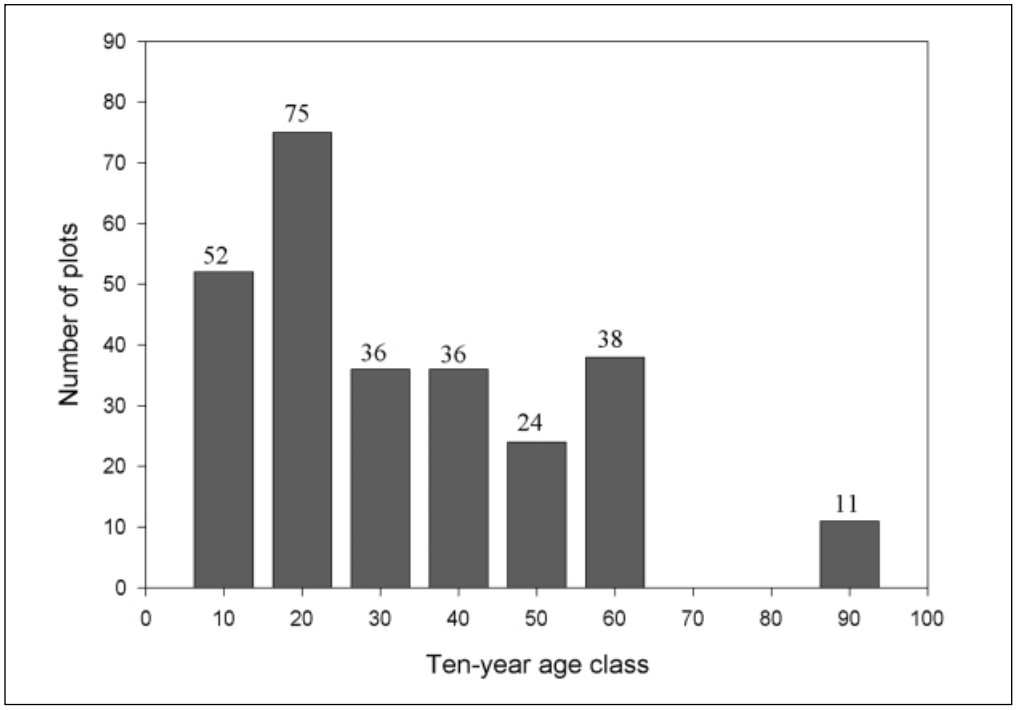

Figure 5—Distribution of stand age classes (based on total age of stands) at the time of plot establishment.

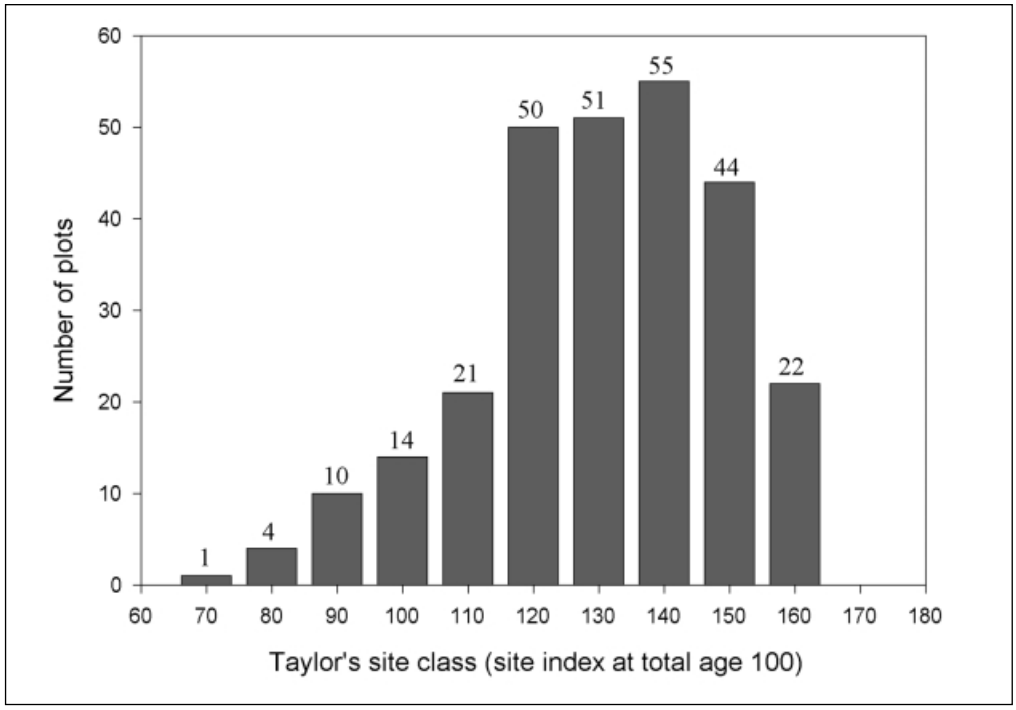

Figure 6—Distribution of site index classes based on Taylor's (1934) site index estimates for each stand at a total index age of 100 years.

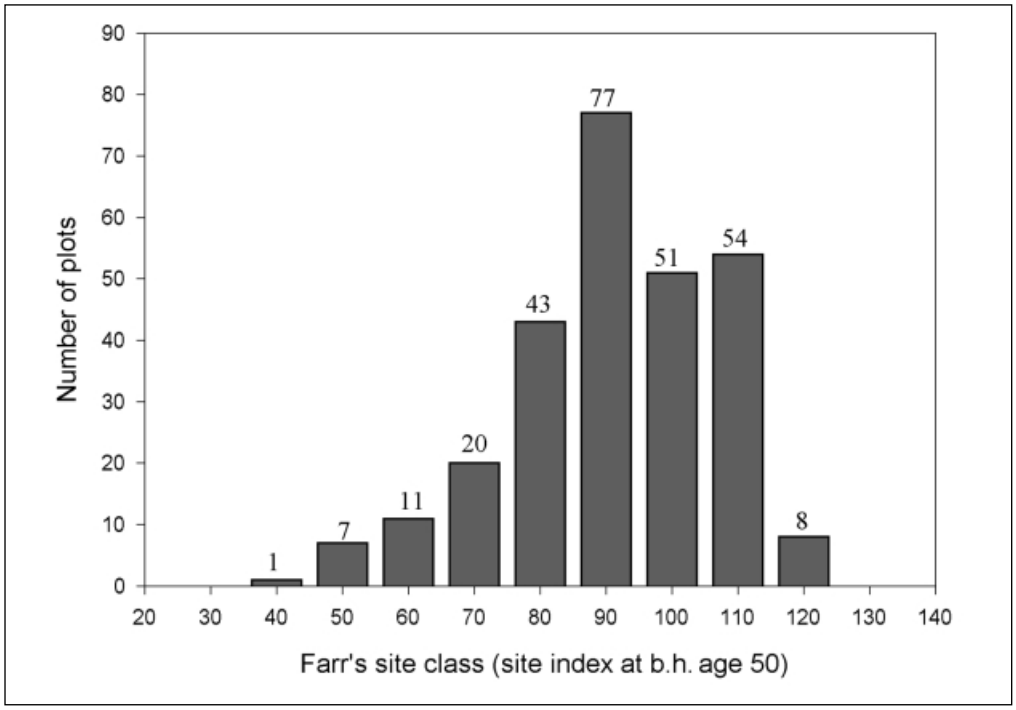

Figure 7—Distribution of site index classes based on Farr's (1984) site index equations for each stand at a breast height index age of 50 years.

Discussion and Conclusion

Forest managers have many management alternatives to choose from following removal of old-growth stands. Some areas will not be reentered before being harvested again, and other areas will be intensively managed throughout the next rotation. Known outcomes of various silvicultural treatments are needed so that managers can fulfill their management objectives while limiting impacts to other forest resources. Forest managers have many questions: At what age should unthinned stands be thinned for both wood quality and volume yields? What level of basal area should be left after thinning? How frequently should thinning occur during a rotation? How will unthinned stands of various ages and sites respond to thinning? What effects do stand density and species composition have on volume growth and tree size for different combinations of site and stand age? What is the influence of stocking on the height-age relation?

Data from the stand density study was used to develop the forest vegetation simulator, SEAPROG, the southeastern Alaska variant of Prognosis (Stage 1973), an individual tree, distance-independent growth and yield model developed for use in Idaho and Montana. Alaska forest managers and silviculturists use SEAPROG for forestwide management. The accuracy of SEAPROG's even-aged growth and yield predictions and ability to model alternative silviculture regimes are regularly evaluated and modifications made when needed. Calculated stand statistics and individual tree data from the stand-density study will continue to be used in evaluation and development of SEAPROG and its eventual upgrade to simulate a variety of uneven-aged silvicultural alternatives.

Preliminary observations can be made from examination of the tables presented in the appendix. First, precommercial thinning is usually beneficial and, in most cases, necessary when managing for wood production. Unthinned stands of spruce and hemlock are extremely dense owing to the high number of seedlings that occur naturally after harvesting—several thousand trees per acre are not uncommon in young stands. Many years must pass before adequate tree mortality allows the dominant trees in a stand to realize their growth potential. A high volume of wood is lost in unmerchantable, suppressed trees that eventually die. Competing trees, in some situations, are barely existing and use valuable soil nutrients to grow minimal amounts of wood. Reducing this competition enhances stand volume growth.

Second, stand basal area can be severely reduced with little mortality of leave trees. In one instance, as much as 94.5 percent of basal area was removed from a plot without any mortality occurring in the leave stand. Tree mortality in thinned stands is minimal and seems to be unrelated to the amount of basal area removed.

Third, medium to heavy thinnings should be favored when treating stands for wood production. This recommendation is based on the speed of crown closure and the resumption of tree competition that occurs in lightly thinned plots. In many cases, stand characteristics of lightly thinned plots visually appear to be very similar to unthinned stand conditions. Young, lightly thinned plots also start to experience tree mortality 10 to 15 years after thinning, before the stand reaches merchantable size.

Last, although heavy thinning usually reduces stand volume yield and could reduce wood quality (fewer growth rings per inch, larger knots, etc.), it may be a benefit to wildlife. With wider spacing, fewer crop trees will be left for volume growth, and the

greater abundance of ingrowth trees and understory vegetation would compete with and, for a short time, might overwhelm selected leave trees in young stands. Wood quality might be affected because natural pruning that occurs with crown closure takes longer in stands with wider spacings; leave trees probably would have more and larger limbs. As stated previously, a wood quality study of trees located on the stand density growth plots is now being conducted; results from this study are not yet available.

Heavy thinnings that leave extra wide spacings between trees might benefit wildlife by allowing the development of understory vegetation. Understory vegetation in plots with widely spaced trees is usually abundant the first few years after thinning. How long this abundance lasts and the quality of the vegetation for wildlife forage still need to be determined. Deal and Farr (1994) report on the occurrence of conifer regeneration on the stand density plots after thinning. They concluded that thinning of young stands on upland sites appears to benefit understory conifers that rapidly expand to fill available growing space. Also, they concluded that heavy thinnings in older stands promote prolific germination of coniferous seed, thereby making it difficult for other understory plants to become established. Other research conducted in the stand density plots has focused on the development of understory vegetation and has resulted in many reports (Alaback 1984, 1986, 1987, 1988). Alaback (1984) concluded that silvicultural thinnings might enhance understory productivity in young, even-aged stands and that repeated thinnings during a rotation probably will be needed to maintain a high rate of understory productivity for wildlife purposes.

Future Study Plans

Plots will continue to be followed with remeasurement cycles being lengthened to at least 4 years as tree growth slows. *The importance of continuing to remeasure plots cannot be overstated.* Some installations in the study have been followed for 24 years, and other installations have only 10 years of remeasurement data. This is still a relatively short period of observation when trying to predict the growth of trees over a 100-year rotation. Data collected so far represent only growth response of trees immediately after thinning. Growth of residual trees is usually rapid immediately after thinning but slows with the closure of the forest canopy, increasing tree competition, and advancing tree age. Thus, many more years of data are needed before the shapes of the basal area and volume growth curves over stand age can be determined for various combinations of site index and thinning treatments. Results from this study will increase in value the longer the research plots are followed.

The study needs to be expanded by establishing installations in stands at higher elevations and in stands of lower productivity. As stated before, there is only one installation above 500 feet, and few installations are located in low-productivity stands. These deficiencies in the database should be corrected, if possible. Adding these types of installations to the study might prove difficult, however, because few young stands exist at upper elevations where site productivity tends to be lower. Creation of new young-growth stands at higher elevations also might not occur given that the number of acres dedicated for wood production has decreased and that alternatives to clearcutting methods might be used to harvest stands in the future. Additional installations will be established, however, whenever suitable young, even-aged stands are located and funds are available.

Plans call for the application of commercial thinning treatments to installations after plots recover (based on crown closure) from initial management treatments and trees grow to merchantable size. The goal of the original study design was to have four replicates of each initial thinning treatment distributed across three site classes and four stand age classes. Different commercial thinning regimes were to be imposed on three of the replicates with one replicate left untouched as a control. This design cannot be followed completely because the actual distribution of plots by thinning treatment over site and stand age classes does not contain four replicates in each cell. Stands with site index greater than 100 are well represented while stands with site index under 100 are scarce. Also, stand age classes 50 years and younger are represented by many installations, but age classes greater than 50 years have few observations. Application of commercial thinning regimes will probably be limited to a subset of installations; the subset sample of installations will be selected when sufficient stands reach merchantable size.

It is recommended that this study be continued until all installations are harvested. Data are needed for an entire rotation so that a comprehensive set of growth and yield tables for various management regimes can be developed. The importance of this study cannot be overstated. Reductions in the land base dedicated to growing timber in the Tongass and expected increases in future demand for wood dictate that stands grown for wood be managed for maximum production. Results from this study will provide some of the information needed by managers to achieve this goal. This information also will be useful to Alaska Native corporations, the State of Alaska, and other government entities in managing about 1.7 million acres of forested land. Native corporations in southeastern Alaska control about 600,000 acres of forested land with much of it in young growth. Maximizing wood production on these acres would ease the demand for wood from the Tongass National Forest.

Results from the stand density study also will be needed to help evaluate results from the alternatives-to-clearcutting study now being conducted by scientists at the Forestry Sciences Laboratory in Juneau. Estimates of the growth and yield of even-aged stands and the associated costs of even-aged management will provide a measure of the benefits and costs of alternative treatments. Even-aged management is the most economical method of managing forest stands for wood products; road building and logging costs are at a minimum and wood production is maximized. Alternatives-to-clearcutting methods are expected to have higher harvesting costs and produce less wood each time a stand is entered. Comparing costs and results could help managers decide what kind of harvesting method should be applied to a particular stand.

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Appendix

Tables presented in this appendix give before-thinning (when available) and after-thinning stand statistics for each plot in an installation at the time of establishment. Table headings are generally self-explanatory except for the following: **CCF** = crown competition factor as defined by Krajicek et al. (1961), and the values were calculated by using equations from Farr et al. (1989); **SDI** = stand density index (Reineke 1933); **ASP** = plot aspect in degrees; and **%SLP** = the angle of slope as a percentage.

Site index at total age 100 years is based on Taylor's (1934) site curves, and site index at breast height age 50 years is based on Farr's (1984) site index equations. When plot age (breast height age for Farr's site index and total age for Taylor's site index) was less than the index age of the curves being used, site index was determined from the most recent height measurements and plot age. If plot age was greater than the index age of the site curves, then site index was calculated by interpolation. Site index estimates for hemlock and Sitka spruce were averaged together to obtain an overall site index for plots having both species present in the stand's overstory.

Plots in an installation usually were established in the same year; however, some installations have plots established in different years. The "comments" section in each table documents whether plots were established in the same year.

INSTALLATION NUMBER: 1 NAME: MAYBESO VALLEY
YEAR STAND ESTABLISHED: 1956 YEAR PLOTS ESTABLISHED: 1974
LONGITUDE: 132°40'W LATITUDE: 55°30'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1010	Before	19.1	2.1	4417	25	97.4	—	445	337			149	109	33
	After	19.1	5.1	170	53	23.2	76.2	45	56	0	0	149	109	33
1020	Before	19.1	2.9	2500	53	111.7	—	335	336			152	108	33
	After	19.1	4.8	295	44	36.0	67.8	73	89	90	5	152	108	33
1031	Before	18.1	2.9	3500	48	160.2	—	479	479			154	113	34
	After	18.1	2.9	3500	48	160.2	0.0	479	479	0	0	154	113	34
1040	Before	20.1	2.5	4778	72	154.4	—	539	495			153	112	36
	After	20.1	4.1	680	59	60.7	60.7	140	159	0	0	153	112	36
1055	Before	—	—	—	—	—	—	—	—			—	—	—
	After	29.5	12.0	100	65	78.1	—	84	133	0	0	149	109	61

Comments: Plot 1055 established in 1985. Before-thinning data not available for Plot 1055.
1
2
3

INSTALLATION NUMBER: 2 NAME: HARRIS RIVER
YEAR STAND ESTABLISHED: 1960 YEAR PLOTS ESTABLISHED: 1974
LONGITUDE: 132°42'W LATITUDE: 55°28'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1050	Before	14.2	1.8	3833	12	63.5	—	339	232			156	114	24
	After	14.2	2.6	675	13	24.8	60.9	88	78	0	0	156	114	24
1060	Before	14.2	1.7	5278	5	80.1	—	456	298			148	107	23
	After	14.2	2.8	305	11	12.1	84.9	42	37	125	5	148	107	23
1071	Before	13.2	1.5	5528	20	65.1	—	434	255			152	111	20
	After	13.2	1.5	5528	20	65.1	0.0	434	255	0	0	152	111	20
1080	Before	14.2	1.7	7889	22	112.1	—	656	422			154	112	26
	After	14.2	3.5	170	62	11.2	90.0	30	31	0	0	154	112	26

Comments: Owner is the State of Alaska.
1
2
3

INSTALLATION NUMBER: 3 NAME: CAPE POLE
YEAR STAND ESTABLISHED: 1960 YEAR PLOTS ESTABLISHED: 1974
LONGITUDE: 133°46'W LATITUDE: 55°56'N ELEVATION: 300 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1090	Before	13.3	2.7	2111	21	78.6	—	256	245			136	95	28
	After	13.3	4.6	175	51	19.4	75.3	41	49	134	15	136	95	28
1100	Before	14.3	1.6	11527	12	158.6	—	960	601			125	86	24
	After	14.3	2.8	680	35	27.1	82.9	92	83	110	18	125	86	24
1110	Before	14.3	2.3	3556	10	100.9	—	385	332			134	93	29
	After	14.3	4.0	300	20	24.5	75.7	59	65	120	9	134	93	29
1121	Before	14.4	1.7	6194	9	91.4	—	523	342			133	93	24
	After	14.4	1.7	6194	9	91.4	0.0	523	342	98	24	133	93	24

Comments:
1
2
3

INSTALLATION NUMBER: 4 NAME: EDNA BAY I
YEAR STAND ESTABLISHED: 1941 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 133°36'W LATITUDE: 55°58'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1130	Before	33.1	6.0	1010	40	193.6	—	309	436			153	110	70
	After	33.1	9.3	170	62	80.0	58.7	99	151	184	14	153	110	70
1140	Before	34.1	7.1	960	52	262.8	—	370	552			161	118	74
	After	34.1	9.9	325	71	171.6	34.7	203	317	255	16	161	118	74
1150	Before	34.1	7.3	845	50	239.7	—	330	500			164	120	79
	After	34.1	10.3	260	71	150.0	37.4	173	272	273	34	164	120	79
1160	Before	34.1	7.8	795	43	257.7	—	341	524			163	120	78
	After	34.1	7.8	795	43	257.7	0.0	341	524	145	15	163	120	78

Comments: Owner is the State of Alaska.
1
2
3

INSTALLATION NUMBER: 5 NAME: UPPER MAYBESO
YEAR STAND ESTABLISHED: 1952 YEAR PLOTS ESTABLISHED: 1974 & 1985
LONGITUDE: 132°41'W LATITUDE: 55°30'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1170	Before	22.4	1.5	5611	6	60.8	—	432	242			98	66	23
	After	22.4	2.8	170	18	6.9	88.7	24	21	272	26	98	66	23
1180	Before	—	—	—	—	—	—	—	—			—	—	—
	After	32.6	3.5	170	26	11.1	—	29	31	0	0	82	53	24
1190	Before	—	—	—	—	—	—	—	—			—	—	—
	After	32.6	5.1	170	56	23.4	—	44	56	0	0	105	73	36

Comments: Plots 1180 and 1190 were established in 1985. Before-thinning data not available for plots 1180 and 1190.
1
2
3

INSTALLATION NUMBER: 6 NAME: PORT ALICE
YEAR STAND ESTABLISHED: 1956 YEAR PLOTS ESTABLISHED: 1974
LONGITUDE: 133°35'W LATITUDE: 55°49'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1180	Before	18.7	1.4	6889	30	64.4	—	505	264			94	64	18
	After	18.7	2.0	300	40	6.4	90.1	31	22	220	13	94	64	18
1190	Before	17.7	1.4	9472	53	94.7	—	700	382			139	102	30
	After	17.7	2.9	680	59	29.2	69.2	96	89	220	13	139	102	30
1200	Before	17.7	1.5	6583	38	74.7	—	509	294			120	85	24
	After	17.7	2.9	170	68	7.7	89.7	25	23	210	22	120	85	24
1211	Before	18.6	1.2	13028	36	99.4	—	879	424			132	95	26
	After	18.6	1.2	13028	36	99.4	0.0	879	424	210	8	132	95	26

Comments:
1
2
3

INSTALLATION NUMBER: 7 NAME: TUXEKAN I
YEAR STAND ESTABLISHED: 1947 YEAR PLOTS ESTABLISHED: 1974
LONGITUDE: 133°17'W LATITUDE: 55°48'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1220	Before	27.7	2.0	4083	37	83.8	—	385	294			108	73	34
	After	27.7	4.0	300	38	25.2	69.9	59	67	170	12	108	73	34
1231	Before	27.7	1.9	7278	13	129.0	—	662	465			86	55	32
	After	27.7	1.9	7278	13	129.0	0.0	662	465	170	59	86	55	32
1240	Before	27.7	1.5	10389	10	122.0	—	815	477			120	83	28
	After	27.7	2.7	680	16	25.8	78.9	90	80	169	23	120	83	28
1250	Before	27.7	1.8	3972	3	68.5	—	355	248			103	70	28
	After	27.7	3.3	170	12	9.8	85.7	28	28	182	27	103	70	28

Comments: Plot 1220 elevation is 50 feet and plot 1250 elevation is 20 feet.
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INSTALLATION NUMBER: 8 NAME: EDNA BAY II
YEAR STAND ESTABLISHED: 1945 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 133°41'W LATITUDE: 55°56'N ELEVATION: 300 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1260	Before	30.1	5.4	1190	18	185.5	—	312	435			142	100	60
	After	30.1	9.1	170	29	75.5	59.3	96	144	0	0	142	100	60
1271	Before	30.1	4.5	2611	29	285.6	—	534	719			138	98	57
	After	30.1	4.5	2611	29	285.6	0.0	534	719	0	0	138	98	57
1280	Before	30.1	6.2	1040	19	214.3	—	321	476			144	102	62
	After	30.1	9.7	300	27	152.4	28.9	184	283	0	0	144	102	62
1290	Before	30.1	5.0	1780	12	239.2	—	417	578			151	108	66
	After	30.1	7.9	460	29	156.3	34.7	212	315	0	0	151	108	66

Comments: Owner is the State of Alaska.
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INSTALLATION NUMBER: 9 NAME: WARMCHUCK INLET
YEAR STAND ESTABLISHED: 1927 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 133°29'W LATITUDE: 55°46'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1300	Before	48.2	9.7	615	15	309.5	—	357	577			158	118	96
	After	48.2	9.7	615	15	309.5	0.0	357	577	205	21	158	118	96
1310	Before	47.8	6.7	1055	12	254.5	—	373	548			136	98	80
	After	47.8	9.9	250	20	132.1	48.1	157	244	210	24	136	98	80
1320	Before	45.8	8.6	710	37	282.1	—	351	551			148	108	91
	After	45.8	13.7	120	63	122.4	56.6	121	198	200	37	148	108	91
1330	Before	47.8	5.5	1730	29	276.0	—	468	645			128	92	77
	After	47.8	8.3	470	34	173.7	37.1	232	344	200	24	128	92	77

Comments:
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INSTALLATION NUMBER: 10 NAME: VIRGIN BAY
YEAR STAND ESTABLISHED: 1926 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 131°42'W LATITUDE: 55°43'N ELEVATION: 500 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1340	Before	49.3	4.8	2120	7	264.3	—	501	649			116	80	74
	After	49.3	8.6	170	32	67.2	74.6	88	131	145	42	116	80	74
1350	Before	48.9	3.7	3630	8	221.8	—	630	719			100	67	62
	After	48.9	6.1	675	24	136.8	38.3	226	305	145	34	100	67	62
1360	Before	48.9	4.7	2330	8	272.3	—	532	677			109	74	68
	After	48.9	7.9	300	17	101.7	62.7	141	205	150	27	109	74	68
1370	Before	49.3	7.4	890	17	264.7	—	375	547			136	96	88
	After	49.3	7.4	890	17	264.7	0.0	375	547	175	35	136	96	88

Comments:
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INSTALLATION NUMBER: 11 NAME: N.E. HECETA
YEAR STAND ESTABLISHED: 1935 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 133°26'W LATITUDE: 55°47'N ELEVATION: 400 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1380	Before	40.8	8.1	785	72	275.3	—	356	551			150	106	96
	After	40.8	13.2	130	96	122.1	55.6	124	201	75	15	150	106	96
1390	Before	40.8	7.1	1150	62	307.6	—	442	649			142	100	83
	After	40.8	10.8	230	78	144.6	53.0	165	258	130	8	142	100	83
1400	Before	40.8	6.5	1365	59	312.6	—	478	680			142	100	78
	After	40.8	9.6	380	72	189.8	39.3	232	354	68	19	142	100	78

Comments:
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INSTALLATION NUMBER: 12 NAME: EDNA BAY III
YEAR STAND ESTABLISHED: 1936 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 133°36'W LATITUDE: 55°58'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1410	Before	39.4	5.9	1195	17	224.5	—	366	508			133	94	72
	After	39.4	5.9	1195	17	224.5	0.0	366	508	0	0	133	94	72
1420	Before	34.5	7.0	915	29	242.5	—	342	513			143	102	73
	After	34.5	11.0	145	45	95.5	60.6	107	169	265	27	143	102	73
1430	Before	39.5	6.8	870	40	213.5	—	308	458			150	108	80
	After	39.5	9.8	265	38	137.4	35.6	163	254	15	10	150	108	80
1440	Before	39.5	6.5	1115	17	256.1	—	380	557			139	98	78
	After	39.5	8.7	445	6	180.0	29.7	229	350	300	6	139	98	78

Comments: Owner is the State of Alaska.
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INSTALLATION NUMBER: 13 NAME: TUXEKAN II
YEAR STAND ESTABLISHED: 1948 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 133°17'N LATITUDE: 55°48'W ELEVATION: 500 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1450	Before	26.7	4.0	1995	70	171.5	—	359	453			152	112	54
	After	26.7	7.7	305	82	97.9	42.9	137	199	0	0	152	112	54
1460	Before	26.7	5.1	1295	57	179.2	—	312	431			156	115	53
	After	26.7	9.2	160	84	73.5	59.0	92	139	0	0	156	115	53
1470	Before	26.7	4.5	2105	63	224.3	—	440	568			160	118	52
	After	26.7	7.0	580	54	152.8	31.9	228	323	0	0	160	118	52
1481	Before	26.7	4.0	3167	56	270.2	—	602	715			149	109	51
	After	26.7	4.0	3167	56	270.2	0.0	602	715	0	0	149	109	51

Comments:
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INSTALLATION NUMBER: 14 NAME: TOUCHIT COVE
YEAR STAND ESTABLISHED: 1933 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 132°47'W LATITUDE: 54°55'N ELEVATION: 300 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1500	Before	39.8	7.9	860	17	290.8	—	379	586			149	106	88
	After	39.8	10.2	365	16	203.9	29.9	234	372	220	31	149	106	88
1510	Before	41.8	13.3	335	64	323.0	—	317	529			158	111	95
	After	41.8	18.4	90	94	165.3	48.8	142	238	220	15	158	111	95
1520	Before	39.8	12.2	460	80	371.7	—	385	631			165	118	97
	After	39.8	16.1	140	79	196.4	47.2	179	299	240	15	165	118	97

Comments: Owner is Klukwan Forest Products, Inc. Final harvest in March 1997.
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INSTALLATION NUMBER: 15 NAME: MISSION COVE
YEAR STAND ESTABLISHED: 1921 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 132°48'W LATITUDE: 54°52'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1530	Before	53.8	15.7	275	45	366.7	—	332	564			155	112	109
	After	53.8	20.1	105	71	231.3	36.9	191	322	180	4	155	112	109
1540	Before	48.8	13.4	365	33	356.7	—	348	583			158	115	106
	After	48.8	16.4	170	56	248.9	30.2	223	375	235	10	158	115	106
1550	Before	49.8	16.3	230	59	332.1	—	295	502			150	108	105
	After	49.8	20.9	80	88	189.8	42.8	154	260	230	20	150	108	105
1560	Before	48.8	13.6	340	29	342.4	—	326	556			154	112	99
	After	48.8	13.6	340	29	342.4	0.0	326	556	180	10	154	112	99

Comments: Owner is Klukwan Forest Products, Inc.
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INSTALLATION NUMBER: 16 NAME: KOIANGLES
YEAR STAND ESTABLISHED: 1941 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 132°42'W LATITUDE: 54°49'N ELEVATION: 300 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1570	Before	33.6	7.6	750	55	234.7	—	311	480			151	110	66
	After	33.6	11.2	225	60	152.3	35.1	169	268	200	25	151	110	66
1580	Before	33.6	9.0	680	63	298.2	—	357	571			163	120	72
	After	33.6	14.1	125	72	134.0	55.1	131	215	0	0	163	120	72
1590	Before	33.6	6.6	1020	53	235.6	—	345	512			148	107	68
	After	33.6	9.1	400	71	180.0	23.6	224	343	205	36	148	107	68
1600	Before	33.6	8.7	650	55	264.0	—	324	513			157	115	70
	After	33.6	8.7	650	55	264.0	0.0	324	513	235	13	157	115	70

Comments: Owner is Klukwan Forest Products, Inc. Plot 1570 last measured in 1987 because plot was lost to road construction.
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INSTALLATION NUMBER: 17 NAME: EDNA BAY IV
YEAR STAND ESTABLISHED: 1947 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 133°38'W LATITUDE: 55°58'N ELEVATION: 300 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1610	Before	29.1	5.0	2528	43	339.1	—	587	820			157	112	61
	After	29.1	7.6	520	57	160.1	52.8	225	329	0	0	157	112	61
1620	Before	29.1	4.0	2583	51	223.6	—	475	590			151	109	56
	After	29.1	9.2	170	76	77.8	65.2	98	148	325	5	151	109	56
1630	Before	29.1	5.2	1583	19	226.8	—	398	541			155	112	58
	After	29.1	8.6	300	58	120.0	47.1	155	234	325	5	155	112	58
1641	Before	29.1	4.2	2333	29	217.2	—	452	565			150	109	60
	After	29.1	4.2	2333	29	217.2	0.0	452	565	175	33	150	109	60

Comments: Owner is the State of Alaska.
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INSTALLATION NUMBER: 18 NAME: ALDER CREEK I
YEAR STAND ESTABLISHED: 1938 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 133°32'W LATITUDE: 56°20'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1650	Before	37.4	3.7	3083	27	225.3	—	532	614			137	97	60
	After	37.4	6.8	300	18	75.3	66.6	115	161	270	15	137	97	60
1660	Before	37.4	3.2	3944	10	208.3	—	569	606			123	86	56
	After	37.4	6.3	170	38	37.1	82.2	60	82	280	15	123	86	56
1670	Before	37.4	3.5	3611	12	234.8	—	579	655			122	84	57
	After	37.4	5.9	680	18	126.8	46.0	216	287	285	9	122	84	57
1681	Before	37.4	4.2	3306	4	305.4	—	644	795			125	87	61
	After	37.4	4.2	3306	4	305.4	0.0	644	795	250	6	125	87	61

Comments:
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INSTALLATION NUMBER: 19 NAME: SAKS COVE
YEAR STAND ESTABLISHED: 1920 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 131°08'W LATITUDE: 55°57'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1690	Before	56.3	9.7	565	12	288.6	—	342	536			128	92	84
	After	56.3	12.0	215	16	167.6	41.9	180	286	95	8	128	92	84
1700	Before	56.3	11.2	370	18	249.1	—	271	438			128	92	85
	After	56.3	11.2	370	18	249.1	0.0	271	438	20	9	128	92	85
1710	Before	51.3	9.5	540	32	265.7	—	314	497			130	94	85
	After	51.3	12.7	140	61	122.9	53.7	128	205	0	0	130	94	85
1720	Before	56.3	11.9	370	27	282.4	—	295	484			137	99	93
	After	56.3	13.2	245	37	232.5	17.7	232	382	100	12	137	99	93

Comments: Installation is in Misty Fiords National Monument.
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INSTALLATION NUMBER: 20 NAME: ALDER CREEK II
YEAR STAND ESTABLISHED: 1935 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 133°32'W LATITUDE: 56°20'N ELEVATION: 300 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1730	Before	40.5	6.0	1385	9	268.5	—	426	598			147	106	74
	After	40.5	6.0	1385	9	268.5	0.0	426	598	210	15	147	106	74
1740	Before	40.5	5.3	1775	5	269.9	—	473	637			144	104	75
	After	40.5	7.8	495	6	162.4	39.8	226	329	270	16	144	104	75
1750	Before	40.5	5.1	2000	13	278.6	—	508	669			142	103	71
	After	40.5	8.9	180	33	76.7	72.5	99	148	270	13	142	103	71
1760	Before	40.6	5.8	1545	7	276.6	—	461	632			140	102	75
	After	40.6	8.9	280	11	119.4	56.8	154	230	30	12	140	102	75

Comments:
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INSTALLATION NUMBER: 21 NAME: OLD FRANKS I
YEAR STAND ESTABLISHED: 1918 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 132°28'W LATITUDE: 55°26'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1770	Before	58.6	6.3	1833	15	394.2	—	611	869			112	76	79
	After	58.6	9.7	185	3	94.1	76.1	115	175	120	25	112	76	79
1780	Before	58.6	4.3	3583	18	355.6	—	725	913			98	64	66
	After	58.6	6.9	580	8	149.3	58.0	225	318	135	27	98	64	66
1791	Before	58.6	3.7	4417	29	316.5	—	769	866			83	52	57
	After	58.6	3.7	4417	29	316.5	0.0	769	866	130	27	83	52	57
1800	Before	58.7	4.4	3500	35	368.8	—	725	935			92	59	66
	After	58.7	7.9	300	12	101.2	72.6	140	204	115	34	92	59	66

Comments: Owner is Kavilco Corp. Final harvest in April 1997. Harvested trees used in a mill recovery study conducted by scientists from PNW's Portland Forestry Sciences Laboratory and from the Forest Products Laboratory, Madison, Wisconsin.
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INSTALLATION NUMBER: 22 NAME: OLD FRANKS II
YEAR STAND ESTABLISHED: 1913 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 132°29'W LATITUDE: 55°27'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1810	Before	63.8	11.0	495	43	323.0	—	353	572			148	107	117
	After	63.8	14.0	215	67	228.4	29.3	224	367	10	26	148	107	117
1820	Before	63.8	10.4	580	23	335.8	—	375	608			136	97	110
	After	63.8	17.2	85	71	136.7	59.3	122	202	200	43	136	97	110
1830	Before	62.8	7.6	1030	15	318.1	—	434	653			123	86	95
	After	62.8	11.9	190	24	146.0	54.1	156	250	125	21	123	86	95
1840	Before	64.7	9.0	750	30	328.4	—	399	629			128	90	101
	After	64.7	9.0	750	30	328.4	0.0	399	629	125	19	128	90	101

Comments: Owner is Kavilco Corp. Final harvest in April 1997. Harvested trees used in a mill recovery study conducted by scientists from PNW's Portland Forestry Sciences Laboratory and from the Forest Products Laboratory, Madison, Wisconsin.
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INSTALLATION NUMBER: 23 NAME: SANDY POINT
YEAR STAND ESTABLISHED: 1916 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 132°32'W LATITUDE: 55°33'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1850	Before	59.8	12.5	425	11	362.2	—	366	608			153	111	117
	After	59.8	17.0	125	20	196.2	45.8	172	292	30	8	153	111	117
1860	Before	59.8	14.4	310	24	350.6	—	327	557			155	112	122
	After	59.8	19.7	80	38	168.4	52.0	139	236	30	7	155	112	122
1870	Before	59.8	11.8	440	9	331.9	—	351	571			147	107	110
	After	59.8	11.8	440	9	331.9	0.0	351	571	0	0	147	107	110
1880	Before	59.8	12.5	470	1	394.2	—	404	664			145	104	112
	After	59.8	15.8	180	3	242.9	38.4	225	372	90	8	145	104	112

Comments: Owner is Kavilco Corp.
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INSTALLATION NUMBER: 24 NAME: THORNE RIVER
YEAR STAND ESTABLISHED: 1928 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 132°36'W LATITUDE: 55°42'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
1890	Before	47.9	9.9	545	32	289.2	—	335	533			155	112	100
	After	47.9	13.5	175	51	173.5	40.0	173	283	0	0	155	112	100
1900	Before	47.9	10.8	455	39	276.0	—	306	491			153	110	98
	After	47.9	15.2	110	86	138.4	49.9	130	215	0	0	153	110	98
1910	Before	47.9	10.2	465	13	259.1	—	296	473			156	112	102
	After	47.9	11.9	285	18	219.4	15.3	232	376	0	0	156	112	102

Comments:
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INSTALLATION NUMBER: 27 NAME: OLD FRANKS III
YEAR STAND ESTABLISHED: 1913 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 132°29'W LATITUDE: 55°26'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2000	Before	63.0	3.6	3667	40	255.6	—	607	704			76	45	51
	After	63.0	5.8	300	5	54.4	78.7	94	124	110	14	76	45	51
2010	Before	63.0	3.2	4806	25	260.3	—	725	753			74	43	43
	After	63.0	5.1	680	4	94.5	63.7	181	227	95	22	74	43	43
2020	Before	63.0	3.3	4556	23	269.1	—	668	765			81	50	56
	After	63.0	7.1	170	0	45.7	83.0	69	96	295	8	81	50	56
2031	Before	63.0	4.1	2667	41	236.2	—	511	620			87	59	62
	After	63.0	4.1	2667	41	236.2	0.0	511	620	350	19	87	59	62

Comments: Owner is Sealaska Corp. Abundance of western redcedar in this installation.
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INSTALLATION NUMBER: 28 NAME: SHRUBBY ISLAND
YEAR STAND ESTABLISHED: 1949 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 133°00'W LATITUDE: 56°13'N ELEVATION: 300 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2010	Before	26.1	2.5	3500	41	115.0	—	393	367			124	88	35
	After	26.1	3.7	680	57	50.1	56.4	124	136	0	0	124	88	35
2021	Before	26.1	2.1	4028	25	90.6	—	402	312			106	73	32
	After	26.1	2.1	4028	25	90.6	0.0	402	312	0	0	106	73	32
2030	Before	26.1	2.3	2833	41	80.0	—	308	263			108	74	28
	After	26.1	4.3	170	56	16.9	78.9	38	43	35	10	108	74	28
2040	Before	26.1	2.6	3500	31	124.8	—	412	392			122	86	32
	After	26.1	4.6	295	49	33.1	73.5	70	83	235	10	122	86	32

Comments:
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INSTALLATION NUMBER: 29 NAME: THOMAS BAY I
YEAR STAND ESTABLISHED: 1959 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 132°49'W LATITUDE: 56°57'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2050	Before	15.2	1.3	3889	54	35.5	—	282	146			124	87	20
	After	15.2	2.5	295	66	9.9	72.1	37	32	0	0	124	87	20
2061	Before	16.1	1.4	3444	35	33.5	—	248	136			115	79	19
	After	16.1	1.4	3444	35	33.5	0.0	248	136	0	0	115	79	19
2070	Before	16.1	1.5	5444	42	62.6	—	424	246			121	85	22
	After	16.1	2.2	665	46	16.6	73.5	73	56	0	0	121	85	22
2080	Before	15.2	1.4	5861	50	61.5	—	444	246			123	87	23
	After	15.2	2.9	170	62	7.7	87.5	25	23	0	0	123	87	23

Comments: Owner is the State of Alaska.
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INSTALLATION NUMBER: 30 NAME: POINT VANDEPUT
YEAR STAND ESTABLISHED: 1958 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 133°00'W LATITUDE: 57°02'N ELEVATION: 10 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2090	Before	17.2	1.9	4167	37	75.6	—	372	271			114	78	24
	After	17.2	2.7	300	42	11.1	85.3	38	35	0	0	114	78	24
2101	Before	17.2	1.7	2806	12	43.0	—	235	160			108	72	23
	After	17.2	1.7	2806	12	43.0	0.0	235	160	0	0	108	72	23
2110	Before	17.2	1.6	3694	21	48.5	—	297	186			118	80	22
	After	17.2	2.5	170	15	5.6	88.5	21	18	0	0	118	80	22
2120	Before	17.2	1.9	3972	8	75.9	—	362	270			124	87	28
	After	17.2	2.6	665	11	24.5	67.7	85	77	0	0	124	87	28

Comments:
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INSTALLATION NUMBER: 31 NAME: PORT CAMDEN
YEAR STAND ESTABLISHED: 1932 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 133°55'W LATITUDE: 56°46'N ELEVATION: 50 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2130	Before	43.5	3.9	2417	9	196.0	—	430	524			123	85	71
	After	43.5	8.8	300	12	125.3	36.1	159	242	105	28	123	85	71
2140	Before	43.5	4.7	2500	4	292.4	—	549	727			133	94	80
	After	43.5	10.1	170	18	94.6	67.6	110	173	100	8	133	94	80
2150	Before	43.6	3.6	3667	8	247.1	—	615	685			110	74	60
	After	43.6	5.7	680	18	118.9	51.9	207	273	105	18	110	74	60

Comments:
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INSTALLATION NUMBER: 32 NAME: AGATE BEACH
YEAR STAND ESTABLISHED: 1933 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 133°30'W LATITUDE: 56°27'N ELEVATION: 10 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2161	Before	42.2	3.5	2472	25	158.5	—	398	443			118	82	60
	After	42.2	3.5	2472	25	158.5	0.0	398	443	0	0	118	82	60
2170	Before	42.3	2.2	9111	22	233.9	—	969	784			101	68	48
	After	42.3	4.1	680	38	60.9	74.0	141	160	100	7	101	68	48
2180	Before	42.2	3.0	5028	23	238.5	—	695	708			112	78	58
	After	42.2	6.9	170	50	43.3	81.8	66	92	95	10	112	78	58
2190	Before	42.2	4.1	3140	28	280.3	—	623	735			122	86	70
	After	42.2	6.9	325	58	82.1	70.7	125	175	0	0	122	86	70

Comments:
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INSTALLATION NUMBER: 33 NAME: WEST ZAREMBO
YEAR STAND ESTABLISHED: 1937 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 132°55'W LATITUDE: 56°16'N ELEVATION: 10 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2200	Before	38.4	4.3	3167	38	309.4	—	647	797			127	88	64
	After	38.4	7.3	300	58	86.2	72.1	126	179	0	0	127	88	64
2210	Before	38.4	4.5	2500	53	264.4	—	532	670			135	96	67
	After	38.4	7.4	520	63	151.9	42.5	219	315	0	0	135	96	67
2220	Before	38.4	5.3	1889	65	280.1	—	489	664			134	95	75
	After	38.4	11.1	140	82	93.0	66.8	103	164	0	0	134	95	75
2230	Before	38.4	7.2	1185	76	330.3	—	466	692			155	111	80
	After	38.4	7.2	1185	76	330.3	0.0	466	692	0	0	155	111	80

Comments:
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INSTALLATION NUMBER: 34 NAME: SOUTH ZAREMBO
YEAR STAND ESTABLISHED: 1942 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 132°47'W LATITUDE: 56°15'N ELEVATION: 50 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2241	Before	33.4	2.5	6583	5	217.6	—	757	694			122	85	50
	After	33.4	2.5	6583	5	217.6	0.0	757	694	0	0	122	85	50
2250	Before	33.4	3.2	5000	27	262.6	—	698	764			132	92	56
	After	33.4	7.5	170	94	52.1	80.2	74	107	0	0	132	92	56
2260	Before	33.4	2.7	6111	9	230.1	—	755	715			120	83	50
	After	33.4	6.0	300	62	58.0	74.8	98	131	0	0	120	83	50
2270	Before	33.4	2.3	8639	14	246.2	—	954	809			112	76	47
	After	33.4	4.6	680	45	76.2	69.1	159	191	0	0	112	76	47

Comments:
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INSTALLATION NUMBER: 35 NAME: POINT BARRIE
YEAR STAND ESTABLISHED: 1915 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 133°38'W LATITUDE: 56°26'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2280	Before	60.5	7.3	860	32	244.2	—	324	509			124	86	87
	After	60.5	12.0	195	56	151.2	38.1	160	259	175	26	124	86	87
2290	Before	60.5	8.8	620	48	256.9	—	302	497			146	103	105
	After	60.5	12.7	245	92	214.0	16.7	217	358	155	43	146	103	105
2300	Before	60.5	9.8	590	45	305.8	—	351	566			139	97	99
	After	60.5	9.8	590	45	305.8	0.0	351	566	158	32	139	97	99
2310	Before	59.5	12.3	350	9	284.5	—	292	482			142	100	104
	After	59.5	17.0	95	26	148.9	47.7	132	222	146	56	142	100	104

Comments:
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INSTALLATION NUMBER: 36 NAME: SAGINAW BAY I
YEAR STAND ESTABLISHED: 1930 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 134°15'W LATITUDE: 56°56'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2320	Before	45.6	3.9	2694	13	220.9	—	506	589			118	82	62
	After	45.6	6.3	680	18	143.0	35.3	231	316	0	0	118	82	62
2330	Before	45.6	4.4	2305	10	236.5	—	500	603			119	83	69
	After	45.6	8.9	170	24	72.8	69.2	93	140	70	10	119	83	69
2340	Before	44.8	3.9	4028	10	318.6	—	735	855			115	82	62
	After	44.8	7.0	300	22	79.1	75.2	119	167	0	0	115	82	62
2351	Before	44.8	4.8	1694	7	212.9	—	390	522			128	90	69
	After	44.8	4.8	1694	7	212.9	0.0	390	522	0	0	128	90	69

Comments:
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INSTALLATION NUMBER: 37 NAME: SAGINAW BAY II
YEAR STAND ESTABLISHED: 1916 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 134°15'W LATITUDE: 56°56'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2360	Before	59.7	4.4	2235	9	233.1	—	475	593			110	75	69
	After	59.7	7.6	300	20	94.2	59.6	133	193	0	0	110	75	69

Comments:
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INSTALLATION NUMBER: 38 NAME: SAGINAW BAY III
YEAR STAND ESTABLISHED: 1885 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 134°12'W LATITUDE: 56°56'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2370	Before	91.2	12.3	380	7	311.0	—	323	526			122	84	115
	After	91.2	13.8	220	11	228.3	26.6	225	369	360	15	122	84	115
2380	Before	91.2	13.8	390	12	400.9	—	390	649			123	85	112
	After	91.2	15.0	140	18	170.8	57.4	160	267	360	15	123	85	112
2390	Before	86.2	13.1	440	9	407.3	—	405	673			131	92	122
	After	86.2	18.6	85	35	158.9	61.0	135	228	360	16	131	92	122
2405	Before	91.2	12.7	355	6	310.6	—	314	519			128	90	117
	After	91.2	12.7	355	6	310.6	0.0	314	519	360	12	128	90	117

Comments:
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INSTALLATION NUMBER: 39 NAME: POINT MCCARTNEY
YEAR STAND ESTABLISHED: 1929 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 134°01'W LATITUDE: 57°01'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2400	Before	47.3	6.8	1250	44	313.0	—	469	669			133	94	82
	After	47.3	10.4	160	69	93.1	70.3	109	169	230	5	133	94	82
2410	Before	47.3	7.6	861	61	271.2	—	374	554			149	106	91
	After	47.3	10.8	335	79	212.4	21.7	237	378	230	5	149	106	91
2421	Before	47.3	6.0	1500	37	293.1	—	465	658			126	88	75
	After	47.3	6.0	1500	37	293.1	0.0	465	658	230	5	126	88	75
2430	Before	47.3	6.9	1250	53	323.5	—	467	687			137	98	85
	After	47.3	10.3	255	57	145.0	55.2	169	264	230	5	137	98	85

Comments: Owner is Kake Tribal Corp.
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INSTALLATION NUMBER: 40 NAME: TOTEM BAY
YEAR STAND ESTABLISHED: 1960 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 133°23'W LATITUDE: 56°30'N ELEVATION: 10 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2440	Before	16.5	2.2	1222	75	31.2	—	132	105			131	92	25
	After	16.5	3.0	170	59	7.9	74.7	25	24	170	5	131	92	25
2450	Before	16.5	1.7	4083	32	62.7	—	353	233			120	82	27
	After	16.5	2.4	300	37	9.1	85.5	36	30	0	0	120	82	27
2460	Before	16.5	1.9	2889	47	54.4	—	274	194			118	80	24
	After	16.5	2.1	675	44	15.8	71.0	72	54	0	0	118	80	24

Comments:
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INSTALLATION NUMBER: 42 NAME: WHITEWATER BAY II
YEAR STAND ESTABLISHED: 1936 YEAR PLOTS ESTABLISHED: 1975
LONGITUDE: 134°35'W LATITUDE: 57°15'N ELEVATION: 300 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3030	Before	39.7	6.2	1590	91	324.2	—	519	722			136	95	75
	After	39.7	8.0	495	100	168.9	47.9	233	340	170	30	136	95	75
3040	Before	39.7	5.7	1890	89	332.4	—	550	762			132	92	72
	After	39.7	9.5	170	100	83.4	74.9	103	156	165	38	132	92	72
3051	Before	39.7	6.3	1972	92	418.5	—	647	924			136	95	70
	After	39.7	6.3	1972	92	418.5	0.0	647	924	155	34	136	95	70
3060	Before	39.7	5.3	2045	93	306.8	—	540	726			128	89	66
	After	39.7	8.4	300	100	113.4	63.0	152	224	180	36	128	89	66

Comments:
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INSTALLATION NUMBER: 43 NAME: EAGLE RIVER I
YEAR STAND ESTABLISHED: 1983 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 134°49'W LATITUDE: 58°32'N ELEVATION: 1500 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3070	Before	93.6	11.4	510	2	359.8	—	391	627			102	65	91
	After	93.6	12.6	190	3	163.3	55.6	171	274	155	45	102	65	91
3080	Before	93.6	10.9	505	2	325.2	—	361	577			105	68	94
	After	93.6	12.2	260	2	209.5	35.6	221	356	150	45	105	68	94
3090	Before	93.6	8.1	840	5	295.6	—	397	591			89	54	80
	After	93.6	11.1	145	3	96.9	67.2	109	171	125	20	89	54	80
3100	Before	93.6	8.9	615	7	261.2	—	328	503			97	61	84
	After	93.6	8.9	615	7	261.2	0.0	328	503	115	25	97	61	84

Comments:
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INSTALLATION NUMBER: 44 NAME: EAGLE RIVER II
YEAR STAND ESTABLISHED: 1884 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 134°48'W LATITUDE: 58°32'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3110	Before	92.7	7.8	1417	4	467.7	—	644	947			90	56	77
	After	92.7	8.9	400	3	171.7	63.3	220	330	0	0	90	56	77
3120	Before	92.7	7.5	1250	4	377.4	—	537	778			86	52	73
	After	92.7	9.2	270	6	123.7	67.2	156	235	0	0	86	52	73
3130	Before	92.7	7.8	1028	22	335.4	—	456	681			91	57	80
	After	92.7	11.1	145	38	95.9	71.4	109	169	0	0	91	57	80

Comments:
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INSTALLATION NUMBER: 45 NAME: HOOD BAY I DIST. PT.
YEAR STAND ESTABLISHED: 1913 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 134°34'W LATITUDE: 57°24'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3140	Before	57.8	11.4	505	63	351.8	—	377	615			148	106	107
	After	57.8	13.3	200	63	192.6	45.3	192	316	0	0	148	106	107
3150	Before	62.8	9.2	770	24	351.1	—	429	667			133	93	97
	After	62.8	9.2	770	24	351.1	0.0	429	667	0	0	133	93	97
3160	Before	62.8	7.7	1015	23	326.4	—	444	664			113	77	82
	After	62.8	11.7	140	36	104.0	68.1	113	179	0	0	113	77	82
3170	Before	62.8	8.0	910	20	317.6	—	422	636			126	87	88
	After	62.8	10.5	330	14	195.1	38.6	227	352	105	15	126	87	88

Comments:
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INSTALLATION NUMBER: 46 NAME: HOOD BAY II S. ARM
YEAR STAND ESTABLISHED: 1952 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 134°19'W LATITUDE: 57°21'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3180	Before	24.8	5.0	1500	39	197.9	—	368	480			153	110	53
	After	24.8	9.3	160	53	74.0	62.6	92	140	90	45	153	110	53
3190	Before	24.8	5.4	1333	33	207.7	—	364	488			159	115	57
	After	24.8	8.2	295	59	107.7	48.1	145	214	90	45	159	115	57
3200	Before	24.8	5.6	1083	38	182.9	—	305	423			157	113	56
	After	24.8	7.9	500	57	167.9	8.2	230	339	90	45	157	113	56

Comments:
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INSTALLATION NUMBER: 47 NAME: DOUGLAS ISLAND
YEAR STAND ESTABLISHED: 1910 YEAR PLOTS ESTABLISHED: 1976
LONGITUDE: 134°22'W LATITUDE: 58°16'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3210	Before	63.8	9.3	505	34	234.4	—	286	444			117	79	86
	After	63.8	11.1	215	44	143.7	38.7	160	253	105	15	117	79	86
3220	Before	63.8	10.1	465	39	258.6	—	303	472			114	77	86
	After	63.8	11.4	140	43	98.2	62.0	109	171	105	15	114	77	86
3230	Before	63.8	9.4	365	45	175.0	—	211	329			107	71	79
	After	63.8	9.4	365	45	175.0	0.0	211	329	105	15	107	71	79
3240	Before	63.8	9.9	505	37	264.6	—	311	489			119	82	88
	After	63.8	11.4	285	42	199.8	24.5	220	349	105	5	119	82	88

Comments: Owner is the City and Borough of Juneau.
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INSTALLATION NUMBER: 48 NAME: HARRIS RIVER II
YEAR STAND ESTABLISHED: 1960 YEAR PLOTS ESTABLISHED: 1979
LONGITUDE: 132°48'W LATITUDE: 55°28'N ELEVATION: 300 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2040	Before	—	—	—	—	—	—	—	—			—	—	—
	After	19.0	4.5	273	43	29.6	—	63	75	160	15	138	98	35
2050	Before	—	—	—	—	—	—	—	—			—	—	—
	After	19.0	4.5	264	66	28.9	—	60	73	0	0	139	99	36

Comments: Destroyed by road construction in 1986. Before-thinning data not available for this installation.
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INSTALLATION NUMBER: 49 NAME: FALLS CREEK I
YEAR STAND ESTABLISHED: 1968 YEAR PLOTS ESTABLISHED: 1979
LONGITUDE: 132°54'W LATITUDE: 56°41'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2510	Before	—	—	—	—	—	—	—	—			—	—	—
	After	11.1	1.4	561	69	5.5	—	41	22	160	15	121	83	15
2520	Before	—	—	—	—	—	—	—	—			—	—	—
	After	11.1	1.4	1281	47	11.9	—	90	49	160	15	137	96	20
2530	Before	—	—	—	—	—	—	—	—			—	—	—
	After	11.1	1.9	877	58	15.6	—	79	56	160	15	145	103	23
2540	Before	—	—	—	—	—	—	—	—			—	—	—
	After	11.1	2.0	439	40	9.2	—	43	32	160	15	144	102	21
2550	Before	—	—	—	—	—	—	—	—			—	—	—
	After	11.1	1.4	807	28	7.6	—	59	31	160	10	129	90	16
2560	Before	—	—	—	—	—	—	—	—			—	—	—
	After	11.1	1.4	632	39	6.3	—	46	25	160	10	123	85	17
2570	Before	—	—	—	—	—	—	—	—			—	—	—
	After	11.1	1.8	404	26	7.1	—	38	26	160	10	127	88	18
2580	Before	—	—	—	—	—	—	—	—	—			—	—
	After	11.1	1.8	526	43	8.6	—	47	32	160	10	126	88	18

INSTALLATION NUMBER: 49 NAME: FALLS CREEK I (continued)
YEAR STAND ESTABLISHED: 1968 YEAR PLOTS ESTABLISHED: 1979
LONGITUDE: 132°54'W LATITUDE: 56°41'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2590	Before	—	—	—	—	—	—	—	—			—	—	—
	After	11.1	0.9	1456	28	6.0	—	82	29	160	5	102	68	13
2600	Before	—	—	—	—	—	—	—	—			—	—	—
	After	11.1	1.7	860 41	12.3	—	—	72	46	160	10	119	82	18
2610	Before	—	—	—	—	—	—	—	—			—	—	—
	After	11.1	1.7	597	41	9.2	—	53	34	160	10	116	80	15
2620	Before	—	—	—	—	—	—	—	—			—	—	—
	After	11.1	1.6	439	60	5.8	—	36	22	160	5	107	73	15
2630	Before	—	—	—	—	—	—	—	—			—	—	—
	After	18.0	4.1	300	43	26.2	—	61	69	160	15	127	88	30
2640	Before	—	—	—	—	—	—	—	—			—	—	—
	After	18.0	5.0	100	60	13.4	—	26	32	160	15	128	89	31
2650	Before	—	—	—	—	—	—	—	—			—	—	—
	After	18.0	4.2	100	55	9.5	—	21	25	160	10	124	86	28
2660	Before	—	—	—	—	—	—	—	—			—	—	—
	After	18.0	4.1	300	53	26.8	—	61	70	160	20	136	97	31
2670	Before	—	—	—	—	—	—	—	—			—	—	—
	After	18.0	3.4	300	62	18.6	—	50	52	160	10	116	80	28
2680	Before	—	—	—	—	—	—	—	—			—	—	—
	After	18.7	4.4	100	65	10.2	—	22	26	160	10	125	86	27

Comments: Before-thinning data not available for this installation.
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INSTALLATION NUMBER: 50 NAME: THOMAS BAY
YEAR STAND ESTABLISHED: 1968 YEAR PLOTS ESTABLISHED: 1978
LONGITUDE: 132°44'W LATITUDE: 56°55'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2630	Before	—	—	—	—	—	—	—	—			—	—	—
	After	10.0	0.8	1316	99	4.5	—	70	23	0	0	133	93	14
2640	Before	—	—	—	—	—	—	—	—			—	—	—
	After	10.0	1.1	1983	100	12.8	—	127	56	0	0	151	107	14
2650	Before	—	—	—	—	—	—	—	—			—	—	—
	After	10.0	1.1	368	95	2.4	—	24	10	0	0	133	93	13
2660	Before	—	—	—	—	—	—	—	—			—	—	—
	After	10.0	1.1	597	97	3.3	—	37	15	0	0	129	90	13
2670	Before	—	—	—	—	—	—	—	—			—	—	—
	After	10.0	1.0	2246	98	10.0	—	132	48	0	0	144	102	13
2680	Before	—	—	—	—	—	—	—	—			—	—	—
	After	10.1	1.0	526	100	2.8	—	32	13	0	0	133	93	15
2690	Before	—	—	—	—	—	—	—	—			—	—	—
	After	10.1	1.4	351	100	3.3	—	26	14	0	0	139	98	13
2700	Before	—	—	—	—	—	—	—	—			—	—	—
	After	10.1	1.1	1684	99	11.1	—	111	49	0	0	144	102	12
2710	Before	—	—	—	—	—	—	—	—			—	—	—
	After	10.1	1.0	1404	97	6.9	—	85	32	0	0	129	90	16
2720	Before	—	—	—	—	—	—	—	—			—	—	—
	After	10.1	1.4	421	100	4.1	—	32	17	0	0	133	93	13
2730	Before	—	—	—	—	—	—	—	—			—	—	—
	After	10.1	1.5	737	100	9.0	—	61	35	0	0	148	105	13
2740	Before	—	—	—	—	—	—	—	—			—	—	—
	After	10.1	0.9	1930	98	8.1	—	111	39	0	0	137	96	14
2750	Before	—	—	—	—	—	—	—	—			—	—	—
	After	15.4	3.4	300	100	18.9	—	51	53	0	0	134	94	23

INSTALLATION NUMBER: 50 NAME: THOMAS BAY (continued)
YEAR STAND ESTABLISHED: 1969 YEAR PLOTS ESTABLISHED: 1984
LONGITUDE: 132°44'W LATITUDE: 56°55'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2760	Before	—	—	—	—	—	—	—	—			—	—	—
	After	15.4	3.7	100	100	7.1	—	18	19	0	0	131	91	21
2770	Before	—	—	—	—	—	—	—	—			—	—	—
	After	15.4	3.6	300	100	20.1	—	53	56	0	0	127	88	24
2790	Before	—	—	—	—	—	—	—	—			—	—	—
	After	15.5	3.3	300	95	17.6	—	50	50	0	0	131	91	22
2800	Before	—	—	—	—	—	—	—	—			—	—	—
	After	15.5	4.5	100	100	10.8	—	23	27	0	0	137	96	23

Comments: Before-thinning data not available for this installation.
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INSTALLATION NUMBER: 51 NAME: FALLS CREEK II
YEAR STAND ESTABLISHED: 1962 YEAR PLOTS ESTABLISHED: 1981
LONGITUDE: 132°44'W LATITUDE: 55°36'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2750	Before	—	—	—	—	—	—	—	—			—	—	—
	After	19.2	2.7	313	57	11.8	—	41	37	0	0	112	76	23
2760	Before	—	—	—	—	—	—	—	—			—	—	—
	After	19.2	3.4	250	50	15.4	—	41	43	0	0	121	84	29
2770	Before	—	—	—	—	—	—	—	—			—	—	—
	After	19.2	2.4	313	40	9.1	—	34	30	198	8	109	74	24
2780	Before	—	—	—	—	—	—	—	—			—	—	—
	After	18.2	3.6	196	41	13.2	—	34	37	135	20	129	90	27
2795	Before	—	—	—	—	—	—	—	—			—	—	—
	After	21.2	3.3	100	95	5.9	—	16	17	0	0	102	68	22

Comments: Plot 2795 was established in 1985. Before-thinning data not available for this installation.
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INSTALLATION NUMBER: 52 NAME: ST. JOHN'S
YEAR STAND ESTABLISHED: 1959 YEAR PLOTS ESTABLISHED: 1981
LONGITUDE: 132°56'W LATITUDE: 56°26'N ELEVATION: 300 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2790	Before	22.3	1.1	1556	59	8.9	—	101	40			100	66	14
	After	22.3	1.4	140	57	1.3	85.4	10	5	250	35	100	66	13
2800	Before	22.3	1.1	2417	71	15.9	—	163	70			93	60	13
	After	22.3	1.2	670	82	4.4	72.3	44	19	170	40	93	60	14
2810	Before	23.3	1.2	2111	37	15.3	—	145	66			90	58	13
	After	23.3	1.4	300	43	3.0	80.4	23	12	175	35	90	58	14
2821	Before	22.3	0.9	3806	82	14.5	—	214	71			96	63	14
	After	22.3	0.9	3806	82	14.5	0.0	214	71	175	35	96	63	15

Comments:
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INSTALLATION NUMBER: 53 NAME: FALLS CREEK III
YEAR STAND ESTABLISHED: 1965 YEAR PLOTS ESTABLISHED: 1981
LONGITUDE: 132°52'W LATITUDE: 55°41'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2830	Before	15.6	1.3	3000	35	25.5	—	215	106			121	84	22
	After	15.6	1.6	680	47	9.4	63.1	56	36	130	20	121	84	22
2840	Before	14.6	1.3	2889	72	26.1	—	210	107			118	81	21
	After	14.6	2.0	300	65	5.9	79.7	29	21	130	12	118	81	21
2850	Before	14.6	1.4	2889	32	29.1	—	217	117			113	77	16
	After	14.6	2.1	170	59	3.8	86.9	18	13	130	20	113	77	17
2861	Before	15.6	2.1	1083	87	24.8	—	108	85			—	—	—
	After	15.6	2.1	1083	87	24.8	0.0	108	85	130	26	122	85	24
2870	Before	—	—	—	—	—	—	—	—			—	—	—
	After	18.6	2.9	100	90	4.5	—	14	13	130	13	101	68	21

Comments: Plot 2870 established in 1984. Before-thinning data not available for plot 2870.
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INSTALLATION NUMBER: 54 NAME: CAPE POLE II
YEAR STAND ESTABLISHED: 1961 YEAR PLOTS ESTABLISHED: 1981
LONGITUDE: 133°44'W LATITUDE: 55°59'N ELEVATION: 400 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2040	Before	17.5	2.8	1806	37	73.3	—	224	225			137	96	31
	After	17.5	4.7	300	58	35.6	51.4	72	88	45	20	137	96	33
2050	Before	19.5	1.9	5083	30	94.2	—	464	337			121	82	28
	After	19.5	3.2	680	60	36.6	61.1	105	106	45	25	121	82	30
2060	Before	19.5	3.1	2222	58	114.7	—	322	335			136	95	35
	After	19.5	5.9	170	65	31.4	72.6	53	71	0	0	136	95	37
2071	Before	17.5	3.0	1917	67	88.7	—	266	265			128	88	27
	After	17.5	3.0	1917	67	88.7	0.0	266	265	0	0	128	88	27

Comments:
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INSTALLATION NUMBER: 55 NAME: PORT FREDERICK
YEAR STAND ESTABLISHED: 1960 YEAR PLOTS ESTABLISHED: 1982
LONGITUDE: 135°33'W LATITUDE: 58°02'N ELEVATION: 25 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3250	Before	22.6	4.6	2361	18	264.1	—	492	662			154	111	51
	After	22.6	7.1	300	37	81.4	69.2	120	171	0	0	154	111	51
3260	Before	22.6	2.8	5444	10	228.2	—	677	694			137	96	45
	After	22.6	6.2	170	21	35.3	84.5	58	78	0	0	137	96	45
3270	Before	22.6	2.4	7083	5	210.1	—	776	685			136	95	42
	After	22.6	4.4	680	7	69.0	67.2	150	176	0	0	136	95	42
3281	Before	22.6	2.6	6389	7	224.8	—	735	708			141	100	47
	After	22.6	2.6	6389	7	224.8	0.0	735	708	0	0	141	100	47

Comments:
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INSTALLATION NUMBER: 56 NAME: KAKE
YEAR STAND ESTABLISHED: 1970 YEAR PLOTS ESTABLISHED: 1982
LONGITUDE: 133°45'W LATITUDE: 56°54'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2470	Before	13.4	1.1	4250	8	25.5	—	280	114			125	86	14
	After	13.4	1.2	680	20	4.9	80.8	46	21	160	18	125	86	15
2480	Before	13.4	1.1	4917	20	27.3	—	318	124			124	86	14
	After	13.4	1.5	170	24	1.9	93.0	13	8	160	18	124	86	14
2490	Before	12.4	1.1	7056	17	43.0	—	466	192			130	91	14
	After	12.4	1.5	300	25	3.5	91.9	24	14	160	18	130	91	15
2501	Before	12.4	1.0	2639	24	13.8	—	163	64			115	79	13
	After	12.4	1.0	2639	24	13.8	0.0	163	64	160	18	115	79	14

Comments:
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INSTALLATION NUMBER: 57 NAME: FALSE ISLAND
YEAR STAND ESTABLISHED: 1968 YEAR PLOTS ESTABLISHED: 1983
LONGITUDE: 135°11'W LATITUDE: 57°32'N ELEVATION: 20 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3290	Before	14.9	1.3	6639	46	53.0	—	465	224			133	94	24
	Afte	14.9	2.2	680	55	17.6	66.8	74	59	0	0	133	94	24
3300	Before	14.9	1.7	5917	44	87.1	—	492	326			137	97	25
	After	14.9	3.3	170	71	9.9	88.6	28	28	0	0	137	97	25
3311	Before	14.9	1.5	9167	20	106.9	—	702	419			143	102	28
	After	14.9	1.5	9167	20	106.9	0.0	702	419	0	0	143	102	28
3320	Before	14.9	1.6	9056	23	115.0	—	724	443			138	98	28
	After	14.9	3.2	300	55	16.0	86.1	47	47	0	0	138	98	28

Comments:
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INSTALLATION NUMBER: 58 NAME: NAUKATI
YEAR STAND ESTABLISHED: 1926 YEAR PLOTS ESTABLISHED: 1984
LONGITUDE: 133°17'W LATITUDE: 55854'N ELEVATION: 150 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2080	Before	58.1	12.4	380	46	314.2	—	324	531			152	109	114
	After	58.1	15.4	115	52	147.6	53.0	138	229	260	13	152	109	114
2090	Before	57.1	12.3	385	17	313.6	—	319	531			154	110	113
	After	57.1	15.9	110	36	150.7	51.9	139	230	260	15	154	110	113
2100	Before	58.1	13.7	345	51	350.6	—	339	568			158	113	118
	After	58.1	16.5	130	62	191.1	45.5	172	288	260	13	158	113	118
2110	Before	56.1	11.2	380	33	257.8	—	274	453			160	115	120
	After	56.1	16.2	115	52	164.5	36.2	149	249	250	14	160	115	120
2120	Before	57.1	14.6	300	55	347.9	—	330	550			159	115	120
	After	57.1	14.3	145	52	161.3	53.6	153	257	250	15	159	115	120
2130	Before	57.1	10.8	435	30	273.1	—	291	487			158	114	117
	After	57.1	13.5	175	31	172.2	36.9	160	281	250	13	158	114	117

Comments:
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INSTALLATION NUMBER: 59 NAME: SHAHEEN
YEAR STAND ESTABLISHED: 1939 YEAR PLOTS ESTABLISHED: 1984
LONGITUDE: 133°11'W LATITUDE: 55°47'N ELEVATION: 400 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2140	Before	45.2	8.5	760	46	297.5	—	379	582			145	102	88
	After	45.2	11.6	190	55	137.5	53.8	151	238	285	24	145	102	88
2150	Before	44.2	9.0	745	70	325.4	—	395	623			150	107	92
	After	44.2	12.7	195	87	170.6	47.6	177	285	285	23	150	107	92
2160	Before	44.2	10.2	525	50	294.2	—	335	537			161	116	101
	After	44.2	10.4	265	43	155.8	47.0	175	281	285	18	161	116	101
2170	Before	45.2	10.3	485	47	278.5	—	317	505			160	115	100
	After	45.2	10.6	270	48	162.7	41.6	182	292	285	30	160	115	100

Comments: Elevation of plots 2160 and 2170 is 250 feet.
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INSTALLATION NUMBER: 60 NAME: CAVE CREEK
YEAR STAND ESTABLISHED: 1964 YEAR PLOTS ESTABLISHED: 1984
LONGITUDE: 132°45'W LATITUDE: 55°20'N ELEVATION: 500 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2180	Before	19.9	2.0	6139	4	124.2	—	587	437			125	87	31
	After	19.9	4.4	170	21	17.3	86.1	38	44	116	40	125	87	31
2190	Before	20.9	2.1	5306	1	117.9	—	527	407			120	83	30
	After	20.9	3.7	300	8	21.8	81.5	55	59	116	28	120	83	30
2201	Before	18.9	1.7	6667	2	96.5	—	555	362			126	88	28
	After	18.9	1.7	6667	2	96.5	0.0	555	362	116	14	126	88	28
2210	Before	20.9	1.9	5944	1	111.4	—	544	397			127	89	35
	After	20.9	3.5	680	7	43.0	61.4	114	121	116	35	127	89	35
2220	Before	19.9	2.3	3028	4	85.6	—	330	282			122	84	31
	After	19.9	4.9	100	25	12.8	85.0	25	31	116	21	122	84	31

Comments:
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INSTALLATION NUMBER: 61 NAME: CORNER BAY
YEAR STAND ESTABLISHED: 1962 YEAR PLOTS ESTABLISHED: 1985
LONGITUDE: 135°10'W LATITUDE: 57°44'N ELEVATION: 50 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3330	Before	23.7	2.9	2417	11	105.0	—	313	317	0	0	134	94	43
	After	23.7	5.9	300	33	56.2	46.5	93	127	0	0	134	94	43
3340	Before	24.7	3.1	3750	8	185.1	—	516	546	0	0	136	96	46
	After	24.7	5.1	680	18	93.6	49.4	178	225	0	0	136	96	
3350	Before	23.7	3.4	2417	21	143.6	—	364	408	0	0	133	92	42
	After	23.7	6.7	170	41	40.5	71.8	63	88	0	0	133	92	42
3360	Before	23.7	3.5	1778	9	113.2	—	284	317	0	0	129	90	41
	After	23.7	6.8	105	43	26.0	77.0	39	56	0	0	129	90	41

Comments: Some of the trees were "thinned" by girdling.
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INSTALLATION NUMBER: 62 NAME: STANEY CREEK
YEAR STAND ESTABLISHED: 1972 YEAR PLOTS ESTABLISHED: 1987
LONGITUDE: 133°04'W LATITUDE: 55°49'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	CCF	SDI	ASP	%SLP	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2210	Before	14.4	1.5	4917	11	59.1	—	392	230			143	98	23
	After	14.4	2.5	300	25	10.2	82.7	37	32	0	0	143	98	23
2220	Before	17.4	1.3	3861	17	30.6	—	271	129			120	82	20
	After	17.4	2.3	120	25	3.4	88.9	14	11	0	0	120	82	20
2231	Before	15.4	1.1	3361	7	21.1	—	224	93			120	81	15
	After	15.4	1.1	3361	7	21.1	0.0	224	93	0	0	120	81	15
2240	Before	14.4	1.5	4333	11	50.9	—	341	199			139	95	20
	After	14.4	3.0	120	38	5.6	89.0	18	17	0	0	139	95	20
2250	Before	15.4	1.3	6306	7	56.7	—	459	234			140	96	24
	After	15.4	3.5	90	17	5.7	89.9	15	16	136	10	140	96	24
2261	Before	15.4	1.7	4028	12	57.3	—	340	216			146	100	23
	After	15.4	1.7	4028	12	57.3	0.0	340	196	0	0	146	100	23
2270	Before	15.4	1.4	4861	5	45.0	—	356	185			140	96	22
	After	15.4	2.8	90	28	3.7	91.8	12	11	247	10	140	96	22
2280	Before	15.4	1.5	5250	7	60.1	—	412	236			143	98	23
	After	15.4	2.8	170	21	7.1	88.2	24	22	0	0	143	98	23
2290	Before	13.4	1.2	3333	16	25.3	—	231	108			125	86	17
	After	13.4	2.0	165	36	3.3	87.0	16	12	0	0	125	86	17
2300	Before	13.4	1.2	7500	1	57.0	—	521	243			137	94	19
	After	13.4	2.1	280	27	6.2	89.1	29	21	160	15	137	94	19
2310	Before	15.4	1.4	10111	9	94.7	—	745	387			125	86	22
	After	15.4	2.9	120	29	5.2	94.5	17	16	0	0	125	86	22
2320	Before	15.4	1.5	4889	9	54.1	—	378	214			140	96	26
	After	15.4	2.7	300	25	11.2	79.3	39	35	0	0	140	96	26
2330	Before	14.4	1.4	4444	11	41.5	—	327	170			128	89	25
	After	14.4	3.5	90	17	5.8	86.0	15	16	0	0	128	89	25
2340	Before	14.4	1.5	5000	6	55.8	—	389	220			136	93	21
	After	14.4	2.6	170	24	6.2	88.9	22	19	182	20	136	93	21
2351	Before	15.4	1.5	7972	4	86.7	—	615	344			143	98	24
	After	15.4	1.5	7972	4	86.7	0.0	615	344	182	15	143	98	24
2360	Before	15.4	1.4	6000	2	56.5	—	442	231			130	90	20
	After	15.4	2.1	295	8	6.8	88.0	31	23	182	20	130	90	20

INSTALLATION NUMBER: 62 NAME: STANEY CREEK (continued)
YEAR STAND ESTABLISHED: 1972 YEAR PLOTS ESTABLISHED: 1987
LONGITUDE: 133°04'W LATITUDE: 55°49'N ELEVATION: 100 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
2370	Before	14.4	2.0	3556	13	76.2	—	347	265			145	99	24
	After	14.4	3.4	120	21	7.4	90.3	20	21	0	0	145	99	24
2380	Before	14.4	1.4	4444	13	42.1	—	329	172			130	90	20
	After	14.4	2.8	90	11	3.6	91.4	12	11	0	0	130	90	20
2391	Before	14.4	1.4	5694	28	53.5	—	421	219			146	100	23
	After	14.4	1.4	5694	28	53.5	0.0	421	219	0	0	146	100	23
2400	Before	14.4	1.6	5556	14	72.9	—	453	279			130	90	21
	After	14.4	2.4	170	29	5.1	93.0	20	17	160	10	130	90	21

Comments: Elevation of plots 2290 and 2300 is 100 feet; elevation of plot 2360 is 200 feet.
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INSTALLATION NUMBER: 100 NAME: TUXEKAN PASS
YEAR STAND ESTABLISHED: 1866 YEAR PLOTS ESTABLISHED: 1926
LONGITUDE: 133°13'W LATITUDE: 55°52'N ELEVATION: 90 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3000	Before	—	—	—	—	—	—	—	—			—	—	—
	After	60.0	10.2	578	11	331.2	—	375	601	224	22	138	97	105

Comments: Owner is the State of Alaska. Plot established by Ray Taylor.
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INSTALLATION NUMBER: 101 NAME: ISLAND IN THORNE BAY
YEAR STAND ESTABLISHED: 1855 YEAR PLOTS ESTABLISHED: 1927
LONGITUDE: 132°28'W LATITUDE: 55°40'N ELEVATION: 50 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3010	Before	—	—	—	—	—	—	—	—			—	—	—
	After	72.9	7.3	1064	29	306.6	—	434	638	290	8	102	68	85

Comments: Plot established by Ray Taylor.
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INSTALLATION NUMBER: 102 NAME: WHITEWATER BAY
YEAR STAND ESTABLISHED: 1883 YEAR PLOTS ESTABLISHED: 1928
LONGITUDE: 134°36'W LATITUDE: 57°15'N ELEVATION: 50 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3020	Before	—	—	—	—	—	—	—	—			—	—	—
	After	44.8	7.9	904	48	302.1	—	396	610	225	6	125	87	78

Comments: Owner is Sealaska Corp. Plot established by Ray Taylor.
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INSTALLATION NUMBER: 103 NAME: WINDFALL HARBOR
YEAR STAND ESTABLISHED: 1867 YEAR PLOTS ESTABLISHED: 1929
LONGITUDE: 132°42'W LATITUDE: 55°28'N ELEVATION: 10 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3030	Before	—	—	—	—	—	—	—	—			—	—	—
	After	62.4	9.4	553	56	261.3	—	310	493	0	0	133	94	96

Comments: Last measurement taken in 1964. Plot established by Ray Taylor.
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INSTALLATION NUMBER: 104 NAME: SAGINAW BAY
YEAR STAND ESTABLISHED: 1872 YEAR PLOTS ESTABLISHED: 1929
LONGITUDE: 134°13'W LATITUDE: 56°54'N ELEVATION: 50 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3040	Before	—	—	—	—	—	—	—	—			—	—	—
	After	56.8	11.1	554	40	368.4	—	401	650	360	2	146	104	102

Comments: Plot established by Ray Taylor.
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INSTALLATION NUMBER: 105 NAME: PT. ANMER
YEAR STAND ESTABLISHED: 1826 YEAR PLOTS ESTABLISHED: 1931
LONGITUDE: 133°51'W LATITUDE: 58°57'N ELEVATION: 20 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3050	Before	—	—	—	—	—	—	—	—			—	—	—
	After	105.9	15.7	274	46	366.2	—	336	563	0	0	97	70	101

Comments: Plot established by Ray Taylor.
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INSTALLATION NUMBER: 106 NAME: EAGLE RIVER
YEAR STAND ESTABLISHED: 1882 YEAR PLOTS ESTABLISHED: 1931
LONGITUDE: 134°48'W LATITUDE: 58°31'N ELEVATION: 200 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3060	Before	—	—	—	—	—	—	—	—			—	—	—
	After	49.0	6.1	1455	4	290.2	—	462	649	310	40	115	79	61

Comments: Owner is the City and Borough of Juneau. Plot established by Ray Taylor.
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INSTALLATION NUMBER: 107 NAME: KARTA BAY
YEAR STAND ESTABLISHED: 1855 YEAR PLOTS ESTABLISHED: 1928
LONGITUDE: 132°31'W LATITUDE: 55°35'N ELEVATION: 50 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3070	Before	—	—	—	—	—	—	—	—			—	—	—
	After	73.4	11.4	498	25	352.6	—	378	614	0	0	121	83	109
3080	Before	—	—	—	—	—	—	—	—			—	—	—
	After	73.4	13.8	118	80	121.5	—	121	196	0	0	112	76	108

Comments: Plots established by Ray Taylor.
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INSTALLATION NUMBER: 108 NAME: VIRGIN BAY
YEAR STAND ESTABLISHED: 1926 YEAR PLOTS ESTABLISHED: 1963
LONGITUDE: 131°41'W LATITUDE: 55°43'N ELEVATION: 175 Feet

Plot No.		Total Age When Estb.	Quad. Mean Diam. All	No. Trees All	% Trees SS	Basal Area All	Percent B.A. Removed	C C F	S D I	A S P	% S L P	Site Index @ Tot. Age 100	Site Index @ Age BH 50	Top Ht.
3320	Before	—	—	—	—	—	—	—	—			—	—	—
	After	37.7	10.3	538	58	310.7	—	344	563	225	10	153	104	87
3330	Before	—	—	—	—	—	—	—	—	—	—	—		
	After	37.7	6.7	1065	28	258.9	—	373	557	225	35	150	102	94
3340	Before	—	—	—	—	—	—	—	—			—	—	—
	After	37.7	7.0	1148	4	299.8	—	435	636	225	35	149	101	95

Comments: Plot elevations: plot 3320 is 100 feet, plot 3330 is 150 feet, and plot 3340 is 250 feet. Plots established by Ray Taylor.
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