

EDITOR'S
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1975
USDA FOREST SERVICE RESOURCE BULLETIN PNW-62

TIMBER RESOURCE STATISTICS for the Copper River Inventory Unit, Alaska, 1968



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PACIFIC NORTHWEST
FOREST AND RANGE EXPERIMENT STATION
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The successful completion of this study was made possible through the generous assistance of the Bureau of Land Management of the U.S. Department of the Interior and the Alaska Division of Lands of the State of Alaska in providing personnel, funds, and transportation.

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METRIC CONVERSIONS

1 acre	= 0.4047 hectare
1 hectare	= 2.47 acres
1 cubic foot	= 0.0283 cubic meter
1 cubic meter	= 35.3145 cubic feet
1 cubic foot per acre	= 0.06997 cubic meter per hectare
1 cubic meter per hectare	= 14.29 cubic feet per acre
20 cubic feet per acre	= 1.3994 cubic meter per hectare
1 square foot basal area per acre	= 0.2296 square meter per hectare
1 square meter per hectare	= 4.356 square feet per acre

TIMBER RESOURCE STATISTICS FOR THE COPPER RIVER INVENTORY UNIT, ALASKA, 1968

Reference Abstract

Hegg, Karl M.

1975. Timber resource statistics for the Copper River inventory unit, Alaska, 1968. USDA For. Serv. Resour. Bull. PNW-62, 55 p., illus. Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

This first intensive forest inventory of Alaska's Copper River Valley found a commercial forest area of 287,800 acres with 303.8 million cubic feet of growing stock. Additionally, a noncommercial stratum was examined that had substantial standing volume but did not meet the growth criteria for commercial forest land. This stratum contained 152,800 acres with a volume of 157.9 million cubic feet. Because of the distance from population centers and the general low quality of the timber, the Copper River stands probably would be marginal suppliers to the world market.

KEYWORDS: Forest surveys (interior Alaska), resources (forest).

RESEARCH SUMMARY

Resource Bulletin PNW-62

1975

The forest inventory of the Copper River inventory unit was a joint effort of the Forest Service, U.S. Department of Agriculture, and the Bureau of Land Management, U.S. Department of the Interior, to gather data for the National Forest Survey and for management planning. Preliminary delineations of potential commercial forest areas were made on small-scale photographs of the entire valley and resource-scale (1:15,840) photographs acquired for the delineated areas. Approximately 16.4 million acres were studied and 2.0 million acres outlined for inventory.

Field inventory work was accomplished the summer of 1968 and data processing completed the spring of 1971. Final inventory results show a commercial forest land area of 287,800 acres with 303.8 million cubic feet of growing stock and a board-foot volume of 1,159.6

million feet. Statistical data are presented for the entire inventory unit and by three management blocks, the Gulkana, Klutina, and Wrangell. These data should not be used as a basis for an allowable cut without consideration of possible management and land use alternatives. By volume and forest type, white spruce is the major commercial component. The commercial forests are concentrated adjacent to river drainages, and this dispersed lineal-type distribution makes a large-scale harvest economically questionable. The white spruce species in the area have an open-grown appearance, and this limbiness restricts their commercial potential. These factors, combined with the scenic backdrop of the mountains surrounding the entire Copper River Valley, lead to the conclusion that recreation may be the best use of the area.

HIGHLIGHTS

	<u>Thousand acres</u>	<u>Thousand hectares</u>
<i>Total Copper River inventory unit area:</i>	2,022.5	818.5
with forests on	1,631.9	660.4
with nonforest on	234.0	94.7
with noncensus water on	44.8	18.1
with census water on	111.8	45.3
<i>Forested areas:</i>		
commercial forest land	287.8	116.5
noncommercial forest land		
more than 800 cubic feet per acre	152.8	61.8
less than 800 cubic feet per acre	1,191.3	482.1
<i>Commercial forest stand-size composition:</i>		
Sawtimber	153.9	62.3
Poletimber	33.1	13.4
Seedling-sapling	93.1	37.7
Nonstocked	7.7	3.1
<i>Commercial forest type composition:</i>		
Balsam poplar	22.5	9.1
Nonstocked	7.7	3.1
Quaking aspen	38.5	15.6
White spruce	219.1	88.7

<u>Inventory unit volumes</u>	<u>Thousand cubic feet^{1/}</u>	<u>Thousand cubic meters^{1/}</u>	<u>Thousand board feet^{2/}</u>	<u>Thousand cubic meters^{3/}</u>
Total gross volume	315,054.7	8,916.0	1,199,491.8	5,948.0
Total net volume	303,845.9	8,598.8	1,159,587.1	5,735.5
Annual net growth	4,250.5	120.3	23,141.3	48.5
Annual net mortality	314.3	8.9	1,610.4	7.4

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

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

^{3/} Volume of roundwood in softwood trees 9.0-inch d.b.h. and larger and hardwood trees 11.0-inch d.b.h. and larger.

INTRODUCTION

This resource bulletin reports on the findings of the first intensive inventory of lands with commercial forest potential within the Copper River Valley drainage system. This drainage system totals 16.4 million acres of which slightly more than 2 million acres were included in the inventory unit. We believe we have included nearly all of this drainage system's potential commercial forest land in the 2-million-acre inventory unit.

Since completion of this inventory, many changes have occurred that stress the importance of the area. Of immediate impact, a large section of the trans-Alaska pipeline will pass through the area and will require considerable right-of-way clearing. Perhaps longer lasting effects will come from the Alaska Native Claims Settlement Act (ANCSA). Under terms of this act, almost the entire Copper River Valley will move out of Bureau of Land Management (BLM) stewardship into Native village and Regional selections or into proposed National Forests, parks, refuges, and wild and scenic rivers.

Since this work was begun well before any of these occurrences, data in this report do not reflect these proposed new ownerships but is presented for the total inventory unit and for BLM management blocks of Gulkana, Klutina, and Wrangell. The actual work on this project began in 1966 with acquisition of aerial photographs taken by BLM. At the request of the Forestry Sciences Laboratory (Juneau) of the Pacific Northwest Forest and Range Experiment Station (PNW), additional aerial photographs were taken in 1967 to obtain nearly complete coverage of the potential commercial forest land in the valley. Preliminary field studies were made in the fall of 1967 to obtain photo interpretation guidelines and to provide training for interpreters. A

cooperative effort by the BLM and the Forestry Sciences Laboratory completed the photo interpretation and fieldwork in 1967-68. Data processing was handled by the PNW Station at Portland.

Forest Survey, authorized by the McSweeney-McNary Act in 1928 and extended by amendment to Alaska in 1954, is a nationwide effort conducted at various locations to obtain information on forest lands--their extent, condition, volume, growth, and depletion. The first extensive forest inventories of interior Alaska were begun in 1956 and completed in 1962. This inventory is reported in USDA Forest Service Resource Bulletin PNW-19 (Hutchison 1967). Forest Survey has subsequently defined areas with commercial forest concentrations for which more intensive inventories are desirable. In addition to the Copper River inventory unit, other areas that have been more intensively inventoried and for which reports are available or pending are: Susitna Valley (Hegg 1970), Kuskokwim River, upper Koyukuk River (Hegg 1974), Tuxedni Bay, Norton Bay Indian Reservation, and the Kantishna, Fairbanks (Hegg 1975), upper Tanana, and Wood-Salcha blocks of the Tanana unit.

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

OBSERVATIONS

Area and Location

The Copper River inventory unit is located in south-central Alaska about 150 to 200 miles east of Anchorage (fig. 1). Geographically this unit lies between 141°31' to 147°10' West longitude and 61°00' to 62°45' North latitude. The entire valley is at about 1,000-foot

elevation or higher and is dominated by the Wrangell Mountains immediately to the east (fig. 2), the Talkeetna and Chugach Mountains to the west and south, and the Alaska Range on the north. The valley, actually more of a plateau, is completely surrounded by these mountain ranges with all of the drainage flowing south to the Gulf of Alaska through a rock-walled gorge cut by the Copper River.

Access is good, with major highways north-south and east-west. Although the maximum allowable cut from all commercial forest lands is but 20 million board feet a year, road access to a deepwater port at Valdez could make some timber harvesting feasible (fig. 3). However, the greatest potential for this area seems to be in recreation, hunting, and esthetics, with logging activity likely to be only for local use.

Forest Description

At this northern latitude, 1,500 feet is commonly the elevational limit of commercial tree growth. Since this inventory unit is but 500 feet below that elevational limit, most stands are in the lower productivity classes. An indication of this is the high proportion of operable noncommercial stands which occupy a little over one-half as much area as do commercial stands. In other units inventoried, the operable noncommercial stands have occupied one-fourth or less as much area as did the commercial stands. Operable noncommercial stands are those carrying more than 800 cubic feet per acre but not growing at the Forest Survey minimum of 20 cubic feet per year. On air photos and on the ground, these marginal stands appear to have potential for harvest. In fact

Figure 2.--Looking across an extensive stand of white spruce in the Copper River Valley toward Mount Drum (elevation 12,010 ft) of the Wrangell Mountains.

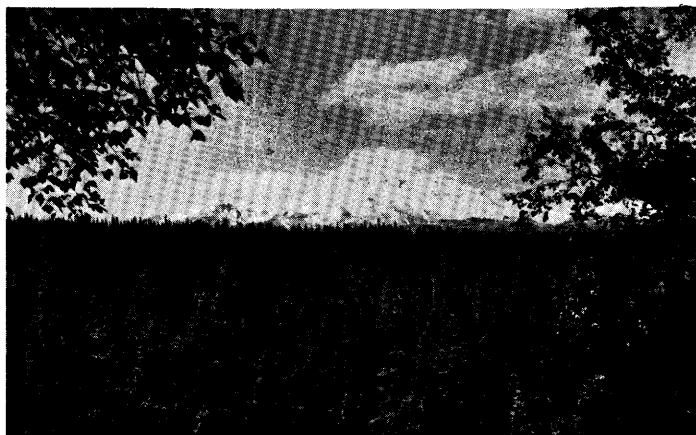


Figure 3.--Access to a deep-water port at Valdez is provided by this highway. The oil pipeline will almost parallel this road.

they appear commercial, but because of some restriction, such as poor soil, poor drainage, or high elevation, the site does not meet criteria for commercial classification.

The mountain ranges surrounding the Copper River Valley rise abruptly from the plateau confining most timber stands, including noncommercial, to a 5- to 25-mile-wide band along the larger rivers (fig. 4). The only exception is the Lake Louise area extending northwest to the Talkeetna Range and Alaska Range foothills. Within that area are many acres of the noncommercial, poorly drained, black spruce sites so typical of much of interior Alaska.



Figure 4.--As shown in this view and in figure 2, most forest stands are confined by the surrounding mountains to the valleys and lower foothills.

Both by area (76 percent) and volume (85 percent), white spruce type is predominant. Aspen is next, followed by cottonwood, with no birch type, although scatterings of birch are found mixed with other types. The best and highest volume stands are found along the Klutina River; other good stands are on river-bottom terraces and levees adjacent to the Copper and Chitina Rivers.

Forest Use

As illustrated in figure 5, the white spruce in this area is extremely limby and does not seem suited for sawn lumber except for local use. The generally low quality of the trees is shown in the volume distribution by log grades in table 23 where an unusually high proportion of volume is found in the local



Figure 5.--As a result of the low stocking illustrated in the foreground of figure 4, most white spruce in the Copper River area exhibit excessive limbiness.

use (grade 4) category. The problem of extensive use for lumber is probably academic. The combination of low grade material and the expected fractionalized landownership pattern under the Alaska Native Claims Settlement Act make any large scale harvest operation difficult to arrange. The present pattern of local use for house logs and firewood is likely to continue.

The impact of the trans-Alaska pipeline on forest use is difficult to judge. White spruce would be adequate, limby or not, for cribbing and supports, but whether the diameters needed are adequately concentrated is difficult to say. More likely, pressure treated timber will be shipped in from the Pacific Northwest.

This state of noncompetitiveness may be an advantage. Anyone who has traveled this area in late spring and early summer must be impressed by the vivid green contrast the forests provide to the spectacular surrounding snow and ice-capped mountains. Continued local use may be the best use, with mining, recreation, hunting, and fishing providing a base for the local economy.

Defect

The age structure of the commercial forest stands in the area is heavily weighted to younger ages, a reflection of extensive fires in the past, with only about 20 percent of the area occupied by stands over 100 years old. This young age structure is reflected in the small amount of defect found. White spruce shows a 3.3-percent decrease from gross to net, with cottonwood at 4.6 percent, and no defect noted in aspen. A low 3-percent loss in spruce is not unexpected, but the small amount of defect estimated in hardwoods is surprising.

Regeneration

Regeneration does not seem to be a major problem in this area. Of a total commercial forest area of 287,800 acres, only 7,700 acres are classified nonstocked

with 93,000 acres in the seedling-sapling category. Personal observations and the photographic evidence of figure 6 indicate no problems with regeneration in hardwoods; and although we observed areas of excellent white spruce reproduction, research findings indicate that good white spruce years are infrequent and that some regeneration problems might be expected (Zasada and Viereck 1970).

Table 5 lists 47,500 acres as poorly stocked. This may indicate a continuing problem of regeneration and would confirm research findings, since nearly all of the Copper River stands are in the white spruce type.



Figure 6.--This aspen stand was burned in 1957. Three years later, prolific reproduction is evident and is typical of much of the Copper River area and interior Alaska.

SURVEY METHODS

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

For the Copper River inventory unit, we interpreted 7,201 photo points and reexamined 127 noncommercial and nonforest points. This reexamination was equivalent to a ground check and yielded 15 questionable points. These, with 151 commercial forest subsamples, totaled 166 locations actually checked on the ground. The ground plot was located at the exact point established on the photo. At each ground location, a 10-point cluster of plots was measured. A 40-factor basal-area gage was used to select sample trees at each point for detailed measurements of size and vigor. Through data processing procedures, the total sample and the individual tree volumes were expanded to obtain the various data needed or specified on area and volume. However, the tables herein depart from the standard Forest Survey tables in that we are adding a noncommercial forest category called "operable"--areas with more than 800 gross cubic feet per acre in poletimber and sawtimber trees. During the initial inventory of interior Alaska, we found that much noncommercial forest land had a relatively high per-acre volume. When more intensive inventories were begun in the mid-1960's, we and our cooperators agreed that some of this noncommercial strata had potential value as a commercial wood supply. By extrapolation from cutting minimums of 3 cords per acre used in

the Lake States and Canada, we established 9 cords or 800 cubic feet per acre as a prudent level for Alaska. This threefold increase in the minimum economic operating level should compensate for the higher production and shipping costs in Alaska. The operable noncommercial areas presently have more than 800 gross cubic feet per acre in poletimber and sawtimber trees. The area and volume in this classification, although considered adequate for some cutting operations, should not be included in allowable cut computations. Future studies may show, through logging or other silvicultural practices, whether these marginal sites can be managed as commercial forest land. None of the reported areas and volumes (whether classed as commercial or other) should be used in any calculation of an allowable cut without consideration of possible management and land use alternatives.

SAMPLING ERROR

The reliability of the inventory is expressed in terms of relative sampling errors.

Area and volume	Design sampling error	Sampling error achieved	Sampling error of total area or volume reported
	Percent		
Area:			
Commercial forest land, per million acres	3.0	6.0	12.0
Noncommercial forest land, per million acres	10.0	8.0	7.1
Volume:			
Commercial forest land, per billion cubic feet	6.0	6.0	11.0
Commercial forest land, growth per billion cubic feet	5.0	1.0	17.0

For the Copper River inventory unit, we report 303.8 million cubic feet of growing stock-volume ± 11.0 percent. This means that unless a one in three chance has occurred, the true total cubic-foot volume is between 270.4 and 337.2 million cubic feet. We exceeded our design sampling error for area (3.0) and met the design error (6.0) for commercial forest land volume.

PRINCIPAL TREE SPECIES OF ALASKA^{4/}

Softwoods:

Black spruce	<i>Picea mariana</i> (Mill.) B. S. P.
Tamarack	<i>Larix laricina</i> (Du Roi) K. Koch
White spruce	<i>Picea glauca</i> (Moench) Voss

Hardwoods:

Balsam poplar	<i>Populus balsamifera</i> L.
Black cottonwood	<i>Populus trichocarpa</i> Torr. & Gray
Paper birch	<i>Betula papyrifera</i> Marsh.
Quaking aspen	<i>Populus tremuloides</i> Michx.

TERMINOLOGY

Area Condition Classification

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

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

Code

- 10 Areas 100 percent or more stocked with desirable trees and not overstocked. Stands in this category generally do not require any treatment at present to maintain high level of growth.
- 20 Areas 100 percent or more stocked with desirable trees and overstocked. Stands in this category need a treatment such as thinning to produce maximum levels of growth of desirable trees.

^{4/} Scientific names are according to Little (1953).

- 30 Areas 60 to 100 percent stocked with desirable trees, and with less than 30 percent of the area controlled by acceptable growing-stock trees, cull trees, inhibiting vegetation, slash, or nonstockable conditions. Stands in this category generally have conditions favorable for natural improvement of stocking without special treatment.
- 40 Areas 60 to 100 percent stocked with desirable trees and with 30 percent or more of the area controlled by other trees (or overstocked areas) or conditions that ordinarily prevent occupancy by desirable trees. Stands in this category generally have little prospect for improvement in desirable tree stocking without special treatment such as thinning, cull tree removal, etc.
- 50 Areas less than 60 percent stocked with desirable trees but with 100-percent or more stocking with growing-stock trees. Stands in this category generally have little prospect for improved desirable tree stocking without special treatment. Stands almost to rotation age would usually not be treated.
- 60 Areas less than 60 percent stocked with desirable trees but with 60- to 100-percent stocking with growing-stock trees. Stands in this category generally have little prospect for improved desirable tree stocking without special treatment such as timber stand improvement or planting.
- 70 Areas less than 60 percent stocked with desirable trees and with less than 60-percent stocking with growing-stock trees. Stands in this category generally have little prospect for improved desirable tree or growing-stock stocking without treatment such as site preparation and regeneration, etc.
- Commercial species.--Trees presently or prospectively suitable for industrial products.
- Cull.--Portions of a tree unusable for industrial products because of rot, form, or other defect.
- Cull trees.--Live trees of sawtimber or poletimber size unmerchantable for saw logs now or prospectively because of defect, rot, or species.
- Rough trees: Live trees of 5.0-inch and larger d.b.h. that do not contain a saw log now or prospectively, primarily because of roughness, poor form, or because they are a noncommercial species.
- Rotten trees: Live trees of 5.0-inch and larger d.b.h. that do not contain a saw log now or prospectively, primarily because of rot.
- Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having such tree cover, and not currently developed for nonforest use.
- Commercial forest land: Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. Areas qualifying as commercial forest land have the capability of producing in excess of 20 cubic feet per acre per year of industrial wood under management.
- Noncommercial forest land: Unproductive forest land incapable of yielding crops of industrial wood because of adverse site conditions (producing less than 20 cubic feet per acre per year), and productive forest land withdrawn from commercial timber

use through statute or administrative regulation.

Noncommercial operable--noncommercial forest land with a gross volume in excess of 800 cubic feet per acre.

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

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

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

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

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

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

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

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

Hardwoods.--Dicotyledonous trees, usually broad leaved and deciduous. Alaska hardwood species are paper birch, quaking aspen, black cottonwood and balsam poplar.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Softwoods.--Coniferous trees, usually evergreen with needles or scalelike leaves.

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

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

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

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

Sawtimber stands: Stands at least

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

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

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

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

Sawtimber-size tree:

Softwood tree of 9.0-inch d. b. h. and larger.

Hardwood tree of 11.0-inch d. b. h. and larger.

Poletimber-size tree:

Softwood tree of 5.0- to 8.9-inch d. b. h.

Hardwood tree of 5.0- to 10.9-inch d. b. h.

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

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

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

Water.--Bureau of the Census definition: Streams, sloughs, estuaries, and canals more than one-eighth of a statute mile in width; and lakes, reservoirs, and ponds more than 40 acres in area.

Forest Survey: The same as the Bureau of the Census definition, except minimum width of streams etc. is 120 feet and minimum size of lakes etc., is 1 acre.

TABLES

The statistical tables for the Copper River inventory unit have been prepared for the total unit and by three blocks--the Gulkana, Klutina, and Wrangell. The three blocks were management units established by the Bureau of Land Management before this inventory.

TABLE 1 --Area by productivity and land class, Copper River inventory unit, Alaska, 1968

Land class	Thousand acres
Forest land:	
Commercial	287.8
Noncommercial:	
Operable ^{1/}	152.8
Inoperable ^{2/}	1,191.3
Total	1,631.9
Nonforest land ^{3/}	278.8
Total land	1,910.7
Census water	111.8
Total area	2,022.5

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

^{2/} Inoperable noncommercial forest land has a gross volume of less than 800 cubic feet per acre.

^{3/} Includes 44,800 acres of noncensus water. Noncensus water is defined as bodies of water 1 to 40 acres in size and watercourses 120 feet to 1/8 mile in width.

TABLE 2 --Area of commercial and operable noncommercial forest land, by stand-size class, Copper River inventory unit, Alaska, 1968

(Thousand acres)

Stand-size class	Forest land		
	Commercial	Operable noncommercial ^{1/}	Total
Sawtimber stands	153.9	67.9	221.8
Poletimber stands	33.1	77.3	110.4
Seedling and sapling stands	93.1	7.6	100.7
Nonstocked areas	7.7	0	7.7
Total	287.8	152.8	440.6

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 3 --Area of commercial and operable noncommercial forest land, by stand-volume class, Copper River inventory unit, Alaska, 1968

(Thousand acres)

Stand volume (board feet per acre) ^{1/}	Forest land		
	Commercial	Operable noncommercial ^{2/}	Total
0 - 799	108.0	13.0	121.0
800 - 1,499	6.9	24.0	30.9
1,500 - 2,999	36.1	34.3	70.4
3,000 - 4,999	44.3	74.3	118.6
5,000 - 6,999	27.6	7.2	34.8
More than 7,000	64.9	0	64.9
Total	287.8	152.8	440.6

^{1/} Net volume, International 1/4-inch rule.

^{2/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 4--Area of commercial and operable noncommercial^{1/} forest land, by stand-volume and stand-size classes, Copper River inventory unit, Alaska, 1968

(Thousand acres)

Stand volume (net cubic feet per acre)	Stand-size class				
	Non-stocked	Seedling-sapling	Poletimber	Sawtimber	Total
0 - 299	7.7	66.7	2.1	0	76.5
300 - 799	0	28.3	22.1	40.3	90.7
800 - 1,499	0	5.7	61.2	110.5	177.4
1,500 - 2,199	0	0	21.4	40.7	62.1
More than 2,200	0	0	3.6	30.3	33.9
Total	7.7	100.7	110.4	221.8	440.6

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 5--Area of commercial forest land by area condition class, Copper River inventory unit, Alaska, 1968

Code	Area condition class	Thousand acres
10	Areas 100 percent or more stocked with desirable trees and not overstocked	11.4
20	Areas 100 percent or more stocked with desirable trees and overstocked	1.2
30	Areas 60 to 100 percent stocked with desirable trees, and with less than 30 percent of the area controlled by acceptable growing-stock trees, cull trees, inhibiting vegetation, slash, or nonstockable conditions	34.2
40	Areas 60 to 100 percent stocked with desirable trees and with 30 percent or more of the area controlled by other trees (or overstocked areas) or conditions that ordinarily prevent occupancy by desirable trees	26.0
50	Areas less than 60 percent stocked with desirable trees, but with 100-percent or more stocking with growing-stock trees	42.7
60	Areas less than 60 percent stocked with desirable trees, but with 60- to 100-percent stocking with growing-stock trees	124.8
70	Areas less than 60 percent stocked with desirable trees, and with less than 60-percent stocking with growing-stock trees	47.5
All classes		287.8

TABLE 6--Area of commercial forest land, by site class, Copper River inventory unit, Alaska, 1968

Site class ^{1/} (cubic feet)	Thousand acres
165 or more ^{2/}	0
120 - 164	0
85 - 119	0
50 - 84	0
Less than 50	287.8
Total	287.8

^{1/} Site class is a classification of forest land by its capability to grow crops of industrial wood based on fully stocked natural stands.

^{2/} Potential yield, mean annual increment.

TABLE 7--Area of commercial and noncommercial forest land, by forest type, Copper River inventory unit, Alaska, 1968

(Thousand acres)

Forest type	Commercial forest land	Noncommercial forest land		
		Operable ^{1/}	Inoperable ^{2/}	Total
Balsam poplar	22.5	0	0	0
Black spruce	--	7.9	1,166.0	1,173.9
Paper birch	0	0	0	0
Quaking aspen	38.5	5.4	0	5.4
White spruce	219.1	139.5	25.3	164.8
Nonstocked	7.7	0	0	0
Total	287.8	152.8	1,191.3	1,344.1

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

^{2/} Inoperable noncommercial forest land has a gross volume of less than 800 cubic feet per acre. Most of the inoperable noncommercial forest land is assumed to be black spruce, although other types, in addition to the 25,300 acres of white spruce, may be represented.

TABLE 8--Area of commercial forest land, by stand age and stand-size class,
Copper River inventory unit, Alaska, 1968

(Thousand acres)

Stand age (years)	Stand-size class				
	Nonstocked	Sapling- seedling	Poletimber	Sawtimber	Total
Nonstocked	--	--	--	--	--
1 - 9	2.4	2.4	0	0	4.8
10 - 19	2.8	11.5	0	0	14.3
20 - 29	0	15.9	0	0	15.9
30 - 39	0	23.8	2.4	0	26.2
40 - 49	0	5.8	2.2	0	8.0
50 - 59	0	2.9	10.3	2.9	16.1
60 - 69	0	1.2	2.3	16.4	19.9
70 - 79	0	0	4.7	18.0	22.7
80 - 89	0	10.9	7.6	12.1	30.6
90 - 99	0	0	0	19.2	19.2
100-119	0	0	0	13.5	13.5
120-139	0	2.8	2.4	14.6	19.8
140-159	0	0	0	14.4	14.4
160-179	0	0	0	15.6	15.6
180-199	0	0	0	0	0
200-299	0	0	0	0	0
300 and over	0	0	0	0	0
Mixed ages	2.5	15.9	1.2	27.2	46.8
Total	7.7	93.1	33.1	153.9	287.8

TABLE 9--Area of operable noncommercial^{1/} forest land, by stand age and stand-size class, Copper River inventory unit, Alaska, 1968

(Thousand acres)

Stand age (years)	Stand-size class				
	Nonstocked	Sapling- seedling	Poletimber	Sawtimber	Total
1 - 9	0	0	0	0	0
10 - 19	0	0	0	0	0
20 - 29	0	0	0	0	0
30 - 39	0	0	0	0	0
40 - 49	0	0	0	0	0
50 - 59	0	0	0	0	0
60 - 69	0	0	2.9	10.5	13.4
70 - 79	0	0	2.8	0	2.8
80 - 89	0	4.7	0	0	4.7
90 - 99	0	0	11.6	5.4	17.0
100-119	0	0	16.0	3.7	19.7
120-139	0	0	11.2	21.8	33.0
140-159	0	2.9	8.2	2.5	13.6
160-179	0	0	2.4	2.5	4.9
180-199	0	0	0	10.9	10.9
200-299	0	0	4.7	4.8	9.5
300 and over	0	0	0	0	0
Mixed ages	0	0	17.5	5.8	23.3
Total	0	7.6	77.3	67.9	152.8

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 10--Number of growing-stock trees on commercial forest land, by diameter class and species, Copper River inventory unit, Alaska, 1968

(Thousand trees)

Diameter class (inches d.b.h.)	Balsam poplar	Paper birch	Quaking aspen	White spruce	Total
1.0-2.9	5,071.2	138.8	7,316.9	54,408.0	66,934.9
3.0-4.9	3,339.0	0	8,583.4	21,487.6	33,410.0
5.0-6.9	1,646.2	0	2,027.1	10,540.6	14,213.9
7.0-8.9	1,026.4	18.5	1,495.6	8,384.1	10,924.6
9.0-10.9	319.7	19.6	440.9	5,039.8	5,820.0
11.0-12.9	308.3	0	127.4	2,561.5	2,997.2
13.0-14.9	221.6	0	21.9	1,770.1	2,013.6
15.0-16.9	42.0	0	15.0	470.3	527.3
17.0-18.9	46.6	0	0	261.2	307.8
19.0-20.9	23.2	0	0	87.1	110.3
21.0-28.9	53.7	0	0	32.1	85.8
29.0+	3.4	0	0	0	3.4
Total	12,101.3	176.9	20,028.2	105,042.4	137,348.8

TABLE 11--Number of growing-stock trees 5.0-inch d.b.h. and larger on commercial and operable noncommercial^{1/} forest land, by height class and species, Copper River inventory unit, Alaska, 1968

(Thousand trees)

5-foot height classes	Balsam poplar	Paper birch	Quaking aspen	White spruce	Total
0 - 30	697.7	116.2	800.9	8,819.1	10,433.9
31 - 35	628.1	199.4	558.2	8,758.7	10,144.4
36 - 40	1,068.8	86.1	1,114.0	8,081.0	10,349.9
41 - 45	1,147.1	80.4	1,341.8	7,797.0	10,366.3
46 - 50	200.2	21.9	1,100.2	7,433.1	8,755.4
51 - 55	168.6	37.1	642.2	5,265.7	6,113.6
56 - 60	282.3	0	312.3	4,599.3	5,193.9
61 - 65	200.5	0	42.5	2,732.2	2,975.2
66 - 70	125.0	0	34.8	1,276.1	1,435.9
71 - 75	1.8	0	0	904.8	906.6
76 - 80	38.8	0	7.9	459.8	506.5
81 - 85	25.6	0	7.0	188.6	221.2
86 - 90	0	0	0	94.9	94.9
91 - 95	0	0	0	28.6	28.6
96 - 100	0	0	0	15.1	15.1
101+	0	0	0	6.5	6.5
Total	4,584.5	541.1	5,961.8	56,460.5	67,547.9

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 12--*Net volume of timber on commercial and operable noncommercial forest land, by class of timber and softwoods and hardwoods, Copper River inventory unit, Alaska, 1968*

(Million cubic feet)

Class of timber	Commercial forest land			Operable noncommercial forest land ^{1/}		
	Softwoods	Hardwoods	Total	Softwoods	Hardwoods	Total
Sawtimber trees:						
Saw-log portion	141.7	16.9	158.6	55.2	2.3	57.5
Upper-stem portion	42.3	1.7	44.0	16.5	.3	16.8
Total	184.0	18.6	202.6	71.7	2.6	74.3
Poletimber trees	75.7	25.5	101.2	74.9	8.7	83.6
All growing-stock trees	259.7	44.1	303.8	146.6	11.3	157.9
Rough trees	2.0	.4	2.4	7.2	0	7.2
Rotten trees	3.1	.7	3.8	1.7	.4	2.1
Salvable dead trees	2.7	0	2.7	1.0	0	1.0
Total	267.5	45.2	312.7	156.5	11.7	168.2

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 13--Net volume of growing stock on commercial forest land, by species and diameter class, Copper River inventory unit, Alaska, 1968

(Million cubic feet)

Species	Diameter class (inches at breast height)										Total
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
Softwoods:											
White spruce	25.2	50.5	57.4	45.6	44.4	16.8	12.5	5.3	2.0	0	259.7
Total	25.2	50.5	57.4	45.6	44.4	16.8	12.5	5.3	2.0	0	259.7
Hardwoods:											
Balsam poplar	2.5	3.7	2.5	3.7	4.1	1.2	1.5	1.0	3.8	.4	24.4
Paper birch	0	.1	.1	0	0	0	0	0	0	0	.2
Quaking aspen	5.3	8.1	3.2	1.7	.5	.7	0	0	0	0	19.5
Total	7.8	11.9	5.8	5.4	4.6	1.9	1.5	1.0	3.8	.4	44.1
All species	33.0	62.4	63.2	51.0	49.0	18.7	14.0	6.3	5.8	.4	303.8

TABLE 14--Net volume of growing stock on commercial and operable noncommercial^{1/} forest land, by species and diameter class, Copper River inventory unit, Alaska, 1968

(Million cubic feet)

Species	Diameter class (inches at breast height)										Total
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
Softwoods:											
White spruce	56.0	94.6	87.4	68.2	59.2	20.2	13.1	5.6	2.0	0	406.3
Total	56.0	94.6	87.4	68.2	59.2	20.2	13.1	5.6	2.0	0	406.3
Hardwoods:											
Balsam poplar	3.1	4.4	3.3	3.8	4.1	1.3	1.5	1.1	3.8	.4	26.8
Paper birch	.3	.6	.8	.4	0	0	0	0	0	0	2.1
Quaking aspen	7.4	9.6	4.7	2.3	1.5	.8	.3	0	0	0	26.6
Total	10.8	14.6	8.8	6.5	5.6	2.1	1.8	1.1	3.8	.4	55.5
All species	66.8	109.2	96.2	74.7	64.8	22.3	14.9	6.7	5.8	.4	461.8

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 15--Net volume of sawtimber on commercial forest land, by species and diameter class, Copper River inventory unit, Alaska, 1968

(Million board feet, International 1/4-inch rule)

Species	Diameter class (inches at breast height)								Total
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
Softwoods:									
White spruce	343.2	265.4	260.1	97.7	72.2	30.8	11.3	0	1,080.7
Total	343.2	265.4	260.1	97.7	72.2	30.8	11.3	0	1,080.7
Hardwoods:									
Balsam poplar	0	9.4	16.3	5.6	7.5	5.3	20.7	2.4	67.2
Paper birch	0	0	0	0	0	0	0	0	0
Quaking aspen	0	6.5	2.0	3.2	0	0	0	0	11.7
Total	0	15.9	18.3	8.8	7.5	5.3	20.7	2.4	78.9
All species	343.2	281.3	278.4	106.5	79.7	36.1	32.0	2.4	1,159.6

TABLE 16--Net volume of sawtimber on commercial and operable noncommercial^{1/} forest land, by species and diameter class, Copper River inventory unit, Alaska, 1968

(Million board feet, International 1/4-inch rule)

Species	Diameter class (inches at breast height)								Total
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
Softwoods:									
White spruce	523.6	397.8	347.1	116.8	75.5	32.6	11.3	0	1,504.7
Total	523.6	397.8	347.1	116.8	75.5	32.6	11.3	0	1,504.7
Hardwoods:									
Balsam poplar	0	9.6	16.3	5.6	7.5	5.3	20.7	2.4	67.4
Paper birch	0	.9	0	0	0	0	0	0	.9
Quaking aspen	0	8.6	6.2	4.0	1.3	0	0	0	20.1
Total	0	19.1	22.5	9.6	8.8	5.3	20.7	2.4	88.4
All classes	523.6	416.9	369.6	126.4	84.3	37.9	32.0	2.4	1,593.1

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 17--Gross volume of sawtimber on commercial forest land, by species and diameter class, Copper River inventory unit, Alaska, 1968

(Million board feet, International 1/4-inch rule)

Species	Diameter class (inches at breast height)								Total
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
Softwoods:									
White spruce	347.9	274.3	270.9	103.0	76.0	31.9	13.4	0	1,117.4
Total	347.9	274.3	270.9	103.0	76.0	31.9	13.4	0	1,117.4
Hardwoods:									
Balsam poplar	0	10.2	17.7	5.6	8.3	5.4	20.8	2.4	70.4
Paper birch	0	0	0	0	0	0	0	0	0
Quaking aspen	0	6.5	2.0	3.2	0	0	0	0	11.7
Total	0	16.7	19.7	8.8	8.3	5.4	20.8	2.4	82.1
All species	347.9	291.0	290.6	111.8	84.3	37.3	34.2	2.4	1,199.5

TABLE 18--Gross volume of sawtimber on commercial and operable noncommercial^{1/} forest land, by species and diameter class, Copper River inventory unit, Alaska, 1968

(Million board feet, International 1/4-inch rule)

Species	Diameter class (inches at breast height)								Total
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-28.9	29.0+	
Softwoods:									
White spruce	531.5	411.4	366.7	125.6	80.5	33.6	13.4	0	1,562.7
Total	531.5	411.4	366.7	125.6	80.5	33.6	13.4	0	1,562.7
Hardwoods:									
Balsam poplar	0	10.6	17.7	5.6	8.3	5.4	20.8	2.4	70.8
Paper birch	0	1.2	0	0	0	0	0	0	1.2
Quaking aspen	0	9.0	6.7	4.0	1.6	0	0	0	21.3
Total	0	20.8	24.4	9.6	9.9	5.4	20.8	2.4	93.3
All species	531.5	432.2	391.1	135.2	90.4	39.0	34.2	2.4	1,656.0

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 19--*Net volume of growing stock on commercial forest land by forest type and softwoods and hardwoods, Copper River inventory unit, Alaska, 1968*

(Thousand cubic feet)

Forest type	Softwoods	Hardwoods	Total
Balsam poplar	9,485.1	18,938.9	28,424.0
Quaking aspen	2,956.8	14,582.2	17,539.0
White spruce	247,290.0	10,592.5	257,882.5
Total	259,731.9	44,113.6	303,845.5

TABLE 20--*Net volume of growing stock on operable noncommercial^{1/} forest land by forest type and softwoods and hardwoods, Copper River inventory unit, Alaska, 1968*

(Thousand cubic feet)

Forest type	Softwoods	Hardwoods	Total
Black spruce	1,607.6	1,051.5	2,659.1
Quaking aspen	911.7	4,131.7	5,043.4
White spruce	144,090.8	6,117.0	150,207.8
Total	146,610.1	11,300.2	157,910.3

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 21--*Net volume of sawtimber on commercial forest land by forest type and softwoods and hardwoods, Copper River inventory unit, Alaska, 1968*

(Thousand board feet)

Forest type	Softwood	Hardwood	Total
Balsam poplar	53,462.4	58,164.6	111,627.0
Quaking aspen	12,645.9	7,255.1	19,901.0
White spruce	1,014,598.9	13,460.2	1,028,059.1
Total	1,080,707.2	78,879.9	1,159,587.1

TABLE 22--*Net volume of sawtimber on operable noncommercial^{1/} forest land by forest type and softwoods and hardwoods, Copper River inventory unit, Alaska, 1968*

(Thousand board feet)

Forest type	Softwood	Hardwood	Total
Black spruce	8,366.6	2,350.8	10,717.4
Quaking aspen	4,567.8	6,085.5	10,653.3
White spruce	411,092.8	1,063.4	412,156.2
Total	424,027.2	9,499.7	433,526.9

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 23--*Net volume of sawtimber on commercial forest land, by species and log grade, Copper River inventory unit, Alaska, 1968*

(Million board feet, International 1/4-inch rule)

Species	Log grade ^{1/}				Total
	1	2	3	4 ^{2/}	
Softwoods:					
White spruce	0.3	73.6	783.1	223.7	1,080.7
Total	.3	73.6	783.1	223.7	1,080.7
Hardwoods:					
Balsam poplar	12.0	18.2	31.2	5.8	67.2
Paper birch	0	0	0	0	0
Quaking aspen	.6	1.5	5.5	4.1	11.7
Total	12.6	19.7	36.7	9.9	78.9
All species	12.9	93.3	819.8	233.6	1,159.6

^{1/} Forest Products Laboratory. Hardwood log grades for standard lumber. USDA Forest Products Laboratory Report R1737, 61 p., 1959.

Northern Hemlock and Hardwood Manufacturers Association. Official grading rules for northern hardwood and softwood logs and tie cuts. Green Bay, Wisconsin, 12 p., 1959.

^{2/} Logs used locally.

TABLE 24--*Net volume of sawtimber on operable noncommercial^{1/} forest land, by species and log grade, Copper River inventory unit, Alaska, 1968*

(Million board feet, International 1/4-inch rule)

Species	Log grade ^{2/}				Total
	1	2	3	4 ^{3/}	
Softwoods:					
White spruce	0	2.4	326.6	95.0	424.0
Total	0	2.4	326.6	95.0	424.0
Hardwoods:					
Balsam poplar	0	0	.3	0	.3
Paper birch	0	0	.8	0	.8
Quaking aspen	0	5.0	3.1	.3	8.4
Total	0	5.0	4.2	.3	9.5
All species	0	7.4	330.8	95.3	433.5

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

^{2/} Forest Products Laboratory. Hardwood log grades for standard lumber. USDA Forest Products Laboratory Report R1737, 61 p., 1959.

Northern Hemlock and Hardwood Manufacturers Association. Official grading rules for northern hardwood and softwood logs and tie cuts. Green Bay, Wisconsin, 12 p., 1959.

^{3/} Logs used locally.

TABLE 25--*Net annual growth of growing stock, by species and forest-land class, Copper River inventory unit, Alaska, 1968*

(Thousand cubic feet)

Species	Commercial forest land	Operable noncommercial forest land ^{1/}	Total
Softwoods:			
White spruce	3,174.2	1,677.2	4,851.4
Total	3,174.2	1,677.2	4,851.4
Hardwoods:			
Balsam poplar	458.4	25.9	484.3
Paper birch	3.1	27.6	30.7
Quaking aspen	614.9	142.9	757.8
Total	1,076.4	196.4	1,272.8
All species	4,250.6	1,873.6	6,124.2

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 26--*Net annual growth of sawtimber, by species and forest-land class, Copper River inventory unit, Alaska, 1968*

(Thousand board feet, International 1/4-inch rule)

Species	Commercial forest land	Operable noncommercial forest land ^{1/}	Total
Softwoods:			
White spruce	19,537.8	17,354.2	36,892.0
Total	19,537.8	17,354.2	36,892.0
Hardwoods:			
Balsam poplar	2,418.2	8.2	2,426.4
Paper birch	0	859.9	859.9
Quaking aspen	1,185.3	192.7	1,378.0
Total	3,603.5	1,060.8	4,664.3
All species	23,141.3	18,415.0	41,556.3

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 27--*Annual mortality of growing stock, by species and forest-land class, Copper River inventory unit, Alaska, 1968*

(Thousand cubic feet)

Species	Commercial forest land	Operable noncommercial forest land ^{1/}	Total
Softwoods:			
White spruce	314.3	190.6	504.9
Total	314.3	190.6	504.9
Hardwoods:			
Balsam poplar	0	0	0
Paper birch	0	0	0
Quaking aspen	0	0	0
Total	0	0	0
All species	314.3	190.6	504.9

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 28--*Annual mortality of sawtimber, by species and forest-land class, Copper River inventory unit, Alaska, 1968*

(Thousand board feet, International 1/4-inch rule)

Species	Commercial forest land	Operable noncommercial forest land ^{1/}	Total
Softwoods:			
White spruce	1,610.4	225.7	1,836.1
Total	1,610.4	225.7	1,836.1
Hardwoods:			
Balsam poplar	0	0	0
Paper birch	0	0	0
Quaking aspen	0	0	0
Total	0	0	0
All species	1,610.4	225.7	1,836.1

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 29--*Annual mortality of growing stock on commercial and noncommercial forest land, by cause and by softwoods and hardwoods, Copper River inventory unit, Alaska, 1968*

(Thousand cubic feet)

Cause	Commercial forest land			Operable noncommercial forest land ^{1/}		
	Softwoods	Hardwoods	Total	Softwoods	Hardwoods	Total
Fire	0	0	0	0	0	0
Insects	37.6	0	37.6	0	0	0
Disease	0	0	0	0	0	0
Windthrow	23.9	0	23.9	0	0	0
Other	17.0	0	17.0	137.6	0	137.6
Unknown	235.8	0	235.8	53.0	0	53.0
Total	314.3	0	314.3	190.6	0	190.6

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 30--*Annual mortality of sawtimber on commercial and noncommercial forest land, by cause and by softwoods and hardwoods, Copper River inventory unit, Alaska, 1968*

(Thousand board feet, International 1/4-inch rule)

Cause	Commercial forest land			Operable noncommercial forest land ^{1/}		
	Softwoods	Hardwoods	Total	Softwoods	Hardwoods	Total
Fire	0	0	0	0	0	0
Insects	238.4	0	238.4	0	0	0
Disease	0	0	0	0	0	0
Windthrow	0	0	0	0	0	0
Other	42.9	0	42.9	225.7	0	225.7
Unknown	1,329.1	0	1,329.1	0	0	0
Total	1,610.4	0	1,610.4	225.7	0	225.7

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

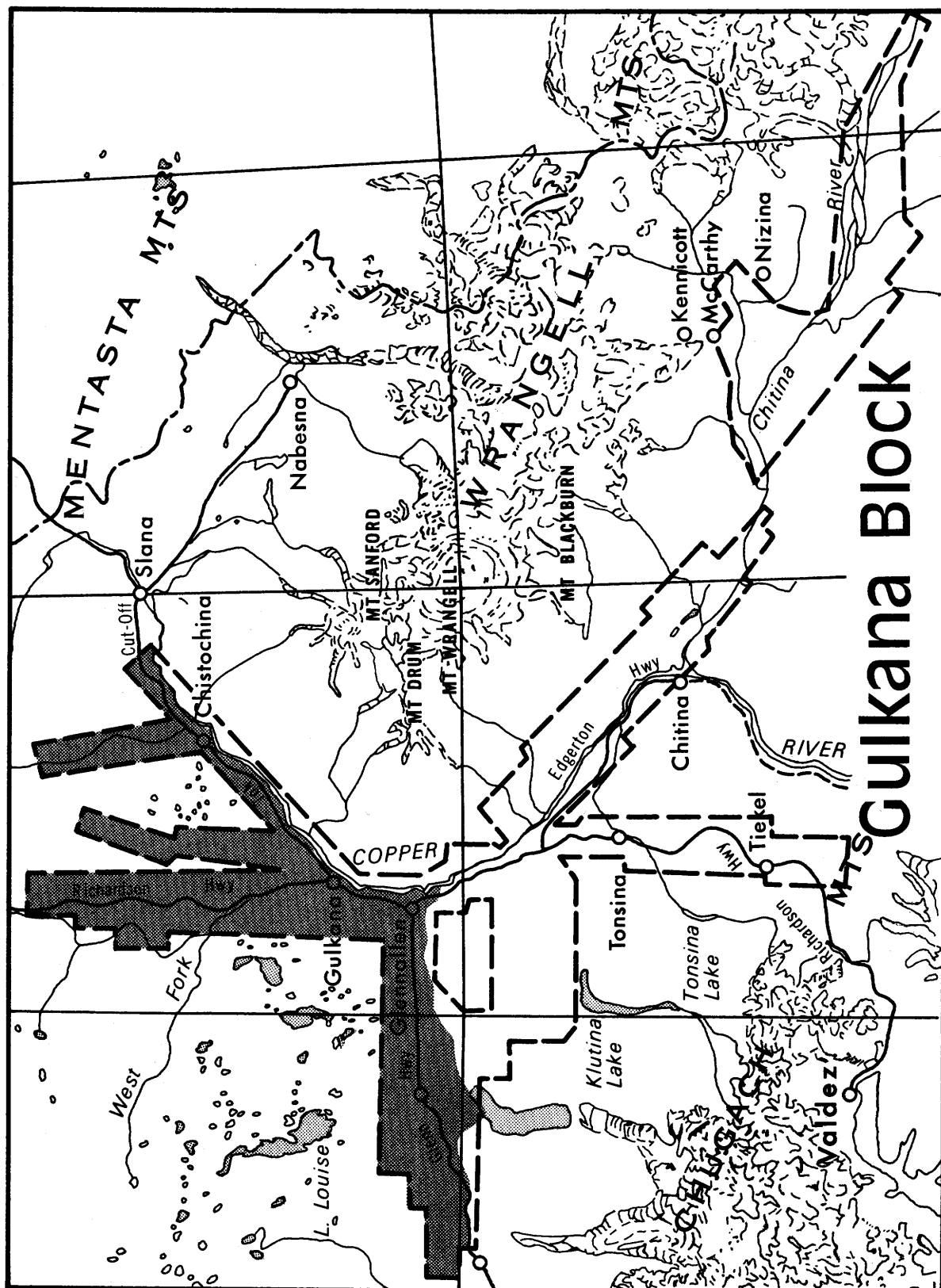


TABLE 31--Area by productivity and land class, Gulkana block,
Copper River inventory unit, Alaska, 1968

Land class	Thousand acres
Forest land:	
Commercial	39.1
Noncommercial:	
Operable ^{1/}	26.7
Inoperable ^{2/}	571.8
Total	637.6
Nonforest land ^{3/}	130.1
Total land	767.7
Census water	21.9
Total area	789.6

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

^{2/} Inoperable noncommercial forest land has a gross volume of less than 800 cubic feet per acre.

^{3/} Includes 28,100 acres of noncensus water. Noncensus water is defined as bodies of water 1 to 40 acres in size and watercourses 120 feet to 1/8 mile in width.

TABLE 32--Area of commercial and operable noncommercial forest land,
by stand-size class, Gulkana block, Copper River inventory
unit, Alaska, 1968

(Thousand acres)

Stand-size class	Forest land		
	Commercial	Operable noncommercial ^{1/}	Total
Sawtimber stands	12.3	10.6	22.9
Poletimber stands	12.7	11.4	24.1
Seedling and sapling stands	14.1	4.7	18.8
Nonstocked areas	0	0	0
Total	39.1	26.7	65.8

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 33--*Area of commercial forest land by area condition class, Gulkana block, Copper River inventory unit, Alaska, 1968*

Code	Area condition class	Thousand acres
10	Areas 100 percent or more stocked with desirable trees and not overstocked	2.3
20	Areas 100 percent or more stocked with desirable trees and overstocked	1.2
30	Areas 60 to 100 percent stocked with desirable trees, and with less than 30 percent of the area controlled by acceptable growing-stock trees, cull trees, inhibiting vegetation, slash, or nonstockable conditions	13.9
40	Areas 60 to 100 percent stocked with desirable trees and with 30 percent or more of the area controlled by other trees (or overstocked areas) or conditions that ordinarily prevent occupancy by desirable trees	5.5
50	Areas less than 60 percent stocked with desirable trees, but with 100-percent or more stocking with growing-stock trees	2.3
60	Areas less than 60 percent stocked with desirable trees, but with 60- to 100-percent stocking with growing-stock trees	11.5
70	Areas less than 60 percent stocked with desirable trees, and with less than 60-percent stocking with growing-stock trees	2.4
All classes		39.1

TABLE 34--Area of commercial and noncommercial forest land, by forest type, Gulkana block, Copper River inventory unit, Alaska, 1968

(Thousand acres)

Forest type	Commercial forest land	Noncommercial forest land		
		Operable ^{1/}	Inoperable ^{2/}	Total
Balsam poplar	12.7	0	0	0
Black spruce	--	2.2	571.8	574.0
Paper birch	0	0	0	0
Quaking aspen	1.2	0	0	0
White spruce	25.2	24.5	0	24.5
Nonstocked	0	0	0	0
Total	39.1	26.7	571.8	598.5

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

^{2/} Inoperable noncommercial forest land has a gross volume of less than 800 cubic feet per acre. All inoperable noncommercial forest land is assumed to be black spruce although other forest types may be represented.

TABLE 35--*Net volume of timber on commercial and operable noncommercial forest land, by class of timber and softwoods and hardwoods, Gulkana block, Copper River inventory unit, Alaska, 1968*

(Million cubic feet)

Class of timber	Commercial forest land			Operable noncommercial forest land ^{1/}		
	Softwoods	Hardwoods	Total	Softwoods	Hardwoods	Total
Sawtimber trees:						
Saw-log portion	12.1	3.6	15.7	8.6	0	8.6
Upper-stem portion	3.6	.4	4.0	2.5	0	2.5
Total	15.7	4.0	19.7	11.1	0	11.1
Poletimber trees	11.2	4.8	16.0	10.7	.8	11.5
All growing-stock trees	26.9	8.8	35.7	21.8	.8	22.6
Rough trees	.1	0	.1	2.0	0	2.0
Rotten trees	0	.3	.3	.8	.3	1.1
Salvable dead trees	0	0	0	0	0	0
Total	27.0	9.1	36.1	24.6	1.1	25.7

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 36--*Net volume of growing stock on commercial forest land by forest type and softwoods and hardwoods, Gulkana block, Copper River inventory unit, Alaska, 1968*

(Thousand cubic feet)

Forest type	Softwoods	Hardwoods	Total
Balsam poplar	820.6	5,698.8	6,519.4
Quaking aspen	0	624.3	624.3
White spruce	26,064.4	2,508.5	28,572.9
Total	26,885.0	8,831.6	35,716.6

TABLE 37--*Net volume of growing stock on operable noncommercial^{1/} forest land by forest type and softwoods and hardwoods, Gulkana block, Copper River inventory unit, Alaska, 1968*

(Thousand cubic feet)

Forest type	Softwoods	Hardwoods	Total
Black spruce	0	0	0
Quaking aspen	0	0	0
White spruce	21,815.3	832.9	22,648.2
Total	21,815.3	832.9	22,648.2

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 38--*Net volume of sawtimber on commercial forest land by forest type and softwoods and hardwoods, Gulkana block, Copper River inventory unit, Alaska, 1968*

(Thousand board feet, International 1/4-inch rule)

Forest type	Softwoods	Hardwoods	Total
Balsam poplar	3,417.1	7,623.1	11,040.2
Quaking aspen'	0	0	0
White spruce	88,621.9	5,199.4	93,821.3
Total	92,039.0	12,822.5	104,861.5

TABLE 39--*Net volume of sawtimber on operable noncommercial^{1/} forest land by forest type and softwoods and hardwoods, Gulkana block, Copper River inventory unit, Alaska, 1968*

(Thousand board feet, International 1/4-inch rule)

Forest type	Softwoods	Hardwoods	Total
Black spruce	0	0	0
Quaking aspen	0	0	0
White spruce	65,521.1	0	65,521.1
Total	65,521.1	0	65,521.1

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 40--*Net volume of sawtimber on commercial forest land, by species and log grade, Gulkana block, Copper River inventory unit, Alaska, 1968*

(Million board feet, International 1/4-inch rule)

Species	Log grade ^{1/}				Total
	1	2	3	4 ^{2/}	
Softwoods:					
White spruce	0.3	6.3	58.2	27.2	92.0
Total	.3	6.3	58.2	27.2	92.0
Hardwoods:					
Balsam poplar	0	1.2	8.8	1.6	11.6
Paper birch	0	0	0	0	0
Quaking aspen	0	.2	.7	.4	1.3
Total	0	1.4	9.5	2.0	12.9
All species	.3	7.7	67.7	29.2	104.9

^{1/} Forest Products Laboratory. Hardwood log grades for standard lumber. USDA Forest Products Laboratory Report R1737, 61 p., 1959.

Northern Hemlock and Hardwood Manufacturers Association. Official grading rules for northern hardwood and softwood logs and tie cuts. Green Bay, Wisconsin, 12 p., 1959.

^{2/} Logs used locally.

TABLE 41--Net volume of sawtimber on operable noncommercial^{1/} forest land, by species and log grade, Gulkana block, Copper River inventory unit, Alaska, 1968

(Million board feet, International 1/4-inch rule)

Species	Log grade ^{2/}				Total
	1	2	3	4 ^{3/}	
Softwoods:					
White spruce	0	1.0	42.1	22.4	65.5
Total	0	1.0	42.1	22.4	65.5
Hardwoods:					
Balsam poplar	0	0	0	0	0
Paper birch	0	0	0	0	0
Quaking aspen	0	0	0	0	0
Total	0	0	0	0	0
All species	0	1.0	42.1	22.4	65.5

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

^{2/} Forest Products Laboratory. Hardwood log grades for standard lumber. USDA Forest Products Laboratory Report R1737, 61 p., 1959.

Northern Hemlock and Hardwood Manufacturers Association. Official grading rules for northern hardwood and softwood logs and tie cuts. Green Bay, Wisconsin, 12 p., 1959.

^{3/} Logs used locally.

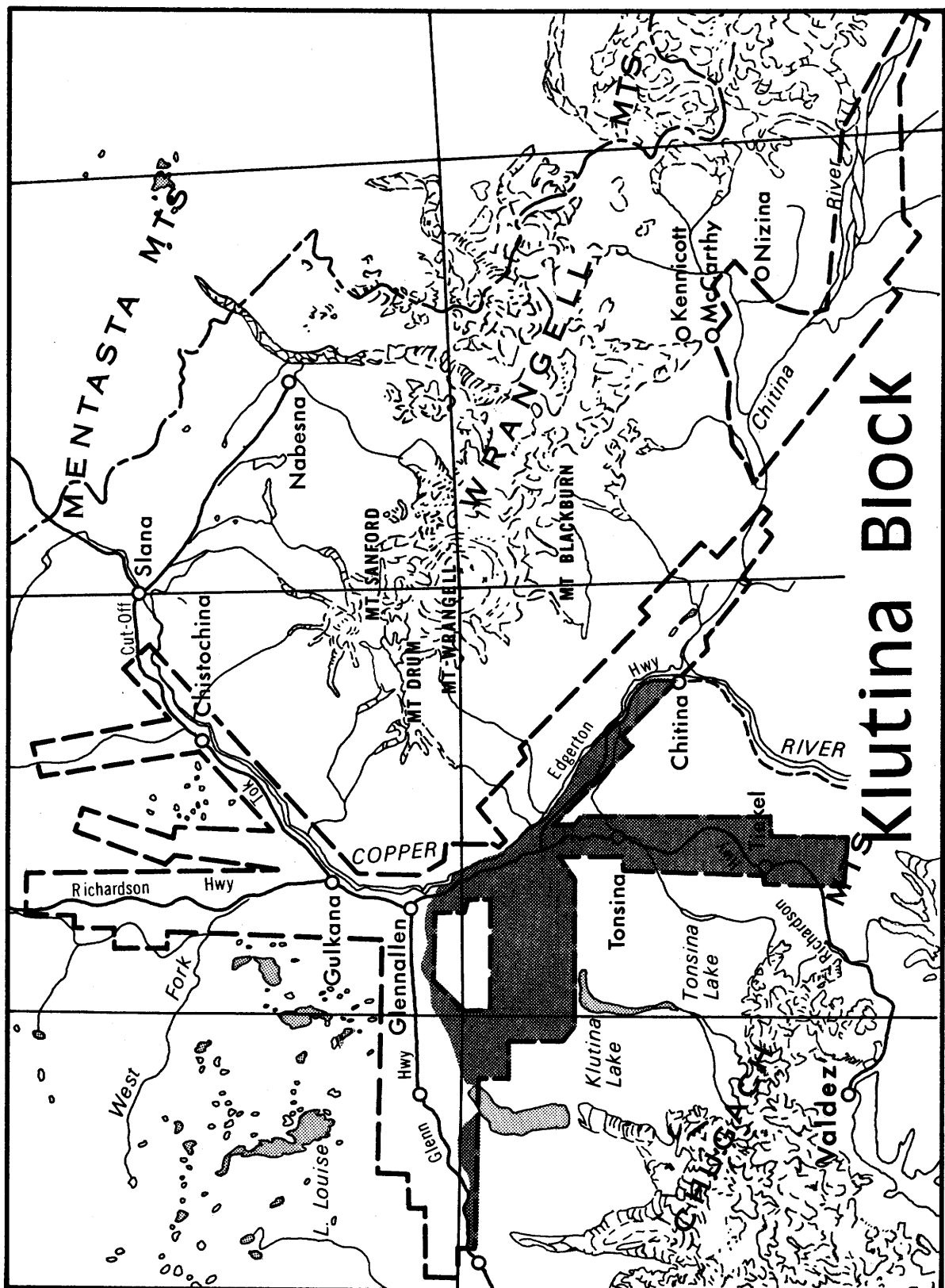


TABLE 42--Area by productivity and land class, Klutina block,
Copper River inventory unit, Alaska, 1968

Land class	Thousand acres
Forest land:	
Commercial	115.5
Noncommercial:	
Operable ^{1/}	42.9
Inoperable ^{2/}	348.0
Total	506.4
Nonforest land ^{3/}	104.9
Total land	611.3
Census water	21.6
Total area	632.9

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

^{2/} Inoperable noncommercial forest land has a gross volume of less than 800 cubic feet per acre.

^{3/} Includes 7,100 acres of noncensus water. Noncensus water is defined as bodies of water 1 to 40 acres in size and watercourses 120 feet to 1/8 mile in width.

TABLE 43--Area of commercial and operable noncommercial forest land,
by stand-size class, Klutina block, Copper River inventory
unit, Alaska, 1968

(Thousand acres)

Stand-size class	Forest land		
	Commercial	Operable noncommercial ^{1/}	Total
Sawtimber stands	64.0	2.8	66.8
Poletimber stands	5.7	37.2	42.9
Seedling and sapling stands	43.0	2.9	45.9
Nonstocked areas	2.8	0	2.8
Total	115.5	42.9	158.4

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 44--Area of commercial forest land by area condition class, Klutina block, Copper River inventory unit, Alaska, 1968

Code	Area condition class	Thousand acres
10	Areas 100 percent or more stocked with desirable trees and not overstocked	0
20	Areas 100 percent or more stocked with desirable trees and overstocked	0
30	Areas 60 to 100 percent stocked with desirable trees, and with less than 30 percent of the area controlled by acceptable growing-stock trees, cull trees, inhibiting vegetation, slash, or nonstockable conditions	13.1
40	Areas to to 100 percent stocked with desirable trees and with 30 percent or more of the area controlled by other trees (or overstocked areas) or conditions that ordinarily prevent occupancy by desirable trees	5.8
50	Areas less than 60 percent stocked with desirable trees, but with 100-percent or more stocking with growing-stock trees	15.0
60	Areas less than 60 percent stocked with desirable trees, but with 60- to 100-percent stocking with growing-stock trees	57.9
70	Areas less than 60 percent stocked with desirable trees, and with less than 60-percent stocking with growing-stock trees	23.7
All classes		115.5

TABLE 45--Area of commercial and noncommercial forest land, by forest type, Klutina block, Copper River inventory unit, Alaska, 1968

(Thousand acres)

Forest type	Commercial forest land	Noncommercial forest land		
		Operable ^{1/}	Inoperable ^{2/}	Total
Balsam poplar	7.4	0	0	0
Black spruce	--	0	322.7	322.7
Paper birch	0	0	0	0
Quaking aspen	18.8	2.9	0	2.9
White spruce	86.4	40.0	25.3	65.3
Nonstocked	2.9	0	0	0
Total	115.5	42.9	348.0	390.9

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

^{2/} Inoperable noncommercial forest land has a gross volume of less than 800 cubic feet per acre. Most of the inoperable noncommercial forest land is assumed to be black spruce although other forest types, in addition to the 25,300 acres of white spruce, may be represented.

TABLE 46--*Net volume of timber on commercial and operable noncommercial forest land, by class of timber and softwoods and hardwoods, Klutina block, Copper River inventory unit, Alaska, 1968*

(Million cubic feet)

Class of timber	Commercial forest land			Operable noncommercial forest land ^{1/}		
	Softwoods	Hardwoods	Total	Softwoods	Hardwoods	Total
Sawtimber trees:						
Saw-log portion	44.7	7.5	52.2	11.2	0	11.2
Upper-stem portion	13.3	.8	14.1	3.4	0	3.4
Total	58.0	8.3	66.3	14.6	0	14.6
Poletimber	22.7	9.4	32.1	29.9	5.0	34.9
All growing-stock trees	80.7	17.7	98.4	44.5	5.0	49.5
Rough trees	.6	.3	.9	.6	0	.6
Rotten trees	.9	.4	1.3	0	0	0
Salvable dead trees	.6	0	.6	0	0	0
Total	82.8	18.4	101.2	45.1	5.0	50.1

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 47--*Net volume of growing stock on commercial forest land by forest type and softwoods and hardwoods, Klutina block, Copper River inventory unit, Alaska, 1968*

(Thousand cubic feet)

Forest type	Softwoods	Hardwoods	Total
Balsam poplar	5,380.3	8,210.6	13,590.9
Quaking aspen	522.2	4,858.4	5,380.6
White spruce	74,832.2	4,658.3	79,490.5
Total	80,734.7	17,727.3	98,462.0

TABLE 48--*Net volume of growing stock on operable noncommercial^{1/} forest land by forest type and softwoods and hardwoods, Klutina block, Copper River inventory unit, Alaska, 1968*

(Thousand cubic feet)

Forest type	Softwoods	Hardwoods	Total
Black spruce	0	0	0
Quaking aspen	0	2,076.5	2,076.5
White spruce	44,444.4	2,895.0	47,339.4
Total	44,444.4	4,971.5	49,415.9

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 49--*Net volume of sawtimber on commercial forest land by forest type and softwoods and hardwoods, Klutina block, Copper River inventory unit, Alaska, 1968*

(Thousand board feet, International 1/4-inch rule)

Forest type	Softwoods	Hardwoods	Total
Balsam poplar	31,574.0	32,087.7	63,661.7
Quaking aspen	1,296.0	0	1,296.0
White spruce	306,318.9	6,426.2	312,745.1
Total	339,188.9	38,513.9	377,702.8

TABLE 50--*Net volume of sawtimber on operable noncommercial^{1/} forest land by forest type and softwoods and hardwoods, Klutina block, Copper River inventory unit, Alaska, 1968*

(Thousand board feet, International 1/4-inch rule)

Forest type	Softwoods	Hardwoods	Total
Black spruce	0	0	0
Quaking aspen	0	0	0
White spruce	86,795.3	0	86,795.3
Total	86,795.3	0	86,795.3

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 51--*Net volume of sawtimber on commercial forest land, by species and log grade, Klutina block, Copper River inventory unit, Alaska, 1968*

(Million board feet, International 1/4-inch rule)

Species	Log grade ^{1/}				Total
	1	2	3	4 ^{2/}	
Softwoods:					
White spruce	0	13.6	248.5	77.1	339.2
Total	0	13.6	248.5	77.1	339.2
Hardwoods:					
Balsam poplar	12.0	13.9	5.8	2.4	34.1
Paper birch	0	0	0	0	0
Quaking aspen	0	0	1.6	2.8	4.4
Total	12.0	13.9	7.4	5.2	38.5
All species	12.0	27.5	255.9	82.3	377.7

^{1/} Forest Products Laboratory. Hardwood log grades for standard lumber. USDA Forest Products Laboratory Report R1737, 61 p., 1959.

Northern Hemlock and Hardwood Manufacturers Association. Official grading rules for northern hardwood and softwood logs and tie cuts. Green Bay, Wisconsin, 12 p., 1959.

^{2/} Logs used locally.

TABLE 52--*Net volume of sawtimber on operable noncommercial^{1/} forest land, by species and log grade, Klutina block, Copper River inventory unit, Alaska, 1968*

(Million board feet, International 1/4-inch rule)

Species	Log grade ^{2/}				Total
	1	2	3	4 ^{3/}	
Softwoods:					
White spruce	0	0	69.0	17.8	86.8
Total	0	0	69.0	17.8	86.8
Hardwoods:					
Balsam poplar	0	0	0	0	0
Paper birch	0	0	0	0	0
Quaking aspen	0	0	0	0	0
Total	0	0	0	0	0
All species	0	0	69.0	17.8	86.8

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

^{2/} Forest Products Laboratory. Hardwood log grades for standard lumber. USDA Forest Products Laboratory Report R1737, 61 p., 1959.

Northern Hemlock and Hardwood Manufacturers Association. Official grading rules for northern hardwood and softwood logs and tie cuts. Green Bay, Wisconsin, 12 p., 1959.

^{3/} Logs used locally.

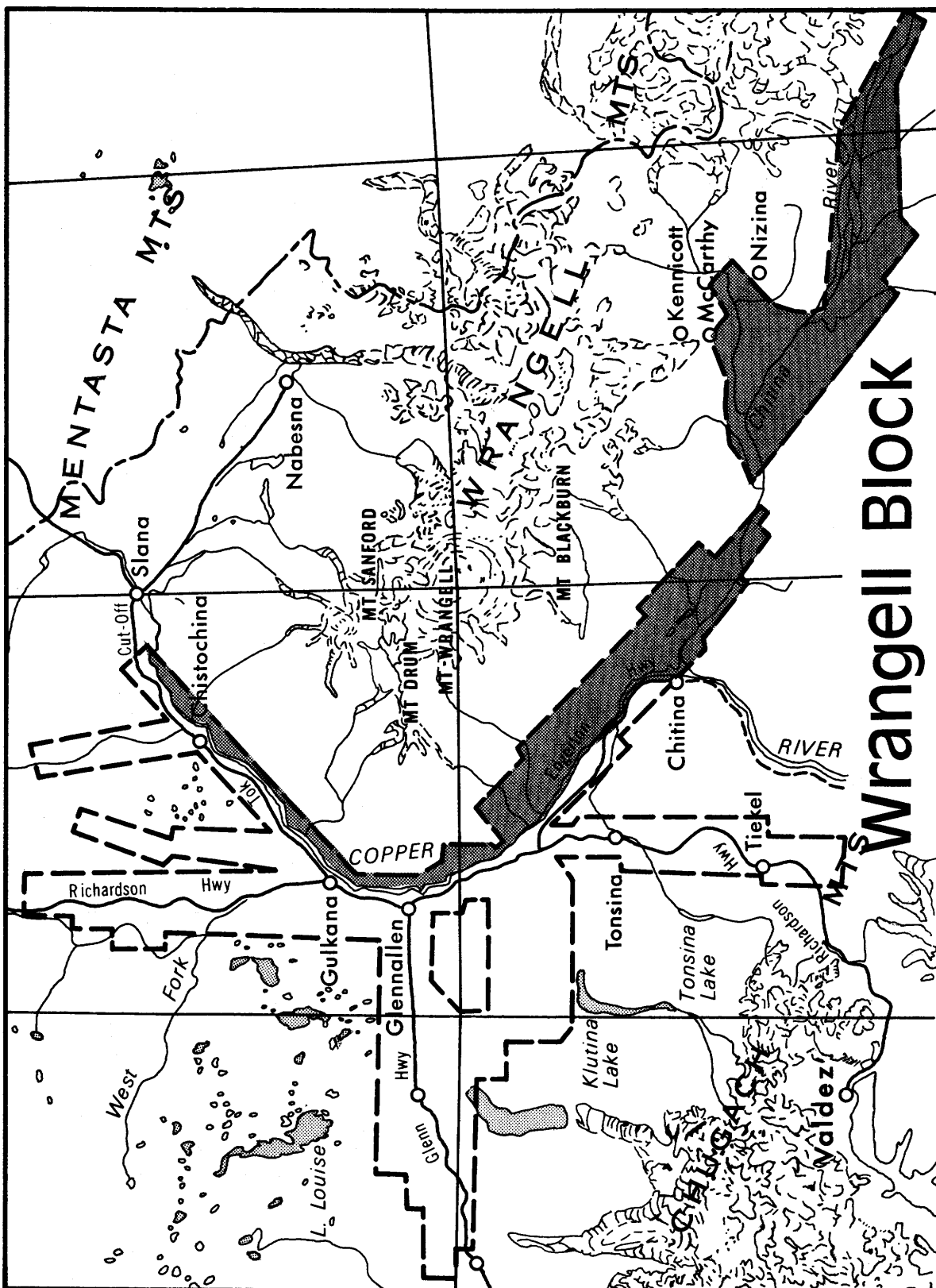


TABLE 53--Area by productivity and land class, Wrangell block,
Copper River inventory unit, Alaska, 1968

Land class	Thousand acres
Forest land:	
Commercial	133.2
Noncommercial:	
Operable ^{1/}	83.2
Inoperable ^{2/}	271.5
Total	487.9
Nonforest land ^{3/}	43.8
Total land	531.7
Census water	68.3
Total area	600.0

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

^{2/} Inoperable noncommercial forest land has a gross volume of less than 800 cubic feet per acre.

^{3/} Includes 9,600 acres of noncensus water. Noncensus water is defined as bodies of water 1 to 40 acres in size and watercourses 120 feet to 1/8 mile in width.

TABLE 54--Area of commercial and operable noncommercial forest land,
by stand-size class, Wrangell block, Copper River inventory
unit, Alaska, 1968

(Thousand acres)

Stand-size class	Forest land		
	Commercial	Operable noncommercial ^{1/}	Total
Sawtimber stands	77.7	54.5	132.2
Poletimber stands	14.7	28.7	43.4
Seedling and sapling stands	36.0	0.0	36.0
Nonstocked areas	4.8	0.0	4.8
Total	133.2	83.2	216.4

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 55-Area of commercial forest land by area condition class, Wrangell block, Copper River inventory unit, Alaska, 1968

Code	Area condition class	Thousand acres
10	Areas 100 percent or more stocked with desirable trees and not overstocked	9.1
20	Areas 100 percent or more stocked with desirable trees and overstocked	0
30	Areas 60 to 100 percent stocked with desirable trees, and with less than 30 percent of the area controlled by acceptable growing-stock trees, cull trees, inhibiting vegetation, slash, or nonstockable conditions.	7.2
40	Areas 60 to 100 percent stocked with desirable trees and with 30 percent or more of the area controlled by other trees (or overstocked areas) or conditions that ordinarily prevent occupancy by desirable trees.	14.7
50	Areas less than 60 percent stocked with desirable trees, but with 100-percent or more stocking with growing-stock trees	25.4
60	Areas less than 60 percent stocked with desirable trees, but with 60- to 100-percent stocking with growing-stock trees	55.4
70	Areas less than 60 percent stocked with desirable trees, and with less than 60-percent stocking with growing-stock trees	21.4
All classes		133.2

TABLE 56-Area of commercial and noncommercial forest land,
by forest type, Wrangell block, Copper River
inventory unit, Alaska, 1968

(Thousand acres)

Forest type	Commercial forest land	Noncommercial forest land		
		Operable ^{1/}	Inoperable ^{2/}	Total
Balsam poplar	2.4	0	0	0
Black spruce	--	5.8	271.5	277.3
Paper birch	0	0	0	0
Quaking aspen	18.5	2.5	0	2.5
White spruce	107.5	74.9	0	74.9
Nonstocked	4.8	0	0	0
Total	133.2	83.2	271.5	354.7

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

^{2/} Inoperable noncommercial forest land has a gross volume of less than 800 cubic feet per acre. All inoperable noncommercial forest land is assumed to be black spruce although other forest types may be represented.

TABLE 57--*Net volume of timber on commercial and operable noncommercial forest land, by class of timber and softwoods and hardwoods, Wrangell block, Copper River inventory unit, Alaska, 1968*

(Million cubic feet)

Class of timber	Commercial forest land			Operable noncommercial forest land ^{1/}		
	Softwoods	Hardwoods	Total	Softwoods	Hardwoods	Total
Sawtimber trees:						
Saw-log portion	85.0	5.8	90.8	35.4	2.3	37.7
Upper-stem portion	25.3	.6	25.9	10.6	.3	10.9
Total	110.3	6.4	116.7	46.0	2.6	48.6
Poletimber trees	41.8	11.2	53.0	34.4	2.9	37.3
All growing-stock trees	152.1	17.6	169.7	80.4	5.5	85.9
Rough trees	1.3	.1	1.4	4.5	0	4.5
Rotten trees	2.1	.1	2.2	.8	.1	.9
Salvable dead trees	2.1	0	2.1	1.0	0	1.0
Total	157.6	17.8	175.4	86.7	5.6	92.3

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 58--*Net volume of growing stock on commercial forest land by forest type and softwoods and hardwoods, Wrangell block, Copper River inventory unit, Alaska, 1968*

(Thousand cubic feet)

Forest type	Softwoods	Hardwoods	Total
Balsam poplar	3,284.2	5,029.5	8,313.7
Quaking aspen	2,434.7	9,099.4	11,534.1
White spruce	146,393.5	3,425.6	149,819.1
Total	152,112.4	17,554.5	169,666.9

TABLE 59--*Net volume of growing stock on operable noncommercial^{1/} forest land by forest type and softwoods and hardwoods, Wrangell block, Copper River inventory unit, Alaska, 1968*

(Thousand cubic feet)

Forest type	Softwoods	Hardwoods	Total
Black spruce	1,607.6	1,051.5	2,659.1
Quaking aspen	911.7	2,055.2	2,966.9
White spruce	77,831.1	2,389.1	80,220.2
Total	80,350.4	5,495.8	85,846.2

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 60--*Net volume of sawtimber on commercial forest land by forest type and softwoods and hardwoods, Wrangell block, Copper River inventory unit, Alaska, 1968*

(Thousand board feet, International 1/4-inch rule)

Forest type	Softwoods	Hardwoods	Total
Balsam poplar	18,471.3	18,453.8	36,925.1
Quaking aspen	11,349.9	7,255.1	18,605.0
White spruce	619,658.1	1,834.6	621,492.7
Total	649,479.3	27,543.5	677,022.8

TABLE 61--*Net volume of sawtimber on operable noncommercial^{1/} forest land by forest type and softwoods and hardwoods, Wrangell block, Copper River inventory unit, Alaska, 1968*

(Thousand board feet, International 1/4-inch rule)

Forest type	Softwoods	Hardwoods	Total
Black spruce	8,366.6	2,350.8	10,717.4
Quaking aspen	4,567.8	6,085.5	10,653.3
White spruce	258,776.4	1,063.4	259,839.8
Total	271,710.8	9,499.7	281,210.5

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

TABLE 62--*Net volume of sawtimber on commercial forest land, by species and log grade, Wrangell block, Copper River inventory unit, Alaska, 1968*

(Million board feet, International 1/4-inch rule)

Species	Log grade ^{1/}				Total
	1	2	3	4 ^{2/}	
Softwoods:					
White spruce	0	53.7	476.4	119.4	649.5
Total	0	53.7	476.4	119.4	649.5
Hardwoods:					
Balsam poplar	0	3.0	16.6	1.9	21.5
Paper birch	0	0	0	0	0
Quaking aspen	.6	1.4	3.2	.8	6.0
Total	.6	4.4	19.8	2.7	27.5
All species	.6	58.1	496.2	122.1	677.0

^{1/} Forest Products Laboratory. Hardwood log grades for standard lumber. USDA Forest Products Laboratory Report R1737, 61 p., 1959.

Northern Hemlock and Hardwood Manufacturers Association. Official grading rules for northern hardwood and softwood logs and tie cuts. Green Bay, Wisconsin, 12 p., 1959.

^{2/} Logs used locally.

TABLE 63--*Net volume of sawtimber on operable noncommercial^{1/} forest land, by species and log grade, Wrangell block, Copper River inventory unit, Alaska, 1968*

(Million board feet, International 1/4-inch rule)

Species	Log grade ^{2/}				Total
	1	2	3	4 ^{3/}	
Softwoods:					
White spruce	0	1.4	215.5	54.8	271.7
Total	0	1.4	215.5	54.8	271.7
Hardwoods:					
Balsam poplar	0	0	.3	0	.3
Paper birch	0	0	.8	0	.8
Quaking aspen	0	5.0	3.1	.3	8.4
Total	0	5.0	4.2	.3	9.5
All species	0	6.4	219.7	55.1	281.2

^{1/} Operable noncommercial forest land has a gross volume of more than 800 cubic feet per acre.

^{2/} Forest Products Laboratory. Hardwood log grades for standard lumber. USDA Forest Products Laboratory Report R1737, 61 p., 1959.

Northern Hemlock and Hardwood Manufacturers Association. Official grading rules for northern hardwood and softwood logs and tie cuts. Green Bay, Wisconsin, 12 p., 1959.

^{3/} Logs used locally.

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1975. Timber resource statistics for the Copper River inventory unit, Alaska, 1968. USDA For. Serv. Resour. Bull. PNW-62, 55 p., illus. Pacific Northwest Forest and Range Experiment Station, Portland, Oregon.

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KEYWORDS: Forest surveys (interior Alaska), resources (forest).

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