TOBA FOREST

1934

C. W. WALKER

R 61

FOREST SURVEYS DIVISION
B. C. FOREST SERVICE

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Victoria Office

TOBA FOREST

Survey and Preliminary Management Recommendations

by

C. W. Walker

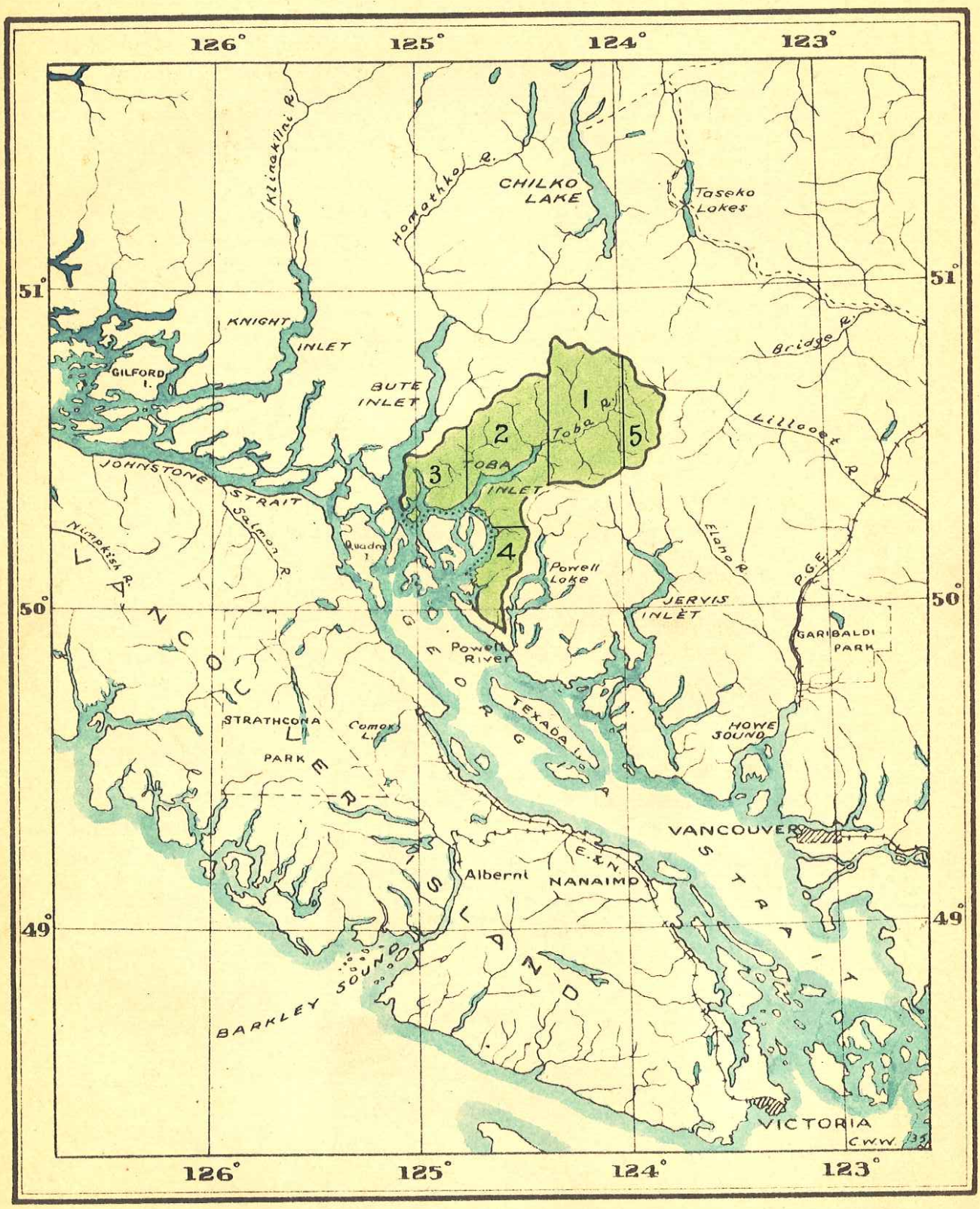
1934.

Forest Survey No. R 61,
Survey file No.0116255,
Administration file No.0116859

Accompanying this report:

(Combined topographic and
(forest cover map in five
(sections, scale 40 chains
(to 1 inch.
(Same map reduced to 2 miles
(to one inch, bound with report.

INDEX MAP
of the
TOBA FOREST



Scale:- 31.56 miles to 1 inch

The TOBA FOREST

This Forest includes the watershed of the Toba River and minor drainages on the mainland coast between Powell River and Bute Inlet. It covers about 1,200 square miles of the fir - cedar - hemlock region.

Except where it approaches the settlements north of Powell River it is isolated by the mountains and the Coast Range and the rugged shore line of Toba Inlet. The Toba River valley has proved to be unsuitable for agricultural development. The river overflows its banks once or twice a year, depositing fresh layers of sand over the low-lying lands. Much of the valley is swamp where these sandy soils have not yet been built up.

The Forest contains 2,200,000 M.B.M. timber, 75% of which belongs to the Crown, and 33,700 acres of young growth.

The accessible areas could support a sustained annual yield of 25,000 M.B.M., which could be increased to ~~34,000~~ 30,800 M.B.M. annually when logging the areas now considered inaccessible becomes practicable. The average utilization during the last ten years has been 30,500 M.B.M. annually.

Past history indicates that the fire risk is almost negligible, given reasonable control of logging slash-burning. Only 29 acres of timber and 165 acres of young growth have been burned during the last ten years, but 12,100 acres of logged land have not restocked.

This survey was made by a Forest Surveys Division party under Mr. C.W.Walker in 1934 and his report is based on conditions existing in the Forest after the 1934 season.

It is recommended that the Toba Forest be dedicated to permanent timber production, its best use.

F.D. Mulholland.

Forester.

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TOBA FOREST

Synopsis

(Location: The Toba Forest includes the watersheds of the mainland coast from Powell River to the mouth of Bute Inlet (Vancouver Forest District.)

Classification of areas (in acres)

Mature timber:	accessible	50,070		
	inaccessible	27,200	77,270	
Immature timber	1 - 20 years	10,260		
	21 - 40 "	21,570		
	41 - 60 "	750		
	61 - 80 "	440		
	80 -100 "	700	33,720	
Not reforested, logged, burned		9,410		
non-commercial cover		9,770	19,180	
Total productive area				130,170
Barren and scrub sites			626,290	
Swamp			2,240	
Meadow			170	
Water			5,040	
Total non-productive area.....				633,740

Total area of Forest 1,194 square miles or.. 763,910 acres.

Estimate of merchantable timber (M.B.M., over 11 inches d.b.h.)

	Crown	Alienated	Total
Douglas fir	424,568	179,846	604,414
Red cedar	465,726	207,154	672,880
Hemlock	428,508	107,684	536,192
Sitka spruce	31,548	5,747	37,295
Silver fir	250,462	44,886	295,348
White pine	21,441	287	21,728
Yellow cedar	30,859	1,057	31,916
Total	1,653,112	546,661	2,199,773

Estimated capacity for sustained annual yield.

Under present conditions 25,000 M.B.M. saw-timber.
When regulated 34,000 M.B.M.
Rotation 100 years.

Present utilization.

Approximate average for last ten years 30,500 M.B.M.

Looking up Toba Inlet from near Salmon Bay.

Estimate of Merchantable Timber

in M. B. M.

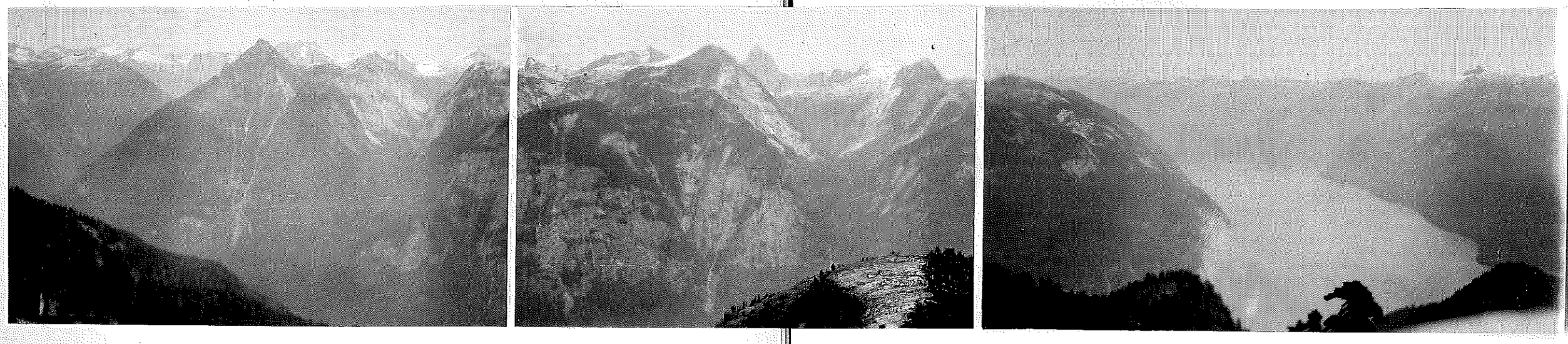
Species	Accessible			Inaccessible			Total		
	Crown	Alien	Total	Crown	Alien	Total	Crown	Alien	Total
Fir	296,690	179,846	476,536	127,878		127,878	424,568	179,846	604,414
Cedar	325,033	207,154	532,187	140,693		140,693	465,726	207,154	672,880
Hemlock	272,038	107,684	379,722	156,470		156,470	428,508	107,684	536,192
Spruce	10,223	5,747	15,970	21,325		21,325	31,548	5,747	37,295
Silver fir	159,103	44,886	203,989	91,359		91,359	250,462	44,886	295,348
White pine	6,435	287	6,722	15,006		15,006	21,441	287	21,728
Yellow cedar	3,174	1,057	4,231	27,685		27,685	30,859	1,057	31,916
Total	1,072,696	546,661	1,619,357	580,416	---	580,416	1,653,112	546,661	2,199,773
% of Total vol	49%	25%	74%	26%	0%	26%	75%	25%	100%
Area (acres)	33,440	16,630	50,070	27,200	---	27,200	60,640	16,630	77,270
% of mature area	43%	22%	65%	35%	0%	35%	78%	22%	100%

DESCRIPTION OF AREA

Boundaries and general topography.

Broadly, the Toba Forest is bounded on the south by the settled areas around Powell River and Lund; on the east by the divide between Homfray Channel and Powell Lake and River (Powell Forest boundary); the boundary then follows the limits of the Toba River and Inlet watershed to Bute Inlet near its mouth; the seą-wąrd boundary follows the shores of Pryce and Homfray Channels.

The general topography is typical of the lower mainland coast. The small area south of Theodosia River is characterized by gently rolling hills and small rocky knolls. Almost all the rest of the Forest is decidedly steep and rugged. The shore-line is irregular and for the most part precipitous and rocky. Several long, narrow valleys penetrate deeply into the Forest from the south and west.



Typical mainland coast topography. Toba Inlet to right, Brem River valley in foreground. View looking east from Face Mountain.

The outstanding topographic feature is the Toba Inlet - Toba River trough, a long narrow valley with numerous fair sized tributary valleys. The main trough is about 55 miles long, of which distance the Inlet accounts for about 22 miles. This body of water averages slightly less than two miles in width, is deep and safely navigable but affords no good anchorage and only two fair anchorages in its whole length.

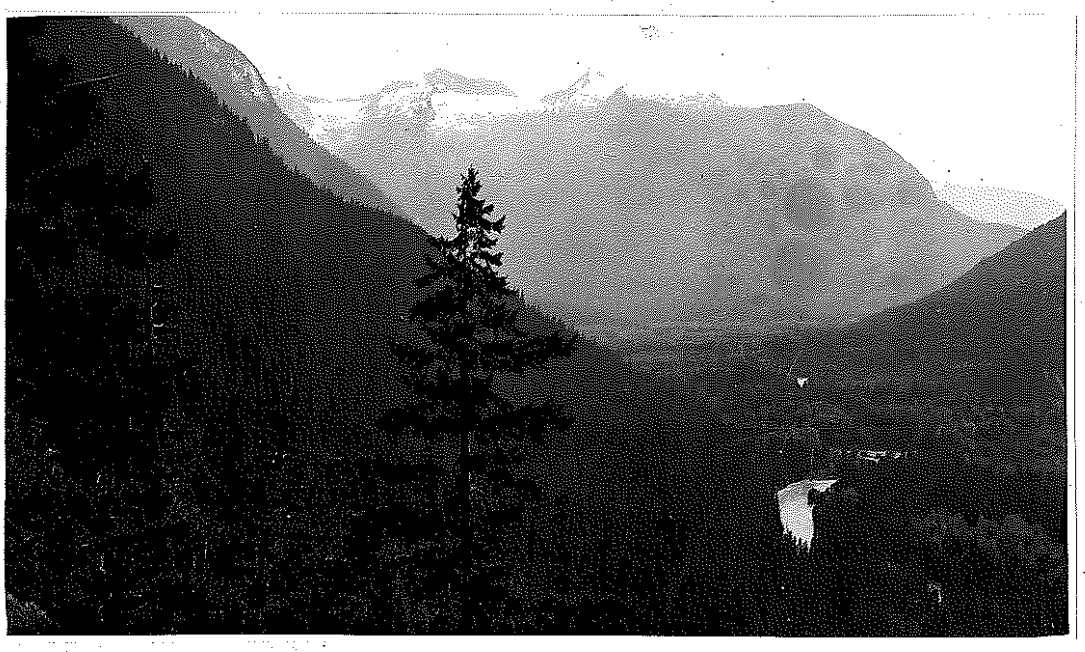
Looking west down lower part of Toba River valley.

Other tidal waterways penetrating or bordering the Forest are Bute Inlet, Ramsay Arm, Pryce and Homfray Channels, Desolation Sound, Malaspina Inlet and Theodosia, Okeover and Lancelot Arms.

Toba River about one mile up stream looking west.

The largest and most important river is the main Toba River, the upper portion of which is known locally as the South Fork (of the Toba) to distinguish it from the North Fork, known officially as Filer Creek. Other large tributaries of the Toba River are the Klite and Little Toba Rivers and Coon Creek. Additional drainage systems worthy of mention are the Brem River flowing south into Toba Inlet at Salmon Bay, the Tahumming River flowing south into the Inlet near its head, the Quatam River flowing into Ramsay Arm, the Theodosia River flowing into Theodosia Arm of Malaspina Inlet and Chusan, Forbes and Homfray Creeks. All these with the exception of Theodosia River are deep, narrow "U" shaped valleys, the average width of productive sites being about one mile.

Looking south up the Little Toba River valley. Toba River in the foreground.



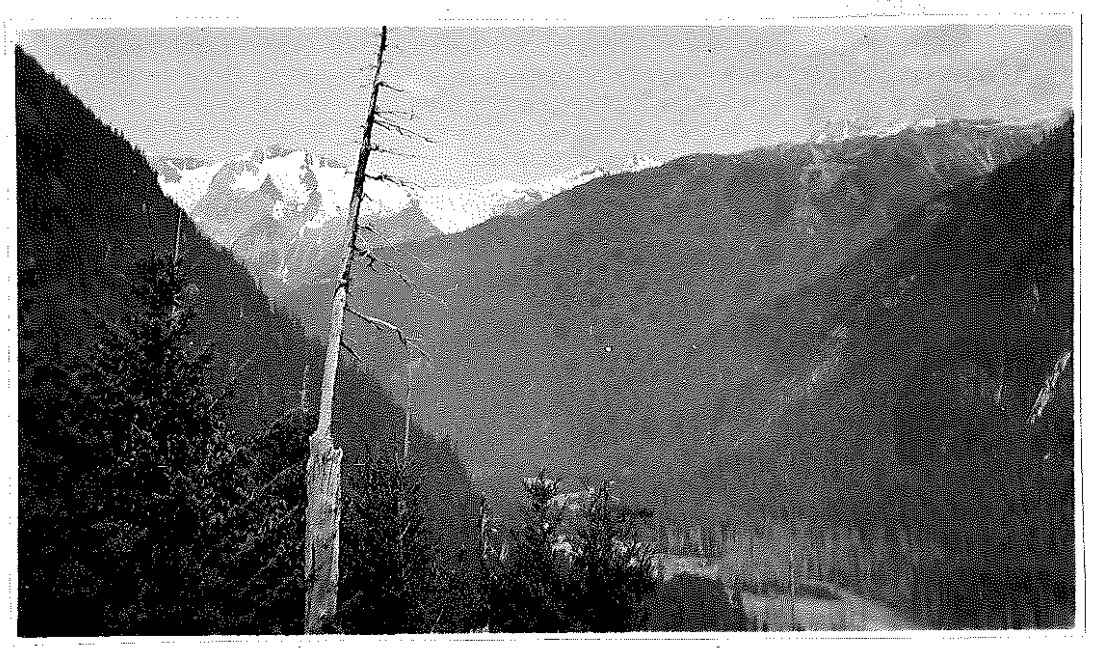
Looking down Toba River from about 30 miles up stream. Coon Creek valley on left.

The only navigable stream in the Forest is the Toba River. During its geologic lifetime it has carried huge quantities of very fine sand down to tidewater and deposited it in the form of a bar extending about a mile out into the Inlet for its whole width. The river is constantly changing its course through this bar and there is no well-defined channel. As a result boats can only enter the river at high or almost high tide. Once inside the bar the river is navigable to the average gas boat for about seventeen miles (to the "Forks"). Above this point the main stream is navigable for an additional fifteen miles or so to small craft with fairly powerful outboard motors. Except in the winter during low water the river is heavily laden with fine sand making visibility through the water only a few inches.

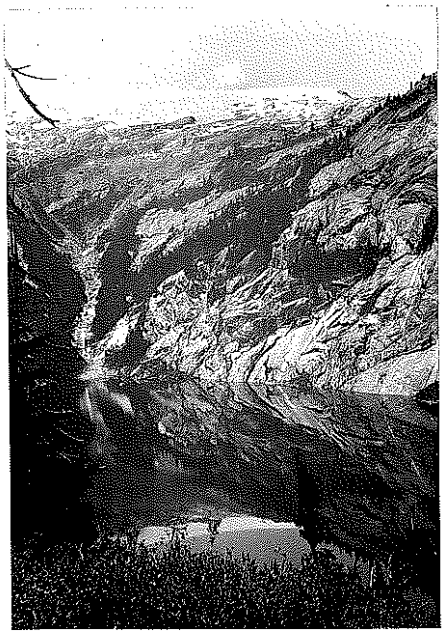
The Toba River below "The Forks" is a wide slow stream easily navigable.

The Toba, Bishop, Lord and Lillooet Rivers all have their source in an unexplored tangle of glaciers and snowcapped peaks, 8,000, 9,000 and 10,000 feet in elevation, which are part of the main Coast Range. With the exception of Mt. Gilbert, 10,200 feet, at the headwaters of Filer Creek, these peaks are all unnamed. A few of the more prominent peaks in the vicinity of Toba Inlet and Ramsay Arm are Mt. Barner, 6,090 feet, Mt.Powell, 6,066 feet, Mt.Grazebrooke, 5,420 feet, Mt.Whieldon, 5,520 feet, Mt.Aiken, 5,940 feet, Mt.Denman, 6,590 feet and Mt.Crawshay, 5,500 feet.

There are numerous small lakes in the mountains but none of any importance in the Forest. The largest one is Lake Unwin, only 520 acres in extent.



Headwaters of Toba River from about 35 miles up stream.



Typical mountain lake.

Climate.

Those portions of the Toba Forest near tide-water experience the typically moderate south coast climate. The fairly high precipitation and humidity and the absence of prolonged cold winters are all conducive to the growing of high quality timber on those sites which are productive. At the higher elevations and around the headwaters of the larger rivers, which rise in the midst of the Coast Range mountains, the tempering influence of the sea is not so marked and the winters are long and general climatic conditions more severe. For a short time during most winters the slow flowing lower portion of the Toba River is frozen over. This ice often extends well out into Toba Inlet where the water is comparatively fresh.

The following records are compiled from data collected at Thurston Bay, Savary Island and Powell River. While none of these stations are actually within the boundaries of the Forest they should give a fair idea of weather conditions prevailing at most points in the Forest at or near sea level.

Monthly precipitation in inches for year 1933 and average for ten years or more.

Month	Thurston Bay		Savary Island		Powell River	
	1933	Av.10 yrs.	1933	Av.14 yrs.	1933	Av.19 yrs.
Jan.	8.17	7.80	3.36	4.04	3.15	4.35
Feb.	6.30	7.71	1.76	2.85	1.67	3.46
Mar.	5.69	5.59	3.85	2.24	3.20	2.60
Apr.	1.86	4.27	0.91	1.98	0.48	2.41
May	6.90	4.23	1.90	1.54	3.06	1.78
June	2.50	2.81	2.26	1.98	1.39	1.84
July	3.86	2.10	0.40	0.82	0.41	1.25
Aug.	1.74	1.93	1.67	1.86	1.76	1.65
Sept.	13.11	4.29	5.18	2.68	6.64	2.59
Oct.	9.90	8.39	5.89	4.99	5.16	4.30
Nov.	7.65	8.08	2.75	5.22	2.38	4.23
Dec.	10.40	11.19	7.11	6.54	8.15	5.85
Year	78.08	68.39	37.04	36.74	37.45	36.31

Mean Monthly Temperature in degrees F. and average for 10 years or more.

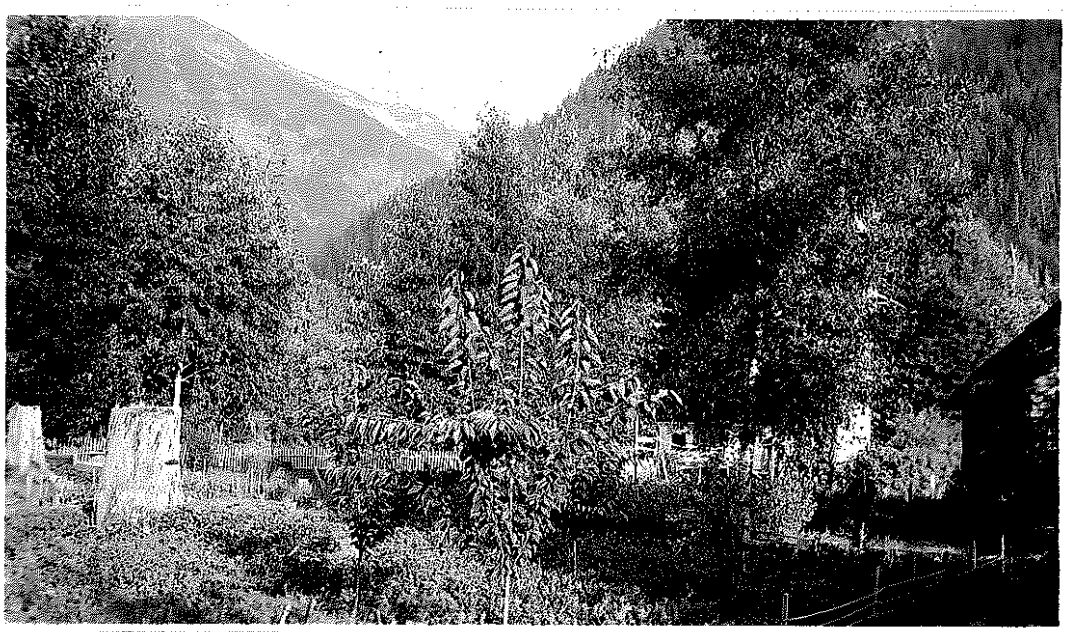
Month	Thurston Bay		Powell River	
	1933	Av.11 years	1933	Av. 18 years
January	34	36	37	38
February	33	38	35	39
March	40	42	41	43
April	45	47	46	48
May	50	53	50	54
June	55	58	57	60
July	61	62	62	64
August	64	62	65	65
September	55	56	55	58
October	49	49	50	50
November	45	42	45	44
December	34	37	38	39
Year	47	48	48	50

Agriculture.

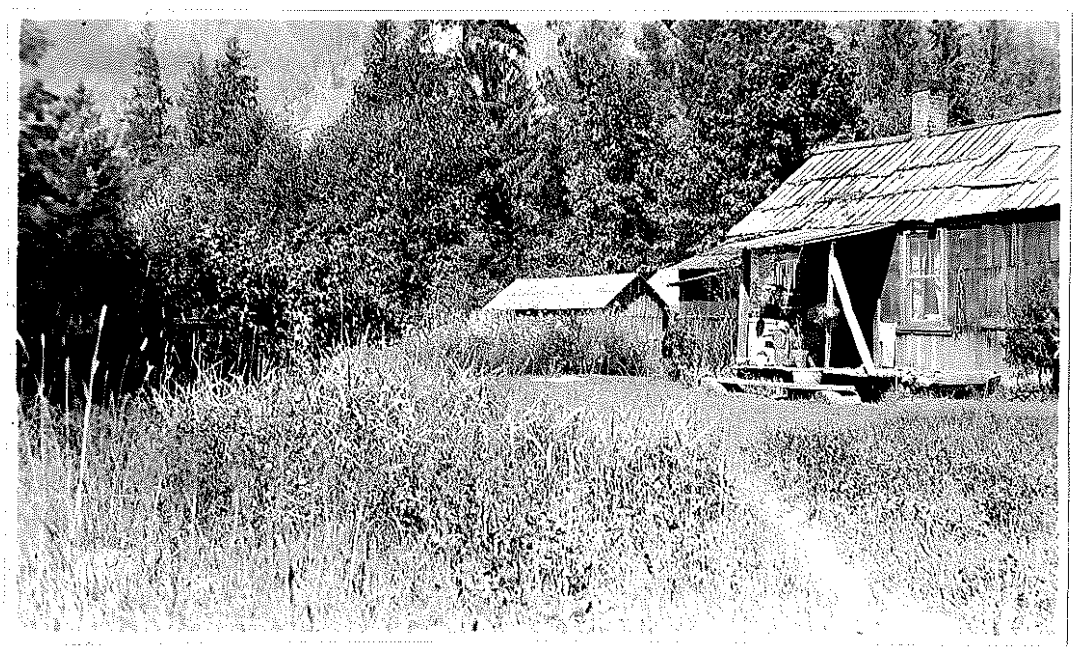
There are no areas included within the boundaries of the Toba Forest more suited to agriculture than to the perpetual growing of timber. The whole of Malaspina Peninsula and the area from Okeover Arm to Powell River has been excluded from the Forest. A large proportion of this area is Crown granted and much of it subdivided. Settlement is extensive though scattered. Some portions are suitable for agricultural purposes and are being developed accordingly. Others are being occupied by fishermen, loggers, fur farmers, etc. Several summer homes are located along the waterfront near Powell River.

A few other Crown granted lots have been excluded from the Forest where the settlers are apparently more or less self-supporting and have established permanent homes.

About ten Crown granted lots on the Toba River between the Klahoose Indian Reserve and the mouth of the Little Toba River have been included in the Forest although two families are apparently permanently located on two of the lots. At one time an extensive settlement scheme was planned for the Toba valley. In May 1912 no less than 93 applications were made for pre-emption records in this valley.



The two occupied homesteads in the Toba River valley.



At that time most of the valley was covered by unsurveyed timber limits and the volume of timber and best use for the land was unknown. Surveys of the timber licences and a report on the agricultural possibilities were immediately ordered. It was found that at that time about one half of the valley was covered by the timber belt along the river averaging 50 to 100 M.B.M. per acre in spruce and cedar. The rest of the valley was and still is mainly low lying swamp and a few scattered alder flats. This swamp land is 2 to 4 feet lower than the timbered belts along the river and is almost continuously under one to three feet of water. Consequently no pre-emption records were allowed at that time. Later, however, when the timber from the flats had been removed about a dozen lots were pre-emptied and later Crown granted on that part of the valley below the mouth of the Little Toba River. In 1934 only two families remained and although they apparently are able to grow a variety of garden produce more or less successfully, the quantity is little more than enough for their own use; there are no accessible markets. They are obliged to supplement their income by engaging in seasonal fishing and logging activities. Both from the 1912 reports and 1934 observations it appears that this valley will never support a prosperous agricultural community. This is due to three primary factors, the poor quality of soil, annual floods and isolated location. The soil is very fine sand brought down by the river from the glaciers at the headwaters of the drainage system. Usually once, sometimes twice a year, the Toba overflows its banks and floods the low lying level valley bottom, covering everything with sand to a depth of several inches. At the same time the river carries away practically all the vegetable mould and organic matter which may have accumulated since the last previous inundation. As a result the soil is purely a mineral one. The isolated position of the valley and restricted available markets make economically inadvisable any extensive drainage and flood control system. The nearest available market is Powell River and at times logging camps somewhat closer. These markets can be supplied more economically by agricultural communities more advantageously situated.

Commercial fishing.

The waters surrounding the Toba Forest are fished commercially for various salmon. The head of Toba

Inlet is the scene of the greatest activity. When the salmon arrive here about the end of August, on their way up the river, it is not uncommon to see fifty or more gill-netters at work. However, the waters immediately adjacent to the Forest cannot be said to yield good catches and attract few fishermen compared to many other fishing grounds up and down the coast. No cannery is situated in or near the Forest, the fish that are caught being collected twice a week by a fish packer and taken direct to Vancouver or New Westminster for canning.

At Stuart Island the better grade salmon caught by trollers, chiefly in the Yuculta Rapids, are bought and shipped direct to the fresh fish market in Vancouver.

Recreational.

Comparatively few sportsmen or vacationists are attracted to this district. No summer resorts are located in the Forest. The nearest ones are at Savary Island and Stuart Island. The latter place, across Bute Inlet from the Toba Forest, is the stopping place for a fairly large number of fishermen who are attracted by the fine catches of salmon obtained on rod and line in the Yuculta Rapids. A few fishermen make rather unsuccessful attempts to catch steelhead a short way up the Brem River.

A few years ago game was plentiful in the vicinity of Toba Inlet. Deer,mountain goat and black bear were abundant. These have now almost entirely disappeared, possibly due to the increase in the number of cougar, particularly up the Toba River. Far up this river an occasional goat is still found and a few grizzlies have been reported.

Trapping.

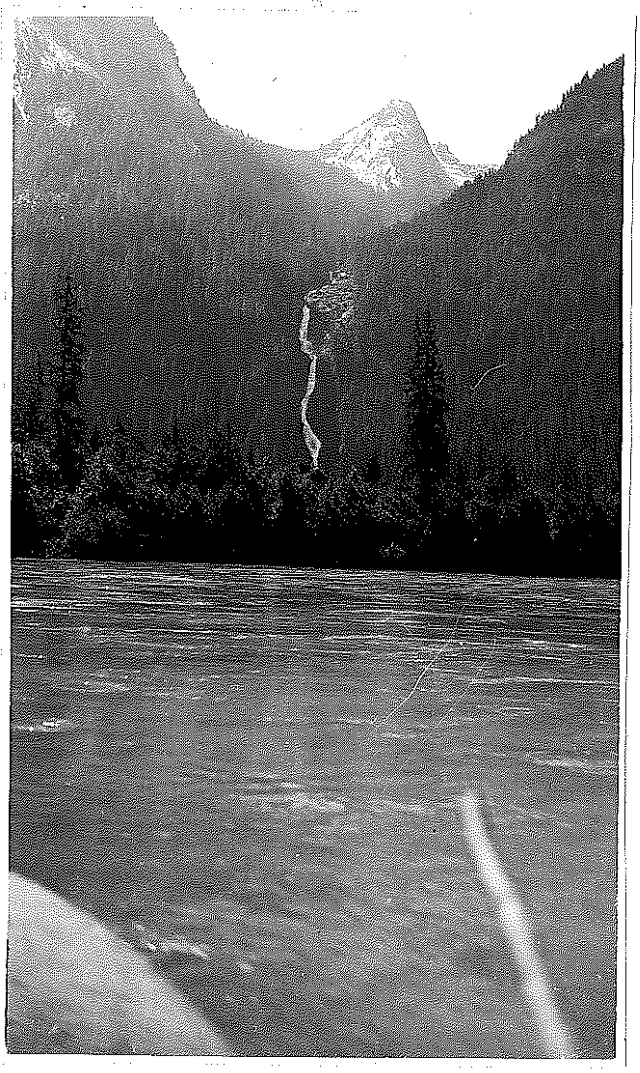
This Forest is a very poor fur producing area and practically no trap lines are now operated.

Mining.

Practically no mining development has been carried on in the Toba Forest. Much of the area has been prospected after a fashion but large areas, particularly near the headwaters of the larger rivers must still be more or less unexplored. One group of claims has been staked and surveyed about two miles west of Olsen Lake and a small amount of development work done. Near the head-waters of the Quatam River a few claims have been staked but apparently are of no value.

Power development.

No power has yet been developed in the Forest and probably none will be required for a long time. However, the possibility of power development has been investigated for most of the major streams in the Forest.



Helmecken Falls, Toba River.

The following table is a more or less complete but brief summary of all the possible hydro-electric power developments in the Toba Forest.

POSSIBLE POWER SITES IN TOBA FOREST

River or Creek	Location of Power Site	Head	Horse power Ordinary min.	Horse power Est. max.
Boyle Creek	MacKenzie Falls	750'	1,000 (W)	
Brem River	Rapids and falls near mouth	342' in $4\frac{1}{2}$ miles (W)	1,395 (W)	
Canon Creek	Canyon and falls near mouth	over 1000' in 3 miles	17,000 (C)	
Chusan "	Cascades near mouth	up to 855' in 6,200' (W)	1,026 (W)	3,112 (b)
Falls "	Near mouth	500 to 1000 ft. in rock canyon	5,000 (C)	
Forbes "	1 mile from mouth	330' with dam	264 (W)	760 (10 mos.)
Goat "	$\frac{1}{2}$ mile from mouth	550' in $\frac{1}{4}$ mile	500 (W) (C)	
Homfray "	$\frac{3}{4}$ mile from mouth	770, or 1500'	3,390 or 6000	
Klite River	Rapids	No data		
Little Toba River	2 miles from mouth	250 ft. in $3\frac{1}{4}$ miles, starting $2\frac{1}{2}$ miles above mouth	1,230 (b)	4,090 (b)
Lloyd Creek	$\frac{1}{2}$ mile from mouth	610 ft. (W)	342 (W)	
Owens "	Rapids and fall near mouth	300 ft.	2,000 (C)	(3,900 (10 mos.) (5,070 with storage)
Summit "	Rapids near mouth	1000 ft.	1,000 (C)	
Tahumming River	Falls and rapids near mouth	325 ft. in 8,550 ft.	2,600 (W)	
Theodosia "	First falls, 500 yards above forks	30 ft.	165 (b)	435 (b)
Thomlinson Creek	Rapids and falls $\frac{1}{2}$ mile above mouth	620 ft. in 4 miles (C)	5,500 (C)	
Toba River	Snowslide rapids 29 miles above forks	70 ft. in $\frac{1}{2}$ mile (C)	400 (C)	
" "	First falls 31 miles above forks	360 ft. in $1\frac{1}{2}$ mi. rapies in box canyon	2,000 (C)	
" "	Second " 32 " " "	530 ft. in $1\frac{1}{4}$ miles	2,300 (C)	
" " N. Fork	No fall or power sites for 15 or 20 miles	Rapids at head but river then small		

Sources of data: (C) Commission of Conservation 1919.
(b) B.C. Hydrometric Survey.
(W) Water Rights Branch.

Stores and post offices.

There are several small settlements near the Forest where are located general stores, gas stations, post offices and supplies of fresh water. These places are Stuart Island, Redonda Bay, Refuge Cove, Bliss Landing and Lund. The trading companies or stores at these places are quite well stocked and are capable of supplying most of the needs of the settlers in the district. Of course at the city of Powell River, a few miles south of the Forest, almost anything can be obtained. The Union Steamship Co. maintains a service which includes at least two calls per week at each of the above-named places.

DESCRIPTION OF FOREST

Species.

There are seven species of commercial importance found in the Toba Forest. The following table shows their relative importance from the standpoint of the total volume of each.

Species	Volume in M.B.M.	Per cent.
Western red cedar	672,880	30.5
Douglas fir	604,414	27.5
Western hemlock	536,192	24.4
Silver fir (balsam)	295,348	13.5
Sitka spruce	37,295	1.6
Yellow cedar	31,916	1.5
White pine	21,728	1.0

Western red cedar: is widely distributed throughout the entire Forest. In places it is of good quality and fairly free from defect but most of the cedar cruised was heavily culled, as much as 50%. This species is suitable for either saw-logs or shingle bolts. There are very few cedar poles in the Forest.

Douglas fir, although not so great in volume as the cedar, is the most valuable species in the Forest, particularly in view of present market prices. Some of the finest fir on the Coast was logged by Merrill Ring and Moore at Theodosia Arm, and a large volume still remains here and in many other parts of the Forest. However, all along the shores of Toba Inlet, Pryce Channel and Okeover Arm the fir is short and scrubby in character. The fir is primarily suitable as saw-log material, and occasionally, in the younger stands, as piling.

Western hemlock is suitable either as saw-log or pulp-material. Probably most of it will be cut eventually to supply the pulp mill at Powell River. In

general it is of fairly good quality, no large areas being definitely decadent.

Silver fir (balsam) is widely distributed in association with hemlock and cedar, usually at the higher elevations. Probably most of this species as well as the hemlock will be logged for pulp material. Generally it is fairly free from defect and was not culled very heavily.

Sitka spruce, yellow cedar and white pine together constitute only about 4% of the total volume of timber in the Forest and consequently are of little importance commercially.

Forest types.

There are two main types of mature timber in the Toba Forest and several minor ones which cannot be classified in any broad type. The types represented are:

(a) fir - cedar - hemlock.
(b) hemlock - cedar - silver fir.
(c) miscellaneous.

The fir - cedar - hemlock type is found on 63% of the mature timbered acreage and accounts for 63% of the total volume of timber in the Forest. As in the hemlock - cedar - silver fir type the relative volume of each of the three main species in this type may vary considerably in different compartments. But in every compartment each of the three species constitutes more than 20% of the total volume of timber in that compartment.

The hemlock - cedar - silver fir type, on 26% of the acreage of mature timber, accounts for 29% of the total volume in the Forest.

The miscellaneous types are composed of about 3,200 acres of pure fir, about 2,300 acres of cedar - hemlock - spruce, 2,600 acres of yellow cedar - hemlock - white pine, and a few acres of other mixtures.

The following table shows the relative importance of the various types and their composition by species.

Mature Timber Types

Species	Types							
	F - C - H		H - C - B		Misc.		Total	
	48390 ac. Vol.M.B.M.	63% %	20270 ac. Vol. MBM	26% %	8610 ac. Vol.MBM.	11% %	77270 ac. Vol.M.B.M.	100% %
Fir	470,913	34	70,730	11	62,771	36	604,414	27
Cedar	449,437	32	190,363	30	33,080	19	672,880	31
Hemlock	312,850	23	195,011	31	28,331	16	536,192	24
Spruce	18,661	1	7,053	1	11,581	7	37,295	2
Silver fir	117,112	9	167,020	26	11,216	6	295,348	13
White pine	7,298	-	3,397	.5	11,033	6	21,728	1
Yellow cedar	9,550	1	3,927	.5	18,439	10	31,916	2
Total	1,385,821	100	637,501	100	176,451	100	2,199,773	100
Per cent.	63		29		8		100	
Vol/ac.	28.6 MBM		31.4MBM		20.5MBM		28.5 MBM	

Reproduction. The total area of immature timber in the Forest is 33,720 acres. Of this area, 31,830 acres, or 94% is less than 40 years old. As there was practically no logging and very little settlement in this district more than forty years ago, this seems to indicate that almost all the young stands in the Forest have followed logging or fires of human origin.

The following table shows the effect of various factors on the natural restocking of denuded areas. All figures are acres.

Classification	Resulting from				Total
	Logging	Logging & burning	Burning	Misc.	
(NSR - 5 yrs prev. to survey) Not restocking	(1,500) 3,660	(3,300) 5,110	640		(4,800) 9,410
Non-commercial cover	2,690	630	1,700	4,750	9,770
Total	6,350	5,740	2,340	4,750	19,180
Immature timber					
1 - 20 years	2,430	1,470	6,360		10,260
21 - 40 "	1,300	3,790	16,480		21,570
41 - 60 "	160		590		750
61 - 80 "			440		440
81 -100 "	60		640		700
Total	3,950	5,260	24,510		33,720
Grand Total	10,300	11,000	26,850	4,750	52,900

Apparently from the above figures it might be assumed that 57% of the area logged or logged and burned has failed to restock satisfactorily. However, there are several large areas logged recently which could not be expected to have become restocked yet. It would be a more accurate estimate to say that 70% of areas logged in the Toba Forest will restock satisfactorily by natural means.

Below is shown, in number of trees per acre and percentages, the average distribution of species in the various age-classes of immature timber.

Species	Age-class							
	1 - 20		21-40		41-60		61-80 81-100	
	No./ac.	%	No/ ac.	%	No./ac.	%	No./ac.	%
Hemlock	1,150	46	1,120	62	700	67	300	68
Cedar	460	18	350	19	120	11	60	14
Douglas fir	860	35	320	18	220	21	70	16
Other	20	1	20	1	10	1	10	2
Total	2,490	100	1,810	100	1,050	100	440	100

Site qualities. Most of the mature timber in the Toba Forest is well past the rotation age and is over-mature and, in certain areas decadent. As a result the site index of these areas cannot be calculated with any degree of accuracy. Less than 2,000 acres of the immature timber is over 40 years old. Hence any site index for these areas would be based on so few measurements as to be unreliable. The average site index for stands less than 40 years old seems to be about 90. For those mature timber areas where it has been possible to make an estimate, the site index is apparently slightly over 100. For the whole Forest the average site index of all sites considered productive is probably very close to 100.

at what age?

Fires, whether of accidental origin or intentional slash burns, seem to have reduced the site quality slightly.

Large areas of low site quality, mostly at the higher elevations, have been classed as non-productive although they may have on them, in the aggregate, large volumes of yellow cedar and scrubby hemlock and silver fir.

Quatam River - Brem River divide.

UTILIZATION

Present cut.

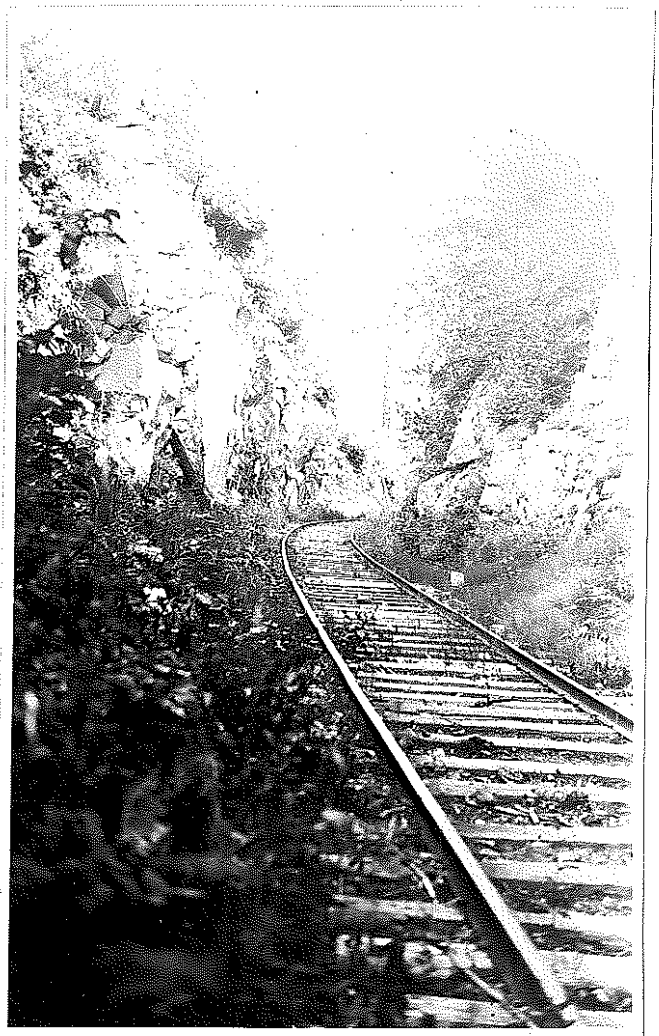
Approximately 21,000 acres have been logged in the Toba Forest to date. Of this amount about 9,800 acres have been logged during the last ten years, that is since January 1, 1925. During this period about 305,600 M.B.M. have been logged or about 30,560 M.B.M. per year. Of the total volume logged since 1925 the Merrill and Ring Lumber Co. have removed 212,594 M.B.M. from the Theodosia tract.

As the present productive capacity of the Forest is calculated to be 25 million feet per year it can be seen that during the last ten years at least the Forest has been slightly overcut.

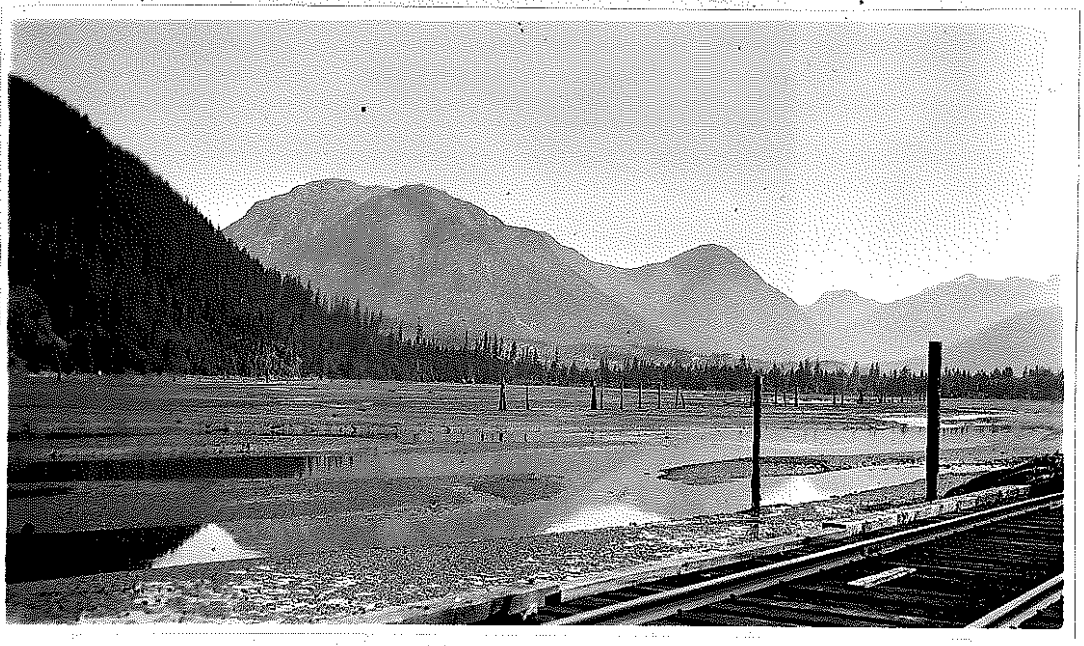
At the time of the survey practically no logging was being carried on in the Forest. W.E.Black was felling and bucking on T.L.13278P, near the head of Toba Inlet. This is a small, one donkey operation. Two men were handlogging on the east side of Salmon Bay. A few handloggers were logging near T.L.12806P, about three miles south-west of Salmon Bay. About twenty men were engaged in the logging of T.L.14146L, on the east side of Ramsay Arm.

The Rounds Burchette Logging Co. have started logging the Quatam River valley. This is a one locomotive railroad show. About one and a half miles of steel are in now. This camp closed down about June 1934 but it was expected that operations would be resumed early in 1935.

The Merrill and Ring Lumber Co. have been logging in the Theodosia River valley since about 1925 and still have several years cut left. This Company also was inactive during the summer of 1934 but resumed logging in October of that year. This is a fairly large railroad operation with a maximum capacity of about 300,000 f.b.m. per day.



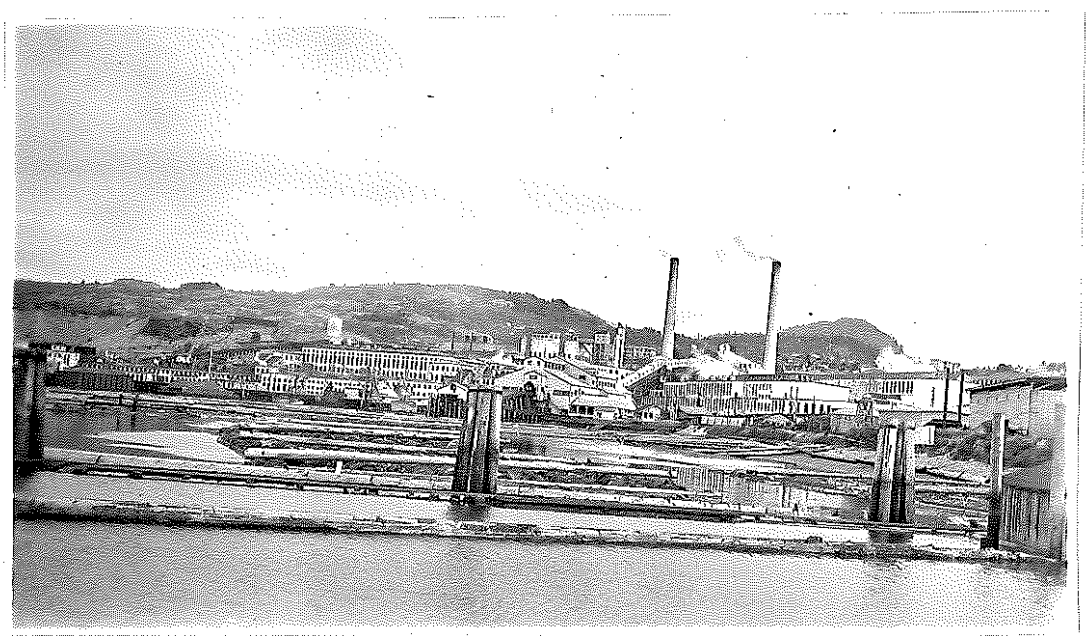
Rock cut on Merrill & Ring Lumber Co's. logging railroad. Theodosia Arm.



Merrill & Ring Lumber Co.'s booming ground at Theodosia Arm.

All logging in the Forest in recent years has consisted in the cutting of saw-log material, chiefly fir and cedar. Cedar poles, piling and shingle bolts have been logged in the past occasionally but only in negligible quantities.

No mills of any description are located in or adjacent to the Forest. However, a few miles south of the Forest is located the Powell River Co's pulp and paper plant, which normally affords a market to many logging operators along the coast for a large volume of pulp material. At the present time all the timber cut in the Toba Forest is disposed of on the Vancouver and New Westminster log markets.



Powell River Co's pulp and paper mill at Powell River, B.C.

Future Logging possibilities.

Several fairly large blocks of timber are suitable for power logging in conjunction with railroad or truck hauling. These blocks are located as follows:

A. Brem River, compartment #17.

B. Quatam River, compartments #28, 29. The Rounds Burchette Logging Co. has started logging in this block.

View from near Face Mountain showing timber in part of Brem River valley.

Headwaters of Quatam River from Face Mountain. Compartment 28 at right.

C. Theodosia River, compartments #47, 48. The Merrill and Ring Lumber Co. has been logging adjacent areas since 1923 and is continuing logging in these two compartments.

D. Chusan Creek, compartment #19.

E. Homfray Creek, compartment #26.

F. Forbes Creek, compartment #40.

G. Klite River, compartment #12.

H. Pryce Channel, compartment #32.

I. Little Toba River, compartment #1.

J. Toba River, above Little Toba, compartments 2, 3, 4, 8.

And merely as a matter of interest the total timber up the Toba River and its tributaries, including Blocks I and J.

A brief summary of volumes of timber in each of these blocks follows. For more complete information see compartment descriptions, page 50 .

Block	Compt. No.	Volume M.B.M.	Vol. by species in %				Percentage	
			F	C	H	B	Alien.	Access.
A	17	271,728	13	35	23	26	12	86
B	28	57,169	2	18	38	40	14	28
	29	140,877	15	42	25	8	64	92
	Total	197,046	11	35	29	18	50	74
C	47	129,300	50	42	8		86	100
	48	85,646	19	25	33	16	85	85
	Total	214,946	37	35	18	7	85	94
D	19	116,912	21	30	30	19	23	100
E	26	91,921	11	30	32	26	0	100
F	40	81,600	14	37	32	13	0	100
G	12	87,809	12	65	12	9	85	100
H	32	80,236	34	26	27	9	54	100
I	1	143,378	47	27	20	4	0	70
J	2	18,706	65	15	20		0	60
	3	31,327	42	19	20	11	0	32
	4	14,940	23	60	16		0	100
	8	42,861	61	27	6		0	100
	Total	107,834	51	27	14	3	0	73
Toba R. drainage	1-9 & 11	338,747	45	29	18	8	1	54

The total volume of timber in these blocks, exclusive of the last item in the table, is 1,393,310 M.B.M. or 63% of the total volume of timber in the Forest. Of this amount 33% is alienated as at December 31, 1934. This rather low figure is somewhat misleading. Among other areas, blocks A and I, Brem River and Little Toba River, are considered as Crown timber. Literally this is true as the taxes on these blocks of timber are one to four years overdue. The only means by which parties other than the licence holders could acquire timber of such status would be by timber sale. And it is unlikely that timber sales of such timber would be made. In many cases the registered licence holders, by filing affidavits showing cause why their taxes were not paid, are able to re-instate their licences. Therefore it is hardly

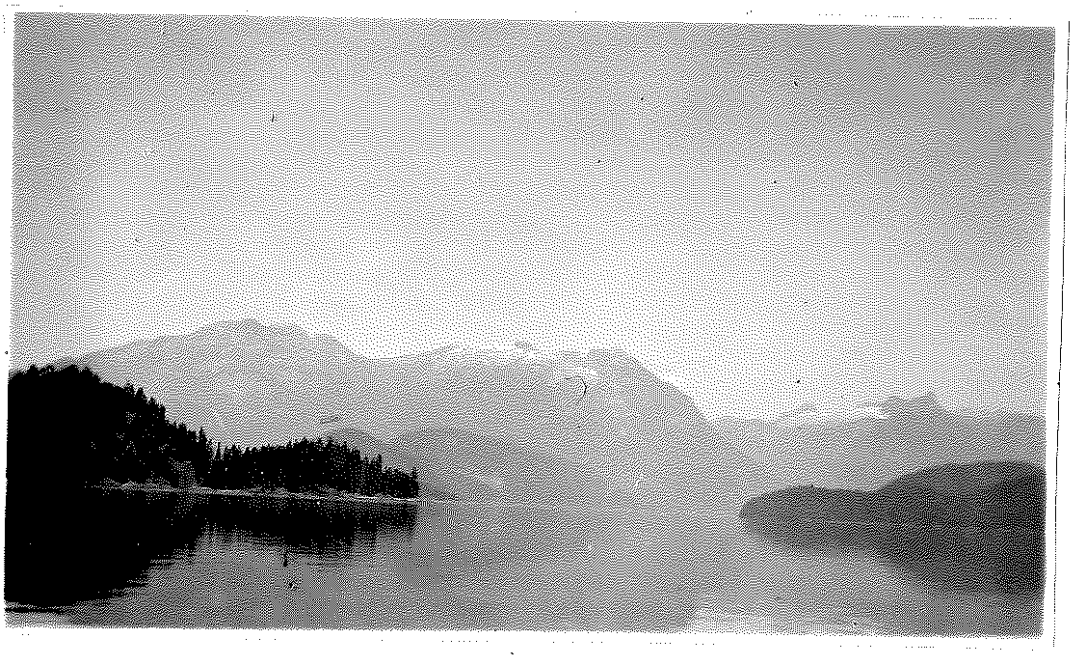
correct to assume that 67% of the timber in these blocks (A to J) is available Crown timber. The utilization or disposal of at least an appreciably large percentage of this timber depends on the decisions of various owners. Some of these owners will probably commence logging operations when the price of logs increases. Others are holding timber as an investment, in the expectation of being able to obtain a higher stumpage price than obtains at present.

The tidal waterways penetrating and bordering the Toba Forest are safely navigable at all times for deep sea and coastwise vessels. The only exception is Malaspina Inlet and its various arms. These waters require considerably more care and attention to tides. Natural harbours or good anchorages are scarce and on Homfray Channel and Toba Inlet are entirely non-existent. Forbes Bay, Salmon Bay and the head of Toba Inlet afford the only available anchorages in these waters and even these are only suitable in fair weather.

View of the mouth of the Toba River and the head of Toba Inlet.

In each of these cases, bars extend out for a considerable distance (at the head of the Inlet about a mile) and abruptly shelve off into very deep water. The same scarcity of good booming grounds also exists.

All the waterways are more or less sheltered and do not get particularly rough. Small boats, however, at times are inconvenienced in crossing Bute Inlet to Stuart Island and in proceeding around the south end of the Forest in the direction of Powell River. Tides run at only normal rates and no rapids exist in these waters.



View on Pryce Channel looking east.

Factors preventing complete utilization.

The fact that a considerable percentage of the mature accessible timber is alienated or situated on licences which may be re-instated is an important factor in preventing complete utilization at present or in the near future in accordance with any preconceived working plan. Another factor tending towards incomplete utilization is the fact that most of the timber in the Forest is found in comparatively long, narrow, steep valleys. The only exception is the large block of timber in the Theodosia River watershed and this is more than half logged now. While most of the timber in the longer river valleys can be called accessible it is relatively inaccessible compared to timbered areas in some of the other coast forests. Another factor, which, however, affects all B.C.forests, is the general low prices of logs and other forest products now prevailing.

MANAGEMENT

Management policy.

Of the total volume of timber in the Toba Forest 82% is made up of the three major species suitable as saw log material. These species are cedar 30.5%, fir 27.5% and hemlock 24%. Those species suitable as pulp material account for only 39% of the total volume. They are hemlock 24%, silver fir 13% and spruce 2%. From these figures it is obvious that this Forest is primarily suited to the production of saw-timber and that any management plan should have as its object the maintenance of a sustained yield of saw-timber. However, until more of the total volume of timber is acquired by the Crown it will be difficult to manage the Forest on a sustained yield basis.

The immediate objects of management should be to:

(a) restrict sales of Crown timber to those areas which cannot be logged profitably except in conjunction with the logging of alienated timber, so long as the average yearly cut exceeds the calculated sustained yield;

(b) encourage logging methods which will ensure sufficient natural reproduction;

(c) properly organize and supervise the burning of slash to eliminate the fire hazard existing in an area of unburned logging debris and to protect groups of seed trees and adjacent stands;

(d) put into operation a plan of protection at a cost compatible with the forest values so protected;

(e) artificially restock those areas which have been logged or burned or both and which are incapable of restocking naturally.

Silvicultural treatment.

In the past clear cutting has been practised almost exclusively in the logging of this Forest. Probably 90% of the timber removed during the last ten years has been logged by large scale operators using this method and following it with the broadcast burning of slash.

Panorama of area logged and partly slash burned by the Merrill & Ring Lumber Co. at Theodosia River - not yet restocking.

Due to the heavy and expensive types of machines used it has been unprofitable for the operators to remove trees of the smaller diameter classes. This material has been destroyed and left on the ground after logging. This practice not only involves considerable waste but also increases the fire hazard or make slash disposal more difficult.

The apparent success of recent experiments in large scale selective logging with caterpillar tractors in Washington and Oregon seems to indicate that such methods could well be employed in the logging of parts of the Toba Forest. Not only will the logger probably get a greater return on his investment but also the land will be kept at or near its maximum productive capacity continuously. The degree of utilization will be greatly increased and the logging of the smaller diameter classes with lighter and more flexible equipment should be a profitable operation whenever there is a demand for special products such as poles or piling.

There has been some relatively unimportant selective logging in the past but this has been confined chiefly to hand loggers operating on small areas close to tidewater. A few thousand cedar poles were logged selectively about 1925 up the Toba River some six or seven miles above the "Forks". Horses were used in skidding the poles to the river down which they were driven to tidewater.

A few areas in the Forest may need to be artificially restocked, particularly the large Theodosia tract being logged by Merrill & Ring Lumber Co. This area has been clear cut and most of it slash burned. Reproduction is very scattered except along the boundaries of the logged area near standing timber. The planting of seedlings is recommended in preference to the scattering of seed. Douglas fir is known to grow well in this locality and should be the chief species planted.

Apparently one slash burn after logging does not reduce the site quality appreciably. Great care should be taken to prevent successive fires on any one and to protect young growth coming in after logging. Slash should be burned as soon as possible. Usually this can be done best either in the spring or fall of the year following logging. Broadcast burning seems to be the only practicable method of slash disposal. This operation should be carefully planned to take advantage of

all natural and artificial fire breaks and should be adequately supervised and controlled.

Yield and regulation.

As stated previously in this report the average site index of all productive areas is in the neighbourhood of 100. On this basis the rotation age indicated by the yield tables for western hemlock and Douglas fir, the only coast species for which such tables have been prepared, is 130 years and 80 years respectively. These ages are those at which the maximum mean annual increment should be attained. As it would be unpractical to have different rotation ages for each species an arbitrary rotation of 100 years has been chosen. This compares with 120 years used in the Loughborough and Sayward Forests and 100 years in the Powell and Seechelt Forests.

From the hemlock yield tables it is calculated that at 100 years a normal volume of 37,600 f.b.m. per acre could be produced. From the Douglas fir tables a volume of 36,000 f.b.m. could be expected. These volumes average 36,800 f.bm. per acre. The mean annual increment therefore is 368 f.b.m. per acre. From this a deduction of 20% is made to allow 15% for openings in the stand due to the presence of rock outcrops, creeks and small patches of hardwoods and 5% for defects inherent in the trees themselves. Therefore the average net volume at 100 years will be 29,400 f.b.m. per acre and the mean annual increment 294 f.b.m. per acre.

As fir and hemlock together constitute only slightly more than 50% of the mature volume of timber in the Forest, the remainder being cedar 31%, other species 18%, a correction will be necessary due to the fact that the mean annual increment for cedar, and probably for the other species, at 100 years, will be less than the average for fir and hemlock. From studies made at Wellbore Channel it is calculated that the mean annual increment for cedar is 78% of that for hemlock. This amounts to 234 f.b.m. per acre net (that is, after the 20% deduction explained above has been made).

Assuming then that 50% of the stand will have a mean annual increment at 100 years of 294 f.b.m. per acre and the other 50% one of 234 per acre an average mean annual increment of about 260 f.b.m. per acre is arrived at.

The present productive capacity of the Toba Forest, using Hanzlik's formula -

$$Y = \frac{Vm}{r} + I, \text{ where}$$

Y = sustained annual yield
Vm = present accessible volume
r = rotation age
I = total mean annual increment on all accessible immature areas,

is $\frac{1,619,357}{100} + 260 \times 33,720 = 24,961,000$ f.b.m. per year

The following table shows the number of years cut provided by each of the various present age-classes, assuming that logging can be so regulated that 25,000 MBM will be logged each year.

Age-class	Acres	Volume at maturity in M.B.M.	Year's cut
Mature access.	50,070	1,619,357	65
81 - 100	700	18,200	
61 - 81	440	11,440	2
41 - 60	750	19,500	
21 - 40	21,570	560,820	22
1 - 20	10,260	266,760	11
Total	83,790	2,496,077	100

When the cut has been so regulated that there is an even distribution of age-classes and when all productive areas are satisfactorily stocked and the present inaccessible timber becomes accessible, the ultimate productive capacity of the Forest will be -

Productive acreage X M.A.I.

or 130,170 x 260 f.b.m.

= 33,844,000 f.b.m. per year.

or from areas now stocked (accessible or not) 30,800,000 f.b.m.

PROTECTION

Fire damage during last 10 years.

The table on the following page reveals the damage due to fires in the Toba Forest during the period 1925 to 1934 inclusive.

From this table it can be seen that 91% of the area burned, 87% of suppression costs and 96% of the estimated damage are attributable to logging activities. Of the total area burned, however, 71% was burned intentionally to remove slash. These fires were well controlled, burning only areas which had been recently logged. Their total cost was borne by the logging operators concerned and they were responsible for no damage to timber or logging equipment.

It will also be noted that the area of mature timber burned during this period was negligible. However, several million feet of felled and bucked timber, estimated to be worth $19,450.00, was destroyed by fires caused by the operation of logging machinery.

Although no estimates are available a large volume of mature timber has been destroyed by fire during the last forty years.

Unburned logging slash constitutes the greatest fire hazard.

The chief fire hazard seems to be the accumulation of logging slash. This situation is aggravated by the danger of fire starting due to the operation of defective logging equipment.

Fire damage in Toba Forest, 1925 - 1934 (inclusive).

Year	Fire No.	No. of fires	Cause of fire	Acres burned						Cost in dollars		Estimated damages in dollars
				Tbr.	Imm.	NP	Burn	Logged	Total	Forest Branch	Others	
1925	68		Spark from donkey			40		25	65		350.00	198.75
	180		" " "	5		80			85		500.00	200.00
	252		" " "	11	65	45		748	869	103.30	574.00	13,841.00
	Total	3	" " "	16	65	165		773	1,019	103.30	1,424.00	14,239.75
1926		0										
1927		0										
1928	182		Spark from donkey	5		150		170	325	268.25	306.08	22,150.00
	356		Rock slide					100	100		210.00	
	Total	2		5		150		270	425	268.25	516.08	22,150.00
1929	349	1	Careless smoker	8		10		232	250	491.93		1,278.00
1930	S.B.	1	Slash burn					1,800	1,800		539.50	
1931	159	1	Friction from line					40	40	465.15	381.60	9,000.00
1932	6		Slash burn					1,350	1,350		1,750.00	
	38		Careless hunter				3		3			
	S.B.		Slash burn					1,675	1,675		172.50	
	Total	3					3	3,025	3,028		1,922.50	
1933	128	1	Careless camper						spot			
1934	2		Careless smoker						spot			
	79		Lightning		100	125			225	86.83		664.80
	317		Careless camper					2	2			
	Total	3			100	125		2	227	86.83		664.80
Grand Total		15		29	165	450	3	6,142	6,789	1,415.46	4,783.68	47,332.55

Existing protective organization and improvements.

The Toba Forest is situated entirely within the Campbell River Supervisor District and the Lund ranger district. In normal years when appropriations have been made for the purpose the ranger at Lund and one or two assistants maintain an effective patrol of this Forest by boat, usually in conjunction withthe performance of their other duties. In addition fishermen, loggers and settlers are almost continuously travelling the main waterways adjacent to the Forest. Generally they co-operate in reporting any outbreak of fire as soon as possible. This present method of detection is adequately efficient as almost the whole of the Forest is visible from tidewater. The only blind areas are the heads of the longer river valleys where practically the only danger of fire is from lightning.

Two lookouts are situated outside the boundaries of the Forest but overlook only small portions of it. They are the Forest Branch lookout on Sonora Island, connected by telephone to the ranger station at Thurston Bay, and the Powell River Co's lookout just west of the Powell River dam, connected by telephone to the ranger station at Powell River.

Other improvements of value in the protection of this Forest are:

(a) Roads, railroad grades, and trails.

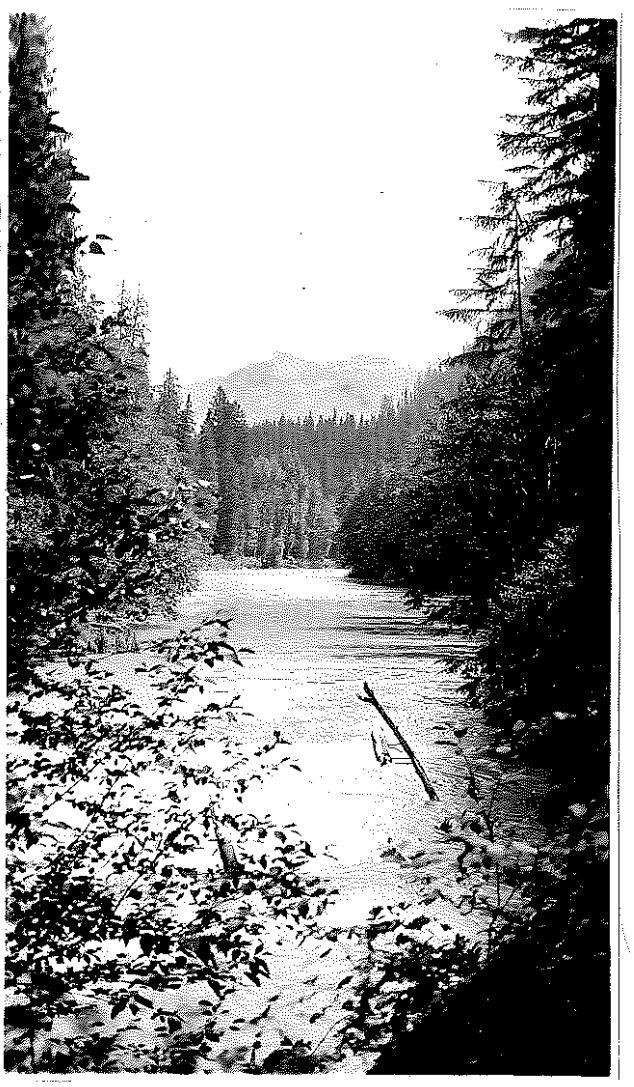
1. Powell River - Lund road with a branch to Okeover Arm.

2. Merrill & Ring Lumber Co's railroad grades, some abandoned, some in use, in the Theodosia River valley. These grades are mostly in good condition but the bridges across the river have been destroyed by fire.

3. Rounds-Burchette Logging Co's railroad up the Quatam River valley. This extends for only about one and a half miles but is projected for about six or seven miles. From the end of steel a rough trail exists for about 12 miles, to the forks of the Quatam River north of T.L.12051P.

4. Brem River trail is in quite good condition and follows the west bank of the Brem River from Salmon Bay for about six or seven miles to the junction of the Brem River and Hillis Creek.

5. Tahumming (Grave-yard) River trail follows the west bank of this river for about four miles, and is in fair condition.



Looking down Tahumming River from trail which closely follows left bank of river.

6. Klite River trail, along the east bank of the river was never more than a grap trail and is now in very poor condition and in

many places almost impossible to follow.

7. Little Toba River trail is an old trap trail extending ten or twelve miles up this valley. It is in very poor condition and is hard to follow.

8. Forbes Creek logging road, now partly overgrown follows up the north side of Forbes Creek for about three miles.

9. Chute from L.2481 to Shippewa Bay, Powell Lake. This chute gives access to considerable volume of yellow cedar to the west of Powell Lake.

10. Toba River trap trails. As the Toba River is navigable for about thirty miles no trails are necessary for this distance. During the fire season when the river is fairly high small boats with fairly powerful outboard motors can get to the junction of the Toba River and the large creek coming in from the east about a mile north of T.L.10235P. A chain or two back from the west bank of the river at this point is a trapper's cabin. From here one trap trail extends an unknown distance up the large tributary valley opposite and another up the west bank of the Toba River. This latter is in fair condition as far as the north boundary of T.L.7680P.

(b) Boats. The ranger for this district is stationed at Lund, and, except in 1932 and 1933 when the money was not available, an assistant ranger operating out of Whaletown, Cortes Island, has been employed during the fire season. Both these officers are supplied with Forest Branch launches. One or two others are usually available in an emergency at the Forest Branch station at Thurston Bay. In addition a launch is normally maintained at Vancouver District Headquarters for use anywhere in that district.

(c) Communications. The Union Steamship Co's ships maintain a twice a week service to many points near the boundaries of the Toba Forest.

The Dominion Government telegraph service is available at Powell River to which city a telephone line connects Lund, Bliss Landing, and settlements of Cortes Island.

The Forest Branch operates a radio station at Campbell River and can communicate with the rangers in the district, all of whose launches are equipped with radio telephone sending and receiving apparatus.

The Merrill & Ring Lumber Co. operate a private radio telephone station at Theodosia Arm.

Recommended Protection Plan.

With logging activities at a lower point than for many years, the present field staff of one ranger and one assistant ranger seems adequate to perform the management and protection duties required of them at present. Except where logging is being conducted the Toba Forest is an area of comparatively slight fire hazard and its protection should not take a great deal of the ranger's time in normal years.

As previously stated the present system of fire detection in the Toba Forest seems to be adequate. However, to facilitate the suppression of fires it is recommended that certain improvements be made to existing trails when funds are available for the purpose.

In this connection it is recommended that:

(a) The Merrill & Ring Lumber Co's main line grades be kept open when their logging activities are concluded.

(b) The Rounds-Burchette Logging Co's main line grade be kept open up the Quatam River valley when their operations are concluded, and, if considered advisable at that time, that a trail be built and maintained in good condition further up this valley.

(c) The present trail up the Brem River be maintained in good condition at least as far as Hillis Creek.

(d) The present trail up Tahumming River be cleared of windfalls and maintained in good condition for four or five miles.

View of timber in the Tahumming River valley reached by poor trail.

(e) The present trap trail up Klite River be greatly improved or a new trail located as far as the south boundaries of T.L.3062P.

(f) The existing poor trail up the Little Toba River be improved and maintained for about eight miles.

(g) The old logging road up Forbes Creek be kept cleared out for at least three miles.

(h) A trail be built up Homfray Creek valley on the north side of the creek for about five miles.

All these valleys which would thus be made more accessible to fire crews contain large volumes of merchantable timber well worth some expenditure in protecting.

Most of the timber in the main Toba valley can be reached by boat and there is practically no timber up the North Fork (or Filer Creek) worth protecting.

It is also recommended that a more careful inspection be made of logging equipment to guard against the outbreak of fires caused by the operation of defective machinery.

Classification of Areas (in Acres).

TOBA Provincial Forest

Date, 1934

COMPARTMENT.		CAPABLE OF PRODUCING TIMBER.											NON-PRODUCTIVE.			
				Immature.												
Locality.	No.	Mature (1).	Mature (2).	0 to 20 Yrs.	21 to 40 Yrs.	41 to 60 Yrs.	61 to 80 Yrs.	81 to 100 Yrs.	Over 100 Yrs.	Selection.	Logged or Burned.	Non-commercial Cover.	Barren.	Scrub Sites.	Grass and Meadow.	Swamp.
Little Toba River	1	3,400										170	80(inacc.)	30		240
Toba River	2	940												20		
Coon Creek	3	1,500	750									130		100		140
Upper Toba River	4	830		140								150		50		80
" " "	5	1,070														
" " "	6	1,000									120 (inacc)	120 (inaccess)		50		10
" " "	7	1,850										70 inaccess				30
" " "	8	1,300									40	480		40		180
Filer Creek	9	1,340										1,000 (240 inaccess)				60
Toba River Forks	10			480								300				20
Lower Toba River	11		160								50	3,320			40	640
Klite River	12	3,270										370		30		
Tahumming River	13	2,220	50									670 inaccess				210
" "	14				1,630											
North Toba Inlet	15	500				150										
East of Salmon Bay	16	470									30					
Brem River	17	7,200		250	160							300		170		
West of Salmon Bay	18	560			20									30		
Chusan Creek	19	2,650		170	350	70					40	130		150		
South Toba Inlet	20	700			50						80					
" " "	21	1,180		240												
" " "	22	1,100												10		
Snout Point	23	2,060														110
South Toba Inlet	24	860		140							200			670		
N. of Attwood Bay	25	1,140	130	600	400			520 (30 inaccess)			110			1,170		10
Homfray Creek	26	2,640			280						30					
E. Homfray Channel	27	480			50		240				30					10
Upper Quatam River	28	3,700			60 (inaccess).											
Lower Quatam River	29	4,460	840								500					240
Channel Island	30	1,950			220			100			170			210		
Pryce Channel	31	1,100			70						40			60		
" "	32	2,650	200	500	60	240					20	10		1,730		
East Ramsay Arm	33	2,090	220	70	620						300					
Head Ramsay Arm	34				1,750		140					1,120		370		
West Ramsay Arm	35		160		910									20		
East Bute Inlet	36		400		330						30	190		10,610		
Church House	37	540		140	460						890	20		2,000		
Raza Island	38			1,230	380							20				
" "	39	1,160									40			1,370		
Forbes Creek	40	2,000	160	280	510			80			70					20
S. Forbes Bay	41			300	720						400			370	30	
Lloyd Creek	42	490														
Homfray Channel	43		540		1,540									90		
Unwin Lake	44		300	1,370	2,440		60				50	20		1,250		
Theodosia River	45										6,040					
" "	46	400														
" "	47	2,250			980									1,510	100	80
" "	48	3,100												220		
N. " "	49	420	240	240	320									980		20
		66,570	4,150	6,150	14,310	460	440	700			9,270	8,590		23,310	170	2,100

	CAPABLE OF PRODUCING TIMBER.										NON-PRODUCTIVE.					TOTAL.	REMARKS.
Mature (2).	Immature. 0 to 20 Yrs.	21 to 40 Yrs.	41 to 60 Yrs.	61 to 80 Yrs.	81 to 100 Yrs.	Over 100 Yrs.	Selection.	Logged or Burned.	Non-commercial Cover.	Barren.	Scrub Sites.	Grass and Meadow.	Swamp.	Water.		
								1	170	80 (inacc.)	30		240	220	4,060	
								2			20				960	
750								3	130		100		140		2,620	
	140							4	150		50		80	10	1,260	
								5							1,070	
								6	120 (inacc)	120 (inaccess)	50		10	100	1,400	
								7	70	inaccess			30	150	2,100	
								8	40	480	40		180	500	2,540	
								9		1,000 (240 inaccess)			60	300	2,700	
	480							10		300			20		800	
160									50	3,320		40	640	670	4,880	
										370	30				3,670	
50										670	inaccess		210	250	3,400	
		1,630													1,630	
			150												650	
									30						500	
	250	160								300	170			280	8,360	
		20									30				610	
	170	350	70						40	130	150				3,560	
		50							80						830	
	240														1,420	
											10				1,110	
													110		2,170	
	140								200		670				1,870	
130	600	400			520 (80 inaccess)				110		1,170		10	10	4,090	
		280							30						2,950	
		50		240					30				10		800	
		60 (inaccess).												100	3,860	
840									500				240	100	6,140	
		220			100				170		210				2,650	
		70							40		60				1,270	
200	500	60	240						20	10	1,730				5,410	
220	70	620							300						3,300	
		1,750		140						1,120	370			240	3,620	
160		910									20				1,090	
400		330							30	190	10,610				11,560	
	140	460							890	20	2,000				4,050	
	1,230	380								20				20	1,650	
									40		1,370			10	2,580	
160	280	510			80				70				20		3,120	
	300	720							400		370	30			1,820	
															490	
540		1,540									90				2,170	
300	1,370	2,440		60					50	20	1,250			680	6,170	
									6,040					220	6,260	
															400	
		980									1,510	100	80	120	5,040	
											220				3,320	
240	240	320									980		20		2,220	
4,150	6,150	14,310	460	440	700			9,270	8,590		23,310	170	2,100	3,980	140,200	Total productive area acres. Total non-productive acres.

Classification of Areas (in Acres).

TOBA Provincial Forest

Date, 1934

COMPARTMENT.		CAPABLE OF PRODUCING TIMBER.											NON-PRODUCTIVE.			
Locality.	No.	Mature (1).	Mature (2).	Immature. 0 to 20 Yrs.	21 to 40 Yrs.	41 to 60 Yrs.	61 to 80 Yrs.	81 to 100 Yrs.	Over 100 Yrs.	Selection.	Logged or Burned.	Non-commercial Cover.	Barren.	Scrub Sites.	Grass and Meadow.	Sw
Forward		66,570	4,150	6,150	14,310	460	440	700			9,270	8,590		23,310	170	2
S.Theodosia Arm	50			290	100	290						400				
E.Okeover Arm	51	2,530		60	60									150		
Bunster Hills	52		350											7,200		
S.Bunster Hills	53	2,590												40		
E.Okeover Arm	54		150	600	7,100						70	750		360		
N.Sliammon Lake	55		120	3,160												
W.Powell Lake	56													1,900		
E.Homfray Channel	57													43,110		
S.Toba Inlet	58		580								40			41,880		
Mt.Hayes	59													1,740		
N.Pryce Channel	60													8,700		
Quatam River	61													21,130		
Mt.Powell	62													10,500		
Brem River	63													75,010		
N.Toba River	64										30	30		15,200		
Tahumming River	65													46,680		
Klite River	66													34,080		
Filer Creek	67		230											95,700		
Little Toba River	68													37,400		
Upper Toba River	69													162,200		
Total		71,690	5,580	10,260	21,570	750	440	700			9,410	9,770		626,290	170	2

CAPABLE OF PRODUCING TIMBER.										NON-PRODUCTIVE.					TOTAL.	REMARKS.
Mature (2).	Immature. 0 to 20 Yrs.	21 to 40 Yrs.	41 to 60 Yrs.	61 to 80 Yrs.	81 to 100 Yrs.	Over 100 Yrs.	Selection.	Logged or Burned.	Non-commercial Cover.	Barren.	Scrub Sites.	Grass and Meadow.	Swamp.	Water.		
4,150	6,150	14,310	460	440	700			9,270	8,590		23,310	170	2,100	3,980	140,200	
	290	100	290						400						1,080	
	60	60									150				2,800	
350											7,200		10	140	7,700	
											40		10	20	2,660	
150	600	7,100						70	750		360		10	270	9,310	
120	3,160												90		3,370	
											1,900				1,900	
											43,110			150	43,260	
580								40			41,880			20	42,520	
											1,740				1,740	
											8,700			170	8,870	
											21,130			130	21,260	
											10,500				10,500	
											75,010			140	75,150	
								30	30		15,200				15,260	
											46,680			20	46,700	
											34,080		20		34,100	
230											95,700				95,930	
											37,400				37,400	
											162,200				162,200	
5,580	10,260	21,570	750	440	700			9,410	9,770		626,290	170	2,240	5,040	763,910	

Total productive area 130,170 acres.
Total non-productive 633,740 acres.

T O B A PROVINCIAL FOREST, 1934 — T I M B E R S U M M A R Y

Comp't. No.	Acres of Mature timber Accessible Alien.	Crown	Total	Forest type: Unit of Measure / Status / Species / Minimum d.b.h.	Accessible Saw-timber in M. B. M. Alienated F	C	H	S	B	Pw	Cy	Total	Crown F	C	H	S	B	Pw	Cy	Total
					11 inches								11 inches							
1		2,300	2,300	F-C-H									47,362	27,464	20,374	880	4,237	47		100,364
2		560	560	F-H-C									7,263	1,714	2,245					11,222
3		680	680	F-H									6,839	602	1,694	798	49	15		9,997
4		830	830	C-F-H									3,403	9,005	2,424	100	8			14,940
8		1,300	1,300	F-C									25,987	11,479	2,418	2,977				42,861
11	160		160	S-H-F	.520	430	590	710				2,250								
12	2,700	570	3,270	C-F-H	9,630	50,760	6,930	1,440	5,850			74,610	1,070	6,145	3,470	338	2,176			13,199
15		500	500	H-C									4,065	6,865	14,475		4,410			29,815
16		470	470	F-C									9,856	9,005	3,910		42			22,813
17	880	5,320	6,200	C-B-H	4,180	11,563	7,682	748	8,818	211	9	33,211	25,270	69,905	46,444	4,522	53,306	1,277	53	200,777
18	450	110	560	C-H-B	1,890	3,789	2,804		2,075		4	10,562	462	926	685		507		1	2,581
19	350	2,300	2,650	C-H-F	11,798	9,076	5,960					26,834	12,450	26,460	28,994		21,968	106		89,978
20	350	350	700	F-H-C	8,837	3,098	4,137		658			16,730	2,867	5,064	5,789		3,290			17,010
22		1,100	1,100	C-H-F									7,471	8,595	8,319		4,890	201		29,476
24		860	860	C-F-H									7,147	9,468	5,315		60	172		22,162
26		2,640	2,640	H-C-B									10,312	27,838	29,208	239	24,324			91,921
28	520	570	1,090	B-H-C	90	1,750	3,880	290	1,742			7,752	302	1,670	3,243	114	2,685			8,014
29	2,940	1,520	4,460	C-H-F	15,010	39,150	25,320	1,710	8,758			89,948	6,182	20,065	10,408		2,883	34		39,572
30		1,950	1,950	H-B-F									8,664	7,088	20,731		11,129		1,420	49,032
31	800	300	1,100	F-C-H	9,098	4,392	3,138					16,628	4,365	1,225	1,084					6,674
32	1,460	1,390	2,850	F-H-C	14,864	11,406	11,648		4,123		1,038	43,079	12,115	9,315	9,975	104	3,516	548	1,584	37,157
33	320	1,990	2,310	F-H-C	5,898	2,387	2,694			61	6	11,046	21,206	13,910	19,560		8,700	144	116	63,636
37	230	310	540	F-C	3,119	692	419					4,230	4,203	933	564					5,700
39		580	580	F-H									3,010	267	794		63	64		4,198
40		2,160	2,160	C-H									11,100	30,280	25,720		10,860	3,640		81,600
43		350	350	F									13,310	1,253	385					14,948
44		190	190	F-H									4,200	380	570					5,150
46		400	400	C										7,800						7,800
47	1,930	320	2,250	F-C	54,986	46,223	8,840	849				110,898	9,114	7,677	1,460	151				18,402
48	2,040		2,040	H-C-F	16,241	19,993	23,417		12,862			72,513								
49		660	660	F									16,252	976	237					17,465
51	1,500	680	2,180	F	23,685	2,445	225			15		26,370	10,843	1,119	103			7		12,072
58		180	180	H-C										540	1,440			180		2,160
Total	16,630	33,440	50,070		179,846	207,154	107,684	5,747	44,886	287	1,057	546,661	296,690	325,033	272,038	10,223	159,103	6,435	3,174	1,072,696

TIMBER SUMMARY

Accessible Saw-timber in M. B. M.

Alienated					Crown								Total							
S	B	Pw	Cy	Total	F	C	H	S	B	Pw	Cy	Total	F	C	H	S	B	Pw	Cy	Total
					11 inches								11 inches							
					47,362	27,464	20,374	880	4,237	47		100,364	47,362	27,464	20,374	880	4,237	47		100,364
					7,263	1,714	2,245					11,222	7,263	1,714	2,245					11,222
					6,839	602	1,694	798	49	15		9,997	6,839	602	1,694	798	49	15		9,997
					3,403	9,005	2,424	100	8			14,940	3,403	9,005	2,424	100	8			14,940
					25,987	11,479	2,418	2,977				42,861	25,987	11,479	2,418	2,977				42,861
710				2,250									520	430	590	710				2,250
1,440	5,850			74,610	1,070	6,145	3,470	338	2,176			13,199	10,700	56,905	10,400	1,778	8,026			87,809
					4,065	6,865	14,475		4,410			29,815	4,065	6,865	14,475		4,410			29,815
					9,856	9,005	3,910		42			22,813	9,856	9,005	3,910		42			22,813
748	8,818	211	9	33,211	25,270	69,905	46,444	4,522	53,306	1,277	53	200,777	29,450	81,468	54,126	5,270	62,124	1,488	62	233,988
	2,075		4	10,562	462	926	685		507		1	2,581	2,352	4,715	3,489		2,582		5	13,143
				26,834	12,450	26,460	28,994		21,968	106		89,978	24,248	35,536	34,954		21,968	106		116,812
	658			16,730	2,867	5,064	5,789		3,290			17,010	11,704	8,162	9,926		3,948			33,740
					7,471	8,595	8,319		4,890	201		29,476	7,471	8,595	8,319		4,890	201		29,476
					7,147	9,468	5,315		60	172		22,162	7,147	9,468	5,315		60	172		22,162
					10,312	27,838	29,208	239	24,324			91,921	10,312	27,838	29,208	239	24,324			91,921
290	1,742			7,752	302	1,670	3,243	114	2,685			8,014	392	3,420	7,123	404	4,427			15,766
1,710	8,758			89,948	6,182	20,065	10,408		2,883	34		39,572	21,192	59,215	35,728	1,710	11,641	34		129,520
					8,664	7,088	20,731		11,129		1,420	49,032	8,664	7,088	20,731		11,129		1,420	49,032
				16,628	4,365	1,225	1,084					6,674	13,463	5,617	4,222					23,302
	4,123		1,038	43,079	12,115	9,315	9,975	104	3,516	548	1,584	37,157	26,979	20,721	21,623	104	7,639	548	2,622	80,236
		61	6	11,046	21,206	13,910	19,560		8,700	144	116	63,636	27,104	16,297	22,254		8,700	205	122	74,682
				4,230	4,203	933	564					5,700	7,322	1,625	983					9,930
					3,010	267	794		63	64		4,198	3,010	267	794		63	64		4,198
					11,100	30,280	25,720		10,860	3,640		81,600	11,100	30,280	25,720		10,860	3,640		81,600
					13,310	1,253	385					14,948	13,310	1,253	385					14,948
					4,200	380	570					5,150	4,200	380	570					5,150
						7,800						7,800		7,800						7,800
849				110,898	9,114	7,677	1,460	151				18,402	64,100	53,900	10,300	1,000				129,300
	12,862			72,513									16,241	19,993	23,417		12,862			72,513
					16,252	976	237					17,465	16,252	976	237					17,465
		15		26,370	10,843	1,119	103			7		12,072	34,528	3,564	328			22		38,442
						540	1,440			180		2,160		540	1,440			180		2,160
5,747	44,886	287	1,057	546,661	296,690	325,033	272,038	10,223	159,103	6,435	3,174	1,072,696	476,536	532,187	379,722	15,970	203,989	6,722	4,231	1,619,357

TOBA PROVINCIAL FOREST, 1934. — TIMBER SUMMARY

Comp't. No.	Acres of Mature timber: Accessible Alien	Accessible Crown	Accessible Total	Inaccessible Crown	Inaccessible Total	Total Alien	Total Crown	Total Total	Forest Type	Unit of Measure / Status / Species / Minimum d.b.h.	Total Saw-timber in M.B.M. Alienated F	C	H	S	B	Pw	Cy	Total	Crown F	C	H	S	B	Pw	Cy
											11 inches								11 inches						
1		2,300	2,300	1,100	1,100		3,400	3,400		F-C-H									67,660	39,236	29,104	1,258	6,052	68	
2		560	560	380	380		940	940		F-H-C									12,107	2,858	3,741				
3		680	680	1,570	1,570		2,250	2,250		F-H									13,035	6,075	6,248	2,430	3,487	52	
4		830	830				830	830		C-F-H									3,403	9,005	2,424	100	8		
5				1,070	1,070		1,070	1,070		C-F-H									4,419	5,093	2,771	11	1,520	160	193
6				1,000	1,000		1,000	1,000		F-C-H									9,294	6,167	3,861	1,186	447		
7				1,850	1,850		1,850	1,850		F-C-H									9,250	8,307	5,827	2,905	370		
8		1,300	1,300				1,300	1,300		F-C									25,987	11,479	2,418	2,977			
9				1,340	1,340		1,340	1,340		C-F-H									5,119	8,536	4,248	3,202	2,399		
11	160		160			160		160		S-H-F	520	430	590	710				2,250							
12	2,700	570	3,270			2,700	570	3,270		C-F-H	9,630	50,760	6,930	1,440	5,850			74,610	1,070	6,145	3,470	338	2,176		
13				2,270	2,270		2,270	2,270		C-H-S									6,050	19,750	11,559	10,871	8,160		439
15		500	500				500	500		H-C									4,065	6,865	14,475		4,410		
16		470	470				470	470		F-C									9,856	9,005	3,910		42		
17	880	5,320	6,200	1,000	1,000	880	6,320	7,200		C-B-H	4,180	11,563	7,682	748	8,818	211	9	33,211	30,020	83,045	55,174	5,372	63,326	1,517	63
18	450	110	560			450	110	560		C-H-B	1,890	3,789	2,804		2,075		4	10,562	462	926	685		507		1
19	350	2,300	2,650			350	2,300	2,650		C-H-F	11,798	9,076	5,960					26,834	12,450	26,460	28,994		21,968	106	
20	350	350	700			350	350	700		F-H-C	8,837	3,098	4,137		658			16,730	2,867	5,064	5,789		3,290		
21				1,180	1,180		1,180	1,180		C-B-H									708	6,773	4,484	118	4,720		
22		1,100	1,100				1,100	1,100		C-H-F									7,471	8,595	8,319		4,890	201	
23				2,060	2,060		2,060	2,060		H-C-B									7,128	27,274	30,653		20,909	1,669	2,430
24		860	860				860	860		C-F-H									7,147	9,468	5,315		60	172	
25				1,270	1,270		1,270	1,270		F-C-H									16,484	6,321	3,708		259	235	159
26		2,640	2,640				2,640	2,640		H-C-B									10,312	27,838	29,208	239	24,324		
27				480	480		480	480		H-C-B									1,939	4,675	7,522		3,691		
28	520	570	1,090	2,610	2,610	520	3,180	3,700		B-H-C	90	1,750	3,880	290	1,742			7,752	1,272	8,777	17,713	286	21,369		
29	2,940	1,520	4,460	840	840	2,940	2,360	5,300		C-H-F	15,010	39,150	25,320	1,710	8,758			89,948	6,182	20,065	16,103		8,511	34	34
30		1,950	1,950				1,950	1,950		H-B-F									8,664	7,088	20,731		11,129		1,420
31	800	300	1,100			800	300	1,100		F-C-H	9,098	4,392	3,138					16,628	4,365	1,225	1,084				
32	1,460	1,390	2,850			1,460	1,390	2,850		F-H-C	14,864	11,406	11,648		4,123		1,038	43,079	12,115	9,315	9,975	104	3,516	548	1,584
33	320	1,990	2,310			320	1,990	2,310		F-H-C	5,898	2,387	2,694			61	6	11,046	21,206	13,910	19,560		8,700	144	116
36				400	400		400	400		F-H-C									4,370	1,420	1,520		480		
37	230	310	540			230	310	540		F-C	3,119	692	419					4,230	4,203	933	564				
39		580	580	580	580		1,160	1,160		F-H									6,020	534	1,589		127	128	
40		2,160	2,160				2,160	2,160		C-H									11,100	30,280	25,720		10,860	3,640	
42				490	490		490	490		F-H									6,537	1,087	3,636		833		
46		400	400				400	400		C										7,800					
47	1,930	320	2,250			1,930	320	2,250		F-C	54,986	46,223	8,840	849				110,898	9,114	7677	1,460	151			
48	2,040		2,040	1,060	1,060	2,040	1,060	3,100		H-C-F	16,241	19,993	23,410		12,862			72,513		1,791	4,685		1,166	488	5,003
49		660	660				660	660		F									16,252	976	237				
51	1,500	680	2,180	350	350	1,500	1,030	2,530		F	23,685	2,445	225			15		26,370	16,264	1,679	154			10	
53				2,590	2,590		2,590	2,590		Cy-H-Pw											15,566		3,056	11,008	18,000
X		720	720	1,710	1,710		2,430	2,430		F-H									28,601	6,199	14,304		3,700	1,261	1,417
Total	16,630	33,440	50,070	27,200	27,200	16,630	60,640	77,270		C-F-H	179,846	207,154	107,684	5,747	44,886	287	10057	546,661	424,568	465,726	428,508	31,548	250,462	21,441	30,859

TIMBER SUMMARY

Total Saw - timber in M. B. M.

	Alienated								Crown								Total							
	F	C	H	S	B	Pw	Cy	Total	F	C	H	S	B	Pw	Cy	Total	F	C	H	S	B	Pw	Cy	Total
	11 inches								11 inches								11 inches							
									67,660	39,236	29,104	1,258	6,052	68		143,378	67,660	39,236	29,104	1,258	6,052	68		143,378
									12,107	2,858	3,741					18,706	12,107	2,858	3,741					18,706
									13,035	6,075	6,248	2,430	3,487	52		31,327	13,035	6,075	6,248	2,430	3,487	52		31,327
									3,403	9,005	2,424	100	8			14,940	3.403	9,005	2,424	100	8			14,940
									4,419	5,093	2,771	11	1,520	160	193	14,167	4,419	5,093	2,771	11	1,520	160	193	14,167
									9,294	6,167	3,861	1,186	447			20,955	9,294	6,167	3,861	1,186	447			20,955
									9,250	8,307	5,827	2,905	370			26,659	9,250	8,307	5,827	2,905	370			26,659
									25,987	11,479	2,418	2,977				42,861	25,987	11,479	2,418	2,977				42,861
									5,119	8,536	4,248	3,202	2,399			23,504	5,119	8,536	4,248	3,202	2,399			23,504
	520	430	590	710				2,250									520	430	590	710				2,250
	9,630	50,760	6,930	1,440	5,850			74,610	1,070	6,145	3,470	338	2,176			13,199	10,700	56,905	10,400	1,778	8,026			87,809
									6,050	19,750	11,559	10,871	8,160		439	56,829	6,050	19,750	11,559	10,871	8,160		439	56,829
									4,065	6,865	14,475		4,410			29,815	4,065	6,865	14,475		4,410			29,815
									9,856	9,005	3,910		42			22,813	9,856	9,005	3,910		42			22,813
	4,180	11,563	7,682	748	8,818	211	9	33,211	30,020	83,045	55,174	5,372	63,326	1,517	63	238,517	34,200	94,608	62,856	6,120	72,144	1,728	72	271,728
	1,890	3,789	2,804		2,075		4	10,562	462	926	685		507		1	2,581	2,352	4,715	3,489		2,582		5	13,143
	11,798	9,076	5,960					26,834	12,450	26,460	28,994		21,968	106		89,978	24,248	35,536	34,954		21,968	106		116,812
	8,837	3,098	4,137		658			16,730	2,867	5,064	5,789		3,290			18,010	11,704	8,162	9,926		3,948			33,740
									708	6,773	4,484	118	4,720			16,803	708	6,773	4,484	118	4,720			16,803
									7,471	8,595	8,319		4,890	201		29,476	7,471	8,595	8,319		4,890	201		29,476
									7,128	27,274	30,653		20,909	1,669	2,430	90,063	7,128	227274	30,653		20,909	1,669	2,430	90,063
									7,147	9,468	5,315		60	172		22,162	7,147	9,468	5,315		60	172		22,162
									16,484	6,321	3,708		259	235	159	27,166	16,484	6,321	3,708		259	235	159	27,166
									10,312	27,838	29,208	239	24,324			91,921	10,312	27,838	29,208	231	24,324			91,921
									1,939	4,675	7,522		3,691			17,827	1,939	4,675	7,522		3,691			17,827
	90	1,750	3,880	290	1,742			7,752	1,272	8,777	17,713	286	21,369			49,417	1,362	10,527	21,593	576	23,111			57,169
	15,010	39,150	25,320	1,710	8,758			89,948	6,182	20,065	16,103		8,511	34	34	50,929	21,192	59,215	41,423	1,710	17,269	34	34	140,877
									8,664	7,088	20,731		11,129		1,420	49,032	8,664	7,088	20,731		11,229		1,420	49,032
	9,098	4,392	3,138					16,628	4,365	1,225	1,084					6,674	13,463	5,617	4,222					23,302
	14,864	11,406	11,648		4,123		1,038	43,079	12,115	9,315	9,975	104	3,516	548	1,584	37,157	26,979	20,721	21,623	104	7,639	548	2,622	80,236
	5,898	2,387	2,694			61	6	11,046	21,206	13,910	19,560		8,700	144	116	63,636	27,104	16,297	22,254		8,700	205	122	74,682
									4,370	1,420	1,520		480			7,790	4,370	1,420	1,520		480			7,790
	3,119	692	419					4,230	4,203	933	564					5,700	7,322	1,625	983					9,930
									6,020	534	1,589		127	128		8,398	6,020	534	1,589		127	128		8,398
									11,100	30,280	25,720		10,860	3,640		81,600	11,100	30,280	25,720		10,860	3,640		81,600
									6,537	1,097	3,636		833			12,103	6,537	1,097	3,636		833			12,103
										7,800						7,800		7,800						7,800
	54,986	46,223	8,840	849				110,898	9,114	7677	1,460	151				18,402	64,100	53,900	10,300	1,000				129,300
	16,241	19,993	23,410		12,862			72,513		1,791	4,685		1,166	488	5,003	13,133	16,241	21,784	28,102		14,028	488	5,003	85,646
									16,252	976	237					17,465	16,252	976	237					17,465
	23,685	2,445	225			15		26,370	16,264	1,679	154			10		18,107	39,949	4,124	379			25		44,477
Pw											15,566		3,056	11,008	18,000	47,630			15,566		3,056	11,008	18,000	47,630
									28,601	6,199	14,304		3,700	1,261	1,417	55,482	28,601	6,199	14,304		3,700	1,261	1,417	55,482
	179,846	207,154	107,684	5,747	44,886	287	10057	546,661	424,568	465,726	428,508	31,548	250,462	21,441	30,859	1,653,112	604,414	628,880	536,192	37,295	295,348	21,728	31,916	2,199,773

IMMATURE TIMBER.

T O B A Provincial Forest.

Summary of Immature Compartments by Age-classes.

Date, 1934 Type Age-class

F.B. 84—4M-320-5478

~~Section,~~ ~~Lot or~~ Strip No. Comp'rt.	PRODUCTIVE (Acres). IMMATURE. Main Type.	Sub-types.	Mature Merchantable.	Logged or Burned.	Non-Commercial.	NON-PRODUCTIVE (Acres). Barren.	Scrub Sites.	Grass and Meadow.	Swamp.	Water.	TOTAL ACRES.
1 - 20 years.											
4		140									
10	480										
17		250									
19		170									
21		240									
24		140									
25		600									
32		220									
32		120									
32		160									
33		70									
37		110									
37		30									
38	1,230										
40		280									
41		300									
44		1280									
44		40									
44		30									
44		20									
49		240									
50		290									
51		20									
51		40									
54		600									
55	3,160										
Totals	4,870	5390									10,260
21-40 years.											
14	1,630										
17		160									
18		20									
19		50									
19		300									
20		50									
25		400									
26		280									
27		50									
28		60									
30		220									
31		70									
32		60									
33		460									
33		160									
34	1,750										
	3,380	2340									5,720

DESCRIPTION (per Acre).

STRIP. Chainage.	Acres.	D.B.H. H	C	F	B	Pw	TOTAL HEIGHT. H	C	F	B	Pw	TOTAL AGE. H	C	F	B	Pw	NUMBER. H	C	F	B	Pw	Total.	SEED T
Type																							
H		1.2					12					19					Overstocked.						
H - C		1.9	1.5	3.0			15	15	21			19	19	20			3500	1500	600			5600	
H - C		2.0	1.5				18	15				18	18				2000	500				2500	
H - C												15	15				1000	500				1500	
H - C		3.0	2.5				25	20				18	17				1500	500				2000	
H-F-C		1.0					10					13					1750	450	550	75		2825	
H		0.4	0.3	0.5			10					9					690	130	50			870	
H - C		2.0					20					15					900	400	200			1500	
H - C		1.5					18					15					600	300	100			1000	
H-C-F		2.0					20					20					500	300	200			1000	
H - C		1.0	0				12	5				10	5				800	300	100			1200	
C - H		1.0					7					8					1000	1500	500			3000	
H		1.0					6					9					2000	500	300			2800	
C-F-H		0.4	0.4	0.7		0.3	8	8	9			9	10	11			650	870	750		10	2280	
H - C		0	0	0	0		6	3	6	4		7	5	6			1500	600	300	300		2700	
C-H-F		0	0	0					5					6			1250	1490	1100			3840	
F - H		0.3	0	0.3			7		6			7		7			1610	240	2330			4180	
F - H		1.5		1.9			15		20			16		17			1000	200	1600			2800	
H - F		0.5					8					10					1500		1000			2500	
H - F		0.8					10					10					1500		1000			2500	
F - H		1.5	1.0	1.9			12		15			15		14			1500	200	2000			3700	
H - F		0.5		0.6			7		9			8		10			1000	400	800			2200	
F		0.5	0.3	0.8			10		12			9		11			630	390	3090			4110	
F		1.5		2.0			20		25			17		18			200	100	1500			1800	
F				0.3		0			7					10					2720	10		2730	
F		0	0	0.1		0	3		5			5		8			130	10	780	40		960	
																	1150	460	860	20		2490	
H - C		3.0	2.5	3.5	3.0		25	25	30	25		30		30			1500	1000	400	200		3100	
H - C		4.0	3.8				30	21				38	39				1500	600				2100	
H - F		3.4	2.5	4.0			27	20	30			35	30	35			2000	500	800			3300	
H		1.5	2.9	4.8			20					32					2320	90	80			2490	
H - F		3.2	2.8	4.3	4.0		30		60			38		38			960	165	325	25		1475	
H		3.7					52					37					1500	200	300			2000	
H		3.5	2.5	4.0			35					30					1200	300	200			1700	
H		3.0	2.0				30	25				25	22				2000	500	400			2900	
H - C		3.5	2.0				30	20				32	30				1200	500	100			1800	
H - B		4.0			3.0		45					35					900			500		1400	
H - C		4.5					40					30					1000	500	200			1700	
H - C		4.0					35					30					250	200	100			550	
H - C		3.0					30					30					1500	500	300			2300	
H		4.5					40					35					1000	200	100			1300	
H-C-F		3.0					40					30					1500	500	400			2400	
H - C		3.3	2.8	5.2			27	26				26	25				540	260	180			980	

T O B A Provincial Forest. Summary of Immature Compartments by Age-classes. Compartment No.

Date, 1934 Type Age-class years. Sheet No. 48

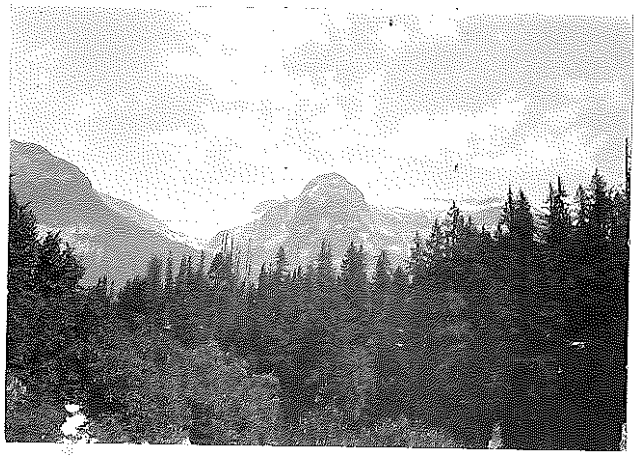
NON-PRODUCTIVE (Acres). Ren.	Scrub Sites.	Grass and Meadow.	Swamp.	Water.	TOTAL ACRES.	STRIP. Chainage.	Acres.	D.B.H. H	C	F	B	Pw	TOTAL HEIGHT. H	C	F	B	Pw	TOTAL AGE. H	C	F	B	Pw	NUMBER. H	C	F	B	Pw	Total.	SEED TREES.				REMARKS. (Former Stand, Date of Fire, or other History.) Average age	
						Type																												
						H		1.2					12					19					Overstocked.										19 years.	Burned.
						H - C		1.9	1.5	3.0			15	15	21			19	19	20			3500	1500	600			5600					19 "	"
						H - C		2.0	1.5				18	15				18	18				2000	500				2500					18 "	Logged.
						H - C												15	15				1000	500				1500					15 "	"
						H - C		3.0	2.5				25	20				18	17				1500	500				2000					18 "	"
						H-F-C		1.0					10					13					1750	450	550	75		2825					13 "	"
						H		0.4	0.3	0.5			10					9					690	130	50			870					9 "	"
						H - C		2.0					20					15					900	400	200			1500					15 "	"
						H - C		1.5					18					15					600	300	100			1000					15 "	"
						H-C-F		2.0					20					20					500	300	200			1000					20 "	"
						H - C		1.0	0				12	5				10	5				800	300	100			1200					10 "	"
						C - H		1.0					7					8					1000	1500	500			3000					8 "	Burned
						H		1.0					6					9					2000	500	300			2800					9 "	Logged
						C-F-H		0.4	0.4	0.7		0.3	8	8	9			9	10	11			650	870	750		10	2280					11 "	" and burned.
						H - C		0	0	0	0		6	3	6	4		7	5	6			1500	600	300	300		2700					7 "	"
						C-H-F		0	0	0					5					6			1250	1490	1100			3840					6 "	Burned.
						F - H		0.3	0	0.3			7		6			7		7			1610	240	2330			4180					7 "	"
						F - H		1.5		1.9			15		20			16		17			1000	200	1600			2800					17 "	Logged.
						H - F		0.5					8					10					1500		1000			2500					10 "	"
						H - F		0.8					10					10					1500		1000			2500					10 "	"
						F - H		1.5	1.0	1.9			12		15			15		14			1500	200	2000			3700					15 "	" and burned.
						H - F		0.5		0.6			7		9			8		10			1000	400	800			2200					10 "	Burned.
						F		0.5	0.3	0.8			10		12			9		11			630	390	3090			4110					11 "	Logged.
						F		1.5		2.0			20		25			17		18			200	100	1500			1800					18 "	"
						F				0.3		0			7					10					2720	10		2730					10 "	Burned.
						F		0	0	0.1		0	3		5			5		8			130	10	780	40		960					8 "	"
					10,260																		1150	460	860	20		2490					13 "	
						H - C		3.0	2.5	3.5	3.0		25	25	30	25		30		30			1500	1000	400	200		3100					30 years	Burned
						H - C		4.0	3.8				30	21				38	39				1500	600				2100					39 "	"
						H - F		3.4	2.5	4.0			27	20	30			35	30	35			2000	500	800			3300					35 "	Logged
						H		1.5	2.9	4.8			20					32					2320	90	80			2490					32 "	Burned
						H - F		3.2	2.8	4.3	4.0		30		60			38		38			960	165	325	25		1475					38 "	"
						H		3.7					52					37					1500	200	300			2000					37 "	Logged
						H		3.5	2.5	4.0			35					30					1200	300	200			1700					30 "	Burned
						H		3.0	2.0				30	25				25	22				2000	500	400			2900					25 "	Logged
						H - C		3.5	2.0				30	20				32	30				1200	500	100			1800					32 "	Burned
						H - B		4.0			3.0		45					35					900			500		1400					35 "	"
						H - C		4.5					40					30					1000	500	200			1700					30 "	"
						H - C		4.0					35					30					250	200	100			550					30 "	Selectively logged.
						H - C		3.0					30					30					1500	500	300			2300					30 "	Logged.
						H		4.5					40					35					1000	200	100			1300					35 "	Burned, part logged.
						H-C-F		3.0					40					30					1500	500	400			2400					30 "	Logged and burned.
						H - C		3.3	2.8	5.2			27	26				26	25				540	260	180			980					26 "	Burned
					5,720																													

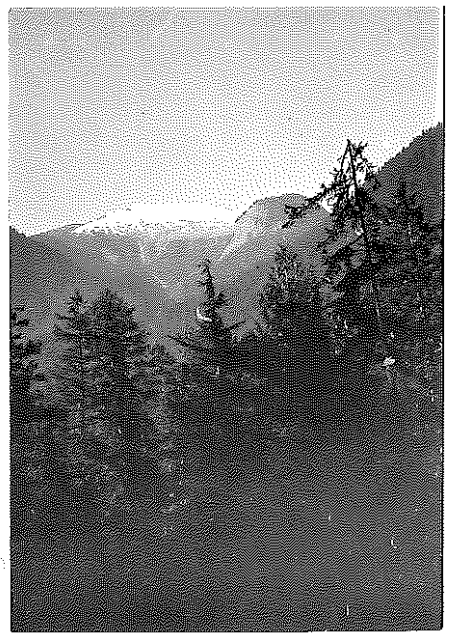
A P P E N D I X I

Compartment Descriptions.

Compartment 1, mature fir, cedar, hemlock, 3400 acres.

This compartment includes all the timber in the drainage of the Little Toba River and is a complete logging unit in itself. The timber averages 42 M.B.M. per acre and is 40% fir, 27% cedar and 20% hemlock. 70% of the total volume is readily accessible and 100% is Crown timber as at December 31,1934. The fir averages 36 inches d.b.h., the cedar 32 inches and the hemlock 24 inches. On an average the fir has been culled 22%, the cedar 27% and the hemlock 22%. Except for considerable heart rot in the larger diameter cedar and some conk on the older fir and hemlock, this timber is generally in better than average condition. The site quality also appears to be somewhat above the average. Reproduction and undergrowth are rather scant.





Two views of the Little Toba River valley.

To log this compartment it would be necessary to construct about 7 or 8 miles of main road, either railroad or truck road. The Little Toba cannot be used for log driving but the main Toba below the Little Toba offers no obstructions to driving. Easy grades are available in the valley bottom for the main road. Caterpillar tractors could probably be used for yarding to good advantage.

Compartment 2, mature fir, hemlock, cedar, 940 acres.

This timber averages 20 M.B.M. per acre and is 65% fir, 20% hemlock and 15% cedar. Of the total volume 60% is considered to be accessible and 100% is Crown timber. The fir averages 28 inchesf.b.m., the hemlock 20 inches and the cedar 26 inches. For hidden defects and breakage in falling the fir has been culled about 32%, the hemlock 30% and the cedar 35%. On the whole this timber is rather defective, considerable conk being visible in the fir and hemlock and butt rot in the cedar. The timber is mostly short and the site quality low. The soil is shallow and many rock outcrops are in evidence. Reproduction and underbrush are scant.

The accessible portion of this compartment would have to be logged by donkey units using high lead or skyline systems. The ground is too steep and broken for much road building or the operation of caterpillar tractors.

Compartment 3, mature fir, hemlock, 1500 acres.

This timber lies in the Coon Creek watershed. The main type of mature timber averages only 13 M.B.M. per acre, and is 35% fir, 22% hemlock, 15% silver fir and 12% spruce. The 750-acre sub-type is 81-100 years old but has an average volume per acre of 16 M.B.M., 50% fir, 32% cedar and 15% hemlock. About 52% of the main type is accessible but none of the sub-type, or 32% of the total volume of timber in the compartment, all of which is Crown timber. In the main type the fir averages 30 inches d.b.h. and the hemlock, silver fir and spruce 24 inches. In the younger type the fir averages 19 inches d.b.h., the cedar 18 inches and the hemlock 15 inches. The mature timber is suitable primarily as sawmill material, while the sub-type could supply a considerable quantity of fairly high grade poles and piling. The timber of the main type has been culled an average of 30%, and that of the sub-type about 20%. The site quality is generally poor, the flat being somewhat swampy and the side hills very rocky. Reproduction is fairly plentiful except on the low-lying flat area where devil's club, alder

and other underbrush is heavy.

Cedar poles have been logged from this compartment for a short distance back from the river. They were horse skidded to the river, then driven downstream. The accessible portion of this compartment could be logged without much difficulty but the small volume of timber seems to preclude the possibility of this for a long time yet.

Compartment 4, mature cedar, fir, hemlock, 830 acres.

This compartment averages 18 M.B.M. per acre, 60% cedar, 23% fir, and 16% hemlock. It is all accessible Crown timber. The cedar and fir average 34 inches d.b.h. and the hemlock 24 inches. The cedar has been culled an average of 33%, the fir 25% and the hemlock 28%. The cedar and fir is most suitable as sawtimber. This timber is of medium height, indicating an average site quality. Reproduction is rather scant and undergrowth fairly plentiful.

The steep and broken nature of the ground and the presence of numerous rock bluffs would make the logging of this compartment rather difficult. However, as the timber is all within about 60 chains of the river bottom most of it could be logged with power units using high lead or skyline methods.

Compartment 5, decadent cedar, fir, hemlock, 1070 acres.

This timber averages only 13 M.B.M. per acre of which 35% is cedar, 30% fir and 19% is hemlock. It is all inaccessible Crown timber. The fir and cedar average 34 inches d.b.h. and the hemlock 24 inches. This timber, being decadent and showing much defect was culled heavily, the cedar 50%, the fir 40% and the hemlock 35%. That which is salvageable is most suitable as sawtimber. It is almost all short, much of it almost scrub, indicating a very poor site quality. The soil is shallow and rock outcrops are numerous. The reproduction, mostly hemlock, is scant, as also is the undergrowth.

Logging would be very difficult and certainly unprofitable. Apart from the poor quality of timber, grades are steep and road construction would be excessively expensive.

Compartment 6, mature fir, cedar, hemlock, 1000 acres.

This timber is partly mature and partly decadent,

and averages 21 M.B.M. per acre, of which volume 45% is fir, 30% cedar and 19% hemlock. It is all inaccessible Crown timber. The fir averages 40 inches d.b.h., the cedar 32 inches, and the hemlock 24 inches. The timber is mostly short and defective, and has been culled fairly heavily for hidden defects and breakage, the fir about 30%, the cedar 35% and the hemlock 30%. At the lower elevations the site quality is fair but at higher elevations rather poor. The reproduction, mostly hemlock is scant. Alder is fairly plentiful.

The logging of this timber into the Toba River would not be particularly difficult but the river here is not well suited to log driving and the distance from tidewater is about thirty miles.

Compartment 7, mature fir, cedar, hemlock, 1850 acres.

This is the last block of timber up the Toba River below the glaciers. It was not cruised due to its inaccessibility but was estimated to average 14 M.B.M. per acre, 35% fir, 30% cedar and 20% hemlock. The area of this compartment may be considerably greater than shown on the map, particularly up the east fork of the Toba River.

Compartment 8, mature fir, cedar, 1300 acres.

The timber in this compartment averages 33 M.B.M. per acre, of which 61% is fir and 27% cedar. It is 100% accessible Crown timber. The fir averages 34 inches d.b.h. and the cedar 30 inches. Not much defect was noticed but breakage will be fairly high. The total culls applied to the timber cruised were 25% for fir and 30% for cedar. This timber is primarily suitable as sawtimber material. On the average it is medium in height and the site quality is about average. The reproduction, mostly hemlock is only scant, as also is the undergrowth, except in the valley bottom where alder and devil's club are plentiful.

Almost all the timber in this compartment lies within half a mile of the Toba River and below the 100-foot contours. However, much of it is growing on small, fairly level benches separated by numerous fair sized rock bluffs. Logging would not be particularly difficult if high lead or sky line methods were employed. Small areas near the river have been logged selectively for cedar poles.

Compartment 9, mature cedar, fir, hemlock, 1340 acres.

This timber lies in the valley of Filer Creek

(North Fork Toba River) and consists of several small isolated blocks which, together, average 18 M.B.M. per acre, of which volume 35% is cedar, 21% fir and 17% hemlock, the remainder being spruce and silver fir. It is 100% inaccessible Crown timber. The fir averages 38 inches d.b.h., the cedar 32 inches and the hemlock 22 inches. Conk is fairly extensive in the fir and hemlock and butt rot in the cedar. An average cull of 25% was applied to the fir, 37% to the cedar and 30% to the hemlock. The fir and cedar is suitable for saw-timber and the hemlock, spruce and silver fir for pulp material. This timber is mostly of medium height and the site quality about average. The reproduction, about 90% hemlock, is scant. The undergrowth also is fairly scant except in the valley bottom where alder and devils club is quite plentiful. In fact considerable areas of river flats support no merchantable timber at all, while other areas may have a few spruce trees per acre, the remaining cover being deciduous.

Looking up the valley of Filer Creek from the "Forks".

This valley has been partially logged for a couple of miles above the "Forks". Any timber remaining is now virtually inaccessible. There may be other small areas of merchantable timber further up this valley than shown on the map but their complete inaccessibility make them of no value.

Compartment 10, hemlock, cedar, fir, 1 - 20 years.

The main type, 480 acres in extent, is a fully stocked stand 20 years old, which became established following a fire which burned over this area about 1912. The 300 acres shown as non-commercial cover support a mixture of several types. Parts of this area have been logged, other parts burned. The cover at present consists of alder, cottonwood, scant immature timber and scattered groups of seed trees.

Compartment 11, non-commercial cover, 3320 acres.

This compartment includes all the productive area in the valley of the Toba River between the Klahoose Indian reserve and the junction of Filer Creek and the Toba River. Probably about 40% to 50% of this area has been logged at one time or another. This area and most of the rest of the compartment now support only a cover of deciduous species, mostly alder and cottonwood. Extensive swamps, beaver ponds and a few small patches of timber left after logging make up the remainder of this compartment, except for 40 acres cleared and now partially under cultivation.

Deciduous cover and scattered spruce along the banks of the Toba River (compartment 11).

Compartment 12, mature cedar (fir, hemlock silver fir) 3,270 acres.

This compartment includes all the timber in the Klite River valley. It averages 27 M.B.M. per acre, 65% cedar, 12% fir, 12% hemlock and 9% silver fir. The timber is 85% alienated and 100% accessible. According to the commercial cruise report on the timber held under timber licence, the cedar and fir are of very good quality and most suitable for saw-timber material. The site quality of the valley bottom and lower slopes is quite high.

An eight mile main line railroad or truck road would tap all the timber in this compartment. A fairly uniform grade of about 4% is available. The lower slopes are not particularly steep or badly broken and yarding could be done with the conventional donkey equipment or possibly caterpillar tractors.

Compartment 13, mature cedar, hemlock, spruce, 2220 acres.

This compartment includes all the timber in the Tahumming River valley. The average volume per acre is 25 M.B.M., of which amount 36% is cedar, 20% hemlock, 19% spruce, 14% silver fir and 11% fir. This block is 100% Crown timber and although some shingle bolts have been logged from that portion of the compartment nearest to tide water all the remaining timber is considered to be inaccessible. The volumes on 1,300 acres were obtained from confidential commercial cruises. From data obtained by the Forest Surveys the average d.b.h. of the cedar is about 42 inches, of the hemlock 26 inches, of the spruce 34 inches, and of the silver fir 26 inches. The cedar shows considerable defect and was culled an average of 35%. It is best suited for shingle bolts. The hemlock, spruce and silver fir are most suitable as pulp material. These species were culled an average of 25%, 20% and 22%, respectively. The site quality of the valley bottom is high, of the sidehills and upper slopes rather low. In general the reproduction about 80% hemlock, 15% silver fir and 5% cedar is only fairly plentiful. The undergrowth is scant except near the river where alder is fairly dense.

View of Tahumming River valley from end of strip #85.

Shingle bolts have been driven down the Tahumming River from near the north-east corner of S.T.L. 6899P but this stream is not suitable for log driving. About four miles of expensive road up a fairly steep grade would be needed to reach the timber in this compartment.

Compartment 14, hemlock, cedar, 21-40 years.

This compartment was severely burned about 1900, together with large nonproductive areas immediately adjacent. Of the immature stand resulting, 1,630 acres are considered to be on a productive site.

Compartment 15, mature hemlock, cedar, 500 acres.

This small block of timber is located in a small steep draw on the north side of Toba Inlet. The average volume per acre is 60 M.B.M., of which 48% is hemlock; 23% cedar, 15% silver fir and 14% fir. It is 100% accessible Crown timber. The hemlock averages 34 inches d.b.h., the cedar 36 inches, the silver fir 28 inches and the fir 48 inches. This timber is comparatively free from defect but due to the steep and rough nature of the ground breakage will be fairly high. Average culls of 25% were applied to the hemlock, 30% to the cedar, 25% to the silver fir and 25% to the fir. The site quality is apparently slightly better than average. Reproduction and undergrowth are both very scant.

Due to its topographic position this timber is classed as accessible but its logging would present several difficulties. The ground is decidedly steep and broken and much of the timber is at a high elevation, some of the best being almost 3,000 feet above sea level.

Compartment 16, mature fir, cedar, 470 acres.

Most of the timber in this compartment is situated on a long narrow bench 1,000 to 1,500 feet above sea level on the north side of Toba Inlet just east of Salmon Bay. It averages 49 M.B.M. per acre, 43% fir, 39% cedar and 18% hemlock, and is 100% accessible Crown timber. The fir averages 48 inches d.b.h., the cedar 38 inches and the hemlock 30 inches. Defects are not excessive considering the size and age of this stand but breakage will be fairly high due to the rocky nature of the ground. Average culls of 30% have been applied to the fir, 35% to the cedar and 27% to the hemlock. This is primarily a saw-timber stand. The timber is of medium height with more than average height in clear lengths. The site quality is about average. Reproduction, mostly hemlock, is fairly plentiful but undergrowth is either scant or entirely non-existent.

Probably the best method of logging this timber would be to extend the existing old skid road from near the south-east corner of S.T.L. 13331P up to and along the bench in the form of a cat road and to do both yarding and hauling with caterpillar tractors.

Compartment 17, mature cedar, silver fir, hemlock, 7,200 acres.

This compartment, including all the timber in the Brem River drainage, is the largest single block of timber in the Toba Forest. It averages 38 M.B.M. per acre, 35% cedar, 26% silver fir, 23% hemlock and 13% fir. Approximately 12% of the total volume is alienated and 86% accessible. The

cedar averages 44 inches d.b.h., the silver fir 32 inches, the hemlock 32 inches and the fir 48 inches. This compartment could be logged either as a straight saw log or combined saw log pulpwood proposition. The amount of visible defect varies considerably. Some of the timber appears to be decadent and some quite young and thrifty. Average culls of 35% have been applied to the cedar, 23% to the silver fir, 26% to the hemlock and 30% to the fir. Except on the steeper sidehills where much rock is in evidence the site quality is fairly high.

The logging of this compartment would necessitate the construction of about twelve miles of main line railroad or truck road up the Brem River valley and a three-mile branch line up Hillis Creek. An easy grade is available for the whole distance. The absence of a good natural booming ground would probably present the greatest difficulty to be surmounted in the logging of this timber.

Looking north up Brem River valley from Salmon Bay.

Compartment 18, mature cedar, hemlock, silver fir, 560 acres.

This small block of timber averages 23 M.B.M. per acre, 36% cedar, 26% hemlock, 20% silver fir and 18% fir. It is 81% alienated and 100% accessible. The cedar averages 36 inches d.b.h., the hemlock 28 inches, the silver fir 28 inches and the fir 44 inches. The cedar shows considerable butt rot and the hemlock and fir are somewhat conky. Culls of 35% have been applied to the cedar, 27% to the hemlock, 20% to the silver fir and 25% to the fir. The site quality is rather low and most of the timber short. The reproduction, 75% hemlock, is rather scant. Undergrowth, alder and buck brush is fairly plentiful. A chute or incline about one mile long would give access to the whole of this compartment.

Compartment 19, mature cedar, hemlock, fir, silver fir, 2,650 acres.

The timber in this compartment averages 44 M.B.M. per acre, 30% cedar, 30% hemlock, 21% fir and 19% silver fir. Of the total volume 23% is alienated and 100% is accessible. The cedar averages 34 inches d.b.h., the hemlock 30 inches, the fir 40 inches and the silver fir 28 inches. The fir, cedar and some of the hemlock is potential saw-timber material, the rest of the hemlock and the silver fir can best be utilized as pulpwood. No more than the average amount of defect is visible. The cedar was culled an average of 32%, the hemlock 26%, the fir 25% and the silver fir 25%. The site quality is slightly lower than average. The reproduction, about 60% hemlock and 40% silver fir, is fairly plentiful. The undergrowth is very scant or entirely non-existent. The main block of timber could be logged without much difficulty once a road is constructed through the canyon at the mouth of Chusan Creek. This canyon will probably necessitate the construction of an incline about half a mile long.

Compartment 20, mature fir, hemlock, cedar, 700 acres.

That part of this compartment near the shore has already been logged or is in the process of being logged. The remaining timber averages 48 M.B.M. per acre, 34% fir, 30% hemlock, 24% cedar and 12% silver fir. Of the total volume, about 48% is alienated. 100% is accessible. The fir averages 38 inches d.b.h., the hemlock 26 inches, the cedar 32 inches and the silver fir 28 inches. All species are comparatively free from defect. The average culls applied to the fir were 22%, to the cedar 30%, to the hemlock

27%, and to the silver fir 27%. Most of the trees are of medium height and the site quality at least average. Reproduction, mostly hemlock is fairly plentiful, while the underbrush is scant.

Most of this timber is within a mile of tidewater and below the 2,500-foot contour. While the slopes are fairly steep they are also more or less uniform. Thus, logging should not be a particularly difficult operation.

Compartment 21, mature cedar, silver fir, hemlock, 1,180 acres.

This compartment includes both mature and decadent timber averaging only 14 M.B.M. per acre, 40% cedar, 28% silver fir, and 27% hemlock. Although 240 acres of this compartment have been logged, the remaining timber is considered to be inaccessible. It is all Crown timber. The cedar averages 38 inches d.b.h., the silver fir 26 inches and the hemlock 24 inches. The cedar will be of most value as shingle bolts, the other species as pulp material. All species are suffering considerably from various defects. The cedar has been culled an average of 40%, the silver fir 25% and the hemlock 30%. This timber is mostly short and limby. The site quality is poor. Slides and open areas of brush are frequent. Reproduction and undergrowth are both plentiful.

The actual logging of this area would not be particularly difficult, but it is highly improbable that it could be done profitably under present conditions. Also no booming facilities are available.

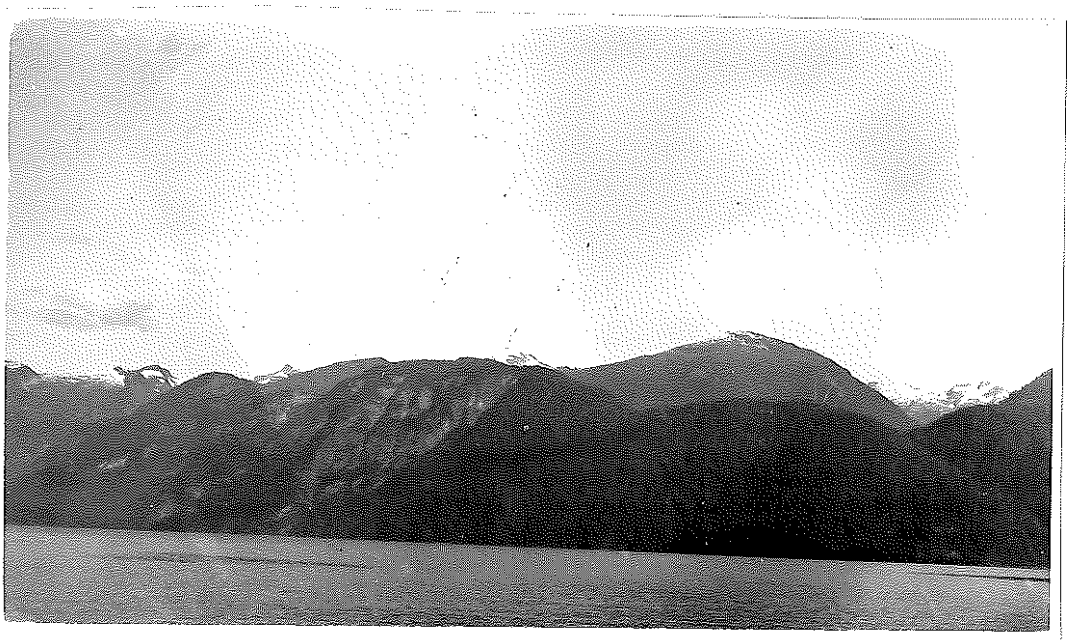
Compartment 22, mature cedar, hemlock, fir, 1,100 acres.

This timber averages 27 M.B.M. per acre over the whole compartment and 34.5 M.B.M. on 430 acres of S.T.L. 5499P. It is 30% cedar, 29% hemlock and 26% fir, and is 100% accessible Crown timber. The cedar averages 32 inches d.b.h., the hemlock 28 inches and the fir 30 inches. The timber is fairly short and the site quality below average. Culls of 35% have been applied to the cedar, 33% to the hemlock and 30% to the fir. The best use for this timber is as saw logs and shingle bolts. Reproduction, about 75% hemlock, is fairly plentiful. Undergrowth is rather scant.

Most of this timber is suitable within half a mile of tide water and although the slopes are quite steep and rough logging should not be particularly difficult.

Compartment 23, mature hemlock, cedar, silver fir, 2,060 acres.

This timber averages 44 M.B.M. per acre, 34% hemlock, 30% cedar and 23% silver fir. It is more than 90% above the 1,500-foot contour and is classed as 100% inaccessible Crown timber. The hemlock averages 26 inches d.b.h., the cedar 34 inches and the silver fir 28 inches. This is primarily a pulp stand except for the cedar and a small volume of fir and yellow cedar. In general this timber is fairly free from defects, the average culls applied being 24% to the hemlock, 28% to the cedar and 22% to the silver fir. Most of the timber is of medium height and the site quality about average except in the vicinity of the large scrub cedar swamp where it is decidedly low. The reproduction, 60% hemlock and 30% silver fir, is fairly plentiful. The undergrowth is scant to medium.



Looking south-east across Toba Inlet from Salmon Bay to Compartment 23.

An incline or chute about one mile long with an average grade of 30% would have to be built to reach this block of timber. Booming facilities are non-existent.

Compartment 24, mature cedar, fir, hemlock, 860 acres.

This timber averages 26 M.B.M. per acre, 43% cedar, 33% fir and 24% hemlock. It is 100% accessible Crown timber. The cedar averages 32 inches d.b.h., the fir 32 inches and the hemlock 26 inches. All species are suitable for saw-timber. The site is fairly good and the timber of about average height. Conk, heart rot and butt rot are the major visible defects. To allow for unseen defects and breakage in falling culls of 35% have been applied to the cedar, 30% to the fir and 28% to the hemlock. The reproduction 90% hemlock, 10% silver fir is fairly plentiful. Undergrowth is rather scant.

The best and most accessible timber that was originally in this compartment has been logged. It is doubtful whether that which remains could be logged at the present time at a profit.

Compartment 25, mature fir, cedar, hemlock, 1,140 acres.

This compartment includes several separate blocks of timber differing in volume and species, as well as several areas of immature timber, recently logged areas and numerous small areas of non-productive site quality. The main timber type averages 22 M.B.M. per acre, 66% fir, 20% cedar and 14% hemlock, and is classed as 100% inaccessible Crown timber. The fir averages 30 inches d.b.h., the cedar 20 inches and the hemlock 16 inches. Much of the timber is 81-100 years old and is best suited for poles and piling. The fir was culled 25%, the cedar 25% and the hemlock 22%. The site quality is fairly high and the timber slightly taller than average. Reproduction, 85% hemlock and 10% cedar, is rather scant, as also is the undergrowth.

Compartment 26, mature hemlock, cedar, silver fir, 2,640 acres.

This timber averages 35 M.B.M. per acre, 32% hemlock, 30% cedar, and 27% silver fir, and is 100% accessible ~~Crown timber~~. The volumes shown on 2,200 acres are from a timber sale cruise. Most of the stand is fairly young and the timber comparatively small and free from defect. The hemlock was culled 22%, the cedar 30% and the silver fir 18%. Except for the cedar this is primarily

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a pulp stand at present. For the most part the site quality is fairly good and the timber of at least average height. The reproduction, about 90% hemlock is plentiful. Undergrowth is scant.

The logging of this compartment would be comparatively easy. A logging road could be built up this valley on an easy grade except for the first half mile from tidewater. This portion would necessitate the construction of a chute or incline. Caterpillar tractors could probably be used for yarding with satisfactory results.

Compartment 27, mature hemlock, cedar, silver fir, 480 acres.

This small body of timber averages 37 M.B.M. per acre, 43% hemlock, 26% cedar and 21% silver fir. It is almost all above 1,500 feet in a steep narrow draw and is classed as 100% inaccessible Crown timber. The hemlock averages 32 inches d.b.h., the cedar 34 inches and the silver fir 28 inches. Culls of 30% were applied to the hemlock, 35% to the cedar and 25% to the silver fir. The cedar is good saw-timber material and the other species are best suited for pulp wood. In general the trees are slightly taller than average. The site quality appears to be fairly high. The reproduction, hemlock about 50%, silver fir 40%, is fairly plentiful. Undergrowth is decidedly scant.

Compartment 28, mature silver fir, hemlock, cedar, 3,700 acres.

This timber is situated in the upper Quatam River valley and averages only 15 M.B.M. per acre, of which volume 40% is silver fir, 38% hemlock and 18% cedar. 14% of the total volume is alienated and 28% accessible. The silver fir averages 26 inches d.b.h., the hemlock 28 inches and the cedar 32 inches. This timber is most suitable as pulp material. It is rather more defective than the average. Culls of 27% were applied to the silver fir, 31% to the hemlock and 37% to the cedar. The height growth of individual trees is good and the site quality about average. Reproduction 75% hemlock, is rather scant. Undergrowth, mostly alder, is fairly plentiful.

Compartment 29, mature cedar, hemlock, fir, 4,460 acres.

This timber, in the lower Quatam River valley, is in the process of being logged by the Round - Burchette Logging Co. It averages 29 M.B.M. per acre, 42% cedar,

25% hemlock and 15% fir. It is 64% alienated and 92% accessible. Volumes of most of this timber are from confidential commercial cruises. From Forest Survey data it appears that the average d.b.h. of the cedar is 36 inches, of the hemlock 24 inches and of the fir 36 inches. Visible defects are about average. Culls of 38% have been applied to the cedar, 28% to the hemlock and 33% to the fir. Except for the smaller hemlock this is good saw-timber material. The site quality is high and most of the timber tall. The reproduction, 90% hemlock, is scant as also is the undergrowth.

About one and a half miles of railroad grade have been constructed and can be extended another four or five miles without any difficulty.

Compartment 30, mature hemlock, silver fir, fir, 1950 acres.

This timber averages 25 M.B.M. per acre, 42% hemlock, 22% silver fir and 17% fir, and is 100% accessible Crown timber. These volumes were obtained from confidential commercial cruises, and as a result detailed information is lacking. The site quality, however, appears to be fairly high and the timber of good grade. Undergrowth and windfall are rather light, and the reproduction fairly scant. Logging should present no major difficulties.

Compartment 31, mature fir, cedar, hemlock, 1,100 acres.

The volumes on 1,000 acres of this compartment are from confidential commercial cruises. The timber averages 21 M.B.M. per acre, 60% fir, 25% cedar, and 15% hemlock. Of the total volume 71% is alienated and 100% accessible. The fir averages about 34 inches d.b.h. and is primarily saw-timber material. Some of it is fire scarred but is not seriously damaged. The site quality is rather low and much of the timber is short and somewhat scrubby. Reproduction is fairly plentiful and is about 90% hemlock.

This timber is all on a steep sidehill or in a steep draw and logging would probably not be very profitable.

Compartment 32, mature fir, hemlock, cedar, 2,650 acres.

Although this timber is not all in one logging unit it has been grouped together for convenience in summarizing. It averages 30 M.B.M. per acre of which volume 35% is fir, 25% is hemlock and 26% cedar. It is 100% accessible and 55% alienated. The volume on 2,000 acres is from con-

fidential commercial cruises; hence, detailed information is not available. Apparently the fir averages 34 inches d.b.h. the hemlock 30 inches and the cedar 34 inches. The fir, hemlock and silver fir show considerable conk. The cedar is largely rotten at the butt. In addition much of the fir is badly fire scarred. Timber cruised by the Forest Surveys was culled heavily, the fir 28%, the hemlock 35% and the cedar 30%. Most of this timber is suitable for saw logs. On an average the site quality is low and the timber rather short. The reproduction, 50% hemlock and 40% silver fir is scant. On certain areas the undergrowth is quite heavy and on others entirely absent.

As most of this timber is growing on steep side-hills or on small benches between rock bluffs it will be difficult to log but very little volume could be called topographically inaccessible.

Compartment 33, mature fir, hemlock, cedar, 2,090 acres.

This timber lies on the east side of Ramsay Arm north of Quatam Bay. Most of the foreshore has been logged for 20 to 40 chains from tidewater. The remaining timber in the compartment averages 34 M.B.M. per acre, 37% fir, 31% hemlock and 22% cedar. It is 15% alienated and 100% accessible. The fir averages 28 inches d.b.h., the hemlock 24 inches and the cedar 28 inches. This timber is suitable for saw logs, poles and piling. It is comparatively free from defect. Culls of 27% were applied to the fir, 25% to the hemlock and 32% to the cedar. The site quality is fairly high and the timber somewhat taller than the average. The reproduction, 90% hemlock, is not very plentiful. Undergrowth is scant.

Most of the timber is within a mile of the shore and could be reached without much difficulty. The logging of the remainder would necessitate the building of a truck road about three miles long.

Compartment 34, hemlock, cedar, fir, 21-40 years.

The main type, 1,750 acres in extent, became established following a fire about 1900. This fir also burned large productive and non-productive areas on the peninsula between Ramsay Arm and Bute Inlet and to the north-east of Ramsay Arm. Particularly on the Bute Inlet slope this fire was very intense, the only cover on a considerable area being deciduous species. The main type, however, is satisfactorily stocked with coniferous species but has much alder and willow mixed with it.

Compartment 35, hemlock 21-40 years.

The main type, situated along the west side of Ramsay Arm became established following the fire mentioned in Compartment 34. This fire burned a considerable area of non-productive site quality back of Compartment 35. A few small patches of timber remain but are of practically no value except as seed trees.

Compartment 36, non-productive, 10,610 acres.

The main type includes approximately all the non-productive portion of the peninsula between Ramsay Arm and Bute Inlet. Probably about 30% has been burned, the remainder supporting a growth of scrub timber. In addition to the main type there are several productive sub-types, both mature and immature timber. The mature timber, all inaccessible, is mostly fir, and averages about 18-20 M.B.M. per acre.

Compartment 37, mature fir, 540 acres.

This timber is in several small isolated patches but being similar they are grouped here for convenience. Together they average 18 M.B.M. per acre, 74% fir, 16% cedar and 10% hemlock. It is all accessible and 42% alienated. The average d.b.h. of the fir is 34 inches, of the cedar 29 inches and of the hemlock 26 inches. The fir is most suitable for saw logs. Defects are not very noticeable, however much of the timber has been damaged by fire and a considerable percentage of the cedar and hemlock killed. Culls of 37% were applied to the fir, 35% to the cedar and 30% to the hemlock. The site quality is rather low and the timber inclined to be short and scrubby. The reproduction mostly hemlock is scant, as also is the undergrowth.

Logging would not be difficult but it is doubtful whether the small volume available would warrant the capital investment necessary.

Compartment 38, cedar, fir, hemlock, 1-20 years.

The compartment takes in the north end of Raza Island, that portion of the island which has been logged and mostly burned. Most of the main type became established about 1925 and is now quite satisfactorily restocked. The ground is fairly level, the site quality high and the former stand was probably quite heavy, fir and cedar predominating.

Compartment 39, mature fir, 1,160 acres.

This timber is on the southern end of Raza Island and averages only 7 M.B.M. per acre. Small patches run considerably higher particularly on T.L.680 and L.2835. Of the total volume about 72% is fir. It is all Crown timber and approximately 50% is accessible. The fir averages about 28 inches d.b.h. and is short and scrubby. The site quality is very low. The fir has been culled an average of 43% for hidden defect and breakage. Reproduction is scant and undergrowth, mostly salal, is fairly plentiful.

Compartment 40, mature cedar, hemlock, 2,000 acres.

This timber is all in the watershed of Forbes Creek and averages 39 M.B.M. per acre. Of this volume 37% is cedar, 32% hemlock, 14% fir and 13% silver fir. It is all accessible Crown timber. The fir averages 38 inches d.b.h., the cedar 38 inches, the hemlock 26 inches and the silver fir 26 inches. This timber is most suitable for saw logs. Defects are about average. Culls of 25% were applied to the fir, 30% to the cedar, 25% to the hemlock and 25% to the silver fir. The site quality is fairly high and the timber taller than average. The reproduction, 70% hemlock is not at all plentiful. Undergrowth is scant.

Parts of the original stand in this valley have been logged as far as three miles back from tidewater. The logging of the remaining timber, probably using trucks for hauling, would not be at all difficult.

Compartment 41, hemlock, cedar, 21-40 years.

The main type, 720 acres in area, is a well stocked stand about 30 years old. Most of this area was logged and burned prior to 1905. The former stand was fir, cedar, hemlock about 40 M.B.M. per acre. The site is considerably better than average. Seed trees still standing are very sparsely scattered. Approximately 300 acres of this type were burned again in 1924 and now are well restocked with cedar, fir and hemlock about six years old.

Compartment 42, mature fir, hemlock, 490 acres.

This compartment includes all the mature timber in the Lloyd Creek watershed. It averages 25 M.B.M. per

acre, 54% fir and 30% hemlock. It is 100% inaccessible Crown timber. The fir averages 34 inches d.b.h. and the hemlock 28 inches. The former species is fairly free from defect but the latter is of poor quality and very conky. The fir has been culled an average of 27%, the hemlock 43%. The fir is most suitable as saw log material. The site quality is high and the timber fairly tall. The reproduction, mostly hemlock, is not at all plentiful. Undergrowth is decidedly scant.

90% of this timber is above 1,500 feet and it is doubtful whether it could be logged profitably.

Compartment 43, hemlock, fir, 21-40 years.

This compartment was burned about 1900 and is now restocking quite satisfactorily. The main type is 1,540 acres in extent and rarely extends more than half a mile back from tidewater. The site quality is about average.

There are three sub-types of mature Crown timber in this compartment. Two are at high elevations and quite inaccessible. The third, 350 acres in area, is accessible, and averages 43 M.B.M. per acre. Of this volume 89% is fir, averaging 34 inches d.b.h.

Compartment 44, hemlock, cedar, fir, 21-40 years.

The main type, about 30 years old, covers 2,440 acres and immature sub-types, 1-20 years old, about 1,400 acres. Most of the main type had been logged and burned by 1900. The former stand, fir, cedar and hemlock, probably averaged about 40 M.B.M. per acre. The site quality is fairly high on the average. A considerable amount of deciduous species is scattered over the whole compartment.

Several small patches of mature timber remain but are of poor quality and low in volume, and mostly relatively inaccessible.

Compartment 45, logged and burned, 6,040 acres.

All of this compartment has been logged, most of it by Merrill and Ring Lumber Co. since 1925. A large proportion of it has been slash burned. That area south of the Theodosia River is almost entirely clean logged and burned. North of the river a considerable amount of willow and alder has become established. Along the boundaries of the logged area good reproduction is found already. The site quality was very high and should not be reduced much by logging and one slash burn.

The former stand, fir, cedar, hemlock, ran very high, often 100 M.B.M. per acre.

Compartment 46, mature cedar, 400 acres.

This timber averages about 19 M.B.M. per acre. The estimate is based on a timber sale cruise made for shingle bolt operators. A portion of the compartment has been logged selectively for cedar and adjacent areas have been burned.

Compartment 47, mature fir, cedar, 2,250 acres.

This timber is situated in the Theodosia River drainage and averages 57 M.B.M. per acre. This estimate is from confidential commercial cruises. Of the total volume 50% is fir, 42% cedar, 100% is accessible and 86% alienated. The site quality is very high and the timber mostly tall and straight. It is also comparatively free from defect. Due to the level nature of the ground and the absence of rock outcrops breakage should be negligible. The Merrill and Ring Lumber Co's main line has been extended into L. 1584 for about three miles and this part of the compartment will probably be logged very shortly.

Compartment 48, mature hemlock, cedar, fir 3,100 acres.

This timber also is in the Theodosia River watershed. It averages 28 M.B.M. per acre, 33% hemlock, 25% cedar, 19% fir and 16% silver fir. It is 85% alienated and 85% accessible. The estimate of the volume on 2,040 acres is based on confidential commercial cruises. The accessible timber is primarily suitable as saw-timber material. The site quality is high, the timber tall and clear and more or less free from defect. Reproduction and undergrowth are rather scant.

The Merrill and Ring Lumber Co's.main line extends into this timber which is being logged at the present time. Spurs can be constructed to give access to all the alienated timber if it is so desired.

Compartment 49, mature fir, 420 acres.

The timber of the main type averages 15 M.B.M. per acre, 91% fir. It is all accessible Crown timber. The fir averages 34 inches d.b.h. and is suitable for saw logs. It is short and somewhat defective, and also shows considerable damage from fire. It has been culled 20%. The

site quality is low, much exposed rock being in evidence.

A 240-acre sub-type averages 47 M.B.M. per acre, 94% fir. This also is 100% accessible Crown timber. The fir averages 34 inches d.b.h. and is fairly tall. Reproduction and undergrowth are scant.

Several immature sub-types, aggregating 560 acres, are located in this compartment. These areas have been logged and burned at various times in the past.

Compartment 50, hemlock, fir, 41-60 years.

The main type, 290 acres in area, is about 60 years old and became established following a fire about 1875. It is satisfactorily restocked with about 1,600 ties per acre. A 290-acre sub-type became established following a fire about 1920 with about 2,200 trees per acre. 400 acres along the shore have been logged and now support a cover of deciduous species, mostly alder, with patches of immature timber and scattered seed trees throughout the area.

Compartment 51, mature fir, 2,530 acres.

This timber averages 18 M.B.M. per acre, 90% of which is fir. Of the total volume 57% alienated (all accessible) and 86% is accessible. The fir averages 32 inches d.b.h. The site is poor and most of the timber is short. There is considerable conk in the fir and a large proportion of it is fire scarred. It has been culled an average of 30%. The reproduction, 50% fir and 40% hemlock, is fairly plentiful. Undergrowth, mostly salal, is much in evidence.

Logging of this compartment would be comparatively easy but probably unprofitable due to the small volume per acre and the poor quality of the timber.

Compartment 52, non-productive, 7,350 acres.

This compartment includes most of the non-productive portions of the Bunster Hills, between Malaspina Inlet and Powell Lake. Elevations range up to 4,000 feet where there is practically no timber growth. Most of the compartment however is covered with scrub or alpine yellow cedar, hemlock and silver fir. A patch of merchantable hemlock, fir and yellow cedar, 350 acres in area, is located in this

compartment. This timber averages 21 M.B.M. per acre and is 40% hemlock, 28% fir and 20% yellow cedar. It is 100% inaccessible Crown timber at an elevation of about 2,500 feet. The hemlock averages 24 inches d.b.h., the fir 40 inches and the yellow cedar 26 inches.

Compartment 53, mature yellow cedar, hemlock, white pine, 2,590 acres.

This timber is on the lower southern slopes of the Bunster Hills but above 2,000 feet in elevation. It averages 18 M.B.M. per acre, 38% yellow cedar, 33% hemlock and 24% white pine. It is 100% inaccessible Crown timber. The yellow cedar averages 28 inches d.b.h., the hemlock 24 inches and the white pine 26 inches. The site quality is poor and most of the timber is short. Defects are about average. Culls of 30% were applied to the yellow cedar, 25% to the hemlock and 22% to the white pine. Reproduction, 40% hemlock, 30% silver fir, is rather scant. Undergrowth, mostly blueberry and snow brush, is fairly plentiful.

Compartment 54, fir, hemlock, 21-40 years.

This area was burned about 1905. Small patches had been logged prior to that date. A sufficient number of seed trees were left after the fire to restock the area satisfactorily. Now there is an average of 2,200 trees per acre. The former stand was principally fir and probably averaged about 20 to 25 M.B.M. per acre. This compartment has a south and west exposure, is dry and of rather low site quality. A fair amount of deciduous species is scattered throughout the compartment.

Compartment 55, fir, 1 - 20 years.

Most of this compartment was burned at the same time as compartment 54. It was reburned about 1925. Very little, if any of it, had been logged. Few seed trees were left after the second fir and restocking was slow and patchy. At the present time there are about 1,000 trees per acre, 80% fir, between 5 and 10 years old. The site is poor and many small areas are almost barren or have only a scant deciduous cover on them. A few small patches of timber were left but are quite inaccessible at the present time.

Compartment 56, non-productive, 1,900 acres.

Most of this compartment has been burned, much of it twice in recent years. Any timber that remains is

only scrub and of no commercial value. Numerous extensive rock outcrops are in evidence.

Compartment 57, non-productive, 43,260 acres.
Compartment 58, non-productive, 41,900 acres.
Compartment 59, non-productive, 1,740 acres.
Compartment 60, non-productive, 8,870 acres.
Compartment 61, non-productive, 21,260 acres.
Compartment 62, non-productive, 10,500 acres.
Compartment 63, non-productive, 75,150 acres.
Compartment 64, non-productive, 15,200 acres.
Compartment 65, non-productive, 46,700 acres.
Compartment 66, non-productive, 34,100 acres.
Compartment 67, non-productive, 95,700 acres.
Compartment 68, non-productive, 37,400 acres.
Compartment 69, non-productive, 162,200 acres.

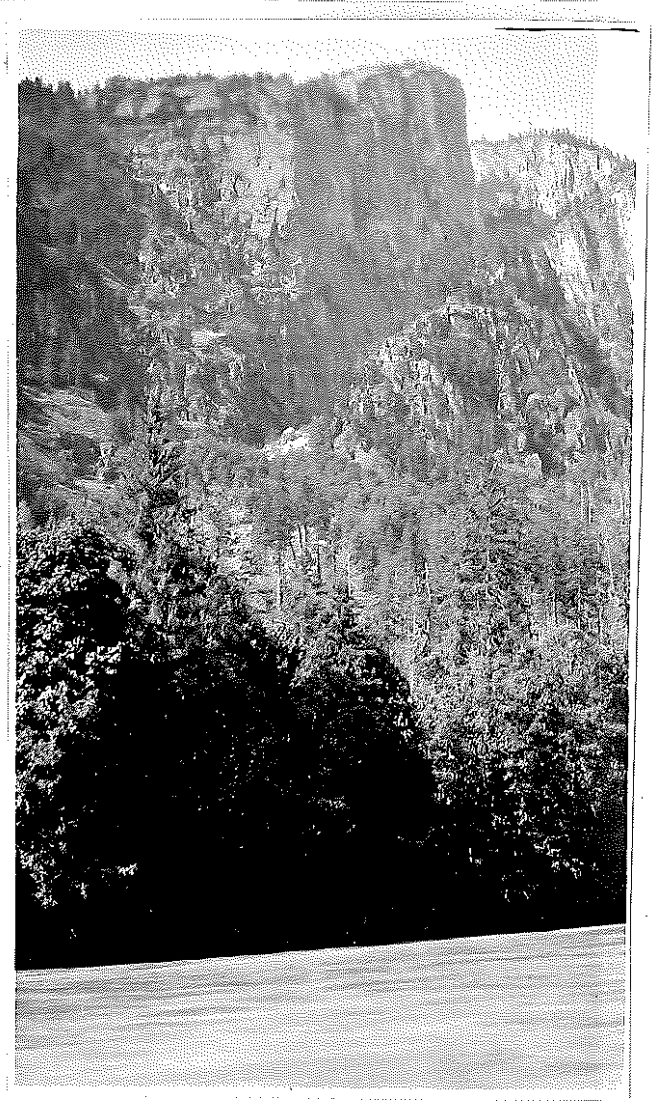
Toba Inlet. Looking south to compartment 58 in background.

All these compartments are essentially the same. That is, they are of such poor site quality that they are incapable of producing merchantable timber. They do, however, support very large volumes of scrub and alpine timber, mostly hemlock and silver fir, which may have some value in the future as pulp material. In addition, considerable quantities of yellow cedar are to be found in many of these compartments. However, this timber is all quite inaccessible and the volumes per acre are low. Compartments 58, 63, 64, 65 and 66 extend in places down to sea level, along the shores of Toba Inlet. At the lower elevations a considerable volume of scrub fir can be found, some of which may be hand-logged, but which nevertheless is still on a non-productive site. A considerable proportion of these compartments, particularly those at the headwaters of the Toba and other of the larger rivers, is entirely barren. Large areas are under extensive fields of eternal ice and snow. At least one peak, Mt. Gilbert, exceeds 10,000 feet in altitude, while numerous peaks exceed 9,000 feet. These large non-productive areas are included in the Toba Forest merely so that the forest boundary may follow the height of land of the Toba drainage system. This boundary is the only permanent one available.

Looking north-west across Toba Inlet to compartment 64.

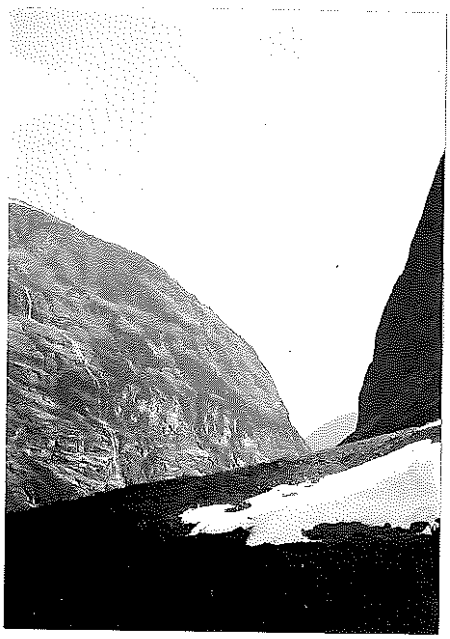
Compartment 65 (in background) from Tahumming River.

Gastmean Mountains,
Compartments 61,63,
From Face Mountain.



Typical topography along
the lower Toba River.

Looking north up the Klite River valley.



Scene up Klite River valley.

APPENDIX III

Volume Tables.
Method and cost of survey.
Labour distribution and personnel.

VOLUME TABLES

WESTERN HEMLOCK

D.B.H.	Short		Medium		Tall	
	Height	f.b.m.	Height	f.b.m.	Height	f.b.m.
10	81	60	93	70	105	80
12	88	110	101	130	114	150
14	94	160	107	200	121	230
16	99	240	114	290	128	340
18	104	330	120	400	135	460
20	109	430	125	520	142	600
22	114	550	131	670	148	760
24	119	690	136	830	154	950
26	123	840	141	1,000	159	1,160
28	127	1,000	146	1,200	165	1,400
30	131	1,180	150	1,420	170	1,650
32	135	1,380	155	1,650	175	1,930
34	139	1,600	160	1,900	180	2,250
36	143	1,820	164	2,180	185	2,600
38	146	2,070	168	2,480	190	2,950
40	149	2,320	171	2,800	194	3,300
42	152	2,570	175	3,100	198	3,650
44	155	2,820	179	3,400	202	4,000
46	158	3,070	182	3,700	205	4,350
48	161	3,300	185	4,000	209	4,700
50	164	3,500	188	4,300	212	5,050
52	166	3,700	190	4,550	215	5,350
54	168	3,900	192	4,800	217	5,600

WESTERN RED CEDAR

D.B.H.	Short		Medium		Tall	
	Height	f.b.m.	Height	f.b.m.	Height	f.b.m.
12		90		130		160
14		110		160		190
16	70	130	85	180	95	230
18	79	160	94	220	108	280
20	86	190	103	270	120	350
22	92	250	112	370	132	490
24	97	330	119	500	142	670
26	101	420	126	650	152	880
28	105	520	132	820	159	1,110
30	109	630	138	1,000	166	1,350
32	112	760	143	1,200	172	1,640
34	116	880	148	1,400	178	1,910
36	119	1,010	152	1,620	183	2,210
38	122	1,160	155	1,850	187	2,530
40	124	1,320	157	2,100	190	2,860
42	126	1,510	159	2,370	192	3,220
44	128	1,680	161	2,650	193	3,590
46	130	1,870	162	2,940	194	3,980
48	132	2,090	163	3,250	195	4,380
50	133	2,320	164	3,570	196	4,820
52	134	2,580	165	3,920	197	5,240
54	135	2,850	166	4,300	198	5,710
56	136	3,120	167	4,650	199	6,160
58	137	3,440	168	5,020	199	6,580
60	137	3,770	169	5,400	200	7,000
62	138	4,090	169	5,780	200	7,430
64	139	4,420	170	6,160	201	7,870
66	139	4,780	170	6,550	201	8,280
68	140	5,140	171	6,950	202	8,730
70	140	5,520	171	7,350	202	9,100
72	140	5,870	171	7,650	203	9,600
74	141	6,230	172	8,150	203	10,000
76	141	6,640	172	8,550	203	10,420
78	141	7,000	172	8,950	203	10,820
80	141	7,400	172	9,350	203	11,290

DOUGLAS FIR

D.B.H.	Short		Medium		Tall	
	Height	f.b.m.	Height	f.b.m.	Height	f.b.m.
12		70		100		120
14		80		160		180
16		150		220		260
18	97	260	105	320	114	380
20	103	350	116	450	129	540
22	110	430	128	570	145	720
24	117	550	137	750	158	950
26	122	700	146	970	170	1,220
28	127	820	153	1,200	180	1,500
30	131	980	160	1,420	190	1,840
32	135	1,160	167	1,700	198	2,200
34	141	1,370	172	1,950	206	2,560
36	143	1,550	177	2,220	213	2,890
38	147	1,760	182	2,530	219	3,280
40	150	2,010	185	2,880	223	3,740
42	153	2,300	190	3,250	227	4,250
44	155	2,610	193	3,650	229	4,700
46	158	2,880	194	4,050	230	5,200
48	159	3,210	196	4,480	232	5,600
50	161	3,540	197	4,870	234	6,200
52	163	3,870	199	5,300	234	6,700
54	165	4,200	199	5,730	234	7,250
56	165	4,570	200	6,170	234	7,750
58	167	4,930	201	6,630	235	8,300
60	168	5,350	202	7,100	235	8,900
62	169	5,750	203	7,600	236	9,500
64	169	6,150	203	8,100	236	10,100
66	169	6,500	203	8,600	237	10,700
68	169	6,900	203	9,100	237	11,300
70	169	7,300	203	9,700	237	12,000
72	169	7,600	204	10,200	238	12,600
74	169	8,000	204	10,600	238	13,300
76	169	8,400	204	11,200	238	13,900
78	169	8,800	204	11,800	238	14,600
80	169	9,200	204	12,300	238	15,300

SILVER FIR (Balsam)

D.B.H.	Short		Medium		Tall	
	No.of 32' logs	f.b.m.	No.of 32' logs	f.b.m.	No.of 32' logs	f.b.m.
12	1.5	70	2.0	120	2.5	250
14	1.5	80	2.0	210	2.5	330
16	1.5	160	2.0	310	2.5	440
18	1.5	240	2.5	410	3.0	570
20	2.0	330	2.5	510	3.0	700
22	2.0	420	3.0	610	3.0	860
24	2.0	520	3.0	730	3.5	1,030
26	2.0	630	3.0	860	3.5	1,230
28	2.5	750	3.0	1,000	4.0	1,450
30	2.5	900	3.0	1,170	4.0	1,720
32	2.5	1,060	3.0	1,360	4.0	2,050
34	3.0	1,230	3.5	1,590	4.0	2,430
36	3.0	1,420	3.5	1,850	4.0	2,830
38	3.0	1,600	3.5	2,190	4.5	3,270
40	3.0	1,810	4.0	2,540	4.5	3,680
42	3.5	2,030	4.0	2,920	5.0	4,130
44	3.5	2,300	4.0	3,390	5.0	4,600
46	3.5	2,640	4.5	3,970	5.5	5,060
48	3.5	3,000	4.5	4,600	5.5	5,540
50	3.5	3,380	4.5	5,180	5.5	5,990
52		3,780		5,700		
54		4,160		6,200		
56		4,540		6,700		

SITKA SPRUCE

D.B.H.	Volume in f.b.m.			D.B.H.	Volume in f.b.m.		
	Short	Medium	Tall		Short	Medium	Tall
12	60	120	170	38	1,900	2,600	3,280
14	100	150	190	40	2,250	2,930	3,650
16	110	220	340	42	2,500	3,380	4,210
18	160	300	490	44	2,840	3,850	4,660
20	200	400	600	46	3,230	4,220	5,260
22	310	530	800	48	3,640	4,700	5,800
24	460	780	1,010	50	4,120	5,220	6,410
26	580	900	1,230	52	4,610	5,810	7,100
28	690	1,100	1,500	54	5,170	6,460	7,810
30	890	1,330	1,790	56	5,790	7,180	8,710
32	1,100	1,560	2,090	58	6,490	8,010	9,570
34	1,300	1,870	2,430	60	7,240	8,850	10,500
36	1,600	2,200	2,790	62	8,040	9,760	11,450

WHITE PINE

D.B.H.	Height	Volume f.b.m.	D.B.H.	Height	Volume f.b.m.
10	70	70	32	153	1,800
12	83	140	34	156	2,100
14	93	210	36	158	2,440
16	103	280	38	160	2,800
18	111	370	40	162	3,140
20	119	480	42	164	3,430
22	126	650	44	165	3,750
24	132	830	46	165	4,090
26	138	1,070	48	165	4,390
28	144	1,300	50	165	4,700
30	148	1,520			

Yellow cedar: The short table for western red cedar was used in the compilation of volumes of yellow cedar.

Method of surveying.

The field survey was carried out according to instructions issued in 1928 covering the methods to be followed by forest survey parties. In addition, a systematic shore triangulation was made to tie in timber types and complete the topography of areas visible from tidewater. For this work a staff compass and abney level were used. All available commercial cruise topographic and forest cover maps were used to supplement information obtained by the survey party. The topography of a large non-productive area at the headwaters of the Toba River was obtained from a sketch map and photographs by Dr. Neal M.Carter of the Canadian Alpine Club. For complete information as to his work in this region see departmental file No. 698508 - 01863 and the Canadian Alpine Club Journal for 1933.

Where cruise strips were necessary they were tied, whenever possible, to the corner posts of land surveys. Sometimes due to the absence of surveys or their age and the consequent difficulty in locating corner posts, horizontal control was based on topographic or shore line features whose positions were known with a reasonable degree of accuracy.

Aneroid barometers were used for vertical control and their readings corrected when necessary for fluctuations in pressure as shown by another barometer read hourly at sea level.

Cost of survey.

Salaries	$2,564.52
Meals.....	729.00
Travelling expenses.....	64.85
Transportation on job.1...	202.74
Overhaul of "B.C.Forester"	288.50
Miscellaneous.....	72.61
	$3,922.22

The above figures include the cost of the re-examination of the Hardwicke, East and West Thurlow, Sonora and West Redonda Island Forests and the examination of Maurelle Island. For this $670.46 should be allowed, making the cost of surveying the Toba Forest $3,251.76.

The total area of the Toba Forest is 763,910 acres or 1,194 square miles making the cost of survey per acre 0.42¢, or per square mile $2.72.

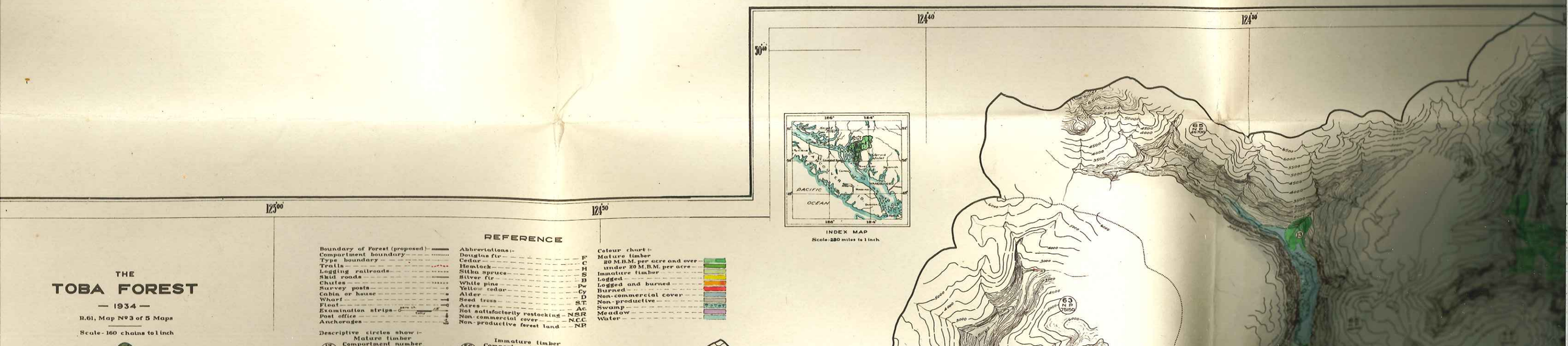
The productive area of the Toba Forest 130,170 acres, cost per productive acre 2.5¢.

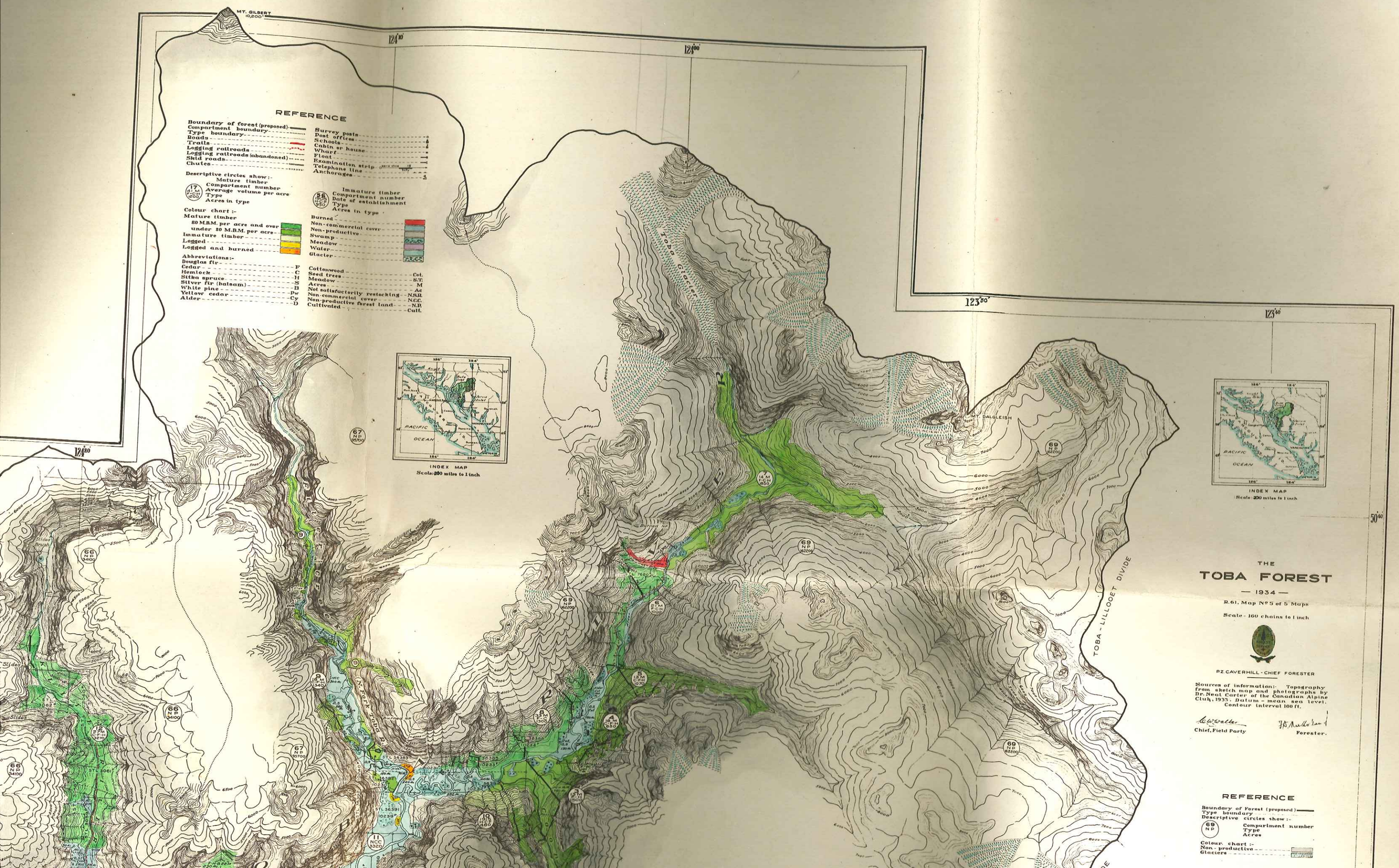
Labour distribution.

Cruising and reconnaissance	41%
Mapping and compiling	9%
Cooking	15%
Sundays and sickness	13%
Engineer	11%
Moving camp and travelling	8%
Miscellaneous	3%
Total	100%

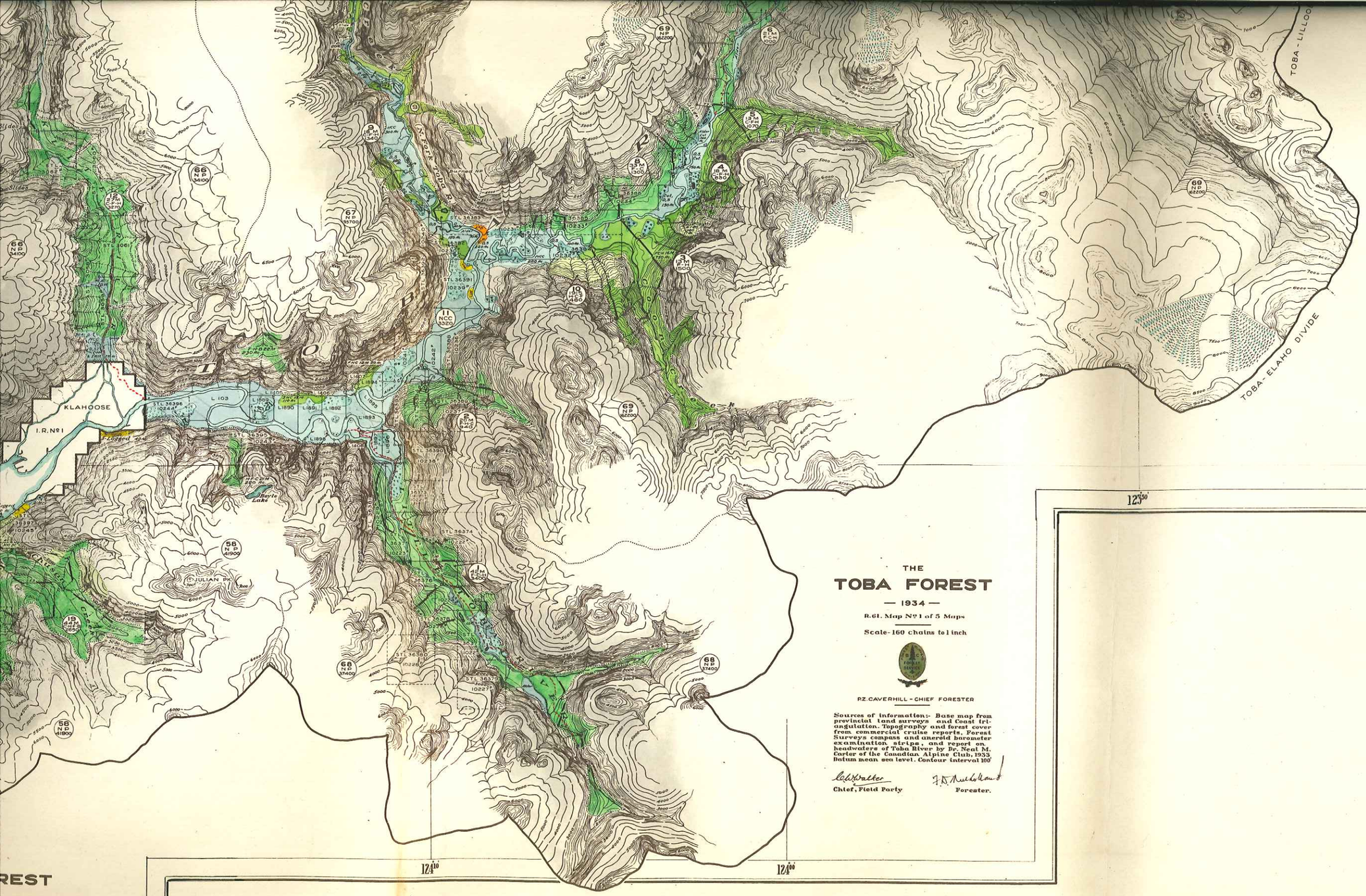
Personnel.

Chief of Party.....	C.W.Walker
Cruisers.....	W.A.Johnston
	H.G.McWilliams
	C.F.McBride
Compassmen.....	P.D.Smith
	J.K.Jacob
Engineer.....	W.L.Money
Cook.....	A.R.McGregor.


124°40'
124°30'
50°00'
125°00'
124°30'
THE
TOBA FOREST
— 1934 —
B.61, Map No 3 of 5 Maps
Scale - 160 chains to 1 inch
REFERENCE
Boundary of Forest (proposed)
Compartment boundary
Type boundary
Trails
Logging railroads
Skid roads
Chutes
Survey posts
Cabin or house
Wharf
Float
Examination strips
Post office
Anchorages
Descriptive circles show :-
Mature timber
Compartment number
Immature timber
Abbreviations :-
Douglas fir — F
Cedar — C
Hemlock — H
Sitka spruce — S
Silver fir — B
White pine — Pw
Yellow cedar — Cy
Alder — D
Seed trees — S.T.
Acres — Ac
Not satisfactorily restocking — N.S.R
Non-commercial cover — N.C.C.
Non-productive forest land — N.P.
Colour chart :-
Mature timber
80 M.B.M. per acre and over
under 80 M.B.M. per acre
Immature timber
Logged
Logged and burned
Burned
Non-commercial cover
Non-productive
Swamp
Meadow
Water
INDEX MAP
Scale - 280 miles to 1 inch
PACIFIC
OCEAN
63 N.P. 78150
63 N.P. 78150
13


MT. GILBERT
10,200'
124°10'
124°00'
123°50'
123°40'
124°20'
50°40'
REFERENCE
Boundary of forest (proposed)
Compartment boundary
Type boundary
Roads
Trails
Logging railroads
Logging railroads (abandoned)
Skid roads
Chutes
Survey posts
Post offices
Schools
Cabin or house
Wharf
Flint
Examination strip
Telephone line
Anchorages
Descriptive circles show:-
Mature timber
Compartment number
Average volume per acre
Type
Acres in type
Immature timber
Compartment number
Date of establishment
Type
Acres in type
Colour chart:-
Mature timber
80 M.B.M. per acre and over
under 80 M.B.M. per acre
Immature timber
Logged
Logged and burned
Burned
Non-commercial cover
Non-productive
Swamp
Meadow
Water
Glacier
Abbreviations:-
Douglas fir - F
Cedar - C
Hemlock - H
Sitka spruce - S
Silver fir (balsam) - B
White pine - Pw
Yellow cedar - Cy
Alder - D
Cottonwood - Cot.
Seed trees - S.T.
Meadow - M
Acres - Ac
Not satisfactorily restocking - N.S.R.
Non-commercial cover - N.C.C.
Non-productive forest land - N.R.
Cultivated - Cult.
INDEX MAP
Scale: 200 miles to 1 inch
PACIFIC
OCEAN
LONG GLACIER
MT. DALGLEISH
TOBA - LILLOOET DIVIDE
N. FORK TOBA R.
Burned 50
Burned 50
Burned 50

THE
TOBA FOREST
— 1934 —
R.61, Map No 3 of 5 Maps
Scale - 160 chains to 1 inch
P.Z. CAVERHILL - CHIEF FORESTER
Sources of information:- Base map from provincial land surveys and Coast triangulation. Topography and forest cover from commercial cruise reports and Forest Surveys compass and aneroid barometer examination strips
Datum mean sea level. Contour interval 100'
Chief, Field Party
Forester.
REFERENCE
Boundary of Forest (proposed)
Compartment boundary
Type boundary
Trails
Logging railroads
Skid roads
Chutes
Survey posts
Cabin or house
Wharf
Float
Examination strips
Post office
Anchorages
Abbreviations:-
Douglas fir — F
Cedar — C
Hemlock — H
Sitka spruce — S
Silver fir — B
White pine — Pw
Yellow cedar — Cy
Alder — D
Seed trees — S.T.
Acres — Ac.
Not satisfactorily restocking — N.S.R.
Non-commercial cover — N.C.C.
Non-productive forest land — N.P.
Colour chart:-
Mature timber
80 M.B.M. per acre and over
under 80 M.B.M. per acre
Immature timber
Logged
Logged and burned
Burned
Non-commercial cover
Non-productive
Swamp
Meadow
Water
Descriptive circles show:-
Mature timber
Compartment number
Average volume per acre
Type
Acres in type
Immature timber
Compartment number
Date of establishment
Type
Acres in type
INDEX MAP
Scale - 200 miles to 1 inch
PACIFIC OCEAN
Clipper Pt.
Amor Pt.
Fawn Bluff
MT. POWELL
LOUGHBOROUGH FOREST
BUTE INLET
RAMSAY ARM
Rapids
STUART I.D.
Henrietta Pt.
Stuart Id.
Harbott Pt.
Johnstone Bluff
Fanny Bay
SONORA I.D.
Church House
MT. TOBA
George Pt.
Quatam Bay
MT. HAYES
COAST MOUNTAINS
Salmon Bay
FACE MTN.
BARNES MTN.
Snout Pt.
MT. GRAZEBROOK
Brettell Pt.
CHANNEL I.D.
Homfray Lake
TOBA INLET
reported alpine meadow
Barren
Scrub
Logged
Logged and burned
Burned
Swamp
Meadow
Water
THE
TOBA FORE
— 1934 —
R.61, Map No 2 of 5 Ma
Scale - 160 chains to 1
P.Z. CAVERHILL - CHIEF FOR
Sources of information:- Bas
provincial land surveys and
angulation. Topography and f
from commercial cruise rep
Forest Surveys compass an
barometer examination
Datum mean sea level. Contour
Chief, Field Party



B.C. Map Nº 5 of 5 Maps

Scale - 160 chains to 1 inch

P.Z. CAVERHILL - CHIEF FORESTER

Sources of information:- Topography from sketch map and photographs by Dr. Neal Carter of the Canadian Alpine Club, 1933. Datum - mean sea level. Contour interval 100 ft.

C.W. Walker — Chief, Field Party

F.D. Mulholland — Forester.

REFERENCE

Boundary of Forest (proposed)
Type boundary
Descriptive circles show:-
69 NP — Compartment number, Type, Acres

Colour chart :-
Non-productive
Glaciers

Revised		
Revised		
Revised		
Colored by	R.S.M.	36
Checked by		
Traced by	C.W.W.	36
Drawn by	C.W.W.	36

30'30

THE TOBA FOREST

— 1934 —

B.C. Map Nº 1 of 5 Maps

Scale - 160 Chains to 1 inch

P.Z. CAVERHILL - CHIEF FORESTER

Sources of information:- Base map from provincial land surveys and Coast triangulation. Topography and forest cover from commercial cruise reports. Forest Surveys compass and aneroid barometer examination strips, and report on headwaters of Toba River by Dr. Neal M. Carter of the Canadian Alpine Club, 1933. Datum mean sea level. Contour interval 100'

C.W. Walker — Chief, Field Party

F.D. Mulholland — Forester.

Scale - 100 chains to 1 inch

R.Z. CAVERHILL - CHIEF FORESTER

Sources of information: Base ma
provincial land surveys and Co
angulation. Topography and forest
from commercial cruise reports
Forest Surveys compass and ob
barometer examination strip
Datum mean sea level. Contour inte

Chief, Field Party

For

REFERENCE

Boundary of Forest (proposed)
Compartment boundary
Type boundary
Trails
Skid roads

Chutes
Survey pos
Cabin or h
Anchorage
Examinati

Descriptive circles show:-
Mature timber
Compartment number
Average volume per acre
Type
Acres in type

Colour chart:-
Mature timber
80 M.B.M. per acre & over
under 80 M.B.M. per acre
Immature timber
Logged
Logged and burned

Burned
Non-comme
Non-produ
Swamp
Meadow
Water

Abbreviations:-
Douglas fir — F
Cedar — C
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Sitka spruce — S
Silver fir — B
White pine — Pw
Yellow cedar — Cy

Alder
Seed trees
Meadow
Acres
Not satisfacto
Non-commerci
Non-productiv

Revised
Revised
Revised
Colored by R.S.M. 76
Checked by
Traced by G.W.W. 34
Drawn by G.W.W. 34

125°00'

50°00'

50°00'

CALM CHANNEL

NORTH PASS

DEER PASS

PRYCE CHANNEL

HOMFRAY CHANNEL

DESOLATION SOUND

REDONDA IS.

MAURELLE ISLAND

READ ID.

RAZA ISLAND

SONORA ID.

Stuart Id.

Harbott Pt.

Johnstone Bluff

Fanny Bay

Church House

MT. TOBA

George Pt.

MT. HAYES

ELIZABETH ID.

COUBLE ID.

CHANNEL ID.

Brettell Pt.

Hepburn Pt.

Tibbs Pt.

Connis Pt.

George Pt.

Deon Pt.

Redonda Bay

Mayes Pt.

REND EZVOUS

DREW PASS

ISLANDS

MT. GRAZEBROOK

MT. WHIELDON

Attwood P.

Homfray Lake

Derwent Lake

MT. DENMAN

MT. AIKEN

Forbes Bay

Bohn Pt.

Booker Pt.

DUDLEY CONE

Lloyd Pt.

MT. CRAWSHAY

MT. PARDOE

Black Lake

Bogeys Lagoon

Horace Pt.

Marylebone Pt.

Price Pt.

Refuge Lagoon

Refuge Cove

MELVILLE ID.

MARY ID.

MORGAN ID.

OTTER ID.

BROKEN ID.

Bold Hd.

GREY ID.

Deep Bay

Unwin Lake

MINK ISLAND

MARTIN ID.

STATION ID.

KINGHORN ID.

Portage Cove

Zephine Hd.

Cattley Bay

Sarah Pt.

MALASPINA STRAIT

LANCELOT ARM

THEODOSIA ARM

TOQUANA

Thor's Cove

Olsen L.

GOAT

THE TOBA FOREST

Classification of area (in acres)

Mature timber: accessible	50,070	77,270	
inaccessible	27,200		
Immature timber: 1 - 20 years	10,260		
21 - 40 "	21,570		
41 - 60 "	750		
61 - 80 "	440		
81 -100 "	700	33,720	
Not reforested; logged, burned	9,410		
non-commercial cover	9,770	19,180	
Total productive area			130,170
Barren and scrub sites		626,290	
Swamp		2,240	
Meadow		170	
Water		5,040	
Total non-productive area.....			633,740
Total area of Forest 1,194 square miles or...			763,910

Estimated capacity for sustained annual yield.

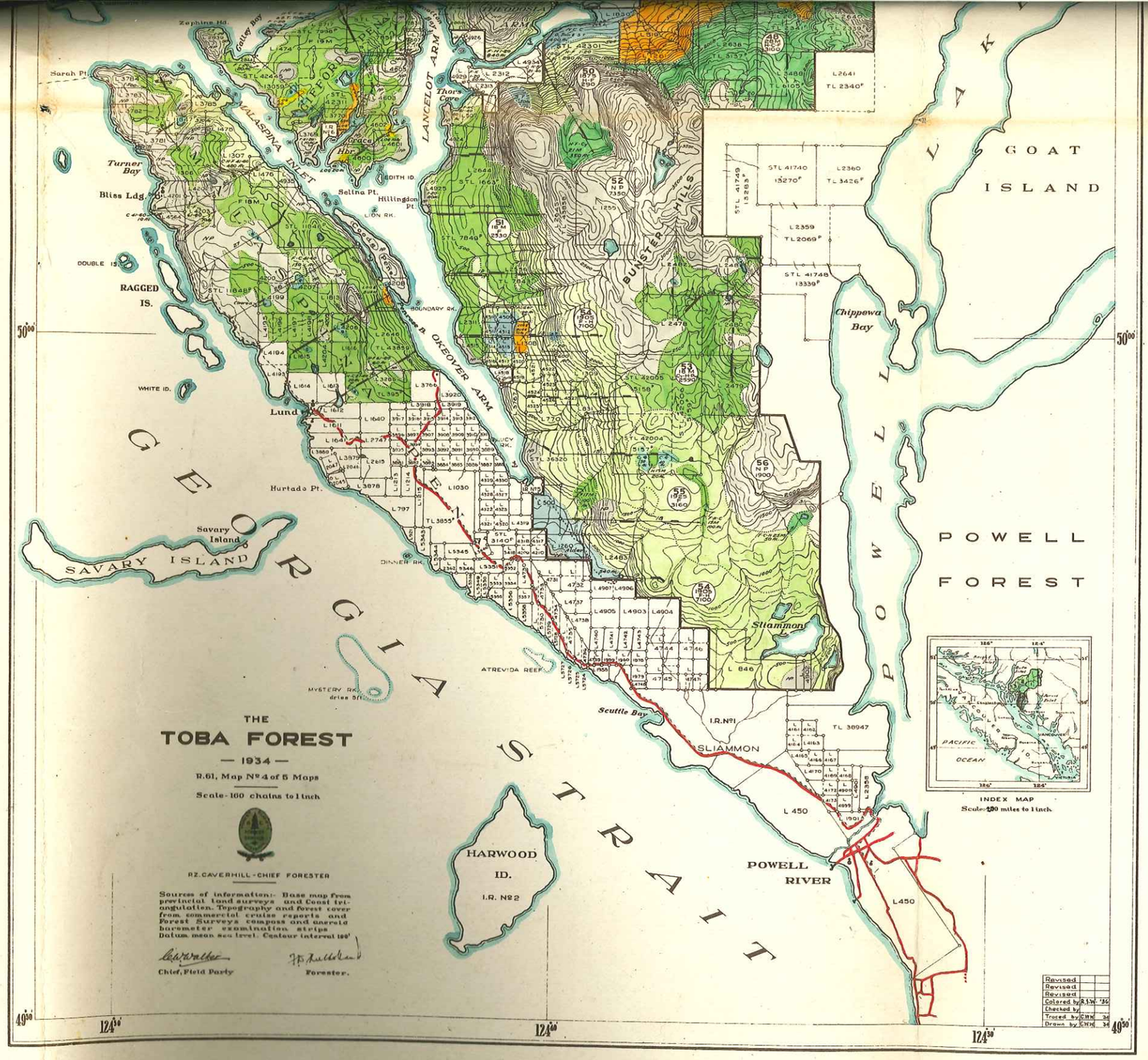
Accessible (present products and markets) 25,000 M.B.M.(saw-timber)
Total (after regulation) ..... 34,000 M.B.M.
These estimates are based on a rotation of 100 years.
Approximate average annual utilization from 1925 to 1934: 30,500 MBM.

Estimate of Merchantable Timber in M. B. M.

Species	Accessible			Inaccessible			Total		
	Crown	Alienated	Total	Crown	Alien-ated	Total	Crown	Alienated	Total
Fir	296,690	179,846	476,536	127,878		127,878	424,568	179,846	604,414
Cedar	325,033	207,154	532,187	140,693		140,693	465,726	207,154	672,880
Hemlock	272,038	107,684	379,722	156,470		156,470	428,508	107 684	536,192
Spruce	10,223	5,747	15,970	21,325		21,325	31,548	5,747	37,295
Silver fir	159,103	44,886	203,989	91,359		91,359	250,462	44,886	295,348
White pine	6,435	287	6,722	15,006		15,006	21,441	287	21,728
Yellow cedar	3,174	1,057	4,231	27,685		27,685	30,859	1,057	31,916
Total	1,072,696	546,661	1,619,357	580,416		580,416	1,653,112	546,661	2,199,773
% of total vol.	49%	25%	74%	26%	0%	26%	75%	25%	100%
Area (acres)	33,440	16,630	50,070	27,200		27,200	60,640	16,630	77,270
% of mature area	43%	22%	65%	35%	0%	35%	78%	22%	100%

SUMMARY OF ACCESSIBLE TIMBER BY COMPARTMENTS

Comp't No.	Acres of Mature timber: Alien-ated	Crown	Total	Volume of saw-timber in M.B.M. over 11 inches d.b.h. — Alienated: F	C	H	S	B	Pw.	Cy.	Total	Crown: F	C	H	S	B	Pw.	Cy.	Total	Total: F	C	H	S	B	Pw.	Cy.	Total
1		2,300	2,300									47,362	27,464	20,374	880	4,237	47		100,364	47,362	27,464	20,374	880	4,237	47		100,364
2		560	560									7,263	1,714	2,245					11,222	7,263	1,714	2,245					11,222
3		680	680									6,839	602	1,694	798	49	15		9,997	6,839	602	1,694	798	49	15		9,997
4		830	830									3,403	9,005	2,424	100	8			14,940	3,403	9,005	2,424	100	8			14,940
8		1,300	1,300									25,987	11,479	2,418	2,977				42,861	25,987	11,479	2,418	2,977				42,861
11	160		160	520	430	590	710				2,250									520	430	590	710				2,250
12	2,700	570	3,270	9,630	50,760	6,930	1,440	5,850			74,610	1,070	6,145	3,470	338	2,176			13,199	10,700	56,905	10,400	1,778	8,026			87,809
15		500	500									4,065	6,865	14,475		4,410			29,815	4,065	6,865	14,475		4,410			29,815
16		470	470									9,856	8,006	2,910		42			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]


THE
TOBA FOREST
— 1934 —
R.61, Map Nº 4 of 5 Maps
Scale - 100 chains to 1 inch
R.Z. CAVERHILL - CHIEF FORESTER
Sources of information:- Base map from provincial land surveys and Coast triangulation. Topography and forest cover from commercial cruise reports and Forest Surveys compass and aneroid barometer examination strips
Datum mean sea level. Contour interval 100'
Chief, Field Party
Forester.
GEORGIA STRAIT
POWELL FOREST
GOAT ISLAND
POWELL RIVER
SLIAMMON
Lund
Savary Island
SAVARY ISLAND
HARWOOD ID.
I.R. Nº2
I.R. Nº1
RAGGED IS.
Turner Bay
Bliss Ldg.
Chippewa Bay
Scuttle Bay
Hurtado Pt.
Selina Pt.
Hillingdon Pt.
Thors Cove
Sliammon
ATREVIDA REEF
MYSTERY RK.
LANCELOT ARM
OKEOVER ARM
TALASPINA INLET
BUNSTER HILLS
INDEX MAP
Scale: 200 miles to 1 inch
PACIFIC OCEAN
Revised
Revised
Revised
Colored by R.S.W. '36
Checked by
Traced by C.H.H. 34
Drawn by C.H.H. 34

SUMMARY OF ACCESSIBLE TIMBER BY COMPARTMENTS

Comp't No.	Acres of Mature timber: Alienated	Acres of Mature timber: Crown	Acres of Mature timber: Total	Volume of saw-timber in M.B.M. over 11 inches d.b.h. — Alienated: F	C	H	S	B	Pw.	Cy.	Total	Crown: F	C	H	S	B	Pw.	Cy.	Total	Total: F	C	H	S	B	Pw.	Cy.	Total
1		2,300	2,300									47,362	27,464	20,374	880	4,237	47		100,364	47,362	27,464	20,374	880	4,237	47		100,364
2		560	560									7,263	1,714	2,245					11,222	7,263	1,714	2,245					11,222
3		680	680									6,839	602	1,694	798	49	15		9,997	6,839	602	1,694	798	49	15		9,997
4		830	830									3,403	9,005	2,424	100	8			14,940	3,403	9,005	2,424	100	8			14,940
8		1,300	1,300									25,987	11,479	2,418	2,977				42,861	25,987	11,479	2,418	2,977				42,861
11	160		160	520	430	590	710				2,250									520	430	590	710				2,250
12	2,700	570	3,270	9,630	50,760	6,930	1,440	5,850			74,610	1,070	6,145	3,470	338	2,176			13,199	10,700	56,905	10,400	1,778	8,026			87,809
15		500	500									4,065	6,865	14,475		4,410			29,815	4,065	6,865	14,475		4,410			29,815
16		470	470									9,856	9,005	3,910		42			22,813	9,856	9,005	3,910		42			22,813
17	880	5,320	6,200	4,180	11,563	7,682	748	8,818	211	9	33,211	25,270	69,905	46,444	4,522	53,306	1,277	53	200,777	29,450	81,468	54,126	5,270	62,124	1,488	62	233,988
18	450	110	560	1,890	3,789	2,804		2,075		4	10,562	462	926	685		507		1	2,581	2,352	4,715	3,489		2,582		5	13,143
19	350	2,300	2,650	11,798	9,076	5,960					26,834	12,450	26,460	28,994		21,968	106		89,978	24,248	35,536	34,954		21,968	106		116,812
20	350	350	700	8,837	3,098	4,137		658			16,730	2,867	5,064	5,789		3,290			17,010	11,704	8,162	9,926		3,948			33,740
22		1,100	1,100									7,471	8,595	8,319		4,890	201		29,476	7,471	8,595	8,319		4,890	201		29,476
24		860	860									7,147	9,468	5,315		60	172		22,162	7,147	9,468	5,315		60	172		22,162
26		2,640	2,640									10,312	27,838	29,208	239	24,324			91,921	10,312	27,838	29,208	239	24,324			91,921
28	520	570	1,090	90	1,750	3,880	290	1,742			7,752	302	1,670	3,243	114	2,685			8,014	392	3,420	7,123	404	4,427			15,766
29	2,940	1,520	4,460	15,010	39,150	25,320	1,710	8,758			89,948	6,182	20,065	10,408		2,883	34		39,572	21,192	59,215	35,728	1,710	11,641	34		129,520
30		1,950	1,950									8,664	7,088	20,731		11,129		1,420	49,032	8,664	7,088	20,731		11,129		1,420	49,032
31	800	300	1,100	9,098	4,392	3,138					16,628	4,365	1,225	1,084					6,674	13,463	5,617	4,222					23,302
32	1,460	1,390	2,850	14,864	11,406	11,648		4,123		1,038	43,079	12,115	9,315	9,975	104	3,516	548	1,584	37,157	26,979	20,721	21,623	104	7,639	545	2,622	80,236
33	320	1,990	2,310	5,898	2,387	2,694			61	6	11,046	21,206	13,910	19,560		8,700	144	116	63,636	27,104	16,297	22,254		8,700	205	122	74,682
37	230	310	540	3,119	692	419					4,230	4,203	933	564					5,700	7,322	1,625	983					9,930
39		580	580									3,010	267	794		63	64		4,198	3,010	267	794		63	64		4,198
40		2,160	2,160									11,100	30,280	25,720		10,860	3,640		81,600	11,100	30,280	25,720		10,860	3,640		81,600
43		350	350									13,310	1,253	385					14,948	13,310	1,253	385					14,948
44		190	190									4,200	380	570					5,150	4,200	380	570					5,150
46		400	400										7,800						7,800		7,800						7,800
47	1,930	320	2,250	54,986	46,223	8,840	849				110,898	9,114	7,677	1,460	151				18,402	64,100	53,900	10,300	1,000				129,300
48	2,040		2,040	16,241	19,993	23,417		12,862			72,513									16,241	19,993	23,417		12,862			72,513
49		660	660									16,252	976	237					17,465	16,252	976	237					17,465
51	1,500	680	2,180	23,685	2,445	225			15		26,370	10,843	1,119	103			7		12,072	34,528	3,564	328			22		38,442
58		180	180										540	1,440			180		2,160		540	1,440			180		2,160
Total	16,630	33,440	50,070	179,846	207,154	107,684	5,747	44,886	287	1,057	546,661	296,690	325,033	272,038	10,223	159,103	6,435	3,174	1,072,696	476,536	532,187	379,722	15,970	203,989	6,722	4,231	1,619,357

Forest Surveys Division, Victoria, B.C., 1934.