PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF LANDS

HON. A. W. GRAY, *Minister.*

H. CATHCART, *Deputy Minister.* C. D. ORCHARD, *Chief Forester.*

REPORT

OF

THE FOREST BRANCH

FOR THE

YEAR ENDED DECEMBER 31ST

1943

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1944.

AREA TYPICAL OF THE CURRENT SALVAGE OPERATIONS.

The roadside piles in the foreground contain 825 pieces of logging debris. This salvage wood amounts to 11,330 cubic feet yarded from an area of approximately 4 acres.

VICTORIA, B.C., March 1st, 1944.

To His Honour W. C. WOODWARD,
Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

Herewith I beg respectfully to submit the Annual Report of the Forest Branch of the Department of Lands for the year 1943.

A. W. GRAY,
Minister of Lands.

The Hon. A. W. Gray,
Minister of Lands, Victoria, B.C.

SIR,—There is submitted herewith the Annual Report on activities of the Branch during the calendar year 1943.

C. D. ORCHARD,
Chief Forester.

REPORT OF THE FOREST BRANCH.

Continuation of the war was, of course, the overshadowing circumstance of the year 1943. Its pressure for more men and materials reflected on forest administration in many ways.

Enlistments have passed the peak, but still the staff was materially reduced in favour of the forces during the year. As listed elsewhere, there were an additional twenty-six of the permanent and temporary staff enlisted. This brings the grand total of enlistments to 156, of whom two have returned honourably discharged.

The great demand for forest products continued throughout the year. A difficult winter of 1942–43, lack of experienced labour and shortage of materials and equipment, slowed down the output of logging operations and mills alike. The same factors affected all forest-work and reflected on the facilities of the Forest Branch. More demands were made on the time of the smaller staffs, with the result that only the most urgent of jobs were done. With all the shortcuts possible and a favourable fire season, the staff was able to complete a larger amount of business in many lines. This shows elsewhere in the statistical tables in the report.

During the year, plans for post-war projects were prepared and reports submitted to the Rehabilitation Council. These showed in detail, by Forest Districts, the improvements needed in the forests and the organization required to administer them. Parks and grazing ranges under the administration of the Branch were included. Various members of the staff devoted considerable time to rehabilitation planning committees and other war-time activities.

The agreement with the Dominion Government, under which a number of Alternative Service Workers were allotted to forest-work, was renewed for a year from April 1st, 1943. These men proved of great value in the conservation of forest resources and were of distinct assistance. Details of their accomplished work are shown elsewhere.

Although the fire season was generally favourable, the Fort George District was hit fairly hard in the late summer and again suffered the greatest damage of any district. This was largely due to the vast extent of remote country where the only possible access is by seaplane. The scarcity of such planes for hire was a contributing cause in the total damage. As the great north half of the Province is opened up it becomes increasingly apparent that administration, and particularly protection, must be extended. This will call for increased air transportation, in which connection the development of the helicopter holds great promise.

Hereafter are presented more detailed statements of the work of the Forest Branch during 1943 in its various divisions, together with statistical tables.

ORGANIZATION AND PERSONNEL.

It was with the deepest regret that the announcement was received of the deaths in the service of their country of the following valued members of the Branch:—

J. H. Benton, Air Surveys, Victoria.

A. J. Leighton, Clerk, Prince Rupert.

The following is the complete roster of enlistments as known up to the end of 1943:—

1939—

L. F. Swannell, Assistant District Forester, Prince George.

W. Hall, Assistant Forester, Victoria.

1939—*Continued.*

H. Casilio, Draughtsman, Victoria.
N. G. Wharf, Clerk, Victoria.
C. V. Smith, Clerk, Prince Rupert.
L. N. W. Woods, Assistant Ranger, Prince George.
C. R. Sandey, Launch Engineer, Vancouver.

1940—

W. Murray, Draughtsman, Prince Rupert.
T. Hunter, Launch Engineer, Victoria.
G. S. Andrews, Assistant Forester, Victoria.
V. C. Smith, Launch Engineer, Vancouver.
E. G. Oldham, Assistant Forester, Victoria.
G. A. Playfair, Radio Engineer, Victoria.
D. J. McKay, Junior Clerk, Victoria.
C. R. Lee, Draughtsman, Kamloops.
F. J. G. Johnson, Ranger, Nelson.
I. J. Burkitt, Ranger Assistant, Nelson.
A. E. Parlow, District Forester, Kamloops.
J. Boydell, Ranger, Kamloops.
C. L. Armstrong, Assistant Forester, Kamloops.
O. V. Maude-Roxby, Assistant Ranger, Kamloops.
A. C. Kinnear, Air Surveys Division, Victoria.
L. S. Hope, Assistant District Forester, Prince Rupert.
A. Gordon, Supervisor, Victoria.
W. D. Hay, Assistant Ranger, Prince George.
A. J. Kirk, Assistant Ranger, Prince George.
W. E. Jansen, Assistant Ranger, Vancouver.
H. G. Mayson, Assistant Ranger, Kamloops.
E. F. Taggart, Assistant Ranger, Prince George.
A. Smith, Patrolman, Prince George.
A. B. Ritchie, Assistant Ranger, Kamloops.
J. H. Wilcox, Lookout-man, Kamloops.
J. C. Wright, Look-out man, Kamloops.
C. W. Mizon, Assistant Ranger, Kamloops.
W. J. Owen, Assistant Ranger, Vancouver.
R. R. Douglas, Assistant Forester, Kamloops.
L. A. Willington, Assistant Ranger, Prince George.
F. V. Webber, Assistant Ranger, Nelson.

1941—

H. Stevenson, Ranger, Vancouver.
S. Benwell, Clerk, Victoria.
W. H. Ozard, Grazing Assistant, Kamloops.
J. H. Benton, Air Surveys, Victoria.
Howard Elsey, Research Assistant, Victoria.
H. I. Barwell, Draughtsman, Kamloops.
H. T. Barbour, Acting Ranger, Nelson.
I. C. MacQueen, Assistant Forester, Victoria.
H. A. Ivarson, Clerk, Prince Rupert.
D. J. Monk, Draughtsman, Victoria.
F. W. Crouch, Compiler, Victoria.
A. B. Anderson, Cruiser, Victoria.
N. F. M. Pope, Parks, Victoria.

1941—*Continued.*

D. L. McMurchie, Parks, Victoria.
A. J. Nash, Student Assistant, Nelson.
C. W. Walker, Assistant Forester, Victoria.
J. D. LeMare, Cruiser, Victoria.
G. A. Cahilty, Clerk, Kamloops.
W. S. Hepher, Assistant Forester, Vancouver.
C. E. Bennett, Cruiser, Victoria.
J. S. Stokes, Chief of Party, Victoria.
J. Robinson, Acting Ranger, Prince Rupert.
J. Eselmont, Lookout-man, Nelson.
G. H. Fewtrell, Assistant Ranger, Kamloops.
S. Lockard, Assistant Ranger, Nelson.
E. L. Scott, Assistant Ranger, Kamloops.
G. J. Ballard, Assistant Ranger, Kamloops.
W. E. Walker, Patrolman, Vancouver.
E. G. Marples, Lookout-man, Nelson.
A. M. Byers, Surveys, Victoria.

1942—

G. W. Minns, Ranger, Prince Rupert.
C. L. Botham, Ranger, Prince Rupert.
L. A. Chase, Acting Ranger, Kamloops.
D. A. Sims, Clerk, Vancouver.
A. J. Leighton, Clerk, Prince Rupert.
A. R. McLeod, Clerk, Vancouver.
D. Gillies, Clerk, Vancouver.
W. V. Hicks, Clerk, Victoria.
P. N. A. Smith, Draughtsman, Vancouver.
C. J. T. Rhodes, Draughtsman, Victoria.
Miss K. Robinson, Stenographer, Victoria.
G. Levy, Clerk, Victoria.
Miss G. M. MacAfee, Stenographer, Victoria.
Miss L. A. Edwards, Stenographer, Nelson.
I. T. Cameron, Assistant Forester, Kamloops.
P. M. Monckton, Draughtsman, Victoria.
J. R. Johnston, Acting Ranger, Nelson.
J. H. Templeman, Ranger, Kamloops.
H. M. Pogue, Assistant Forester, Victoria.
A. H. Dixon, Ranger, Vancouver.
G. R. W. Nixon, Assistant Forester, Victoria.
M. A. Johnson, Assistant Ranger, Kamloops.
H. K. DeBeck, Grazing Assistant, Kamloops.
L. E. Bland, Junior Draughtsman, Victoria.
W. W. Stevens, Assistant Forester, Kamloops.
A. G. McNeil, Clerk, Vancouver.
W. D. Grainger, Research Assistant, Victoria.
A. E. Rhodes, Clerk, Victoria.
C. P. Harrison, Assistant Ranger, Vancouver.
K. A. McKenzie, Assistant Ranger, Vancouver.
R. E. Crellin, Dispatcher, Nelson.
G. M. Riste, Assistant Ranger, Vancouver.
W. A. Conder, Lookout-man, Vancouver.
W. M. Patterson, Dispatcher, Vancouver.

1942—*Continued.*

H. G. M. Colbeck, Assistant Ranger, Nelson.
A. W. Slater, Helper, Vancouver.
D. E. Stephens, Dispatcher, Vancouver.
A. C. Letcher, Patrolman, Vancouver.
R. Bradshaw, Lookout-man, Nelson.
L. E. Croft, Dispatcher, Nelson.
R. R. Flynn, Lookout-man, Nelson.
E. J. Hamling, Assistant Ranger, Nelson.
A. E. Hesketh, Patrolman, Nelson.
J. C. Payne, Assistant Ranger, Nelson.
I. C. Robinson, Assistant Ranger, Nelson.
D. W. Speers, Lookout-man, Nelson.
G. Crommett, Assistant Ranger, Nelson.
H. L. Couling, Assistant Ranger, Nelson.
D. Lamont, Assistant Ranger, Vancouver.
D. A. Kittson, Assistant Ranger, Vancouver.
C. W. J. Castley, Dispatcher, Vancouver.
Geo. Baldwin, Assistant Ranger, Vancouver.
N. H. Boss, Draughtsman, Nelson.
R. A. Damstrom, Assistant Ranger, Nelson.
W. J. Wright, Dispatcher, Nelson.
N. T. McPhedran, Dispatcher, Vancouver.
A. Dixon, Patrolman, Vancouver.
J. H. Ellis, Dispatcher, Kamloops.
C. J. Wagner, Patrolman, Vancouver.
A. Sirvio, Assistant Ranger, Kamloops.
E. A. Nelson, Patrolman, Kamloops.
W. E. Thacker, Lookout-man, Nelson.
E. L. Collett, Helper, Vancouver.
R. G. Bullen, Lookout-man, Vancouver.
C. S. Stubbs, Assistant Ranger, Vancouver.
A. H. Bamford, Research Assistant, Victoria.
Alex. Corbett, Acting Ranger, Kamloops.
D. E. Dyson, Student Assistant, Vancouver.
A. L. Lyttle, Scaler, Vancouver.

1943—

S. G. Watson, Clerk, Victoria.
W. C. Pendray, Assistant Forester, Kamloops.
Miss G. P. Holden, Stenographer, Vancouver.
E. R. Offin, Dispatcher, Nelson.
C. H. Cameron, Dispatcher, Vancouver.
W. R. Garcin, Clerk, Victoria.
H. W. Campbell, Assistant Ranger, Kamloops.
I. Hanson, Assistant Ranger, Kamloops.
G. E. Shook, Patrolman, Kamloops.
W. C. Stevens, Assistant Ranger, Kamloops.
J. D. Creighton, Assistant Ranger, Vancouver.
A. K. McKirdy, Patrolman, Kamloops.
W. L. Downey, Patrolman, Kamloops.
V. Reed, Dispatcher, Kamloops.
R. W. Colmer, Assistant Ranger, Nelson.
F. Tannock, Assistant Ranger, Vancouver.

1943—*Continued.*

C. J. C. Slade, Mechanic, Vancouver.
R. W. Foreman, Dispatcher, Vancouver.
G. Seymour, Patrolman, Prince George.
L. J. Balcaen, Assistant Ranger, Prince George.

DISTRIBUTION OF PERSONNEL, 1943.

Personnel.	Forest District.						
	Vancouver.	Prince Rupert.	Fort George.	Kamloops.	Nelson.	Victoria.	Total.
Permanent.							
Chief Forester, Assistant Chief Forester, and Division Foresters	----	----	----	----	----	5	5
District Foresters and Assistant District Foresters	1	1	2	2	2	----	8
Assistant Foresters	3	1	----	2	2	13	21
	1*	----	----	----	----	----	1*
Supervisor of Rangers and Fire Inspectors	5	----	1	1	3	----	10
Rangers	18	7	9	14	9	----	57
	2*	2*	----	2*	1*	----	7*
Supervisor of Scalers and Assistants	2	----	----	1	----	----	3
Scalers	28	----	----	----	----	----	28
Inspectors, Royalty and Export	1	----	----	----	----	1	2
Mechanical—Radio and Engineering Supervisory	----	----	----	----	----	2	2
	----	----	----	----	----	2*	2*
Surveys and Reconnaissance Assistants	----	----	----	----	----	4*	4*
Nursery and Reforestation Assistants	----	----	----	----	----	6*	6*
Draughtsmen	1	----	----	----	1	4	6
	1*	----	----	1*	----	3*	5*
Clerks, Stenographers, and Messengers	26	4	5	6	9	29	79
	4*	5*	2*	2*	1*	21*	35*
Mechanics, Carpenters, and Technicians	5	----	----	----	----	----	5
	----	----	----	----	----	2*	2*
Launch crewmen	8	3	----	----	----	----	11
Miscellaneous	----	----	----	----	----	3*	3*
Total, permanent personnel	98	16	17	26	26	54	237
	8*	7*	2*	5*	2*	41*	65*
Seasonal.							
Assistant Rangers	23	8	15	20	25	----	91
Patrolmen	16	8	7	22	20	----	73
Lookout-men	14	6	9	15	17	----	61
Dispatchers and Radio Operators	16	----	----	13	11	----	40
Fire Suppression Crewmen	----	----	----	9	12	----	21
Cruisers and Compass-men	----	----	----	----	----	5	5
Miscellaneous	20	5	4	4	10	5	48
Total, seasonal personnel	89	27	35	83	95	10	339
Total, all personnel	187	43	52	109	121	64	576
	8*	7*	2*	5*	2*	41*	65*

"Permanent" is a tabulation of positions occupied for at least part of the year under voted salaries. Total number of permanent positions actually occupied December 31st, 1943, was 221.

* Continuously employed but no specific position or voted salary for the purpose; includes war replacements for enlisted personnel.

FOREST ECONOMICS.

At the outbreak of the war the full-time staff of this Division numbered fifty persons and it is of interest that at the present time only twenty-four are similarly employed. There have been twenty enlistments in the armed services and of that number we deeply regret that one man has paid the supreme sacrifice and another was reported missing last summer. In addition, six men have been transferred to other

Divisions of the Branch to undertake more urgent tasks or to take the place of men who have enlisted. Nearly all of these twenty-six persons were technically trained and it has not been possible to replace them; consequently the activities of the Division have been reduced to a maintenance basis for the most part. Furthermore, there is little chance of this situation being remedied until the necessary technical personnel has been released from the armed services or from other essential war jobs.

AIR AND FOREST SURVEYS.

Air survey operations and forest survey field activities have been suspended for the duration of hostilities. However, the office-work continued on a restricted scale and the estimates and report for the Juan de Fuca region were completed. The maps for this project have not been finished but it is anticipated that they will be ready early in 1944.

JUAN DE FUCA REGION.

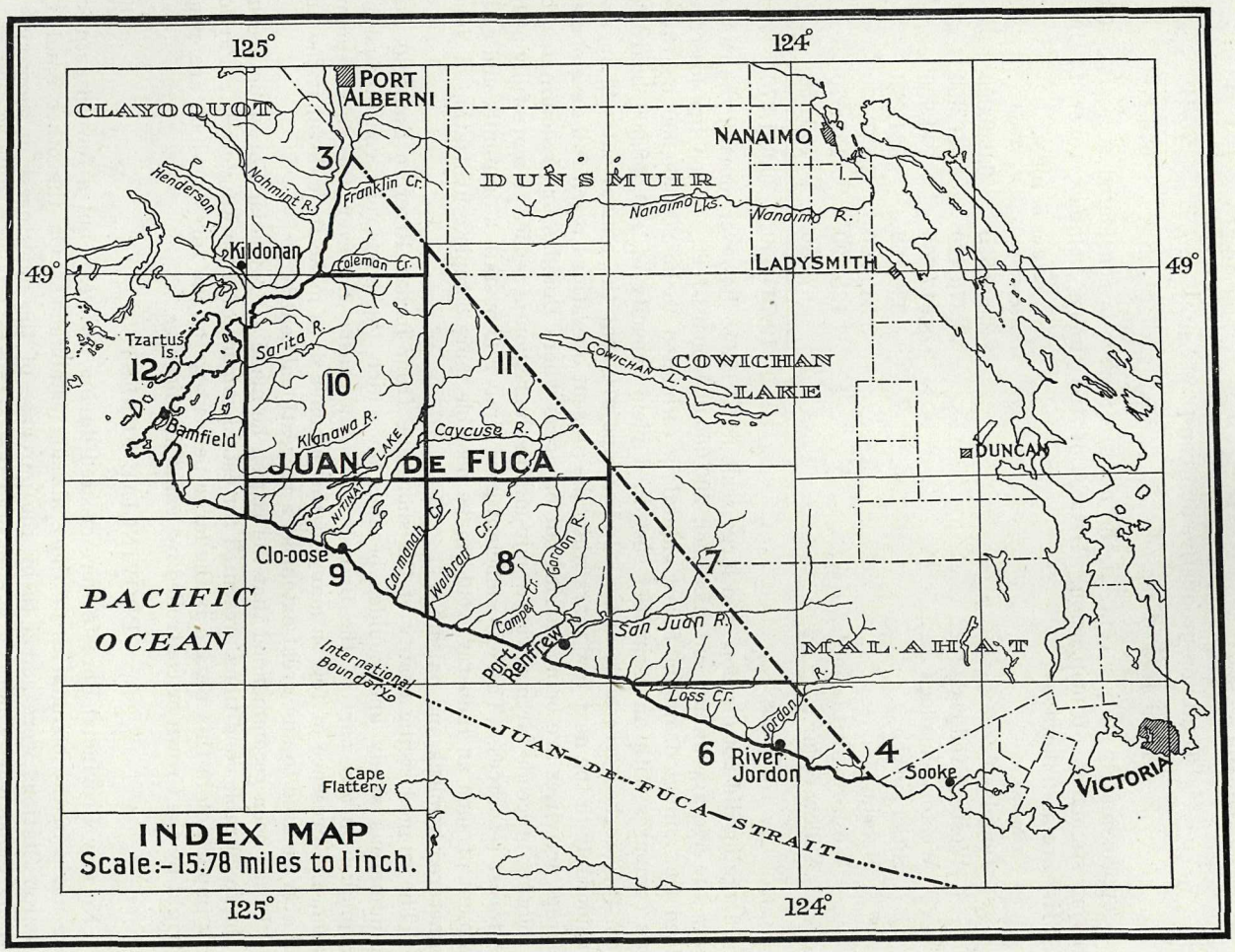
The Juan de Fuca region is bounded on the east by the Esquimalt and Nanaimo Railway Land Grant, on the north by the Alberni Inlet and the Imperial Eagle Channel, and on the west by the Pacific Ocean and the Straits of Juan de Fuca.

In general, the region is mountainous with numerous narrow and steep timbered valleys and many of the rivers and creeks run through narrow, rocky canyons. The outstanding feature is the consistent site quality of the productive forest area over the entire region at both high and low elevations. The site quality does not vary perceptibly from the valleys to the hill-tops. On the flat areas adjacent to the Coast, poor sites exist, and drainage appears to be the limiting factor in these instances. The average site index is estimated to be 120; i.e., 120 feet high in 100 years.

The classification of areas is as follows:—

Productive Forest Land—

	Acres.	Acres.
Mature timber—		
Accessible	517,800	
Inaccessible	21,320	
		539,120
Immature timber—		
1– 10 years	2,920	
11– 20 years	6,700	
21– 40 years	8,940	
41– 60 years	4,740	
61– 80 years	1,130	
81–100 years	180	
		24,610
Not satisfactorily stocked—		
Logged	10,700	
Logged and burned	14,700	
Burned	50	
		25,450
Non-commercial cover—		
Deciduous	6,430	
Coniferous	2,150	
		8,580
Total sites of productive quality		597,760


125°
124°
49°
PORT ALBERNI
CLAYOQUOT
NANAIMO
DUNSMUIR
Nanaimo Lks.
Nanaimo R.
LADYSMITH
Franklin Cr.
Nahmint R.
Henderson L.
Kildonan
Coleman Cr.
Tzartus Is.
Sarita R.
COWICHAN LAKE
Cowichan L.
Bamfield
Klanawa R.
Caycuse R.
JUAN DE FUCA
DUNCAN
Clo-oose
Carmanah Cr.
Walbran Cr.
Gordon R.
Camper Cr.
San Juan R.
Port Renfrew
MALAHAT
PACIFIC OCEAN
International Boundary
Loss Cr.
Jordan R.
River Jordon
Sooke
VICTORIA
Cape Flattery
JUAN DE FUCA STRAIT
3
12
10
11
9
8
7
6
4
INDEX MAP
Scale:- 15.78 miles to 1 inch.

Non-productive and Non-forest Land—	Acres.	Acres.
Cultivated and villages	830	
Barren and scrub	67,370	
Swamp and water	10,210	
Total non-productive and non-forest sites		78,410
Total area of region		676,170

Approximately 98 per cent. of the mature timber is considered accessible under present standards of utilization. Details of the timber volumes (over 11 inches D.B.H.) are as follows:—

Species.	Volume in M.B.M. Accessible.	Total.
Douglas fir	3,005,510	3,030,850
Western red cedar	4,370,420	4,458,890
Western hemlock	8,517,250	8,744,930
Sitka spruce	330,190	331,270
Balsam	3,349,800	3,531,530
Western white pine	135,390	137,670
Yellow cedar	87,100	106,230
Totals	19,795,660	20,341,370

Logging did not develop on a large scale until 1935; however, during the past six years the average annual cut has been 200,000,000 board-feet. When fire losses are added the annual drain on forest capital is estimated to be 200,800,000 board-feet. This compares with an estimated sustained yield capacity of 160,500,000 board-feet from the stocked accessible areas. Indications are that the annual cut will increase considerably in the next few years when the present operations reach full development. Current activities are being carried out on areas where Douglas fir predominates, but as logging proceeds farther west a pulp-mill in the region is needed to more fully utilize the forest resources. There is sufficient good timber to sustain a pulp-mill, and establishment of such an industry would make possible more complete utilization of small-diametered hemlock and balsam.

The rugged scenic beauty of the shore-line from Jordan River to Bamfield, with its numerous sandy and boulder beaches on which the surf rolls continuously, is unequalled on any part of the British Columbia coast; however, the short summer season and presence of fog on many of the summer days make it doubtful if the area will ever be used to any great extent as a recreational centre.

It has been recommended that the region be made a Provincial Forest on account of the favourable conditions presented for establishment of a working circle. Particularly important in this regard is the large percentage of the forests which are owned outright by the Crown or controlled by leases and licences.

PROVINCIAL FORESTS.

No new Provincial Forests were created during the year, but a few adjustments were made in the boundaries of those already established. On the other hand, the Research Stations were added to by the purchase of the new forest nursery site at Duncan, Vancouver Island. A summary of the forests to date is as follows:—

Type of Forest.	Coast.		Interior.		Total.	
	Number.	Area.	Number.	Area.	Number.	Area.
		Sq. Miles.		Sq. Miles.		Sq. Miles.
Productive	19	11,510	26	19,211	45	30,721
Scenic	----	------	2	233	2	233
Research	4	5	1	10	5	15
Totals	23	11,515	29	19,454	52	30,969

FOREST RESOURCES INVENTORY.

The forest atlas project this season provided for the current revisions for logging and fires of the cover-maps at the Vancouver, Kamloops, Prince George, and Nelson District offices, in addition to those on file at Headquarters in Victoria. A total of 874 maps was revised, of which forty-three were new replacements. All district maps are generally in good condition and, for preservation and convenience in filing, the rangers' maps are now being placed on sticks with brass ferrules on the end to hold index-cards.

The fire atlas, which shows the date of occurrence and location of all forest fires throughout the Province, has been maintained.

Numerous miscellaneous inquiries have been handled relative to both the timber stands of the Province in general and to local areas. The current industrial activity has increased these requests several times what they were before the war, with the result that a considerable proportion of the time of this staff is now spent solely in supplying information to the public.

Recording of forest inventory data by the Hollerith system has been continued as time and man-power permitted. The estimates for Vancouver Island have been brought up-to-date and the statistics for the Mainland Coast of the Vancouver Forest District are now being revised.

FOREST RESEARCH.

Mensuration.

Field activities in mensuration comprised the re-examination of six plots on Vancouver Island and twenty-seven plots in the Prince George Forest District, located mostly at the Aleza Lake Experiment Station. Office compilations of these data are now in progress.

Considerable time was spent in statistical analysis of various methods of scaling forest products in cubic foot measure with a view to recommending the system most adaptable to local conditions.

Silvicultural Studies.

Observations have been maintained in connection with the long-term projects covering such studies as seed dissemination and production, survival of disseminated seed, germination, and survival of natural seedlings.

The 1943 seed-crop on the Coast was irregular in its occurrence. On the Lower Mainland and in the Lower Fraser Valley the crop of all species was a failure. In the Victoria region and around Campbell River on the east coast of Vancouver Island there were average crops of Douglas fir, hemlock, and cedar; however, at all other points the crop was poor to *nil*. No explanation of this spotty behaviour is readily available as indications the previous fall were that a potentially good crop was in prospect. The unusually severe winter followed by a late spring may have been responsible for damage to the conelets during early development. Sitka spruce on the Queen Charlotte Islands carried an average crop of cones.

Increasing utilization of the hemlock forests of the south-west portion of Vancouver Island prompted initiation of a study of the silvics of hemlock in that region. Preliminary findings may be summarized as follows:—

(1.) There are two broad forest types in this region: The "open type," which includes most cedar types together with the low-volume hemlock types; and the "dense types," which include most of the high-volume hemlock types. Silviculturally, these two types probably require different treatment.

(2.) Considerations of underbrush and advance reproduction and slash density force the conclusion that the open types should be burned after logging. Reproduction data also indicate the same treatment. These factors do

not necessarily indicate the burning of slash on the dense types, but the protection factor may force burning. No reproduction data are available for this upper slope type.

(3.) Planned operations are advocated as being practicable on much of the area. The chief feature is the advance of cutting into the two prevailing winds, south and east, with definite plans to have marginal timber left for at least three years to windward within 1 mile of any cut-over area. Efficient fire-protection is necessary since once the timber margin has been moved back by logging, areas beyond 1 mile have little chance of reseeding for years.

(4.) Fire-protection and slash-disposal in this region are primarily silvicultural measures, since the danger of fire to green timber is relatively low.

Analysis is in progress of the data gathered during the course of the third five-year periodic re-examination of the History Map studies at Alouette Lake and Cowichan Lake. At Alouette Lake the 5,000 acres of logged-off land under observation were burned over partly in 1925 and the remainder by a burn in 1931. The earlier burn is restocking satisfactorily because seed-trees were on or adjacent to it for several years. The later burn will remain poorly stocked for many years due to lack of adequate seed-supply. The 1925 burn has been restocking at the rate of 2.5 per cent. annually and in 1940 was 61 per cent. fully stocked. By contrast, the restocking of the 1931 burn averaged 0.7 of 1 per cent. per annum and in 1940 was less than 4 per cent. restocked.

The area under observation in the Cowichan Lake region comprises 98,800 acres, of which 60,500 acres are cut-over; 12,800 acres fire-killed standing timber; and 17,100 acres merchantable timber. About 20 per cent. of the cut-over area is considered to be adequately restocked.

Two of the seed-spotting plots are now ten years old and it has been found that at this age, if there are no fail spots, a 5- by 5-foot spacing gives complete coverage of the ground. In addition, the trees are large enough to show the effects of crowding on spots where there are more than one seedling. The results of a number of trees on one spot are as follows:—

(*a.*) Suppression of the young seedlings by weeds is reduced:

(*b.*) The benefits of increased density are obtained early in the life of the stand:

(*c.*) The heights of dominant seedlings were greater as the number of seedlings per spot increased, at least up to nine trees per spot:

(*d.*) The dominant trees on square-foot spots carrying twelve seedlings had thinner lateral branches than single trees and the trunks were straight and symmetrical.

Screened spots gave protection against mice; at the same time the screening definitely increased survival and improved the form of the trees. Thus it has been demonstrated again that the success of artificial seeding depends upon the development of a cheap protection against mice.

Applied Management Studies.

An experiment in the selective logging of Engelmann spruce in the Interior of the Province was started in 1941 with a view to determining the effect which removal of varying portions of the stand would have on windthrow and reproduction. One block of timber was marked to remove 13.6 per cent. of the number of spruce-trees and 34 per cent. of the volume 12 inches D.B.H. and over. Another block was marked to cut 30 per cent. of the number of spruce and 56 per cent. of the volume 12 inches D.B.H. and over, while on the third area all spruce over 12 inches D.B.H. were removed.

Salvage of Slash

Faller at work.

Small yarding machine used for salvaging operations, dubbed " Peanut Picker " by the men. Small logs soon became known as " peanuts."

Two winters after logging it was found that windthrow on the selectively-cut areas is very much less than on the clear-cut. Furthermore, a selective cut would appear to be the answer to the slash-disposal problem in these forests because there is not the slash created in logging, the subsequent blow-down is so much reduced, and the canopy is not opened up to permit excessive drying out of the forest floor.

The studies of cutting plans carried out in co-operation with logging companies on Vancouver Island have been suspended for the duration due to lack of personnel. This is an important part of our programme of study in applied management and it is hoped that the work may be resumed without undue delay.

More complete utilization of our Coast forests has been a matter of some concern over the years; however, in most cases the apparent waste was a matter of economic necessity. Since the war started prices have advanced to the point where utilization is improving rapidly and much of the material formerly wasted is taken out. The greatest advance in this field has been made as a result of the co-operative venture entered upon by the Government, the Powell River Company, Limited, and the Comox Logging and Railway Company, Limited. The objective of the experiment is to demonstrate that the sound wood left behind after a normal sawlog operation can be economically utilized for the manufacture of pulp.

Light, fast, mobile, yarding machines have been developed for skidding the material to roadside piles. No revolutionary changes from conventional methods have been developed; rather, existing principles have been adapted to the small material which forms the bulk of the logging debris or slash. Other equipment, including the lines and blocks, are small in size and light in weight. The yarding is done with comparatively small crews of three to five men per machine.

Small understory hemlock trees, too small for saw-timber, form a large proportion of the salvaged pulpwood. Some of these trees are still standing while others have been windthrown or pulled down in the first logging. The cutters simply fell them, or buck them off at the stump if they are down, and then sever the top at a diameter of 4 or 5 inches, leaving them in tree lengths. Other material consists of long tops and broken chunks. Hemlock is the principal species, but some Douglas fir and white pine are also being recovered. The average small end diameter is 6 inches and the average length between 34 and 35 feet.

At the end of the year 260 acres had been felled and bucked, of which 164 acres had been yarded. The yarded material totals 275,680 cubic feet, or an average of 1,665 cubic feet per acre. In the sawlog operation about 6,250 cubic feet per acre were recovered; therefore, when the pulp material is added, it is found that the salvaged pulp-wood amounts to 21 per cent. of the total wood utilized.

Only small test shipments have been sent to the pulp-mill, but it is anticipated that full-scale loading and hauling operations will commence shortly. Costs as far as the operation has been carried are favourable and suggest that the experiment will demonstrate that pulp-wood salvage operations can be undertaken profitably. If this is true many beneficial and far-reaching results may accrue. For instance, the life of the present mature timber on the Coast would be extended, thereby tending to stabilize logging communities, while salvage operations would provide off-season employment for settlers and farmers who could not be employed on a sawlog operation.

SOIL SURVEYS AND RESEARCH.

The year was devoted almost entirely to the completion of a soil survey of the south-east portion of Vancouver Island, started in 1939 as a co-operative undertaking by the British Columbia Forest Branch, the Dominion Experimental Farms, and the Department of Agriculture, Victoria. The field-work consisted of an examination of the southern tip of the island, including Saanich Peninsula, Metchosin, and Sooke.

This took about two months. The remainder of the year was taken up in completing maps, soil analysis, and compilation of a report. The project will be completed before the 1944 field season begins.

It was found that of 627,000 acres examined, 164,000 are arable and 363,000 acres are definitely non-arable. The remaining 100,000 acres were classed as generally non-arable, though containing small, selected, arable fractions. The main conclusions to be drawn from a study of the data are that there is sufficient good quality farm land available for a considerable increase in settlement; and the most important land-use problem, from the point of view of public welfare, is the restoration and improvement of the forest resources through the intensive use of non-arable and marginal quality soils for forest rather than farm use.

REFORESTATION.

Forest Nurseries.

The most important development of the year was the selection and purchase of a 23.5-acre property near Duncan, Vancouver Island, as the site of a third forest nursery. Development will proceed as equipment, material, and man-power are available with a view to bringing the area into production as soon as possible after the war. It is planned to grow about 6,000,000 trees a year at the new nursery, and by bringing the Campbell River nursery to full capacity the combined output of the three nurseries will provide stock for the planting of 20,000 acres a year.

Production at the Green Timbers and Campbell River nurseries was maintained at approximately 10,000,000 trees a year. A total of 9,197,200 two-year old trees was shipped from those two nurseries during the year, of which 5,330,000 came from Green Timbers and 3,867,200 from Campbell River. The winter was unusually severe and extremely low temperatures (15 degrees below zero Fahrenheit at Green Timbers) were recorded, but fortunately a fairly heavy fall of snow afforded good protection to the stock. During the spring and summer, temperatures were below normal and rainfall lighter than average but well distributed through July and August. The fall was mild, so that growth persisted on into October and absence of frost to the end of the year gave all stock a good chance to harden off sufficiently well to carry through the winter.

The experiments in which Douglas fir seed was spring-sown, both embedded in peat-moss and merely covered with a layer of moss, were not a success. Our conclusions are that, unless the seed has been stratified previous to sowing, germination is seriously delayed, even though special attention is given to keeping the moss moist. Even stratification does not produce satisfactory results, so the experiments are being continued.

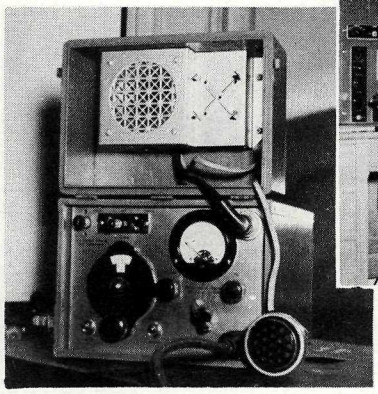
The cone-crop was localized in its occurrence and collections were somewhat restricted on that account. The statistics of collection and extraction are as follows:—

Species.	No. of Bushels of Cones.	Pounds of Clean Seed.	Pounds of Seed per Bushel of Cones.
Douglas fir	1,589	582.00	0.364
Western hemlock	3	2.25	0.75
Red cedar	.....	5.50	.....
Totals	1,592	589.75	.....

Planting.

A total of 9,197,200 trees was planted on 11,421 acres, and of these 6,011,400 were planted on 7,481 acres in the spring and 3,185,800 on 3,940 acres in the fall. Projects

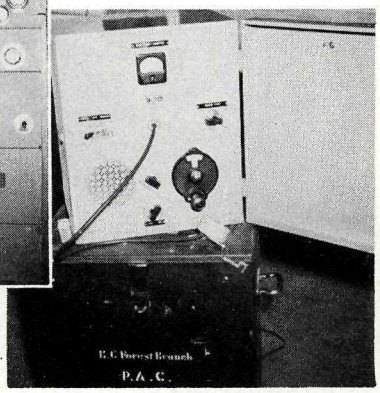
Radio



SPF Portable Radio, Type AE.

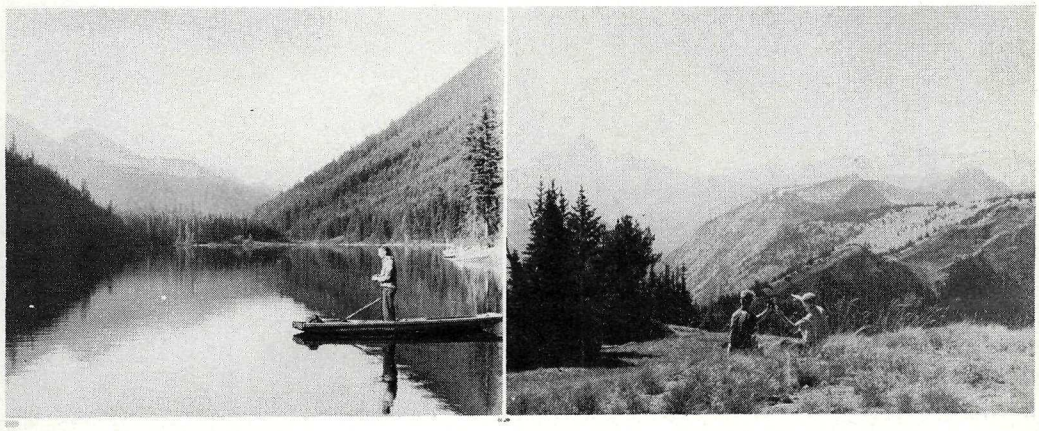
Is a battery powered unit with a power output of 2.25 watts. Effective range is rated at about 25 miles, but in actual practice distances of 150 miles are worked. For portable use on fires, smoke - chasing, etc., special light-weight batteries are utilized, giving the unit a total weight of only 22 lb.

The Victoria station transmitter is a high-powered unit capable of a power output of 800 watts, using either phone or code. It operates at 350 watts output, and covers the Province without difficulty. Its extreme range is undetermined.



PAC is a combination unit consisting of a 10-watt transmitter and a superhetrodyne receiver. It is designed primarily for use in Ranger Station Headquarters for contact with lookouts and field sets. Power supply, 110 volts AC. Range, 150 miles.

Parks



The above pictures illustrate the various forms of recreation to be enjoyed in Manning Park, along the route of the Hope–Princeton Highway. On the right is the view looking along the sky-line from the top of the Mad Mountains. Lightning Lake, where good fishing is the rule, is shown on the left. This Park is ideal for hiking and horseback trips as well as automobile tourists. The fishing lakes and streams and the high mountain meadows are equally accessible to the highway.

were located at Menzies Bay, Loveland Lake, Lower Campbell Lake, and Lower Quinsam Lake in the Campbell River region; at Bowser; at Timberlands; and at Hill 60 and the Robertson River in the Cowichan Valley. One logging company sponsored a project in which 556,920 trees were planted on 510 acres.

The following table summarizes the planting to date:—

Status.	Previously planted.		Planted, 1943.		Totals to Date.	
	Trees (in Thousands).	Acres.	Trees (in Thousands).	Acres.	Trees (in Thousands).	Acres.
Crown lands—						
Production	17,334.8	21,106.0	8,535.0	10,804.0	25,869.8	31,910.0
Experimental	619.9	522.7	22.4	25.0	642.3	547.7
Logging companies	733.2	877.3	556.9	510.0	1,290.1	1,387.3
Community forests	126.5	115.0	70.5	70.0	197.0	185.0
Private planting (includes farm wood-lots)	43.6	42.0	12.4	12.0	56.0	54.0
Totals	18,858.0	22,683.0	9,197.2	11,421.0	28,055.2	34,084.0

Plantation losses from forest fires total 489 acres, of which 278 acres were destroyed in the fall of 1943.

Considering the general shortage of labour, it is remarkable that the reforestation programme was able to maintain its schedule. This would not have been possible but for the labour supplied by the Alternative Service Workers. These men worked well and, in addition to doing the actual planting in the field, they felled snags, opened up old railroad grades as truck-roads, collected cones, and assisted with lifting operations in the nurseries.

PUBLICATIONS.

The following articles were prepared for publication during the year:—

(1.) "The Embryogeny of *Pseudotsuga Taxifolia* (Lamb.) Britt.," by G. S. Allen. Published in American Journal of Botany 30: 655–661, 1943.

(2.) "Land Utilization on Vancouver Island," by R. H. Spilsbury. Published in The Forestry Chronicle and the British Columbia Lumberman.

PROVINCIAL PARKS.

One new park—namely, Darke Lake, near Penticton—was created during the year and additions were made to Peace Arch and John Dean Parks, bringing their areas to 16.15 acres and 98.37 acres respectively. The following table summarizes the Provincial Parks in British Columbia to December 31st, 1943:—

Classification.	No. of Parks.	Area in Acres.
Class A	16	2,720,771
Class B	3	4,622,246
Class C	28	4,113
Administered under separate Park Acts	3	1,666,560
Totals	50	9,013,690
		or 14,083.9 sq. mi.

Attendants were on duty at Elk Falls, Stamp Falls, Little Qualicum, Englishman River, and John Dean Parks throughout the summer season. The number of visitors to these parks was estimated to be 27,167, a decrease of 8.2 per cent. from 1942. The main loss, as in 1942, was at Elk Falls and Englishman River, due directly to their distance from the main highways. By contrast, the visitors to Little Qualicum Falls increased almost 50 per cent. The proportion of United States and foreign visitors dropped slightly while the percentage of Canadian visitors, other than from British

Columbia, nearly doubled. This may be attributed to the large number of soldiers and war-workers from other parts of the Dominion now living in British Columbia.

A mobile ten-man crew of Alternative Service Workers spent approximately one month in each of the five island parks during the winter of 1942–43. Much valuable improvement-work was accomplished, such as erection of park attendants' quarters; cleaning up of snags, brush, and stumps; building of toilets at parking-grounds; establishment of change-houses and toilets at swimming-pools; the protection of natural features by ditches or rock barriers; the installation of covered garbage-pits and wood piles; construction of new fireplaces, tables, and signs; and planting of shade-trees on parking-grounds.

Peace Arch Park continues to be visited by large numbers of people and on occasions such as the annual outings of the various Scandinavian Societies, when picnics are held with their American friends, there are more than a thousand visitors on one week-end alone. An additional 5.74 acres have been purchased and it is planned to develop this as a picnic-ground and playing field.

A detailed field examination was made of Ernest C. Manning, Kokanee, and Darke Lake Parks, and recreational plans for the development of these areas are now being drafted.

At Mount Seymour Park further progress was made in the construction of the log building to be used as administrative headquarters and additional slashing has been carried out along the right-of-way for the proposed highway up the mountain. A limited programme of maintenance of trails and roads was carried out in Wells Gray Park.

FOREST BRANCH LIBRARY.

Classification.	Items received and catalogued.			
	Up to 1941.	1942.	1943.	Totals.
Bound volumes	334	9	10	353
Government Reports and Bulletins, etc.	3,063	120	85	3,268
Pamphlets, etc.	802	29	32	863
Totals	4,199	158	127	4,484
Periodicals and Trade Journals	.....	43	45	.....
References indexed	28,157	1,962	1,170	31,289

FOREST MANAGEMENT.

The gross scale of all forest products for the year 1943 dropped 3 per cent. or some ninety-four million feet from the previous year's total. This was achieved despite the marked man-power shortage in the skilled labour class, resulting in a reduction of some quarter-million feet on the Lower Coast and Vancouver Island, where the major volume production occurs. The loss in production in the Vancouver Forest District was offset by increased output in all other regions except Kamloops; noticeable gains being in the Fort George District, where construction requirements of the Alaska Highway largely entered; in the aeroplane spruce output of the Queen Charlotte Islands; and in the Nelson District.

The total estimated value of production is placed at a figure about 5 per cent. below that of 1942, due to curtailed output of pulp and paper, shingles and boxes, as well as restricted export of unmanufactured logs in the face of short local log-supply. Greatly increased output of cordwood due to threatened shortage of fuel and increased value of Christmas trees advance these items over 1942 values.

Statistical tables follow. The highlights may be briefly touched upon.

Water-borne lumber trade figures are still unavailable for publication due to the war.

Pulp and paper production decreased by reason of log shortage and diversion of effort towards the output of aeroplane spruce.

Douglas fir maintains the lead in production by species, forming approximately 40 per cent. of the cut. Hemlock passed cedar in volume production and accounts for over 19 per cent. of the total scale. Cedar output was 16 per cent. Spruce increased to 11 per cent. Balsam (largely for pulp), larch, yellow pine, white pine, and lodgepole pine in order given, together with miscellaneous species, account for the balance. Birch production reached a total scale of over six and one-half million board-feet and was used extensively for the manufacture of veneer in heavy demand in the war industry.

The cut, according to land status, still centres on early Crown-grant lands of Vancouver Island, which yielded about 30 per cent. of the total scale. The cut on timber sales shows an increase yearly and with the reduction of timber licences through logging will soon assume second place.

The so-called minor products include cedar poles and piling to a total slightly below 1942, and hewn ties remain about the same, while cordwood is more than double the previous year's output.

Field staff activity in logging inspection was well maintained with depleted staff and war replacements.

Trespass cases were reduced, but volume increased mainly because of urgent necessity for spruce cutting in advance of necessary authority.

Pre-emption inspection-work again shows a decline with reducing numbers of this class of land alienation. Land examination and classification required as the result of applications under the "Land Act" increased slightly over 1942.

Again timber-sales claim first place in staff duties throughout the Province. Their number increased over 300, or 20 per cent. beyond the 1942 total, and involved the cruising of nearly 600,000 acres carrying nearly one billion feet of saw-timber, some 11,000,000 lineal feet of cedar poles, 260,000 cords of various products, nearly one-half million railway-ties, as well as various other products. Estimated revenue totals upwards of $3,000,000. Detailed tables are given relative to average stumpage prices bid on sales awarded during the year, together with average stumpage rates effective on timber scaled during the year originating on timber-sale areas. Stumpage prices show a slight advance over those of the previous year.

Sawmilling increased by numbers under the expanded demand for sawn lumber while shingle-mills decreased.

Log export again declined under the stress of short local supply and rigid control of the Timber Control Board.

Forest insect survey and collections were maintained in co-operation with the Dominion Department of Agriculture, Entomological Branch, with over 500 boxes sent in for examination.

Forest revenue declined somewhat in sympathy with reduced scale. Timber-sale stumpage continues to gain ground as the chief source of revenue linked closely with timber royalty.

WATER-BORNE LUMBER TRADE (IN M.B.M.).

Destination.	1934.	1935.	1936.	1937.	1938.	1939.	1940.
Australia	128,141	129,492	125,448	158,400	141,465	144,534	72,797
New Zealand	2,957	3,793	6,072	5,415	7,805	5,142	2,584
South America	1,620	4,017	6,328	10,632	9,946	5,560	1,795
China	108,128	91,232	102,743	47,635	43,457	34,775	6,347
Japan	80,279	43,080	33,123	30,677	9,194	6,116	835
United Kingdom and Continent	455,695	455,862	666,272	648,364	741,631	964,693	971,594
South Africa	25,276	28,350	61,133	49,015	41,614	80,120	84,708
India and Straits Settlements	431	3,415	1,897	2,781	1,174	7,225	139
United States and Atlantic Coast	28,735	62,013	159,904	107,933	154,038	123,733	70,726
Philippine and Hawaiian Islands	----------	----------	136	743	1,780	862	----------
West Indies and Cuba	13,467	7,133	9,823	9,487	13,584	12,828	15,309
South Sea Islands	4,475	4,556	10,129	12,904	5,745	11,523	7,187
Mexico and Central America	2,410	4,870	2,821	3,748	2,271	2,024	5
Egypt	4,348	4,216	8,040	8,279	5,315	1,828	17,326
*Belgium	2,997	6,265	5,691	4,578	5,468	1,976	----------
*Denmark	5	2	----------	29	----------	210	120
*France	48	425	724	875	653	592	4,938
*Germany	105	846	746	2,836	3,383	3,090	----------
*Holland	9	1,870	1,212	1,669	3,332	1,098	----------
*Italy	330	1,869	335	1,023	73	703	686
*Norway and Sweden	5	8	24	113	41	5	----------
Spain	----------	457	64	----------	----------	3	----------
Foreign, unclassified	4	208	329	241	226	402	821
Totals	859,465	853,979	1,202,994	1,107,377	1,192,195	1,409,052	1,257,917

* Previously included with United Kingdom.

Figures for 1941, 1942, 1943, and ten-year average, 1934–43, not available for publication.

THE FOREST INDUSTRIES.

ESTIMATED VALUE OF PRODUCTION, INCLUDING LOADING AND FREIGHT WITHIN THE PROVINCE.

Product.	1937.	1938.	1939.	1940.	1941.	1942.		Ten-year Average, 1934–43.
Lumber	$40,638,000	$36,296,000	$50,379,000	$55,514,000	$64,596,000	$67,150,000	$66,520,000	$45,470,000
Pulp and paper	17,214,000	11,066,000	16,191,000	22,971,000	27,723,000	27,457,000	25,597,000	18,675,000
Shingles	6,875,000	6,875,000	8,560,000	9,620,000	11,550,000	12,822,000	8,332,000	8,400,000
Boxes	2,122,000	1,964,000	2,039,000	4,779,000	4,707,000	5,397,000	4,697,000	3,015,000
Doors	2,971,000	1,353,000	737,000	740,000	*	*	*	1,021,000
Piles, poles, and mine props	2,346,000	1,615,000	1,556,000	1,759,000	1,723,000	2,576,000	2,387,000	1,698,000
Cordwood, fence-posts, and lagging	1,459,000	1,455,000	1,495,000	1,399,000	1,522,000	2,165,000	4,485,000	1,850,000
Ties, railway	560,000	560,000	360,000	258,000	204,000	221,000	268,000	431,000
Additional value contributed by the wood-using industry	1,500,000	1,400,000	1,500,000	1,600,000	2,000,000	2,500,000	2,800,000	1,696,000
Laths and other miscellaneous products	1,400,000	1,300,000	1,400,000	1,400,000	1,500,000	1,500,000	1,400,000	1,498,000
Logs exported	3,782,000	3,238,000	3,852,000	2,684,000	4,212,000	2,618,000	1,555,000	2,913,000
Pulp-wood exported	5,000	----------	11,000	8,000	7,000	2,000	16,000	11,000
Christmas trees	----------	----------	141,000	72,000	176,000	162,000	227,000	78,000
Cascara bark	----------	----------	----------	----------	----------	150,000	150,000	30,000
Totals	$80,872,000	$67,122,000	$88,221,000	$102,804,000	$119,920,000	$124,720,000	$118,434,000	$86,786,000

* Included in wood-using industry value.

Paper (in Tons).

Product.	1937.	1938.	1939.	1940.	1941.	1942.	1943.	Ten-year Average, 1934–43.
Newsprint	264,136	179,639	216,542	262,144	275,788	252,559	211,696	241,638
Other papers	53,026	39,348	50,870	68,428	75,453	74,915	63,026	52,384

In addition to 214,828 tons of pulp manufactured into paper in the Province 171,047 tons were shipped out of the Province during the year.

Total Amount of Timber scaled in British Columbia during the Years 1942–43 (in F.B.M.).

Forest District.	1942.	1943.	Gain.	Loss.	Net Loss.
Vancouver	2,528,147,522	2,302,157,546	.....	225,989,976	.....
Prince Rupert	182,993,071	223,073,748	40,080,677	.....	.....
Totals, Coast	2,711,140,593	2,525,231,294	.....	.....	.....
Prince Rupert	30,921,143	32,846,607	1,925,464	.....	.....
Fort George	123,102,695	193,041,865	69,939,170	.....	.....
Kamloops	154,759,005	148,800,054	.....	5,958,951	.....
Nelson	152,716,743	178,846,964	26,130,221	.....	.....
Totals, Interior	461,499,586	553,535,490	97,994,855	.....	.....
Grand Totals	3,172,640,179	3,078,766,784	138,075,532	231,948,927	93,873,395

PROVINCIAL LIBRARY
VICTORIA, B. C.

SPECIES CUT (IN F.B.M.), ALL PRODUCTS.

Forest District.	Fir.	Cedar.	Spruce.	Hemlock.	Balsam.	Yellow Pine.	White Pine.	Lodgepole Pine.	Larch.	Cotton-wood.	Miscel-laneous.	Totals.
Vancouver	1,107,898,290	433,400,401	48,303,941	522,881,895	126,285,046	.....	17,691,186	.....	.....	1,467,994	44,228,793	2,302,157,546
Prince Rupert	10,358,522	30,121,527	123,792,203	52,550,503	5,832,876	.....	.....	.....	.....	.....	418,117	223,073,748
Totals, Coast	1,118,256,812	463,521,928	172,096,144	575,432,398	132,117,922	.....	17,691,186	.....	.....	1,467,994	44,646,910	2,525,231,294
Prince Rupert	715,401	6,612,999	14,863,935	2,405,282	175,801	.....	.....	6,219,093	.....	1,755	1,852,341	32,846,607
Fort George	8,290,065	4,250,844	109,905,293	1,900	1,009,808	.....	.....	3,688,612	.....	5,984	65,889,359	193,041,865
Kamloops	62,077,462	15,879,097	15,031,410	1,275,252	453,688	21,200,755	2,725,748	215,336	9,374,175	830,652	19,736,479	148,800,054
Nelson	28,679,031	21,150,569	24,647,672	10,530,008	1,236,932	10,583,245	6,898,958	927,065	38,680,555	1,490,089	34,022,840	178,846,964
Totals, Interior	99,761,959	47,893,509	164,448,310	14,212,442	2,876,229	31,784,000	9,624,706	11,050,106	48,054,730	2,328,480	121,501,019	553,535,490
Grand totals, 1943	1,218,018,771	511,415,437	336,544,454	589,644,840	134,994,151	31,784,000	27,315,892	11,050,106	48,054,730	3,796,474	166,147,929	3,078,766,784
Grand totals, 1942	1,391,735,126	589,536,231	283,319,389	580,268,616	132,258,558	42,757,913	30,223,304	12,834,933	43,672,842	2,891,676	63,141,591	3,172,640,179
Grand totals, 1941	1,683,990,675	726,672,896	269,804,548	679,088,552	134,912,324	38,568,690	39,195,276	11,486,599	36,344,666	2,355,690	57,337,538	3,679,757,514
Grand totals, 1940	1,753,846,981	666,542,374	236,605,863	718,234,988	151,271,558	41,722,618	38,791,958	12,252,456	25,530,530	1,712,100	46,643,330	3,693,154,756
Grand totals, 1939	1,693,234,458	697,949,348	161,125,833	546,859,330	88,876,641	40,276,394	34,246,932	13,684,995	29,184,667	2,226,405	47,230,563	3,354,895,566
Grand totals, 1938	1,442,406,668	531,758,431	146,932,200	408,574,061	62,473,447	46,628,780	32,838,360	21,626,315	41,082,954	3,137,389	41,575,393	2,779,033,998
Grand totals, 1937	1,617,748,996	582,137,757	179,887,207	575,562,653	93,900,797	43,767,890	35,361,947	23,805,051	40,960,357	3,834,511	44,948,474	3,241,915,640
Grand totals, 1936	1,590,145,329	551,348,174	149,037,950	464,588,680	79,960,739	36,836,428	24,789,625	27,109,138	40,942,920	5,453,226	50,560,985	3,020,773,194
Grand totals, 1935	1,339,026,242	477,362,816	125,060,677	428,684,859	88,647,694	33,216,860	27,982,161	34,775,415	46,798,137	3,008,870	44,724,664	2,649,288,395
Grand totals, 1934	1,161,212,111	335,779,926	132,327,306	342,766,236	77,442,211	39,573,745	17,136,556	19,475,917	30,222,468	4,052,857	54,802,536	2,214,791,869
Ten-year average, 1934–43	1,489,136,536	567,050,339	202,064,544	533,427,283	104,473,812	39,513,332	30,788,202	18,810,093	38,279,428	3,246,920	61,711,300	3,088,501,789

Total Scale segregated, showing Land Status (in F.B.M.), all Products.

Forest District.	Timber Licences.	Timber Leases.	Hand-loggers' Licences.	Timber-sales.	Pre-emptions, S.R., and Miscellaneous.	Crown Grants.				Dominion Lands.	Totals.
						To 1887.	1887–1906.	1906–1914.	1914 to Date.		
Vancouver	644,099,008	316,193,398	.....	259,953,968	31,864,544	903,354,637	78,661,693	32,873,737	21,386,679	13,769,882	2,302,157,546
Prince Rupert, Coast	86,185,238	54,973,258	769,701	74,548,780	423,096	.....	1,553,507	3,571,722	717,993	330,453	223,073,748
Prince Rupert, Interior	2,013,906	.....	.....	24,658,244	1,257,062	.....	.....	1,636,868	3,279,162	1,365	32,846,607
Fort George	8,111,351	.....	.....	89,172,630	82,845,920	.....	174,569	1,669,259	10,992,744	75,392	193,041,865
Kamloops	13,408,289	.....	.....	84,698,511	3,499,313	13,504,544	7,291,583	11,242,936	13,914,647	1,240,231	148,800,054
Nelson	13,295,298	.....	.....	86,784,536	10,385,664	151,834	35,506,170	10,367,749	12,715,811	9,639,902	178,846,964
Totals, 1943	767,113,090	371,166,656	769,701	619,816,669	130,275,599	917,011,015	123,187,522	61,362,271	63,007,036	25,057,225	3,078,766,784
Totals, 1942	921,273,545	375,631,592	1,850,456	577,284,883	37,959,181	1,021,214,533	121,933,095	45,797,679	51,685,583	18,009,632	3,172,640,179
Totals, 1941	1,024,865,345	628,010,975	1,115,954	552,589,137	27,279,386	1,190,061,630	123,905,121	64,550,729	56,585,707	10,793,530	3,679,757,514
Totals, 1940	941,618,770	663,771,370	1,520,297	538,072,640	38,996,607	1,250,203,251	118,683,816	67,931,107	52,694,636	19,662,262	3,693,154,756
Totals, 1939	763,473,170	537,905,460	1,059,191	462,939,944	32,270,563	1,360,438,624	79,929,930	47,493,675	53,514,809	15,870,200	3,354,895,566
Totals, 1938	792,889,996	319,470,440	2,902,009	414,014,724	32,848,408	1,001,109,270	97,872,739	51,906,302	52,400,875	13,619,235	2,779,033,998
Totals, 1937	892,984,935	535,278,037	3,026,150	446,383,536	45,283,239	1,066,993,708	129,477,697	60,992,751	43,208,437	18,287,150	3,241,915,640
Totals, 1936	817,358,715	659,196,593	3,963,393	361,804,289	26,314,600	933,760,894	102,814,341	56,461,309	48,552,539	10,546,521	3,020,773,194
Totals, 1935	749,516,819	549,472,826	5,324,156	269,381,544	28,073,266	817,442,350	109,307,343	71,557,217	40,560,673	8,652,201	2,649,288,395
Totals, 1934	607,248,479	401,366,932	7,084,960	247,602,363	29,349,240	707,095,539	103,412,413	55,048,755	37,247,321	19,335,867	2,214,791,869
Ten-year average, 1934–43	827,834,287	504,127,090	2,861,627	448,988,972	42,865,008	1,026,533,081	111,052,402	58,310,179	49,945,761	15,983,382	3,088,501,789

Timber from lands in the former Dominion Government Railway Belt which has passed over to the jurisdiction of this Province is included under the various land status headings shown above.

Only timber from Indian Reserves and other lands still under the jurisdiction of the Dominion Government is shown under the heading "Dominion Lands."

Timber scaled in British Columbia in 1943 (by Months and Districts).

Month.		Vancouver.	Prince Rupert, Coast.	Prince Rupert, Interior.	Fort George.	Kamloops.	Nelson.	Total, F.B.M.	Total Lineal Feet.	Total Cords.	Total Hewn Ties.
January	F.B.M.	74,636,845	6,638,104	1,454,184	5,542,116	5,745,156	7,345,445	101,361,850			
,,	lineal ft.	645,189	1,759	172,919	68,001	334,912	834,866		2,057,646		
,,	cords	2,624		142	4,656	2,408	3,122			12,952	
,,	hewn ties	1,105		1,980		1,115	2,025				6,225
February	F.B.M.	103,321,725	383,426	1,226,145	4,902,414	5,823,722	7,085,209	122,742,641			
,,	lineal ft.	440,617	1,774	134,369	624	204,004	286,275		1,067,663		
,,	cords	1,563	27	312	3,754	3,104	4,471			13,231	
,,	hewn ties	935		484	749	1,053	935				4,156
March	F.B.M.	135,239,732	4,858,845	2,001,932	9,134,922	5,301,267	7,311,421	163,848,119			
,,	lineal ft.	299,871	4,800	55,668	36,085	59,038	211,512		666,974		
,,	cords	1,836	40	351	4,443	2,343	3,747			12,760	
,,	hewn ties	509		7,594		677	635				9,415
April	F.B.M.	200,083,224	3,772,356	2,119,626	13,361,909	7,277,095	7,460,613	234,074,823			
,,	lineal ft.	1,149,720	5,863	33,243	18,708	122,108	240,102		1,569,744		
,,	cords	4,271		142	4,932	3,177	2,268			14,790	
,,	hewn ties	1,065		7,321	6,656	3,366	2,636				21,044
May	F.B.M.	225,039,984	17,169,964	1,802,929	11,727,191	9,398,809	5,691,689	270,830,566			
,,	lineal ft.	576,864	21,715	121,708	28,585	154,177	155,299		1,058,348		
,,	cords	4,992	18	781	3,716	3,278	2,129			14,914	
,,	hewn ties	1,005		7,149	5,647	7,046	4,303				25,150
June	F.B.M.	220,242,729	22,686,796	1,564,502	7,343,418	8,719,946	7,977,895	268,535,286			
,,	lineal ft.	433,315	20,552	148,853	3,300	525,222	136,981		1,268,223		
,,	cords	3,737	38	448	2,722	3,019	4,992			14,946	
,,	hewn ties	423		17,325	8,526	22,989	9,331				58,594
July	F.B.M.	235,638,831	22,839,624	2,205,585	9,753,032	12,569,741	13,326,461	296,333,274			
,,	lineal ft.	1,029,021	12,156	165,926	19,403	436,235	465,551		2,128,292		
,,	cords	10,460	10	214	1,853	3,564	6,057			22,158	
,,	hewn ties	535		10,439	8,884	16,068	8,816				44,742
August	F.B.M.	180,470,589	23,925,699	1,758,197	8,682,943	11,892,898	15,794,310	242,524,636			
,,	lineal ft.	557,916	11,214	182,812	518,307	525,008	655,597		2,450,854		
,,	cords	6,000	35	132	1,248	2,149	4,043			13,607	
,,	hewn ties			3,659		6,290	9,083				19,032
September	F.B.M.	213,418,197	28,800,264	2,311,618	8,858,733	14,832,400	16,332,714	284,553,926			
,,	lineal ft.	918,397	33,520	44,171	9,162	362,480	752,080		2,119,810		
,,	cords	4,799	30	583	2,142	3,575	2,957			14,086	
,,	hewn ties	1,742		8,385		2,558	7,613				20,298
October	F.B.M.	203,994,562	29,006,683	2,953,300	6,901,905	11,994,698	12,804,810	267,655,958			
,,	lineal ft.	962,920	7,579	260,989	600	584,299	529,922		2,346,309		
,,	cords	12,281	40	334	2,161	2,165	5,097			22,078	
,,	hewn ties	1,735		28,218		13,119	7,162				50,234
November	F.B.M.	217,966,157	26,410,360	2,106,858	6,504,862	8,441,873	10,708,109	272,138,219			
,,	lineal ft.	659,048	600	302,409	61,293	1,011,934	1,050,825		3,086,109		
,,	cords	5,361	18	57	7,001	3,037	4,173			19,647	
,,	hewn ties	5,792		4,494	28,218	8,055	1,699				48,258
December	F.B.M.	227,942,367	36,065,391	1,350,429	32,214,267	10,460,104	16,326,123	324,358,681			
,,	lineal ft.	769,805	180	112,019	1,126,000	405,931	558,332		2,972,267		
,,	cords	5,629	27	166	84,425	9,421	28,404			128,072	
,,	hewn ties			1,745		7,257	5,539				14,541
Totals for year	F.B.M.	2,237,994,942	222,557,512	22,855,305	124,927,712	112,457,709	128,164,799	2,848,957,979			
,,	lineal ft.	8,442,683	121,712	1,735,086	1,890,068	4,725,348	5,877,342		22,792,239		
,,	cords	63,543	283	3,662	123,053	41,240	71,460			303,241	
,,	hewn ties	14,846		98,793	58,680	89,593	59,777				321,689

Total scale in F.B.M. = 3,078,766,784.

Logging Inspection, 1943.

Forest District.	Operations.				No. of Inspections.
	Timber-sales.	Hand-loggers' Licences.	Leases, Licences, Crown Grants, and Pre-emptions.	Totals.	
Vancouver	699	1	870	1,570	3,550
Prince Rupert	410	10	140	560	2,420
Fort George	456	....	186	642	978
Kamloops	1,135	....	796	1,931	3,289
Nelson	559	....	527	1,086	1,873
Totals, 1943	3,259	11	2,519	5,789	12,110
Totals, 1942	3,086	18	2,569	5,673	13,753
Totals, 1941	3,207	18	2,833	6,058	11,438
Totals, 1940	2,864	12	2,272	5,148	10,968
Totals, 1939	2,770	10	2,068	4,848	11,295
Totals, 1938	2,674	23	1,804	4,501	10,828
Totals, 1937	2,404	46	1,932	4,382	11,507
Totals, 1936	2,354	35	1,883	4,272	11,138
Totals, 1935	2,074	59	1,660	3,793	10,081
Totals, 1934	1,603	87	1,546	3,236	9,486
Ten-year-average, 1934–43	2,630	31	2,109	4,770	11,261

Trespasses, 1943.

Forest District.	No. of Cases.	Areas cut over (Acres).	Quantity cut.					No. of Resulting Seizures.	Amount charged.
			Feet B.M.	Lineal Feet.	Cords.	Ties.	Christmas Trees.		
Vancouver	49	430	3,651,434	3,931	731	.....	.....	4	$12,617.53
Prince Rupert	37	1,412	5,070,857	62,103	1,372	.....	.....	....	6,091.10
Fort George	26	293	365,086	.....	3,517	42	.....	....	1,336.01
Kamloops	33	737	462,814	42,785	796	510	4,900	2	2,493.67
Nelson	22	186	194,766	20,590	457	.....	3,023	1	1,186.98
Totals, 1943	167	3,058	9,744,957	129,409	6,873	552	7,923	7	$23,725.29
Totals, 1942	180	1,159	4,413,906	365,861	4,757	490	1,512	15	$14,391.61
Totals, 1941	236	1,788	7,627,990	526,391	2,887	1,365	4,150	17	$24,253.10
Totals, 1940	194	877	5,206,829	94,444	1,573	4,279	9,854	13	$14,088.24
Totals, 1939	209*	571	6,905,268	94,818	3,147	5,206	46,729	26	$17,725.00
Totals, 1938	149	816	4,309,030	203,195	3,014	1,185	7,530	10	$9,653.86
Totals, 1937	156	1,147	8,239,813	143,860	1,607	2,132	35,017	7	$17,439.52
Totals, 1936	153	501	2,067,130	75,272	1,632	2,452	.....	13	$5,243.00
Totals, 1935	121	555	3,043,486	50,965	1,283	14,078	.....	3	$6,077.58
Totals, 1934	101	720	3,270,608	30,555	1,385	4,825	.....	6	$5,401.05
Ten-year-average, 1934–43	167	1,119	5,482,902	171,477	2,816	3,656	.....	12	$13,799.82

* Christmas-tree cutting largely responsible for increase.

Pre-emption Inspection.

Pre-emption records examined, by districts, are:—	1943.	Average Ten Yrs. 1934–43.
Vancouver	158	281
Prince Rupert	91	157
Fort George	197	508
Kamloops	426	698
Nelson	90	125
Totals	962	1,769

Areas examined for Miscellaneous Purposes of the "Land Act," 1943.

Forest District.	Applications for Hay and Grazing Leases.		Applications for Pre-emption Records.		Applications to Purchase.		Miscellaneous.		Totals.	
	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.	No.	Acres.
Vancouver	....	.....	4	532	68	6,314	12	974	84	7,820
Prince Rupert	2	435	1	160	15	1,245	7	377	25	2,217
Fort George	7	662	8	1,094	29	3,486	4	270	48	5,512
Kamloops	39	5,829	14	1,891	61	5,159	17	2,242	131	15,121
Nelson	4	1,522	....	.....	51	6,399	5	124	60	8,045
Totals	52	8,448	27	3,677	224	22,603	45	3,987	348	38,715

Classification of Areas examined, 1943.

Forest District.	Total Area.	Agricultural Land.	Non-agricultural Land.	Merchantable Timber Land.	Estimated Timber on Merchantable Timber Land.
	Acres.	Acres.	Acres.	Acres.	M.B.M.
Vancouver	7,820	1,673	6,147	1,751	45,592
Prince Rupert	2,217	693	1,524	46	1,105
Fort George	5,512	2,689	2,823	148	1,538
Kamloops	15,121	2,543	12,658	.....	.....
Nelson	8,045	1,208	6,837	.....	.....
Totals	38,715	8,806	29,989	1,945	48,235

AREAS CRUISED FOR TIMBER-SALES, 1943.

Forest District.	Number cruised.	Acreage.	Saw-timber (M.B.M.).	Poles and Piles (Lineal Ft.).	Shingle-bolts and Cordwood (Cords).	Railway-ties (No.).	Car Stakes and Posts (No.).
Vancouver	347	60,006	325,315	305,324	40,013	5,650	.....
Prince Rupert	298	64,518	177,268	1,892,800	41,161	121,569	18,900
Fort George	303	97,358	120,494	53,480	49,275	200,848	98,472
Kamloops	533	297,789	194,638	1,955,374	95,814	80,745	.....
Nelson	290	71,282	90,053	6,513,751	33,478	45,955	699,172
Totals, 1943	1,771	590,953	907,768	10,720,729	259,741	454,767	816,544
Totals, 1942	1,469	305,222	794,676	8,562,739	100,232	381,106	743,500
Totals, 1941	1,611	321,220	689,595	15,794,246	126,463	199,174	263,480
Totals, 1940	1,620	300,480	572,562	11,309,288	72,157	314,644	512,042
Totals, 1939	1,324	212,594	470,660	5,016,945	68,078	339,866	261,100
Totals, 1938	1,486	325,403	482,680	5,747,765	126,329	804,240	169,900
Totals, 1937	1,471	278,386	633,216	9,658,000	140,820	753,408	160,450
Totals, 1936	1,415	252,035	464,402	8,535,045	148,606	1,083,746	63,200
Totals, 1935	1,319	238,952	398,884	5,674,908	114,753	1,164,454	74,700
Totals, 1934	1,331	223,391	356,264	2,856,619	80,101	1,235,766	73,766
Ten-year average, 1934–43	1,482	304,863	577,071	8,387,629	123,728	673,117	313,868

TIMBER-SALES AWARDED BY DISTRICTS, 1943.

Forest District.	No. of Sales.	Acreage.	Sawn Timber (F.B.M.).	Poles and Piling (Lin. Ft.).	No. of Posts.	No. of Cords.	No. of Ties.	No. of Xmas Trees.	No. of Hop- and Bean-poles.	No. of Car-stakes.	No. of Blast-ing-sticks.	No. of Fence-rails.	Estimated Revenue.
Vancouver	416	80,767	410,919,000	309,638	3,700	42,384	4,500	.....	20,000	.....	.....	.....	$1,534,821.02
Prince Rupert	281	70,810	106,573,000	1,719,750	28,200	10,823	131,619	.....	.....	.....	.....	.....	482,838.93
Fort George	434	71,210	114,440,000	102,070	78,932	49,842	67,372	.....	.....	.....	.....	.....	297,890.04
Kamloops	567	91,512	155,291,000	1,848,505	120,995	78,213	85,215	.....	.....	.....	150,000	.....	412,433.04
Nelson	318	80,682	101,357,000	6,895,100	712,000	33,055	47,545	.....	.....	3,970	.....	1,000	336,970.17
Totals, 1943	2,016	394,981	888,580,000	10,875,063	943,827	214,317	336,251	.....	20,000	3,970	150,000	1,000	$3,064,953.20
Totals, 1942	1,710	363,193	751,591,000	11,944,558	746,345	100,812	299,905	.....	.....	4,420	.....	.....	$2,339,521.06
Totals, 1941	1,853	362,997	623,121,000	14,763,144	639,015	103,422	198,549	.....	2,500	5,300	.....	100	$1,953,469.79
Totals, 1940	1,734	314,659	548,898,000	10,073,574	447,909	105,185	309,618	219,450	2,000	5,750	.....	940	$1,599,106.33
Totals, 1939	1,520	355,958	442,776,000	4,931,607	499,130	104,778	370,673	217,965	3,500	7,200	50,000	.....	$1,233,235.71
Totals, 1938	1,501	274,424	415,747,000	5,934,486	291,908	120,853	647,391	97,065	.....	.....	.....	.....	$1,203,885.37
Totals, 1937	1,449	278,988	450,798,000	9,864,973	363,950	122,143	644,223	.....	.....	.....	.....	.....	$1,271,475.20
Totals, 1936	1,443	252,624	358,804,000	8,332,542	235,600	122,979	823,181	.....	.....	.....	.....	.....	$1,082,793.87
Totals, 1935	1,357	231,958	260,831,000	5,408,377	308,825	101,966	1,200,582	.....	.....	.....	.....	.....	$762,427.04
Totals, 1934	1,324	219,969	250,629,000	2,721,540	316,910	67,902	894,970	.....	.....	.....	.....	.....	$705,038.99
Ten-year average, 1934–43	1,591	304,975	499,177,000	8,484,986	479,342	116,436	572,534	.....	.....	.....	.....	.....	$1,521,590.66

Average Stumpage Prices as bid per M.B.F. Log-scale, by Species and Forest Districts, on Saw-timber cruised on Timber-sales in 1943.

Forest District.	Douglas Fir.			Cedar.			Spruce.			Hemlock.			Balsam.		
	M.B.F.	Price per M.	Price Range per M.	M.B.F.	Price per M.	Price Range per M.	M.B.F.	Price per M.	Price Range per M.	M.B.F.	Price per M.	Price Range per M.	M.B.F.	Price per M.	Price Range per M.
Vancouver	159,810	$2.76	$1.25–6.50	103,993	$2.95	$1.50–6.50	6,316	$3.48	$1.25–6.00	91,644	$1.48	$0.85–5.50	36,008	$1.42	$0.85–5.50
Prince Rupert (Coast)	595	1.51	1.25–2.00	4,386	1.43	.50–2.50	39,341	3.66	1.00–6.50	10,151	1.02	.75–1.25	1,711	1.05	.50–1.25
Prince Rupert (Interior)	1,485	1.52	1.00–1.65	440	1.09	.75–1.25	11,536	1.49	1.00–3.55	1,885	1.11	1.00–1.25	.....	.....	.....
Fort George	13,867	1.42	1.25–2.00	.....	.....	.....	55,024	2.21	1.00–2.75	.....	.....	.....	2,009	1.00	1.00–1.25
Kamloops	60,092	1.28	1.00–3.95	2,960	1.02	1.00–1.65	26,873	1.60	1.35–2.25	1,142	1.00	1.00–1.15	1,174	1.01	.85–1.25
Nelson	20,624	1.37	1.00–2.30	9,875	1.36	1.00–2.30	12,537	1.70	1.40–2.25	10,297	1.37	1.00–2.00	127	1.26	1.00–1.50
Totals for Province	256,473	$2.21	.....	121,654	$2.71	.....	151,627	$2.43	.....	115,119	$1.42	.....	41,029	$1.37	.....
1942 figures	196,578	$1.84	.....	99,287	$2.31	.....	207,297	$1.79	.....	95,994	$1.03	.....	34,877	$1.16	.....
10-year period, 1934–43	1,652,859	$1.53	.....	693,449	$1.59	.....	998,280	$1.52	.....	707,130	$0.88	.....	230,254	$0.90	.....

Forest District.	White Pine.			Western Yellow Pine.			Larch (Tamarack).			Other Species.			All Species.		
	M.B.F.	Price per M.	Price Range per M.	M.B.F.	Price per M.	Price Range per M.	M.B.F.	Price per M.	Price Range per M.	M.B.F.	Price per M.	Price Range per M.	M.B.F.	Price per M.	Price Range per M.
Vancouver	3,908	$3.55	$1.25–3.85	.....	.....	.....	.....	.....	.....	17,941	$4.70	$1.00–5.60	.....	.....	.....
Prince Rupert (Coast)	.....	.....	.....	.....	.....	.....	.....	.....	.....	25	2.00	2.00	.....	.....	.....
Prince Rupert (Interior)	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,637	1.57	1.00–2.00	.....	.....	.....
Fort George	.....	.....	.....	.....	.....	.....	.....	.....	.....	7,626	2.05	1.00–9.50	.....	.....	.....
Kamloops	2,323	2.12	1.85–3.00	15,320	$1.77	$1.50–2.90	10,893	$1.22	$1.00–1.65	1,590	1.32	1.00–3.00	.....	.....	.....
Nelson	4,730	3.28	2.25–7.10	4,300	1.72	1.40–2.55	38,845	1.38	1.00–2.30	258	3.78	1.00–5.50	.....	.....	.....
Totals for Province	10,961	$3.13	.....	19,620	$1.76	.....	49,738	$1.34	.....	32,077	$3.48	.....	798,298	$2.17	.....
1942 figures	6,814	$2.57	.....	20,621	$1.94	.....	40,282	$1.27	.....	20,838	$1.79	.....	722,588	$1.76	.....
10-year period, 1934–43	91,511	$2.16	.....	207,943	$1.53	.....	213,950	$1.07	.....	48,531	$2.67	.....	4,906,722	$1.38	.....

TIMBER CUT FROM TIMBER-SALES AS CHARGED DURING 1943.

Forest District.	Board-feet.	Lineal Feet.	Cords.	Ties.	Posts.	Christmas Trees.	Hop- and Bean-poles.	Car-stakes.	Stubs.	Blasting-sticks.	Fence-rails.
Vancouver	242,266,533	491,081	23,055.32	81,140	620	.....	233,342	11,960	.....	36,125	.....
Prince Rupert	78,560,083	2,001,365	2,107.34	84,502	10,149	.....	.....	1,720	.....	.....	.....
Fort George	70,958,031	270,367	27,857.39	38,169	49,223	.....	.....	.....	.....	.....	.....
Kamloops	64,113,127	2,615,752	17,396.63	44,097	107,795	125,357	17,000	1,069	.....	.....	.....
Nelson	70,463,300	3,502,452	9,896.94	40,232	426,377	215,920	.....	362	.....	.....	.....
Totals, 1943	526,361,074	8,881,017	80,313.62	288,140	594,164	341,277	250,342	15,111	.....	36,125	.....
Totals, 1942	499,861,024	9,169,501	43,891.18	189,953	461,231	322,153	96,335	920	.....	.....	.....
Totals, 1941	499,155,819	8,886,147	49,941.85	324,835	311,360	159,968	2,075	2,850	.....	.....	1,900
Totals, 1940	478,965,174	8,262,287	52,642.99	274,918	259,089	295,022	1,000	1,794	410	12,000	.....
Totals, 1939	386,997,288	7,639,565	62,506.12	435,611	215,457	39,662	585	681	.....	.....	.....
Totals, 1938	334,981,454	8,223,100	57,340.70	648,646	175,306	58,354	.....	.....	.....	.....	.....
Totals, 1937	384,628,267	8,603,582	49,980.91	724,483	197,859	.....	.....	.....	.....	.....	.....
Totals, 1936	286,001,433	5,241,658	62,762.82	813,764	154,630	.....	.....	.....	.....	.....	.....
Totals, 1935	193,788,636	3,540,576	38,438.36	851,342	149,959	.....	.....	.....	.....	.....	.....
Totals, 1934	199,895,549	1,694,470	36,209.24	503,266	84,312	.....	.....	.....	.....	.....	.....
Ten-year average, 1934–43	379,063,572	7,014,190	53,402.78	505,495	260,337	.....	.....	.....	.....	.....	.....

AVERAGE STUMPAGE PRICES RECEIVED PER M.B.F. LOG-SCALE, BY SPECIES AND FOREST DISTRICTS, ON SAW-TIMBER SCALED FROM TIMBER-SALES IN 1943.

Forest District.	Douglas Fir.		Cedar.		Spruce.		Hemlock.		Balsam.		White Pine.		Western Yellow Pine.		Larch (Tamarack.)		Other Species.		All Species.	
	M.B.F.	Price per M.	M.B.F.	Price per M.	M.B.F.	Price per M.	M.B.F.	Price per M.	M.B.F.	Price per M.	M.B.F.	Price per M.	M.B.F.	Price per M.	M.B.F.	Price per M.	M.B.F.	Price per M.	M.B.F.	Price per M.
Vancouver	102,368	$2.47	63,529	$2.28	6,747	$2.89	56,031	$0.94	12,339	$0.93	1,303	$2.49	.....	.....	.....	.....	2,265	$1.81	.....	.....
Prince Rupert (Coast)	2,669	1.13	13,042	1.01	36,797	1.49	16,227	.80	5,406	.80	.....	.....	.....	.....	.....	.....	45	1.37	.....	.....
Prince Rupert (Interior)	715	1.42	190	1.20	11,194	1.30	1,751	.87	176	.69	.....	.....	.....	.....	.....	.....	2,854	1.36	.....	.....
Fort George	5,678	1.39	10	1.00	59,063	2.01	.....	.....	683	1.03	.....	.....	.....	.....	.....	.....	4,678	1.82	.....	.....
Kamloops	37,145	1.12	849	1.02	13,593	1.57	48	1.00	412	.93	958	2.00	9,348	$1.68	4,851	$1.20	668	1.29	.....	.....
Nelson	15,849	1.13	2,745	1.14	9,668	1.50	6,315	1.10	586	1.03	3,991	2.56	6,149	1.97	23,606	1.22	1,021	2.13	.....	.....
Entire Province	164,424	1.97	77,620	2.09	137,062	1.78	80,372	.92	19,602	.90	6,252	2.46	15,497	1.79	28,457	1.21	11,531	1.69	540,817	$1.70

Saw and Shingle Mills of the Province, 1943.

Forest District.	Operating.				Shut Down.			
	Sawmills.		Shingle-mills.		Sawmills.		Shingle-mills.	
	No.	Estimated Daily Capacity, M.B.M.	No.	Estimated Daily Capacity, Shingles, M.	No.	Estimated Daily Capacity, M.B.M.	No.	Estimated Daily Capacity, Shingles, M.
Vancouver	185	8,917	44	7,286	22	144	13	707
Prince Rupert	86	823	2	5	13	94	.....	.....
Fort George	118	1,467	.....	.....	30	84	.....	.....
Kamloops	105	988	6	80	31	140	3	77
Nelson	120	1,428	2	40	24	184	3	45
Totals, 1943	614	13,623	54	7,411	120	646	19	829
Totals, 1942	551	13,197	70	8,874	149	1,206	11	135
Totals, 1941	557	13,820	76	8,835	129	1,083	5	63
Totals, 1940	**542**	**12,691**	**77**	**8,585**	**141**	**1,432**	**18**	**307**
Totals, 1939	461	11,698	84	7,926	147	1,907	24	537
Totals, 1938	481	12,159	88	8,184	126	1,406	19	315
Totals, 1937	434	11,042	80	9,124	131	1,685	16	402
Totals, 1936	410	11,401	86	8,859	122	1,699	10	315
Totals, 1935	384	9,822	93	8,492	96	1,962	16	1,231
Totals, 1934	349	9,152	82	7,311	129	2,999	13	1,228
Ten-year average, 1934–43	478	11,861	79	8,360	129	1,602	15	536

EXPORT OF LOGS (IN F.B.M.), 1943.

Species.	Grade No. 1.	Grade No. 2.	Grade No. 3.	Ungraded.	Totals.
Fir	.....	1,389,702	1,180,852	.....	2,570,554
Cedar	2,809,744	16,144,075	27,157,037	.....	46,110,856
Spruce	.....	6,484	454,985	.....	461,469
Cottonwood	.....	.....	.....	.....	.....
Hemlock	.....	.....	.....	25,018,342	25,018,342
Balsam	.....	.....	.....	4,243,412	4,243,412
White Pine	.....	180,482	4,930	.....	185,412
Miscellaneous	.....	.....	66,000	.....	66,000
Totals, 1943	2,809,744	17,720,743	28,863,804	29,261,754	78,656,045*
Totals, 1942	2,639,167	18,960,886	27,618,347	106,793,550	156,011,950
Totals, 1941	8,549,320	63,485,278	43,165,973	191,879,335	307,079,906
Totals, 1940	4,697,188	37,567,582	24,865,886	150,396,702	217,527,358
Totals, 1939	6,383,398	111,155,799	66,870,882	128,323,383	312,733,462
Totals, 1938	4,386,370	98,637,490	74,650,653	81,998,569	259,673,082
Totals, 1937	4,924,298	114,991,217	66,611,218	83,947,361	270,474,094
Totals, 1936	4,028,567	107,007,342	49,061,362	58,731,564	218,828,835
Totals, 1935	8,766,098	129,029,692	56,979,194	40,516,782	235,291,766
Totals, 1934	10,489,155	89,831,736	43,416,151	28,998,709	172,735,751
Ten-year average, 1934–43	5,767,331	78,838,776	48,210,347	90,084,771	222,901,225

* Of this total, 77,664,670 F.B.M. were exported from Crown grants carrying the export privilege; 991,375 F.B.M. were exported under permit from other areas.

Shipments of Poles, Piling, Mine-props, Fence-posts, Railway-ties, etc., 1943.

Forest District.	Quantity exported.	Approximate Value, F.O.B.	Where marketed.		
			United States.	Canada.	Other Countries.
Vancouver—					
Poles ..... lin. ft.	1,788,651	$232,525	1,677,459	111,192	.....
Piles ..... lin. ft.	204,261	32,682	75,155	117,302	11,804
Pulp-wood ..... cords	1,362	16,344	1,362	.....	.....
Stakes ..... cords	.....	.....	.....	.....	.....
Fence-posts ..... posts	13,467	2,020	10,163	3,304	.....
Christmas trees ..... trees	68,085	5,250	68,085	.....	.....
Prince Rupert—					
Poles and piling ..... lin. ft.	1,281,909	149,154	545,796	736,113	.....
Hewn railway-ties ..... ties	.....	.....	.....	.....	.....
Fence-posts ..... posts	5,923	1,481	.....	5,923	.....
Fort George—					
Poles ..... lin. ft.	72,245	5,780	5,830	20,415	.....
Fence-posts ..... cords	1,513	9,075	.....	1,513	.....
Hewn railway-ties ..... ties	.....	.....	.....	.....	.....
Mine-timber ..... lin. ft.	.....	.....	.....	.....	.....
Cordwood ..... cords	52	502	.....	52	.....
Christmas trees ..... trees	.....	.....	.....	.....	.....
Kamloops—					
Poles and piling ..... lin. ft.	4,005,000	517,865	2,765,505	1,239,495	.....
Hewn railway-ties ..... ties	116,256	83,344	.....	116,256	.....
Fence-posts ..... cords	2,030	28,360	.....	2,030	.....
Mine-props ..... cords	136	1,773	.....	136	.....
Mine-timber ..... lin. ft.	50,599	3,856	.....	50,599	.....
Christmas trees ..... trees	655,094	72,627	655,094	.....	.....
Nelson—					
Poles ..... lin. ft.	2,612,185	261,219	2,460,380	151,805	.....
Piles ..... lin. ft.	83,768	5,026	.....	83,768	.....
Mine-props ..... cords	7,287	58,296	.....	7,287	.....
Fence-posts ..... cords	11,673	93,384	2,307	9,366	.....
Pulp-wood ..... cords	.....	.....	.....	.....	.....
Cordwood ..... cords	479	2,156	100	379	.....
Hewn railway-ties ..... ties	50,777	25,389	.....	50,777	.....
Christmas trees ..... trees	1,022,953	143,213	950,503	72,450	.....
Total value, 1943	.....	$1,751,321	.....	.....	.....
Total value, 1942	.....	$2,042,981	.....	.....	.....

Summary for Province, 1943.

Product.	Volume.	Value.	Per Cent. of Total Value.
Poles and piling ..... lin. ft.	10,048,019	$1,204,251	68.76
Hewn railway-ties ..... ties	167,033	108,733	6.21
Cordwood ..... cords	531	2,658	0.15
Pulp-wood ..... cords	1,362	16,344	0.93
Fence-posts ..... posts	19,390	3,501	0.20
Fence-posts ..... cords	15,216	130,819	7.47
Mining-timber ..... lin. ft.	50,599	3,856	0.22
Mining-timber ..... cords	7,423	60,069	3.43
Christmas trees ..... trees	1,746,132	221,090	12.63
Totals	.....	$1,751,321	100.00

TIMBER-MARKING.

TIMBER-MARKS ISSUED.

	1938.	1939.	1940.	1941.	1942.	1943.
Old Crown grants	258	198	272	211	160	190
Crown grants, 1887–1906	103	91	101	85	85	98
Crown grants, 1906–1914	124	103	99	101	92	104
Section 57, "Forest Act"	272	259	275	282	250	283
Stumpage reservations	59	61	58	64	79	72
Premptions under sections 28 and 29, "Land Act"	.....	3	1	1	2	2
Timber berths	9	16	16	16	9	5
Indian reserves	6	6	13	5	4	11
Timber-sales	1,501	1,479	1,724	1,853	1,709	2,017
Hand-loggers	3	1	4	11	19	9
Special marks	6	2	3	6	6	5
Pulp leases	.....	.....	2	2	2	1
Pulp licences	1	2	20	17	1	4
Totals	2,342	2,221	2,588	2,654	2,418	2,801
Transfers and changes of marks	321	316	315	307	224	237

DRAUGHTING OFFICE, FOREST BRANCH, 1943.

Month.	NUMBER OF DRAWINGS PREPARED OR TRACINGS MADE FOR						NO. OF BLUE-PRINTS OR DITTO-PRINTS MADE FROM DRAUGHTING OFFICE DRAWINGS.	
	Timber-sales.	Timber-marks.	Examination Sketches.	Miscellaneous Matters.	Constructional Works, etc.	Totals.	Blue-prints.	Ditto-prints.
January	14	52	19	9	3	97	175	.....
February	37	58	17	19	10	141	196	175
March	27	106	38	19	14	204	377	136
April	31	74	28	19	6	158	304	243
May	44	95	36	26	6	207	341	575
June	29	41	39	64	8	181	382	375
July	29	110	63	16	16	234	475	267
August	29	84	37	14	5	169	327	325
September	24	92	17	8	5	146	357	350
October	19	50	31	29	11	140	284	150
November	30	94	39	19	8	190	378	353
December	43	81	32	51	1	208	413	499
Totals	356	937	396	293	93	2,075	4,009	3,448

FOREST INSECT SURVEY, 1943.

Forest District.	Insect-box Collections made.	Negative. Reports.
Vancouver	115	0
Prince Rupert	67	7
Fort George	67	11
Kamloops	111	9
Nelson	160	0
Totals	520	27

Crown-granted Timber Lands paying Forest Protection Tax.

Year.	Area of Private Timber Lands (Acres).	Average Value per Acre.
1921	845,111	$10.33
1922	887,980	11.99
1923	883,344	11.62
1924	654,668	15.22
1925	654,016	40.61
1926	688,372	39.77
1927	690,438	39.01
1928	671,131	38.62
1929	644,011	38.41
1930	629,156	44.74
1931	602,086	43.77
1932	552,007	43.73
1933	567,731	41.18
1934	557,481	37.25
1935	535,918	37.13
1936	515,924	36.61
1937	743,109	23.32
1938	754,348	23.05
1939	719,112	22.73
1940	549,250	27.70
1941	543,632	26.99
1942	527,995	26.34
1943	543,044	25.15

The extent and value of timber land in the various assessment districts are shown in the following table:—

Assessment District.	Acreage, 1943.	Increase or Decrease in Acreage over 1942.	Average Value per Acre, 1943.	Change in Value per Acre since 1942.
Alberni	76,863	+ 8,057	$36.34	—$4.34
Comox	100,046	— 4,408	22.35	— .95
Cowichan	90,465	— 627	33.01	— 1.44
Fort Steele	12,969	— 640	5.89	— .56
Galiano, Mayne, and Pender Islands	328	*	14.88	— .12
Kettle River	315	*	10.37	*
Nanaimo	129,744	+13,232	28.21	— 2.23
Nelson	2,637	*	5.83	*
Omineca	160	*	4.15	*
Prince George	1,428	— 320	14.95	+ 1.33
Prince Rupert	21,164	*	17.18	*
Revelstoke	33,202	— 158	14.19	+ .13
Slocan	41,024	*	2.57	*
Vancouver	.....	— 1,074	.....	— 7.05
Victoria	32,699	+ 988	28.05	— .56
Totals	543,044	+15,049	$25.15	.....

* No change.

FOREST REVENUE.

	12 months to Dec. 31, 1943.	12 months to Dec. 31, 1942.	12 Months to Dec. 31, 1941.	12 Months to Dec. 31, 1940.	12 Months to Dec. 31, 1939.	12 Months to Dec. 31, 1938.	Ten-year Average, 1934–43.
Timber-licence rentals	$404,570.49	$435,710.37	$418,845.21	$423,417.07	$442,264.58	$622,923.79	$496,272.67
Timber-licence transfer fees	1,600.00	665.00	1,580.00	1,540.00	395.00	1,695.00	1,385.00
Timber-licence penalty fees	14,242.37	13,116.76	18,373.81	13,989.56	10,980.14	50,233.98	29,143.04
Hand-loggers' licence fees	250.00	525.00	225.00	375.00	250.00	675.00	630.00
Timber-lease rentals	47,397.15	50,342.12	51,194.41	54,161.56	62,123.02	61,382.27	58,564.76
Timber-lease penalty fees	89.56	94.71	83.36	92.73	422.02	1,417.92	542.62
Timber-sale rentals	53,468.33	36,661.13	26,157.94	28,103.36	28,106.77	25,497.14	28,500.78
Timber-sale stumpage	1,085,134.06	940,550.81	832,448.02	724,236.38	634,591.32	534,803.05	628,301.97
Timber-sale cruising	15,253.39	13,880.54	13,567.09	12,156.15	8,880.20	9,077.20	10,209.58
Timber-sale advertising	2,758.40	2,352.50	2,208.00	1,611.35	1,277.15	1,562.25	1,607.88
Timber royalty and tax	1,825,020.05	2,141,077.41	2,514,780.43	2,146,718.97	1,856,519.43	1,710,276.43	1,872,840.99
Scaling fees (not Scaling Fund)	47.85	384.99	369.35	467.62	501.14	527.28	349.61
Scaling expenses (not Scaling Fund)	2,907.05	794.48	246.13	322.73	323.02	249.97	527.86
Trespass stumpage	35,071.74	19,874.81	18,812.87	16,022.90	11,830.99	15,748.70	14,913.88
Scalers' examination fees	685.00	75.00	550.00	290.00	595.00	220.00	351.50
Exchange	102.96	217.36	210.69	115.68	171.96	130.71	168.75
Seizure expenses	320.92	376.28	495.59	646.43	644.00	677.15	593.08
General miscellaneous	8,087.43	7,278.83	5,276.06	4,027.99	3,469.44	2,992.00	4,365.98
Timber-berth rentals and bonus	21,353.02	23,073.80	20,263.45	21,295.60	22,438.06	29,172.82	24,461.53
Interest on timber-berth rentals and bonus	46.68	175.53	60.04	71.99	242.52	840.19	352.71
Transfer fees on timber berths	65.81	71.69	91.77	55.36	51.52	56.54	81.34
Grazing fees and interest	31,158.36	30,802.33	29,348.22	38,146.48	22,027.05	18,446.67	23,242.48
	$3,549,631.12	$3,718,101.45	$3,955,187.44	$3,487,864.91	$3,108,104.33	$3,088,606.06	$3,197,408.01
Taxation from Crown-grant timber lands	200,382.25	205,401.63	216,860.46	223,021.58	244,783.77	290,576.51	257,031.82
Total revenue from forest sources	$3,750,013.37	$3,923,503.08	$4,172,047.90	$3,710,886.49	$3,352,888.10	$3,379,182.57	$3,454,439.83

AMOUNTS CHARGED AGAINST LOGGING OPERATIONS, 1943.

Forest District.	Royalty.	Tax.	Trespass Stumpage.	Seizure Expenses.	Government Scale.		Scaling Fund.		Stumpage.	Rentals, Cruising, Advertising, and Transfer Fees.	Total.
					Scaling Expenses.	Scaling Fees.	Scaling Expenses.	Scaling Fees.			
Vancouver	$1,282,223.34	$1,273.61	$23,314.73	$268.96	$785.81	.....	$32,618.83	$108,604.88	$493,147.02	$25,467.19	$1,967,704.37
Prince Rupert	228,327.56	1,836.67	7,106.81	27.00	406.62	.....	750.91	9,666.75	152,968.05	19,610.99	420,695.36
Fort George	112,438.33	152,26	2,008.32	35.00	1,830.46	.....	.....	.....	161,126.88	8,393.16	285,984.41
Kamloops	105,746.97	3,798.71	2,227.07	19.00	184.41	.....	.....	.....	129,737.60	17,952.74	259,666.50
Nelson	131,391.07	2,222.74	2,112.29	4.00	67.42	.....	.....	.....	145,886.76	14,434.16	296,118.44
Totals, 1943	$1,860,127.27	$9,283.99	$36,769.22	$353.96	$3,274.72	.....	$33,369.74	$118,271.63	$1,082,866.31	$85,858.24	$3,230,175.08
Totals, 1942	$1,975,067.18	$57,125.20	$19,489.98	$331.56	$1,017.17	$268.50	$36,944.89	$122,731.57	$949,463.02	$71,684.25	$3,234,123.32
Totals, 1941	$2,368,592.99	$100,732.39	$22,424.64	$481.18	$588.26	$392.44	$38,359.49	$147,441.90	$843,116.13	$64,178.18	$3,586,307.60
Totals, 1940	$2,104,949.92	$83,147.74	$15,844.80	$491.70	$295.34	$549.54	$36,024.08	$145,435.20	$734,472.57	$36,020.04	$3,157,230.93
Totals, 1939	$1,734,599.75	$67,280.72	$16,155.25	$823.53	$369.75	$364.01	$30,526.84	$127,366.46	$604,222.28	$33,720.82	$2,615,429.41
Totals, 1938	$1,548,487.63	$70,393.15	$11,349.95	$638.85	$251.74	$521.22	$28,119.98	$110,576.44	$533,106.60	$38,756.30	$2,342,201.86
Totals, 1937	$1,906,740.31	$64,478.43	$18,298.31	$337.74	$79.07	$228.35	$26,481.94	$121,365.53	$552,703.92	$34,408.99	$2,725,122.59
Totals, 1936	$1,872,454.02	$38,014.76	$4,205.73	$948.46	$80.87	$337.03	$25,463.31	$139,706.30	$414,580.44	$27,575.11	$2,523,366.03
Totals, 1935	$1,566,597.84	$38,724.07	$5,940.50	$213.94	$58.76	$231.87	$21,314.46	$124,425.21	$307,381.16	$26,046.82	$2,090,934.63
Totals, 1934	$1,192,539.15	$45,429.55	$7,382.38	$251.70	$106.36	$183.89	$17,436.57	$99,563.66	$287,608.81	$33,028.34	$1,683,530.41
Ten-year average, 1934–43	$1,813,015.60	$57,461.00	$15,786.08	$487.26	$612.20	$307.68	$29,404.13	$125,688.39	$630,952.12	$45,127.70	$2,718,842.18

FOREST REVENUE, FISCAL YEAR 1942–43.

		Ten-year Average.
Timber-licence rentals	$403,698.24	$485,269.00
Timber-licence transfer fees	645.00	1,243.00
Timber-licence penalty fees	10,471.60	29,310.00
Hand-loggers' licence fees	525.00	750.00
Timber-lease rentals	49,896.76	59,360.00
Timber-lease penalty fees and interest	166.21	703.00
Timber-sale rentals	38,108.93	25,345.00
Timber-sale stumpage	947,284.40	561,635.00
Timber-sale cruising	14,903.46	9,410.00
Timber-sale advertising	2,338.00	1,433.00
Timber royalty	1,928,759.92	1,750,852.00
Timber tax	38,409.19	53,320.00
Scaling fees (not Scaling Fund)	304.62	360.00
Scaling expenses (not Scaling Fund)	1,380.31	320.00
Trespass stumpage	22,816.68	12,265.00
Scalers' examination fees	25.00	286.00
Exchange	227.07	167.00
Seizure expenses	353.13	633.00
General miscellaneous	8,143.19	3,720.00
Timber-berth rentals, bonus and fees	22,314.33	25,893.00
Interest on timber-berth rentals	71.63	232.00
Transfer fees on timber berths	68.69	72.00
Grazing fees and interest	28,981.08	21,256.00
	$3,519,892.44	$3,043,834.00
Taxation from Crown-granted timber lands	206,146.21	267,791.00
Totals	$3,726,038.65	$3,311,625.00

AMOUNTS CHARGED AGAINST LOGGING OPERATIONS, FISCAL YEAR 1942–43.

District.	Royalty.	Tax.	Trespass Stumpage.	Seizure Expenses.	Government Scale.		Scaling Fund.		Stumpage.	Rentals, Cruising, Advertising, and Transfer Fees.	Total.
					Scaling Expenses.	Scaling Fees.	Scaling Expenses.	Scaling Fees.			
Vancouver	$1,317,965.32	$21,974.47	$10,172.02	$253.60	$113.86	$193.46	$32,642.05	$104,619.38	$422,410.55	$19,396.66	$1,929,741.37
Prince Rupert	189,456.95	5,092.22	2,987.97	10.00	167.00	38.17	1,875.60	8,924.17	110,803.20	16,111.31	335,466.59
Fort George	125,362.78	481.32	3,838.58	46.46	977.74	.....	.....	.....	165,512.14	8,558.77	304,777.79
Kamloops	90,215.06	24,996.38	3,480.92	20.00	33.27	.....	.....	.....	136,450.27	16,233.72	271,429.62
Nelson	116,621.03	3,385.06	1,273.36	13.50	100.81	.....	.....	.....	120,307.30	14,737.01	256,438.07
Totals	$1,839,621.14	$55,929.45	$21,752.85	$343.56	$1,392.68	$231.63	$34,517.65	$113,543.55	$955,483.46	$75,037.47	$3,097,853.44
1941–42	$2,310,473.38	$92,980.09	$22,970.78	$421.18	$756.06	$420.20	$37,798.34	$142,180.70	$879,697.43	$65,137.56	$3,552,835.72
1940–41	$2,170,897.94	$84,995.42	$14,452.13	$460.20	$305.75	$459.47	$35,777.90	$144,686.32	$728,543.90	$54,942.02	$3,235,521.05
1939–40	$1,883,779.34	$74,498.27	$17,516.51	$787.63	$394.61	$472.86	$33,769.03	$140,435.44	$654,869.07	$31,026.46	$2,837,549.22
1938–39	$1,563,258.61	$64,191.12	$11,646.58	$493.26	$266.18	$517.69	$28,088.74	$111,732.45	$533,392.11	$38,921.28	$2,352,508.02
5-year average, 1938–39–1942–43	$1,953,606.08	$74,518.87	$17,667.77	$501.16	$623.06	$420.37	$33,990.33	$130,515.69	$750,397.19	$53,012.96	$3,015,253.49

FOREST EXPENDITURE, FISCAL YEAR 1942–43.

Forest District.	Salaries.	War Service, Temporary Assistance.	Temporary Assistance.	Expenses.	Total.
Vancouver	$63,997.18	$3,640.00	.....	$72,535.12	$140,172.30
Prince Rupert	20,778.83	939.00	$300.00	44,959.08	66,976.91
Fort George	20,939.58	.....	.....	8,409.53	29,349.11
Kamloops	41,287.01	3,212.71	.....	18,760.64	63,260.36
Nelson	32,337.11	1,709.94	.....	12,247.79	46,294.84
Victoria	82,846.09	4,323.22	65.00	25,731.93	112,966.24
Totals	$262,185.80	$13,824.87	$365.00	$182,644.09	$459,019.76

Canadian Forestry Association	4,000.00
Reconnaissance	8,317.00
Forest Research	9,924.47
Reforestation	76,383.14
Provincial Parks	13,147.85
Grazing Range Improvements*	10,171.51
Forest Protection Fund*	500,000.00
Forest Reserve Account*	103,158.43
Grand total	$1,184,122.16

N.B.—The above figures do not include amounts paid as cost-of-living bonus, totalling $15,821.70.

* Contributions from Treasury to special funds detailed elsewhere.

SCALING FUND.

Balance, April 1st, 1942 (credit)		$17,975.90
Collections, fiscal year 1942–43		152,152.13
		$170,128.03
Expenditure, fiscal year 1942–43		163,959.12
Balance, March 31st, 1943 (credit)		$6,168.91
Balance, April 1st, 1943 (credit)		$6,168.91
Collections, 9 months, April–December, 1943		122,524.24
		$128,693.15
Expenditures, 9 months, April–December, 1943		116,721.42
Balance, December 31st, 1943 (credit)		$11,971.73

FOREST RESERVE ACCOUNT.

Balance brought forward April 1st, 1942		$107,186.58
Amount received from Treasury, April 1st, 1942 (under subsection (2), section (32), "Forest Act")		103,158.43
		$210,345.01
Credit (by adjustment)	$30,587.71	
Expenditures, fiscal year 1942–43	25,566.53	
	(credit)	5,021.18
Balance, March 31st, 1943 (credit)		$215,366.19
Amount received from Treasury, April 1st, 1943 (under subsection (2), section (32), "Forest Act")		87,972.03
Carried forward		$303,338.22

FOREST RESERVE ACCOUNT—*Continued.*

Brought forward	$303,338.22
Moneys received under subsection (4), section 32, "Forest Act"	
Expenditures, 9 months to December 31st, 1943	13,918.12
Balance, December 31st, 1943 (credit)	$289,420.10

GRAZING RANGE IMPROVEMENT FUND.

Balance, April 1st, 1942 (credit)	$9,423.06	
Government contribution (sec. 11, "Grazing Act")	$10,171.51	
Other receipts	26.70	
	10,198.21	
		$19,621.27
Expenditures, April 1st, 1942–March 31st, 1943		3,476.28
Balance, March 31st, 1943 (credit)		$16,144.99
Government contribution (sec. 11, "Grazing Act")		9,660.36
		$25,805.35
Expenditures, April 1st to December 31st, 1943		2,186.66
Balance, December 31st, 1943 (credit)		$23,618.69

STANDING OF FOREST PROTECTION FUND, DECEMBER 31ST, 1943.

Balance (deficit), April 1st, 1942		$530,726.54
Expenditure, Forest Protection Fund		588,888.35
Expenditure, Alternative Service Workers		487,906.38
		$1,607,521.27
Collections, tax	$237,426.65	
Collections, miscellaneous	29,211.43	
Refunds of expenditure, Forest Protection Fund	5,146.87	
Refunds of expenditure, Alternative Service Workers	486,462.74	
Government contribution	500,000.00	
		1,258,247.69
Balance (deficit), March 31st, 1943		$349,273.58
Balance (deficit), April 1st, 1943		$349,273.58
Expenditure, 9 months, April–December, 1943, Forest Protection Fund		364,756.81
Expenditure, 9 months, April–December, 1943, Alternative Service Workers		288,322.01
Repayable to votes (approximately)		150,000.00
Carried forward		$1,152,352.40

STANDING OF FOREST PROTECTION FUND, DECEMBER 31ST, 1943—*Continued.*

Brought forward		$1,152,352.40
Collections, tax	$191,734.28	
Collections, miscellaneous	24,263.88	
Refunds of expenditure, Forest Protection Fund	4,909.44	
Refunds of expenditure, Alternative Service Workers	179,930.02	
Government contribution	375,000.00	
		775,837.62
Estimated deficit, December 31st, 1943		$376,514.78

ESTIMATED AND KNOWN COSTS OF FOREST PROTECTION TO OTHER AGENCIES, 1943.

Forest District.	Expenditures.				
	Tools and Equipment.	Improvements.	Patrol.	Fire-fighting.	Total.
Vancouver	$59,391.00	$1,780.00	$51,359.00	$43,239.00	$155,769.00
Prince Rupert	6,975.00	225.00	.....	1,050.00	8,250.00
Fort George	.....	.....	.....	3,555.00	3,555.00
Kamloops	.....	.....	.....	3,383.00	3,383.00
Nelson	15,900.00	.....	1,490.00	4,167.00	21,557.00
Totals	$82,266.00	$2,005.00	$52,849.00	$55,394.00	$192,514.00
Totals, 1942	$78,877.00	$5,510.00	$62,983.00	$166,961.00	$314,331.00

FOREST PROTECTION EXPENDITURE FOR TWELVE MONTHS ENDED MARCH 31ST, 1943.

Districts.	Patrols and Fire Prevention.	Tools and Equipment.	Fires.	Improvements.	Total.
Vancouver	$128,179.04	$15,759.10	$10,366.64	$1,704.36	$156,009.14
Prince Rupert	29,882.69	3,154.81	1,601.86	2,293.74	36,933.10
Fort George	38,032.47	7,181.57	40,564.66	2,847.09	88,625.79
Kamloops	79,351.52	7,842.93	16,825.60	7,006.71	111,026.76
Nelson	93,215.28	15,674.03	7,020.71	3,775.91	119,685.93
Victoria	50,086.43	26,521.20	.....	.....	76,607.63
Totals	$418,747.43	$76,133.64	$76,379.47	$17,627.81	$588,888.35

FOREST PROTECTION.

WEATHER.

Throughout the Province the weather was generally favourable to forest protection; not from the point of view of excess rainfall, but from the fact that the increased precipitation was nicely distributed throughout the fire season. In the Interior, where dry lightning-storms are usually attended with disaster, almost invariably lightning strikes were accompanied by heavy showers. This resulted in few lightning-fires being recorded. As an outstanding instance, the Revelstoke vicinity, often a hot spot, did not have one cost fire to record. Farther north in the Penny vicinity, a centre of lightning strikes, the outbreaks of 1943 were only 11 per cent. of normal. On the Coast, where lightning is sometimes an important feature, there was no occurrence of lightning-

fires. Due to a heavy snowfall last winter and a slow melting during the spring and summer, there was a general absence of lightning-fires at the higher levels difficult of access, and often the source of serious fire-spread.

In the Northern and Central Interior the spring hazard is greatly feared. So often there is an abrupt change from late winter to hot days with dry winds before there is any showing of new leaves or green grass. This condition quickly makes for flash fires, which will travel very fast and do great damage. In those early spring days, not realizing the danger, it is not unexpected that there is a general carelessness with fire and a desire to burn off the hideous mass of last year's dead grass and unsightly collection of debris. With the spring breakup in roads and lack of very early fire-suppression organization, this brief spring hazard, when it occurs, is often one of the most serious seasons encountered. Fortunately in 1943, such a condition did not develop in any district. The absence of the spring hazard is largely responsible for a lower-than-average cost of fire-fighting and damage.

The most consistent period of fire danger comes in August. Temperatures are high, relative humidities low, and the vegetation has cured to such an extent that the lush grasses and weeds—earlier protection—are now becoming a flash fuel. In 1943, August precipitation, although small, was considerably above average. Throughout the Kamloops District it was 150 per cent. of normal. In the Fort George District it was 175 per cent. of normal. This factor, together with general westerly winds on the Coast, made for higher relative humidities and lower fire occurrence throughout the Province. The usual August weather was experienced in September of 1943, but by that time the longer and colder nights, with exceedingly heavy dews, were of such influence that no very alarming conditions developed.

The fire season was of such light hazard that in the Vancouver District, where logging operations are so often curtailed on account of the fire-hazard, there was no general shutdown, although there was some curtailment according to prearranged plan of one or two of the larger companies.

Generally, we were most fortunate in a critical year in both protection and manpower that weather conditions were extremely favourable. We cannot hope for a continuation of the good fortune of 1942 and 1943. Bad and good fire weather seems to run on about an eight-year cycle, and the fact must be faced that the time is likely at hand when, instead of being aided by the elements, we shall have to contend with them, as we have had to do in such years as 1922, 1925, 1930, and 1938.

Fire-weather Forecasts.

Following Japan's entry into the war a radio blackout of weather conversation was imposed. This proved a severe handicap in forest protection. More and more reliance had been placed in the ever-improving weather forecasts, much of the progress being in connection with increased air travel by commercial air lines as well as the Royal Canadian Air Force. With the radio blackout all these advantages were lost, and our own weather reports were impeded with coding. To know the answer to the vital question as to what the weather is going to be is to know how to organize for and attack a fire. It is to know whether to hit a fire with five men or with fifty. It is to know when to man secondary lookouts, whether to expect electric storms, and when to close the forest against the hazards of travellers, hunters, and even, at times of severe hazard, when to shut down logging and other industrial operations.

Lately, weather forecasts have been heard on American stations and our own Canadian Broadcasting stations are making weather reports. At date of writing our restrictions have not been lifted, but application has been made and it is hoped that before the 1944 fire season we may once more have the benefit of freely conversing on the air concerning weather and of having the forecasts by the Royal Canadian Air Force and Trans-Canada Air Lines.

Fires.

Occurrence.

The record of fire outbreaks for ten years past is an average of 1,605 fires per year. The year 1943 recorded but 1,185, or about 74 per cent. If, through weather conditions, only 74 per cent. of the average number of fires occur, it is safe to say for the same reason that those which do occur will be extinguished with a smaller fraction of the usual suppression effort and cost, and likewise with correspondingly little damage and publicity. In only one year, 1935, in the last twenty-five years have there been less fires than in 1943. This is the more remarkable when it is remembersd that 1943 was a year of feverish activity. While, doubtless, most credit is due to favourable weather, still the general public and the loggers in particular must have some credit for precautions taken. There is encouragement here for all those who have promoted the gospel of forest protection.

Causes.

Extraordinary features are:—

(*a.*) *Lightning* is a very considerable and a variable agent of fire cause. Resulting fires are more in proportion to the prevalence of dry lightning-storms than to the incidence of lightning itself. An example of this variation is a comparison of 1940 with 1943. In 1940, lightning caused 1,265 fires, or 54 per cent. of all causes. There were but 256 lightning-fires in 1943, 22 per cent. of the total—an exceedingly low figure. This year all districts reported an absence of dry storms and a late melting of snow at the higher elevations.

As truck-logging pushes the boundaries of inflammable debris farther up the mountain-sides, the danger of escape of lightning-fires will increase progressively.

(*b.*) *Campers.*—Fires from this source were few and the decrease traceable to less pleasure travel and shortage of ammunition for the hunting season.

(*c.*) *Railways.*—Changing from oil to coal burning, the shortage and inexperience of labour, and the unprecedented overload of traffic indicated a sudden increase in fires. The indication was borne out. Fires have tripled in number and quadrupled in percentage of total. With normal conditions and a reversion to oil burning this will correct itself. The railway companies are not relaxing their efforts. Under the Chief Inspector of Equipment, Department of Railways, investigations and intensified inspections have been carried out with the object of lessening the number of fires set by coal-burners.

(*d.*) *Smokers'* fires are on the steady increase, from what particular cause is not known.

Cost of Fire-fighting.

(*a.*) *To Forest Branch.*—The cost to the Forest Branch as indicated in the tabulation on page 62 ($35,358.49) is misleading as a measure of normal fire-fighting costs. To this should be added a large proportion of the cost of maintaining the Alternative Service Workers in Forest Branch camps. Another source of free fire-fighting labour was the army. In the Fort George District, and to some extent in others, the soldiers did the work of the lacking civilian fire-fighters.

The Alternative Service Workers extinguished or assisted on eighty-nine fires in the Vancouver Forest District. Exceedingly satisfactory results marked their efforts on outbreaks attacked while still small. These crews attacked seventy-two small fires (1 acre or less) with such success that the average spread per fire was only ¼ acre. Any one of these fires was potentially a destroyer which could have gained 4-inch headlines on the front page. This is real testimony for well-trained and equipped suppression crews standing on the alert in the emergency.

(*b.*) *To other Parties.*—During the past six years this figure has varied all the way from $25,000 to $400,000. In general, it is a measure of the intensity of the fire-

hazard, but not so necessarily. It does not lend itself to averaging, largely because it results from outstanding exceptional instances such as the big fire at Campbell River in 1938. This year private parties spent $55,394 in fighting fires, most of which ($43,234) was expended in the Vancouver District. It does not include the expenses of intentional slash-disposal fires.

Damage.

It is a pleasure to report a year such as 1943 when damage to forests and other property is but a fraction of average. Again the damage to the forest is concentrated in the Fort George Forest District. The following is the record for 1941, 1942, and 1943:—

	All British Columbia.	Fort George.	Per Cent. of Total.
1941	$483,002	$445,295	92
1942	859,037	816,564	95
1943	63,731	54,365	85
Totals	$1,405,770	$1,316,224	94

The fact that more than nine-tenths of the damage to our forests is occurring in one area arrests our attention and calls for explanation and action. The explanation is as follows:—

Across that great expanse of timbered country lying to the north of the Grand Trunk, electrical storms weave a pattern of small smokes visible only to the bush pilot in his travels to the Far North, to the miners, the trappers, the surveyors, and, more recently, the defence forces. These areas are so far removed from any other means of travel that, without aircraft, we cannot provide lookouts to report the fires, nor the small crews capable of extinguishing these small fires. The results are too well known. During prolonged periods of high hazards these small fires spread, fuse, and finally consume vast areas of forest. Just because these hitherto remote stands have not played an important rôle in our economy does not justify their destruction. Nature made the country in question highly accessible; it is our last frontier, and it is vast in extent. As soon as aircraft can be made available, no time should be lost in providing necessary detection and suppression. Efforts have been made within limited means to do this by hiring commercial craft. The forced delay of many vital days has resulted in disaster. Instead of suppressing incipient outbreaks with two or three men, we have had to attempt to control large fires often without success. There is one and only one remedy—and our experience has proved its worth—we must get to those fires while they are still spots. This calls for our own aircraft and a specially trained air-borne crew standing on the alert in periods of high hazard.

Prior to the very recent years we had no way of measuring damage in the great northern hinterland, but the fire-scars indicate that this devastation has been going on in greater or lesser degree.

Shakespeare expressed the fundamentals of effective forest protection in "Henry VI.":—

> "A little fire is quickly trodden out,
> Which, being suffer'd, rivers cannot quench."

To achieve this obvious objective is to organize, train, and equip to detect and attack fires immediately they start—not after they have grown to sizeable proportions.

Forest Protection Education.

So far as possible, the usual avenues of forest protection education were followed. Shortage of staff and restricted travel limited activities. The following indicates the principal endeavours to reach the public:—

(*a.*) *Calendars.*—Forest Branch calendar for 1944 was prepared. The subject featured was "Forest Protection."

(*b.*) *Blotters.*—Two hundred thousand blotters were distributed to schools. They were in sets of twelve, each carrying a cut of birds or animals and a forest protection message.

(*c.*) *Moving Pictures.*—Scarcity of film and little travel precluded anything extensive. Two new films—(1) "Land of Timber" which was made up from shots already on hand, and (2) "Experimental Pulp-wood Salvage Operation in Logging Waste," prepared for the Economics Division and featuring salvage logging on the operation of the Comox Logging & Railway Company, Ltd., Ladysmith—were added to the moving-picture library. The latter film features the method of salvage and the resulting reduction in fire-hazard.

(*d.*) *Forest-protection Lectures and Moving-picture Shows.* — These included seventy appearances before 6,000 people. During the year two trips were made through the Alternative Service Workers' camps to provide entertainment for the men and to instruct them in forest protection.

(*e.*) *Newspaper Advertising.*—The usual advertising campaign was continued in all the daily papers and most of the weeklies. Less space was taken due to increased costs. Stories on reforestation, forest protection, etc., were placed in such publications as "The Family Herald and Weekly Star," "Telephone Talks," and the B.C. Electric "Buzzer."

(*f.*) *Radio Broadcasts.*—Due to restrictions on mentioning the weather on the air, the spot announcements had to be curtailed. Arrangements have been completed for a series of half-hour forest protection dramatizations on CBR.

(*g.*) *Young Ranger Bands.*—Due to travel and other war restrictions, activities were confined to a "Forest Day Celebration" held at Francois Lake, and a boys' and a girls' summer camp at Pinkut Lake. The ritual of camp life featured forest protection. It is the opinion of close observers in this much forested central area of the Province that these activities instill in the youth a lasting reverence for the forests and their welfare. In this the small promotion expenditures in time and funds are justified.

Fire-control Planning.

Lookout and Visibility Mapping.—As in 1942, further work is postponed until our field staff which has enlisted is able to resume.

Panoramic Lookout Photographs.—The following stations were photographed during the season:—

Bunch Grass—Nelson Forest District.
Russell—Nelson Forest District.
Hunter—Nelson Forest District and Yoho National Park.
Baldy Hughes—Prince George Forest District.
Terrace (retake)—Kamloops Forest District.

Under a co-operative arrangement between our Service and the National Parks, panoramic photographs were taken from Tunnel Lookout in Banff National Park. An attempt was made to examine Milligan Peak in the Nation River area in the Prince George Forest District but, owing to unfavourable visibility conditions, it was impossible to make the necessary photographs. The project was abandoned and will be completed next year. This site is indicated as a lookout to work with Pope and Pilot Lookouts, which will make for the necessary detection over part of a great area of timber, to date not covered with an organized detection service.

War restrictions and the absence of the qualified and experienced fieldmen limit the field-work so vitally needed to implement the detection plan so important to forest protection.

Suppression Crews.

Stand-by suppression crews were provided in the Vancouver Forest District from the camps of Alternative Service Workers. The comparatively few outbreaks of fire allowed these crews to be employed to a large extent on improvment-work. Action was taken by these crews on eighty-nine fires and labour to the extent of 12,222 man-hours was expended on those fires. Excellent results were achieved, as shown in the following tabulation:—

Fires fought by Stand-by Suppression Crews of Alternative Service Workers.

	No. of Fires attacked. (Size as per Left-hand Column.)	No. of Fires extinguished. (Size as per Left-hand Column.)
Spot (up to ¼ acre)	53	40
Over ¼ acre and up to 1 acre	19	24
Over 1 acre and up to 5 acres	12	14
Over 5 acres and up to 50 acres	4	4
Over 50 acres	1	7
Totals	89	89

Of eighty-two of the above fires attacked before they exceeded 5 acres in size, the average spread per fire thereafter before being extinguished was less than ¼ acre. This demonstrates that, with even a modest force of stand-by suppression crews, forest fires can be extinguished with little expense in fire-fighting and without the disaster of large conflagrations. The key to suppressing forest fire is quick and accurate detection, plus immediate attack by small mobile crews of trained men, properly equipped. As these crews are engaged on other essential work during periods of low hazard, their actual net cost chargeable as suppression crews is relatively small.

Again in the Nelson and Kamloops Forest Districts, small civilian crews of men were hired. Due to the limited selection of man-power, there was some dissatisfaction in results gained. In the Nelson Forest District, two six-man crews were stationed, one in the East Kootenay, and the other in the West Kootenay. The advantage of a stand-by crew was apparent in that the crew was on the road to the fire usually in the space of two or three minutes from the time the fire was reported, and in no case more than five minutes. The crew arrived on the fire in a minimum of time, considering the distance travelled. In some cases the fires were extinguished by the stand-by crews; in others, the fire was held until another crew could be recruited, and the stand-by crews returned to their headquarters to be on the alert for other outbreaks. In periods of low hazard, the crews were occupied on improvements when work of much value was completed.

In the Kamloops District, difficulty was experienced in keeping a full crew and, due to the lack of suitable men, the best results were not achieved.

Equipment.

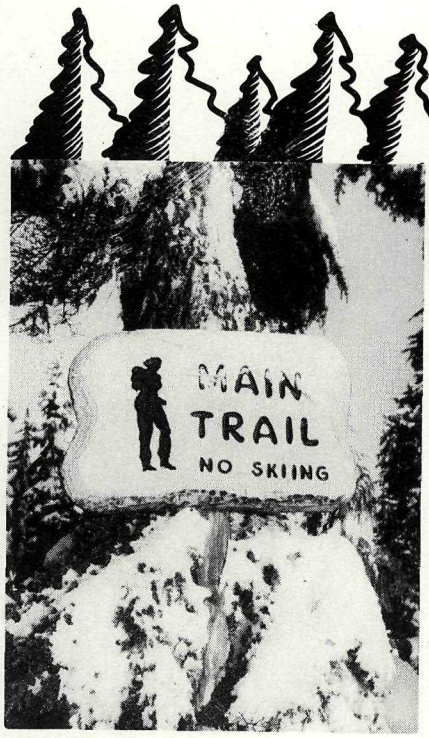
In addition to the stock of hand-tools used in fire-fighting, road-construction, snag-falling, planting, and miscellaneous work, the Forest Service requires a considerable amount of various types of mobile and other mechanical units. The following is a list of such units on hand:—

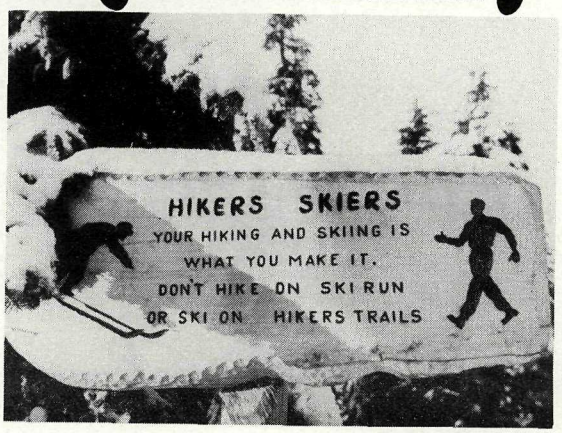
72 cars, passenger.
17 deliveries, panel and sedan.
154 trucks, light delivery, ¾-ton, 1-ton.
40 trucks, heavy, 1½-ton, 2- to 2½-ton, 3-ton, 5-ton.
6 trucks, tanker, light.
1 truck, tanker, heavy.

290 cars and trucks.

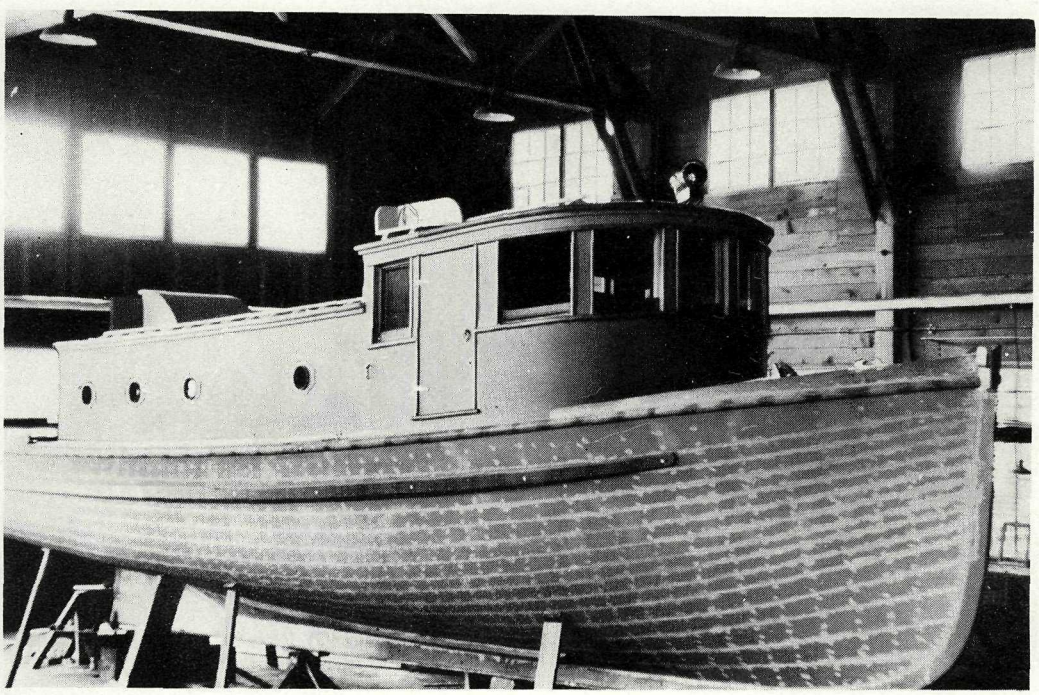
Forest Branch administration requires the employment of many kinds of craftsmanship. Here are illustrated two kinds.

Craftsmanship





Two types of carved wooden signs along the trails of Mount Seymour Park. Good park plans call for many signs which must be appropriate to the setting as well as useful for the purpose intended.



Forest Branch launch, "Red Cedar," completely built in the Boat Repair Station at Vancouver.

11 tractors with bulldozer blades.
2 tractors without bulldozer blades.

13 tractors.

3 fire-ploughs.
3 graders.
20 motor track-cars (railway).
38 launches, cabin cruiser.

2 radio transceivers, UHF.
139 radio transceivers, SPF.
32 radio transceivers, PAC.
18 radio receivers.
5 radio transmitters.
13 radios, launch.

209 radio units.

253 pumps, fire-fighting.
89 outboard motors.

27 saws, drag.
7 saws, chain.

34 saws.

Fraser River Repair-station.

Machine-shop and blacksmith-shop—
1 lathe, 16-inch centres, 10 feet between centres.
1 drill, 16-inch table, 20-inch swing, capacity 2-inch hole.
1 drill, 10-inch table, 10-inch swing, capacity ½-inch hole.
1 shaper, 20-inch, with 11- by 11-inch vise.
1 power hack-saw, 10- by 10-inch.
1 power-grinder, 2 large (1- by 12-inch wheels), 1 small (½- by 6-inch wheels).

Carpenter-shop—
1 band-saw, 36-inch.
1 planer, 16- by 7-inch.
1 jointer, 6-inch.
1 shaper, two-spindle, 39- by 49-inch.
1 circular saw (two), one 8-inch, one 16-inch (combination).

Pump floor—
1 lathe, 10-inch centres, 36 inches between centres.
1 air-compressor, ¾ horse-power, 150 lb. per sq. in.
1 bushing grinder, 48 inches to 96 inches.
1 valve grinder, 2½-inch.
1 power grinder (two wheels), ½- by 6-inch.

In keeping with war-time restrictions and scarcity of equipment, all efforts were aimed at making present units do the job or finding second-hand units as replacements.

Cars and Trucks.—As it is apparent that few, if any, new units will be on the market for 1944, arrangements were made for the purchase of suitable second-hand cars and trucks. No suitable trucks have become available and only two passenger-cars have been found to date. There is only slight promise of any new light delivery trucks

being manufactured for 1944. Obviously, it will be a case of making present units do still another year. This offers its problems, especially as overhaul becomes more difficult, not only for shortage and delay in obtaining parts, but with the scarcity and inexperience of garage and machine-shop mechanics. Further, the time and attention of our mechanical supervisory staff is so monopolized with the detail of rationing and restrictions that at this time, when a maximum of supervision is required, only a minimum is possible. This applies not only to cars and trucks but to all types of mechanical equipment.

Pumps.—No new pumps have been made available. An order for fifteen of the MacDonald portable pumps, placed a year ago, is still unfilled. With wear and tear, there is steady decrease in the number of operating units, which will make for a serious situation if, before long, some relief is not obtained in the form of new units or spare parts. Unfortunately a number of our pumping units are equipped with Coventry engines, manufactured in England, the parts for which have not been obtainable since the heavy bombing of the factory. Much credit is due to members of our staff for their ingenuity in moulding and casting parts which had formerly been purchased from a parts catalogue. Such success and savings have attended these efforts that the practice to some extent will be continued even after there is a plentiful supply offering by the manufacturers. This is but one of the advantages gained by the installations and equipment at the Fraser River Repair-station.

The problem of repair and overhaul of pump and outboard equipment has been difficult but would have been altogether impossible without our facilities at the Fraser River Repair-station. Private shops where formerly much of this work was done have to give priority to war orders to such an extent that work enjoying even the priority accorded to fire-fighting equipment has been set aside, and, without our own plant, many of our units would have been tied up at a time when their operation was vital. As an evidence of this situation, Civil Defence authorities had to come to our plant for repair and overhaul of fire-fighting equipment. This emergency work is being carried out at the Fraser River Repair-station, but only until such time as the commercial shops will again be able to cope with it.

Normally, those of our staff with special mechanical ability give considerable attention to designing and developing specialized equipment for our peculiar type of work. With short staff and multiplicity of detail, a large part of which is directly a result of rationing and other war restrictions and, further, in an effort to make what we have do, this phase of our activities is necessarily deferred, but not without regret, because this is a type of work for which we must rely on our own staff. It is a feature in which we have had considerable success in the past.

Launches.—In so far as skilled labour and materials were available, launch maintenance and new construction were carried out.

One new launch, "Red Cedar II.," 34 feet, was built at the Fraser River Repair-station. It was powered with a 40-horsepower Ailsa Craig Diesel engine, formerly in the "Amabilis II."

Minor overhaul was carried out on a number of launches, and a major rebuild done on the launch "A. L. Bryant."

Two launches, having outlived their usefulness to the Service, were sold. These were the "Birch II." and the "Cherry."

New outboard motors are no longer available. As opportunity offers, suitable second-hand units are purchased. Repair parts for outboard motors have been impossible to obtain, for which reason it has been necessary to strip one machine to keep another in operation, thus decreasing the number currently in use, and making necessary second-hand purchases.

Building and Construction.

War regulations had a great effect. Permits were required from the Controller of Buildings for all work except minor repairs. The following is a summary of the comparatively major items of construction in 1943:—

Combination warehouse and garage at Kelowna Ranger Station.

Fraser River Repair-station:—

Large marine ways lengthened and gradient increased to accommodate larger craft and lessen the time lost awaiting tides.

Chimney height increased 14 feet to improve heating conditions and to abate smoke nuisance.

Garage completed with installation of sliding-doors.

Area fenced.

Main building repainted by contract.

Lumber-shed painted, using plant labour.

Coal-bunkers built to ensure continuous fuel-supply.

New float and mooring at Port Hardy Ranger Station.

New emergency mooring at Alert Bay Ranger Station.

Aerial Delivery of Fire-fighting Supplies.

For some years the United States Forest Service has been experimenting in the delivery of supplies, equipment, and even fire-fighters from aircraft by parachute to remote fires. There are vast areas in British Columbia where this practice may be followed with profit. We have used aircraft to deliver men, equipment, and supplies to lakes in the vicinity of the fire. It often takes many hours for these to reach the fire from the lake. Valuable time could be saved in parachuting these loads to open spaces such as muskegs and meadows in close proximity to the fire. So far we have not parachuted any fire-fighters, but we have had some success in dropping supplies and equipment. Various types of chutes have been used—both factory cotton and paper. That giving best satisfaction to date has been an unbleached factory cotton chute fitted with eight shroud lines, four of which carry over the top of the chute from side to side, serving both as load-ties and as general reinforcement. Loads up to 50 lb. are dropped in chutes measuring 9 by 9 feet. Losses have been small and some of these have been the result of inexperience or accident. To date parachuting has all taken place in the Fort George District.

Radio.

The year 1943 opened with an unfavourable outlook for the coming year. Operation curtailed by emergency restrictions, shortage of material due to military priorities, and inability of manufacturers to deliver new sets. In spite of these drawbacks, communication was as successful as ever and only new installations were affected.

The types of set in use during the year were the standard SPF, PAC, and type L, 2½ watts, 10 watts, and 50 watts respectively, with two Forest Branch constructed headquarters sets of 50 watts each at Nelson and Kamloops. Each of these types is entirely adequate in the work for which it was designed and no changes are contemplated at present. Two portable UHF sets gave good service in the Nelson District. A number of new stations were proposed for 1943, but the manufacturers failed to deliver the sets requisitioned so that our total stands at 196 units of all above types.

Restrictions dating from April, 1942, made the coding of weather reports still necessary. This was undoubtedly a great drawback as far as speed and ease of operation were concerned and also deprived us of mutual co-operation with T.C.A. and R.C.A.F. However, it was accepted as a necessary evil and with the co-operation of all concerned, the difficulties were overcome.

In the field of supply, priorities and actual shortage of materials have made the obtaining of parts for replacement and construction very uncertain. Our two staple maintenance replacements, tubes and batteries, are perhaps the hardest hit, certain batteries necessary to the operation of our SPF's being no longer in production. However, an adequate supply was forthcoming for 1943, and by special permission to manufacture it is probable that our 1944 supply is assured also. As mentioned before, the manufacturers of our SPF, PAC, and type L sets were unable to fill our orders this year.

The obtaining of new licences and amendments to existing ones has not been difficult, though the Department of Transport now looks into proposed installations very closely, particularly when these are near coastal or military defence areas. Two proposed stations at Terrace and Hazelton are now being considered by the Department of Transport and it is as yet uncertain whether these will be allowed. For the absence of any material difficulties regarding licences, we have to thank Mr. W. J. Bowerman, District Superintendent of Radio, for his unfailing courtesy and co-operation throughout 1943. The possibility of getting new frequencies to relieve our crowded bands is definitely out for the duration.

All improvements and additions having been curtailed for the reasons already discussed, progress in 1943 was confined to internal organization. The dictates of previous experience and stringent Government regulations forced on us the maximum in brevity and schedule efficiency within the districts. Progress in the near future, contingent on the end of hostilities, is not hard to foresee, being mainly in the field of ultra high frequency; that is, in that portion of the spectrum covering wave-lengths between 4 and 10 metres.

If a radical improvement over present-day equipment is indicated, the trend of this improvement is definitely towards amplitude modulated UHF. The present short-wave equipment is excellent and fully able to satisfy our needs when conditions allow. Summer static, very strong in the summer evenings, man-made static prevalent in nearly all towns and villages supplied with A.C. power, and interference from other broadcasts spoil the chances of 100 per cent. communication and often reduce it almost to *nil* while the interfering condition exists. Amplitude modulated UHF, while possessing the disadvantage of a rather short range, is little affected by the types of interference just mentioned. Used as a complement to ordinary short-wave transmission, not as substitution for it, it will provide reliable contact regardless of conditions, and at the same time relieve our crowded channels. Although very little can be done at the moment with regard to buying new equipment, we can at least prepare the way, as experimental work will first be necessary anyway.

Our ultimate aim should be to have every suitable radio installation on ordinary wave-lengths equipped also with UHF for use when conditions demand. The value of such a step was shown in the Nelson District in 1943 when the Saddle Mountain Lookout was struck by lightning and communication was restored by UHF. There are other uses too numerous to mention, the most important of which will be the equipping of secondary lookouts and minor points of vantage and the eventual establishment of relay stations to do away with topographical barriers. As regards the equipment itself, our present two sets are modulated oscillators with superregenerative receivers, and, though they have proved perfectly satisfactory, it should be kept in mind that crystal-controlled transmitters and superheterodyne receivers will improve results and increase the ease of operation where portability is not a prerequisite.

To summarize this report, 1943 may be said to have been successful but static, due to circumstances which will not be remediable until the end of the war. We have it in our hands, however, to improve our position before hostilities cease, by placing our stations with an eye to results rather than convenience and by preparing now for the extensive use of ultra high frequency transmission, which is sure to come in the near future.

Alternative Service Workers' Projects.

As in 1942, Alternative Service Workers (conscientious objectors) were made available to the Forest Branch for forest protection and conservation work by arrangement with the Dominion Government. In addition, the Forest Branch was required to co-operate with the Fuel Control Board in the matter of cordwood production. Under the terms of 1943–44 agreement, expenditures were financed as previously, except that the Provincial Government paid one-third of the cost of operating A.S.W. projects.

During the year the average enrolment was reduced from 740 to approximately 450 men, due to a movement in the spring to grant Alternative Service Workers extended farm leaves. In October, a programme was instituted by some of the Provinces to replace men in our camps, both married and single, and return them to their own Province for employment in some other form of Alternative Service. Replacements received up to the end of the year were on the whole of a much lower medical category and have not proven as adaptable to the work as those who were released.

The camp organization was similar to that established in 1942, with twenty camps located on Vancouver Island and the Lower Mainland.

Due to the decrease in enrolment, only seventeen of the twenty camps operated for the fire season, and for cutting fuel-wood during the winter months the following distribution of personnel was made:—

Project and Location.	No. of Men in Camp.
C-1. Hill 60, Duncan	35
C-2. Cowichan Lake	20
C-3. Koksilah River	35
C-4. Langford	25
C-5. Nanaimo	45
C-6. Port Alberni	25
Q-1. Quinsam Lake, Campbell River	Closed.
Q-2. Menzies Bay	30
Q-3. Lower Campbell Lake	Closed.
Q-4. Courtenay	Closed.
Q-5. Bowser	35
Q-6. Horne Lake	40
Q-7. Loveland Lake, Campbell River	30
Q-8. Salmon River, Kelsey Bay	Closed.
GT-1. Green Timbers Manning Depot	20
GT-2. Hope	45
GT-3. Vedder River, Chilliwack	Closed.
GT-4. Haney	Closed.
GT-5. Dollarton	35
GT-6. Powell River	30
Total	450

The following is a summary of work accomplished by Alternative Service Workers:—

Fighting forest fires.

Stand-by for fire-fighting during periods of high hazard.

Road construction—in co-operation with the Department of National Defence.

Snag-falling—in preparation of areas to be planted and in constructing planned fire-breaks.

Planting new forests.

Nursery work.
Seed-collection for forest nurseries.
Fuel-wood cutting—for Fuel Control Board.
Farm aid—for Emergency Farm Labour Bureau Service.
Maintenance of forest protection improvements.
Food production—A.S.W. vegetable farm.

Fire protection, of course, was of primary importance and was given precedence over all other activities during the fire season. Fire suppression crews were trained and organized in the spring on a similar basis to the previous year. Fire weather was extremely favourable, with the result that it was only necessary to fight eighty-nine fires. In addition, 1,289 man-days were spent by suppression crews on stand-by during particularly hazardous periods.

During non-hazardous periods, enrollees near populated centres and close to transportation facilities worked on the production of fuel-wood for the Fuel Control Board. Other camps, particularly those in the vicinity of Campbell River, worked on forest-protection work and also on road work in co-operation with the Department of National Defence. Details of all projects appear elsewhere in this report.

Difficulties experienced last year in obtaining food supplies for our projects necessitated the raising of our own vegetables for the camps. Twenty-two acres were leased near Courtenay and sown in potatoes, 12 acres; carrots, 5 acres; parsnips, 2½ acres; onions, beets, and turnips, 2½ acres. With the exception of onions and turnips, a bumper crop was harvested. The total crop consisted of 2,000 sacks each of carrots and potatoes, 1,000 sacks of beets, and 600 sacks of parsnips and turnips. This project required the full time of four Alternative Service Workers, and additional labour was provided from a near-by camp during peak periods. A total of 1,900 man-days was spent on this work. Power equipment was used as much as possible and was obtained locally on a rental basis.

Working in co-operation with the Regional Alternative Service Officer and the Emergency Farm Labour Bureau Service, arrangements were made to grant leave to a few workers from certain camps to work on neighbouring farms to assist in harvesting crops. Camps near agricultural communities provided one or two three-man units for this purpose. A total of 840 man-days was spent on farm-aid work.

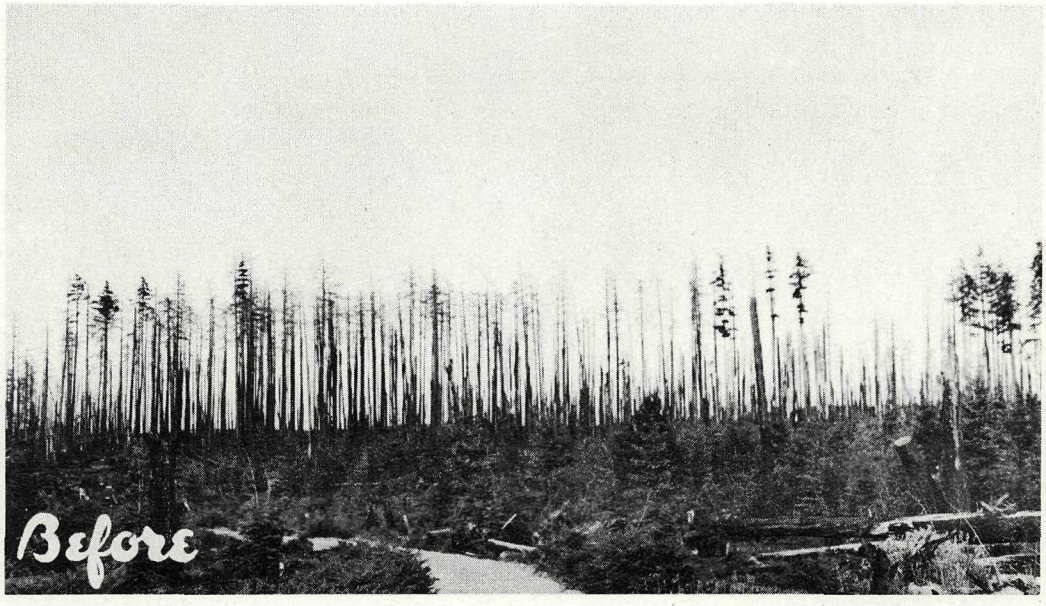
During the summer months nine of the projects spent practically all of their time, when not on fire-fighting duty, cutting cordwood by hand for the Fuel Control Board. At the conclusion of the fire season a start was made to purchase mechanized equipment to increase cordwood production. A total of twenty-six drag-saws and three portable chain-saw cordwood mills have been put into operation. Three more mills are expected to be completed early in 1944. The mills are provided with conveyers to and from the saw and are capable of producing fifteen cords per day. Under the terms of the 1943–44 agreement, 8,000 cords of wood were produced and it is expected that the monthly production will be greatly increased during the remaining winter months. In addition, about 800 cords were cut during the year under the 1942–43 agreement. Co-operation was also extended to the Fuel Control Board in the matter of mill-waste recovery.

Another major activity concerned the reforestation of unsatisfactorily stocked logged areas. Planting was undertaken during the spring and fall of the year and a total of 9,300,000 trees were planted on 11,500 acres. In conjunction with the reforestation programme, 1,050 bushels of cones were gathered to provide seed for our Forest Nurseries.

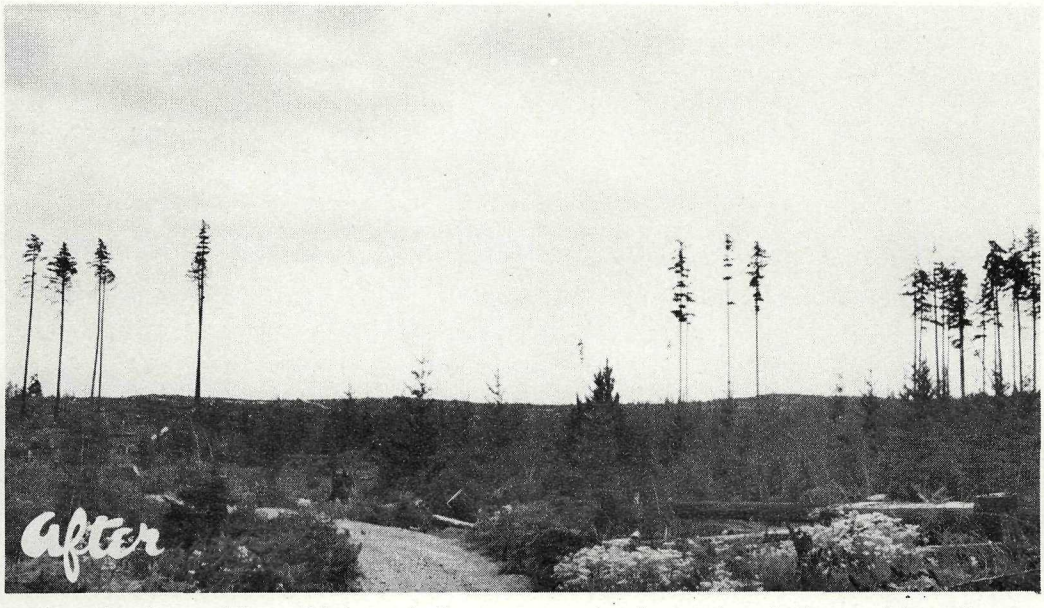
The remaining activities concerned principally miscellaneous fire-protection improvement projects and maintenance and improvements to Provincial Park facilities.

Total operating costs for the year 1943 were about $336,300, approximately $288,500 having been expended under the terms of the 1943–44 agreement.

Snag Falling



After logging, a slash-fire killed most of the trees left in the group shown. The area reproduced bountifully from the green trees remaining. With the snags standing a fire would quickly get to their tops, blow long distances, and make it impossible to control. The new forest would be lost.



After the snag-falling. This is exactly the same area as that above as shown by the trees left standing. The new forest can now be protected from fire more easily since the snags are not present to throw fire into the air and spread it over wide areas.

The following table summarizes the major project work in detail:—

Type of Work.	1942.	1943.	Total.
Fire-fighting—			
Number of fires fought	145	89	234
Man-days fire-fighting	6,502	1,966	8,468
Man-days fire training and stand-by	3,586	1,289	4,875
Snag-falling			
Man-days	22,267	18,625	40,892
Total snags felled, 10"+	223,101	196,023	419,124
Total snags felled —10"	82,437	72,320	154,757
Total basal area (sq. ft.) 10"+	485,055	513,659	908,714
Average basal area per man-day	22	27*	24
Total acres snagged	20,960	21,409	42,369
Farm aid, man-days	----------	840	840
A.S.W. farm, man-days	----------	1,899	1,899
Reforestation and nurseries—			
Acres planted	658	11,537	12,195
Number of trees planted	425,000	9,324,000	9,749,000
Man-days, nursery work	2,751	4,322	7,073
Bushels of cones collected	----------	1,050	1,050
Road-construction—			
New roads, miles	11.00	10.16	21.16
Existing roads improved, miles	109.50	44.95	154.45
Railway grades converted, miles	73.75	48.20	121.95
Number of culverts built	218	399	617
Number of bridges built	16	21	37
Telephone-line construction—			
New line, miles	22.75	2.91	25.66
Existing line improved, miles	5.50	3.38	8.38
Trail-construction—			
New trail, miles	14.50	1.83	16.33
Existing trails improved, miles	25.50	3.70	29.20
Fuel production, Fuel Control Board—			
Cordwood produced, cords	----------	8,800	8,800
Cords produced, millwood	----------	480	480
Man-days, cordwood	----------	18,225	18,225
Man-days, millwood recovery	----------	152	152
A.S.W. man-days, total	117,755	170,677	288,432
A.S.W. man-days, effective work	61,742	92,887	154,629

* Basal area per set of two men actually engaged on snag-falling per 8-hour day averaged 64 sq. ft.

SLASH-DISPOSAL AND SNAG-FALLING.

Under this heading all remarks refer only to the Vancouver Forest District, within which the special slash and snag legislation ("Forest Act," sections 113A and 113B) applies.

In consideration of all factors involved, we feel that with the passing of 1943 we can report reasonably satisfactory progress in the administration of section 113A and toward our ultimate objective of obtaining complete and satisfactory abatement of slash-hazards in the year they are created. According to meteorological records, 1943 was a very dry year. For the purpose of illustration, Victoria, with an average annual precipitation of 27.13 inches, recorded only 18.18 inches. Other stations in the slash-burning area of which we have record report correspondingly low precipitation.

Notwithstanding the above, conditions for burning were ideal during the month of September, excepting the days of the 13th, 14th, 15th, 16th, 17th, and 25th. Of these six days, the 13th, 14th, 15th, and 25th were extremely dangerous, high winds and low humidity prevailing. The 13th was outstanding, humidities of 16 per cent. being recorded. During these periods of high hazard, any fires in the process of being started or where burning was incomplete broke out of control and caused damage.

The period for broadcast burning ended October 2nd. Excepting the fires lost during the periods of high hazard, it can be said slash-burning was carried out with a marked degree of success and great improvement over 1942. This was particularly noticeable in cases where operators had conducted burning in accordance with prearranged plans and Forest Branch instruction. The results obtained proved definitely that abatement of slash-hazards by burning could be secured without damage to adjacent areas.

Alternative Service Workers and Slash- and Snag-disposal.—Not only did the Alternative Service Workers fall snags on more than 20,000 acres in each of the years 1942 and 1943, but, being quickly available in the vicinity of slash-burning operations, they rendered timely assistance in emergency when slash-fires threatened to escape their boundaries. Under the heading of "Alternative Service Workers' Projects," full detail of snag-falling is set out. Throughout the length and breadth of the district there are vast areas cut over prior to snag-falling legislation, on which snags remain and are an ever-present fire threat to plantations and all other areas of immature growing stock. For whatever crews of stand-by fire-fighters that may be allocated to the service of the Forest Branch, there is an unlimited volume of work in snag-falling offering. No crew need be idle during non-hazardous periods. The disposal of the snags is a prerequisite to practical fire protection of all forested areas, more particularly the immature stock. (This applies likewise to the Interior.) The Alternative Service Workers' crews in the last two years have demonstrated the practicability of fire-proofing wide expanses of country by falling snags. The accompanying photographs depict the situation better than words can describe it.

Progress in Slash- and Snag-disposal since Enactment of Section 113A.—The accompanying tabulations indicate that slash-burning and snag-falling are practised generally throughout the Vancouver Forest District. To some extent the practice of intentional slash-burning was followed prior to the date of enactment, 1938. The area slash-burned annually has grown considerably in proportion to the area cut over. The year 1941 was an outstanding exception to this because the weather continued dry and hazardous right up to the time when the fall rains set in, making burning impossible. The area burned in 1940 was cut down considerably by a ban on smoke by the Department of National Defence. Generally, the logging operators have co-operated in effecting the necessary precautions prior to slash-burning. This has not always been possible for them for the reason that they have been seriously affected with the current man-power shortage. Experience has indicated very definitely the fact that slash-burning can be and is likely to be disastrous if the precautions prescribed are not carried out. To correct such situations, more field supervision is required than our present short staff is capable of doing. There is little hope of correcting this until after hostilities cease. The practical application of slash-burning legislation is so complex and its final results are so remote that the question is still deserving of study by the Forest Officers as well as by the operators.

The following summaries indicate results obtained in slash-disposal in 1943:—

Summary Acreage logged, 1943, and dealt with under Section 113A.

	Acres.	Acres.
Total area logged, Vancouver Forest District		53,540
Total area logged in fir belt, Vancouver Forest District		49,130
1943 slash covered by hazard reports	39,316.00	
1943 slash logged after September 1st and carried over to 1944	9,814.00	
		49,130

Summary Acreage logged, 1943—Continued.

	Acres.	Acres.
1943 slash covered by hazard reports		39,316
1943 slash burned intentionally	12,989.55	
1943 slash burned accidentally	1,071.00	
1943 slash granted exemption from burning	11,228.00	
1943 slash on which extension in writing has been granted	5,030.00	
1943 slash awaiting decision *re* compensation or extension	8,997.45	
		39,316

Summary of Operations, Vancouver Forest District.

Total operations, hazard area, Vancouver Forest District		932
Number of operations conducting slash-burning	234	
Number of operations on which slash was burned by other slash-fires spreading to their areas or by lopping and scattering or clearing land	2	
Number of operations on which slash accidentally burned	40	
Number of operations exempt from burning	186	
Number of operations granted written extensions	69	
Number of operations exempt as not considered necessary to deal with under section 113A	228	
Number of operations on which compensation has been assessed	3	
Number of operations pending decision *re* compensation or extension	93	
Number of operations inactive in 1943	79	
Number of operations, snag-falling area only	21	
Number of operations not advanced to point requiring slash-disposal	3	
	958*	932

* Difference noted above is accounted for by some operations disposing of slash by both accidental and intentional means and extensions being granted over certain areas where only partial disposal was accomplished.

Summary of Slash-hazard being carried for Disposal into 1944.

	Acres.
Slash created prior to 1943	12,477
Slash created in 1943	23,841
Total slash at January, 1944	36,318

SUMMARY CHART A—INTENTIONAL SLASH-BURN.

Operations conducting slash-burn		234
Acres slash-burned in 1943—		
Prior to 1942	5,244.00	
1942	21,788.70	
1943	12,989.55	
Total acres		40,012.25

INTENTIONAL SLASH-BURN—*Continued.*

Acres of forest-cover burned	5,805.00
Total acres of area burned	46,321.10
Net damage to forest-cover	$23,178.01
Net damage to property on operations and cut products	$110,482.00
Cost of slash-disposal—	
Operator	$66,816.41
Forest Branch	$70.87
	plus 313 A.S.W. man-days.
Acreage hazard abated, 1943	40,012.25
Cost to operators	$66,816.41
Cost to operator based on stand of 40 M. per acre	$0.042 per M.
Cost to operator per acre	$1.67
Total damage	$133,660.01
Damage per M. of 1943 production	$0.06

SUMMARY SLASH-DISPOSAL, 1934–43.

Year.	Acres slash-burned. Accidentally.	Intentionally.
1934	4,927	15,935
1935	11,783	13,239
1936	1,340	7,691
1937	3,015	27,516
1938	35,071	50,033
1939	1,930	51,603
1940	2,265	33,034
1941	3,385	5,524
1942	4,504.25	80,225.75
1943	2,045.5	40,012.75

CLOSURES.

Due to the general lack of very prolonged high hazard periods, it was not found necessary to declare many closures. As previously in very local instances, where an industrial activity is the sole occupant of a watershed or other readily definable area, the usual partial closures were placed on the request of the parties concerned. For a period in September, to the disappointment of some of the sporting public, it was found necessary to close entry to the woods over a particularly hazardous area difficult to protect in the Sayward Forest, north and west of Campbell River. The wisdom of doing so was reflected in the absence of hunters' fires at a critical time when man-power was not available to control outbreaks. On account of the lack of ammunition and travel, difficulties for the hunters were broad, with the result that comparatively few felt the restriction.

Following is detail of 1943 closures:—

Area.	District.	Effective Date.	Date suspended.
Bear Creek	Kamloops	July 5th	Oct. 1st
Sayward Forest	Vancouver	July 16th	Sept. 28th
Jones Lake	Vancouver	July 30th	Oct. 4th
Lamb Creek	Nelson	July 23rd	Sept. 20th
Upper Kootenay	Nelson	July 23rd	Sept. 20th
Duck Creek	Nelson	July 23rd	Sept. 20th
Erie Creek	Nelson	July 23rd	Sept. 20th
Sheep Creek	Nelson	July 23rd	Sept. 20th

Fire Law Enforcement.

Generally, the public is acquainted with and conforms with the Fire Law. Prosecutions for fire trespass are instituted and publicized with the objective in mind of public education rather than punishing individuals. This form of public education, together with other endeavours, has paid dividends. Some contravention must always be expected; neither this year, nor for some years past, has there been more than what might be considered the minimum of infractions. In the whole of British Columbia only seventeen informations were laid. Fourteen fines were paid and suspended sentence meted out in the other cases. The average number of informations laid annually over the past ten years is twenty-eight.

Co-operation with Department of National Defence.

Assistance to defence forces was again given in:—

(1.) Aircraft Detection Corps of the R.C.A.F.

(2.) Concentrating improvement-work on truck-trails vital to defence communications, such as the road from Shawnigan Lake to Port Renfrew, and another from Menzies Bay via Roberts Lake and the Valley of the Salmon River to Sayward. Crews of Alternative Service Workers were allotted to these projects.

The Forest Service is pleased to acknowledge the valuable contribution of the R.C.A.F. in fire detection, and the fire-fighting assistance so timely rendered by the army units, particularly in the Fort George and Kamloops Districts. Details of this are made under another heading.

Fire Occurrences by Months, 1943.

Forest District.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Total.
Vancouver	2	3	33	55	73	81	70	1	318
Prince Rupert	1	3	13	9	2	2	5	.....	35
Fort George	.....	10	22	14	17	15	16	5	99
Kamloops	.....	5	40	49	90	86	61	6	337
Nelson	.....	17	19	20	131	116	87	6	396
Totals	3	38	127	147	313	300	239	18	1,185
Ten-year average, 1934–43	.....	60	174	203	527	430	204	12	1,605

Number and Causes of Fires in Province, 1943.

Forest District.	Lightning.	Campers.	Railways Operating.	Smokers.	Brush-burning (not Railway-clearing).	Road and Power- and Telephone-line Construction.	Industrial Operation.	Incendiarism.	Miscellaneous (Known Causes).	Unknown Causes.	Total.	Per Cent. of Total Fires in Province.
Vancouver	8	48	53	119	15	.....	14	1	49	11	318	26.83
Prince Rupert	.....	3	1	16	4	7	.....	.....	2	2	35	2.96
Fort George	25	27	6	14	18	1	1	.....	2	5	99	8.36
Kamloops	59	58	75	66	14	.....	2	4	56	3	337	28.44
Nelson	164	21	81	89	7	.....	3	2	27	2	396	33.41
Totals	256	157	216	304	58	8	20	7	136	23	1,185	100.00
Per cent.	21.60	13.25	18.23	25.65	4.89	0.68	1.69	0.59	11.48	1.94	100.00	.....
Ten-year average, 1934–43	559	249	96	327	96	10	41	51	150	23	1,605	.....

Damage to Property other than Forests, 1943.

Forest District.	Forest Products in Process of Manufacture.	Buildings.	Railway and Logging Equipment.	Miscellaneous.	Total.	Per Cent. of Total.
Vancouver	$35,745.00	$534.00	$28,814.00	$351.00	$65,444.00	94.57
Prince Rupert	----------	----------	----------	----------	----------	----------
Fort George	330.00	750.00	----------	590.00	1,670.00	2.42
Kamloops	22.00	55.00	10.00	1,263.00	1,350.00	1.95
Nelson	30.00	350.00	70.00	282.00	732.00	1.06
Totals	$36,127.00	$1,689.00	$28,894.00	$2,486.00	$69,196.00	100.00
Ten-year average, 1934–43	$83,611.00	$33,016.00	$79,148.00	$25,058.00	$220,833.00	----------

Fires classified by Place of Origin and Cost of Fire-fighting, 1943.

Forest District.	Total Fires.	Originated on vacant Crown Land and Lands paying Forest Protection Tax.	Originated on Lands not paying Forest Protection Tax.	Extinguished without Cost.			Cost Money to extinguish.								Total Forest Service Costs in fighting Fire.		Average Cost per Fire.
				Number.	Per Cent. of Total Fires in District.	Per Cent. of Total Fires in Province.	Number.	Per Cent. of Total Fires in District.	Per Cent. of Total Fires in Province.	Cost less than $100.	Cost $100 to $1,000.	Cost $1,000 to $5,000.	Cost $5,000 to $10,000.	Cost over $10,000.	Dollars.	Per Cent. of Total spent in fighting Fires in Province.	Dollars.
Vancouver	318	98	220	192	60.4	16.20	126	39.6	10.63	94	23	6	3	.....	1,505.92	4.26	4.74
Prince Rupert	35	2	33	19	54.3	1.61	16	45.7	1.35	13	3	.....	.....	.....	78.20	.21	2.23
Fort George	99	80	19	45	45.5	3.80	54	54.5	4.56	31	19	3	1	.....	14,598.79	41.29	147.46
Kamloops	337	241	96	144	42.7	12.15	193	57.3	16.29	168	25	.....	.....	.....	6,447.80	18.24	19.13
Nelson	396	319	77	176	44.4	14.85	220	55.6	18.56	194	22	4	.....	.....	12,727.78	36.00	32.14
Totals	1,185	740	445	576	.....	48.61	609	.....	51.39	500	92	13	4	.....	35,358.49*	100.00	29.84
Per cent.	100.00	62.45	37.55	48.61	.....	.....	51.39	.....	.....	42.19	7.76	1.10	0.34	.....	.....	.....	.....
Ten-year average, 1934–43	1,605	1,008	597	789	.....	.....	816	.....	.....	637	143	28	5	2	191,385.00	.....	88.80

Cost to other parties (329 cost fires), $55,394.57. Cost to Forest Branch (609 cost fires), $35,358.49.

* Cost correct to date. Subject to later revision.

Detailed final costs are published one year in arrears in the table "Expenditure by Districts" in each annual report.

Number and Causes of Forest Fires for the Last Ten Years.

Causes.	1943.	1942.	1941.	1940.	1939.	1938.	1937.	1936.	1935.	1934.	Total.
Lightning	256	704	871	1,265	515	703	263	524	173	320	5,594
Campers	157	158	142	236	305	442	269	256	217	312	2,494
Railways operating	216	114	73	90	77	72	74	81	65	103	965
Smokers	304	220	184	400	374	524	242	321	289	415	3,273
Brush-burning (not railway-clearing)	58	30	81	74	111	180	107	78	127	117	963
Road and power- and telephone-line construction	8	31	4	5	11	4	14	6	11	10	104
Industrial operations	20	38	33	41	32	77	55	29	45	41	411
Incendiarism	7	5	20	38	88	121	20	74	72	65	510
Miscellaneous (known causes)	136	90	134	171	175	238	124	152	97	188	1,505
Unknown causes	23	24	19	18	16	51	25	26	15	19	236
Totals	1,185	1,414	1,561	2,338	1,704	2,412	1,193	1,547	1,111	1,590	16,055

Fires classified by Size and Damage, 1943.

Forest District.	Total Fires.		Under ¼ Acre.			¼ to 10 Acres.			10 to 500 Acres.			Over 500 Acres.			Damage.		
	Number.	Per Cent. of Total Fires in Province.	Number.	Per Cent. of Total Fires in District.	Per Cent. of Total Fires in this Class.	Number.	Per Cent. of Total Fires in District.	Per Cent. of Total Fires in this Class.	Number.	Per Cent. of Total Fires in District.	Per Cent. of Total Fires in this Class.	Number.	Per Cent. of Total Fires in District.	Per Cent. of Total Fires in this Class.	Under $100.	Between $100 and $1,000.	Over $1,000.
Vancouver	318	26.83	176	55.35	29.48	113	35.53	27.10	25	7.86	17.24	4	1.26	15.39	304	8	6
Prince Rupert	35	2.96	14	40.00	2.35	14	40.00	3.36	7	20.00	4.83	.....	.....	.....	35	.....	.....
Fort George	99	8.36	31	31.31	5.19	33	33.34	7.91	22	22.22	15.17	13	13.13	50.00	79	11	9
Kamloops	337	28.44	114	33.83	19.10	146	43.32	35.01	70	20.77	48.28	7	2.08	26.92	325	12	.....
Nelson	396	33.41	262	66.16	43.88	111	28.03	26.62	21	5.30	14.48	2	.51	7.69	389	7	.....
Totals	1,185	100.00	597	.....	100.00	417	.....	100.00	145	.....	100.00	26	.....	100.00	1,132	38	15
Per cent.	100.00	.....	50.38	.....	.....	35.19	.....	.....	12.24	.....	.....	2.19	.....	.....	95.53	3.21	1.26
Ten-year average, 1934–43	1,605	.....	805	.....	.....	513	.....	.....	260	.....	.....	.....	.....	.....	1,477	84	43

Fire Causes, Cost, and Damage, 1943.

Causes.	No.	Per Cent.	Cost.	Per Cent.	Damage.	Per Cent.
Lightning	256	21.60	$12,136.85	34.33	$7,984.06	6.01
Campers	157	13.25	9,136.94	25.84	13,667.63	10.28
Railways operating	216	18.23	3,228.86	9.13	1,837.01	1.39
Smokers	304	25.65	5,608.03	15.86	55,282.54	41.59
Brush-burning (not railway-clearing)	58	4.89	1,786.85	5.05	12,723.64	9.57
Road and power- and telephone-line construction	8	.68	.....	.....	52.00	.04
Industrial operations	20	1.69	130.34	.37	35,004.89	26.33
Incendiarism	7	.59	423.33	1.20	361.24	.27
Miscellaneous (known causes)	136	11.48	2,499.99	7.07	1,266.54	.95
Unknown causes	23	1.94	407.30	1.15	4.748.05	3.57
Totals	1,185	100.00	$35,358.49	100.00	$132,927.60	100.00

PROSECUTIONS FOR FIRE TRESPASS, 1943.

Forest District.	Information laid.	Contravention of Sec. 99 of "Forest Act."	Contravention of Sec. 122 of "Forest Act."	Contravention of Sec. 104 of "Forest Act."	Burning without Permit.	Fines.		Suspended sentence.
						No.	Amount.	
Vancouver	3	----	----	1	2	3	$55.00	----
Prince Rupert	----	----	----	----	----	----	----------	----
Fort George	6	----	3	1	2	3	75.00	3
Kamloops	2	----	----	----	2	2	50.00	----
Nelson	6	3	3	----	----	6	162.00	----
Total	17	3	6	2	6	14	$342.00	3
Ten-year average, 1934–43	28	----	----	----	----	19	$401.00	----

DAMAGE CAUSED BY FOREST FIRES, 1943—PART I.

Forest District.	Accessible Merchantable Timber.				Inaccessible Merchantable Timber.			Immature Timber.	
	Net Area killed.	Total Volume killed.	Salvable Volume of Timber killed.	Net Stumpage Loss.	Net Area killed.	Total Volume killed.	Damage.	Net Area killed.	Present Value.
	Acres.	M.B.M.	M.B.M.	$	Acres.	M.B.M.	$	Acres.	$
Vancouver	294	734	602	440	-----	----------	-------	309	3,114
Prince Rupert	2	19	10	17	-----	----------	-------	1	5
Fort George	2,041	12,251	53	6,324	224	1,792	1,792	9,220	35,010
Kamloops	393	543	7	543	71	175	45	3,316	1,209
Nelson	62	98	47	59	-----	----------	-------	131	110
Totals	2,792	13,645	719	7,383	295	1,967	1,837	12,977	39,448
Per cent.	2.94	87.40	4.61	11.58	0.31	12.60	2.88	13.68	61.90
Ten-year average, 1934–43	----------	----------	68,522	----------	-----	----------	-------	58,579	203,966

DAMAGE CAUSED BY FOREST FIRES, 1943—PART II.

Forest District.	Not satisfactorily restocked.				Non-commercial Cover.		Grazing or Pasture Land.		Non-productive Sites.		Grand Totals.		
	Logged unburned.	Logged and burned.	Burned, not logged.	Damage.	Area burned.	Damage.	Area burned.	Damage.	Area burned.	Damage.	Area.	Quantity.	Damage.
	Acres.	Acres.	Acres.	$	Acres.	$	Acres.	$	Acres.	$	Acres.	M.B.M.	$
Vancouver	2,096	804	12	520	1,699	479	14	1	882	219	6,110	734	4,773
Prince Rupert	------	90	13	26	210	52	303	15	----------	-------	619	19	115
Fort George	203	21	4,535	1,141	21,105	5,282	14,633	970	15,389	3,846	67,371	14,043	54,365
Kamloops	98	36	98	58	2,233	570	7,663	383	4,100	1,023	18,008	718	3,831
Nelson	36	14	9	20	1,056	345	1,129	53	297	60	2,734	98	647
Totals	2,433	965	4,667	1,765	26,303	6,728	23,742	1,422	20,668	5,148	94,842	15,612	63,731
Per cent.	2.57	1.02	4.92	2.77	27.73	10.56	25.04	2.23	21.79	8.08	100.00	100.00	100.00
Ten-year average, 1934–43	------	------	------	------	----------	------	11,238	571	----------	-------	327,011	367,288	574,607

Comparison of Damage caused by Forest Fires in Last Ten Years.

	1943.	1942.	1941.	1940.	1939.	1938.	1937.	1936.	1935.	1934.	Total, 10 Years.
Total number of fires	1,185	1,414	1,561	2,338	1,704	2,412	1,193	1,547	1,111	1,590	16,055
Area burned (acres)	94,842	446,544	154,888	490,003	193,468	711,818	54,843	437,143	47,871	638,690	3,270,110
Standing timber destroyed or damaged (M. ft. B.M.)	15,612	128,890	341,636	252,512	48,755	1,047,541	13,263	932,808	26,113	817,125	3,624,255
Amount salvable (M. ft. B.M.)	719	4,341	3,123	37,092	6,154	400,527	565	23,814	14,359	179,358	670,052
Damage to forests	$63,731	$859,037	$483,002	$486,577	$195,018	$1,555,849	$36,384	$1,109,473	$68,399	$888,607	$5,746,077
Damage to other forms of property	69,196	477,459	65,303	231,919	177,706	675,166	119,380	66,189	221,144	104,877	2,208,339
Total damage	$132,927	$1,336,496	$548,305	$718,496	$372,724	$2,231,015	$155,764	$1,175,662	$289,543	$993,484	$7,954,416

Burning Permits, 1943.

Forest District.	Clearing Agricultural Land.				Clearing Logging-slash.				Clearing Railway Right-of-way.				Clearing Public Roads.				Grand Totals.			
	Permits issued.	Area burned over.	Fires escaped Control.	Fires set without Permit.	Permits issued.	Area burned over.	Fires escaped Control.	Fires set without Permit.	Permits issued.	Area burned over.	Fires escaped Control.	Fires set without Permit.	Permits issued.	Area burned over.	Fires escaped Control.	Fires set without Permit.	Permits issued.	Area burned over.	Fires escaped Control.	Fires set without Permit.
	No.	Acres.	No.	No.	No.	Acres.	No.	No.	No.	Acres.	No.	No.	No.	Acres.	No.	No.	No.	Acres.	No.	No.
Vancouver	2,061	1,550	4	4	232	33,764	1	.....	13	47	.....	.....	46	91	.....	.....	2,352	35,452	5	4
Prince Rupert	617	1,398	1	1	31	52	1	.....	13	520	1	.....	20	246	4	.....	681	2,216	7	1
Fort George	920	3,178	.....	1	10	5	.....	.....	3	15	.....	.....	36	262	.....	1	969	3,460	.....	2
Kamloops	1,044	4,019	2	2	77	249	.....	.....	.....	.....	.....	.....	11	67	.....	.....	1,132	4,335	2	2
Nelson	982	3,854	7	3	1	40	.....	.....	29	14	.....	.....	2	16	.....	.....	1,014	3,924	7	3
Totals	5,624	13,999	14	11	351	34,110	2	.....	58	596	1	.....	115	682	4	1	6,148	49,387	21	12
Per cent.	91.48	28.34	66.67	91.67	5.71	69.03	9.52	.....	0.94	1.21	4.76	.....	1.87	1.42	19.05	8.33	100.00	100.00	100.00	100.00
Ten-year average, 1934–43	7,489	17,665	43	20	321	19,776	8	1	95	2,680	6	.....	162	1,881	5	.....	8,068	42,002	63	22

GRAZING.

General Conditions.

Winter conditions have a direct effect on range and stock during the following summer, often as important as the summer grazing season itself. The winter of 1942–43 was unusually severe throughout the range country of the Interior of the Province, resulting in a later spring and need for extra feeding. Thus feed reserves, already small, were reduced and home pastures overgrazed. Some cattle losses occurred because of hay shortage and severe weather.

The late, cool spring resulted in poor grass conditions, which were not bettered at all by hot, dry summer weather in some sections. Cattle generally entered the feed-yards in the fall of 1943 in only fair condition.

On the other hand, the sheep bands from the high mountain ranges returned to the home ranches in excellent shape, which is attributed to the fairly dry conditions. Lambs do better on the high weed ranges in dry seasons than in wet.

Markets and Prices.

High prices for range stock continued through 1943, the demand being generally good. Naturally, the better grades held their prices to better effect than the poorer stock, and those breeders and feeders who have laboured to improve their stock naturally reaped the benefits. The prices on common grades fell away slightly towards the middle of the season. This was affected by the beef rationing system, through buyers taking their limited purchases in the better grades, while the hard winter and short hay-supplies forced some ranchers to cull their herds.

Prices for beef started higher in 1943 than the previous year, continued rising until April, held steady to August, and slipped back to spring prices towards the early fall.

Range lambs sold for an all-time high and remained high until a ceiling price was placed on them in September.

The following are average prices, on the hoof, received on the Vancouver market:—

Beef in early spring was $11.25 per 100 lb. and reached a high point of $12.50 in April. At the end of August the price had dropped back to $11.65 and in November was $11.10. At the end of the year good steers sold for $11 to $11.25.

Local lambs brought a top price of $17 per 100 lb. in June and did not fall below $14.50 until the ceiling price was placed on it in September. To the end of the year lamb prices ranged from $10.75 to $11.25.

Again there were several sales of stock organized by the stock associations, at which many excellent animals were exhibited and sold. Some sales, for high-grade stock, brought unheard of prices, while others for general ranch cattle naturally showed less spectacular, but still satisfactory, returns.

The Annual Bull Sale and Fat Stock Show was held at Kamloops on March 23rd. A new record of total sales was made, with $111,597 being paid for breeding and market stock. The increase over previous years was due entirely to higher individual prices, as the total number of animals sold was less than in 1942. Record prices were chalked up, with the highest figure paid for a bull at this sale being $1,725.

Following the example of the Waldo Stock-breeders' Association in 1942, a stock sale was organized in 1943 by the associations around Okanagan Falls. At this event some 862 head were sold. Fat stock brought an average high for calves of $10.20 per 100 lb., $9.92 for two-year steers, and $8.57 for yearling steers.

On October 7th the Central British Columbia Live-stock Association held its third annual feeder sale at Kamloops, also setting a record for itself. There were 1,467 head of cattle sold for $86,354 and 823 head of sheep for $6,216, a total of $92,570. This compares favourably with 1942 when the receipts were $73,790 and in 1941 only $43,696.

Unit prices were not high, with lambs averaging $9.75 per 100 lb.; two-year steers, $8.90; and yearlings, $8.94. Top price was for calves at $11 and $10.25 for good steers. A feature of this sale is that most of the stock came from Central British Columbia along the line of the Canadian National west of Prince George.

It being a year of new records, the Cariboo Cattle Show and Sale at Williams Lake on October 15th brought out 86 bulls and 2,453 grass-fed cattle. The former sold for an average of $290 each and the latter at an average of $9 per 100 lb. The top price was $11 per 100 lb.

The Waldo Stock-breeders' Association held their second annual sale at Elko on October 23rd. For various reasons, the returns were not quite as good as expected, but fair prices were realized. Top price went for calves at $11.50 per 100 lb., and for steers at $10.60. Top for lambs was $10.05, but the average was about $9.40. Altogether 975 cattle and 223 sheep were sold with total returns to the community of $53,099.25, which is a good record compared to total receipts of $31,270 in 1942 at their first sale.

The last feature sale of the season was that of the Kamloops Fat Stock Show and Sale on December 1st and 2nd. Another record was set for the Province, the average price being $14.44 per 100 lb., with tops for some special items of $50 per 100 lb. There were 400 head sold for a total of $51,375.

Stock sold at the various feature sales might be sold at the individual ranches for about as much net return, considering the extra expenses involved in transportation, conditioning, feeding, etc. However, the competitive spirit engenders the desire to show good stock on the one hand and see it on the other, all of which creates incentive to raising better animals. The results are good for the community, for the public gets better beef and, in the long run, cheaper food.

The raising of better meat animals depends largely upon good range forage and conditions. The result of the shows and sales of better stock will have a favourable reaction on range management in the desire to keep up quality through better feed.

Live-stock Losses.

Conditions on the range were such that no great losses occurred through poisonous weeds or predatory animals, although there were some cases. Through co-operation of the Live-stock Branch of the Department of Agriculture and the Forest Branch, foot-rot in sheep has been controlled to the great betterment of the range bands.

Bears, cougars, coyotes, and timber wolves continue to take some toll of range animals, but they are kept in reasonable control through the co-operation of the Game Commission. They report the destruction on the range of 253 coyotes, 27 bears, 69 timber wolves, and 26 cougars.

Range Reconnaissance.

Owing to enlistments in the armed forces, it was not possible to conduct any range reconnaissance projects. The limited staff were more than fully occupied with routine administration and investigations of immediate importance. Millions of acres of range, both that being now used and potentially usable, need to be mapped, estimated, and inspected. The Grazing Assistants who have enlisted and many others can find useful and productive work on the stock ranges of the Province upon the cessation of hostilities.

Co-operation.

Close contact was maintained by the field staff with the various live-stock associations. In the Kamloops Forest District five new associations were formed and officially recognized. By this procedure, which requires prior incorporation, the associations are given a considerable measure of home rule on their respective ranges and are assured of consultation by grazing officials in all matters affecting their ranges.

Co-operation was maintained through meetings with some twenty-three associations.

Grazing Permits.

The following tabulation shows the volume of business transacted in the three Forest Districts to which it is confined. In all, it amounts to a huge volume of routine and administrative work, although monetary returns are not high.

Grazing Permits issued.

District.	No. of Permits issued.	Number of Stock under Permit.		
		Cattle.	Horses.	Sheep.
Fort George	33	2,073	234	168
Nelson	257	7,084	1,096	2,989
Kamloops	931	84,340	3,514	36,764
Totals, 1943	1,221	93,497	4,844	39,921
Totals, 1942	1,130	84,788	4,797	36,962
Totals, 1941	1,064	77,774	4,180	39,552
Totals, 1940	881	74,404	3,958	37,132
Totals, 1939	790	69,447	2,758	38,357
Totals, 1938	738	72,774	2,248	37,060
Totals, 1937	807	75,123	2,328	42,185
Totals, 1936	700	75,224	2,061	46,084
Totals, 1935	746	60,305	1,870	36,902
Totals, 1934	789	68,735	2,235	36,569
Ten-year average	887	75,207	3,128	39,072

Collections.

The condition of the range live-stock industry continues to be reflected in satisfactory collections and in the Range Improvement Fund. This fund, the condition of which has been previously shown in this report, has received the benefit, under statute, of one-third of the fees paid in.

Grazing Fees billed and collected.

Year.	Fees billed.	Collections.	Outstanding.
1939	$21,348.41	$22,027.05	$42,012.10
1940	23,338.28	38,146.48	27,203.90
1941	23,781.19	29,348.22	21,636.87
1942	25,116.02	30,802.33	15,950.56
1943	24,680.37	31,150.81	9,480.12

Range Improvement.

As mentioned above, the Range Improvement Fund receives one-third of collections. This fund is used to improve the Crown range through such structures as drift-fences, cattle-guards, mud-hole fences, water-troughs, and trails. During the year of 1943 improvement-work was curtailed through lack of labour and many necessary projects had to be postponed. However, the Kamloops District arranged for and had completed the following range improvement projects: 3 stock bridges; 3 cattle-guards; 4 drift-fences, totalling 4 miles; 1 driveway, 3 miles; 1 experimental plot; 2 mud-holes fenced; 5 water developments; and 4 stock trails, 17 miles. The total cost to the fund was $2,166.66.

In addition, there was some activity in ridding the range of wild and useless horses, but because of lack of ammunition only 43 of these animals were shot. None were rounded up and sold.

The war has brought prosperity to the range live-stock industry, and it is hoped that conditions on ranch and range will be improved while funds are easy and available. The post-war period may bring less favourable conditions, and those who have consolidated their position will survive and continue to prosper. It can only be done through care and intelligent use of the productive capacity of the land, be it the home alfalfa field, the wild-hay meadow, or the open range. All are susceptible to damage by improper use and of perpetual production of valuable forage and, hence, meat animals if used with providence.

The management of the Crown range through the Forest Branch aims to promote the intelligent use of the forage resource.

PERSONNEL DIRECTORY, JANUARY 1ST, 1944.

VICTORIA OFFICE.

C. D. Orchard	Chief Forester.
G. P. Melrose	Assistant Chief Forester.
E. E. Gregg	Forester—Operation.
E. W. Bassett	Assistant Forester.
J. H. Blake	Marine and Structural Engineer.
W. C. Spouse	Mechanical Superintendent.
G. A. Playfair	Radio Engineer.
H. E. Ferguson	Radio Engineer.
E. B. Prowd	Forester—Management.
S. E. Marling	Assistant Forester.
G. M. Abernethy	Assistant Forester.
F. S. McKinnon	Forester—Economics.
H. J. Hodgins	Assistant Forester.
E. H. Garman	Assistant Forester.
H. G. McWilliams	Assistant Forester.
R. H. Spilsbury	Assistant Forester.
G. S. Allen	Assistant Forester.
A. P. MacBean	Assistant Forester.
A. E. Collins	Assistant Forester.
C. F. McBride	Assistant Forester.
C. P. Lyons	Assistant Forester.
S. W. Barclay	Royalty Inspector.
H. H. Smith	Chief Accountant.
A. E. Thompson	Chief Draughtsman.

DISTRICTS.

Vancouver.

C. J. Haddon	District Forester.
J. G. MacDonald	Assistant Forester.
D. B. Taylor	Assistant Forester.
M. W. Gormely	Assistant Forester.
R. C. Telford	Acting Assistant Forester.
W. Byers	Supervisor of Scalers.
A. H. Waddington	Fire Inspector.
J. A. Pedley	Acting Fire Inspector.
R. Murray	Supervisor.
C. F. Holmes	Acting Supervisor.
J. A. Mahood	Forest Ranger.

DISTRICTS—*Continued.*

Vancouver—Continued.

P. E. Sweatman	Forest Ranger.
E. T. Calvert	Forest Ranger.
G. G. Armytage	Forest Ranger.
W. Black	Forest Ranger.
J. McNeill	Forest Ranger.
R. Little	Forest Ranger.
E. W. Cowie	Forest Ranger.
R. J. Glassford	Forest Ranger.
S. Silke	Forest Ranger.
A. C. C. Langstroth	Forest Ranger.
J. P. Greenhouse	Forest Ranger.
T. J. W. Underwood	Forest Ranger.
C. S. Frampton	Forest Ranger.
J. W. Ker	Acting Forest Ranger.
C. M. Yingling	Acting Forest Ranger.
S. C. Frost	Acting Forest Ranger.
R. W. Aylett	Acting Forest Ranger.
K. M. Bell	Acting Forest Ranger.
R. C. Swan	Foreman, Fraser River Repair-station.
E. P. Fox	Chief Clerk.

Kamloops.

C. C. Ternan	District Forester.
R. G. McKee	Assistant District Forester.
H. B. Forse	Assistant Forester.
G. V. Copley	Assistant Forester.
E. A. Charlesworth	Supervisor of Scalers.
J. M. Fraser	Fire Inspector.
J. W. McCluskey	Forest Ranger.
C. Williams	Forest Ranger.
W. E. Noble	Forest Ranger.
R. B. W. Eden	Forest Ranger.
G. J. Mayson	Forest Ranger.
C. E. Robertson	Forest Ranger.
A. Chisholm	Forest Ranger.
C. Perrin	Forest Ranger.
J. W. Hayhurst	Forest Ranger.
H. A. Ferguson	Forest Ranger.
C. D. S. Haddon	Forest Ranger.
F. H. Nelson	Acting Forest Ranger.
W. P. Cowan	Acting Forest Ranger.
R. C. Hewlett	Acting Forest Ranger.
J. H. Dearing	Acting Forest Ranger.
J. A. Sim	Acting Forest Ranger.
H. J. Parker	Chief Clerk.

Nelson.

R. E. Allen	District Forester.
K. C. McCannel	Assistant District Forester.
W. C. Phillips	Assistant Forester.

DISTRICTS—*Continued.*

Nelson—Continued.

G. W. A. Holmgren	Assistant Forester.
P. Young	Fire Inspector.
T. W. Brewer	Supervisor.
F. H. S. Pym	Supervisor.
G. T. Schupe	Forest Ranger.
G. C. Palethorpe	Forest Ranger.
H. C. Nichols	Forest Ranger.
H. J. Coles	Forest Ranger.
R. Cameron	Forest Ranger.
J. P. MacDonald	Forest Ranger.
G. T. Robinson	Acting Forest Ranger.
L. S. Ott	Acting Forest Ranger.
J. H. Holmberg	Acting Forest Ranger.
J. H. A. Applewhaite	Acting Forest Ranger.
S. S. Simpson	Chief Clerk.

Prince Rupert.

R. C. St. Clair	District Forester.
J. E. Mathieson	Assistant Forester.
I. Martin	Forest Ranger.
J. B. Scott	Forest Ranger.
S. G. Cooper	Forest Ranger.
C. L. Gibson	Forest Ranger.
D. R. Smith	Forest Ranger.
M. O. Kullander	Acting Forest Ranger.
S. T. Strimbold	Acting Forest Ranger.
L. C. Chamberlin	Acting Forest Ranger.
L. G. Taft	Acting Forest Ranger.
A. M. Davies	Chief Clerk.

Fort George.

R. D. Greggor	District Forester.
D. L. McMullan	Assistant District Forester.
W. G. Henning	Supervisor.
D. H. Ross	Forest Ranger.
G. A. Forbes	Forest Ranger.
W. N. Campbell	Forest Ranger.
H. R. Sansom	Forest Ranger.
E. W. Thomas	Forest Ranger.
W. Adamson	Acting Forest Ranger.
J. S. Macalister	Acting Forest Ranger.
A. V. O'Meara	Acting Forest Ranger.
A. B. Porter	Acting Forest Ranger.
J. Jardine	Chief Clerk.

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