PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF LANDS, FORESTS, AND WATER RESOURCES

HON. R. G. WILLISTON, *Minister* J. S. STOKES, *Deputy Minister of Forests*

REPORT

of the

FOREST SERVICE

YEAR ENDED DECEMBER 31

1969

Printed by A. SUTTON, Printer to the Queen's Most Excellent Majesty
in right of the Province of British Columbia.
1970

VICTORIA, BRITISH COLUMBIA, March, 1970.

To Colonel the Honourable JOHN R. NICHOLSON, P.C., O.B.E., Q.C., LL.D.,
Lieutenant-Governor of British Columbia.

MAY IT PLEASE YOUR HONOUR:

Herewith I respectfully submit the Annual Report of the Forest Service of the Department of Lands, Forests, and Water Resources for 1969.

R. G. WILLISTON,
Minister of Lands, Forests, and Water Resources.

The Honourable R. G. Williston,
Minister of Lands, Forests, and Water Resources,
Victoria, British Columbia.

SIR,—This is the Annual Report of the Forest Service for 1969.

J. S. STOKES,
Deputy Minister of Forests.

Our Forest Resources.

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REPORT OF THE FOREST SERVICE, 1969

CHIEF FORESTER'S REPORT

For the British Columbia Forest Service, 1969 was a significant year for several reasons. The year presented new harvest and production records; an expanded programme of close utilization of forest resources, particularly in the Interior; and some streamlining of general policy.

The year also marked the start of a new era for the Forest Service—direct involvement with programmes involving multiple use of (Crown) wooded land.

Some highlights:—

- The estimated net value of forest industry products was $1,107,900,000, an increase of 5 per cent over 1968. The pulp, paper, and allied industries' production was up 10 per cent over the previous year.
- The 1969 timber harvest of 1,890,000,000 cubic feet is the highest on record, exceeding last year's production by about 190,000,000 cubic feet.
- Forest Service revenue from all sources was $89,479,300, an increase of 66.2 per cent over the previous year.
- Weight-scaling of logs in the Interior continued to increase, with this measurement method applied to 59 per cent of the 1969 harvest. Weight-scaling also commenced on the Coast and it is anticipated this method of sample scaling will continue to increase in both Interior and Coast regions.
- About 23,740,000 board feet of commercially valuable drift logs were salvaged, a drop of almost 5,000,000 f.b.m. from 1968.
- Log exports accounted for 155.6 million board feet—1.4 per cent of the 1969 total cut; compared with 1.8 per cent the previous year. Of this total, approximately 63.9 million board feet came from Crown grants with export privileges, and nearly 91.7 million board feet deemed surplus or unsuitable for the requirements of industry.
- A new advisory committee was established to assist in the control of chip exports, to ensure British Columbia pulp-mills receive an adequate supply. During 1969, 241,715 units of chips were exported—4 per cent of the total production.
- During 1969 there were 2,318 forest fires in British Columbia, 271 more than in 1968. They burned approximately 407,000 acres, compared with 34,000 in 1968; and timber damage totalled $7,400,000. The 1968 damage was $6,800,000. Direct costs of fighting the fires totalled $3,700,000, compared with $790,000 in 1968.
- During the year, 25,733,800 seedlings were planted throughout the Province by the Forest Service and by industry, with all young trees provided by Forest Service nurseries. For the first time, planting on Interior Crown lands exceeded such work in the Coast region. It is still hoped to meet a planned production and planting schedule of 75,000,000 trees by 1975.
- Information to unit standard is now available on 84,000,000 acres of established public sustained-yield units, and it's planned to have similar information available for all such new units proposed for northern extremities of the Province by 1975.

- Clearing operations for navigation channels and harbour-sites were started in the Mica Dam pondage area, and clean-up work continued on Lake Williston. Clearing also started on the Canadian section of the Libby Dam pondage area.
- Increased production in practically all avenues of public communication was attained by the Information Division—formerly known as the Public Information and Education Division.
- Its public relations programme was aimed at both internal and external audiences; and the CTV television network used three Forest Service presentations.
- During 1969 the Forest Service adopted a new symbol featuring a single tree on an outline of the Province.
- The Forest Service assisted the Cowichan Valley Forest Museum Society in development and land expansion of a forest museum (near Duncan, on Vancouver Island) which features the past, present, and future of the forest industry.
- The year marked the 50th anniversary of Crown range administration by the Forest Service.
- On July 31, F. S. McKinnon retired as Deputy Minister of Forests, and was succeeded by J. S. Stokes.
- Permanent force personnel with the Forest Service at the end of the year totalled 906.
- Forty-eight men graduated from two basic courses conducted by the Forest Service training-school at " Green Timbers " in Surrey.

inventory
division

INVENTORY DIVISION

HIGHLIGHTS

Surveys on public sustained-yield units (P.S.Y.U.) continued throughout 1969, and information to unit standard is now available for 84,000,000 acres. All established public sustained-yield units, and the proposed northern units, should be surveyed to unit standard by 1975.

Allowable annual cuts for units surveyed in 1968 were calculated to show the wood available at close utilization under varying conditions—(1) when no one (past); (2) a portion (present); and (3) all (future) are operating to close utilization standard.

Forest Inventory Statistics of British Columbia was published and provided volumes (by unit) to two levels of utilization, areas by cover class, mean annual increments, rotations, allowable cuts, and other related information. This report replaces the following previous forest inventory reports of British Columbia: *Forests of British Columbia,* by H. N. Whitford and R. D. Craig, 1918; *The Forest Resources of British Columbia,* by F. D. Mulholland, 1937; and *Continuous Forest Inventory of British Columbia,* by H. M. Pogue, 1957.

The latest report was compiled from available individual unit standard surveys and it is no longer necessary to obtain a unit report for units already completed to a unit standard. It is planned to revise the statistical report every few years rather than wait for completion of the Province-wide survey.

1969 PROGRESS

Classification and sampling of mature and immature stands, derivation of loss factors, and determination of the growth and yield of immature stands continued throughout 1969.

The division also completed field work to unit standard on nine public sustained-yield units, one proposed public sustained-yield unit, and the Kyuquot portion of the Kingcome P.S.Y.U. A total of 13,477,541 acres was brought to unit standard.

Table A.—1969 Field Work

Unit Standard Inventory

Public Sustained-yield Unit	Maps Classified	Number of Samples		Total Estimated Acreage
		Immature	Mature	
Ashnola	31	89	257	661,259
Big Valley	25	36	98	410,321
Cottonwood	30	41	75	485,521
Fontas (proposed)	160	294	165	4,052,925
Kingcome (Kyuquot portion)	11	1	19	101,979
Lardeau	104	136	195	2,253,063
Naver	21	139	48	319,654
Nootka	91	41	193	1,018,628
Similkameen	44	153	212	978,315
Wapiti	129	154	220	2,868,564
Willow River	23	108	40	327,312
Totals	669	1,192	1,522	13,477,541
Loss Factors				
Eagle	------	------	13	------
Longworth	------	------	10	------
Robson	------	------	3	------
Spallumcheen	------	------	2	------
Totals	------	------	28[1]	------

[1] Felled samples.

Table A.—1969 Field Work—Continued

Growth and Yield

Public Sustained-yield Unit	Maps Classified	Number of Samples		Total Estimated Acreage
		Immature	Mature	
Sayward	-------	98[2]	-------	---------
Quadra (Redonda portion)	-------	26	-------	---------
Quadra (Sechelt portion)	-------	17	-------	---------
Totals	-------	141[3]	-------	---------

[2] Twenty-three samples were in plantations.
[3] Permanent samples.

A private agency established an additional 92 samples in co-operation with the Division, which compiled the agency samples in return for using them in the Forest Service programme. While private samples may not apply to stands in areas of current field work, they provide supplementary information on similar forest types in public sustained-yield units.

Several tracked " swamp " vehicles and large-wheel bush bikes were used on seismic lines in the Fontas and Wapiti P.S.Y.U.s.

The Division completed compilation of all 1968 units in Table B by December, 1969, and reports were released.

Table B.—Production of Final Forest-cover Maps for 1968 Projects

Public Sustained-yield Unit	Number of Maps[1]	Forest and Non-forest Area in Acres			Volume in M Cu. Ft. for Mature Crown Area
		Crown	Alienated	Total	
Adams	35	584,686	6,830	591,516	946,377[2]
Fort Nelson (proposed)	224	4,751,019	39,778	4,790,797	1,470,483[2]
Kamloops Region	67	805,980	437,452	1,243,432	619,136[2]
Kinbasket	118	2,287,243	90,312	2,377,555	2,353,380[2]
Niskonlith	20	295,057	66,655	361,712	342,067[2]
Quadra (Sechelt portion)	58	875,448	152,260	1,027,708	1,726,929[3]
Rivers Inlet	105	1,966,175	57,132	2,023,307	6,787,952[2]
Windermere (additions)	38	149,904	129,831	279,735	112,951[2]
Dean (Tzeo River addition)	2	35,819	----------	35,819	58,475[3]
Totals	667	11,751,331	980,250	12,731,581	14,417,750

[1] With exception of two Tzeo River maps, at 40 chains, all others are at scale of 1 inch=20 chains.
[2] Volume at 7.1"+d.b.h. close utilization less decay.
[3] Volume at 9.1"+d.b.h. close utilization less decay.

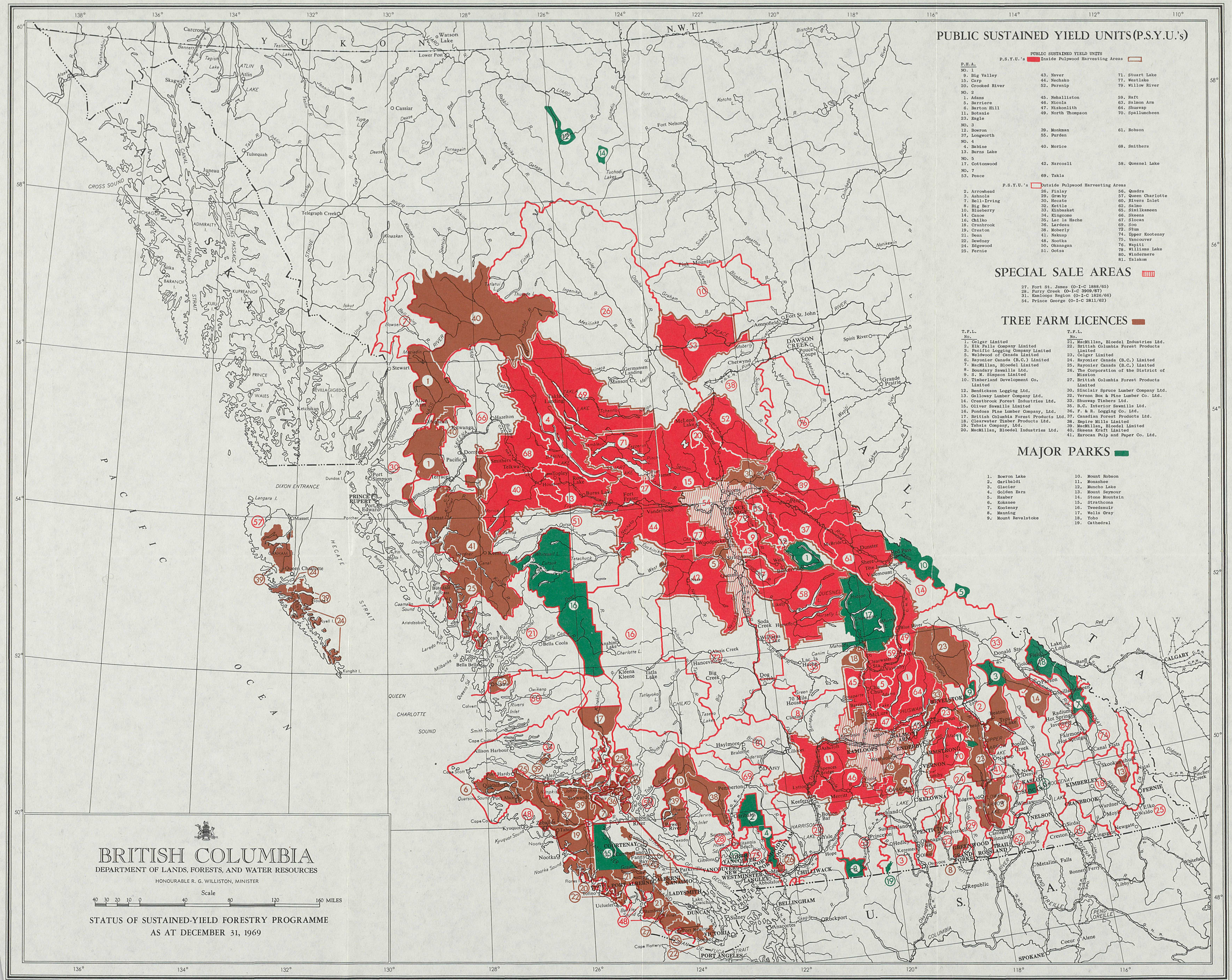
Decay studies continued in the hemlock-cedar wet belt. Compilation of previous field work has produced local loss factors for large inventories or for timber sale cruising. These are shown by forest district, public sustained-yield unit, and species.

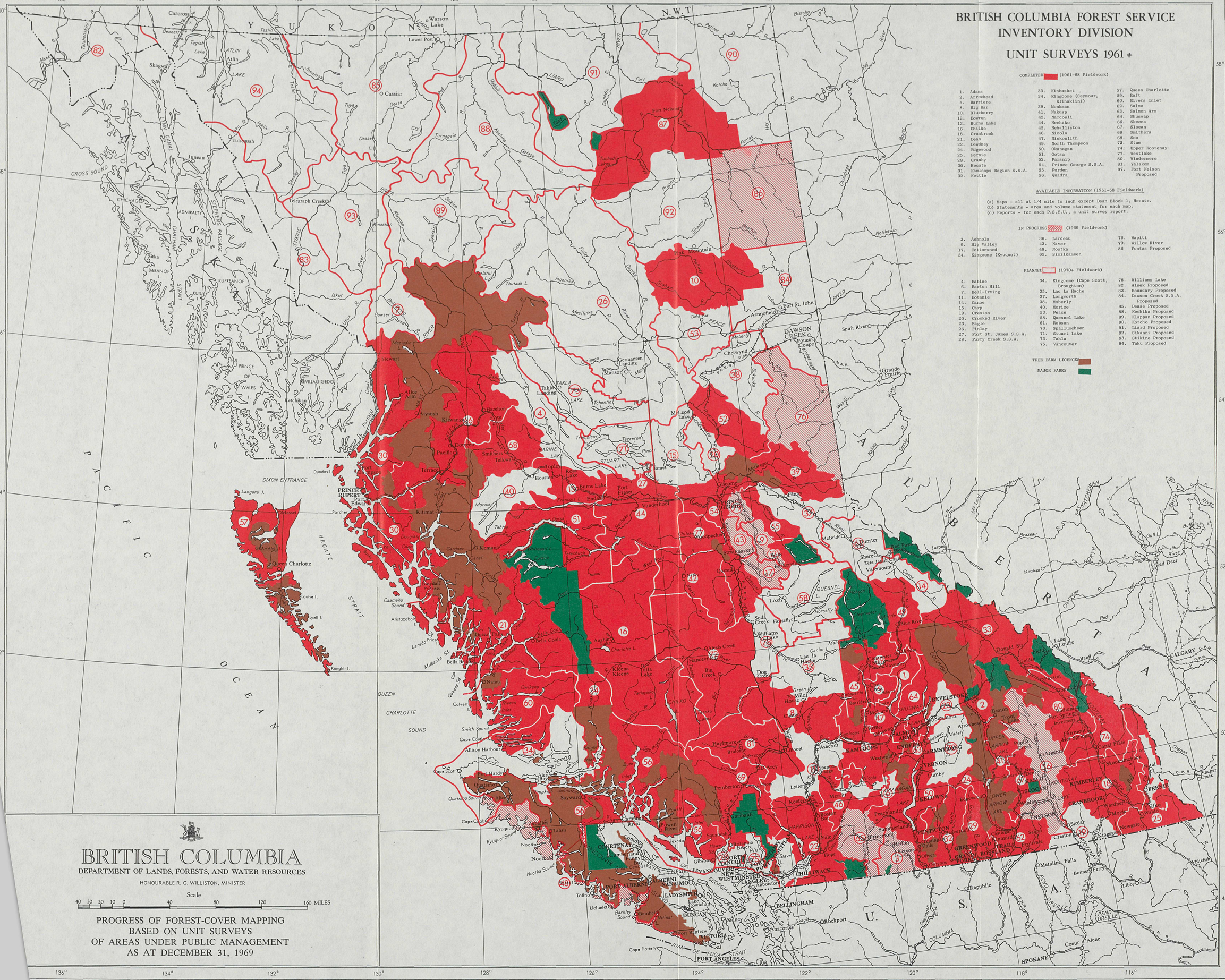
Vancouver—

Dewdney—hemlock, balsam, Douglas fir, western red cedar.
Nootka—hemlock.
Soo—hemlock, balsam, Douglas fir, western red cedar.

Prince Rupert—

Babine, Morice, Smithers—spruce, hemlock.
Bell-Irving—hemlock.
Skeena (Hazelton portion)—hemlock, red cedar.


BRITISH COLUMBIA
DEPARTMENT OF LANDS, FORESTS, AND WATER RESOURCES
HONOURABLE R. G. WILLISTON, MINISTER
Scale
40 30 20 10 0 40 80 120 160 MILES
STATUS OF SUSTAINED-YIELD FORESTRY PROGRAMME
AS AT DECEMBER 31, 1969
PUBLIC SUSTAINED YIELD UNITS (P.S.Y.U.'s)
PUBLIC SUSTAINED YIELD UNITS
P.S.Y.U.'s Inside Pulpwood Harvesting Areas
P.H.A.
NO. 1
9. Big Valley
15. Carp
20. Crooked River
NO. 2
1. Adams
5. Barriere
6. Barton Hill
11. Botanie
23. Eagle
NO. 3
12. Bowron
37. Longworth
NO. 4
4. Babine
13. Burns Lake
NO. 5
17. Cottonwood
NO. 7
53. Peace
43. Naver
44. Nechako
52. Parsnip
45. Nehalliston
46. Nicola
47. Niskonlith
49. North Thompson
39. Monkman
55. Purden
40. Morice
42. Narcosli
69. Takla
71. Stuart Lake
77. Westlake
79. Willow River
59. Raft
63. Salmon Arm
64. Shuswap
70. Spallumcheen
61. Robson
68. Smithers
58. Quesnel Lake
P.S.Y.U.'s Outside Pulpwood Harvesting Areas
2. Arrowhead
3. Ashnola
7. Bell-Irving
8. Big Bar
10. Blueberry
14. Canoe
16. Chilko
18. Cranbrook
19. Creston
21. Dean
22. Dewdney
24. Edgewood
25. Fernie
26. Finlay
29. Granby
30. Hecate
32. Kettle
33. Kinbasket
34. Kingcome
35. Lac la Hache
36. Lardeau
38. Moberly
41. Nakusp
48. Nootka
50. Okanagan
51. Ootsa
56. Quadra
57. Queen Charlotte
60. Rivers Inlet
62. Salmo
65. Similkameen
66. Skeena
67. Slocan
69. Soo
72. Sum
74. Upper Kootenay
75. Vancouver
76. Wapiti
78. Williams Lake
80. Windermere
81. Yalakom
SPECIAL SALE AREAS
27. Fort St. James (O-I-C 1888/65)
28. Furry Creek (O-I-C 3909/67)
31. Kamloops Region (O-I-C 1826/66)
54. Prince George (O-I-C 2811/62)
TREE FARM LICENCES
T.F.L. No.
1. Colgar Limited
2. Elk Falls Company Limited
3. Pacific Logging Company Limited
5. Weldwood of Canada Limited
6. Rayonier Canada (B.C.) Limited
7. MacMillan, Bloedel Limited
8. Boundary Sawmills Ltd.
9. S. M. Simpson Limited
10. Timberland Development Co. Limited
12. Bendickson Logging Ltd.
13. Galloway Lumber Company Ltd.
14. Crestbrook Forest Industries Ltd.
15. Oliver Sawmills Limited
16. Pondosa Pine Lumber Company, Ltd.
17. British Columbia Forest Products Ltd.
18. Clearwater Timber Products Ltd.
19. Zahis Company, Ltd.
20. MacMillan, Bloedel Industries Ltd.
21. MacMillan, Bloedel Industries Ltd.
22. British Columbia Forest Products Limited
23. Colgar Limited
24. Rayonier Canada (B.C.) Limited
25. Rayonier Canada (B.C.) Limited
26. The Corporation of the District of Mission
27. British Columbia Forest Products Limited
30. Sinclair Spruce Lumber Company Ltd.
32. Vernon Box & Pine Lumber Co. Ltd.
33. Shuswap Timbers Ltd.
35. B.C. Interior Sawmills Ltd.
36. F. & R. Logging Co. Ltd.
37. Canadian Forest Products Ltd.
38. Empire Mills Limited
39. MacMillan, Bloedel Limited
40. Skeena Kraft Limited
41. Eurocan Pulp and Paper Co. Ltd.
MAJOR PARKS
1. Bowron Lake
2. Garibaldi
3. Glacier
4. Golden Ears
5. Hamber
6. Kokanee
7. Kootenay
8. Manning
9. Mount Revelstoke
10. Mount Robson
11. Monashee
12. Muncho Lake
13. Mount Seymour
14. Stone Mountain
15. Strathcona
16. Tweedsmuir
17. Wells Gray
18. Yoho
19. Cathedral
YUKON
N.W.T.
ALASKA
PACIFIC OCEAN
QUEEN CHARLOTTE SOUND
DIXON ENTRANCE
HECATE STRAIT
CROSS SOUND
PRINCE OF WALES
Prince Rupert
Terrace
Kitimat
Prince George
Kamloops
Vernon
Kelowna
Penticton
Nelson
Trail
Cranbrook
Kimberley
Fernie
Revelstoke
Salmon Arm
Williams Lake
Quesnel
Vancouver
Victoria
Nanaimo
Port Alberni
Courtenay
Campbell River
Port Hardy
Port Alberni
Port Angeles
Bellingham
Spokane
Calgary
Fort St. John
Dawson Creek
Fort Nelson
Watson Lake
Whitehorse
Dease Lake
Atlin
Skagway
Juneau
Ketchikan
Sitka
Stewart
Prince Rupert
Masset
Queen Charlotte
Tofino
Ucluelet
Port Hardy
Bella Coola
Ocean Falls
Bella Bella
Kitimat
Terrace
Smithers
Hazelton
Dawson Creek
Fort St. John
Fort Nelson
Watson Lake
Lower Post
Cassiar
Telegraph Creek
Stewart
Atlin
Tulsequah
Carcross
Alert Bay
Port Simpson
Port Edward
Masset
Kunghit I.
Langara I.
Dundas I.
Lake Cowichan
Port Renfrew
Cape Flattery
Port Angeles
Bellingham
Blaine
Sidney
Victoria
Duncan
Ladysmith
Nanaimo
Courtenay
Campbell River
Port Alberni
Tofino
Ucluelet
Port Hardy
Port Alberni
Port Alberni
Port Alberni


BRITISH COLUMBIA FOREST SERVICE
INVENTORY DIVISION
UNIT SURVEYS 1961 +
COMPLETED (1961-68 Fieldwork)
1. Adams
2. Arrowhead
5. Barriere
8. Big Bar
10. Blueberry
12. Bowron
13. Burns Lake
16. Chilko
18. Cranbrook
21. Dean
22. Dewdney
24. Edgewood
25. Fernie
29. Granby
30. Hecate
31 Kamloops Region S.S.A.
32. Kettle
33. Kinbasket
34. Kingcome (Seymour, Klinaklini)
39. Monkman
41. Nakusp
42. Narcosli
44. Nechako
45. Nehalliston
46. Nicola
47. Niskonlith
49. North Thompson
50. Okanagan
51. Ootsa
52. Parsnip
54. Prince George S.S.A.
55. Purden
56. Quadra
57. Queen Charlotte
59. Raft
60. Rivers Inlet
62. Salmo
63. Salmon Arm
64. Shuswap
66. Skeena
67. Slocan
68. Smithers
69. Soo
72. Stum
74. Upper Kootenay
77. Westlake
80. Windermere
81. Yalakom
87. Fort Nelson Proposed
AVAILABLE INFORMATION (1961-68 Fieldwork)
(a) Maps - all at 1/4 mile to inch except Dean Block 1, Hecate.
(b) Statements - area and volume statement for each map.
(c) Reports - for each P.S.Y.U., a unit survey report.
IN PROGRESS (1969 Fieldwork)
3. Ashnola
9. Big Valley
17. Cottonwood
34. Kingcome (Kyuquot)
36. Lardeau
43. Naver
48. Nootka
65. Similkameen
76. Wapiti
79. Willow River
86 Fontas Proposed
PLANNED (1970+ Fieldwork)
4. Babine
6. Barton Hill
7. Bell-Irving
11. Botanie
14. Canoe
15. Carp
19. Creston
20. Crooked River
23. Eagle
26. Finlay
27. Fort St. James S.S.A.
28. Furry Creek S.S.A.
34. Kingcome (Cape Scott, Broughton)
35. Lac La Hache
37. Longworth
38. Moberly
40. Morice
53. Peace
58. Quesnel Lake
61. Robson
70. Spallumcheen
71. Stuart Lake
73. Takla
75. Vancouver
78. Williams Lake
82. Alsek Proposed
83. Boundary Proposed
84. Dawson Creek S.S.A. Proposed
85. Dease Proposed
88. Kechika Proposed
89. Klappan Proposed
90. Kotcho Proposed
91 Liard Proposed
92. Sikanni Proposed
93. Stikine Proposed
94. Taku Proposed
TREE FARM LICENCES
MAJOR PARKS
BRITISH COLUMBIA
DEPARTMENT OF LANDS, FORESTS, AND WATER RESOURCES
HONOURABLE R. G. WILLISTON, MINISTER
Scale
40 30 20 10 0 40 80 120 160 MILES
PROGRESS OF FOREST-COVER MAPPING
BASED ON UNIT SURVEYS
OF AREAS UNDER PUBLIC MANAGEMENT
AS AT DECEMBER 31, 1969
PACIFIC OCEAN
ALBERTA
U.S.A.
YUKON
N.W.T.
QUEEN CHARLOTTE SOUND
DIXON ENTRANCE
HECATE STRAIT
PRINCE OF WALES I.
PRINCE RUPERT
DAWSON CREEK
PRINCE GEORGE
VANCOUVER
VICTORIA
KAMLOOPS
KELOWNA
CALGARY
SPOKANE

Kamloops—

North Thompson, Raft—hemlock, western red cedar.

Prince George—

Monkman—spruce, balsam.

Zonal diameter class loss factors are available for areas and species not covered by local factors.

The growth and yield section, using temporary and permanent immature growth samples, has produced an additional 69 local volume-over-age curves and 71 local diameter-over-age curves. The former provide mean annual increment and the latter average tree diameters for growth types at any stand age. A total of 148 permanent growth plots, established in the southern coast bioclimatic region in 1968, were processed.

DEVELOPMENTS

During 1969, forest land in 11 public sustained-yield units was gazetted as Forest Reserves, to be known as the Adams, Barriere, Big Valley, Bowron, Narcosli, Naver, North Thompson, Purden, Raft, Westlake, and Willow River Forests. Another 13 Forest Reserves were being processed for approval.

Studies on 70-mm. fixed-base photography continued, and tests with a new camera boom and the Wild A-40 autograph plotter proved to be an economical way to obtain inventory data.

Measurements from pictures of the limited operational test in the Wapiti P.S.Y.U. provided useable results.

Public sustained-yield units scheduled for inventory work in 1970 are the Barton Hill, Botanie, Nicola, Moberly, Stuart Lake, Vancouver, proposed Kotcho, proposed Stikine; and the Furry Creek and Fort St. James Special Sale Areas.

Work to strengthen zonal species, zonal and local loss factors (net volume factors) for each 2-inch diameter class will continue in over-mature hemlock and cedar stands in the Kinbasket. A loss study of commercial species north of the 56th parallel of latitude in the proposed Stikine P.S.Y.U. will commence in 1970.

It is also planned to establish permanent growth samples in the Nechako-Fraser plateau region.

research division

RESEARCH DIVISION

A detailed report on the research programme for 1969 will appear in the annual Forest Research Review compiled at the end of the fiscal year.

TREE IMPROVEMENT STUDIES

At the Cowichan Lake Experiment Station, the preparation of land for clone-bank use continues, with 30 additional acres being cleared.

A fourth series of intraspecific crosses of Douglas fir were established on two test-sites on Vancouver Island. A total of 4,533 seedlings was planted in the spring. Survival on completion of the first growing season was 98 per cent. Measurements of current growth and total height were taken on the 12 test-sites established in 1966 and 1967. In spite of browsing and disease, survival and growth are satisfactory.

There were not sufficient male and female strobili in the breeding arboretum at Cowichan Lake for any pollinations to be made. A further 56 provenances of Douglas fir from Mexico, Arizona, New Mexico, California, Utah, Colorado, Wyoming, Oregon, Washington, Idaho, Montana, and British Columbia were established in the arboretum.

A paper was given at the Second World Consultation on Forest Tree Breeding held in Washington, D.C.

In a provenance study of coastal Douglas fir, three additional test-sites were established over a broad range of climate. A total of 80 acres has now been planted in this project. Ten additional test-sites were selected and prepared for planting in the spring of 1970.

In a species trial, Sitka spruce and western hemlock performed better, in terms of both survival and height growth, than all other species tested. Performance of western red cedar and 10 Douglas fir provenances was poor, due primarily to heavy browsing by deer.

Use of Arcotal as a deer repellent appears promising from preliminary tests.

The research nursery and greenhouse was completed at the Red Rock Nursery and Research Centre near Prince George. A start has been made in the preparation of a clone-bank area.

Progress of the Interior spruce improvement programme proceeded satisfactorily in 1969—930 scions from 176 selected trees were grafted onto potted spruce rootstock in April, of which 634 (68 per cent) were still alive in September.

Wind-pollinated seed from all selected trees were spring-sown in the research nursery. The seedlings are growing well and will be used for a small-scale progeny trial when they become plantable.

During the summer, 132 additional trees were selected in the East Kootenay region of the Nelson Forest District. Scions were collected in the fall from each and grafted in the greenhouse in November. A total of 378 grafts were made.

Twenty-six lots of seed, representing 12 different species of spruce, were sown in flats last winter and grew well during the summer. They will be outplanted in 1971 in our northern picetum at Red Rock.

Lodgepole pine, of 144 provenances and 147 wind-pollinated families, was sown in research nurseries at Cowichan Lake and Red Rock. Detailed assessments of morphology and growth behaviour were made and striking differences are already apparent. A breeding arboretum at Red Rock wil contain material selected from

these sowings, together with selections from supplementary sowings of 645 half-sib families.

The form and structure of cones and needles from field collections are being examined in the laboratory to determine the pattern of variation in wild populations.

DATA PROCESSING

Almost all research data are processed through the computing facilities of the Data Processing Centre, using our statistical programmes.

Most of our field and laboratory data are directly recorded onto 80-column recording forms, eleminating copying errors and extra work.

Computer programmes have been developed to plot graphs, response surfaces, and perspective projections, offering visual interpretation to some experimental results.

The process of random allocation of experimental units has been simplified by a computer-generated randomization process.

An objective assessment of plant ecological samples is achieved by using a computer programme that divides samples into groups of similar composition.

The Kamloops and Prince Rupert Forest Districts have completed coding data required for stumpage-adjustment programmes. The data have been forwarded to Vancouver, punched on cards, and added to the disk file records. Modifications were made to programmes to cater to local variations in methods, and all adjustments are now done in Vancouver.

Since early 1969 all Prince Rupert Coast tallies have been computed in Vancouver and programmes have been modified to rate and print accounts for the Prince Rupert Forest District.

Assistance has been given the Management Division in investigating and documenting the present system of handling weight-scaling as a first stage in organizing computer programmes.

SEEDLING PHYSIOLOGY STUDIES

Work on mineral nutrition of Douglas fir and Sitka spruce has resulted in the establishment of tissue N, P, and K limits of 1–0 nursery stock necessary for satisfactory growth. It was noted satisfactory growth of a species may occur when tissue nutrient concentrations vary between quite wide limits. Evidence was obtained to show this may be partly due to inherent differences in mineral nutrient concentration related to provenance.

Controlled environment work confirms that short photoperiods and cool nights hasten development of frost hardiness in Douglas fir seedlings. On the other hand, subjecting seedlings to moisture stress does not increase frost hardiness and, under short photoperiods, reduced water supply may even retard hardiness development.

SOIL CLASSIFICATION

It has been previously reported a soil classification system was developed with the intent to use it for interpreting tree response to various management practices. A study has been completed of two industrial fertilizer experiments. In one case different soils showed different growth response to varying amounts of the same fertilizer. In the second case it was impossible to segregate a response to urea because of technical problems associated with variable stand conditions.

A new study was initiated with industrial co-operation in which the major soils of the San Juan valley, Vancouver Island, were mapped. An attempt will be made to interpret the soils for management and silvicultural purposes.

ECOLOGY

A new method of analysing association tables of vegetation data by a computer programme is being tested. If successful, the method will simplify site classification by vegetation.

CANADA LAND INVENTORY

The Research Division continues to be associated with several Provincial and Federal organizations in the British Columbia programme of the Canada Land Inventory by participating in the Intersector Analysis Committee. A field project was undertaken to assess the role of aspen for rating the capability for forestry in northern areas characterized by an absence of coniferous species.

SILVICULTURE

VANCOUVER

The study of Douglas fir planting stock on high-site lands subject to dense plant cover (initiated in 1962) was completed. Although no brush competition developed, the study showed large stock and transplant stock grew faster and reached a greater total height than did the small stock and 2–0 stock. An experiment, established in the Sayward Forest in 1948 to compare large and small stock was remeasured to support or refute the results reported above and provide data for economic analysis.

A 10-year study of seedfall of western hemlock, western red cedar, and amabilis fir on the West Coast of Vancouver Island was terminated. It showed that seed crops, germinative capacity, and time of seedfall were all irregular. Heavy crops were recorded in 1959/60, 1966/67, and 1968/69. In general, germinative capacity varied in direct proportion to the size of the seed crop, and the time of hemlock seedfall was much more clearly definable than cedar.

The second in a series of plots comparing bare-root and mudpack seedlings was established at three locations on the coastal Mainland. Planting was carried out at regular intervals throughout the spring, summer, and fall. Preliminary results from the 1968 test indicate mudpack seedlings have no advantage in terms of survival, regardless of time of planting.

The schedule of spacing and thinning, commenced in 1952 and 1959 in two 13-year-old Douglas fir plantations, was continued at Cowichan Lake and Campbell River. Twenty-five experimental plots were thinned and 47 remeasured. The plot management is providing samples of different levels of growing stock which have formed as the results of various combinations of early, delayed, single, or repeated thinnings. The research is giving new knowledge of the relative values and relationships of height/diameter breast height from the excessive densities of 2,000 or 3,000 trees per acre to that of free-growing individuals (q.v., *Research Review,* 1969, p. 93).

PRINCE RUPERT

Two new research projects were initiated. The major study was a Province-wide co-ordinated investigation of container, bare-root, and mudpack planting of lodgepole pine and Interior white spruce. The spruce replications are established near Chapman Lake, while the pine blocks are located south of Burns Lake.

The second project compares spring-lifted, cold-stored lodgepole pine seedlings, when planted at different periods during the summer season. Test areas are located near Hazelton and Chapman Lake.

Prince George

Study of the feasibility of planting white spruce throughout the growing season was continued on a high site near McLeod Lake north of Prince George. Despite a dry May and June, 1969 survival of seedlings planted in 1968 remained above 80 per cent for all plantings. The second annual replication was established during the summer of 1969, and assessment in autumn indicated the high level of survival with freshly lifted bare-root stock can be achieved provided stock is handled with reasonable care. Planting will be continued during the summer of 1970. Early results indicate it may be practical to plant 2–0 bare-root white spruce throughout most of the summer in fresh to moist sites in the central Interior.

Kamloops

A new rehabilitation study in overmature decadent cedar-hemlock stands was started near Mabel Lake, where approximately 600 acres were downed and are ready for burning in 1970.

Plantings of 2–0 and 2–1 bare-root stock and 2–0 stock with roots encased in mudpacks were made at two-week intervals between mid-May and early August in the Southern Interior. These were to determine whether planting of stock with roots protected by mudpacks might be a method of extending the normal spring planting season. These studies showed that, regardless of the drought conditions and date of planting, survival of both Engelmann spruce and Douglas fir bare-root stock was better than that for mudpacked stock The failure of mudpacked stock to respond as expected may have been partially due to method of storage and to the mudpacking operation.

Nelson

The rehabilitation study in overmature decade stands of cedar and hemlock continued. In the Blaeberry valley, planting has commenced.

A second annual replication of a study in extending the planting season in the Engelmann spruce zone saw plantations established at Monk, Rodd, and Cedar creeks at intervals during the entire snow-free period.

Preliminary results of a comparison of mudpack and bare-root spruce and fir seedlings indicate that mudpack seedlings have a poorer survival and are selectively preferred by rabbits. The poorer survival of the mudpacks may be due to storage conditions.

reforestation division

REFORESTATION DIVISION

FOREST NURSERIES

Adverse weather conditions affected all phases of nursery operations early in in 1969, delaying lifting, sowing, and transplanting. Snow arrived before low temperatures, however, and nursery stock was protected. Winter losses were light, except for Sitka spruce seed beds killed by frost heaving. A late spring resulted in 1,000,000 trees being heeled-in and held over for fall planting.

Rainfall during the growing season was light, and this, coupled with late sowing, created a critical period for germination. As a result, inventories of 1–0 stock indicate a 17-per-cent reduction with western hemlock and coastal-sown spruce inventories about 50 per cent. It is unlikely the planned production of 54.5 million trees will be achieved in 1971.

Except for the Telkwa Nursery, all seed was drill-sown in 1969. A total of 663,178 lineal feet of seed bed (13,264 beds) was sown, including 44,570 lineal feet sown in the fall of 1968. An additional 87,050 lineal feet of bed was sown in the fall of 1969.

Forest Service nurseries shipped 28,520,516 trees in 1969. Approximately 67 per cent of these were coastal Douglas fir, an increase of about 8,000,000 trees over 1968.

At the Surrey Nursery, first sowings were made in 1969, but late spring and other problems produced limited success.

A serious weed and root-disease problem was encountered at the Duncan Nursery.

Vandalism occurred at several nurseries, the most serious at Surrey Nursery.

IMPROVEMENTS

Development continues in the nursery programme with sites and facilities being prepared for the annual production of 75,000,000 trees by 1975.

Most of this work is under way at new nursery-sites located at Red Rock, Chilliwack, Surrey, and Campbell River, where " instant " nurseries are being created.

New cold-storage facilities at Red Rock, Chilliwack, Campbell River, and Rayleigh Nurseries will have a combined storage capacity of about 12,000,000 seedlings. A second unit with a capacity of 3,000,000 trees was started at Red Rock.

At Campbell River, Red Rock, and Surrey approximately 90 acres were cleared for seed bed and transplant area, and an additional 35 acres were ploughed at the Surrey Nursery.

At Chilliwack, fencing, drains, and power-lines were installed; and at Campbell River irrigation mains and a water system were completed. At older nurseries the improvement programme continued at a reduced rate.

FOREST TREE SEED

No major collectable crops were reported in 1969. Approximately 3,800 bushels of lodgepole pine were harvested.

Extraction of the 11,931 bushels harvested by the Forest Service in 1968 was completed during 1969 and provided 2,264.400 kilograms of seed. An additional 755.862 kilograms were delivered to storage by industry.

Seed yield from the 1968 collection was:—

Kilograms of Seed Extracted in 1969

Forest District	Douglas Fir	Sitka Spruce	Interior Spruce	Lodgepole Pine	Other Species	Total
Vancouver	66.865	.....	6.510	.....	.....	73.375
Prince Rupert	124.685	35.985	45.330	47.035	.....	253.035
Prince George	175.760	.....	645.380	9.570	0.835	831.545
Kamloops	405.640	.....	43.565	.....	.....	449.205
Nelson	413.060		228.255	.....	15.925	657.240
Forest Service	1,186.010	35.985	969.040	56.605	16.760	2,264.400
Industry seed to storage	547.157	79.245	120.245	0.315	8.900	755.862

At the Campbell River Seed Orchard, grafted stock losses were replaced with half-sib seedlings. Approximately 7,000 half-sib seedlings were transplanted at Duncan for replacement stock at Campbell River, stock for a Mainland high-elevation orchard, and stock for a North Coast orchard.

Sixty thousand container-grown seedlings (primarily Douglas fir) from 470 genetic crosses were produced at the Duncan container nursery for co-operators on the Tree Improvement Board.

Seed handled at the Duncan seed centre for sowing in 1969 amounted to 1,156.622 kilograms (2,545 pounds).

Kilograms of Seed Sown in 1969

	Coast Douglas Fir	Interior Douglas Fir	Western Hemlock	Sitka Spruce	Interior Spruce	Lodgepole Pine	Other Species	Total
Spring	636.864	64.676	25.888	33.419	160.835	30.603	54.868	1,007.153
Fall	57.538	1.333	5.051	5.972	79.575	.....	.....	149.469
Total	694.402	66.009	30.939	39.391	240.410	30.603	54.868	1,156.622

The seed centre conducted 856 seed tests during 1969.

The tree-seed inventory on December 31, 1969, was 16,550.031 kilograms (almost 19 tons). Critical seed shortages exist in the Prince Rupert and Kamloops Forest Districts and at higher elevations in the Vancouver Forest District.

PLANTING

Planting reached a new high in 1969, and despite an extended planting season, it was necessary to heel-in and store approximately 3,000,000 trees planned for planting during 1969.

Of the 25,733,800 trees planted on 66,979 acres, the Forest Service planted 9,598,900 trees (37 per cent) on 22,188 acres. Crown planting in the Interior almost doubled 1968 and for the first time exceeded Crown planting on the Coast. (*See* Summary of Planting, Table 22 in the Appendix.)

On the Coast, because of inclement weather, approximately 580,000 trees allocated for spring planting were heeled-in and carried over to the fall. In the Vancouver Forest District, 10 contracts totalling 917,000 trees were issued.

Production planting trials with mudpack stock in the Vancouver District continued in 1969 and some 631,000 mudded trees were planted in 13 locations. Performance of mudpacked seedlings still varies according to planting conditions

and further trials are necessary to properly evaluate this type of stock. Effects of late lifting are a major factor in survival of this stock.

In the Interior districts, high temperatures and low rainfall during May and June reduced the survival and initial growth of plantations established during the spring. However, cool, moist weather late in the growing season offset this effect and fall planting areas were in prime condition.

Interior planting on Crown Lands reached a record of more than 5,000,000 trees in 1969. Planting contracts, issued for the first time in the Interior, totalled over 900,000 trees. All contracts were successfully completed and an additional 11 contracts were advertised for the spring of 1970.

Planting-out trials with containerized seedlings continued in 1969 with nearly 50,000 plants set out in six locations of the Vancouver District over a period of seven months. These trials are to determine the survival of this stock type in relation to bare-root and mudpack seedlings when planted at different periods during the frost-free season. Their application to high-elevation planting areas is of particular interest.

Detailed records of planting conditions and seedling performance are kept up-to-date by constant plot re-examination. General observations to date are encouraging and indicate containerized seedlings may be successful in extending the planting season. The quality and size of the containerized seedlings are significant factors of survival and it is probable " plugs " (contents of the container) planted without the container may be even more successful. Formal trials with containers and mudpacks were initiated in all Interior districts to determine the extent and significance of differences related to time of planting and ground conditions. This technique of raising planting stock opens up an extensive field of investigation. Present trials involve considerable time in nursery production, outplanting, assessment work, and evaluation of results.

In the 1969 planting programme, field crews established 7,388 semi-permanent survival sample plots, and an additional 9,033 plots established in earlier plantations were re-examined.

In co-operation with the Research Division, a direct seeding project was conducted early in 1969 in the Cedarflat Creek drainage area, where 600 acres of burned cutover land were seeded with 450 pounds of treated Douglas fir seed.

RECONNAISSANCE AND SURVEY WORK

With emphasis on the planting of current not-satisfactorily restocked lands and recently denuded areas, the need for formal regeneration surveys has diminished.

During 1969, crews in the Vancouver District examined 22,979 acres of current logging and prepared prescriptions for 60 per cent of this area—about 13,800 acres. In addition, 13,000 acres of backlog area were examined and of this, 8,137 acres (62.2 per cent) required planting, including 700 acres requiring site preparation prior to planting.

In the Prince George District, regeneration studies were conducted on machine-scarified areas before or after logging. A total of 25,135 acres were examined, and 2,674 acres were not satisfactorily stocked. Further site preparation is needed on 806 acres, while 580 acres are readily plantable. The balance of the understocked area is unplantable. About 90 per cent of these scarified areas are adequately restocked and this reflects the value of recent seed crops in this district.

Survey crews in the Nelson District examined 29,744 acres in 1969 and found 12,620 acres (42.5 per cent) needed restocking. Of this area, 3,510 acres require site preparation, while 4,400 acres are readily plantable.

Regeneration studies were made on 5,416 acres in the Prince Rupert District, and of the understocked 1,962 acres (36 per cent), 1,158 acres require site preparation before planting.

All districts are reviewing existing backlog and current areas to determine future reforestation requirements.

CO-OPERATION

Divisional personnel co-operated with the Canada Department of Fisheries and Forestry in developing a container seedling system. A small pilot nursery was established at Duncan to produce container seedlings for the 1969/70 field trials. Considerable progress was made in the production of these plants with regard to facilities required and in determining suitable nutrient schedules for incorporation in irrigation procedures.

Other Forest Service divisions have helped the reforestation programme. Training of field staff in the districts has contributed considerably to a spirit of co-operation, which in turn has increased nursery production.

Forest nurseries are becoming increasingly popular with the public, and nurserymen are now scheduling tours.

Training instruction continued at the University of British Columbia and at the Forest Service Training-school.

INTERDEPARTMENTAL FORESTRY AND CORRECTIONS CAMP PROGRAMME

Severe weather early in 1969 affected the work programme, but camps operated at near capacity and by the end of the year most projects were on schedule.

Training of corrections officers determines the success of this co-operative programme; and classes in fire suppression and reforestation again proved beneficial. For the first time, Forest Service personnel instructed inmates in log-scaling and four candidates received scaling licences.

Nursery work occupied most man-days, but the highlights of the year were the achievements of inmate fire-suppression crews which helped fight 23 fires. The largest was the " Rock " fire near Wellbore Channel, where about 40 inmates worked on initial action and mopping-up operations.

Inmate crews continued their major role in development of new nurseries in the Chilliwack Valley, Campbell River, Alouette River, and Red Rock areas. Their work embraced clearing, burning, fencing, installation of irrigation and drainage systems, soil preparation, and the construction of equipment and storage sheds. Inmates were involved in nursery production and they transplanted nearly 1,000,000 seedlings and lifted almost 3,000,000 trees for shipping to planting projects.

Priority was given to nursery work and not all camps handled field planting. Inmate crews planted 128,000 trees on 220 acres during 1969.

Approximately 200 bushels of lodgepole pine cones were collected by men from the Hutda Lake and Clearwater camps.

Correction camp crews maintained and improved many miles of roads and trails in the Chilliwack, Blue Mountain, and Sayward Forests. More than 6 miles of road were improved in the Naver Forest by a crew from Prince George Regional Gaol.

Recovery of usable wood from river jams, lakeshore rehabilitations, blowdown, and right-of-way cleanup enabled camp sawmills to produce more than 500,000 board feet of lumber. This was used for camp buildings and for the construction

of buildings and bridges. Shakes, shake-bolts, fence-posts, stakes, and slab wood for camp use were also produced at the inmates' camps.

Crews were also active on other projects, such as campground servicing and cleanup, maintenance work at Ranger Stations, clearing brush for experimental planting, and small construction projects. One crew from the Kamloops Regional Gaol built 16 miles of fence on the Sullivan Valley range improvement project.

Establishment of a new 60-man camp at Pine Lake in 1969 proves the success of this programme—in terms of both achievement and human betterment.

information division

INFORMATION DIVISION

Increased production in practically all avenues of public communication was among highlights of 1969 for the Information Division, formerly known as the Public Information and Education Division.

In addition to increasing its output of news releases, magazine articles, special features, radio broadcasts, and several television shows, the Division also developed a stronger liaison with forest resource industry, business, and other related organizations.

Its public relations programme was aimed at both internal and external audiences; and the broadened scope of operations resulted in one Information Officer being added to the staff.

The Division was also responsible for the creation of a new Forest Service symbol.

PHOTOGRAPHY

Production increased in 1969 and, to cope with expansion in colour-slide production and heavy demands for prints, little time was devoted to motion-picture work. A large portion of laboratory work went to commercial photo-finishers, enabling the staff to handle technical assignments.

A total of 17,218 prints was made, 908 of these being colour. More than 6,000 prints accompanied news releases.

The photographic library added 455 black-and-white negatives, 500 colour negatives, and 539 35-mm. slides.

A total of 3,357 duplicate colour 35mm. transparencies was made during the year, representing a major portion of the section's work. Ten copies of the 120-slide presentation " Fire Season " were made for the five forest districts. A second show, comprising 80 slides, was produced (" Logs to Osaka ") and 14 copies were made.

A show illustrating Peace pondage-clearing is nearing completion, and will be sound-taped early in 1970. Preliminary work was done on a slide presentation dealing with slash disposal.

Major assignments included coverage of the Mica and Libby pondage-clearing projects, and close utilization illustrations in the Nelson Forest District.

Facilities are still provided for processing X-ray films for the Research Division.

Heavy demand continues for 70-mm. film positives, with 3,050 being produced.

MOTION PICTURES

Neither funds nor time were available for a full-scale motion-picture production programme. A total of 3,000 feet of colour 16-mm. film was shot.

A special assignment in the Terrace-Kitimat area required footage for use in local fire-prevention messages. Footage of women planters at work in the Hope area was used during a television programme on reforestation.

Two 25-second and one 55-second fire-prevention clips were distributed to television stations throughout the Province for use during high fire-hazard periods.

Four subjects photographed in 1968 were sounded—all produced for the Inventory Division's safety training programme. One, "Axe Facts," won the Canadian Forestry Association award in the training-film category, held at this year's Pacific National Exhibition; and an award of distinction in the International Festival of Forest Fire Control films, sponsored in Ottawa by the F.A.O.

LIBRARY

The librarian visited the Prince George District to help organize material available for foresters in that area.

The mailing-list for the monthly accession list now totals 390. They are sent to personnel of the Forest Service, industry in British Columbia and Alberta, and to consulting foresters in British Columbia. From these lists the library received about 1,500 requests per month.

FILM LIBRARY

Throughout 1969 the Forest Service film library issued 1,065 films on loan—and they were seen by a combined adult and student audience of 252,428. These figures compare with 833 loans and 217,847 viewers the previous year.

The films were used by a wide variety of organizations throughout Canada and the United States, and included forest district staffs, universities, technical schools, service clubs, and schools of all grade levels.

It was difficult to find appropriate subjects for inclusion in the library. Of 37 films from outside sources which were previewed, only four were selected. A total of 33 films were added to the library during 1969, of which 29 were Forest Service productions.

DISPLAYS

The reforestation unit of a new exhibit was installed in the British Columbia Building at the Pacific National Exhibition during 1969. It's a permanent display, which will also feature a research presentation.

At the Pacific National Exhibition's Festival of Logging, the Forest Service lookout tower attracted more than 24,000 visitors.

A special display featuring close utilization of forest resources was exhibited at the annual meeting of the Canadian Institute of Forestry held in Prince George. The display was also used at the Pacific Logging Congress in Vancouver.

EDUCATION

The libraries of 68 schools were provided with Forest Service information material; a number of schools were visited, and where time permitted, lectures were presented.

Revised editions of the *Illustrated Forest Activities* pamphlet series were distributed to schools throughout the Province, and will be used in a resource reader being prepared by the British Columbia branch of the Canadian Forestry Association.

FOREST SERVICE MUSEUM

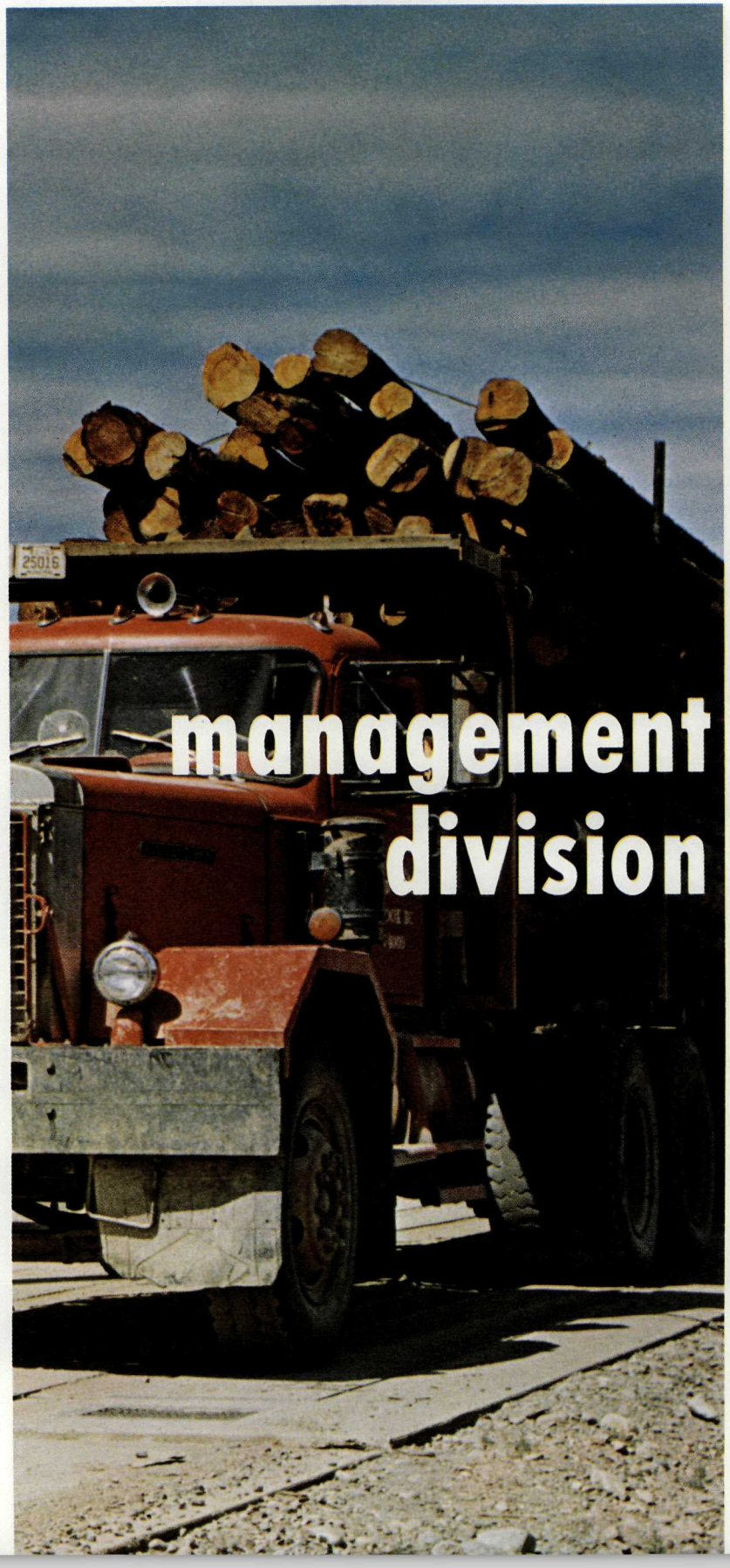
Late in 1969, Information Officer D. E. Adderley assumed duties of honorary curator of the museum. Some items have been catalogued and stored; and it's hoped to have a display area soon for the various Forest Service artifacts.

SIGNS

With the introduction of a new symbol, a number of Forest Service signs are being redesigned. A prototype of the new Ranger Station sign will be ready early in 1970, and new signs for other purposes will replace old designs when time and funds permit.

ADVERTISING

Again in 1969, paid advertising was restricted to " public-awareness messages " relating to the fire season. Approximately 40 radio stations throughout the Province carried such announcements between late June and early September.



management division

MANAGEMENT DIVISION

While all other parts of the Province registered increases in over-all production, the Vancouver District showed a drop in the total amount of timber scaled in 1969, off 1.5 per cent.

The Nelson Forest District recovered from the low of 1968 due to the 1967/68 I.W.A. strike in the Southern Interior.

The timber scale for all products was up 52.5 per cent. This, together with strong increases in the Prince George and Kamloops Forest Districts, gave a total Provincial scale of 1,890,052,232 cubic feet, an increase of 11 per cent over 1968 production. Of this increase, the Interior of the Province contributed 94.6 per cent, and supplied 47.4 per cent of the total scale of the Province.

There was a marked increase in the number of operators in the Prince Rupert, Prince George, and Kamloops Forest Districts converting to timber sale harvesting licences and close-utilization operations during the year. A number of " third band " sales were awarded during the year and, in some sustained-yield units this meant the full allowable annual cut to close-utilization standards was committed.

The general trend to close-utilization operations was emphasized by the increase in the number of mills which added chipping and barking facilities during the year. At the end of 1968 there were 186 mills with chippers, and this figure had remained relatively constant for three years. In 1969 there were 41 new chippers added and 30 new barkers. The reported production of 5,609,974 units of chips was an increase of nearly 900,000 units over the 1968 figure. With conversion of logging operations to close-utilization standards, operators have found it necessary to install milling facilities capable of economically processing the smaller logs.

It was the first full year that waste-assessment procedures were applied throughout the Province. When an area has been logged, sample plots are established by inspecting officers. Standing and felled material included in the sampling depends upon the contract utilization specifications. The individual pieces measured are also classified as to whether they were " avoidable " or " unavoidable." All volumes measured are recorded against the allowable cut for the timber licence and " avoidable " volumes are billed monetarily in accordance with contract conditions.

An epidemic of spruce bark beetles, found in 1968, spread considerably in the Fernie and Cranbrook P.S.Y.U.s, with some outbreaks doubling in area. A number of Forest Service sales were being processed at the close of the year.

Where the form of tenure held by a purchaser or occupier of Crown land does not give authority to cut and remove timber on the area, a licence to cut may be issued under section 24, of the *Forest Act*. The checking, issuance, and inspection of these licences has added measurably to the work load in some districts. Some 680 licences were issued or renewed during the year, 375 of them in the Prince George District. The demand for agricultural land in the Quesnel-Prince George-Vanderhoof area has been responsible for the majority of licences, but mining exploration and development work throughout the Province has created a considerable demand for licences to cut.

MARKET PRICES AND STUMPAGE TRENDS

Lumber prices generally continued to increase through the first quarter of the year, hit their peak in March, then dropped back. The year-end prices were $40 to $50 per MBM below the levels reached in March.

Log prices increased through the first quarter, peaked in May, then fell off to stabilize approximately at the January, 1969, level.

Stumpage prices followed the market to record highs in the first part of the year, then fell off with the market. Notwithstanding the sharp decline in the market, average stumpage prices for the year were significantly higher than in previous years.

The average price bid for Crown timber was $9.02 per 100 cubic feet, which compares with an average $6.26 in 1968, and the averages for the years 1963–67, inclusive, when stumpage rates were $3.36, $4.09, $4.20, $4.25, and $3.21 respectively per 100 cubic feet.

The weighted average price per 100 cubic feet for licences sold in the Interior increased from $5.86 in 1968 to $8.84 in 1969, and the comparable average price on the coast increased from $7.38 to $9.60.

The average stumpage-price detail shown in Table 63 in the Appendix includes the volume sold at "salvage value only" rates, plus the volumes included in close-utilization licences and cutting permits at a standard 55 cents per 100 cubic feet.

The average stumpage price per 100 cubic feet for all species, excluding close utilization and salvage wood, was $10.20 on the Coast, compared with $7.49 in 1968 and $11.20 in the Interior, compared with $7.41 in 1968.

STUMPAGE ADJUSTMENTS

As a result of the violent fluctuations in average market values, there were a total of 22,728 upward stumpage adjustments, followed by 27,309 downward adjustments. The stumpage adjustments are now processed through the data processing equipment in the Vancouver office.

SUSTAINED-YIELD PROGRAMME

Public Sustained-yield Units

As indicated by Table No. 50, there was no change in the number of public sustained-yield units during 1969, but over-all statistics have altered as a result of new inventories for some units. An error in 1968 statistics has been corrected by transfer to the Prince George Forest District of the area and allowable annual cut of that portion of the Chilko P.S.Y.U. within that district. A corresponding reduction has been made in these statistics for the Kamloops District, but to avoid an error in the total number or units in the Province, the unit has been included in the Kamloops list only.

The programme of conversion from timber sale licences to timber sale harvesting licences continued, as more licensees realized the advantages of the conversion and their operations approached the condition where conversion to close utilization would be feasible.

In conjunction with this programme, and as chip markets have developed in some Interior units to the extent that conversion to complete close utilization in logging and manufacturing has become feasible the Forest Service has undertaken the distribution of the portion of the close-utilization cut not previously committed in those units.

In view of the heavy demand for land for agriculture and settlement, it has become necessary to gain better control of the alienation of forest land and, to accomplish this, the Inventory Division has undertaken a programme of creating

forest reserves over the areas included in public sustained-yield units. It is not the intention of the Forest Service to impede the alienation of arable land or land legitimately required for settlement, but rather to control haphazard settlement and the alienation of forest land which will be of marginal value for agriculture.

During 1969, forest reserve status was approved for 13 public sustained-yield units, nine of which had previously been designated as pulp-harvesting forests. This reduced the number of pulp-harvesting forests to 13.

CERTIFIED TREE FARMS

Certificates were cancelled for two tree farms, one on sale of the property and one by request of the owner, while one new tree farm was certified. The total number of tree farms was reduced from 45 to 44, as indicated by Table 48. There have also been additions and deletions of area included in existing tree farms and, as additions have exceeded deletions, a slight increase in area and productive capacity has resulted.

TREE-FARM LICENCES

The utilization and production of wood continues to improve on tree-farm licences as 25 licensees log to close-utilization standards. The allowable cut for all licences now totals 543,257,000 cubic feet.

During the year, 10 new working plans were submitted and reviewed.

The amalgamation of Tree-farm Licences 8 and 11 has been completed. The amalgamation of Tree-farm Licences 1 and 40 and the extension of Tree-farm Licence 2 are under negotiation.

SILVICULTURE

Silviculture treatments and methods continue to evolve with the trend to larger clear-cuts. Partial stand treatments remain, however, in most Interior regions supplemented by machine-scarification, using a blade or dragchain and other post-logging treatment such as cable downing of residual trees, burning, and planting where necessary.

A reduction in the scarification programme for natural regeneration was necessary because of the poor seed-year. Drag scarification in lodgepole pine and mechanical site-preparation (M.S.P.) for planting in spruce-balsam accounts for most of the 2,949 acres done in 1969. The total scarification by all agencies in the Prince George District since such treatment was initiated is now 100,452 acres.

The rehabilitation projects in the Noisy Creek drainage and Blaeberry River Valley continued, and 545 acres were treated in Noisy Creek. The treatments include downing with chain, cat blade, and power saw, together with other secondary treatments such as windrowing, bunching, and planting trails. Planting and seeding projects will continue in both projects in 1970. A final report on the project embodying a benefit-cost analysis should be available in 1972.

SCALING

Conversion from manual scaling to weight-scaling continued in 1969, as illustrated by the number of new weigh-scales established during the year.

Forest District	Number of Weigh Scales by December 31st—				
	1965	1966	1967	1968	1969
Vancouver	1	1	5	5	4
Prince Rupert	1	1	8	10	16
Prince George	9	16	21	27	31
Kamloops	4	12	17	19	20
Nelson	1	3	4	20	20
Totals	16	40	55	81	91

The conversion is further illustrated by the increase in volume being weigh-scaled. In 1968, of the total sawlog production in the Prince George District, 56 per cent was weigh-scaled. In 1969 the figure rose to 67 per cent. In Nelson the percentage rose 10 points to 60. By the end of the year the percentage had risen to 50 in Prince Rupert and is expected to go to 80 in 1970.

FLOOD BASINS

Peace River

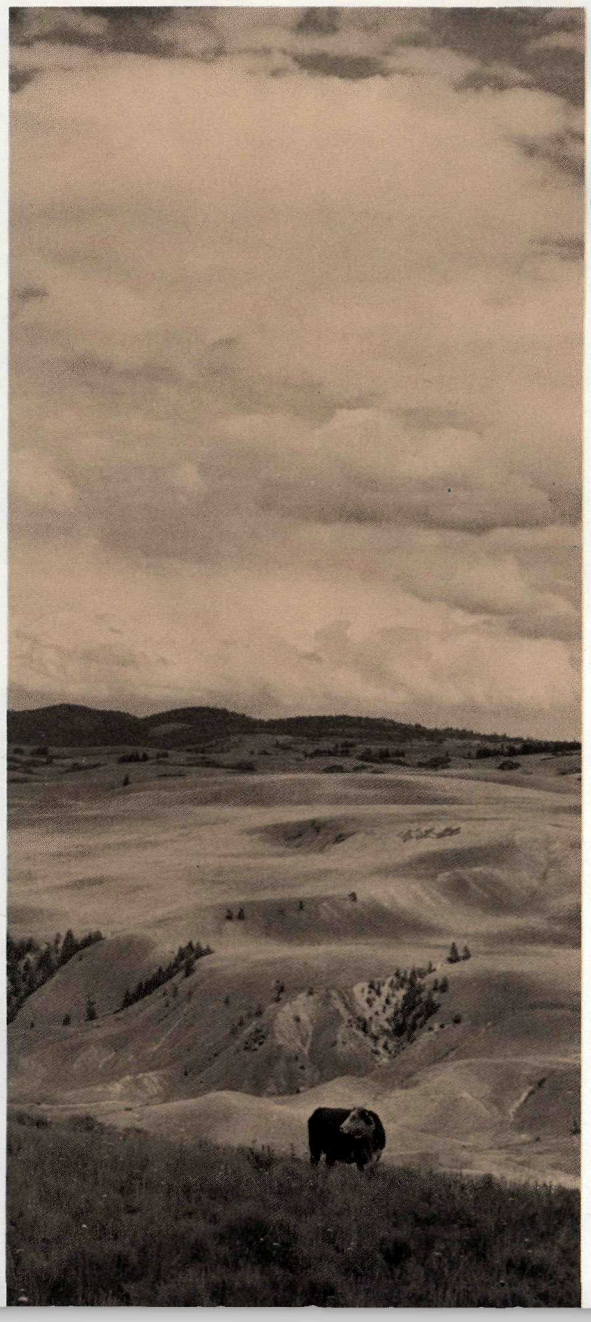
Clearing operations under timber sale contract and recovery of logs resulting from clearing contracts continued at a high level during 1969—26,714,553 cubic feet were scaled as compared to a little over 23 million feet in 1968. To December 31, 1969, a total of approximately 113 million cubic feet have been scaled out of the Peace River pondage.

Mica

In 1968, deadline dates were set for logging of timber licence areas. This, together with the increase in operations on the Mica Dam project itself, resulted in a marked increase in logging operations in the Mica pondage, where 11,428,000 cubic feet were scaled and billed in 1969, nearly double the 1968 figure.

Libby

Seven sales of decked logs resulting from clearing contracts were made during the year. These sales, with production from salvage timber sales, gave a 1969 total of 742,000 cubic feet.



grazing division

GRAZING DIVISION

March 29, 1969, marked the 50th anniversary of the passage of the *Grazing Act,* which made the Forest Service responsible for the administration of Crown range, more than 80 per cent of which is forested. The Act created active control of Crown range and resulted in the Forest Service's first step into integrated use of forest land.

Over the last 50 years many changes in range-management techniques were necessary, to accommodate larger numbers of live stock and ever-growing demands for other uses of forest range land.

GENERAL CONDITIONS

The severe winter of 1968/69 resulted in feed shortages and forced some operators to reduce herds early in 1969. Fortunately, prices were relatively high. Despite variable weather during the grazing season, range forage production was good, except in the Okanagan and Peace River areas. A mild fall saw cattle come off ranges in good condition. Cattle prices increased considerably but were offset by rising production costs. Ranch labour is scarce, particularly competent range-riders.

For the first time in many years, the number of cattle permitted on Crown range decreased significantly, and horses and sheep are now insignificant. Administrative problems increased due to expanding land use.

Range

Range readiness for grazing developed earlier than usual in most areas. May and June were dry, but soil moisture reserves from heavy winter snow ensured good early production. Subsequent rainfall resulted in good yields in most areas. Exceptions were the Okanagan Valley, where drought conditions persisted, and the Peace River area, which suffered frost damage.

An extensive seeding project in the East Kootenay Valley, which appeared to be a complete failure as a result of severe drought in 1967, showed modest establishment in 1969.

Water for stock was adequate and losses from toxic plants and predatory animals were normal. Rustling on Crown range increased, particularly during the hunting season.

Hay

Hay growth was good, but wet weather hampered operations in northern areas. Many ranchers converted their crops to silage.

Markets and Prices

Cattle prices were higher in 1969. The weighted average price received by cattlemen through the B.C. Livestock Producers' Co-operative Association was $27.35 per hundredweight, compared to $22.37 in 1968, a rise of $4.98. The export of feeder cattle to grain-producing areas for finishing was particularly heavy.

RANGE AND PASTURE MANAGEMENT

Ranges are subject to many valuable and rapidly increasing uses with which domestic grazing must be co-ordinated. Management of Crown range has improved over the years, but conditions are far from satisfactory on many ranges—particularly the co-ordination of the various uses.

During 1969 numerous meetings were held with other "user" groups and some progress toward integration of uses was made.

Promotion of improved management techniques continued with illustrated slide talks at live-stock association meetings, field-days, and other means. The appointment of a range-extension specialist to the Department of Agriculture will help development of improved management of all range lands, both Crown and private.

Concentrating grazing on smaller areas for short periods on a rotational basis avoids over- and under-utilization on units containing variable range types, and is an effective means of rehabilitating depleted range. Rotation grazing requires costly fencing plus considerable adjustment by permittees and will be a gradual process.

To provide increased range use, pasture-development techniques were developed in several areas. This involved control of water-levels on swamp meadows; brush control; the clearing, breaking, and seeding of suitable upland sites; and fertilizing previously improved pastures.

Biological control of goat-weed (*Hypericum perforatum*) has been achieved and the weed is no longer an economic threat. It has taken 18 years for the introduced *Chrysolina spp.* beetles to establish a satisfactorily low-level equilibrium with the plants. Attention is now being directed to other troublesome range weeds, notably the knapweeds.

Range Surveys

The range survey programme continued with field work on the Green Lake-North Bonaparte and the Deadman Creek Stock Ranges, and the Bedard Lake and McLean Lake Units of the Ashcroft Stock Range. Maps and reports were completed for surveys on the Lillooet Stock Range, the Coldwater-Iron Mountain Unit of the Nicola Stock Range, and the Joe Rich and Greystokes Units of the North Okanagan Stock Range.

Range and Pasture Improvements

During 1969, $165,374 was spent from the Range Improvement Fund. Net assistance to the range improvement programme from the Fund was $162,529. In addition, $21,100 was spent on pasture development in the Peace River area from special funds provided for this purpose.

Structural improvements included 109 miles of trail and road, 124 miles of fencing, 17 water developments, 4 bridges or culverts, 32 cattle-guards, 7 corrals, 1 herder's cabin, 1 holding-ground, and 5 enclosures for experimental studies or demonstration purposes. Routine maintenance was carried out on 6 buildings, 83 miles of fence, 66 miles of trail and road, and 14 water developments within Peace River pastures.

Nearly 600 acres of swamp meadow were ditch-drained, and beaver-control projects were conducted in co-operation with the Fish and Wildlife Branch on seven sites to reduce the flooding of meadows. Prescribed burns were made on 28,500 acres in the Peace River area to suppress range brush, and 50 acres were similarly treated in the East Kootenay Valley in an effort to control bitterbrush. A total of 923 acres in various locations was cleared, broken, and seeded.

Herbicides were used on 780 acres—on 115 acres to control toxic plants and on 665 acres of cultivated pasture to control invading brush. Fifty thousand pounds of fertilizer were spread on 500 acres of cultivated pasture.

Range seeding was a major activity in 1969. Nearly 91,000 pounds of grass and legume seed were used, the most to date. Some 41,000 pounds were sown on ground denuded by logging and other industrial activity and on sites especially cleared for seeding. Approximately 49,890 pounds of seed were sown aerially on

12,000 acres of Crown range destroyed by wild fire. The range land-drill was used to seed 160 acres.

A system, introduced in 1968, for recording range improvements was extended to all grazing districts in 1969.

CO-OPERATION

Range live-stock associations provide valuable liaison with industry in the management of grazing on Crown range. There are 67 such associations recognized under the provisions of the *Grazing Act*. During 1969, 188 meetings of these groups were attended by Forest Service officers.

Close contact was maintained with the British Columbia Beef Cattle Growers' Association, and the British Columbia Livestock Producers' Co-operative Association supplied live stock price figures to calculate grazing fees. This producer-owned marketing agency sold approximately 50.8 million pounds of beef animals from the range area this year.

ADMINISTRATION

Use of Crown range for grazing was reduced in 1969, but other factors added to the work load. An increase in competing uses of range land necessitated more contacts with other user groups to resolve or avoid conflicts.

The issue of new grazing leases under the *Land Act* was discontinued in the Kamloops, Nelson, and Prince George grazing districts. The grazing use of remaining Crown Lands is now administered under provisions of the *Grazing Act,* except under special conditions. This is designed to avoid a multiplicity of tenures in range units and to facilitate integration of uses.

A brief on the management of Crown range was submitted to the Select Standing Committee on Fisheries and Forestry.

Grazing Permits

During the year, 2,018 grazing permits were issued permitting 180,579 cattle, 5,545 horses, and 5,106 sheep on Crown ranges. There were 7,604 less cattle than in 1968, the first significant drop in many years. The number of horses and sheep is also down. (*See* Table No. 70 in the Appendix.)

The total use authorized for all classes of stock amounted to 837,405 animal-unit-months (the equivalent of one mature cow for one month), 19,814 less than the previous year.

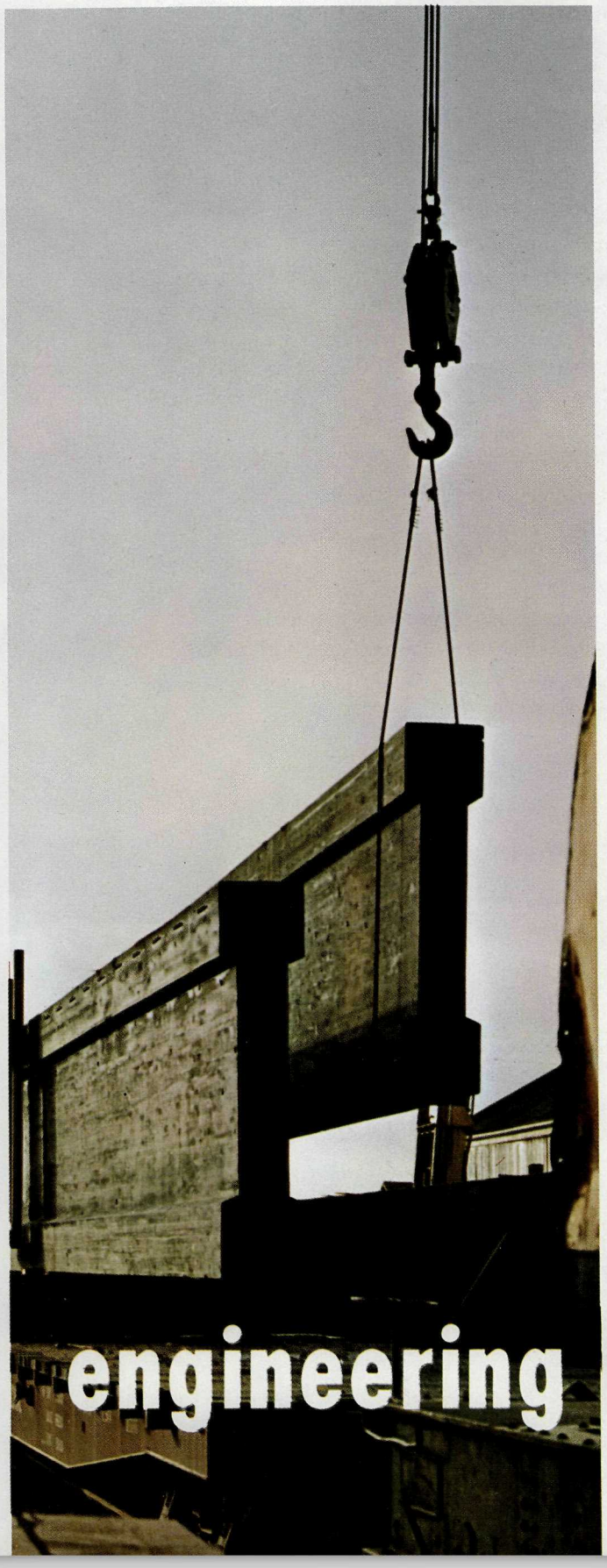
A total of 206 hay-cutting permits were issued for the harvesting of 2,087 tons of hay.

Grazing Fees

Grazing fees are based on a sliding scale on prices received by producers the previous year. Except for developed pastures in the Peace River area, grazing fees (per head, per month) were 45 cents for cattle, 56¼ cents for horses, and 11¼ cents for sheep, a slight increase over the previous year. The separate scale for fenced and reserved pastures in the Peace River area remained at 50 cents per head per month for cattle, 62½ cents for horses, and 12½ cents for sheep for natural forage; and $1 per head per month for cattle, $1.25 for horses, and 25 cents for sheep on cultivated pasture. The hay-cutting fee remained at $1 per ton.

Control and Enforcement

Control of Crown range poses many problems due to its extent, rugged nature, and proximity of private property. Constant vigilance was required to prevent unauthorized use. Numerous range inspections and stock counts were made; the number of infractions was low; and most were promptly rectified.



engineering division

ENGINEERING DIVISION

ENGINEERING SURVEYS

Field crews completed 144 miles of road location in addition to special surveys.

District engineering work included development studies in the Parsnip and Stuart P.S.Y.U.s, access studies in the Barton Hills and Okanagan P.S.Y.U.s, Tree-farm Licence road evaluations, road reconnaissance in conjunction with timber sale cruising, investigation of a road route on the west side of Kootenay Lake, and a study of log-dump sites at the north end of Kootenay Lake.

The work load connected with the acquisition of rights-of-way and other properties continued to grow during the year.

DESIGN

Designs, drawings, and specifications were prepared for pressure-creosoted timber bridges for Goat River, Kispiox River, Likely–Keithley Creek, and Black Creek–Bosk Lake Forest Roads.

Preliminary sketches and estimates were made for bridges on the Willow River–Cale Creek Forest Road, and for the upgrading of existing structures on the Willow River road system to meet increased load requirements. Design work was started on the Nass River bridge near the mouth of the Meziadin River.

MANAGEMENT ENGINEERING SECTION

Development work on 70-mm. fixed-airbase stereophotography continued, and boom suspension and camera mounts were improved. An inventory of the floating timber on Williston Lake was completed using this equipment.

Studies on salvage and disposal of reservoir timber are continuing.

CONSTRUCTION SECTION

Road work included completion of 7.5 miles of new grade on the Bowron River road and reconstruction of 36 miles of existing grade on the Harrison West, Goat River, and Elk River roads. Permanent-type timber bridges were erected over Haggen Creek, North Thompson River, Cariboo River, Halfway River, and Goat River.

Clearing work continued on Williston Lake. Work was concentrated in the Parsnip River section, where 14,700 acres were treated. Non-merchantable wood material on 5,200 acres was burned. A permanent camp for all future work was established near Mackenzie.

Site-preparation work was started on the Canadian portion of the Libby Reservoir. Of approximately 9,000 acres of forested land requiring treatment, 3,800 acres were placed under treatment and 2,500 acres were completed. Operations were conducted from a camp established at Waldo. Site-preparation work also commenced on the Mica Reservoir. Camps were established at Valemount and Bush River, from which 6,150 acres of forest land were placed under treatment.

BUILDING AND MARINE SERVICES

The long-term expansion programme of the Reforestation Division, together with other programmes, required increased services.

In addition to general maintenance, major building construction included a warehouse and mechanical maintenance building for the new Cariboo Forest District

headquarters, refrigerator buildings at Campbell River and Red Rock nurseries, an office bunkhouse building at Campbell River, and the first phase of a seedling-sorting building at Red Rock. An experimental portable residence was constructed and transported to one of the remote stations for evaluation.

The substitution of small, trailer-mounted, fast launches for the larger, slower, displacement launches in the Ranger Districts has continued.

A new, fast, diesel launch was provided for transporting scalers in Prince Rupert harbour. Jet boats and riverboats were assigned to the clearing work behind the Mica Dam and one of the redundant Department of Highways ferries from the Arrow Lakes was transferred to Kinbasket Lake.

Twenty-nine units of mobile accommodation were purchased, ranging from tent trailers for project crews to large mobile homes for staff in remote regions. In addition, 21 semi-mobile buildings were acquired for long-term occupancies. Five refrigerated trailers were purchased for on-site storage of tree seedlings. Bunkhouses and washcar porta-buildings for 100 men were leased for camps in the Mica and Libby Pondage areas.

MECHANICAL SECTION

The light-vehicle inventory increased by 22, and included sedans, station-wagons, panels, four-wheel drives (all types), and two-wheel drives up to 10,000 pounds G.V.W. The significant change in this category is the increase of 42 two-wheel drive pick-up trucks, while station-wagons, sedan deliveries, and panel trucks dropped 23 and four-wheel drive units dropped three. Sedans increased by six, replacing some station-wagons.

An appreciable turnover of older heavy-type trucks was effected with the purchase of 11 new units ranging from 14,000 pounds G.V.W. to 50,000 pounds G.V.W. Four used tanker-trucks were purchased, two of which were used as fuel trucks on engineering projects, and two converted to fire-suppression tankers for the Nelson District.

Five rubber-tired tractors were purchased for the Reforestation Division, including one special four-wheel drive unit for the new Surrey Nursery. The Engineering Division acquired three large crawler tractors and a 200-cu.-yd.-per-hr. screening plant and an elevating scraper.

The extreme adverse winter conditions of January, 1969, increased the use of snow toboggans and 12 new ones were purchased. Testing of muskeg transporters continues.

FOREST SERVICE MAINTENANCE DEPOT

Modernization of the depot facilities continued with the completion of major alterations to the main office, modification to all the shops, with the installation of new machines and equipment acquired to help increase the efficiency of the depot. The mechanical programme included continuing overhaul of equipment and the purchase and testing of new equipment. The coupling of 290,000 feet of fire hose was completed.

Twenty-three new vehicle units were fitted out to meet Forest Service requirements and 46 miscellaneous repair and fabrication jobs were completed.

Work in the machine-shop included the machining and assembly of 2,662 hose, pump, and valve fittings, and all welding and machining required in connection with repairs to marine, construction, and other mechanical equipment.

The marine programme included overhaul and refit work on 28 launches, four jet boats, and 35 miscellaneous small craft. Fitting-out work was completed on 13

vessels, including the new scaling boat, the *Northern Scaler,* for Prince Rupert, and the launch *Cherry II* for the Prince George district.

The 40-foot steel tug *Forest Engineer* was overhauled and modified at the depot, disassembled and trucked to Williston Lake, where it was reassembled, launched, and underwent trials.

Carpenter-shop activities included the rebuilding and repair work to 19 trailers and porta-buildings, together with a host of miscellaneous projects.

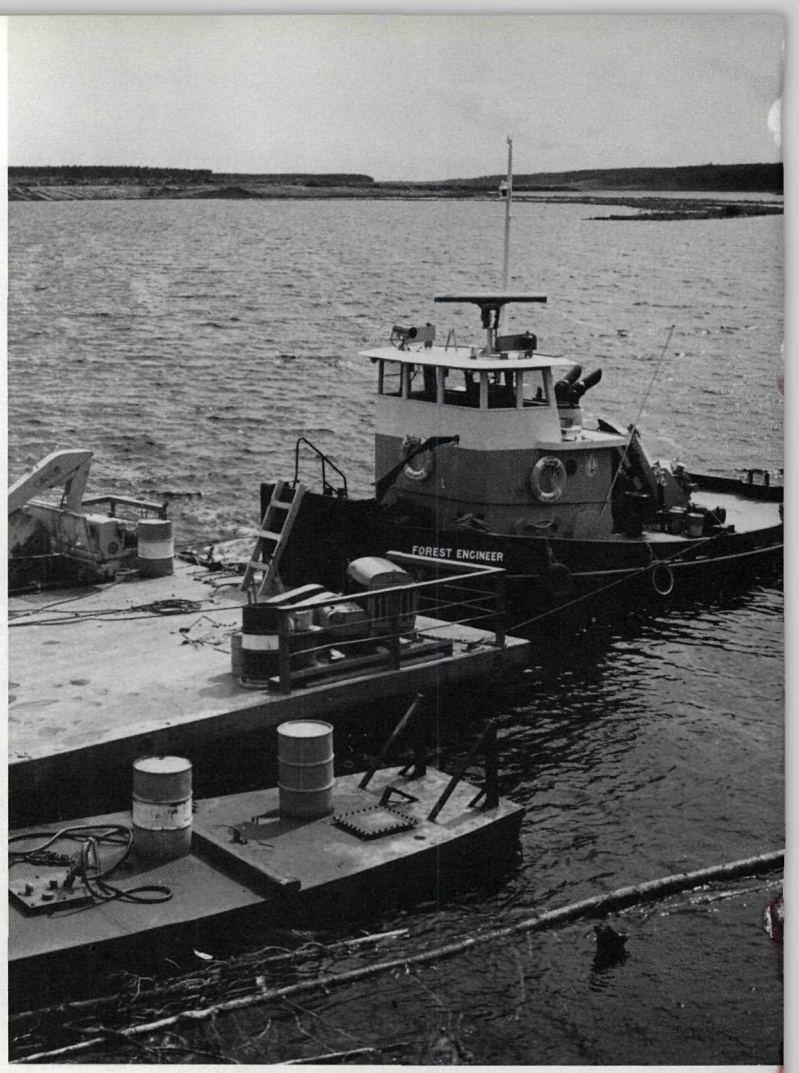
RADIO SECTION

The programme of improving and expanding communications continued throughout 1969, and included the purchase of 391 radio units. Remotely controlled base stations were installed in several Ranger Districts. In the Houston, Southbank, and Horsefly Ranger Districts, where suitable sites for remote control were not available, F.M. repeaters were installed to increase field coverage.

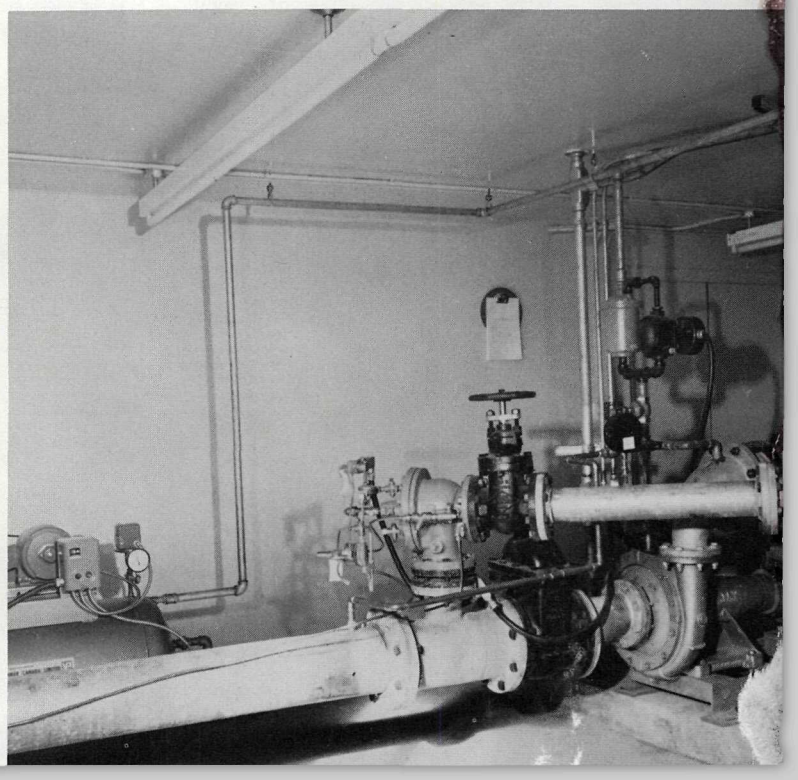
On the Mica and Libby pondage-clearing projects, two additional V.H.F. frequencies were obtained to permit local communication without interfering with Forest District networks.

At Prince George and Kamloops District Headquarters, all radio equipment was remotely controlled.

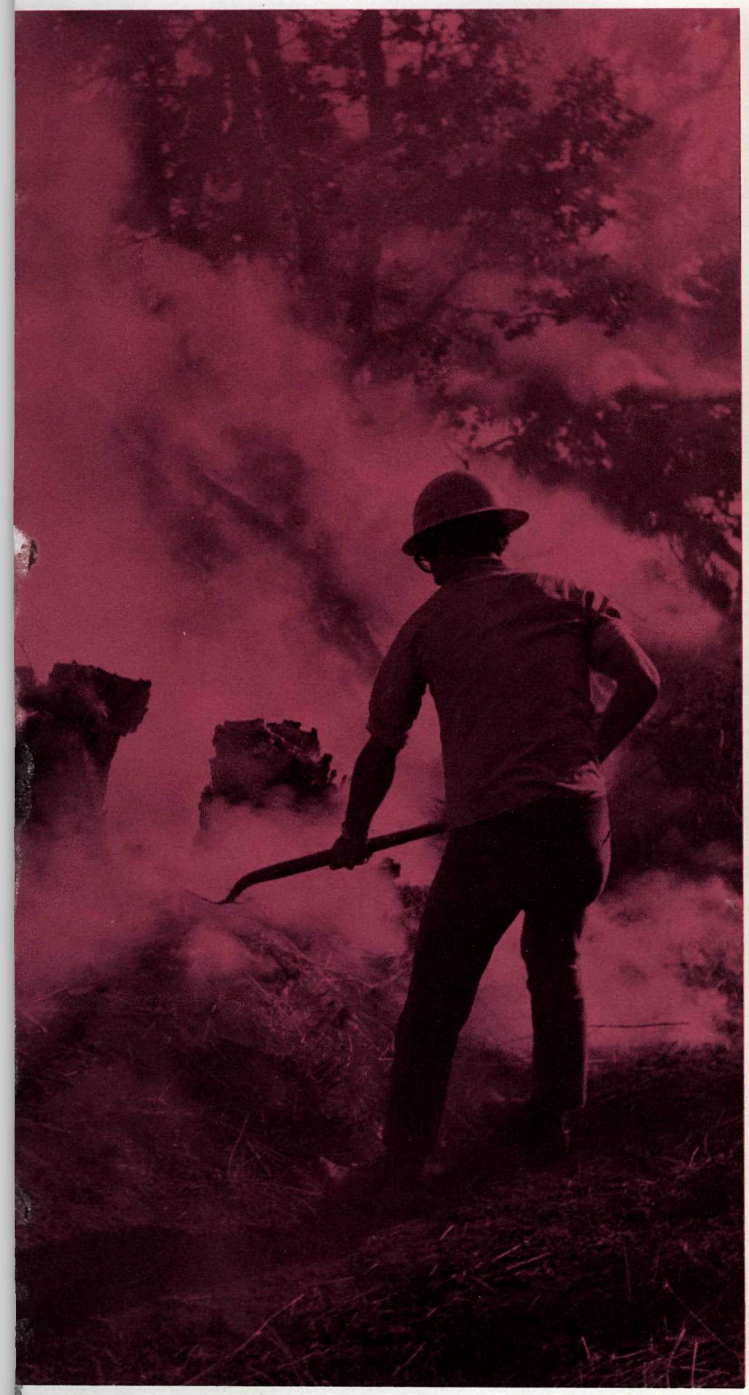
The preventive-maintenance programme introduced in 1968 resulted in improved service in 1969. Two Forest Districts have furthered the programme by providing van-type vehicles equipped with a service bench with all necessary test equipment built in for field servicing.



The twin-screw, shallow-draught tug *Forest Engineer*. The 40-foot vessel, which can be split in half lengthwise, is now busy transporting equipment being used to clear the Lake Williston reservoir.



This powerful pumphouse installation serves the irrigation system at the Red Rock nursery. It was among the Engineering Division's many projects of 1969.



protection division

PROTECTION DIVISION

WEATHER

After a cool and wet April, a ridge of high pressure developed off the Coast during May and most of June, bringing hot, dry conditions to most of the Province. This ridge eliminated most of the normal June rains and the fire hazard rapidly became critical in most areas. Some rain fell late in June and major fires were controlled.

July and August were generally cooler, but with lower precipitation in the Bella Coola, Peace River, Lower Mainland coast, and the Southern Okanagan Valley regions.

The first half of September was warm and dry, but rain came later to most areas and the fire season ended on September 30th.

Lightning activity was below normal throughout the Interior districts.

FIRES

Occurrence and Causes

The summer of 1969 produced 2,318 fires, slightly more than the 10-year average of 2,257 and 671 more than in 1968. Normally about 34 per cent of the fires occur prior to July, but in 1969 more than half of them occurred during this period. Lightning was the major cause of fires, but was responsible for only 28 per cent of them—this well below 43 per cent in 1968 and the 10-year average of 37 per cent. (*See* Tables 102, 103, and 104 in the Appendix.)

Cost of Fire-fighting

Suppression costs to the Forest Service averaged $2,579 per fire, compared with $741 in 1968. The total fire-fighting cost for 1969 was $4,600,000, of which $3,300,000 was paid by the Forest Service and $1,300,000 by other agencies. The 10-year average is $3,100,000.

Lightning fires, although only 28 per cent of the total, caused 69 per cent of the burned area, 32 per cent of the cost, and 71 per cent of the damage. (*See* Tables 106 and 110 in the Appendix.)

Damage

The 406,763 acres of forest burned were almost 53 per cent over the 10-year average of 265,923 acres. The damage to forest cover was $6,776,020, compared with the 10-year average of $3,512,707, the increased acreage and damage due mainly to a number of large fires in extreme northern regions of the Province. (*See* Tables 107 and 109 in the Appendix.)

FIRE-SUPPRESSION CREWS

Thirteen fire-suppression crews, ranging from 6 to 10 men each, were employed this year, one crew less than in 1968.

Initial attack crews (one to three men) were located throughout the Province as far north as Fort Nelson, and this combined force of 100 men helped fight 361 fires. At other times the crews were employed in other essential protection duties.

AIRCRAFT

A decision by the Air Transport Committee to categorize Forest Service helicopter contracts into Class 4 made long-term contracts uneconomical, and all districts were allotted funds to hire locally available machines as required. In the Prince Rupert, Prince George, and Kamloops Districts the system worked well, but in the Vancouver and Nelson Districts machines were often unavailable when required.

One helicopter accident claimed the life of an Assistant Ranger and the pilot when a glider collided with the helicopter in mid-air near Hope.

Two contracts for fixed-wing aircraft provided three aircraft for general flying and six light aircraft for fire-detection purposes.

Three new air tanker-types were introduced into British Columbia in 1969. The Douglas A-26 was used in the Kamloops District in June; a Canadair C.L. 215 was demonstrated on fires in the Vancouver, Prince George, and Nelson Districts; and a deHavilland Twin Otter made demonstration drops at several points in the Province.

Four contracts provided eight Avenger air tankers, three Canso air tankers, and five bird-dog aircraft. They were used on 233 targets and dropped over 1¼ million gallons of chemical retardants.

ROADS AND TRAILS

A modest programme of road and trail construction, reclamation, and maintenance continued, with some 1,974 miles of road and 86 miles of trail treated.

SLASH DISPOSAL

In the Vancouver Forest District, sporadic periods of suitable slash-burning weather in September and early October resulted in a normal number of acres being treated. Slash reports covered 85,549 acres of logged-over land, and 51,649 were exempted from burning. In addition to the 44,450 acres slash-burned, an additional 7,740 acres of old slash were considered abated to satisfactory levels by other means.

Burning periods were marginal in the Prince Rupert District, where a dry spring was followed by a wet summer and fall. The Forest Service prepared 6,966 acres and burned 1,440. Industrial operators were instructed to burn 14,918 acres, but were able to treat only 7,626.

The summer and fall for most of the Prince George District were wetter than the adjoining Prince Rupert District. The Forest Service burned 1,805 of a planned 8,282 acres, and industry burned 2,355 of 13,749 acres planned for such treatment.

In the Kamloops District, most burning was conducted in the Cariboo area. High-hazard conditions in southern areas followed by quick wetting made it impossible to burn. The Forest Service treated 634 of a planned 2,616 acres, and industrial operators burned 5,301 of the 9,527 acres planned.

The Nelson District was also plagued with the sudden change from too dry to too wet and burned only 1,447 acres. Industrial operators were required to burn 13,869 acres, but were only able to treat 3,461.

SNAG DISPOSAL

Vancouver Forest District

In the Vancouver Forest District, snags on 3,020 acres were felled—1,310 acres under contract and 1,710 by Forest Service crews.

FIRE-LAW ENFORCEMENT

Prosecutions resulted in 21 charges. Eight involved burning without a permit, eight for refusing to render assistance in fire-fighting, and the remainder for other offences.

FOREST-USE RESTRICTIONS

The early serious hazard situation resulted in industrial forest-use restrictions and travel and recreation restrictions being imposed in June. Campfire permits were suspended in all districts except Nelson. Details of restrictions follow:—

Forest-use Restrictions, 1969

Area	Forest District	Type of Restriction	Effective Date	Termination Date
Zones 1, 2, 6 to 10	Vancouver	Restricted industrial	June 17	June 23
Zones 1 and 6	Prince Rupert	Restricted industrial	June 17	June 23
Zones 1 and 6	Prince Rupert	Travel and recreation	June 17	June 23
Zones 5 and 6	Prince George	Travel and recreation	June 18	June 23
Zones 5 and 6	Prince George	Restricted industrial	June 18	June 23
Zones 1 to 4	Prince George	Restricted industrial	June 19	June 23

SUSPENSION OF CAMPFIRE PERMITS

Forest District	Effective Date	Termination Date
Vancouver	June 17	June 23
Prince Rupert	June 18	June 23
Prince George	June 18	June 23
Kamloops	June 18	June 23

PROTECTION PLANNING AND RESEARCH

Fire Statistics

The Provincial Fire Atlas was maintained, and together with summaries and fire files, is a valuable reference for other divisions and agencies. Fire statistics are being coded in conjunction with the Fire Atlas.

A joint Federal-Provincial computer study, using 10-year fire and weather data, is being developed to test and adjust the new Federal danger index system for use by all Forest Districts in 1970.

Fuel-moisture Indicator Sticks

Fuel-moisture indicator sticks were tested at Ashcroft to determine acceptable tolerances. Of the 1,242 sets distributed in 1969, 62 per cent went to industry, 3 per cent to the Canada Forestry Service, and 35 per cent to the British Columbia Forest Service.

In November, 1,720 sets of sticks were manufactured at the Federal Forest Products Laboratory in Vancouver for the 1970 fire season.

Insect Survey and Control

Liaison with other Provincial Government and Federal agencies and joint government-industry committees was maintained.

Research Projects

Major research and development projects of 1969 were as follows:—

Fire-training Simulators.—A prototype was developed to operational standards, and five additional models were constructed—one for each Forest District.

Handbooks.—A *Forest Protection Handbook* series was initiated in 1969. Two handbooks, *A Guide to Effective Use of Air Tankers for Forest Officers* and *A Guide to Broadcast Burning of Logging Slash in British Columbia* have been distributed. A *Handbook on Forest Fire Suppression, Proper Care and Use of Fire Weather Instruments,* and a *Handbook for Lookoutmen* will be available soon.

Fire Danger Indices.—In co-operation with the Victoria Federal Research Laboratory and the Vancouver Fire Weather Unit, special weather-recording stations were established to provide research information on the new Federal Fire Weather and Buildup Indices. These index values were calculated daily by computer and telexed to districts by the Fire Weather Unit. Analysis of results is under way.

Mobile Flame-throwers.—Two more experimental flame-throwers were developed and field-tested.

Hand-tool Containers.—Pilot models of expendable cardboard containers for axes and pulaskis were developed and sent to districts for field-testing. They hold four of each type of tool, and were designed for easy transportation and increased safety.

Emergency Rations.—Preparation of two-man, two-day, fire-ration packs was standardized, and 240 were distributed to districts.

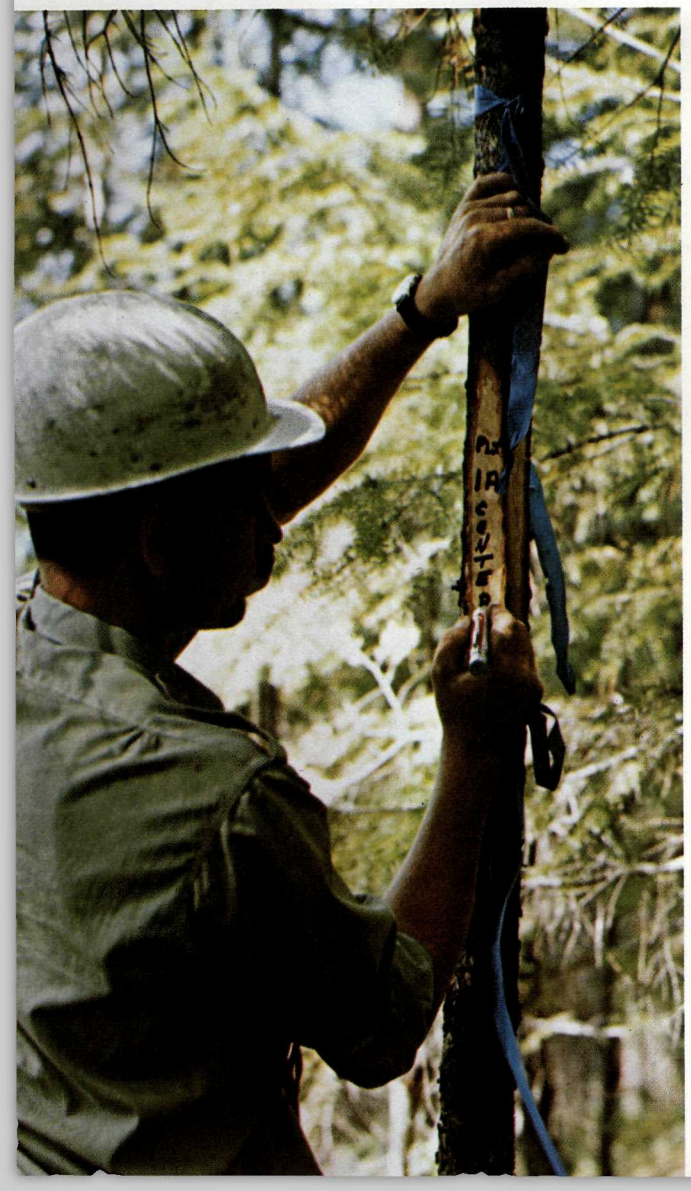
Lake-water Analysis.—Water samples from 42 major lakes in the Province were tested to evaluate their pH, hardness, and mixing properties with gelgard fire retardant to determine the best mix for amphibious air tankers.

Ignition Device.—An economical hand-thrown ignition device was tested for use with the standard drip torch.

Equipment and product evaluation and testing continued on a variety of protection equipment.

Liaison continued with other agencies in areas of mutual interest. These included pest control, meteorology, fire protection, fire-danger indices, fire statistics; and representation on various protection subcommittees of the National Research Council and on the Rehabilitation Committee of the Forest Service.

training school



TRAINING SCHOOL

The eighth class of basic trainees (Basic Course No. 8), consisting of 24 men, enrolled on January 6th and completed the course on April 3rd. The ninth class of basic trainees (Basic Course No. 9), consisting of 24 men, enrolled on September 10th and completed the course on December 19th. The number of graduates from the basic course is now 196 and the advanced course 319—for a grand total of 515.

Subjects covered for each course (Basic Courses Nos. 8 and 9) were as follows:—

BASIC COURSES Nos. 8 AND 9

Subject	Days Allotted
Opening	½
Mathematics	2½
Surveying	6
Photogrammetry	3
Fire Suppression	14
Pre-suppression	8
Forest Protection Policies and Procedures	4½
Forest Management Policies and Procedures	7
Mapping	1
Measurements	6½
Reforestation	1½
Silviculture	3
Mechanical Equipment Maintenance and Operation	10
Exams	2
Spare	1
Closing	½
Total days	71

A daily 45-minute physical-training session was included in each course.

EXTRA COURSES AND FUNCTIONS

The following extra courses and functions were held at the school:—

Course for Lookoutmen.—The school provided room, board, facilities, and instruction for 12 men from the Vancouver Forest District between May 27th and 30th.

Course for Fieldmen of the Forest Inventory Division.—The school provided room, board, facilities, and minor assistance with instruction for this course. Two-and-one-half-day sessions for three different groups were attended by 72 men between May 8th and 14th.

During the year the school's instructional facilities were used intermittently by the Vancouver scaling classes.

A one-week workshop course conducted by P. A. Bell, of the Protection Division, was held on the maintenance and field repair of fire weather instruments. One man from each Forest District attended.

The Canadian Forestry Association conducted one week of outdoor classroom lectures for 500 elementary students from the surrounding area.

Two instructors examined fire simulators and discussed programme-making in Salem and Corvallis, Oregon.

The annual T.F.O. 2 and T.F.O. 3 examinations were prepared and marked.

The reading course on the *Forest Act* was amended and 475 copies were distributed to the districts and divisions, along with 340 copies of the Mathematics reading course.

CONSTRUCTION

Renovation of the heating system in the administration building was completed. Roofs were retarred on the dormitory building, lounge, and drying-rooms.

accounting division

ACCOUNTING DIVISION

FISCAL

Forest products enjoyed favourable market conditions well into 1969, with unprecedented highs attained in the spring; this resulted in a corresponding increase in stumpage rates.

The market declined steadily for the balance of the year, but the early-period highs resulted in a new record for Forest Service revenue. Contributing factors, in addition to stumpage revenue, were the 11-per-cent increase in timber scaled, an increase in royalties and weight-scaling collections.

By the end of 1969 the declined market levelled off, with no significant improvement expected until economic conditions improved in major market areas.

Amounts charged against logging operations increased by 59.1 per cent (over 1968) to $92,363,938 (Appendix, Table 142).

The largest gain of 109.6 per cent was recorded in the Nelson Forest District; followed by Prince George (99.4 per cent), Kamloops (92.1 per cent), Vancouver (34.5 per cent), and Prince Rupert (17.9 per cent).

Direct forest revenue in 1969 was up 66.2 per cent for a total of $89,479,313 (Appendix, Table 141). Timber-sale stumpage contributed $78,293,115, up 76.3 per cent from 1968. Timber-sale rentals and fees, together with timber-sale cruising and advertising, dropped 1.9 per cent and 14.7 per cent respectively, as the absorption of timber sales into timber-sale harvesting licences continued.

Timber royalties increased 27.7 per cent to $6,329,417, as operators attempting to avoid high stumpage rates apparently turned to cutting where only royalties applied.

Timber-licence rentals and fees, and timber-lease rentals and fees, recorded identical increases of 3.9 per cent, probably due to some late payments from 1968. Timber-berth rentals and fees declined 9.1 per cent as logged areas were eliminated.

Grazing permits and fees gained 9.6 per cent after a small increase in fees. Forest-protection tax was up 4.8 per cent, again possibly including payments due in 1968. Miscellaneous collections declined 9.5 per cent and weight-scaling payments rose 62.5 per cent to $1,033,160. Weight-scaling is becoming an increasingly acceptable form of scale by industry.

Financial tables (Appendix, Tables 143 to 145) cover operations on a 1968/69 fiscal-year basis. Detailed expenditure information is published annually by the Department of Finance in the Public Accounts.

ADMINISTRATION

The heavier-than-average fire season, expansion of the reforestation programme, and increased pondage-clearing projects kept expenditure accounting at a high level. The increase in personnel to be paid, and changes in the Unemployment Insurance regulations gave special problems to the payroll section.

Timber-sale accounting increased. The surrender of timber sales for inclusion in timber-sale harvesting licences accelerated and became a major activity of the timber-sale accounting section. Fluctuating market conditions caused frequent changes in stumpage rates and resulted in a record number of adjustments to licence records and notices to licensees.

The revenue section work load was also affected by the inclusion of timber sales in timber-sale harvesting areas, through frequent refunds and adjustments of carrying charges.

Accounts receivable were reasonably current until late in the year. " Tight-money " conditions severely affected some operators, who reported credit from normal sources was being drastically curtailed due to anti-inflationary policies. It appears there will be no easing of the situation for some time.

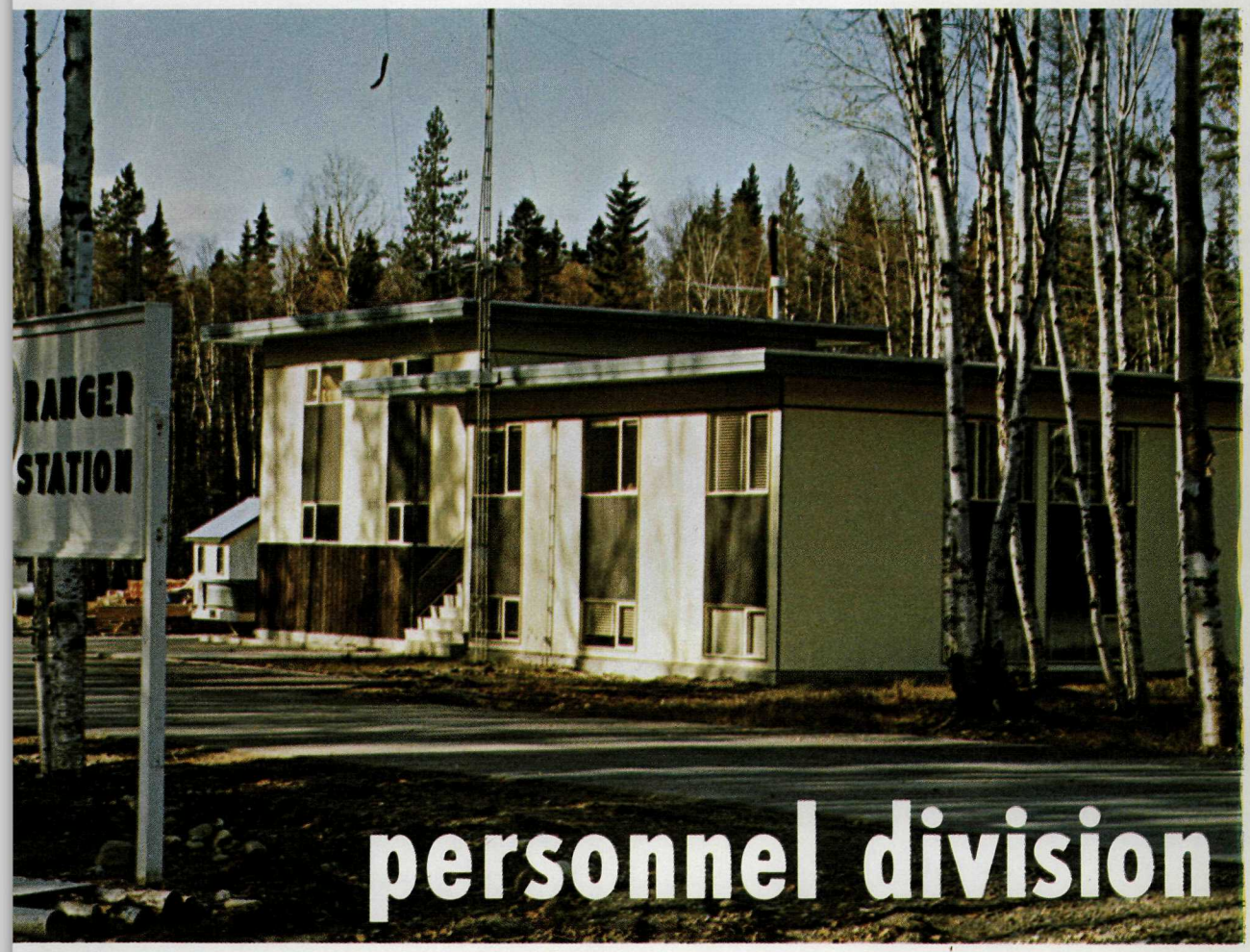
Reduction of marine hazards by removal of drift logs continued, with 23,739,-928 board feet (down 5,000,000 feet board measure from 1968) marketed through Gulf Log Salvage Co-operative Association (licensee of the log receiving station). Low floating logs and deadheads recovered by permittees increased approximately 3,500,000 to 9,500,000 board feet. Low-grade logs recovered remained at approximately 5,000,000 board feet.

Log clearance from beaches continued with the sale of six licences on the Queen Charlotte Islands, where 290,000 cubic feet were removed, and six licences on the West Coast of Vancouver Island, from which 235,000 cubic feet were " harvested."

In the Interior districts, two licences were sold—one on Stuart Lake, which has produced 22,392 cubic feet; and one for a log jam on the Lardeau River, from which no logs have yet been removed.

The Division is co-operating with a Log Security Committee, established by the forest industry, to study ways to prevent escape and loss of towed and stored logs.

Export of logs controlled under Part X of the *Forest Act* varied considerably during the year. With log stocks low early in the year and high in latter months, 76 per cent of " non-exportable " logs, approved for export, left the Province in the last three months of the year. Log Export Advisory Committee continues to provide effective control of log surpluses.



personnel division

PERSONNEL DIVISION

On July 31st, F. S. McKinnon retired as Deputy Minister of Forests and assumed duties as full-time chairman of the Pollution Control Board. J. S. Stokes was appointed Deputy Minister of Forests, and N. A. McRae was appointed Assistant Chief Forester. W. Young was appointed District Forester for the Prince George Forest District.

Under the new organization, the Deputy Minister, Chief Forester, and the two Assistant Chief Foresters form an executive committee to determine Forest Service policy. Some changes in organization resulted in a more equitable distribution of supervision at the executive level. Expansion continued in the Reforestation Division with the addition of eight new professional Foresters.

In employee relations, the Chief Forester and Personnel Officer met with representatives of various employee groups to discuss matters related to overtime regulations. A general salary increase for all employees (effective April 1st) caused some pay anomalies, most of which were resolved by the end of the year.

COMMUNICATIONS AND TRAINING

No formal meeting of District Foresters was held in Victoria, but District Foresters and Assistant District Foresters spent a week discussing specific problems with various headquarters divisions concerned. Ranger meetings were held in the Vancouver and Nelson Forest Districts, with local or zone meetings held in the Kamloops, Prince George, and Prince Rupert Districts. A bi-annual meeting of Protection Officers was held at Victoria, and District Reforestation Officers met with the Reforestation Division to discuss mutual problems. District Mechanical Supervisors met with the headquarters staff, and a one-day training meeting was held with District Foresters in attendance to discuss the extent and scope of a proposed service-wide training programme.

The Personnel Officer and Assistant Personnel Officer took part in vocation-day programmes, as did other Forest Officers throughout the Province. Various seminars were attended by several staff at the senior and middle management levels. Three Foresters, one Engineer, and one Technical Forest Officer were selected for Class XIV of the Public Administration Course under the Executive Development Training Programme, and two employees, both Engineers, graduated from Class XI of this programme.

Four employees were selected for Class VI of the Correspondence Course in Basic Public Administration and four employees graduated from Class V of this course. Informal training continued for junior Foresters and junior Engineers and the District Training Officers set up some formal training programmes for District field staff.

ESTABLISHMENT, RECRUITMENT, AND STAFF TURNOVER

The permanent establishment of the Forest Service was increased from 884 to 906, with the addition of eight Forester positions, nine clerical positions, two mapping assistants, one Technical Forest Officer, one Draughtsman, and one Programmer Analyst. During the year, 153 persons received Civil Service appointments and 152 left the Service. Seven Forest Service 25-year certificates and badges were earned. Eight employees were guests of the Provincial Executive Council at a luncheon, where four were awarded certificates for 25 years' continuous Government

service and four others were awarded gold watches in recognition of 40 years' service with the Provincial Government.

There were 19 retirements and 57 transfers of permanent staff. Fourteen graduate Foresters and five graduate Engineers left the service, while 13 graduate Foresters and six graduate Engineers were hired.

Turnover of Civil Service appointed staff, including full-time casual staff, was 12.3 per cent—compared with 10.9 per cent in 1968. Prince Rupert again suffered the greatest disruption at 24.1 per cent, followed by Vancouver Scaling, Kamloops, and Prince George with 15.3 per cent, 14.3 per cent, and 12.7 per cent respectively. Victoria headquarters and Vancouver had 9.9 per cent and 9.6 per cent, while Nelson was lowest with a 5.9-per-cent turnover.

Professional staff turnover increased to 6.6 per cent from 4.6 per cent in 1968, as did the technical staff at 7.7 per cent, compared to 5.3 per cent in 1968. Highest turnover was in the clerical group at 20.0 per cent, with figures ranging from 38.5 per cent for Prince Rupert District to 11.4 per cent for Nelson.

In discipline, two permanent employees were suspended with the intent to dismiss, but both resigned. One permanent employee was demoted to a lesser position, more in keeping with his capabilities, and one temporary employee was dismissed.

A number of disciplinary suspensions were imposed for breaches in safety regulations and failure to properly complete assignments, and two of these employees were warned a repetition would result in a dismissal. Two employees had annual merit increases withheld.

There were 1,039 written applications for employment received and processed by the Personnel office in addition to those handled by District and Divisional staff.

Promotional examinations were held by the Civil Service Commission for Draughtsmen and Mapping Assistants to the advantage of a number of our staff. Written examinations were held for one competition and oral examinations were held at panel interviews to fill 52 positions. The Personnel Officer and the Assistant Personnel Officer participated in filling 153 other positions. A total of 420 candidates sat for the annual Technical Forest Officer 1 examination and 121 qualified for 14 vacancies. At the same time, 108 candidates wrote an examination for Technical Forest Officer 2, of which 43 qualified. Two employees in the service branch wrote an examination for Technical Forest Officer 3 and both qualified. Forty-eight employees completed the basic-training course at the Forest Service Training-school.

CLASSIFICATIONS, SALARIES, AND WORKING CONDITIONS

Classification reviews were requested for 41 positions. By year's end 24 had been approved, five rejected, and 12 were still under discussion. An organizational review was conducted on the administrative office in the Vancouver Forest District, with some improvement in work flow and distribution of duties indicated.

Seven employees were registered as Professional Foresters, and one graduate Engineer became registered. General working conditions were unchanged, but there were changes in the overtime regulations affecting the Department. The subject is still under review to standardize implementation.

A total of 379 accidental injuries suffered by employees, of which 82 were to temporary fire-fighters and 29 to temporary tree planters and cone collectors. Of the 268 for the regular staff, 86 were time-loss and 182 required medical aid only.

Our time-loss frequency was 16.8 per million man-hours worked, a considerable increase over 9.9 for 1968. Time-loss accidents for regular staff were 32 per cent of the total accidents for this group as compared with 19.4 per cent in 1968.

Six British Columbia Safety Council awards of merit were earned by various groups in the Service, the most notable of which was the silver award to the Kamloops Forest District, which also qualified for the Prime Minister's safety award. There were two fatal accidents in the Forest Service during 1969.

PERSONNEL DIRECTORY, 1969

(As of December 31st)

VICTORIA HEADQUARTERS

J. S. STOKES - - - - - - - - DEPUTY MINISTER OF FORESTS
L. F. SWANNELL - - - - - - - - - - - - CHIEF FORESTER
I. T. Cameron - - - - - - - - Assistant Chief Forester i/c Operations
N. A. McRae - - - - - - - - - Assistant Chief Forester i/c Services

Staff Division Heads:

Cooper, C. - - - - - - - - - - - - - Forest Counsel
Hicks, W. V. - - - - - - - - - - Departmental Comptroller

Operation Branch Division Heads:

Phillips, W. C. - - - - - - - - - Forester i/c Protection Division
Hughes, W. G. - - - - - - - - - Forester i/c Management Division
Young, W. E. L. - - - - - - - - - Forester i/c Inventory Division
Pendray, W. C. - - - - - - - - - - Director, Grazing Division

Services Branch Division Heads:

Robinson, E. W. - - - - - - - - - Forester i/c Reforestation Division
Spilsbury, R. H. - - - - - - - - - - Forester i/c Research Division
Lyons, E. H. - - - - - - - - - Forester i/c Information Division
Lehrle, L. W. W. - - - - - - Forester i/c Forest Service Training-school
Hemphill, P. J. J. - - - - - Engineer i/c Engineering Services Division
McKeever, A. E. - - - - - - - - - - - - - Personnel Officer

FOREST DISTRICTS

VANCOUVER FOREST DISTRICT

H. B. FORSE - - - - - - - - - - - - - - - DISTRICT FORESTER
J. A. K. Reid - - - - - - - - - - - Assistant District Forester

Forest Rangers:

Lorentsen, L. H. (Cultus Lake); McArthur, E. J. (Hope); Wilson, R. S. (Harrison Lake); Nelson, J. N. (Mission); Mudge, M. H. (Port Moody); Neighbor, M. N. (Squamish); Chamberlin, L. C. (Sechelt); Northrup, K. A. (Pender Harbour); Hollinshead, S. B. (Powell River); Doerkson, V. J. (Lund); Stefanac, G. (Campbell River N.); Archer, W. C. (Sayward); Campbell, R. A. (Echo Bay); Moss, R. D. (Port McNeill); Teindl, A. J. (Port Hardy); Brooks, T. (Campbell River); Hannah, M. (Courtenay); Norbeirg, H. (Parksville); Howard, W. G. (Nanaimo); Sykes, S. J. (Duncan); Antonelli, M. W. (Langford); Thomas, R. W. (Lake Cowichan); Haley, K. (Alberni); Hawkey, G. F. (Tofino); Gill, D. E. (Pemberton); de Hart, D. E. (Gold River).

PRINCE GEORGE FOREST DISTRICT

W. YOUNG - - - - - - - - - - - - - - - DISTRICT FORESTER
Bishop, W. G. - - - - - - - - - - Assistant District Forester

Forest Rangers:

Graham, J. G. (McBride); Little, J. H. (Valemount); McRae, M. A. (Prince George East); Meents, T. G. (Prince George North); Espenant, L. G. (Fort St. James); York, G. H. (Quesnel); Barbour, H. T. (Dawson Creek); Amonson, D. A. (Aleza Lake); Osborne, H. (Vanderhoof); Bate, V. G. (Fort St. John); Griffiths, P. F. (Fort Fraser); Gibbs, T. R. (Summit Lake); Doerksen, D. B. (Fort Nelson); Magee, G. E. (Prince George); Wallin, D. F. (Hixon); Hewitt, E. W. (Quesnel); Rohn, K. (Quesnel); McQueen, L. (Chetwynd); Magee, K. W. (Mackenzie).

Kamloops Forest District

A. H. Dixon - District Forester
Boulton, L. B. B. - Assistant District Forester

Forest Rangers:

Hopkins, H. V. (Lumby); Monteith, M. E. (Birch Island); Wittner, D. J. (Barriere); Craig, V. D. (Chase); Jackson, R. C. (Salmon Arm); Jones, G. G. (Sicamous); Wanderer, J. (Lillooet); Cameron, A. G. (Vernon); McDaniel, R. W. (Penticton); Baker, F. M. (Princeton); Petty, A. P. (Clinton); Ward, J. G. (Williams Lake); Bouchard, E. A. (Alexis Creek); Pearce, F. (Kelowna); Noble, J. O. (Ashcroft); Berard, R. K. M. (Merritt); Reiter, D. (Blue River); Loomer, I. M. (Enderby); Schmidt, J. T. (100 Mile North); Weinard, J. P. (Kamloops North); Lynn, J. F. (Horsefly); Donnelly, R. W. (100 Mile South); Perry, W. R. (Tatla Lake).

Prince Rupert Forest District

H. M. Pogue - District Forester
W. F. Tuttle - Assistant District Forester

Forest Rangers:

Vacant (Queen Charlotte City); Parsey, O. D. (Prince Rupert); Harvie, T. (Terrace); Quast, H. W. (Hazelton); Gilgan, N. P. (Kitwanga); Pement, A. R. (Smithers); Weinard, R. H. (Houston); Jaeger, J. F. (Burns Lake); Hardwick, E. O. (Bella Coola); Jones, W. H. (Southbank); Neal, D. J. (Lower Post); Waldron, W. C. (Kitimat).

Nelson Forest District

J. R. Johnston - District Forester
Isenor, M. G. - Assistant District Forester

Forest Rangers:

Taft, L. G. (Invermere); Humphrey, J. L. (Fernie); Anderson, S. E. (Golden); Gierl, J. B. (Cranbrook East); Ross, A. I. (Creston); Allin, G. B. (Kaslo); Benwell, G. L. (Lardeau); Robinson, R. E. (Nelson); Jupp, C. C. (New Denver); Raven, J. H. (Nakusp); Wood, H. R. (Castlegar); Russell, P. F. (Grand Forks); Anderson, W. R. (Kettle Valley); Cartwright, G. M. (Canal Flats); Benwell, W. G. (Mica); Trenaman, R. G. (Fauquier); Dodd, G. F. (Elko); Webster, G. R. (Spillimacheen); Hamann, L. O. (Cranbrook West); Thompson, H. B. (Beaverdell); Bellmond, C. N. (Salmo); Hamilton, H. D. (Revelstoke).

APPENDIX

TABULATED DETAILED STATEMENTS TO SUPPLEMENT THE REPORT OF THE FOREST SERVICE, 1969

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(11) STATUS OF RESEARCH PROJECTS IN 1969

Active at beginning of year	96
Terminated	5
New projects	12
Active at end of year	103

RESEARCH PROJECTS BY DISTRICTS

Subject	Vancouver	Prince Rupert	Prince George	Kamloops	Nelson
Land classification	2	----	----	2	1
Tree breeding	3	----	----	----	----
Plant ecology	2	1	1	----	1
Silvicultural systems	----	----	----	----	1
Natural regeneration	----	1	1	1	1
Choice and trial of species	7	2	3	1	1
Nursery practice	14	----	1	----	----
Direct seeding	1	2	1	4	----
Planting	8	10	5	4	2
Forest fertilization	2	----	----	----	----
Tending of stands	9	1	----	2	2
Statistics	2	----	----	----	----
Management: Economics	----	----	----	----	1
Totals	50	17	12	14	10

(12) RESEARCH PUBLICATIONS, 1969

ARMIT, D. (1969): *A Natural Nursery Produces Plantable Wildlings.* Research Note No. 46, 6 pp., British Columbia Forest Service.

CLARK, M. B. (1969): *Direct Seeding Experiments on an Operational Scale—Working Plan.* In-service Report, 22 pp., British Columbia Forest Service.

——— (1969): *Direct Seeding Experiments in the Southern Interior Region of British Columbia.* Research Note No. 49, 19 pp., British Columbia Forest Service.

Forest Research Review for Year Ended March, 1969. 116 pp., British Columbia Forest Service.

HETHERINGTON, J. C. (1969): *An Economic Evaluation of Alternative Stand Treatments in Relation to the Development of Understorey Vegetation and Subsequent Regeneration Costs.* Forestry, 42(1):47–68.

ORR-EWING, A. L. (1969): *A Clone Bank of Douglas-fir.* Research Note No. 45, 13 pp., British Columbia Forest Service.

——— (1969): *Inbreeding to the S_2 Generation in Douglas-fir.* FAO/IUFRO 2nd World Consultation on Forest Tree Breeding, Wash., invited paper, 13 pp.

——— (1969): *The Development of a Program for the Genetic Improvement of Douglas-fir in British Columbia.* Forestry Chronicle 45(6).

VAN DEN DRIESSCHE, R. (1969): *Measurement of Frost Hardiness in Two-year-old Douglas-fir Seedlings.* Can. J. Plant Sci. 49:159–172.

——— (1969): *Tissue Nutrient Concentrations of Douglas-fir and Sitka Spruce.* British Columbia Forest Service Research Note No. 47, p. 42.

——— (1969): *Relationship between Douglas-fir Seedling Growth and Levels of Some Soil and Tissue Nutrients.* Forestry Chron. 45(4):273–277.

——— (1969): *Forest Nursery Handbook.* British Columbia Forest Service Research Note No. 48, p. 44.

——— (1969): *Influence of Moisture Supply, Temperature, and Light on Frost Hardiness Changes in Douglas-fir Seedlings.* Can. J. Bot. 47(11):1765–1772.

(22)

SUMMARY OF PLANTING, 1960–69

Year	Forest Service on Crown Land		Forest Service on Crown-granted Land (Forest Act, Sec. 152)		Companies on Tree-farm Licences		Other Private		Totals	
	Trees in Thousands	Acres	Trees in Thousands	Acres	Trees in Thousands	Acres	Trees in Thousands	Acres	Trees in Thousands	Acres
Coast										
1969[1]	4,579.0	11,021	107.0	201	9,981.6	28,666	5,673.6	14,885	20,341.2	54,773
1968	3,731.9	8,541	82.0	211	8,797.3	25,139	5,470.1	16,688	18,081.3	50,579
1967	4,052.1	9,237	...	...	7,036.6	21,784	3,860.6	11,710	14,949.3	42,731
1966	3,856.0	9,241	19.0	55	8,431.9	24,762	3,828.8	11,352	16,135.7	45,410
1965	3,221.7	9,398	628.0	1,453	7,038.5	20,742	4,432.5	13,023	15,320.7	44,616
1964	1,172.4	3,267	1,165.3	3,247	6,917.4	20,395	3,720.6	10,886	12,975.7	37,795
1963	2,080.0	5,413	1,592.2	3,538	6,487.3	18,463	3,130.6	9,226	13,290.1	36,640
1962	1,202.8	2,703	1,758.2	4,240	4,903.1	14,536	1,792.3	5,015	9,656.4	26,494
1961	330.0	770	563.3	1,508	4,549.6	14,399	1,120.4	3,145	6,563.3	19,822
1960	137.1	318	1,261.7	2,299	5,110.2	15,161	131.1	338	6,640.1	18,116
Previously planted	89,306.9	107,081	8,119.2	10,665	30,294.5	59,089	2,719.4	3,850	130,440.0	180,685
Totals to date	113,669.9	166,990	15,295.9	27,417	99,548.0	263,136	35,880.0	100,118	264,393.8	557,661
Interior										
1969[1]	5,019.9	11,167	...	...	302.0	912	70.7	127	5,392.6	12,206
1968	2,512.3	5,854	...	...	360.3	921	129.3	222	3,001.9	6,997
1967	1,785.3	3,747	...	...	634.3	1,491	95.5	207	2,515.1	5,445
1966	2,292.6	4,835	...	...	568.6	1,919	120.7	304	2,981.9	7,058
1965	1,755.9	5,442	...	...	614.9	2,735	130.4	382	2,501.2	8,559
1964	1,102.2	2,999	...	...	199.5	968	45.2	128	1,346.9	4,095
1963	595.4	1,304	...	...	329.7	906	5.9	11	931.0	2,221
1962	553.1	1,146	...	...	346.3	1,007	10.0	25	909.4	2,178
1961	408.3	1,008	...	...	248.0	625	1.8	3	658.1	1,636
1960	195.7	354	...	...	187.8	416	2.6	3	386.1	773
Previously planted	2,984.0	4,500	...	...	518.8	842	229.7	309	3,732.5	5,651
Totals to date	19,204.7	42,356	...	...	4,310.2	12,742	841.8	1,721	24,356.7	56,819
All planted to date	132,874.6	209,346	15,295.9	27,417	103,858.2	275,878	36,721.8	101,839	288,750.5	614,480
All planted this year	9,598.9	22,188	107.0	201	10,283.6	29,578	5,744.3	15,012	25,733.8	66,979

[1] Subject to corrections due to late returns.

(47) SUMMARY OF BASIC DATA FOR TREE-FARM LICENCES (PRIVATE SUSTAINED-YIELD UNITS)

Forest District	Number of Tree-farm Licences	Productive Area (Acres)			Total Area (Acres)	Allowable Cut (M Cu. Ft.)
		Schedule B[1]	Schedule A[2]	Total		
Vancouver	17[3]	2,471,227	1,205,113	3,676,340	6,588,909	333,030
Prince Rupert	6[3]	3,452,387	168,111	3,620,498	10,741,284	137,817
Prince George	2	461,625	1,599	463,224	521,617	12,350
Kamloops	7	725,369	1,841	727,210	776,669	17,655
Nelson	5	1,271,485	47,833	1,319,318	2,680,392	42,405
Totals	35	8,382,093	1,424,497	9,806,590	21,308,871	543,257

[1] Schedule B is vacant Crown land.

[2] Schedule A is land for which the tree-farm licence-holder has cutting rights other than those conveyed by the tree-farm licence agreement. This may include lands held in fee simple or temporary tenures; e.g., timber leases, licences, and berths. Following removal of the mature timber, lands held under temporary tenure are transferred to Schedule B.

[3] Two tree-farm licences located in both districts.

(48) SUMMARY OF BASIC DATA FOR CERTIFIED TREE-FARMS (PRIVATE SUSTAINED-YIELD UNITS OVER CROWN-GRANTED LANDS)

Within Tree-farm Licences

Forest District	Number of Tree-farms	Productive Area (Acres)				Total Area (Acres)	Estimated Productive Capacity (M Cu. Ft.)
		Mature	Immature	N.S.R. and N.C.C.	Total		
Vancouver	11	77,468	203,675	33,258	314,401	352,110	31,801
Prince George	1	188	790	243	1,221	1,280	46
Nelson	2	1,155	3,114	416	4,685	4,925	187
Totals	14	78,811	207,579	33,917	320,307	358,315	32,034

Not Included within Tree-farm Licences

Vancouver	21	128,459	275,233	35,485	439,177	467,348	36,595
Nelson	9	126,008	157,716	86,306	370,030	491,185	9,266 (327,831)
Totals	30	254,467	432,949	121,791	809,207	958,533	45,861 (327,831)
Grand totals	44	333,278	640,528	155,708	1,129,514	1,316,848	77,895 (327,831)

Figures in parentheses are Christmas trees.

(49) SUMMARY OF BASIC DATA FOR FARM WOOD-LOT LICENCES (PRIVATE SUSTAINED-YIELD UNITS)

Forest District	Number of Farm Wood-lot Licences	Productive Area (Acres)			Total Area (Acres)	Allowable Annual Cut (M Cu. Ft.)
		Crown	Private	Total		
Vancouver	14	1,990	258	2,248	3,155	81.6
Prince Rupert	5	1,570	235	1,805	3,261	33.2
Prince George	14	3,203	165	3,368	3,589	102.8
Kamloops	4	1,115	146	1,261	1,420	26.0
Nelson	6	1,633	840	2,473	2,629	33.4
Totals	43	9,511	1,644	11,155	14,054	277.0

(50) SUMMARY OF BASIC DATA FOR PUBLIC SUSTAINED-YIELD UNITS

Forest District	Number of Units	Productive Area (Acres)			Total Area (Including Non-forest) (Acres)	Approved Allowable Annual Cut (M Cu. Ft.)
		Mature	Immature	Total Productive (Includes N.S.R. and N.C.C.)		
Vancouver	6	3,271,110	1,484,813	5,236,751	10,370,526	159,432
Prince Rupert (Coast)	4	4,327,545	324,254	4,720,399	11,616,283	43,449
Prince Rupert (Interior)	7	5,750,543	3,154,641	9,297,931	14,272,760	54,053
Prince George	23	15,078,707[1]	13,746,554[1]	30,577,423[1]	43,276,195[1]	226,369
Kamloops	23	8,868,218[2]	10,703,769[2]	20,673,564[2]	27,379,726[2]	140,586
Nelson	14	2,757,295	5,006,090	8,652,801	14,321,712	71,331
Totals	77	40,053,418	34,420,121	79,158,869	121,237,202	695,220

[1] Area of 23 units, plus Prince George part of Chilko P.S.Y.U.
[2] Area of 23 units, including Kamloops part of Chilko P.S.Y.U.

(51) TOTAL AMOUNT OF TIMBER SCALE BILLED IN BRITISH COLUMBIA DURING YEARS 1968 AND 1969 IN CUBIC FEET

Forest District	10-year Average, 1960–69	1968	1969	Increase	Decrease	Net Increase
Vancouver	732,263,139	858,050,382	845,336,234	----------	12,714,148	----------
Prince Rupert (C.)	111,201,018	126,771,774	149,076,083	22,304,309	----------	----------
Totals, Coast	843,464,157	984,822,156	994,412,317	22,304,309	12,714,148	9,590,161
Prince Rupert (I.)	74,583,901	105,535,580	117,515,468	11,979,888	----------	----------
Prince George	212,520,625	274,080,612	333,228,284	59,147,672	----------	----------
Kamloops	229,457,356	218,461,023	262,700,510	44,239,487	----------	----------
Nelson	139,884,220	119,555,481	182,195,653	62,640,172	----------	----------
Totals, Interior	656,446,102	717,632,696	895,639,915	178,007,219	----------	178,007,219
Grand totals	1,499,910,259	1,702,454,852	1,890,052,232	----------	----------	187,597,380

(52) SPECIES CUT, ALL PRODUCTS, 1969, IN CUBIC FEET

Forest District	Fir	Cedar	Spruce	Lodgepole Pine	Hemlock	Balsam	White Pine
Vancouver	208,545,627	175,351,447	14,170,223	138,762	290,192,855	131,722,919	4,796,995
Prince Rupert (C.)	4,553,413	25,924,625	30,581,199	424,640	67,005,788	15,291,728	.....
Totals, Coast	213,099,040	201,276,072	44,751,422	563,402	357,198,643	147,014,647	4,796,995
Prince Rupert (I.)	102,948	8,032,772	34,279,152	19,619,565	36,005,488	16,244,047	.....
Prince George	25,926,925	834,545	205,433,123	82,809,109	91,129	16,003,830	24,629
Kamloops	116,980,786	11,189,184	73,259,191	26,205,119	8,370,978	14,300,145	2,065,338
Nelson	22,720,574	24,524,969	63,558,621	13,111,693	22,256,136	16,697,755	4,877,124
Totals, Interior	165,731,233	44,581,470	376,530,087	141,745,486	66,723,731	63,245,777	6,967,091
Grand totals	378,830,273	245,857,542	421,281,509	142,308,888	423,922,374	210,260,424	11,764,086

Forest District	Yellow Pine	Cypress	Larch	Hardwood	Cotton-wood	Unspecified	Total
Vancouver	12,010	13,669,114	.....	1,411,504	3,518,119	1,806,659	845,336,234
Prince Rupert (C.)	.....	495,703	.....	30,187	4,768,800	.....	149,076,083
Totals, Coast	12,010	14,164,817	.....	1,441,691	8,286,919	1,806,659	994,412,317
Prince Rupert (I.)	.....	.....	.....	52,587	3,178,909	.....	117,515,468
Prince George	.....	.....	.....	82,612	2,022,382	.....	333,228,284
Kamloops	7,532,176	.....	2,297,252	233,926	266,415	.....	262,700,510
Nelson	1,352,086	.....	12,507,369	24,690	564,636	.....	182,195,653
Totals, Interior	8,884,262	.....	14,804,621	393,815	6,032,342	.....	895,639,915
Grand totals	8,896,272	14,164,817	14,804,621	1,835,506	14,319,261	1,806,659	1,890,052,232

(53) TOTAL SCALE OF ALL PRODUCTS BILLED IN 1969 IN CUBIC FEET (SEGREGATED BY LAND STATUS AND FOREST DISTRICTS)

Land Status	Vancouver	Prince Rupert (Coast)	Prince Rupert (Interior)	Prince George	Kamloops	Nelson	Total
Timber licences	140,612,614	36,544,097	.....	4,634,255	4,679,782	7,011,645	193,482,393
Timber berths	14,511,209	.....	.....	.....	11,111,230	4,323,075	29,945,514
Timber leases	39,233,916	.....	.....	.....	.....	.....	39,233,916
Pulp leases	37,290,016	3,746,045	.....	.....	.....	.....	41,036,061
Pulp licences	8,620,549	9,387,634	.....	.....	.....	.....	18,008,183
Farm wood-lots	104,489	.....	.....	151,450	9,972	22,568	288,479
Timber sales	180,939,115	43,036,618	55,888,611	277,872,089	176,532,093	94,628,782	828,897,308
Tree-farm licences	130,949,754	44,906,333	47,758,521	11,882,679	16,023,192	50,725,431	302,245,910
Beachcomb, trespass	8,485,931	.....	.....	.....	.....	.....	8,485,931
No mark visible	47,528,727	.....	.....	.....	.....	.....	47,528,727
Miscellaneous	596,294	4,917,264	3,179,879	17,132,926	7,941,542	5,352,303	39,120,208
Sub-totals, Crown lands	608,872,614	142,537,991	106,827,011	311,673,399	216,297,811	162,063,804	1,548,272,630
Federal lands	7,892,109	2,097,420	1,794,958	1,466,795	5,099,888	118,248	18,379,418
Crown grants—							
To 1887	190,775,170	19,123	.....	65,301	10,250,149	2,058,027	203,167,770
1887–1906	11,824,675	490,294	201,509	55,389	3,161,369	9,577,550	25,310,786
1906–14	4,218,422	1,257,789	3,105,368	2,760,835	5,922,582	2,244,079	19,509,075
1914 to date	21,843,244	2,673,466	5,586,622	17,206,565	21,968,711	6,133,945	75,412,553
Totals	845,336,234	149,076,083	117,515,468	333,228,284	262,700,510	182,195,653	1,890,052,232

(54) TIMBER SCALE BILLED IN BRITISH COLUMBIA DURING 1969 (BY MONTHS AND FOREST DISTRICTS)

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Vancouver—													
F.b.m.	31,295,799	39,232,140	47,226,314	83,613,726	93,259,663	101,551,555	101,701,068	89,940,808	95,872,776	104,670,044	108,277,680	72,241,234	968,882,807
Cubic feet	11,992,423	33,733,856	44,285,432	51,236,110	67,970,560	69,496,940	64,776,006	71,491,208	64,210,049	73,565,302	55,759,250	69,541,244	678,058,380
Lineal feet	522,705	96,943	209,251	65,360	209,944	174,206	94,540	775,240	256,731	619,433	614,931	523,036	4,162,320
Cords	3,002	895	1,347	2,104	2,990	2,287	4,583	2,543	888	3,882	1,580	2,436	28,537
All products, cu. ft.	17,895,306	40,430,147	52,444,589	65,429,846	83,963,154	86,772,711	82,244,388	87,312,806	80,468,956	91,855,217	74,374,997	82,144,117	845,336,234
Prince Rupert (C.)—													
F.b.m.	5,880,436	11,924,639	16,465,802	22,041,870	19,366,733	17,908,922	18,196,675	24,162,760	18,954,602	17,223,515	16,139,301	16,171,769	204,437,024
Cubic feet	3,744,657	5,958,136	5,625,218	9,563,914	12,008,489	10,585,571	8,893,408	11,050,800	14,471,596	8,508,246	12,473,157	11,781,121	114,664,323
Lineal feet	8,895	.....	10,800	43,645	35,465	33,040	33,095	[1] 24,490	1,136,046	1,200	13,535	17,970	1,309,201
Cords	.....	.....	20	.....	.....	.....	.....	89	.....	.....	3	.....	112
All products, cu. ft.	4,731,400	7,945,576	8,379,618	13,260,293	15,262,876	13,595,171	11,951,008	15,065,591	17,841,381	11,379,741	15,173,535	14,489,893	149,076,083
Prince Rupert (I.)—													
F.b.m.	1,425,243	1,094,936	2,159,630	2,655,652	312,564	438,438	497,719	754,266	777,323	668,310	438,634	432,162	11,654,877
Cubic feet	10,661,273	12,383,826	12,757,400	8,583,495	4,826,685	7,910,173	4,450,306	13,646,314	13,443,610	6,654,828	11,192,801	8,577,448	115,088,159
Lineal feet	34,795	4,540	13,180	15,745	31,167	15,085	11,010	15,875	12,315	19,715	.....	544,606	718,033
Cords	50	35	55	1,297	300	222	.....	86	.....	.....	.....	80	2,125
All products, cu. ft.	10,939,237	12,580,454	13,147,272	9,160,311	4,926,599	8,015,497	4,545,122	13,796,376	13,588,032	6,785,841	11,269,085	8,761,642	117,515,468
Prince George—													
F.b.m.	6,622,229	4,222,167	2,906,699	3,731,429	1,389,544	993,924	2,632,734	2,559,190	4,541,958	4,069,097	2,754,378	3,418,225	39,841,574
Cubic feet	32,696,359	36,159,091	60,608,823	57,622,920	8,041,140	7,867,755	21,875,038	6,171,497	21,500,617	27,649,493	23,998,476	21,945,898	326,137,107
Lineal feet	8,945	7,620	21,177	9,757	.....	20,875	7,490	2,990	2,635	7,560	17,503	431	106,983
Cords	48	38	39	90	40	55	60	10	178	21	139	102	820
All products, cu. ft.	33,859,517	36,902,886	61,134,182	58,288,205	8,286,801	8,061,730	22,344,478	6,619,916	22,310,165	28,364,962	24,504,537	22,550,905	333,228,284
Kamloops—													
F.b.m.	2,858,116	3,288,066	4,961,039	8,057,972	5,823,195	4,982,067	8,007,656	4,887,327	5,906,656	4,629,835	4,289,359	6,816,491	64,507,779
Cubic feet	12,374,352	20,426,778	28,985,854	20,456,172	11,292,162	13,454,574	26,128,111	13,916,730	26,731,106	17,298,805	24,661,228	34,565,262	250,291,134
Lineal feet	27,625	72,241	39,620	7,075	62,580	178,081	106,840	176,451	41,325	163,788	77,558	249,100	1,202,284
Cords	171	183	488	180	651	339	184	211	139	431	224	353	3,554
All products, cu. ft.	12,907,514	21,051,847	29,924,573	21,879,729	12,400,027	14,484,931	27,620,278	14,909,201	27,802,419	18,262,972	25,486,018	35,971,001	262,700,510
Nelson—													
F.b.m.	2,874,551	1,464,000	7,152,739	2,930,813	3,677,555	3,326,010	4,303,507	2,762,330	3,786,455	8,384,830	5,246,130	4,184,003	50,092,923
Cubic feet	15,224,285	12,115,443	18,663,159	12,554,815	2,721,501	7,434,891	12,813,070	9,480,743	14,145,312	15,537,493	21,854,894	27,722,594	170,268,200
Lineal feet	144,335	389,755	311,574	197,658	168,003	65,725	185,887	471,056	42,400	557,167	215,571	592,231	3,341,362
Cords	285	1,263	2,227	609	1,936	619	1,618	1,572	1,166	2,388	843	714	15,240
All products, cu. ft.	15,860,386	12,714,785	20,343,164	13,233,942	3,676,708	8,099,370	13,852,777	10,154,372	14,908,941	17,615,993	22,961,676	28,773,539	182,195,653
Totals—													
F.b.m.	50,956,374	61,225,948	80,872,223	123,031,462	123,829,254	129,200,916	135,339,359	125,066,681	129,839,770	139,645,631	137,145,482	103,263,884	1,339,416,984
Cubic feet	86,693,349	120,777,130	170,925,886	160,017,426	106,860,537	116,749,904	138,935,939	125,757,292	154,502,290	149,214,177	149,939,806	174,133,567	1,654,507,303
Lineal feet	747,300	571,099	605,602	339,240	507,159	487,012	438,862	1,417,122	1,491,452	1,368,863	939,098	1,927,374	10,840,183
Cords	3,556	2,414	4,176	4,280	5,917	3,522	6,445	4,511	2,371	6,722	2,789	3,685	50,388
All products, cu. ft.	96,193,360	131,625,695	185,373,398	181,252,326	128,516,165	139,029,410	162,558,051	147,858,262	176,919,894	174,264,726	173,769,848	192,691,097	1,890,052,232

[1] Debit.

(55) NUMBER OF ACRES OPERATING UNDER APPROVED ANNUAL ALLOWABLE CUTS, 1960–69

Year	Tree-farm Licences		Tree-farms[1]		Christmas-tree Permits		Farm Wood-lots		Public Sustained-yield Units		Total Acres
	Number	Productive Acres	Number	Productive Acres	Number	Productive Acres[2]	Number	Productive Acres	Number	Productive Acres	
1960	37	6,081,496	25	507,581	294	89,224	52	12,375	72	40,257,302	46,858,754
1961	39	7,017,594	22	545,164	282	96,478	50	11,993	78	46,203,742	53,778,493
1962	39	7,054,191	22	665,666	306	106,966	57	14,940	80	48,940,122	56,674,919
1963	39	7,070,774	25	672,712	346	123,538	53	14,124	82	52,530,686	60,288,296
1964	39	7,146,685	28	682,553	348	119,911	55	14,950	83	60,960,307	68,804,495
1965	40	8,796,577	31	709,452	352	120,065	51	13,978	75	69,781,944	79,301,951
1966	38	9,633,579	32	712,152	347	115,175	47	12,632	76	75,536,237	85,894,600
1967	36	9,687,984	31	714,901	351	119,421	46	12,522	76	75,727,896	86,143,303
1968	36	9,770,637	31	806,123	350	116,594	43	11,165	77	78,545,907	89,133,832
1969	35	9,806,590	30	809,207	344	116,498	43	11,155	77	79,158,869	89,902,319

[1] Exclusive of tree-farms incorporated into tree-farm licences.
[2] Also included in productive acres under public sustained-yield units.

(56)

TOTAL SCALE OF ALL PRODUCTS FROM AREAS OPERATED UNDER APPROVED ANNUAL ALLOWABLE CUTS, 1960–69

Year	Tree-farm Licences		Tree-farms[1]		Christmas Trees			Farm Wood-lots		Public Sustained-yield Units		Total[3] (Cubic Feet)
					Permits		Other Sources[2] (Number of Trees)					
	Number	Cubic Feet	Number	Cubic Feet	Number	Number of Trees		Number	Cubic Feet	Number	Cubic Feet	
1960	37	241,410,459	25	32,683,000	294	495,697	349,513	52	92,168	72	385,200,000	659,385,627
1961	39	279,917,294	22	27,842,000	282	434,796	323,254	50	244,577	78	454,029,600	762,033,471
1962	39	337,057,599	22	35,678,000	306	552,512	153,618	57	277,701	80	527,054,000	900,067,300
1963	39	365,631,639	25	33,305,000	346	617,753	220,393	53	263,678	82	633,193,000	1,032,393,317
1964	39	350,806,403	28	34,543,000	348	511,726	395,168	55	253,552	83	607,641,611	993,244,566
1965	40	374,062,274	31	39,587,737	352	509,876	207,643	51	216,486	75	687,492,876	1,101,359,373
1966	38	405,623,421	32	45,058,717	347	494,798	239,378	47	166,963	76	640,946,702	1,091,795,803
1967	36	449,386,772	31	43,308,260	351	541,930	454,031	46	378,346	76	639,542,228	1,132,615,606
1968	36	515,466,148	31	65,574,000	350	499,373	413,398	43	289,177	77	700,560,822	1,281,890,147
1969	35	499,093,539	30	57,646,500	344	470,044	317,801	43	240,703	77	728,844,554	1,285,825,296
Ten-year average, 1960–69	38	381,845,555	28	41,522,621	332	512,851	307,420	50	242,335	78	600,450,539	1,024,061,050

[1] Exclusive of tree-farms incorporated into tree-farm licences.
[2] Includes Christmas trees cut from tree-farm licences, tree-farms, and farm wood-lots.
[3] Total Christmas-tree cut is not shown.

(57)

LOGGING INSPECTIONS, 1969

Forest District	Type of Tenure Operated				Number of Inspections Made		
	Timber Sale Licences	Cutting Permits (Tree-farm Licences, Farm Wood-lot Licences, and Timber Sale Harvesting Licences)	Leases, Licences, Crown Grants, and Other Tenures	Total	Timber Sale Licences and Cutting Permits	Other Tenures	Total
Vancouver	848	218	1,769	2,835	2,709	2,741	5,450
Prince Rupert	325	222	642	1,189	1,647	849	2,496
Prince George	1,107	109	2,554	3,770	7,161	973	8,134
Kamloops	646	195	1,114	1,955	4,047	2,682	6,729
Nelson	585	132	1,279	1,996	1,954	1,437	3,391
Totals, 1969	3,511	876	7,358	11,745	17,518	8,682	26,200
Totals, 1968	4,719	(1)	7,758	12,477	17,480	10,092	27,572
Totals, 1967	5,118	(1)	7,431	12,549	17,663	9,488	27,151
Totals, 1966	5,566	(1)	6,174	11,740	18,593	9,576	28,169
Totals, 1965	6,231	(1)	6,514	12,745	17,869	6,365	24,234
Totals, 1964	6,557	(1)	6,560	13,117	17,789	13,311	31,100
Totals, 1963	6,926	(1)	7,168	14,094	18,021	7,189	25,210
Totals, 1962	7,079	(1)	6,645	13,724	18,602	6,353	24,955
Totals, 1961	7,088	(1)	6,463	13,551	18,330	6,242	24,572
Totals, 1960	7,249	(1)	5,120	12,369	(2)	(2)	26,151
Ten-year average, 1960–69	------	-----	6,719	12,811	----------	---------	26,531

1 Figures not available prior to 1969.
2 No breakdown made prior to 1961.

(58)

TRESPASSES, 1969

Forest District	Number of Cases	Area Cut Over (Acres)	Quantities Cut								Number of Resulting Seizures	Assessment in Dollars
			Cubic Feet	Lineal Feet	Cords	Ties	Christmas Trees	Cedar Shakes	Posts, Car Stakes	Reserved Trees		
Vancouver	108	750	1,449,584	6,220	16	.....	541	10,278	.....	.....	8	$130,531.19
Prince Rupert	53	315	974,280	.....	.....	.....	.....	.....	2,000	.....	1	50,862.44
Prince George	77	397	647,889	.....	.....	.....	.....	.....	.....	4	.....	54,013.63
Kamloops	110	689	1,327,606	.....	40	.....	21,287	.....	.....	.....	8	104,082.64
Nelson	51	444	325,769	.....	.....	.....	698	114,186	373	.....	.....	32,475.05
Totals, 1969	399	2,595	4,725,128	6,220	56	.....	22,526	124,464	2,373	4	17	$371,964.95
Totals, 1968	378	2,229	3,067,915	34,013	778	.....	4,127	13,234	29,976	141	6	$260,438.20
Totals, 1967	319	1,724	2,785,911	9,365	2,910	.....	3,934	49,635	176	6	1	$184,724.80
Totals, 1966	435	2,921	4,184,997	64,535	37	.....	11,001	121,604	1,990	405	5	$272,439.56
Totals, 1965	436	4,517	4,093,758	93,546	118	.....	13,204	25,290	75	580	5	$239,156.97
Totals, 1964	454	2,488	3,023,375	56,250	305	.....	6,724	453,238	900	2,988	11	$284,797.47
Totals, 1963	546	3,761	4,085,328	36,401	3,494	.....	10,995	17,938	2,233	2,145	13	$257,136.75
Totals, 1962	524	4,210	4,174,109	78,879	790	2,125	8,141	57,600	3,412	1,048	7	$217,146.45
Totals, 1961	517	4,953	3,531,505	141,904	2,319	.....	9,239	164,415	179	1,038	10	$190,547.22
Totals, 1960	533	4,588	3,438,931	129,420	1,339	73	11,698	67,865	900	2,702	11	$240,494.65
Ten-year average, 1960–69	455	3,399	3,711,096	65,053	1,215	.....	10,159	109,528	4,221	1,106	9	$251,884.70

(59) AREAS CRUISED FOR TIMBER SALES, 1969

Forest District	Number Cruised	Acreage	Saw-timber (M C.F.)	Pit-props, Poles, and Piles (Lin. Ft.)	Shingle-bolts and Cordwood (Cords)	Car Stakes, Ties, Posts, Shakes, Etc. (No.)
Vancouver	323	43,226	84,889	10,000	7,207	121,200
Prince Rupert	78	16,379	72,135	.....	3,520	141,000
Prince George	163	102,043	186,800	.....	500	.....
Kamloops	95	34,058	53,779	5,300	1,375	39,812
Nelson	73	37,785	47,523	.....	790	2,608,000
Totals, 1969	732	233,491	445,126	15,300	13,392	2,910,012
Totals, 1968	890	314,595	673,885	3,269,400	6,769	704,950
Totals, 1967	848	310,325	549,807	6,014,850	12,352	319,450
Totals, 1966	998	361,021	679,486	3,674,100	25,675	837,244
Totals, 1965	1,357	496,254	951,995	2,650,400	7,616	987,100
Totals, 1964	1,709	661,821	1,107,428	2,944,004	25,154	478,520
Totals, 1963	1,862	716,699	1,165,976	3,887,525	32,519	656,680
Totals, 1962	1,871	615,500	921,710	18,508,084	19,340	564,865
Totals, 1961	1,892	720,144	1,027,243	7,687,920	14,798	1,419,285
Totals, 1960	2,122	767,351	1,142,479	8,807,614	29,050	1,419,179
Ten-year average, 1960–69	1,428	519,720	866,514	5,745,920	18,667	1,029,729

(60) TIMBER-SALE LICENCE RECORD, 1969

Forest District	Sales Made	Sales Closed	Total Sales Existing	Total Area (Acres)	Area Paying Forest Protection Tax (Acres)	Total Security Deposit
Vancouver	297	291	1,000	352,205	330,824	$4,588,150.86
Prince Rupert	71	222	343	137,037	118,886	762,643.48
Prince George	177	193	825	454,085	389,854	3,374,324.62
Kamloops	133	292	997	628,756	598,635	3,066,831.10
Nelson	61	81	396	424,769	402,284	1,903,220.51
Totals	739	1,079	3,561	1,996,852	1,840,483	$13,695,170.57
Cash sales	588	.....	.....	.....	.....	.....
Total sales	1,327	.....	.....	.....	.....	.....

(61)

COMPETITION FOR TIMBER SALES AWARDED, 1969

Forest District	By Number of Sales									By Volume, Sawlogs Only (M Cu. Ft.)						Total Volume
	Bid at Upset Stumpage		Bid Less than Two Times the Upset Price		Bid More than Two Times the Upset Price		Total Number (Cash Sales Excluded)	Cash Sales	District Totals (Cash Sales Included)	Bid at Upset Stumpage		Bid Less than Two Times the Upset Stumpage		Bid More than Two Times the Upset Stumpage		
	Number	Per Cent	Number	Per Cent	Number	Per Cent				Volume	Per Cent	Volume	Per Cent	Volume	Per Cent	
Vancouver	282	94.9	15	5.1	-----	-----	297	26	323	61,937	89.8	7,068	10.2	-----	-----	69,005
Prince Rupert	65	91.6	3	4.2	3	4.2	71	18	89	25,497	71.3	160	0.4	10,120	28.3	35,777
Prince George	165	93.2	7	4.0	5	2.8	177	48	225	131,769	98.2	971	0.7	1,445	1.1	134,185
Kamloops	121	91.0	5	3.7	7	5.3	133	189	322	57,840	94.7	2,125	3.5	1,125	1.8	61,090
Nelson	52	85.2	4	6.6	5	8.2	61	173	234	41,175	97.9	435	1.0	444	1.1	42,054
Totals, 1969	685	92.7	34	4.6	20	2.7	739	454	1,193	318,218	93.0	10,759	3.2	13,134	3.8	342,111
Totals, 1968	753	95.1	33	4.2	7	0.7	793	448	1,241	373,231	96.5	10,652	2.8	2,874	0.7	386,757
Totals, 1967	745	96.0	24	3.1	7	0.9	776	373	1,149	412,070	97.4	9,101	2.1	2,021	0.5	423,192
Totals, 1966	796	96.4	24	2.9	6	0.7	826	300	1,126	319,984	97.5	4,828	1.5	3,361	1.0	328,173
Totals, 1965	1,194	95.1	38	3.0	24	1.9	1,256	358	1,614	542,270	96.9	10,386	1.8	6,803	1.3	559,459
Totals, 1964	1,723	90.9	142	7.5	31	1.6	1,896	385	2,281	798,105	88.9	69,136	7.7	30,685	3.4	897,926
Totals, 1963	1,518	88.7	156	9.1	38	2.2	1,712	471	2,183	669,382	87.1	51,781	6.7	47,615	6.2	768,778
Totals, 1962	1,523	90.7	118	7.0	38	2.3	1,679	312	1,991	544,893	88.3	56,863	9.2	15,200	2.5	616,956
Totals, 1961	1,715	92.3	85	4.6	57	3.1	1,857	282	2,139	795,853	91.1	39,578	4.5	38,102	4.4	873,533
Totals, 1960	1,659	90.0	117	6.4	67	3.6	1,843	295	2,138	539,999	78.6	74,569	10.8	72,753	10.6	687,321
Ten-year average, 1960–69	1,231	92.0	77	5.8	30	2.2	1,338	368	1,706	531,401	90.3	33,765	5.7	23,255	4.0	588,421

(62) TIMBER SALES AWARDED BY FOREST DISTRICTS, 1969

Forest District	No. of Sales	Acreage	Saw-timber (Cu. Ft.)	Poles and Piling (Lin. Ft.)	No. of Posts	No. of Cords	No. of Ties	No. of Christmas Trees	No. of Car Stakes	No. of Cedar Shakes	No. of Fence Rails and Palings	Estimated Revenue
Vancouver	323	35,792	69,005,220	1,000	500	6,205	.....	.....	.....	.....	.....	$7,186,721.77
Prince Rupert	89	12,116	35,777,000	1,464,160	.....	4,030	.....	.....	3,500	10,000	.....	2,354,924.32
Prince George	225	54,408	134,184,800	64,595	18,143	854	.....	.....	.....	66,200	250	12,344,227.80
Kamloops	456	44,804	61,089,628	381,844	84,606	4,890	.....	.....	.....	.....	3,935	6,004,335.10
Nelson	234	35,996	42,054,000	1,222,107	109,560	879	.....	.....	1,000	1,507,444	500	3,111,549.66
Totals, 1969	1,327	183,116	342,110,648	3,133,706	212,809	16,858	.....	.....	4,500	1,583,644	4,685	$31,001,758.65
Totals, 1968	1,241	212,022	386,757,027	2,005,677	213,654	10,969	.....	300	7,066	424,125	8,875	$24,293,171.92
Totals, 1967	1,149	242,011	423,192,600	2,528,440	160,540	8,816	.....	1,750	7,515	210,930	12,584	$13,679,675.37
Totals, 1966	1,126	208,945	328,174,100	3,952,770	194,353	11,538	.....	1,760	3,650	70,380	3,298	$14,166,872.69
Totals, 1965	1,614	384,850	559,461,701	1,900,163	428,920	16,766	.....	150	13,200	540,860	14,658	$23,677,018.31
Totals, 1964	2,281	606,588	897,925,974	6,985,755	249,998	34,438	.....	387	11,500	504,600	500	$37,209,392.28
Totals, 1963	2,183	534,569	768,778,307	4,123,192	501,980	16,300	.....	1,155	9,800	172,950	3,180	$26,194,611.24
Totals, 1962	1,991	437,864	616,956,200	15,700,256	439,058	12,696	.....	.....	10,442	272,000	220,930	$18,959,259.42
Totals, 1961	2,139	746,644	873,533,841	9,898,830	1,046,724	22,988	.....	725	7,750	332,758	2,000	$22,599,089.53
Totals, 1960	2,138	612,482	687,324,482	7,190,459	397,328	20,934	32,849	425	17,850	850,000	1,870	$24,872,154.78
Ten-year average, 1960–69	1,719	416,909	588,421,488	5,741,925	384,536	17,230	3,285	665	9,327	496,225	27,258	$23,665,300.42

(63)

AVERAGE STUMPAGE PRICES AS BID, BY SPECIES AND FOREST DISTRICTS, ON TIMBER SALES DURING 1969, PER HUNDRED CUBIC FEET LOG SCALE

Forest District	Douglas Fir			Cedar			Spruce			Hemlock			Balsam		
	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.
Vancouver	13,680	$14.88	$0.55–29.70	12,879	$8.46	$0.55–24.30	362	$9.06	$4.40–15.60	25,404	$9.84	$0.55–17.00	13,349	$9.48	$0.55–15.30
Prince Rupert (C.)	2,380	9.89	3.50–12.50	1,600	3.37	2.60– 7.60	2,130	7.66	3.40–12.70	6,674	4.94	2.90– 9.90	918	2.32	2.70– 7.00
Prince Rupert (I.)	.....	.....	.....	611	3.25	1.60–10.70	4,870	9.09	.55–18.10	4,973	5.23	1.10–11.80	6,625	5.51	.55– 9.70
Prince George	11,157	15.62	1.75–24.20	565	3.96	1.75– 9.60	73,882	10.44	.60–40.00	572	6.22	.55– 9.90	6,672	5.38	.60–10.20
Kamloops	23,918	13.59	.55–21.80	5,364	6.38	.55–12.70	15,417	8.33	.55–18.00	3,544	5.89	.55–13.10	6,019	4.02	1.20– 9.70
Nelson	3,847	11.40	.55–21.40	5,833	4.85	.55–20.00	15,470	8.39	.30–12.60	9,798	5.08	.20–13.40	3,039	4.59	.55– 6.80
Totals for Province	54,982	$14.01	$0.55–29.70	26,852	$6.74	$0.55–24.30	112,131	$9.75	$0.30–40.00	50,965	$7.52	$0.20–17.00	36,622	$6.53	$0.55–15.30

Forest District	White Pine			Lodgepole Pine			Larch			Other Species			All Species		
	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.
Vancouver	166	$5.81	$2.30–19.00	6	$4.00	$4.00– 4.00	.....	.....	.....	3,159	$7.05	$0.55–13.40	69,005	$.0.37	$0.55–29.70
Prince Rupert (C.)	.....	.....	.....	1	4.90	4.90– 4.90	.....	.....	.....	325	3.13	.90– 5.30	14,028	5.80	.90–12.50
Prince Rupert (I.)	.....	.....	.....	4,585	9.73	.55–16.20	.....	.....	.....	85	2.15	.55– 9.70	21,749	7.06	.55–18.10
Prince George	.....	.....	.....	39,332	6.16	.60–16.00	.....	.....	.....	2,003	4.00	.60–17.00	134,183	9.20	.55–40.00
Kamloops	304	15.52	.55–21.00	3,366	7.74	1.00–17.10	204	$14.87	$3.50–16.80	2,913	8.60	.55–15.90	61,049	9.69	.55–21.80
Nelson	697	13.34	.30–21.00	1,370	8.90	.55–10.80	1,652	12.51	.55–21.80	348	5.41	.20–10.80	42,054	7.36	.20–40.00
Totals for Province	1,167	$12.84	$0.30–21.00	48,660	$6.68	$0.55–17.10	1,856	$12.77	$0.55–21.80	8,833	$6.22	$0.20–15.90	342,068	$9.02	$0.20–40.00

(64)

AVERAGE STUMPAGE PRICES RECEIVED, BY SPECIES AND FOREST DISTRICTS, ON TIMBER SCALED ON TREE-FARM LICENCE CUTTING PERMITS DURING 1969

Forest District	Douglas Fir			Cedar			Spruce			Hemlock			Balsam		
	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.
Vancouver	15,577	$13.06	$1.20–19.20	28,883	$6.50	$0.55–12.40	2,412	$9.45	$1.30–16.00	50,213	$7.41	$0.60–12.30	23,258	$7.64	$0.55–12.20
Prince Rupert				7,673	2.14	.77–11.40	17,780	2.89	.91–14.60	33,140	1.85	.83– 9.40	7,900	1.03	.83– 2.80
Prince George	3,387	12.62	2.60–23.90				6,636	11.28	2.60–18.20				1,440	6.89	1.10–10.90
Kamloops	4,208	12.24	.90–20.00	108	4.09	.90– 7.50	7,579	6.73	.90–18.60	4	4.75	1.30–11.50	1,266	3.07	.70–11.20
Nelson	3,094	11.35	2.00–24.10	6,360	2.80	.25–14.60	12,134	6.34	2.00–18.10	7,948	2.18	.25–17.20	2,288	2.49	.25–10.80
Totals for Province	26,266	$12.67	$0.90–24.10	43,024	$5.17	$0.25–14.60	46,541	$5.95	$0.90–18.60	91,305	$4.94	$0.25–17.20	36,152	$5.68	$0.25–12.20

Forest District	Lodgepole Pine			White Pine			Larch			Other Species			All Species		
	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.	Volume M C.F.	Price per C C.F.	Price Range per C C.F.
Vancouver	6	$2.96	$0.55– 8.10	355	$2.71	$0.55– 8.10				2,777	$5.10	$0.55– 9.60	123,481	$7.93	$0.55–19.20
Prince Rupert	1,393	.91	.83– 2.80							3,213	.95	.83– 4.60	71,099	1.99	.77–14.60
Prince George	130	7.92	1.80–16.40							8	.55	.55– .55	11,601	11.08	.55–23.90
Kamloops	1,695	5.33	1.30–16.70				376	$14.70	$1.80–19.80	498	7.51	.90–10.80	15,734	7.96	.70–20.00
Nelson	2,162	3.74	1.30–15.80	1,673	16.31	10.20–23.30	2,200	11.69	2.30–22.40	18	3.40	.60–12.60	37,877	5.65	.25–24.10
Totals for Province	5,386	$3.61	$0.55–16.70	2,028	$13.92	$0.55–23.30	2,576	$12.13	$1.80–22.40	6,514	$3.22	$0.55–12.60	259,792	$6.11	$0.25–24.10

(65) TIMBER CUT AND BILLED FROM TIMBER SALES AND TIMBER SALE HARVESTING LICENCES, 1969

Forest District	Cubic Feet	Board-feet	Lineal Feet	Cords	Ties	Posts	Christmas Trees	Hop Poles	Car Stakes	Fence Rails, Palings	Slag Poles	Shingle Shakes	Shake Blanks
Vancouver	178,291,201	6,250,091	204,054	2,078	.....	3,566	.....	.....	.....	.....	.....	5,676,051	263,257
Prince Rupert (C.)	42,898,171	.....	5,575	63	.....	.....	.....	.....	1,600	.....	61,829	.....	10,000
Prince Rupert (I.)	55,614,611	.....	138,725	2,121	.....	.....	.....	.....	100	.....	.....	.....	.....
Prince George	259,542,230	.....	92,220	39	.....	6,517	.....	.....	.....	.....	.....	.....	5,465
Kamloops	175,720,361	.....	757,470	2,305	.....	22,302	.....	.....	.....	2,441	.....	.....	.....
Nelson	92,790,485	.....	2,082,555	440	.....	70,807	479,284	.....	1,794	.....	.....	.....	1,577,306
Totals, 1969	804,857,059	6,250,091	3,280,599	7,046	.....	103,192	479,284	.....	3,494	2,441	61,829	5,676,051	1,856,028
Totals, 1968	714,384,574	6,416,864	3,862,509	7,819	.....	172,642	483,503	.....	3,751	.....		4,369,011	1,133,289
Totals, 1967	619,335,789	6,083,295	6,107,876	8,719	.....	283,712	458,795	.....	6,277	.....		3,264,427	553,397
Totals, 1966	712,773,314	7,705,804	8,254,946	12,558	.....	134,518	445,423	.....	2,303	.....		4,296,938	379,893
Totals, 1965	728,521,327	13,198,159	5,732,671	14,576	.....	200,017	448,385	.....	9,454	.....		4,795,873	395,119
Totals, 1964	729,684,953	42,643,124	5,840,321	19,047	.....	403,435	483,002	.....	3,302	9,260		6,379,921	728,183
Totals, 1963	713,287,016	51,131,178	7,811,867	15,217	1,913	500,287	485,637	.....	5,643	88,721		4,679,585	655,827
Totals, 1962	645,464,932	71,557,831	7,803,821	11,621	625	530,504	354,763	11,818	6,210	29,840		4,678,254	503,049
Totals, 1961	575,338,601	117,488,982	10,403,972	8,362	25,761	564,443	500,764	9,496	6,873	.....		4,622,529	776,010
Totals, 1960	574,578,669	95,002,548	9,065,920	9,071	97,639	504,996	397,353	35,800	4,056	.....		7,323,265	644,490
Ten-year average, 1960–69	681,822,623	41,747,788	6,816,450	11,404	12,594	339,775	453,691	5,711	5,136	13,026	6,183	5,008,585	762,529

(66) WOOD-PROCESSING PLANTS OF THE PROVINCE, 1969

Forest District	Operating								Shut Down			
	Sawmills				Shingle-mills		Number of Pulp Mills[1]	Number of Veneer and Plywood Plants[1]	Sawmills		Shingle-mills	
	Number	Estimated Eight-hour Daily Capacity, M B.F.	Number of Attached Chippers[1]	Number of Attached Barkers[1]	Number	Estimated Eight-hour Daily Capacity, M B.F.			Number	Estimated Eight-hour Daily Capacity, M B.F.	Number	Estimated Eight-hour Daily Capacity, M B.F.
Vancouver	118	7,634	110	67	46	572	10	11	94	573	13	26
Prince Rupert	116	1,354	7	6	3	8	3	----	35	248	------	------
Prince George	287	5,249	42	43	2	12	3	3	95	583	1	1
Kamloops	297	6,414	42	52	5	39	1	5	27	145	------	------
Nelson	156	2,781	26	26	6	12	2	3	58	301	3	12
Totals, 1969	974	23,432	227	194	62	643	19	22	309	1,850	17	39
Totals, 1968	902	22,822	186	164	59	705	19	22	332	2,297	13	28
Totals, 1967	931	22,757	197	164	62	784	17	21	340	3,211	5	16
Totals, 1966	1,116	26,729	183	153	57	826	15	20	429	3,344	13	27
Totals, 1965	1,191	27,641	161	144	63	820	12	19	478	2,903	9	26
Totals, 1964	1,417	28,865	97	82	61	680	11	17	513	3,035	6	18
Totals, 1963	1,541	29,339	------	------	69	1,003	----	----	502	3,490	9	65
Totals, 1962	1,627	28,234	------	------	33	591	----	----	512	3,217	14	92
Totals, 1961	1,778	29,025	------	------	60	917	----	----	559	3,613	9	49
Totals, 1960	1,938	29,432	------	------	44	950	----	----	558	3,381	17	93
Ten-year average, 1960–69	1,342	26,828	------	------	57	792	----	----	453	3,034	11	45

[1] Figures not available prior to 1964.

(67) EXPORT OF LOGS (IN F.B.M.), 1969

Species	Grade No. 1	Grade No. 2	Grade No. 3	Ungraded and Lumber Reject	Total	Exportable[1]	Exported under Permit[2]
Fir	2,882	472,204	2,388,762	----	2,863,848	1,764,422	1,099,426
Cedar	200,903	839,809	5,751,244	----	6,791,956	3,046,543	3,745,413
Spruce	795,530	4,190,037	17,894,864	----	22,880,431	3,108,412	19,772,019
Hemlock	2,148,096	9,249,773	60,760,109	----	72,157,978	33,095,020	39,062,958
Balsam	----	----	----	30,163,252	30,163,252	10,849,488	19,313,764
Yellow pine	----	----	----	----	----	----	----
Lodgepole pine	19,401	696,828	1,178,193	----	1,894,422	1,424,057	470,365
Cypress	352,783	2,542,002	12,345,410	----	15,240,195	8,027,341	7,212,854
Hardwood	----	----	----	78,432	78,432	78,432	----
Cottonwood	73,377	197,431	3,306,322	----	3,577,130	2,538,377	1,038,753
Totals, 1969	3,592,972	18,188,084	103,624,904	30,241,684	155,647,644	63,932,092	91,715,552
Totals, 1968	21,717,373	26,897,011	120,670,517	16,173,878	185,458,779	97,590,782	87,867,997
Totals, 1967	12,128,244	41,320,799	128,995,437	20,972,835	203,417,315	68,513,476	134,903,839
Totals, 1966	9,751,031	27,322,739	88,001,394	16,931,247	142,006,411	44,092,921	97,913,490
Totals, 1965	3,355,224	10,766,201	35,846,770	8,640,629	58,608,824	38,753,555	19,855,269
Totals, 1964	3,748,377	14,590,533	30,789,610	3,825,697	52,954,217	28,446,668	24,507,549
Totals, 1963	3,468,986	16,149,811	62,790,210	10,382,520	92,791,527	51,109,835	41,681,692
Totals, 1962	3,773,734	11,215,447	46,151,663	13,839,528	74,980,372	44,255,041	30,725,331
Totals, 1961	9,216,534	28,611,982	48,009,763	15,513,919	101,352,198	31,272,030	70,080,168
Totals, 1960	1,391,803	5,351,398	20,872,330	12,695,679	40,311,210	28,299,271	12,011,939
Ten-year average, 1960–69	7,214,428	20,041,400	68,575,260	14,921,762	110,752,850	49,626,567	61,126,283

[1] Export privilege—exported from lands Crown-granted prior to March 13, 1906.
[2] Exported under permit from Crown lands and lands granted after March 12, 1906, under authority of section 97 of *Forest Act*.

(68) SHIPMENTS OF POLES AND OTHER MINOR PRODUCTS, 1969

Forest District and Product	Quantity Exported	Approximate Value, F.O.B.	Where Marketed		
			Canada	United States	Other Countries
Vancouver—					
Poles ... lin. ft.	6,208,314	$1,589,555.00	76,865	4,042,648	2,088,801
Piling ... ,,	2,132,155	424,293.00	59,945	21,100	2,051,110
Fence-posts ... pieces	455	70.00	----	455	----
Cedar shakes ... ,,	21,147,566	2,960,659.00	220,825	20,705,741	221,000
Christmas trees ... ,,	17,837	32,988.00	350	17,487	----
Pulp chips ... units	221,994	4,883,868.00	----	221,994	----
Prince Rupert—					
Poles ... lin. ft.	336,050	184,827.50	201,630	134,420	----
Prince George—					
Poles ... ,,	301,800	176,100.00	254,000	47,800	----
Piling ... ,,	2,420	1,210.00	2,420	----	----
Posts ... pieces	30,066	14,676.50	30,066	----	----
Pulp chips ... units	14,361	148,636.35	14,361	----	----
Kamloops—					
Poles ... lin. ft.	482,630	313,709.50	98,350	384,280	----
Piling ... ,,	11,620	5,229.00	11,620	----	----
Fence-posts ... cords	191	8,595.00	----	191	----
Christmas trees ... pieces	69,952	48,756.40	4,760	64,892	----
Nelson—					
Poles and piling ... lin. ft.	371,005	190,462.30	247,930	123,075	----
Mine timbers ... ,,	150,376	36,090.24	150,376	----	----
Corral rails ... ,,	267,246	5,344.92	193,288	73,958	----
Shake and shingle bolts ... cords	206	14,008.00	52	154	----
Palings and pickets ... ,,	120	5,400.00	120	----	----
Cordwood ... ,,	22	426.80	7	15	----
Christmas trees ... pieces	1,169,820	795,477.60	84,420	1,085,400	----
Fence-posts ... ,,	562,912	365,892.80	539,059	23,853	----
Shakes and shingles ... ,,	325,062	29,255.40	----	325,062	----
Pulp chips ... units	5,360	42,880.00	5,360	----	----
Total value, 1969	----	$12,278,411.31	----	----	----
Total value, 1968	----	$9,377,521.35	----	----	----

(69) TIMBER MARKS ISSUED, 1960–69

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	10-year Average, 1960–69
Old Crown grants	315	268	300	313	356	328	341	277	328	361	319
Crown grants, 1887–1906	115	121	150	125	148	150	130	147	173	159	142
Crown grants, 1906–1914	123	121	164	161	164	172	144	163	190	203	161
Section 58, *Forest Act*	517	470	589	608	672	649	679	680	805	781	645
Stumpage reservations	116	117	109	141	149	133	63	61	48	48	98
Pre-emptions	1	3	9	13	7	8	3	6	9	13	7
Timber berths	4	4	12	12	9	14	10	4	1	11	8
Indian reserves	15	8	20	18	27	24	27	11	24	30	20
Section 24, *Forest Act*	.....	.....	.....	.....	.....	.....	20	214	347	502	108
Timber sales	2,136	2,141	1,991	2,183	2,281	1,614	1,126	1,149	1,241	1,327	1,719
Special marks and rights-of-way	113	91	90	97	121	153	117	95	101	143	112
Pulp-leases	1	5	5	.....	.....	3	12	4	5	2	4
Pulp licences	.....	.....	2	.....	.....	.....	4	1	1	2	1
Totals	3,456	3,349	3,441	3,671	3,934	3,248	2,676	2,812	3,273	3,582	3,344
Transfers and changes of marks	794	691	809	725	802	740	908	593	773	554	739

(70) GRAZING PERMITS ISSUED, 1969

Forest District	Number of Permits Issued	Number of Stock under Permit		
		Cattle	Horses	Sheep
Kamloops	1,188	142,937	3,126	4,192
Nelson	451	23,045	1,043	666
Prince George	374	14,450	1,358	248
Vancouver	5	147	18	.....
Totals, 1969	2,018	180,579	5,545	5,106
Totals, 1968	2,053	188,183	6,338	7,090
Totals, 1967	2,114	188,126	6,837	6,272
Totals, 1966	2,244	189,286	6,572	8,970
Totals, 1965	2,218	188,339	6,677	12,509
Totals, 1964	2,104	173,677	6,231	22,478
Totals, 1963	1,951	158,840	5,860	25,366
Totals, 1962	1,924	146,830	5,007	23,370
Totals, 1961	1,825	132,749	4,985	21,309
Totals, 1960	1,726	127,148	4,504	19,460

(102) FIRE OCCURRENCES BY MONTHS, 1969

Forest District	March	April	May	June	July	August	September	October	Total	Per Cent
Vancouver	.....	.....	93	71	95	60	30	2	351	15.1
Prince Rupert	2	7	91	103	48	19	3	.....	273	11.8
Prince George	5	.....	118	109	89	54	1	1	377	16.3
Kamloops	13	9	172	323	154	157	43	1	872	37.6
Nelson	.....	5	34	110	90	159	46	1	445	19.2
Totals	20	21	508	716	476	449	123	5	2,318	100.0
Per cent	0.8	0.9	21.9	30.9	20.5	19.5	5.3	0.2	100.0	.....
Ten-year average, 1960–69	25	69	307	374	672	620	168	22	2,257	.....
Per cent	1.1	3.1	13.6	16.6	29.8	27.5	7.4	0.9	100.0	.....

(103) NUMBER AND CAUSES OF FOREST FIRES, 1969

Forest District	Lightning	Recreational (Campers, Hunters, Fishermen, Etc.)	Railroads Operating	Smokers	Brush-burning (Not Railway or Right-of-way Clearing)	Range-burning	Road, Power-, Telephone-, and Pipe-line Construction	Industrial Operations (Logging, Etc.)	Incendiary	Miscellaneous Known Causes	Unknown Causes	Total	Per Cent of Total Fires in Province
Vancouver	48	39	43	82	16	.....	13	58	1	47	4	351	15.1
Prince Rupert	48	31	9	44	28	8	19	34	3	47	2	273	11.8
Prince George	109	38	16	43	41	36	8	35	2	45	4	377	16.3
Kamloops	233	48	111	142	41	84	12	56	12	124	9	872	37.6
Nelson	208	32	59	63	7	.....	.....	23	1	50	2	445	19.2
Totals	646	188	238	374	133	128	52	206	19	313	21	2,318	100.0
Per cent	27.9	8.1	10.3	16.1	5.8	5.5	2.2	8.9	0.8	13.5	0.9	100.0	.....
Ten-year average, 1960–69	831	221	163	271	95	116	51	163	36	263	47	2,257	.....
Per cent	36.8	9.8	7.2	12.0	4.2	5.1	2.3	7.2	1.6	11.7	2.1	100.0	.....

(104) NUMBER AND CAUSES OF FOREST FIRES FOR THE LAST 10 YEARS

Causes	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total
Lightning	1,166	1,426	615	1,144	277	1,000	374	958	708	646	8,314
Recreational (campers, etc.)	241	269	182	221	144	315	230	288	131	188	2,209
Railroads operating	245	154	41	65	51	89	170	455	121	238	1,629
Smokers	257	336	162	220	129	310	281	464	179	374	2,712
Brush-burning (not railway or right-of-way clearing)	82	86	60	82	66	89	156	128	65	133	947
Range-burning	87	179	62	95	79	193	149	138	53	128	1,163
Road, power-, telephone-, and pipe-line construction	36	36	35	24	11	89	101	93	34	52	511
Industrial operations (logging, etc.)	137	194	109	141	81	223	164	248	126	206	1,629
Incendiary	54	49	25	62	45	24	14	42	23	19	357
Miscellaneous known causes	271	290	183	250	178	309	292	348	193	313	2,627
Unknown causes	59	83	62	41	59	44	36	54	14	21	473
Totals	2,635	3,102	1,536	2,345	1,120	2,685	1,967	3,216	1,647	2,318	22,571

(105)

FIRES CLASSIFIED BY SIZE AND DAMAGE, 1969

Forest District	Total Fires		Under ¼ Acre			¼ to 10 Acres			Over 10 to 500 Acres			Over 500 Acres in Extent			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	351	15.1	204	58.2	15.5	126	35.9	17.1	19	5.4	9.2	2	0.5	3.3	324	12	15
Prince Rupert	273	11.8	166	60.8	12.6	61	22.3	8.3	34	12.5	16.5	12	4.4	20.0	227	17	29
Prince George	377	16.3	164	43.5	12.5	121	32.1	16.4	62	16.4	30.1	30	8.0	50.0	291	44	42
Kamloops	872	37.6	462	53.0	35.1	325	37.3	44.2	75	8.6	36.4	10	1.1	16.7	769	70	33
Nelson	445	19.2	320	71.9	24.3	103	23.2	14.0	16	3.6	7.8	6	1.3	10.0	413	17	15
Totals	2,318	100.0	1,316	.....	100.0	736	.....	100.0	206	100.0	.....	60	.....	100.0	2,024	160	134
Per cent	100.0	.....	56.8	.....	.....	31.8	.....	.....	8.9	.....	.....	2.5	.....	.....	87.3	6.9	5.8
Ten-year average, 1960–69	2,257	.....	1,381	.....	.....	637	.....	.....	196	.....	.....	43	.....	.....	1,998	158	101
Per cent	100.0	.....	61.2	.....	.....	28.2	.....	.....	8.7	.....	.....	1.9	.....	.....	88.5	7.0	4.5

(106) DAMAGE TO PROPERTY OTHER THAN FORESTS, 1969

Forest District	Forest Products Cut, Logs, Lumber, Etc.	Buildings	Railway, Logging, and Sawmill Equipment	Miscellaneous	Total	Per Cent of Total
Vancouver	$184,221	$50	$103,980	$1,470	$289,721	43.7
Prince Rupert	103,903	150	79,388	13,717	197,158	29.7
Prince George	17,094	1,600	400	700	19,794	3.0
Kamloops	18,384	29,600	7,600	32,285	87,869	13.2
Nelson	58,785	4,650	4,500	700	68,635	10.4
Totals	$382,387	$36,050	$195,868	$48,872	$663,177	100.0
Per cent	57.7	5.4	29.5	7.4	100.0	.....
Ten-year average, 1960–69	$151,000	$40,704	$163,664	$31,758	$387,126	.....
Per cent	39.0	10.5	42.3	8.2	100.0	.....

DAMAGE TO FOREST COVER CAUSED BY FOREST FIRES, 1969—PART I[1]

(107)—Part I

Forest District	Merchantable Timber				Immature Timber	
	Net Area Killed	Total Volume Killed	Salvable Volume of Timber Killed	Net Stumpage Loss	Net Area Killed	Present Value
	Acres	M Cu. Ft.	M Cu. Ft.	$	Acres	$
Vancouver	394	2,655	1,774	99,548	391	16,139
Prince Rupert	63,479	111,803	1,930	3,463,740	2,202	59,590
Prince George	9,901	21,698	8,748	486,342	73,081	1,809,410
Kamloops	12,108	19,729	8,293	330,624	12,457	270,080
Nelson	1,320	2,262	754	66,269	2,491	72,651
Totals	87,202	158,147	21,499	4,446,523[1]	90,622	2,227,870[1]
Per cent	21.5	100.0	13.6	65.6	22.3	32.8
Ten-year average, 1960–69	49,979	90,221	33,871	1,856,971	58,749	1,374,563
Per cent	18.8	100.0	37.5	52.8	22.1	39.1

[1] The dollar value of losses in merchantable and immature timber represents only stumpage loss to the Crown. Actual payroll loss to the Province is 10 times these figures.

(107—Part II)

DAMAGE TO FOREST COVER CAUSED BY FOREST FIRES, 1969—PART II

Forest District	Not Satisfactorily Restocked				Non-commercial Cover		Grazing or Pasture Land		Non-productive Sites		Grand Totals		
	Logged, Not Burned	Logged and Burned	Old Burn (Not Logged)	Damage	Area Burned	Damage	Area Burned	Damage	Area Burned	Damage	Area	Quantity	Damage
	Acres	Acres	Acres	$	Acres	$	Acres	$	Acres	$	Acres	M Cu. Ft.	$
Vancouver	1,489	138	1	816	205	52	8	.....	636	158	3,262	2,655	116,713
Prince Rupert	1,590	335	1,242	5,100	46,075	11,580	122	6	11,023	2,746	126,068	111,803	3,542,762
Prince George	3,112	9,267	77	21,958	99,512	25,099	4,270	336	32,724	9,060	231,944	21,698	2,352,205
Kamloops	2,817	175	14	17,399	2,012	533	5,108	300	2,602	673	37,293	19,729	619,609
Nelson	2,569	170	.....	3,955	325	1,567	19	.....	1,302	289	8,196	2,262	144,731
Totals	11,577	10,085	1,334	49,228	148,129	38,831	9,527	642	48,287	12,926	406,763	158,147	6,776,020
Per cent	2.8	2.5	0.3	0.7	36.4	0.6	2.3	0.1	11.9	0.2	100.0	100.0	100.0
Ten-year average, 1960–69	14,057	2,258	9,039	248,836	96,867	24,538	12,299	1,828	22,675	5,971	265,923	90,221	3,512,707
Per cent	5.3	0.8	3.4	7.1	36.4	0.7	4.6	0.1	8.6	0.2	100.0	100.0	100.0

(108) FIRE CAUSES, AREA BURNED, FOREST SERVICE COST, AND TOTAL DAMAGE, 1969

Causes	Fire Causes		Area Burned		Forest Service Cost		Total Damage	
	Number	Per Cent	Acres	Per Cent	Cost	Per Cent	Damage	Per Cent
Lightning	646	27.9	279,033	68.5	$1,060,614	32.0	$5,257,227	70.6
Recreational (campers, etc.)	188	8.1	15,927	3.9	193,668	5.8	67,549	0.9
Railroads operating	238	10.3	1,854	0.5	125,238	3.8	29,532	0.4
Smokers	374	16.1	10,793	2.7	427,480	12.8	299,409	4.0
Brush-burning (not railway or right-of-way clearing)	133	5.8	10,269	2.5	141,802	4.3	201,748	2.7
Range-burning	128	5.5	52,969	13.0	312,346	9.4	466,161	6.3
Road, power-, telephone-, and pipe-line construction	52	2.2	1,549	0.3	19,491	0.6	23,545	0.3
Industrial operations (logging, etc.)	206	8.9	13,518	3.3	592,202	17.8	719,139	9.7
Incendiary	19	0.8	106	0.1	18,028	0.5	3,834	0.1
Miscellaneous known causes	313	13.5	20,560	5.1	388,254	11.7	363,425	4.9
Unknown causes	21	0.9	185	0.1	45,511	1.3	7,628	0.1
Totals	2,318	100.0	406,763	100.0	$3,324,634	100.0	$7,439,197	100.0

(109)

COMPARISON OF DAMAGE CAUSED BY FOREST FIRES IN LAST 10 YEARS

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total, 10 Years
Total number of fires	2,635	3,102	1,536	2,345	1,120	2,685	1,967	3,216	1,647	2,318	22,571
Area burned (acres)	285,820	1,227,159	45,617	46,346	7,746	307,132	54,788	244,483	33,381	406,763	2,659,235
Standing timber destroyed or damaged (M cu. ft.)	122,293	315,532	3,972	7,953	306	114,585	3,506	170,555	5,361	158,147	902,210
Amount salvable (M cu. ft.)	40,010	119,223	1,279	3,357	117	40,872	1,453	110,136	759	21,499	338,705
Damage to forests	$3,725,361	$12,820,694	$311,445	$308,475	$25,793	$5,194,473	$757,017	$4,751,919	$455,872	$6,776,020	$35,127,069
Damage to other forms of property	299,657	368,476	280,700	225,797	151,338	567,162	164,352	927,201	223,400	663,177	3,871,260
Total damage	$4,025,018	$13,189,170	$592,145	$534,272	$177,131	$5,761,635	$921,369	$5,679,120	$679,272	$7,439,197	$38,998,329

(110) FIRES CLASSIFIED BY FOREST DISTRICT AND COST PER FIRE OF FIRE-FIGHTING, 1969

Forest District	Total Fires	Total Forest Service Cost			Extinguished without Cost			Cost Money to Extinguish							
		Dollars	Per Cent	Average Expenditure per Cost Fire (Dollars)	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 per Fire	Cost $100 to $1,000 per Fire	Cost over $1,000 to $5,000 per Fire	Cost over $5,000 to $10,000 per Fire	Cost over $10,000 per Fire
Vancouver	351	179,435	5.5	1,043	28	8.0	1.2	323	92.0	13.9	158	124	27	4	10
Prince Rupert	273	562,700	16.9	4,768	56	21.0	2.4	217	79.0	9.4	92	76	28	2	19
Prince George	377	1,061,443	31.9	4,162	50	13.0	2.2	327	87.0	14.1	99	125	68	12	23
Kamloops	872	1,155,724	34.7	2,105	166	19.1	7.2	706	80.9	30.5	326	265	83	11	21
Nelson	445	365,332	11.0	1,873	88	19.8	3.8	357	80.2	15.4	151	142	46	5	13
Totals	2,318	3,324,634[1]	100.0	2,579	388	.....	16.7	1,930	.....	83.3	826	732	252	34	86
Per cent	100.0	.....	.....	.....	16.7	.....	.....	83.3	.....	.....	35.6	31.6	10.9	1.5	3.7
Ten-year average, 1960–69	2,257	2,429,468	.....	.....	612	.....	.....	1,645	.....	.....	876	546	146	31	46
Per cent	100.0	.....	.....	.....	27.1	.....	.....	72.9	.....	.....	38.8	24.2	6.5	1.4	2.0

[1] Cost correct to date, subject to later revision.
Cost to other parties (969 cost fires), $1,331,202. Cost to Forest Service (1,289 cost fires), $3,324,634.
Detailed final costs are published one year in arrears in the table " Forest Protection Expenditures " in each Annual Report.

(111) AREAS OF LOGGING SLASH DISPOSED, 1969

Forest District	Acres Abated by Industry	Acres Abated by Forest Service	Total
Vancouver	44,450	.....	44,450
Prince Rupert	7,626	1,440	8,066
Prince George	2,355	1,830	3,885
Kamloops	5,301	634	5,935
Nelson	3,461	1,477	4,938
Total	59,732	5,381	67,274

(141) FOREST REVENUE, 1965–69

	12 Months to Dec. 31, 1965	12 Months to Dec. 31, 1966	12 Months to Dec. 31, 1967	12 Months to Dec. 31, 1968	12 months to Dec. 31, 1969
Timber-licence rentals and fees	$720,919.31	$771,170.84	$825,100.86	$676,038.52	$703,048.63
Timber-berth rentals and fees	15,024.33	14,368.52	13,436.63	141,074.38	128,103.62
Timber-lease rentals and fees	86,230.58	106,852.12	76,121.31	87,083.55	90,500.60
Timber-sale rentals and fees	765,651.17	948,568.96	881,812.16	899,849.28	882,229.95
Timber-sale stumpage	42,031,437.70	42,643,936.30	34,732,239.51	44,390,570.94	78,293,115.07
Timber-sale cruising and advertising	325,847.00	223,236.17	229,857.61	250,745.80	213,844.25
Timber royalties	2,629,476.11	3,079,058.68	3,509,720.06	4,954,555.27	6,329,417.22
Grazing permits and fees	151,079.95	153,507.63	310,718.84	350,351.93	384,123.83
Forest protection tax	559,007.55	570,202.65	579,928.17	947,389.12	993,509.64
Miscellaneous	273,738.16	245,350.02	394,388.82	473,324.50	428,260.52
Weight scaling	.....	212,275.98	396,894.14	635,742.30	1,033,160.25
Totals	$47,558,411.86	$48,968,527.87	$41,950,218.11	$53,806,725.59	$89,479,313.58

(142) AMOUNTS CHARGED AGAINST LOGGING OPERATIONS, 1969

District	Royalty	Miscel-laneous	Scaling Fund		Stumpage	Rentals, Cruising, Advertising, Transfer Fees	Total
			Scaling Expenses	Scaling Fees			
Vancouver	$4,119,128.23	$61,524.65	$378,618.83	$1,893,311.26	$28,290,083.68	$712,911.93	$35,455,578.58
Prince Rupert	999,567.26	196,436.70	38,391.58	152,806.88	7,332,221.52	244,401.27	8,963,825.21
Prince George	362,907.69	422,113.48	.....	.....	20,583,625.45	325,876.54	21,694,523.16
Kamloops	609,093.05	454,114.25	.....	.....	14,692,824.69	331,197.09	16,087,229.08
Nelson	303,518.95	201,099.58	.....	.....	9,371,971.89	286,191.44	10,162,781.86
Totals, 1969	$6,394,215.18	$1,335,288.66	$417,010.41	$2,046,118.14	$80,270,727.23	$1,900,578.27	$92,363,937.89
Totals, 1968	$5,240,932.73	$215,421.57	$457,873.04	$1,960,676.35	$48,292,949.16	$1,868,711.35	$58,036,564.20
Totals, 1967	$3,097,283.30	$155,429.93	$460,492.24	$1,654,526.83	$33,111,713.22	$1,561,397.57	$40,040,843.09
Totals, 1966	$3,033,313.36	$34,552.21	$409,398.60	$1,685,787.86	$42,032,738.27	$1,567,023.40	$48,762,813.70
Totals, 1965	$2,599,335.52	$13,019.78	$325,333.63	$1,526,114.51	$42,997,720.01	$1,520,404.68	$48,981,928.13
Totals, 1964	$2,589,142.31	$9,757.95	$291,333.62	$1,141,321.90	$38,793,044.73	$1,381,881.96	$44,206,482.47
Totals, 1963	$2,399,042.45	$11,244.13	$243,745.53	$922,206.05	$30,470,629.50	$1,258,855.66	$35,305,723.32
Totals, 1962	$2,331,987.94	$8,727.97	$255,562.68	$1,006,764.72	$26,467,054.86	$1,224,600.21	$31,294,698.38
Totals, 1961	$2,135,102.82	$19,504.27	$219,118.42	$995,399.98	$23,463,080.72	$1,235,002.32	$28,067,208.53
Totals, 1960	$2,384,420.55	$10,724.64	$248,440.15	$1,259,004.69	$27,664,393.40	$1,103,354.27	$32,670,337.70

(143) AMOUNTS CHARGED AGAINST LOGGING OPERATIONS, FISCAL YEAR 1968/69

District	Royalty	Miscel-laneous	Scaling Fund		Stumpage	Rentals, Cruising, Advertising, Transfer Fees	Total
			Scaling Expenses	Scaling Fees			
Vancouver	$3,760,297.68	$59,836.86	$378,208.53	$1,635,807.95	$19,964,751.26	$730,459.00	$26,529,361.28
Prince Rupert	774,180.81	43,526.58	51,968.08	177,825.20	6,987,349.23	257,404.31	8,292,254.21
Prince George	320,310.15	158,663.97	.....	.....	13,381,842.40	351,230.50	14,212,047.02
Kamloops	493,729.79	119,539.65	.....	.....	10,426,507.28	396,304.32	11,436,081.04
Nelson	258,179,01	150,245.80	.....	.....	6,325,688.36	317,922.18	7,052,035.35
Totals, 1968/69	$5,606,697.44	$531,812.86	$430,176.61	$1,813,633.15	$57,086,138.53	$2,053,320,31	$67,521,778.90
Totals, 1967/68	$3,101,010.90	$167,243.61	$462,292.44	$1,730,158.05	$32,528,962.43	$1,435,377.37	$39,425,044.80
Totals, 1966/67	$3,014,116.07	$97,618.77	$418.649.05	$1,633,282.45	$38,999,030.55	$1,614,407.62	$45,777,104.51
Totals, 1965/66	$2,835,387.89	$12,951.13	$363,546.48	$1,683,900.58	$44,658,459.16	$1,586,928.06	$52,070,068.62
Totals, 1964/65	$2,528,753.61	$10,200.85	$287,344.41	$1,148,796.45	$40,402,430.17	$1,375,540.12	$46,570,174.53
Totals, 1963/64	$2,397,693.04	$10,103.02	$243,758.31	$933,939.47	$31,559,368.71	$1,271,232.39	$37,057,425.09
Totals, 1962/63	$2,334,087.65	$10,478.79	$255,471.80	$1,001,506.52	$27,535,735.53	$1,215,900.43	$33,017,030.65
Totals, 1961/62	$2,249,635.97	$18,336.53	$230,395.08	$1,006,719.97	$23,748,697.80	$1,256,074.86	$29,213,272.61
Totals, 1960/61	$2,259,260.15	$11,752.91	$229,465.79	$1,174,335.71	$25,525,797.36	$1,123,343.86	$30,618,051.15
Totals, 1959/60	$2,090,089.97	$10,073.48	$222,233.43	$1,097,022.68	$25,972,797.12	$1,027,388.60	$30,696.148.44

(144) FOREST REVENUE, FISCAL YEAR 1968/69

Timber-licence rentals and fees	$691,742.55
Timber-berth rentals and fees	187,028.81
Timber-lease rentals and fees	100,687.37
Timber-sale rentals and fees	952,363.63
Timber-sale stumpage	53,853,720.57
Timber-sale cruising and advertising	226,357.34
Timber royalties	5,509.684.03
Grazing permits and fees	374,324.29
Forest protection tax	1,118,005.91
Miscellaneous	460,015.73
Weight scaling	844,845.16
Total	$64,318,775.39

(145) FOREST SERVICE EXPENDITURES, FISCAL YEAR 1968/69

General administration, protection, and management of forests	$15,496,478.78
Reforestation and forest nurseries	1,705,717.25
Forest research	159,198.52
Public information and education	62,679.83
Forest Service training-school	126,371.03
Grant to Canadian Forestry Association	17,500.00
Engineering services and forest-development roads	3,478,279.54
Fire suppression	1,209,422.76
Forest inventory	844,474.97
Silviculture	1,408,414.34
Grazing Range Improvement Fund [1]	174,018.55
Peace River community pastures	20,000.00
Forestry and Correction Camp Programme	12,934.73
Total	$24,715,490.30

[1] Statement provided elsewhere.

(146) SCALING FUND

Deficit, April 1, 1968	$141,098.59
Collections, fiscal year 1968/69	2,287,875.54
	$2,146,776.95
Expenditures, fiscal year 1968/69	2,379,891.27
Deficit, March 31, 1969	$233,114.32
Collections, nine months, April to December, 1969	1,914,797.14
	$1,681,682.82
Expenditures, nine months, April to December, 1969	1,936,684.14
Deficit, December 31, 1969	$255,001.32

(147) GRAZING RANGE IMPROVEMENT FUND

Surplus, April 1, 1968	$1,930.57
Government contribution (section 13, *Grazing Act*)	177,584.11
	$179,514.68
Expenditures, fiscal year 1968/69	174,018.55
Surplus, March 31, 1969	$5,496.13
Government contribution (section 13, *Grazing Act*)	187,162.14
	$192,658.27
Expenditures, nine months, April to December, 1969	118,178.11
Surplus, December 31, 1969	$74,480.16

(148) PEACE RIVER POWER TIMBER SALVAGE

Expenditures, fiscal year 1968/69	$2,491,773.32
Recovered from British Columbia Hydro and Power Authority	1,000,000.00
Balance	$1,491,773.32

(151) DISTRIBUTION OF PERSONNEL, 1969

Personnel	Vancouver[1]	Prince Rupert	Prince George	Kamloops	Nelson	Victoria	Total
Continuously Employed							
Deputy Minister, Chief Forester, and Assistant Chief Foresters	-----	-----	-----	-----	-----	4	4
Division Foresters	-----	-----	-----	-----	-----	8	8
Directors of Grazing and Public Information	-----	-----	-----	-----	-----	-----	-----
Forest Counsel and Personnel Officers	-----	-----	-----	-----	-----	3	3
District Foresters and Assistant District Foresters	2	2	2	2	2	-----	10
Foresters	13	9	16	14	11	102	165
Agrologists and Agrologists-in-Training	-----	-----	2	6	2	-----	10
Engineers	-----	1	-----	1	2	29	33
Forest Protection Officers	3	2	2	1	2	5	15
Technical Forest Officers	105	73	109	125	118	34	564
Superintendent of Scaling and Assistants	15	-----	-----	3	-----	-----	18
Scalers, Official	133	1	-----	3	26	-----	163
Scalers, Official, temporary	27	27	65	41	-----	-----	160
Comptroller, Accountant, and Audit Assistants	-----	-----	-----	1	-----	7	8
Engineering, Mechanical and Radio	6	2	6	6	3	21	44
Public Information Officers	-----	-----	-----	-----	-----	3	3
Reforestation, Research, and Survey Assistants	-----	1	-----	4	-----	40	45
Nursery Superintendents	-----	-----	-----	-----	-----	8	8
Draughtsmen and Mapping Assistants	5	3	6	6	4	30	54
Clerks, Stenographers, and Messengers	96	32	40	34	26	104	332
Superintendent and Foremen, Forest Service Maintenance Depot	8	-----	-----	-----	-----	-----	8
Mechanics, Carpenters, and Technicians	43	4	7	5	4	72	135
Launch Crewmen	17	8	-----	-----	-----	2	27
Forest Assistants	37	33	44	47	26	17	204
Truck, Tractor, and Equipment Operators	10	3	1	3	2	27	46
Foremen	3	2	4	3	-----	23	35
Miscellaneous[2]	14	11	2	10	3	135	175
Totals, continuous personnel	537	214	306	315	231	674	2,277
Seasonally Employed							
Technical Forest Officers	8	-----	10	6	1	2	27
Patrolmen	4	-----	-----	-----	1	-----	5
Lookoutmen	32	23	32	32	41	1	161
Dispatchers, Radio Operators, and Clerks	4	1	3	4	6	-----	18
Fire-suppression Crewmen	54	-----	20	69	44	-----	187
Reforestation—Snag-fallers, Planters, etc.	5	-----	-----	-----	-----	1,966	1,971
Truck, Tractor, and Equipment Operators	-----	4	8	4	5	35	56
Student and Survey Assistants and Engineering Aides	21	-----	-----	22	-----	73	116
Forest Assistants	1	1	2	-----	7	84	95
Foremen	3	-----	2	10	1	106	122
Miscellaneous[3]	18	5	6	70	85	273	457
Totals, seasonal personnel	150	34	83	217	191	2,540	3,215
Totals, all personnel	687	248	389	532	422	3,214	5,492

[1] Includes Vancouver Scaling and Forest Service Maintenance Depot.

[2] Includes Stockmen, Cooks, Flunkeys, Key Punch and Data-processing Operators, Photographers, Programmer Analysts, Building Service Workers, Watchmen, Mechanics, Launch Captains and Crew, Property Negotiators, Utilitymen, and Painters and Labourers.

[3] Includes Bridgemen, Powdermen, Carpenters, Power-saw Operators, Launch Crew, Mechanics, Watchmen, Rock Drillers, Cooks, Flunkeys, Timekeepers, Construction Accountants, Painters, and Labourers.

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