

CA. INT. 320
1918

DEPARTMENT OF THE INTERIOR, CANADA

HON. ARTHUR MEIGHEN, Minister; W. W. CORY, Deputy Minister

FORESTRY BRANCH—BULLETIN No. 70

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FOREST FIRES IN CANADA

1918



OTTAWA
THOMAS MULVEY
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1920

3419-1

LW 3500453

REPUBLICAN PARTY

REPUBLICAN PARTY
NATIONAL COMMITTEE
WASHINGTON, D. C.

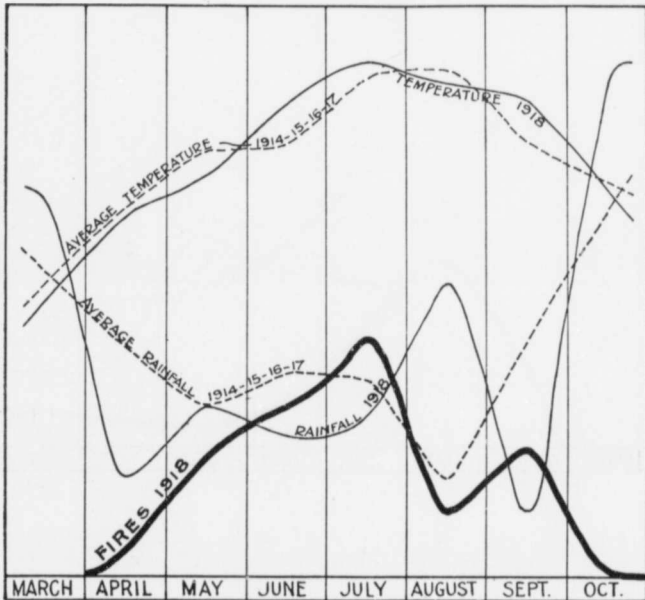
Forest Fires in Canada, 1918

By R. G. LEWIS, B.Sc. F.

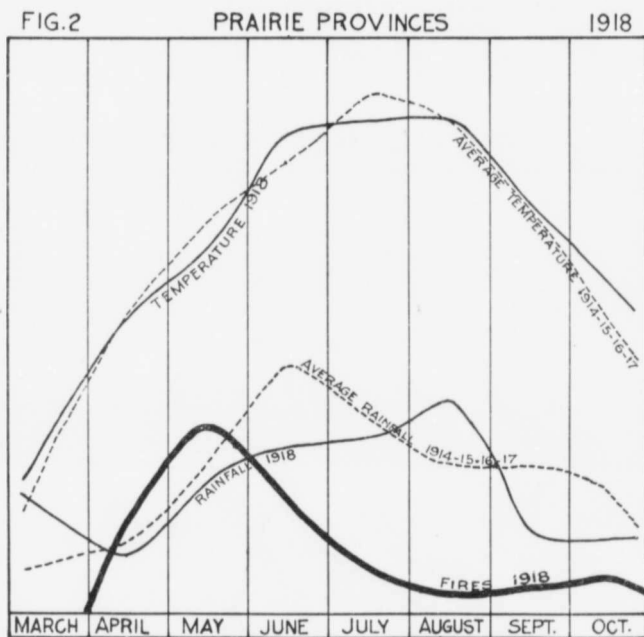
WEATHER CONDITIONS IN 1918

The first five diagrams show graphically the weather conditions existing during the fire season of 1918 compared to an average of those in the four preceding years. The total number of fires occurring during 1918 is plotted to show the relation between fire-hazard and weather conditions.

FIG. I BRITISH COLUMBIA 1918

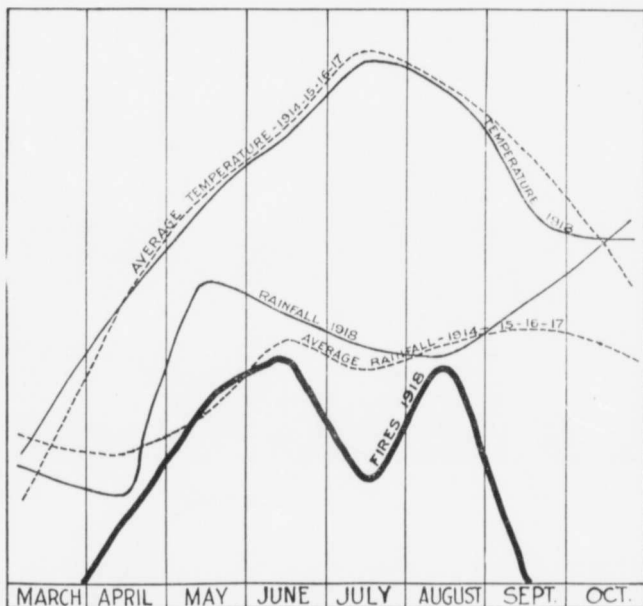


Throughout the main forest regions of British Columbia during 1918 the fire-hazard due to weather conditions was not unusually high. Rainfall was below the average during the first part of the season and during the month of September. August was an unusually wet month in most districts.



The spring and early summer months in the Prairie Provinces were as usual unfavourable from the forest-protective standpoint. The rainfall was below the average up till the end of July. A second dangerous period occurred during September and October.

FIG. 3 ONTARIO 1918



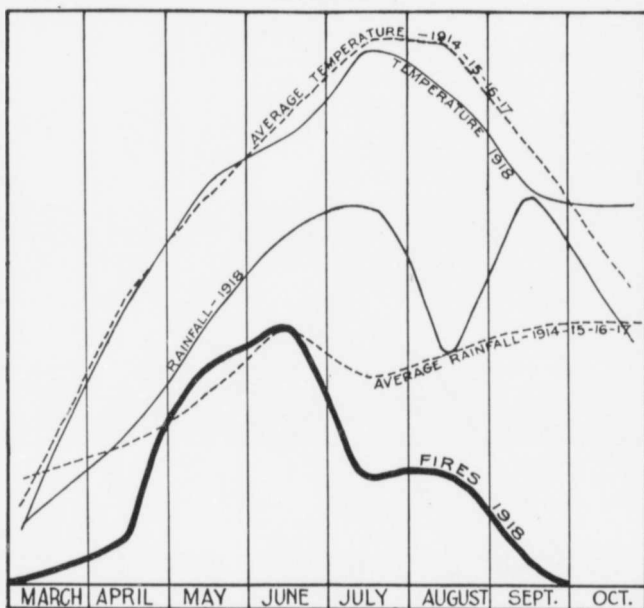
The following is extracted from the report of the Forestry Branch of the Ontario Department of Lands, Forests, and Mines:—

"The weather during the season of 1918 was abnormal in several respects. March was a comparatively mild month as also was April with a mean temperature above normal. The summer months were conducive to a low fire risk with the exception of two very hot, dry weeks in August. With the exception of the western end of Ontario, September rains were frequent and heavy. The season as a whole was distinctly favourable for fire control."

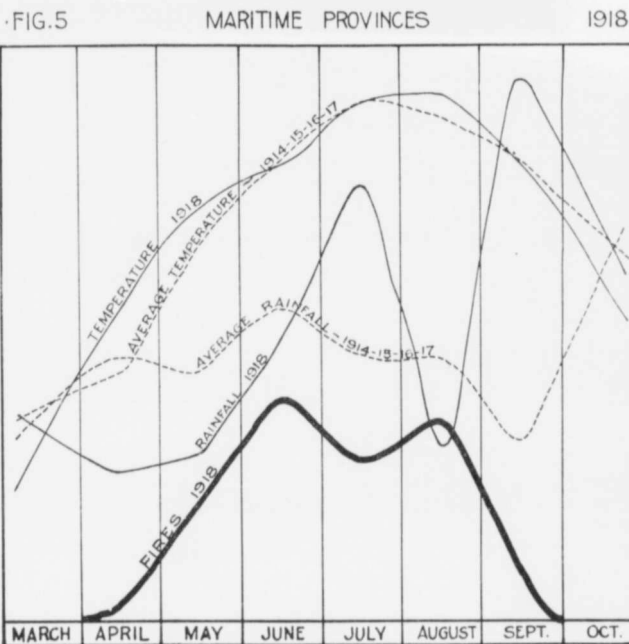
FIG. 4

QUEBEC

1918



The Annual Report of the Minister of Lands and Forests for Quebec and the annual reports of the four forest protective associations of that province, would indicate that the fire season of 1918 was on the whole a favourable one. Strong westerly and southwesterly winds increased the fire-hazard in some regions during the season and more especially during May and June. There was a fairly equal distribution of rainfall from May to September with local droughts in August.



The fire-hazard in the Maritime Provinces was greatest in the spring and early summer, especially during the latter part of May and the early part of June. High winds in some regions increased the number and area of fires. A large number of railway fires were reported in New Brunswick in August.

CAUSES OF FIRES

Table 1 gives statistics relating to the causes of forest fires and while these are incomplete in some instances they are in much more detail than in past years. No statistics are available for the province of Quebec outside the areas patrolled by the four forest protective associations for 1918, but these figures will be included in the 1919 report. In New Brunswick the new Forest Fires Act, and Forest Act came into effect on the 11th of April, but no selection of

permanent forest rangers was made till September, 1918. The reports for 1918 are much more complete than those for previous years and should be quite satisfactory in future years.

TABLE I—CAUSES OF FIRES
BRITISH COLUMBIA

Year	Unknown		Campers		Settlers		Railways		Lightning		Lumbering		Incendiary		Brush Disposal		Other Causes		Total Number
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Average																			
1914-15-16-17	335	21	411	26	213	14	289	18	145	9	72	5	36	2	15	1	57	4	1,573
1918	349	27	230	18	147	11	144	11	184	14	101	8	31	2	16	1	95	7	1,297

PRAIRIE PROVINCES

DOMINION LANDS—OUTSIDE FOREST RESERVES AND PARKS

Average																			
1914-15-16-17	296	36	185	22	186	23	133	16	9	1	2		1		1		15	2	828
1918	127	25	63	13	159	31	158	31	2	*	1	*			*		3	1	516

DOMINION FOREST RESERVES

Average																			
1914-15-16-17	73	38	25	13	37	19	41	21	5	3	2	1	4	2	1	1	4	2	192
1918	44	45	12	12	14	14	13	13	4	4	5	5	3	3	2	2			97

DOMINION PARKS

Average																			
1914-15-16-17	3	13	3	13			15	65	1	4							1	4	23
1918	4	11	9	23	1	3	19	53	2	6							1	3	36

ONTARIO

Average																			
1914-15-16-17	172	17	104	10	83	8	599	69	8	1	11	1					18	2	995
1918	224	23	93	10	78	8	449	47	37	4	40	4					44	5	965

QUEBEC

(FOREST PROTECTIVE ASSOCIATIONS)

Average																			
1914-15-16-17	79	21	54	14	98	26	84	23	19	5	25	7					14	4	373
1918	147	31	39	8	103	21	94	20	23	5	26	6	1	*	9	2	19	4	461

NEW BRUNSWICK

(Incomplete Statistics Previous to 1918)

Average																			
1914-15-16-17	4	33	1	8	6	56	1	8											12
1918	10	1	29	5	15	2	788	95			5	1	3	*					850

NOVA SCOTIA

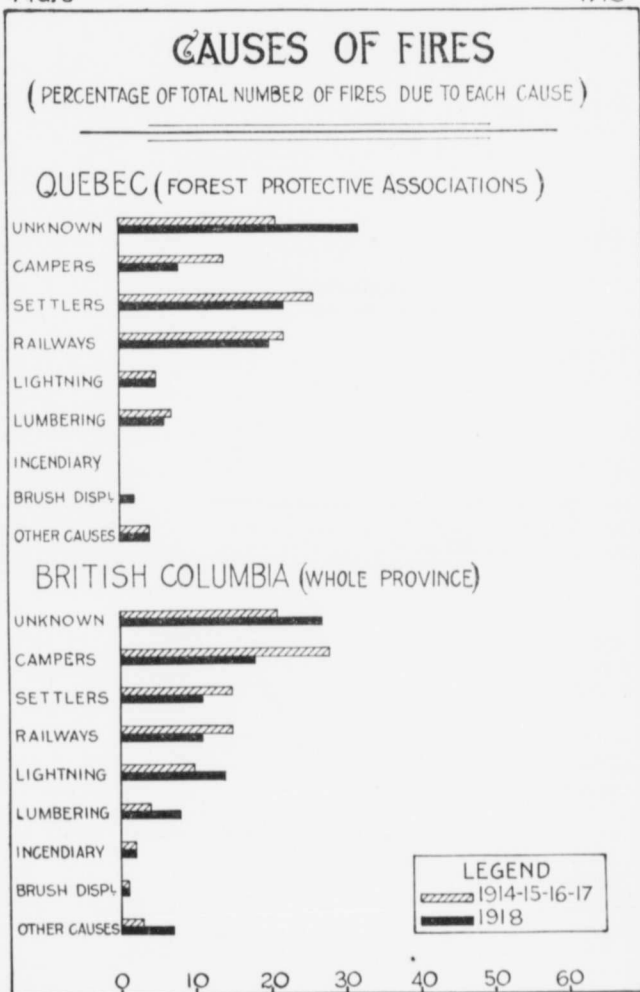
(Exclusive of Cape Breton Island)

Average																			
1914-15-16-17	24	58	5	12	4	10	6	15	1	2							1	2	41
1918	29	39	22	50	3	4	11	15			5	7					4	5	74

*Less than 1 per cent.

FIG. 6

1918



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FIG. 7

1918

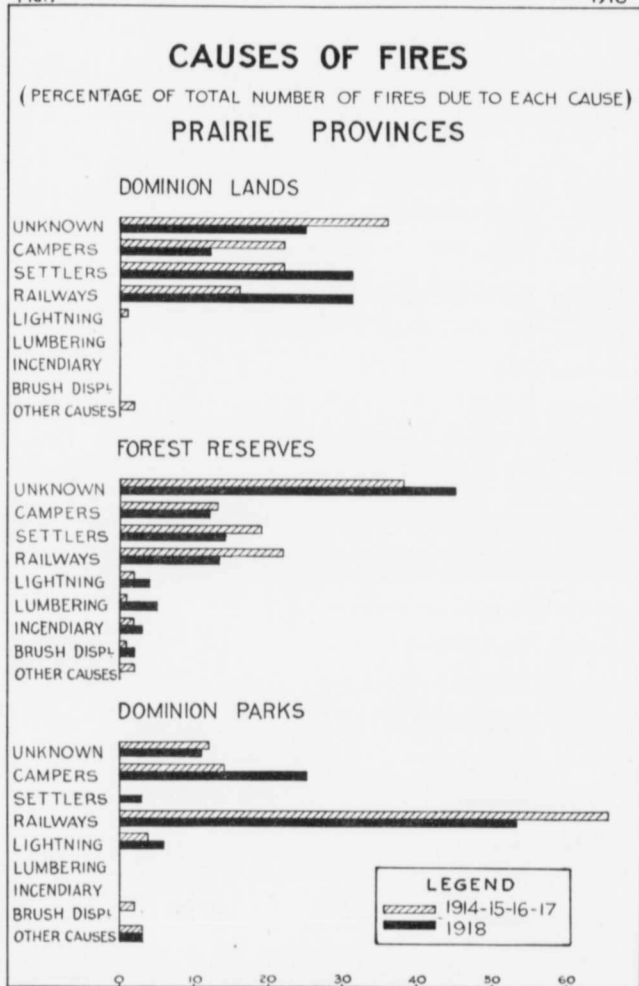


FIG. 8

1918

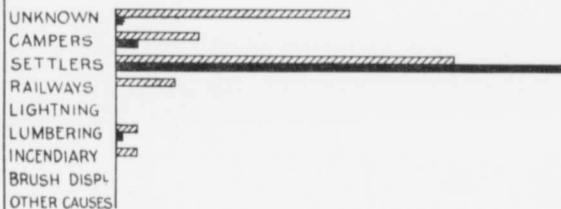
CAUSES OF FIRES

(PERCENTAGE OF TOTAL NUMBER OF FIRES DUE TO EACH CAUSE)

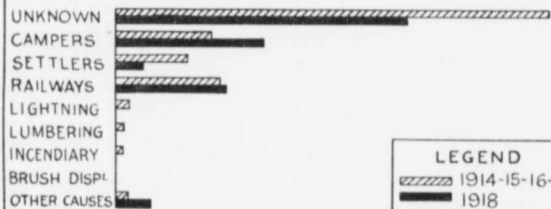
ONTARIO



NEW BRUNSWICK



NOVA SCOTIA—EXCLUSIVE OF CAPE BRETON ISLAND



LEGEND

1914-15-16-17
1918

0 10 20 30 40 50 60

NUMBER AND AREA OF FIRES

Table 2 contains statistics of the number and area of fires in Ontario, New Brunswick, and Quebec (forest protective associations) which have not been previously included in the table. Figures for the province of Nova Scotia and for that part of Quebec lying outside the areas patrolled by the four forest protective associations are not available for 1918.

TABLE 2—NUMBER AND AREA OF FIRES, 1918

	Total number of fires	Fires over 10 Acres			
		No	%	Average area	Total area
British Columbia					
Railway Belt—				Acres	Acres
Dominion Forest Reserves.....	19	16	81	265	4,234
Dominion Parks.....	3	1	33	160	160
Dominion Lands.....	266	83	31	274	22,769
Total in Railway Belt.....	288	100	35	272	27,163
Provincial Lands.....	910	402	44	386	155,340
Whole Province of British Columbia, 1918.....	1,198	502	42	366	182,503
Average 1914-15-16-17.....	1,574	479	39	578	276,897
Prairie Provinces					
Dominion Parks, Alberta.....	33	4	12	711	2,814
Dominion Forest Reserves—					
Alberta.....	28	13	26	1,354	17,600
Saskatchewan.....	55	41	73	1,780	72,994
Manitoba.....	14	11	79	1,355	14,907
Total in Dominion Forest Reserves, 1918.....	97	65	67	1,623	195,591
Average 1914-15-16-17.....	216	79	37	3,134	249,145
Dominion Lands—					
Alberta.....	289	55	19	754	41,493
Saskatchewan.....	128	61	48	1,284	78,346
Manitoba.....	99	27	27	185	5,000
Total in Dominion Lands, 1918.....	516	143	38	873	124,839
Average 1914-15-16-17.....	830	185	22	3,057	565,527
Whole Provinces—					
Alberta.....	350	72	21	860	61,937
Saskatchewan.....	183	102	56	1,484	151,340
Manitoba.....	113	38	34	524	19,907
Total in Prairie Provinces, 1918.....	646	212	33	1,100	233,184
Average 1914-15-16-17.....	1,046	264	25	3,086	814,629
ONTARIO					
1918.....	965	191	20	158	30,172
1917.....	1,110	437	39	879	384,164
QUEBEC*					
1918.....	461	93	20	203	23,272
1917.....	453	49	11	330	16,868
NEW BRUNSWICK					
1918.....	850	26	3	734	19,090

*From reports of forest protective associations.

FIG. 9

1918

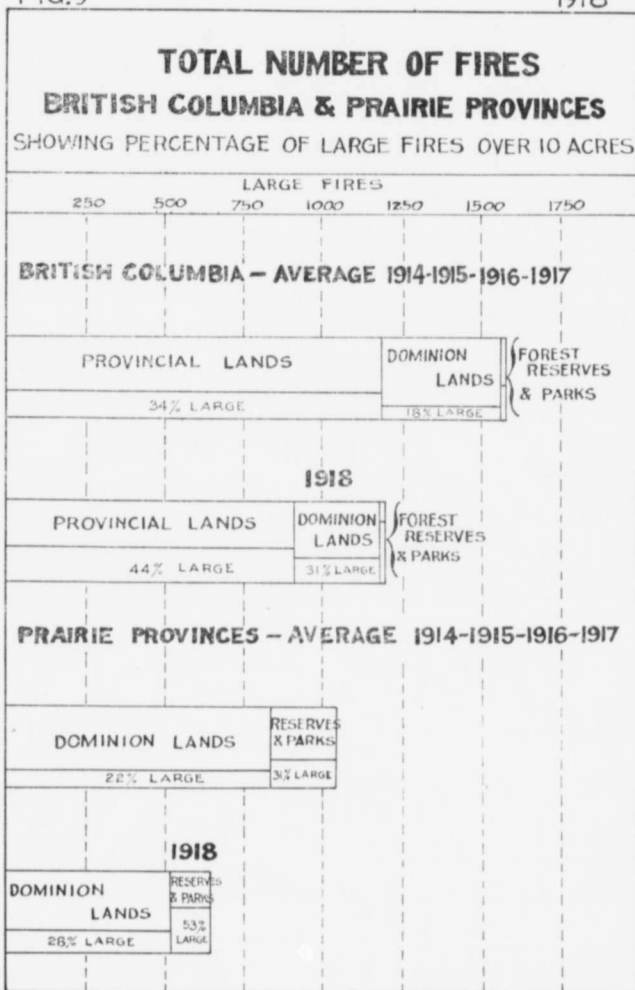
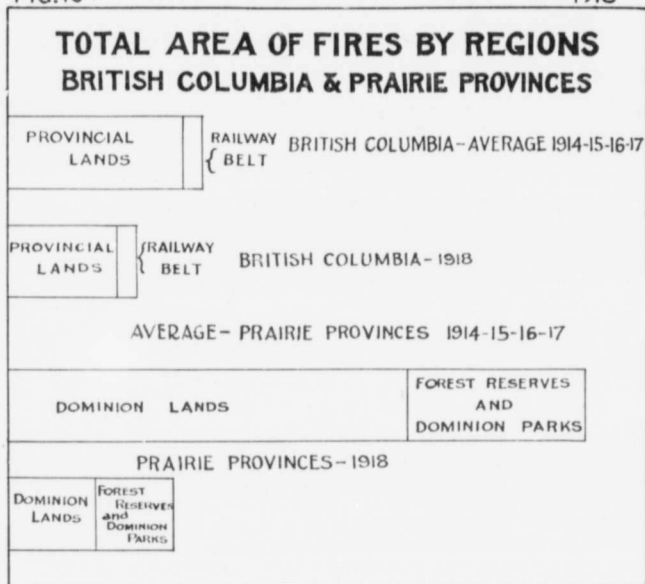


FIG. 10

1918



FIRES ALONG RAILWAYS UNDER THE JURISDICTION OF THE BOARD OF RAILWAY
COMMISSIONERS

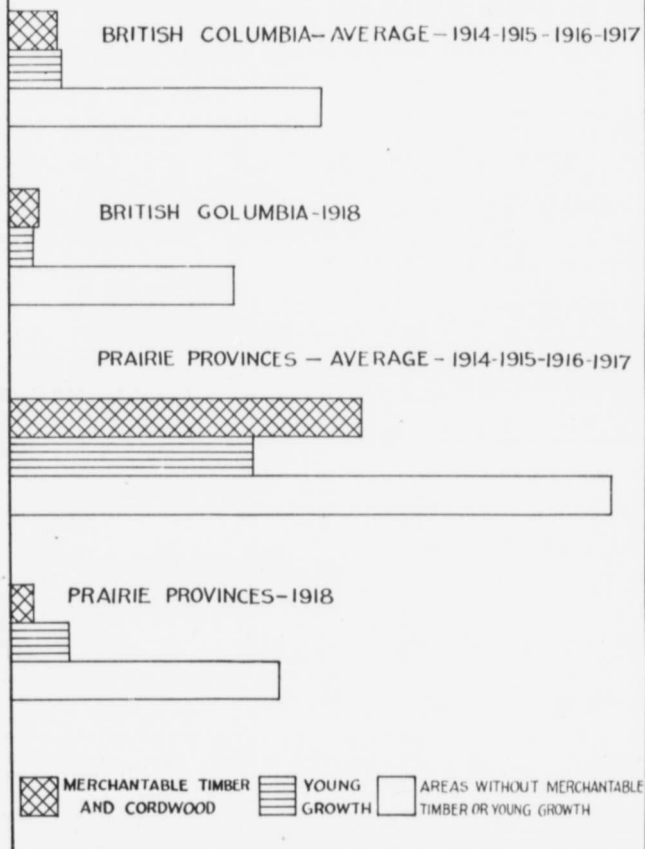
The following is a statement of the number and area of fires originating within 300 feet of the track along railway lines under the jurisdiction of the Board of Railway Commissioners for Canada. The statement shows separately the fires attributed to railway agencies, those definitely attributed to other known causes, and those of unknown origin.

Causes	Number	Area in acres
Railways.....	897	57,616
Other known causes.....	79	1,798
Unknown.....	168	5,177
Total.....	1,144	64,591

FIG. 11

1918

TOTAL AREA OF FIRES BY TYPES BRITISH COLUMBIA & PRAIRIE PROVINCES



DAMAGE TO FOREST GROWTH

Statistics for Ontario, New Brunswick, and part of Quebec are included in Table 3 for the first time. Statistics for the province of Nova Scotia and the timber-lands in Quebec under provincial patrol are not available for 1918.

TABLE 3—DAMAGE TO FOREST GROWTH

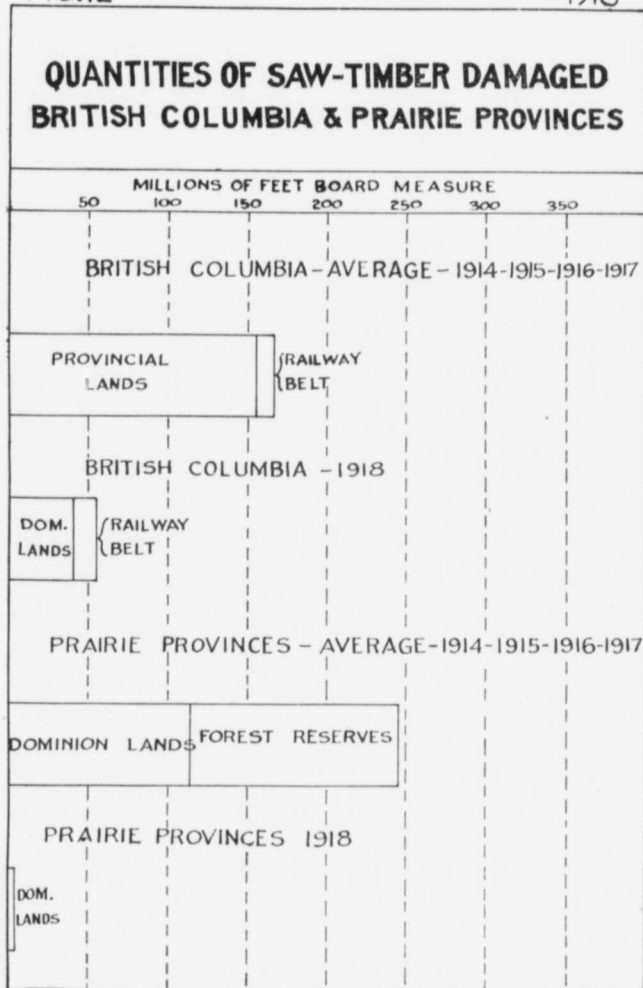
	Merchantable timber and cordwood			Young growth	Non-merchantable	Total area
	Acres	M. ft. B. M.	Cords	Acres	Acres	Acres
BRITISH COLUMBIA						
RAILWAY BELT						
Dominion Parks.....				160		160
Dominion Forest Reserves.....	572	250	5,620	915	2,747	4,234
Dominion Lands.....	7,210	14,003	9,612	3,252	12,307	22,769
Total in Railway Belt.....	7,782	14,253	15,232	4,327	15,054	27,163
PROVINCIAL LANDS.						
10,700	19,103		11,989	132,651		155,340
Whole Prov. of B.C., 1918..	18,482	33,356	15,232	16,316	147,705	182,503
" " Average						
1914-15-16-17.....	32,554	167,498	6,157	12,801	208,373	276,897
PRAIRIE PROVINCES						
DOMINION PARKS						
Alberta.....	961	40		3	1,877	2,844
DOMINION FOREST RESERVES..						
Alberta.....	8			198	17,394	17,600
Saskatchewan.....	2,949	10	156,450	22,234	47,811	72,994
Manitoba.....				3,125	11,782	14,907
Total in Dom. Forest Res., 1918	2,957	10	156,450	25,537	76,987	105,501
" Average, 1914-15-16-17.	46,159	132,052	378,847	57,676	127,405	249,145
DOMINION LANDS						
Alberta.....	7,243	4,210	83,266	9,329	24,921	41,493
Saskatchewan.....	4,262	112	59,344	3,007	71,077	78,346
Manitoba.....	115	345	5,500	425	4,460	5,000
Total in Dom. Lands, 1918	11,620	4,667	148,110	12,761	100,458	124,839
" Average 1914-15-16-17.	188,174	113,819	662,348	103,351	274,002	565,527
WHOLE PROVINCES						
Alberta.....	8,215	4,250	83,266	9,530	44,192	61,937
Saskatchewan.....	7,211	122	215,794	25,241	118,888	151,340
Manitoba.....	115	345	5,500	3,550	16,242	19,907
Total in Prairie Prov., 1918.	15,541	4,717	304,560	38,321	179,322	233,184
" Average 1914-15-16-17..	234,460	245,875	1,041,197	161,281	402,005	814,629
ONTARIO, 1918.....						
1917.....	4,757	‡	‡	7,100	18,315	30,172
	73,295	‡	‡	75,008	235,861	384,164
QUEBEC*, 1918.....						
1917.....	938	275	‡	2,608	19,726	23,272
	1,221	‡	‡	1,535	13,431	16,868
NEW BRUNSWICK, 1918.						
	13,192	4,775	‡	5,077	811	19,080

*From reports of forest protective associations.

‡Figures not available.

FIG.12

1918



DESTRUCTION OF PROPERTY

Details of the destruction of property by forest fires in New Brunswick in 1918 have been added to Table 4. For the remaining eastern provinces details are not available or no damage has been reported.

TABLE 4—PROPERTY DESTROYED IN BRITISH COLUMBIA, THE PRAIRIE PROVINCES AND NEW BRUNSWICK

	Total Value 1918	Average 1914-15-16-17
BRITISH COLUMBIA		
RAILWAY BELT	34,375	4,762
PROVINCIAL LANDS, Forest Products	41,190	73,605
" " Buildings	24,403	61,448
" " Equipment	92,850	10,003
" " Miscellaneous	27,302	72,299
" " Total	185,745	152,886
Total for British Columbia	220,120	157,648
PRAIRIE PROVINCES		
Total for all three Prairie Provinces	9,731	8,719
NEW BRUNSWICK		
Forest Products	10,730	*
Buildings	8,910	*
Equipment	25,000	*
Total for New Brunswick	44,640	*

*Figures not available.

PROSECUTIONS

TABLE 5—SUMMARY OF PROSECUTIONS FOR INFRACTIONS OF FIRE LAWS

	Jail sentences	Fines imposed		Suspended sentences	Con- victions	Cases dis- missed.	Cases pending, settled out of court, etc.	Total cases
		No.	Amt. \$					
British Columbia—								
Average.. 1914-15-16-17	2	8	469	2	12	3		15
1918		1	150		1			1
Prairie Provinces—								
Average.. 1914-15-16-17		7	177	2	9	3		12
1918		6	188		6	1		7
Ontario								
1917							3	3
1918				5	5			5
Quebec*—								
Average.. 1913-15-17		19			21	6	3	30
1918	1	18	130		19	2	26	47
New Brunswick—								
1915		3	60		3	3		6
1918					3	1		4
Nova Scotia—								
Average.. 1915-16-17		2	53		2			2
1918		6	167	1	7			7

*From reports of the forest protective associations.

ADMINISTRATION OF FIRE PROTECTION

Table 6 gives the statistics concerning the areas patrolled, staffs employed and money expended on fire protection in those provinces for which details are available.

TABLE 6—AREAS PATROLLED, STAFFS AND EXPENDITURES, 1918

	Staffs				Areas		Expenditures				
	Year Long	Temporary	Total	No. of Dis-tricts	Average area of districts	Total area patrolled	Cost of patrol per acre	Total cost of patrol	Fire-fighting	Improve-ments	Total expenditure
RAILWAY BELT											
Dominion Forest Reserves.....	10	8	18	11	160,058	1,760,640	-0101	17,785	566	6,220	24,571
Dominion Parks.....	1	8	9	8	82,252	658,020	-0043	2,800	186		2,986
Dominion Lands.....	1	64	65	62	99,819	6,188,800	-0087	53,715	3,166	2,872	59,753
Railways.....		1	1					1,315			1,315
Total for Railway Belt	12	81	93	81	106,266	8,607,460	-0088	75,615	3,918	9,092	88,625
PROVINCIAL LANDS											
Forest Reserves.....						64,000					
Crown Lands.....	36	118	154	116	1,293,103	149,936,000		157,171	47,404	24,200	228,775
Railways.....											
Total for Provincial Lands	36	118	154	116	1,293,103	150,000,000	-001	157,171	47,404	24,200	228,775
Total for British Columbia, 1918	48	199	247	197	805,114	158,607,460	-0015	233,786	51,322	33,292	317,400
Average, 1914-15-16-17.....	60	302	362	286	554,746	158,657,438	-0014	227,425	82,449	33,592	343,465

PRAIRIE PROVINCES

Dominion Forest Reserves.....	86	45	131	99	209,079	29,698,880	-0058	120,593	4,101	70,488	195,182
Dominion Parks.....	37		37	27	159,852	4,316,090	-0051	21,844	475		22,319
Dominion Lands.....	9	226	235	109	1,208,725	131,751,040	-0007	95,040	1,715	2,433	100,188
Railways.....	2	13	15					11,670			567
Total, Prairie Provinces, 1918	134	284	418	235	667,869	156,765,920	-0016	250,147	6,291	73,488	329,926
Average 1914-15-16-17.....	132	211	343	237	664,875	157,575,448	-0014	224,590	25,803	97,709	348,094

ONTARIO

Total, 1918.....			1,128			100,000,000	-0017	474,355	1,445	4,280	480,080
Average 1914-15-16-17.....			913			100,000,000					324,496

QUEBEC

(FOREST PROTECTIVE ASSOCIATIONS)

Total, 1918.....	417	361	100,143	36,151,604	-0012	152,560	7,133				
" 1917.....	413	345	107,280	3,011,745	-0043	120,418	2,166				

TABLE 6—AREAS PATROLLED, STAFFS AND EXPENDITURES, 1918—*Concluded.*NOVA SCOTIA
(EXCLUSIVE OF CAPE BRETON ISLAND)

	Staffs		Areas		Expenditure				
	Year-Long Temporary	Total No. of Dis- tricts	Average area of districts	Total area patrolled	Cost of pat- rol per acre	Total cost of patrol	Fire- fighting	Improve- ments	Total expendi- ture
					\$	\$	\$	\$	\$
Total, 1918.....		16*	431,250	6,900,000					10,232
Average 1914-15-16-17		16*	431,250	6,900,000					4,400

*Chief Fire Rangers only.

Blanks in this table indicate a lack of available figures rather than "nil" reports. In the case of Quebec the area patrolled is that pertaining to members of the four forest protective associations. In patrolling these lands protection from forest fires was provided for ungranted Crown lands, lands pertaining to non-members, and settlers' lands lying within the entire area covered. This extra protection in 1917 covered approximately 10,095,200 acres and in 1918, 17,886,424 acres.

In the case of Nova Scotia the patrol is carried on by sixteen chief forest rangers on the mainland of the province. They have the power to appoint sub-rangers as their assistants. The number of men so appointed is not given in the report, but their salaries and expenses are included with those of the chief rangers in the figures for total expenditure given in the table.