VERMILION PASS FIRE STUDY, 1972

BOTANY

July Report

by

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This month started off quite slowly. Because of the repositioning of a number of survey pins, it was necessary to change some plots already described and sometimes to wait for new plots to be established along the Base Line. Further frustrations were added when I found most of the pins (therefore plots) along the roadside, with very little vegetation. These locations were necessary for the surveying accuracy along the Base Line.

During the first two weeks while the surveyors were working on the Base Line, I put in several transect lines. These appear on the accompanying map. Unfortunately bad weather did not help matters.

Starting at the road level I put in a 2 m and a 5 m plot at every 100 foot elevation gain. I cut the burn into several sections, trying to see how the vegetation varied with the elevation and along the Pass. This information is summarized on some of the following data sheets.

After the surveyors had finished the Base Line their work went ahead on the offsets at a speed which was next to impossible for me to match. Two teams set up ten to sixteen pins a day each, thus providing between 20 - 32 pins a day. I find it only possible for me to do between 5 - 8 plots a day for the two and 5 meter plots, i.e. 10 to 16 plots a day at 5 - 8 pins. The actual number depended on the topographical features of the area. In all, 89 pins were accounted for this month. Thus it was necessary to split the Burn up into divisions doing one line in each division. This will give

me information for the whole burn and not just information for a concentrated area. After each division is done they will be split again and, time permitting, I propose to split them one more time, all of these lines being along the surveyed lines. An altimeter has been carried along surveyed transects, therefore enabling me to see how vegetation varies with elevation there also.

This also gives me a more accurate record of change of vegetation between pins.

On July 3rd I set up two evaporimeters, each of which are marked on the map. Only two were set up because only two were received. I set one up just outside the burn down by Marble Canyon as a control and the other at the central weather station in the middle of the main part of the burn. The information for the first three weeks is not all reliable because of the high amount of rainfall. In fact, in the first three weeks there were only six days when more water evaporated than fell as precipitation. Rain gauges are now being used at each location to correct the data for precipitation.

No definite conclusions have been made on any of the information already gathered, but some regularities have been noticed. Though there have been several different species of plants sighted throughout the burn, there are usually only a few species in each plot and these seem to be recurring in most plots. These are:

Epilobium angustifolium
Arnica alpina
Cornus canadensis

Linnaea borealis
Menziesia glabella
Pinus contorta latifolia
Ledum glandulosum
Analia sp.
Loricena involucrata

The following Tables show the distribution by plots of these and other plant species. More detailed data has been collected and will appear with the final report in the form of data cards.

On the following map is the approximate location of transect lines that have been done to date.

THE VERMILION BURN AREA

RE: BOTANY

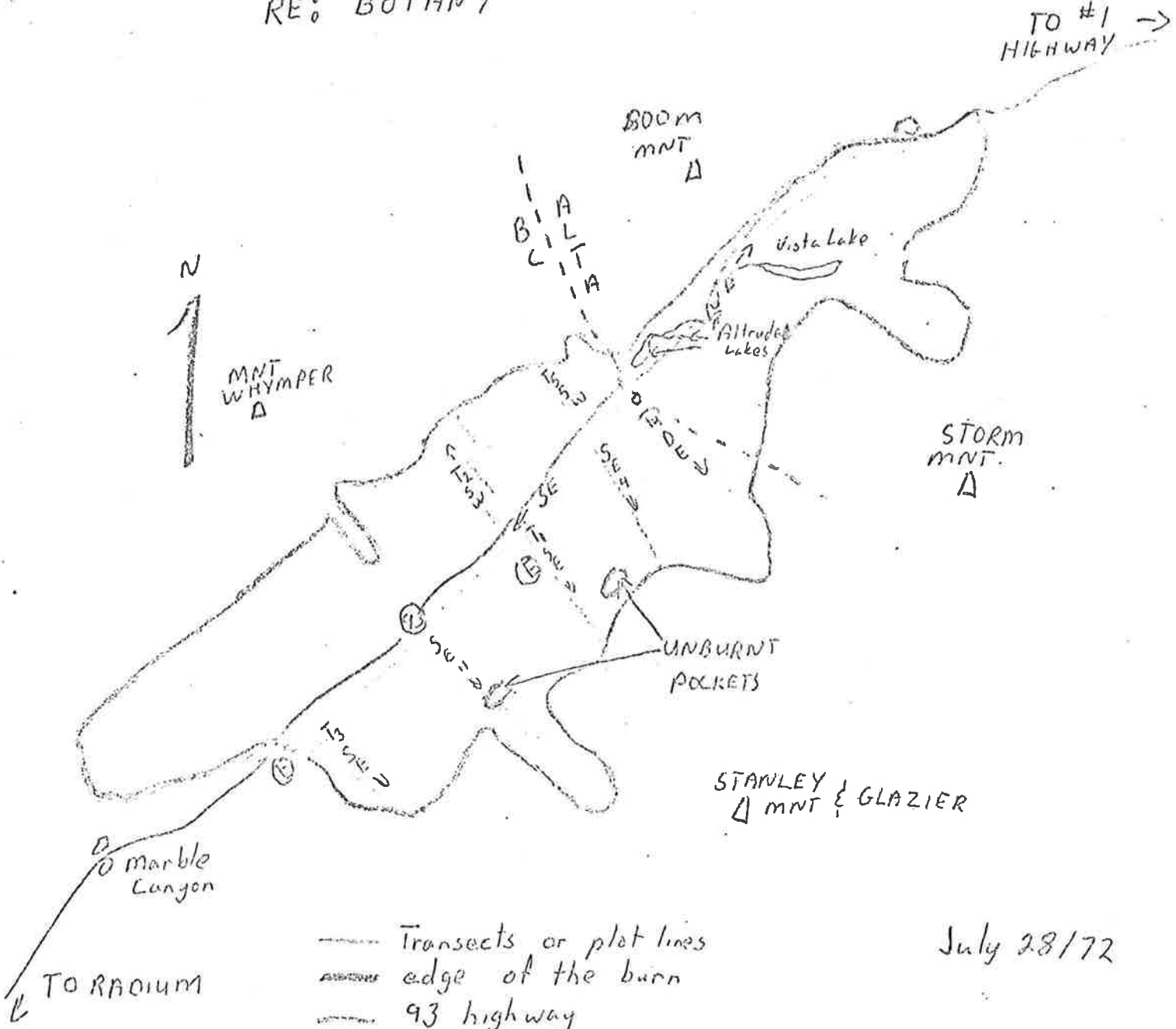

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Table 2. Results of the study of the trees in the five metre plots in the Vermilion Pass Burn Area, 1972.

Plot No.	Pinus contorta latifolia	Abies lasiocarpa	Picea engelmannii	Salix sp.	Betula glandulosa	Dead Trees large/small	logs/stumps
NE 1	1	6		1			
NE 2		2					
NE 3		3		1			
NE 4		1					
NE 5							
NE 6							
NE 7		Dense					
NE 8		8					
NE 9		5					
NE 10		14					
NE 11		5					
NE 12				1			
NE 13							
NE 14					15		
NE 15							
000							
SE 1						1 / 1	6 / 0
SE 1 (i)			1				
SE 2	5					1 / 1	3 / 0
SE 3						0 / 1	5 / 0
SE 4						1 / 2	3 / 0
SE 5		2		1			
SE 6					2		
SE 7					1		100's / 0
SE 8						0 / 2	4 / 0
SE 9				1	1		
SE 10	1					0 / 145	2 / 0
SE 11	Parking Lot						
SE 12	1	18					

Table 2. (continued)

Plot No.	Pinus contorta latifolia	Abies lasiocarpa	Picea engelmanrii	Salix sp.	Betula glandulosa	Dead Trees large/small	logs/stumps
SE 13	100% gravel						
SE 14							
SE 15			2				
SE 16							
SE 17			Climax				
SE 4B	9					4 / 2	7 / 2
SE 4C				18		7 / 0	0 / 3
SE 4C(i) (5660)	Seedlings		Seedlings				
SE 4D	3					9 / 12	13 / 3
SE 4D(i) (6060)		Seedlings					
SE 4E	4						
SE 11B						4 / 6	12 / 1
SE 11C	33					6 / 11	4 / 0
SE 11 D	12					4 / 6	8 / 2
SE 11E	11(old)	11 (unburned)		12	24		
SE 11E(i)			Dense				
SE 11F	5					11 / 48	21 / 6
SE 11G	3					10 / 20	4 / 0
TI SEA				3	1	5 / 14	15 / 6
TI SEB	4					6 / 12	15 / 2
TI SEC	7					5 / 20	18 / 3
TI SED	7					7 / 45	11 / 6
TI SEE	20					3 / 16	12 / 1
TI SEF (5975)							
TI SEG						7 / 16	12 / 1
TI SEH						10 / 5	10 / 0
T2 SWA	7					1 / 28	12 / 10
T2 SWB(i) (565)	3						
T2 SWB(ii)		(unburned fir stand)					
T2 SWC						0 / 30	
T2 SWD						2 / 14	

Table 2. (continued)

Plot No.	Pinus contorta latifolia	Abies lasiocarpa	Picea engelmannii	Salix sp.	Betula glandulosa	Dead Trees large/small	logs/stumps
T2 SWE							
TE SW					3		
T2 SWF							
T3 SEA	1		2			4 / 4	7 / 0
T3 SEB	1		2			3 / 45	23 / 5
T3 SEC						4 / 2	10 / 0
T3 SED	6					3 / 25	14 / 2
T3 SEE	4					17 / 5	
T3 SEF	3					5 / 21	5 / 0
T3 SEG						6 / 12	7 / 0
T3 SEH	4		3			4 / 14	8 / 3
T4 DEA (5900)						3 / 18	7 / 4
T4 DEA(i) (5527)			1				
T4 DEB	7					7 / 15	8 / 1
T4 DEC	4					4 / 2	7 / 2
T4 DED	9					6 / 10	7 / 1
T4 DEE							
T4 DEF						5 / 4	6 / 2
T4 DE (6200)						7 / 10	7 / 3
T4 DEG							
T5 SWA	13			3		2 / 15	3 / 1
T5 SWB	15			3		2 / 23	7 / 1
T5 SWC	12					2 / 9	

Table 3. Result of the study of the shrubs in the five metre plots in the Vermilion Pass Burn Area, 1972.

Plot No.	Menziesia glabella	Spiraea lucidia	Shepherdia canadensis	Rosa acicularia	Other Species
NE 12(i)	5				
NW 12B		15	6	4	
NE 12C	6	5	4	3	
NE 12C(i)					5 Ledum
NE 12D	5				3 Ledum 1 Sambucus
SE 8B	10				3 Pedicularis 2 Rubus
SE 8D	7				2 Sambucus
NE 4(i)	(unburned pocket)				
NE 4A	Solid Rock				
NE 4B	18				2 Sambucus
NE 4C	14				2 Sambucus 1 Pedicularis
NE 4D	13			1	
SE 16B	25				6 Ledum
SE 16B(i)	(unburned pocket)				
SE 16C	15				
SW 8A	5		1		
SW 8A(i)	1			1	
SW 8B	1	3		7	
SW 8C			5		1 Rubus 2 Juniper 3 Amelanchier
SW 8D			2		2 Juniper
SW 5A					1 Lonicera 1 Potenticla
SW 5B	11				2 Vaccinium
SW 5C	8				1 Vaccinium
NE 14C		2	2		
SW 16A	3				1 Lonicera
SW 16B	4	1		5	2 Lonicera

Table 3. (continued)

Plot No.	Menziesia glabella	Spiraea lucidia	Shepherdia canadensis	Rosa acicularia	Other Species
SW 16C		3			
SW 16D					
SW 16E					
NE 8A					2 Ledum
NE 8B	5	5	4	2	1 Potentilla
NE 8C	4	5		3	
NE 8D	10			10	
SW 12A	2	3			1 Ledum
SW 12B				4	1 Lonicera
SW 12C	1				
SW 12D					1 Amelanchier 1 Potentilla
SW 12E	(unburned spruce climax)				
NE 10A	5				2
NE 10B	1				
NE 10C	2	1			
NE 10D	5			14	
NE 6A		5			
NE 6B	2	2			2 Ledum 1 Lonicera
NE 6C					
NE 6D	1				
OE B	6				
OE C	17				1 Ledum
OE D	8				5 Sambucus
OE E	2				
OE F	1				
OE G					
OE H					
SE 6B	1				3 Ledum
SE 6C	5				1 Ledum
SE 6D	13				
SW 2A	1	3			
SW 2B	2				
SW 2C	5				

Table 3. (continued)

Plot No.	Menziesia glabella	Spiraea lucidia	Shepherdia canadensis	Rosa acicularia	Other Species
SW 2D	2				
SE 13B	4				2 Ledum 1 Lonicera
SE 13C	12				2 Lonicera
SE 13D	5	4			2 Ledum
SW 10A	2			3	
SW 10B	4	2			
SW 10C					
SW 10D	3				2 Ledum 1 Rubus 1 Amelanchier
SW 10E					2 Amelanchier

Table 4. Results of the study of the herbaceous vegetation in the two meter plots in the Vermilion Pass Burn Area, 1972.

Plot No.	Epilobium angustifolium (no.. of stems)	Arnica alpina (no. of stems)	Grasses (percentage)	Percentage of Plot Covered	Other Species
NE 1	Roadside (Waste)		5		Lots of Yarrow (80-100) 5 Columbine 200 Strawberries 3 Raspberry Lots of Paintbrush nearby
NE 2	Wasteland				
NE 3	Wasteland (gravel)				Large Salix taking up 50% of plot Raspberries Strawberries
NE 4	Wasteland				5-10% Linnaea borealis
NE 5	15				Tall Grasses Strawberries
NE 5(i)					5 Orchis rotundifolia 2 Angelica argula 3 Pinguicula oulgans
NE 6	37		10		
NE 7		22	5		
NE 8		37			
NE 9	10	35			
NE 10			60		
NE 11	35	12	35		
NE 12	15		15		Lots of strawberries
NE 13			30		60% Strawberries (Arnica and Epilobium in woods nearby)
NE 14					Strawberry 6 Paintbrush 50 Dodecatheon
NE 15	100% Gravel and Dirt				
00[illegible]	Great Divide, Parking Lot				

Table 4. (continued)

Plot No.	Epilobium angustifolium (no. of stems)	Arnica alpina (no. of stems)	Grasses (percentage)	Percentage of Plot Covered	Other Species
SE 1	174	18			3% Linnaea borealis 2% Mosses
SE 2	148	83	20	50	2% Linnaea borealis 2% Mosses
SE 3	172	71	5	75	8 Cornus canadensis 5% Linnaea borealis 3% Mosses
SE 4	15		50		5% Linnaea borealis
SE 5			75		Gravel
SE 6	Roadside (gravel)		5		Arnica, Epilobium in nearby woods
SE 7	37		5		2% Mosses
SE 8	10		80		
SE 9			50		
SE 10	78	3	5		2% Linnaea borealis 5% Mosses
SE 11	Parking Lot for Glacier				
SE 12	10	10	35	80	Many strawberries and much grass
SE 13	100% Gravel, 45° Angle Road Side				
SE 14	3	8	5	25	10 Cornus canadensis
SE 15	30	80		35	5% Linnaea borealis
SE 16	45	57	1	25	5 Cornus canadensis 2% Linnaea borealis 2% Mosses
SE 17	Unburned Area				
SE 4A			50	100	Thalictuim (meadow rue) didn't plot
SE 4B (5380)	107			10	1% Mosses
SE 4C (5575)	91	22		5-10	59 Cornus canadensis 1% Mosses

Table 4. (continued)

Plot No.	Epilobium angustifolium (no. of stems)	Arnica alpina (no. of stems)	Grasses (percentage)	Percentage of Plot Covered	Other Species
SE 4D (6200)	78	21		80	15% Linnaea borealis 75% Mosses
SE 4E (5366)	39	47	70	85	7 Dandelions
SE 11B (5660)	10	16	<0.5%	75	67 Cornus canadensis 0.5% Linnaea borealis
SE 11C (5660)	8	27	1	30	42 Cornus canadensis 5% Linnaea borealis
SE 11C (i) (5666)					Lots of Arnica and Columbine
SE 11D (5800)	87	122		90	(ION of plot) 10 Cornus canadensis
SE 11D (i) (5800)					Arnica dominant
SE 11E (5900)			100	100	
SE 11F		87	5		
SE 11G	27	31	2		2% Linnaea borealis
SE 11H					
SE 11I					
T_1SE A (5400)	140		5	35	1% Mosses
T_1SE B (5500)	33	68	1	25	20 Cornus canadensis 1% Linnaea borealis
T_1SE C (5600)	31	110		35	43 Cornus canadensis 2% Linnaea borealis
T_1SE D (5700)	10	57	1	20	1 Cornus canadensis 2% Linnaea borealis
T_1SE E (5800)		125		55	5% Linnaea borealis
T_1SE E(i) 50)	Fireweed take over dominance				

Table 4. (continued)

Plot No.	*Epilobium angustifolium* (no. of stems)	*Arnica alpina* (no. of stems)	Grasses (percentage)	Percentage of Plot Covered	Other Species
T_1SE F (5975)	47	51		35	Lots of fireweed in area
T_1SE G	5	84		25	1% Mosses
T_1SE H	6	4		5	*Arnica* only around trees Fireweed in open patch
T_2SW A (5400)	15			100	2 Dandelions Some *Arnica* in area
T_2SW B (5650)		90% D		65	*Thalictium* near unburned area
T_2SW B(ii) (5680)				45	15 *Thalictium*
T_2SW C (5700)		100		5	
T_2SW C(i) (5720)	Avalanche area, wasteland: no growth			0	
T_2SW D (5800)	34		2	5	23 Yarrow
T_2SW E (6000)	10		10	75	5% *Linnaea borealis* Lots of strawberry and several unidentified plants Avalanche area
T_2SW F (6200)	5		5	85	Larkspur Strawberry Yarrow *Thalictium*
T_2SW	Dogwood first sighted at 5650				
T_3SE A (5200)	29	30	5	35	18 *Cornus canadensis* 3% *Linnaea borealis* 0.5% Mosses

Table 4 (continued)

Plot No.	Epilobium angustifolium (no. of stems)	Arnica alpina (no. of stems)	Grasses (percentage)	Percentage of Plot Covered	Other Species
T_3SE B (5400)		6	40	60	18 Cornus canadensis 1% Linnaea borealis
T_3SE C (5500)	1	27		75	73 Cornus canadensis 10% Linnaea borealis 1% Mosses
T_3SE D (5600)		3	10	45	200 Cornus canadensis 2% Linnaea borealis
T_3SE F (5700)	10	57		25	20 Cornus canadensis 2% Linnaea borealis 1% Mosses Columbine nearby (80:40/A:f)
T_3SE G (5800)	5	35		55	27 Cornus canadensis 1% Linnaea borealis (60:40/A:f)
T_3SE H (6000)		157	2	60	25 Cornus canadensis 5% Linnaea borealis 7 Balsamorhiza
T_3SE I (6100)	37	25		10	Some columbine nearby
T_4DE A (5400)	120			15	2% Mosses
T_4DE B (5500)	20			< 1	Arnica and columbine nearby
T_4DE C (5600)	9		0.5	5	21 Cornus canadensis
T_4DE D (5700)	24		1	5	Some dandelion
T_4DE E 00)		198		75	

Table 4. (continued)

Plot No.	*Epilobium angustifolium* (no. of stems)	*Arnica alpina* (no. of stems)	Grasses (percentage)	Percentage of Plot Covered	Other Species
T_4DE F (6100)		20			15 *Thalictium* 20 Columbine 15 *Cornus canadensis*
T_4DE G (6200)	30	15	15	25	20 Columbine
T_5SW A (5500)	57		5	75	40 *Cornus canadensis* 10% *Linnaea borealis* 2% Mosses
T_5SW B (5600)	129		5	25	21 *Cornus canadensis* 10% Mosses
T_5SW C (5750)	*Arnica* start to appear				
T_5SW D (5775)	*Arnica* take over: 80% dominance				
T_5SW C (5750)	45	27	5	15	27 *Cornus canadensis* 1% Mosses
T_5SW D (5775)	17	143	2	75	24 *Cornus canadensis* 2% *Linnaea borealis* 1% Mosses
T_5SW E (5900)	44	49	5	15	21 *Cornus canadensis*