
QUANTIFYING FUEL LOADS AND CLASSIFYING VEGETATION IN THE SKAGIT VALLEY RECREATION AREA



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1994



1994

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Province of
British Columbia

**QUANTIFYING FUEL LOADS AND
CLASSIFYING VEGETATION
IN THE SKAGIT VALLEY RECREATION AREA**

Measured randomly
- 49 plots
- Fine + Large fuel
- 30m x 30m x 30m
- 5 biogeoclimatic zones

Submitted to: Skagit Environmental Endowment Commission; 1994
Data collected by: Ed Mullen, Greg Rusel, and Mike Thorpe
Report written by: Greg Rusel
Edited by: Judy Millar

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SUMMARY

BC Parks initiated a fire management planning process in 1992 by commissioning a Fire Management Plan for the Skagit Valley Recreation Area and EC Manning Provincial Park. This report is a collection of various scientific material and critical recommendations necessary for the formulation of an ecologically sound Fire Management Plan.

During the following year, it was determined to expand on the recommendations and to continue the strategy for development of a detailed plan. In order to ensure ecologically competent decisions were being made in the field, a more comprehensive study involving the inventory of fuel accumulations and standing live fuel was conducted during the summer of 1994. This document is the result of this inventory and will be the supporting data for future prescriptions regarding fire management activities.

The data collected includes surface fuels and ladder fuels combined for a total fuel load in tonnes per hectare. This figure in association with stand classification, stand characteristics, physiographic features, soil analysis and weather considerations will enable fire behaviour predictions for future planning purposes.

The field data for this study was collected within 49 plots that were located in five biogeoclimatic subzones or variants (IDFww, CWHds1, CWHms1, MHmm2 and ESSFmw). Plot locations were determined by selecting representative stands within each biogeoclimatic subzone, access and aspect. Representative sampling of all subzones in the study area was obtained.

For the purpose of this study, only pre-burn assessment methodology for measuring fuel loading was used from the Field Handbook for Prescribed Fire Assessments in British Columbia: Logging Slash Fuels (1987). Stand characteristics, height and diameter, stems per hectare etc. were collected by constructing an additional plot using the line A of each plot and measuring 5 metres on either side of the 30 metre length (line A - B). This generated ladder fuels by inclusion of the standing live trees.

The fuel plots use a line intercept method, starting from post A and moving in a counterclockwise direction along lines A, B and C. All dead and down woody debris (material separated from its' origin) was tallied into diameter classes.

The data was then entered into the Ministry of Forests' Fuel Loading and Consumption Program, to obtain fuel loads (tonnes/ha.) for each plot.

Wildlife sightings and signs were recorded, as well. These data include identification of tracks, scat, burrows, wildlife trees, nests, marked trees, diggings and squirrel tables.

In addition to valuable data collected on the forest and its fuel loading, this plot information and accompanying photos can be used as a photo guide in estimating fuel loading in similar forest types using classification, stand characteristics and understorey species.

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1.0 INTRODUCTION

The Skagit Valley Recreation Area is 32,500 hectares in size and is located in the Lower Mainland area of British Columbia. The Skagit River Valley is within a transition zone between the interior and the coast which produces a wide variety of forest types providing recreation and conservation opportunities. Refer to Figure 1 for location.

The Skagit Valley Recreation Area is situated on the western boundary of EC Manning Provincial Park and is readily accessible to over half of the population of B.C.

In the overall planning process for this recreation area, the Master Plan has called for resource management objectives that will be directed toward protection of natural features and processes of the park to maintain a quality environment. Specifically, the plan calls for the development of a vegetation management plan, a forest resource inventory and fire management research directed toward determining what role fires have in maintaining the existing forested ecosystems.

In order to formulate a useful and efficient fire management plan, a system for determining the existing fuel hazard was necessary. The methodology chosen was the Canada/British Columbia Forest Resource Development Agreement publication entitled Field Handbook for Prescribed Fire Assessments in British Columbia: Logging Slash Fuels, (1987). Only pre-burn assessment methodology was used from this handbook. Other data such as stand characteristics and physiographic features, soil analysis, stems per ha., diameter distribution and spatial attributes were collected in an additional plot format to gain the live tree and ladder fuel aspect.

This inventory provided BC Parks with the end product of tonnes per hectare by biogeoclimatic subzone (49 plots in all). These figures will be used in a larger system of quantifying fire hazard using fire risk ratings, fire danger ratings (by days of BUI over 32) and the value of existing forest (e.g. improvements, natural forest or life and property). The combination of these factors will ultimately provide an overall fire management rating to be grouped in low, moderate and high categories for planning purposes.

This series of data in conjunction with the photograph depicting the actual forest/fuel type can be used in similar forests to estimate the fuel loads present without costly measurements.

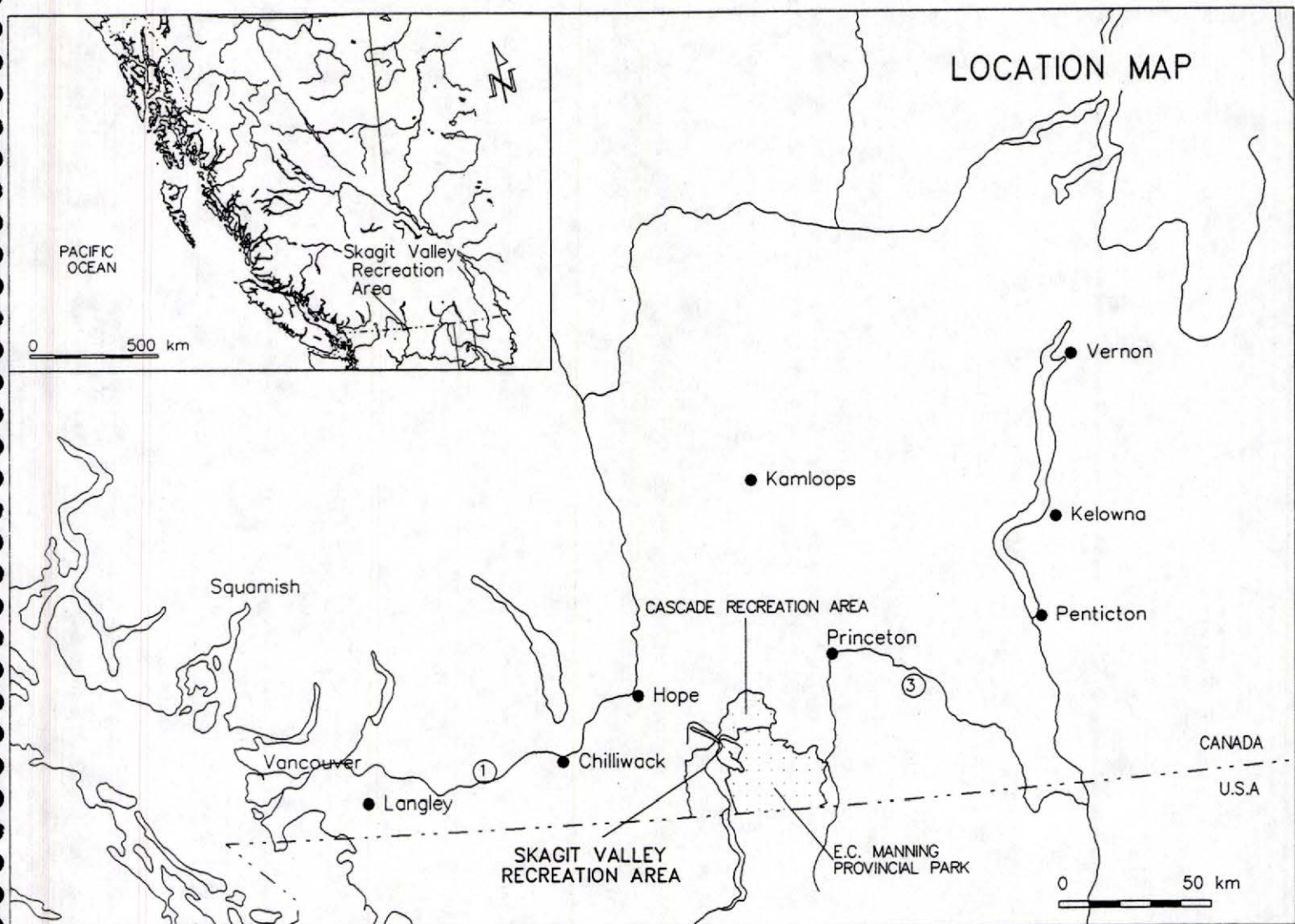


Figure 1: Location of the Skagit Valley Recreation Area.

(source: BC Parks)

2.0 METHODS AND MATERIALS

The Field Handbook for Prescribed Fire Assessments in British Columbia: Logging Slash Fuels (FRDA Handbook) provided some of the methodology for collecting the field data for this study.

The FRDA Handbook contains methods for pre-burn assessments, recording observations during a fire, and post-burn assessments. These assessments are accomplished by recording topographic, vegetation analysis, soil analysis and fuel loading information for two plots per stratum.

For the purpose of this study, only pre-burn assessment methodology for measuring fuel loading was used from the FRDA Handbook. Form 1 (Section 1 and Section 2), Form 3 and Form 4 from the handbook were filled out for each plot during the field work of this study.

Additional information that was collected for each plot included:

- A/ filling out a Site Assessment form from the Field Guide for Site Identification and Interpretation for the Vancouver Forest Region,
- B/ measuring and recording the diameters of every tree, greater than 3.0m in height, within the 10.0m perpendicular strip (5.0m on either side) along line A of each plot,
- C/ calculating and recording the number of stems per hectare associated with the area that each plot is found in,
- D/ recording the height, crown height and height to live crown of six trees along line A of each plot,
- E/ recording the ages of two representative trees from the six height trees along line A, and
- F/ recording the percent crown cover along each line of every plot.

The materials used during this project (see Figure 2) included:

- three 30m lengths of 5/16" rope with marks at five meter intervals,
- a 50m nylon chain,
- a hip chain,
- a 30m eslon tape,
- 50cm calipers,
- three go-no-go gauges,
- three azimuth compasses,
- three suunto clinometers,
- an altimeter,
- a 35mm camera,
- two diameter tapes,
- a shovel,
- ziploc bags,
- three 15cm rulers,
- flagging tape,
- a field notebook and pencil,
- a thick black marking pen,
- a Field Guide for Site Identification and Interpretation for the Vancouver Forest Region (Handbook #28),
- Site Assessment Forms from Handbook #28,
- a Handbook for Prescribed Fire Assessments in British Columbia: Logging Slash Fuels (FRDA Handbook 001),

Plot locations were determined on the basis of Biogeoclimatic Subzone location, access route location and aspect. Representative sampling of all of the subzones in the study area was obtained.

Most of the plots were located in the proximity of trails and roads. These areas were concentrated on because they stand the greatest risk of fire occurrence through human activities.

A majority of the plots were located on south-facing slopes. These slopes are generally drier because they receive greater amounts of sunlight. Fire can start more readily and spread more rapidly when there is an accumulation of dry fine fuels.

General plot locations were identified on a Ministry of Environment, Lands and Park's Skagit Valley Recreation Area Biophysical Habitat Inventory Map (1:50,000 scale). Approximate elevations and aspects of plot locations were determined on this map, and used to locate the plots when working in the field.

The methods utilized in the field to locate and set up the plots included:

- A/ using aerial photos, a compass, an altimeter, a hip chain and a 50m chain to arrive at the desired sampling area along a trail or road,
- B/ using flagging tape (with plot numbers and the date written in black marker) to mark the point of entry into a stand from a trail or road,
- C/ locating a representative area to sample, and determining the plot center,
- D/ randomly locating the spot for post A by spinning a pencil in the air and chaining 17.0m in the direction of the pencil tip,
- E/ jamming a sturdy stick (found outside of the plot boundaries) into the ground to be used as post A,
- F/ recording the bearing from post A to the plot center and then running a 30m length of rope along a compass bearing of 030 degrees greater than and 030 degrees less than the bearing to center (as parallel as possible to the ground),
- G/ jamming a stick (found outside of the plot boundaries) into the ground at the end of each of the two ropes,
- H/ running a 30m length of rope between the other two ropes to close the plot triangle,
- I/ adjusting the post locations until all three ropes are taught,

- J/ labeling posts A, B and C (counterclockwise direction) on Form 4 from the FRDA 001 Handbook, and recording the bearings and slopes of the lines from their respective posts,
- K/ recording the details of how to locate each plot center (distances and bearings from known reference points), and
- L/ locating each plot on a Ministry of Environment, Lands and Park's Skagit Valley Recreation Area Biophysical Habitat Inventory Map (1:50,000 scale), and recording the NTS number and latitude and longitude of each plot.

To determine the topographic information for each plot, methods included:

- A/ filling out the Physiographic Features section of the Vancouver Forest Region Site Assessment Forms using visual analysis,
- B/ determining the elevation of each plot using an altimeter,
- C/ determining the slope gradient of the plot using a Suunto clinometer, and
- D/ determining the aspect ($^{\circ}$ azimuth) of the plot using a compass.

Methods used to collect information for the vegetation analysis in this study included:

- A/ laying down a 30.0m x 30.0m x 30.0m rope boundary for each plot,
- B/ recording every species of vegetation growing in the tree layer (greater than 3.0m in height), shrub layer, herb layer and moss layer of each plot (see appendix 1 for a vegetation list with common names and Latin names of plants recorded during this study),
- C/ labeling unknown vegetation samples and placing them in ziploc bags for identification at a later date,
- D/ using visual estimation to assign a percent cover for each vegetation species growing within the plot,
- E/ using visual estimation to assign a distribution code (FRDA 001 Handbook) for each vegetation species growing within the plot,
- F/ recording a visual estimation of the percent crown cover above line A, B and C of each plot,

- G/ recording the species name and the diameter at breast height, using a diameter tape (see figure 3), of every living tree in the 10.0m x 30.0m area associated with line A (5.0m on either side of line A),
- H/ determining the tree closest to but ahead of the 0.0m, 5.0m, 10.0m, 15.0m, 20.0m and 25.0m marks for each of the respective perpendicular 5.0m sections along line A (six trees),
- I/ using a 50.0m chain, a suunto clinometer and trigonometry to determine the height, crown height and height to live crown of each of the six trees closest to the 5.0m marks along line A (see Figure 4),
- I/ using an increment bore to determine the ages of two representative trees from the six height trees along line A (see Figure 5),
- J/ recording the number of stems per hectare associated with each plot by multiplying the number of stems measured within the 300 square meter (0.03 of a hectare) area along line A by 33.333...,
- K/ taking one photograph from post A, post B and post C, of the dead and down coarse woody debris and vegetation cover along each line,
- L/ taking one representative photograph of the overall stand characteristics for each plot, and
- M/ determining the habitat class that each plot was located in, using a Skagit Valley Recreation Area Biophysical Habitat Inventory Map.



Figure 3: Using a diameter tape to measure a tree's diameter.



Figure 4: Determining the height of a tree using a suunto clinometer and a 50.0m chain.



Figure 5: Using an increment bore to determine the age of a tree.

To obtain fuel loading information during this study the methodology for Fuel Sampling and Estimate of Mineral Soil Exposure in the FRDA 001 Handbook was followed.

A line intersect sampling method was used, starting from post A and moving in a counterclockwise direction along lines A, B and C. All dead and down woody debris (material separated from its origin) was tallied.

A go-no-go gauge (see Figure 6) was used to measure the diameter class of individual branches, twigs and stems (grass, leaves, needles and cones were not counted), that were less than 7.0cm in diameter, at the point where they intersected the rope's axis.

Pieces were dot tallied in 5.0m sections along each line, always dropping the smallest diameter class at the beginning of each section.

Slash Diameter Class (cm)	Length of Line Dot Tallied (m)
0.0 - 0.5	0 - 5
0.6 - 1.0	5 - 10
1.1 - 3.0	10 - 15
3.1 - 5.0	15 - 20
5.1 - 7.0	20 - 25



Figure 6: Using go-no-go gauges to measure the diameter class that fuel fits into.

50.0cm calipers were used to measure the diameter, at the point of intersection, of all coarse woody debris with a diameter of greater than 7.0cm (see Figure 7). In order for coarse woody debris to be counted and measured as fuel, the following conditions had to be met:

- The line had to cross the central axis of the piece (see Figure 8),
- The central axis of the piece had to be above the duff layer at the point of intersection, and
- A shattered log was visually reconstructed and its original diameter was recorded.

The species name and composition status (decomposed or undecomposed) was recorded for all coarse woody debris with a diameter of greater than 7.0cm. Coarse woody debris was considered "decomposed" if it could be kicked apart. The percent species composition of the slash intersecting each line was recorded.



Figure 7: Using 50.0cm calipers to measure fuel with a diameter of greater than 7.0cm.

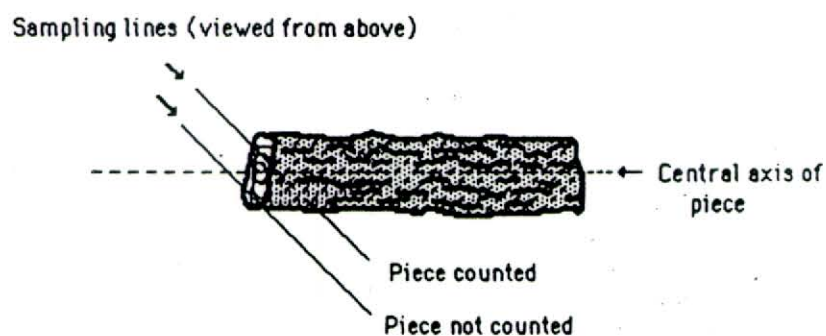


Figure 8: Relationship between the central axis of fuel and the position of the line.

(source: FRDA Handbook)

15.0cm rulers were used to measure forest floor depths (depth to mineral soil) at a distance of 5.0m on either side and perpendicular to the 5.0m, 10.0m, 15.0m, 20.0m and 25.0m marks along each line (see Figure 9).

A visual estimate of the percent mineral soil exposure along each line of every plot was recorded.

The data collected during this study was entered into the Ministry of Forest's Fuel Loading and Consumption Program, to obtain fuel loads (tonnes/ha.) for each plot.



Figure 9: Using a 15.0cm ruler to measure the forest floor depth.

To determine the soil information for each plot, methods included:

- A/ digging a 0.5m x 0.5m soil pit to a depth that a soil profile could be obtained for each plot (see Figure 10),
- B/ filling out the soil features section of the Vancouver Forest Region Site Assessment Form using visual analysis,
- C/ determining soil texture using the Key to Hand Texturing Soil in the Vancouver Forest Region Field Guide, and
- D/ determining the hygrotone and trophotone at each plot using the Key to Relative Soil Moisture Regime and the Key to Soil Nutrient Regime in the Vancouver Forest Region Field Guide.

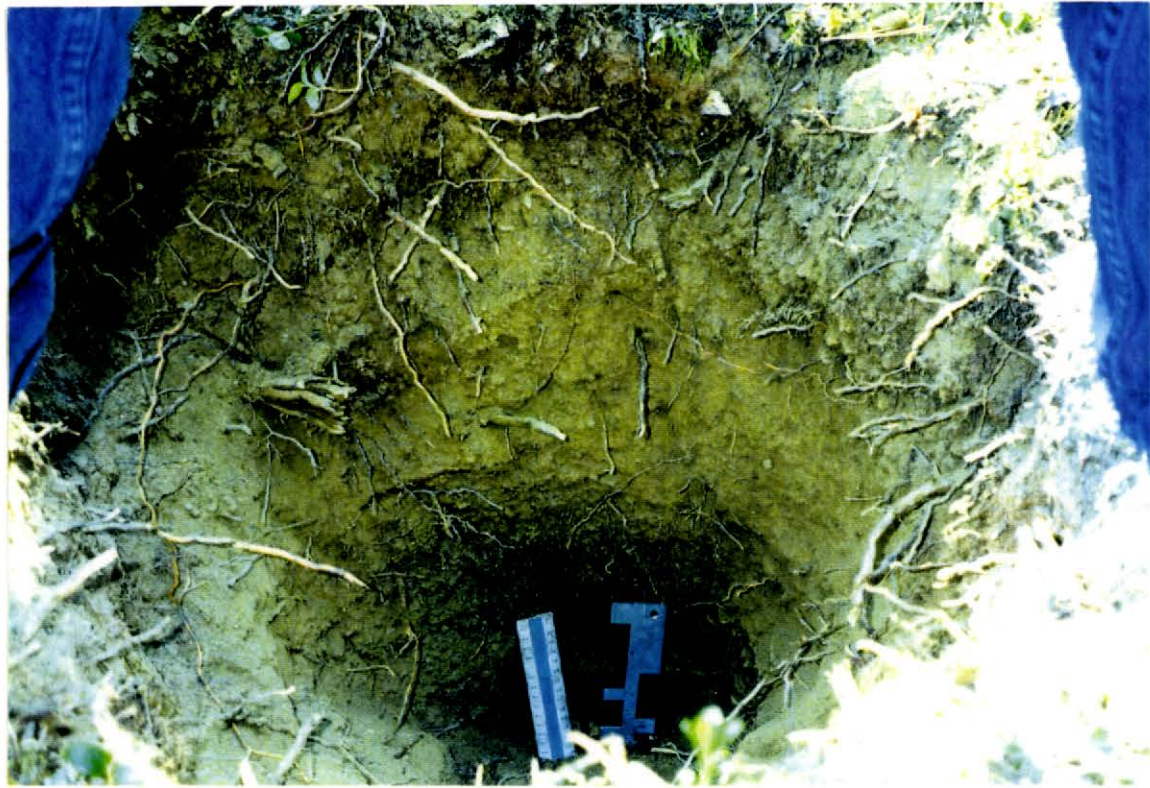


Figure 10: Digging a soil pit to determine hygrotome, trophotome and soil texture.

To obtain information about the wildlife using the study area, methods included:

- A/ recording the wildlife that could be identified by sight or sound while traveling to and from plot locations,
- B/ recording the wildlife that could be identified by sight or sound while working at the plots, and
- C/ recording wildlife signs (scat, tracks, burrows, wildlife trees, nests, diggings, etc.) while in the field.

3.0 THE SKAGIT VALLEY RECREATION AREA PLOTS

The field data for this study was collected within 49 plots that were located in five biogeoclimatic subzones or variants.

The plots are numbered from 040 to 089 because the metal marking tags that were used in the field began with the number 040.

The location of the plots in the Skagit Valley Recreation Area are shown in Figure 11. The following list shows the number of plots that were located in each subzone or variant.

- Coastal Western Hemlock Southern Dry Submaritime Variant (CWHds1)
- 14 plots,
- Coastal Western Hemlock Southern Moist Submaritime Variant (CWHms1) - 12 plots,
- Engelmann Spruce, Sub-alpine Fir Moist Warm Subzone (ESSFmw)
- 6 plots,
- Interior Douglas-fir Wet Warm Subzone (IDFww) - 14 plots, and
- Mountain Hemlock Leeward Moist Maritime Variant (MHmm2) - 3 plots.

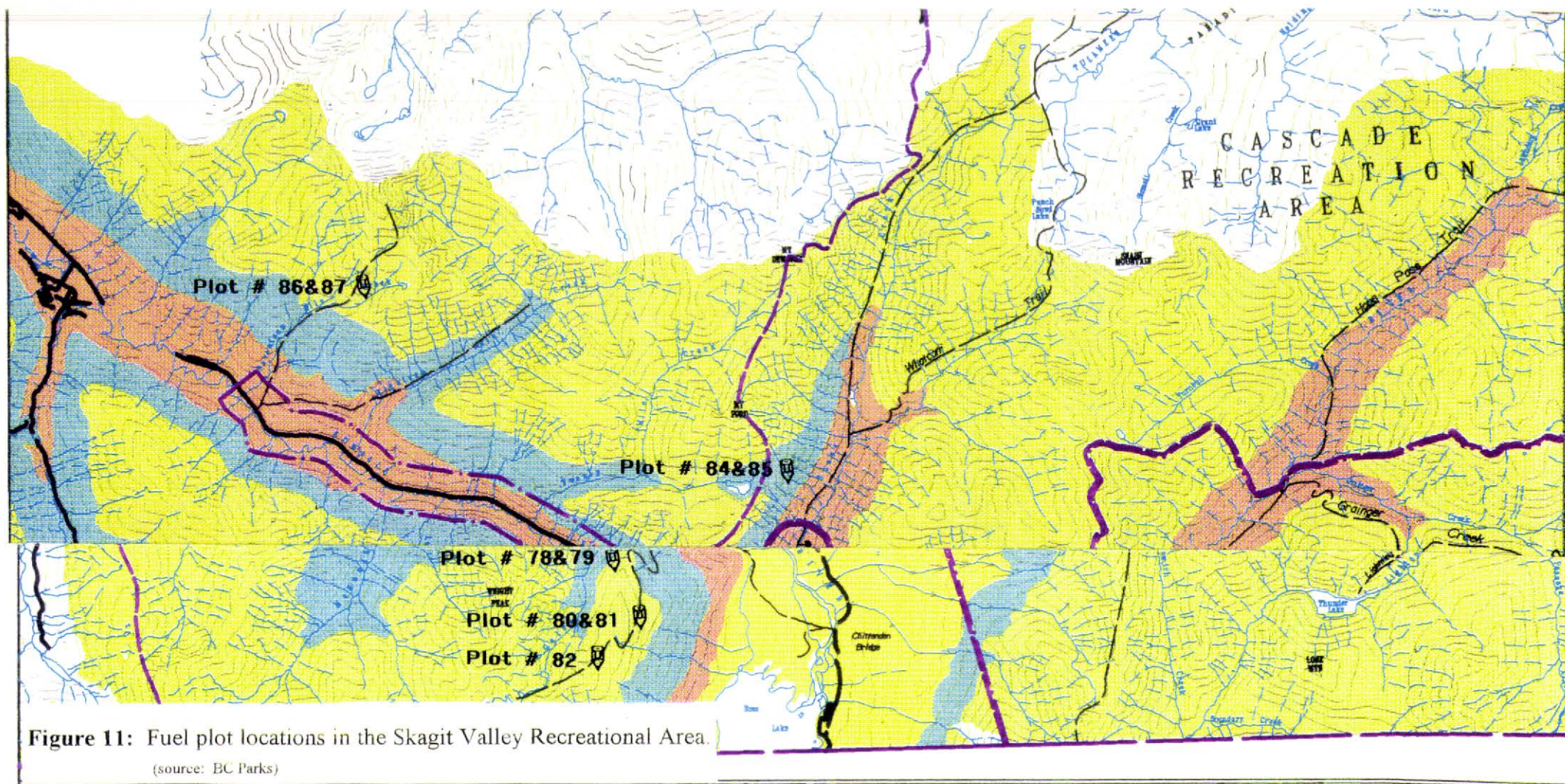
The CWHds1 variant had an average fuel load of 19.81 tonnes per hectare. The fuel loads in this variant ranged from 3.65 tonnes per hectare to 51.02 tonnes per hectare.

The CWHms1 variant had an average fuel load of 14.72 tonnes per hectare. The fuel loads in this variant ranged from 5.52 tonnes per hectare to 25.89 tonnes per hectare.

The ESSFmw subzone had an average fuel load of 30.77 tonnes per hectare. The fuel loads in this subzone ranged from 6.99 tonnes per hectare to 79.96 tonnes per hectare.

The IDFww subzone had an average fuel load of 25.96 tonnes per hectare. The fuel loads in this subzone ranged from 8.09 tonnes per hectare to 73.31 tonnes per hectare.

The MHmm2 variant had an average fuel load of 32.80 tonnes per hectare. The fuel loads in this variant ranged from 11.45 tonnes per hectare to 55.93 tonnes per hectare.



Ministry of Environment, Lands and Parks

Parks Branch South Coast Region

LINE LEGEND

- Park Boundary
- Rivers and Lakes
- Recreational Area Boundary
- Main Road
- Secondary Road
- Trail

BIOGEOCLIMATIC UNITS

SCALE 1 : 100000
Map Reference 92H/2

BIOGEOCLIMATIC UNITS

- | | |
|---|---|
| Coastal Western hemlock Zone - CWH | Interior Douglas-fir Zone - IDF |
| ■ Southern Dry Submaritime - CWHds1 | ■ Wet Warm - IDFww |
| ■ Central Moist Submaritime - CWHms2 | Mountain Hemlock Zone - MH |
| Engelmann Spruce - Subalpine Fir Zone - ESSF | ■ Moist Maritime - MHmm |
| ■ Wet Mild - ESSFwm | |

Plots 080, 081 and 082 were located between the 9.0km mark (1400m elevation) and the 12.0km mark (1600m elevation) along the Galene Lakes Trail (see Figure 12). These plots fit best into the MHmm2 variant. The Skagit Valley Recreational Area Biophysical Habitat Inventory Map used during this study did not have a MHmm subzone on that mountain range.

Information was not collected for plot 083 because a large lightning storm chased the field crew from the Galene Lakes area.



Figure 12: Scenic view from the Galene Lakes Trail.

3.1 IDFww PLOTS

The IDFww subzone can occur between 100m and 1200m elevation, and is near its most western limits in the Skagit Valley Recreation Area. This subzone is located on the Skagit Valley floor, with a small branch up the Nepopekum and Shawatum watersheds.

The climate in this subzone is influenced to an extent by the Pacific Ocean. Warm, dry summers and cool, moist winters are common.

Douglas-fir trees are dominant, with western hemlock and western red cedar trees less abundant. Falsebox, Saskatoon, dull Oregon-grape, tall Oregon-grape, prince's pine, birch-leaved spirea, baldhip rose, western trumpet honeysuckle, vine maple and beaked hazelnut are common shrubs. Broad-leaved starflower is usually the most common species in the herb layer. The moss layer is dominated by step moss, electrified cat's-tail moss and red-stemmed feathermoss.

Figure 11 shows the location of the plots that were located in the IDFww subzone.

LOCATION

Skagit Valley Floor (Silvertip Campground)
Latitude and Longitude: 49 07'25" 121 09'30"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701040 (Plot 040)
Elevation (m): 545

STAND CHARACTERISTICS

Crown Cover (%): 80
Stems/Hectare: 333
Average Forest Floor Depth (cms): 4.50

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Cw	31.0	26.1	10.0	88
Cw	30.5	22.5	7.0	80
Cw	66.8	32.0	8.0	
Cw	45.0	30.0	6.0	
Cw	5.0	3.5	1.5	
Cw	63.2	35.0	11.0	

FUEL LOADS (Tonnes per hectare)

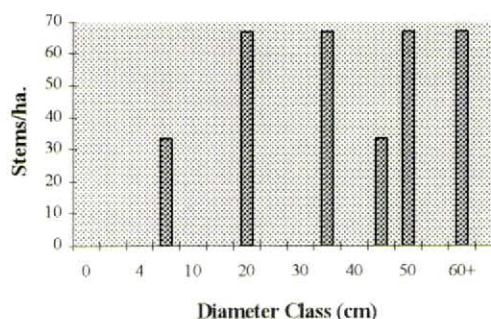
0.1cm - 0.5cm: 0.06 3.1cm - 5.0cm: 0.49
0.6cm - 1.0cm: 0.21 5.1cm - 7.0cm: 0.18
1.1cm - 3.0cm: 0.52 >7.0cm: 26.59

TOTAL = 28.06

STAND CLASSIFICATION

Vegetation Type: IDFww-CC5
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 00
Aspect: Flat
Slope Position: Flat

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Cw (85), Fd (05), Mv (10)
Line B: Cw (60), Fd (35), Bg (05)
Line C: Cw (45), Fd (45), Bg (05), Mv (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (01%), Mv (05%), devil's club (01%)
Herbs: Vanilla leaf (04%), sweet-scented bedstraw (03%), lady fern (03%), spiny wood fern (03%), Queen's cup (03%), oak fern (<01%), bleeding heart (<01%), sword fern (<01%), western trillium (<01%), twistedstalk (<01%)
Moss: Lanky moss (07%), step moss (05%), liverwort (01%), lichen (<01%)



LOCATION

Skagit Valley Floor (Silvertip Campground)
Latitude and Longitude: 49 07'25" 121 09'30"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701040 (Plot 041)
Elevation (m): 545

STAND CHARACTERISTICS

Crown Cover (%): 80
Stems/Hectare: 600
Average Forest Floor Depth (cms): 6.88

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Cw	37.2	23.2	9.0	
Bg	62.1	39.0	15.0	
Cw	36.4	30.0	8.0	
Cw	47.0	29.6	13.0	
Cw	50.0	32.4	10.0	
Cw	37.9	25.6	14.0	

FUEL LOADS (Tonnes per hectare)

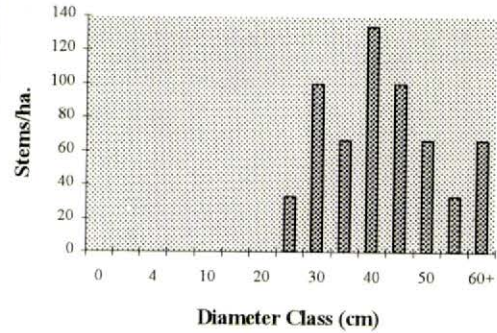
0.1cm - 0.5cm: 0.11 3.1cm - 5.0cm: 0.38
0.6cm - 1.0cm: 0.14 5.1cm - 7.0cm: 0.40
1.1cm - 3.0cm: 0.43 >7.0cm: 32.54

TOTAL = 34.00

STAND CLASSIFICATION

Vegetation Type: IDFww-CC5
Soil Texture: Sandy
Humus Form: Mor
Slope (%): 00
Aspect: Flat
Slope Position: Flat

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Cw (80), Bg (20)
Line B: Cw (70), Mv (30)
Line C: Cw (85), Bg (10), Mv (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (15%), Bg (03%), Hw (<01%), Mv (15%), Mb (<01%), devil's club (01%)
Herbs: Oak fern (07%), Queen's cup (07%), vanilla leaf (03%), wild ginger (02%), baneberry (<01%), lady fern (<01%), sword fern (<01%), rattlesnake plantain (<01%), broad-leaved starflower (<01%), twistedstalk (<01%)
Moss: Lanky moss (02%), step moss (<01%), lichen (<01%)



LOCATION

Skagit Valley (Nepopekum Creek)
Latitude and Longitude: 49° 04' 35" 121° 06' 40"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701048 (Plot 048)
Elevation (m): 450

STAND CHARACTERISTICS

Crown Cover (%): 65
Stems/Hectare: 1200
Average Forest Floor Depth (cms): 7.47

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Hw	31.2	21.0	5.0	130
Cw	22.2	16.0	1.0	60
Cw	14.0	13.5	3.0	
Bg	15.7	12.0	4.0	
Cw	7.8	5.0	1.0	
Cw	2.0	3.0	0.5	

FUEL LOADS (Tonnes per hectare)

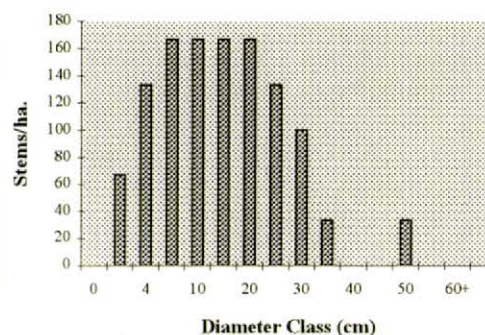
0.1cm - 0.5cm: 0.59 3.1cm - 5.0cm: 1.18
0.6cm - 1.0cm: 0.69 5.1cm - 7.0cm: 0.79
1.1cm - 3.0cm: 0.96 >7.0cm: 29.17

TOTAL = 33.38

STAND CLASSIFICATION

Vegetation Type: IDFWw-6BT5, 4DO5
Soil Texture: Sandy
Humus Form: Mor
Slope (%): 00
Aspect: Flat
Slope Position: Lower slope terrace

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (50), Cw (40), Hw (05), Mv (05)
Line B: Fd (55), Cw (25), Hw (10), Mv (05), Bg (05)
Line C: Fd (45), Cw (40), Hw (05), Bg (10)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (08%), Bg (02%), Hw (01%), Mv (05%), beaked hazelnut (01%), falsebox (50%), dull Oregon-grape (35%), prince's pine (15%), twinflower (06%), birch-leaved spirea (02%), red huckleberry (01%), baldhip rose (01%)
Herbs: Broad-leaved starflower (02%), rattlesnake plantain (01%), pink wintergreen (01%)
Moss: Step moss (10%), flat moss (05%), lichen (01%)



LOCATION

Skagit Valley (Nepopekum Creek)
Latitude and Longitude: 49° 04'35" 121° 06'40"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701048 (Plot 049)
Elevation (m): 450

STAND CHARACTERISTICS

Crown Cover (%): 70
Stems/Hectare: 1067
Average Forest Floor Depth (cms): 6.87

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Bg	5.2	5.0	2.0	
Hw	24.9	15.3	4.0	
Fd	19.7	16.0	8.0	
Fd	18.2	18.3	5.0	
Cw	11.5	8.0	2.0	
Cw	17.1	11.3	3.0	

FUEL LOADS (Tonnes per hectare)

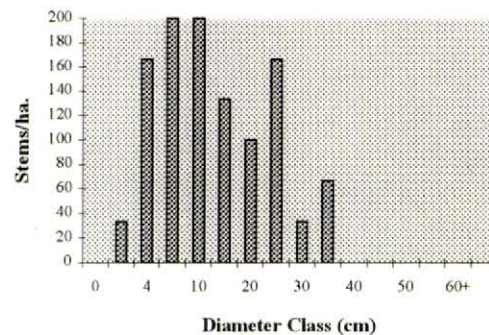
0.1cm - 0.5cm: 0.57 3.1cm - 5.0cm: 0.71
0.6cm - 1.0cm: 0.69 5.1cm - 7.0cm: 0.33
1.1cm - 3.0cm: 1.10 >7.0cm: 4.69

TOTAL = 8.09

STAND CLASSIFICATION

Vegetation Type: IDFww-6BT5, 4DO5
Soil Texture: silty
Humus Form: Mor
Slope (%): 0-15
Aspect: Flat
Slope Position: lower slope terrace

Diameter Distribution

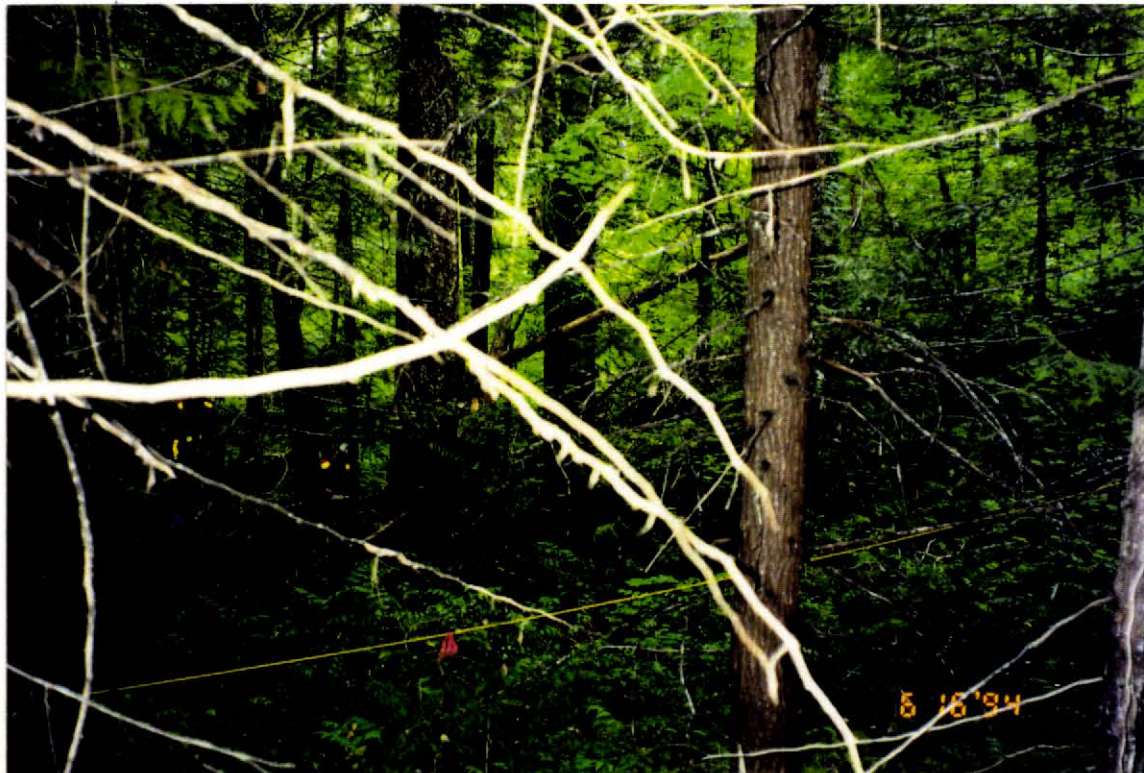


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (60), Cw (15), Hw (05), Mv (20)
Line B: Fd (50), Cw (20), Hw (05), Mv (20), Bg (05)
Line C: Fd (30), Cw (20), Hw (30), Mv (20%)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Mv (10%), Cw (05%), Fd (01%), Hw (01%), dull Oregon-grape (60%), twinflower (08%), prince's pine (05%), falsebox (03%), red huckleberry (02%), birch-leaved spirea (01%), baldhip rose (01%), orange honeysuckle (01%)
Herbs: Pink wintergreen (01%), bracken fern (01%)
Moss: step moss (05%), pipecleaner moss (02%), Oregon beaked moss (03%), lichen (01%)



LOCATION

Skagit Valley (Nepopekum Creek)
Latitude and Longitude: 49° 04' 40" 121° 06' 40"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701050 (Plot 050)
Elevation (m): 550

STAND CHARACTERISTICS

Crown Cover (%): 55
Stems/Hectare: 767
Average Forest Floor Depth (cms): 4.97

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	36.7	26.9	9.0	113
Fd	14.4	17.2	6.0	
Fd	10.1	10.5	7.0	
Fd	24.4	21.5	10.0	98
Fd	10.8	9.0	3.0	
Fd	18.7	15.5	7.0	

FUEL LOADS (Tonnes per hectare)

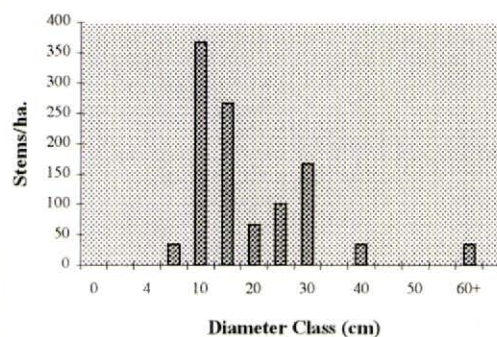
0.1cm - 0.5cm: 0.42 3.1cm - 5.0cm: 1.67
0.6cm - 1.0cm: 0.95 5.1cm - 7.0cm: 1.50
1.1cm - 3.0cm: 2.14 >7.0cm: 32.75

TOTAL = 39.43

STAND CLASSIFICATION

Vegetation Type: IDFww-DO5
Soil Texture: Loamy
Humus Form: Mor
Slope (%): 50
Aspect: 215°
Slope Position: middle slope

Diameter Distribution

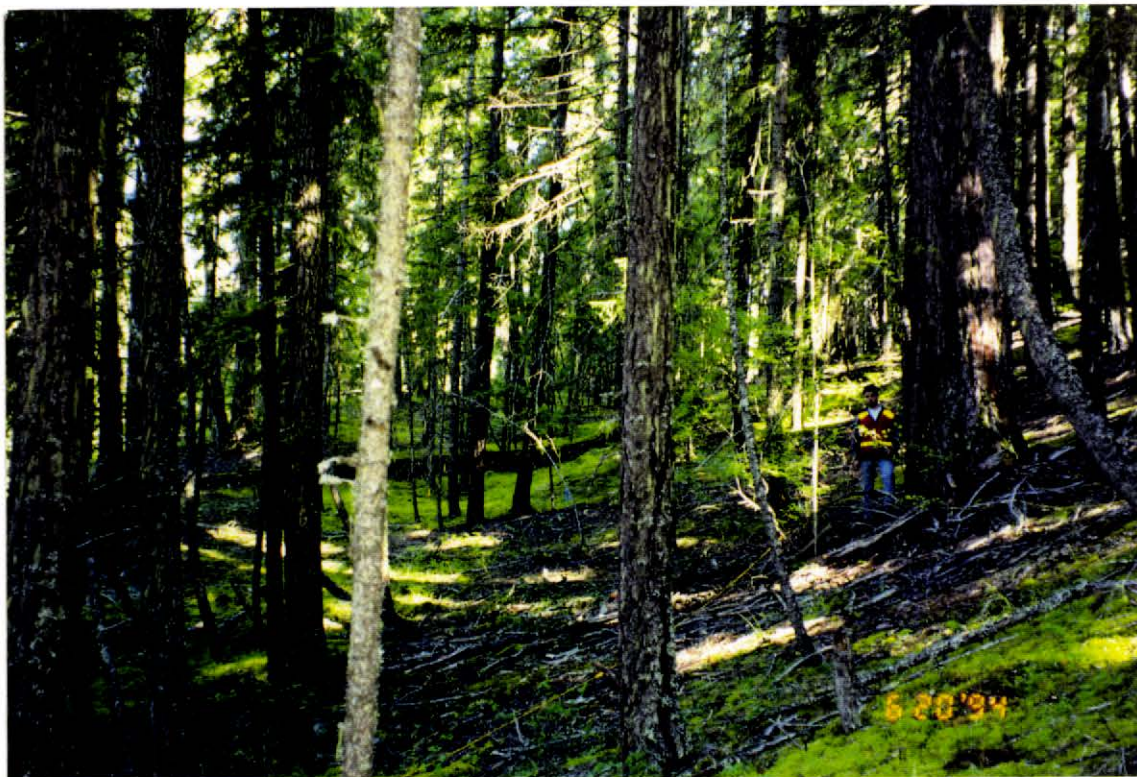


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (100)
Line B: Fd (100)
Line C: Fd (100)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Fd (01%), Bg (<01%), dull Oregon-grape (20%), tall Oregon-grape (18%), birch-leaved spirea (05%), prince's pine (03%), kinnikinnick (03%), orange honeysuckle (03%), baldhip rose (02%), salix spp. (02%)
Herbs: Broad-leaved starflower (15%), pinegrass (01%)
Moss: Step moss (15%), red-stemmed feathermoss (10%), electrified cat's-tail moss (05%), coastal leafy moss (02%)



LOCATION

Skagit Valley (Nepopekum Creek)
Latitude and Longitude: 49° 04' 40" 121° 06' 55"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701050 (Plot 051)
Elevation (m): 565

STAND CHARACTERISTICS

Crown Cover (%): 50
Stems/Hectare: 967
Average Forest Floor Depth (cms): 6.48

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	34.3	28.1	15.0	115
Fd	32.2	27.9	9.0	
Fd	44.0	32.7	4.0	
Fd	9.7	10.5	6.5	125
Fd	42.5	35.1	7.0	
Fd	36.2	35.9	6.0	

FUEL LOADS (Tonnes per hectare)

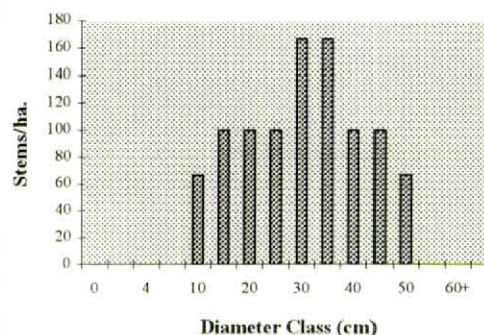
0.1cm - 0.5cm: 0.39 3.1cm - 5.0cm: 2.03
0.6cm - 1.0cm: 0.67 5.1cm - 7.0cm: 1.50
1.1cm - 3.0cm: 1.78 >7.0cm: 10.19

TOTAL = 16.56

STAND CLASSIFICATION

Vegetation Type: IDFww-DO5
Soil Texture: Silty
Humus Form: Mor
Slope (%): 42
Aspect: 220°
Slope Position: middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

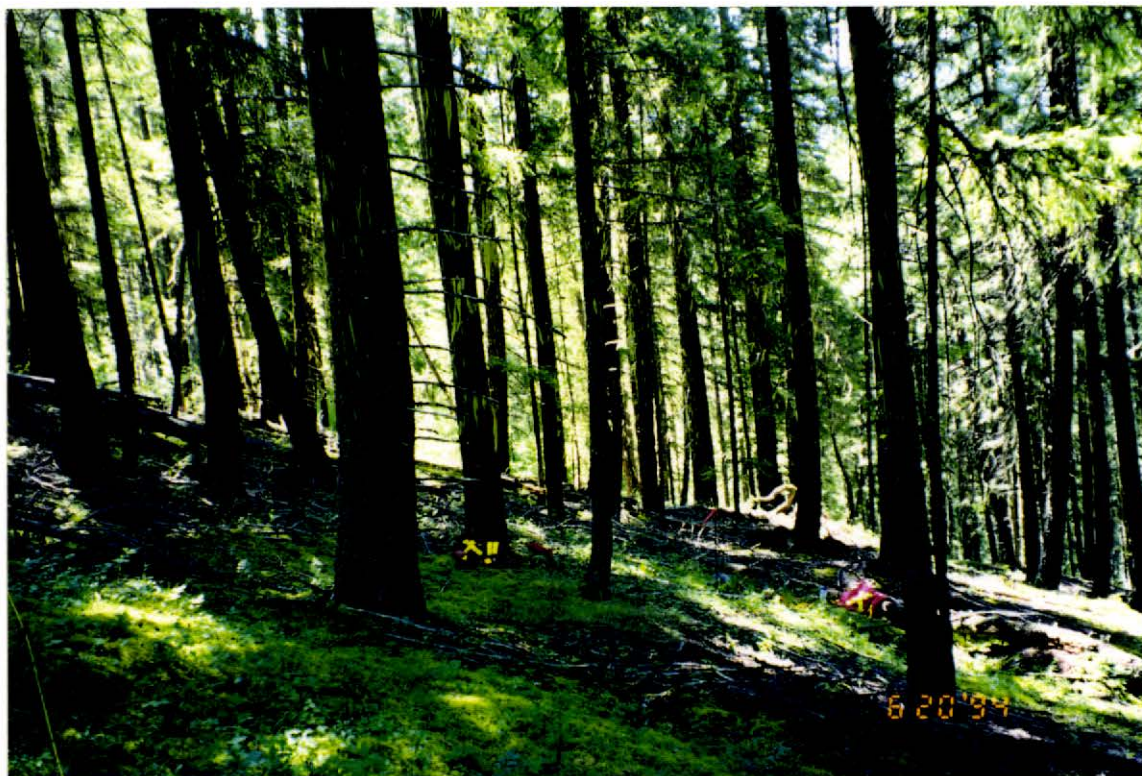
Line A: Fd (100)
Line B: Fd (100)
Line C: Fd (100)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Fd (02%), Bg (01%), tall Oregon-grape (20%), birch-leaved spirea (07%), prince's pine (04%), orange honeysuckle (03%), baldhip rose (02%)

Herbs: Pinegrass (10%), broad-leaved starflower (02%), wild strawberry (01%)

Moss: Step moss (20%), electrified cat's-tail moss (20%), red-stemmed feathermoss (10%), Dicranium spp. (02%), lichen (<01%)



LOCATION

Skagit Valley (Whitworth Ranch)
Latitude and Longitude: 49° 02'38" 121° 04'18"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701052 (Plot 052)
Elevation (m): 500

STAND CHARACTERISTICS

Crown Cover (%): 25
Stems/Hectare: 1833
Average Forest Floor Depth (cms): 6.18

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	31.5	17.1	4.0	repres.
Pl	3.6	5.0	0.5	trees
Fd	5.8	7.0	1.0	were
Fd	4.7	5.0	0.5	aged
Fd	3.8	4.5	0.5	at 60&
Fd	2.9	3.3	0.5	62 yrs.

FUEL LOADS (Tonnes per hectare)

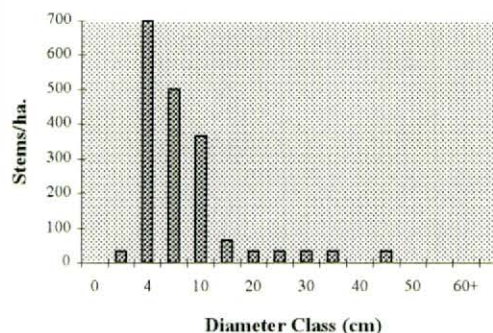
0.1cm - 0.5cm: 0.14 3.1cm - 5.0cm: 0.50
0.6cm - 1.0cm: 0.15 5.1cm - 7.0cm: 0.37
1.1cm - 3.0cm: 0.46 >7.0cm: 12.58

TOTAL = 14.20

STAND CLASSIFICATION

Vegetation Type: IDFww-BT5
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 00
Aspect: flat
Slope Position: flat

Diameter Distribution

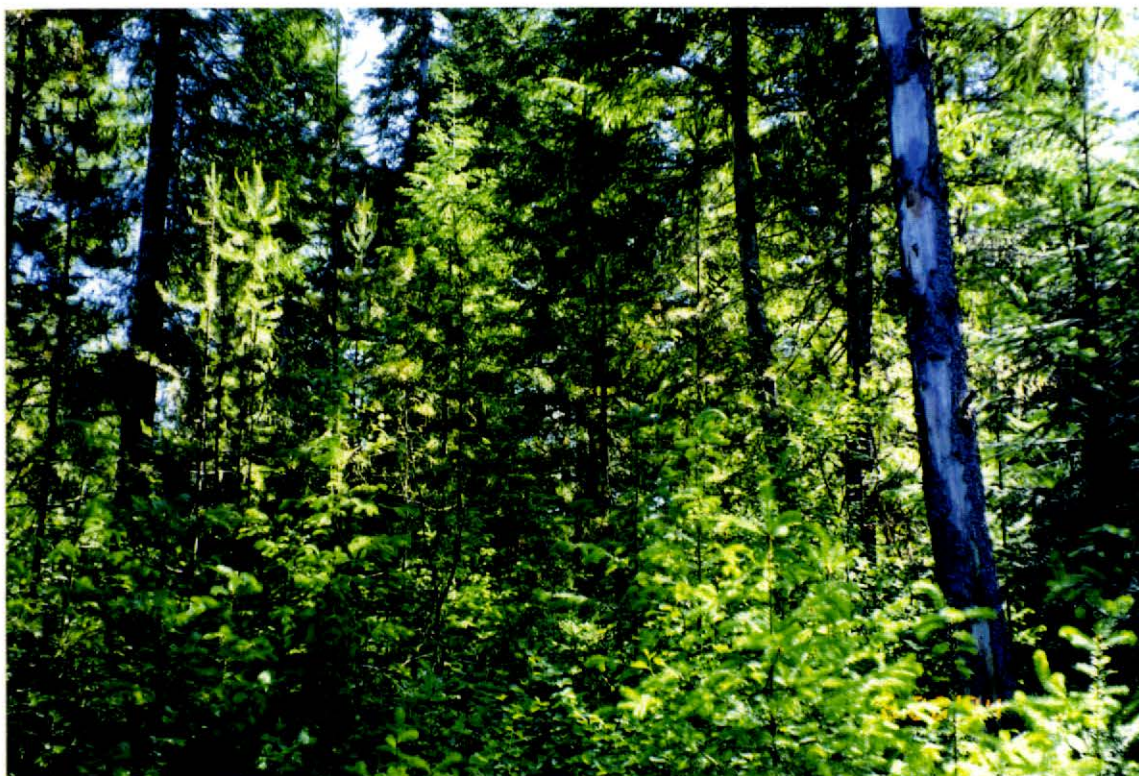


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (70), Pl (30)
Line B: Fd (50), Pl (50)
Line C: Fd (80), Pl (20)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Pl (20%), Fd (02%), Cw (01%), twinflower (60%), tall-Oregon grape (30%), birch-leaved spirea (15%), baldhip rose (15%), kinnikinnick (15%), Saskatoon (15%), dull-Oregon grape (03%), orange honeysuckle (03%), Black huckleberry (02%)
Herbs: Lupinus spp. (60%), needlegrass (40%), Broad-leaved starflower (10%), tiger lily (02%), three-leaved foamflower (01%), western yarrow (<01%)
Moss: Red-stemmed feathermoss (35%), electrified cat's-tail moss (25%), lichen (01%)



LOCATION

Skagit Valley (Whitworth Ranch)
Latitude and Longitude: 49° 02'38" 121° 04'25"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701052 (Plot 053)
Elevation (m): 500

STAND CHARACTERISTICS

Crown Cover (%): 65
Stems/Hectare: 1133
Average Forest Floor Depth (cms): 6.10

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	4.9	6.0	2.0	repres.
Fd	3.2	4.0	1.5	trees
Fd	3.5	4.0	2.0	were
Fd	2.8	3.0	0.5	aged
Pl	24.6	15.2	7.0	at 37&
Fd	4.0	5.0	1.0	47 yrs.

FUEL LOADS (Tonnes per hectare)

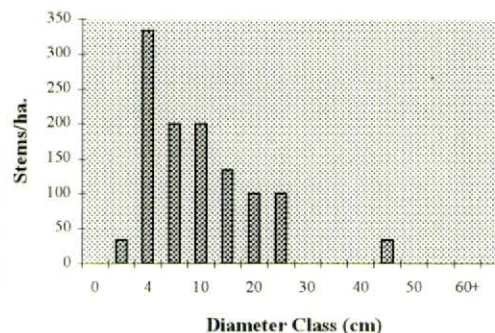
0.1cm - 0.5cm: 0.46 3.1cm - 5.0cm: 1.17
0.6cm - 1.0cm: 0.68 5.1cm - 7.0cm: 1.13
1.1cm - 3.0cm: 1.68 >7.0cm: 8.26

TOTAL = 13.38

STAND CLASSIFICATION

Vegetation Type: IDFWw-BT5
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 00
Aspect: Flat
Slope Position: Flat

Diameter Distribution

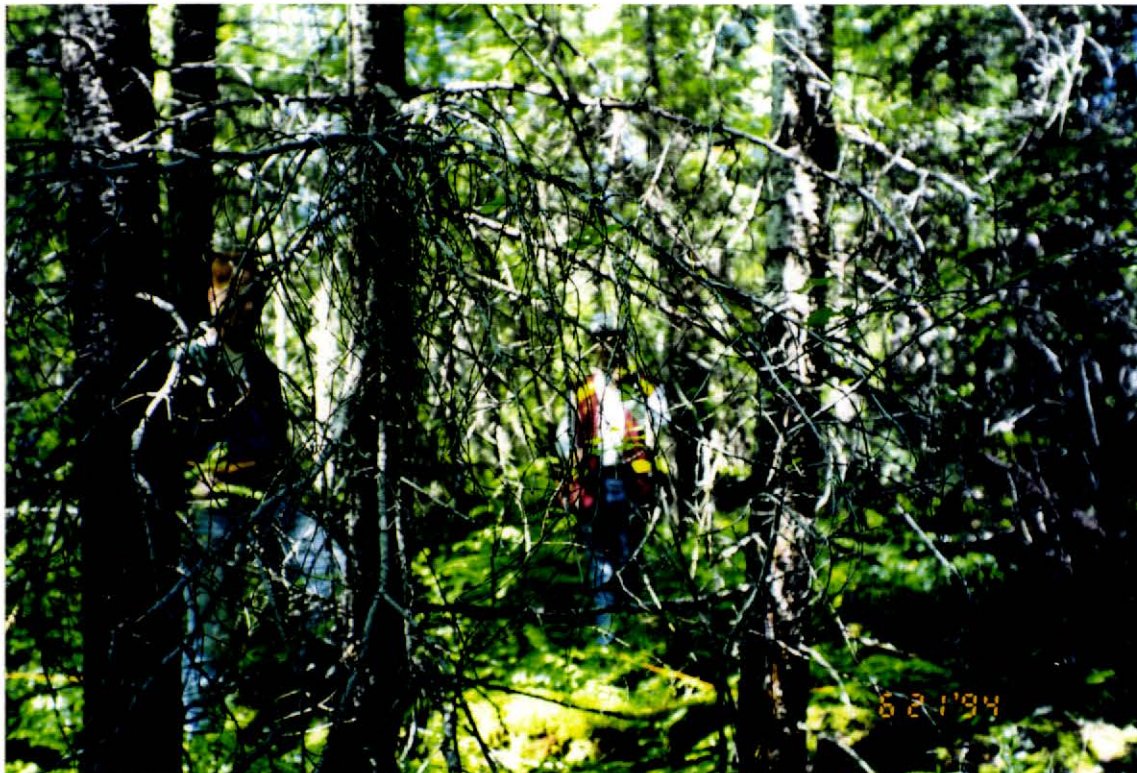


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (90), beaked hazelnut (10)
Line B: Fd (90), beaked hazelnut (10)
Line C: Fd (80), beaked hazelnut (10), Cw (05), Hw (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (05%), Pl (02%), Fd (01%), dull Oregon-grape (70%), falsebox (60%), twinflower (40%), prince's pine (20%), Saskatoon (20%), baldhip rose (15%), birch-leaved spirea (10%), kinnikinnick (10%), orange honeysuckle (10%), tall Oregon-grape (04%), black huckleberry (01%)
Herbs: Lupinus spp. (01%), broad-leaved starflower (01%)
Moss: Red-stemmed feathermoss (35%), electrified cat's-tail moss (10%), lichen (01%)



LOCATION

Skagit Valley (Whitworth Ranch)
Latitude and Longitude: 49° 02' 40" 121° 03' 00"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701054 (Plot 054)
Elevation (m): 675

STAND CHARACTERISTICS

Crown Cover (%): 65
Stems/Hectare: 433
Average Forest Floor Depth (cms): 8.40

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	21.7	20.7	7.0	repres.
Fd	51.4	43.5	14.0	trees
Fd	8.1	10.0	2.0	were
Fd	9.7	11.0	3.0	aged
Fd	43.4	35.7	19.0	at 130
Fd	33.2	25.6	5.5	&90yrs

FUEL LOADS (Tonnes per hectare)

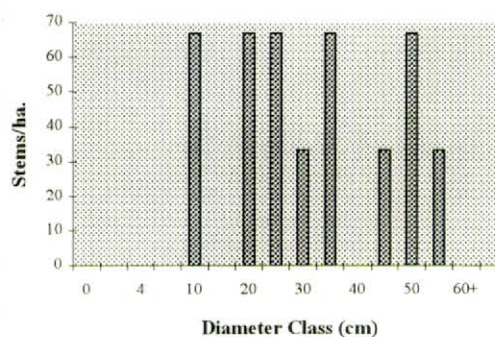
0.1cm - 0.5cm:	0.85	3.1cm - 5.0cm:	2.09
0.6cm - 1.0cm:	1.24	5.1cm - 7.0cm:	1.07
1.1cm - 3.0cm:	2.72	>7.0cm:	3.65

TOTAL = 11.62

STAND CLASSIFICATION

Vegetation Type: IDFww-DO5
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 72
Aspect: 280°
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (85), Mv (10), Ep (05)
Line B: Fd (85), Cw (05), Mv (10)
Line C: Fd (75), Cw (10), Ep (10), Mv (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (01%), Fd (01%), dull Oregon-grape (60%), vine maple (30%), birch-leaved spirea (10%), beaked hazelnut (10%), baldhip rose (02%), orange honeysuckle (01%), thimbleberry (01%)
Herbs: Broad-leaved starflower (03%), rattlesnake plantain (01%), false Solomon's-seal (01%), twistedstalk (01%)
Moss: Electrified cat's-tail moss (30%), red-stemmed feathermoss (20%), lichen (01%)



LOCATION

Skagit Valley (Whitworth Ranch)
Latitude and Longitude: 49° 02' 40" 121° 03' 00"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701054 (Plot 055)
Elevation (m): 675

STAND CHARACTERISTICS

Crown Cover (%): 60
Stems/Hectare: 567
Average Forest Floor Depth (cms): 5.47

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	32.5	27.3	14.0	
Fd	33.5	31.1	7.5	
Fd	45.6	37.8	15.0	100
Fd	15.7	16.9	5.0	
Fd	53.5	36.3	8.0	155+
Fd	4.9	7.0	6.0	

FUEL LOADS (Tonnes per hectare)

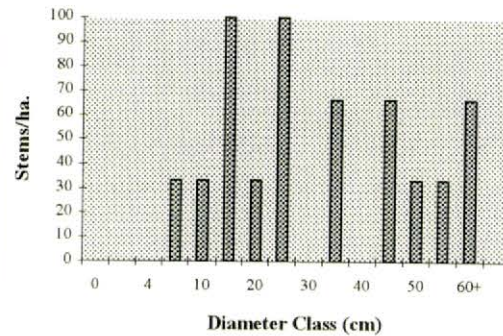
0.1cm - 0.5cm: 1.22 3.1cm - 5.0cm: 2.69
0.6cm - 1.0cm: 1.62 5.1cm - 7.0cm: 3.22
1.1cm - 3.0cm: 2.53 >7.0cm: 1.78

TOTAL = 13.06

STAND CLASSIFICATION

Vegetation Type: IDFww-DO5
Soil Texture: Silty
Humus Form: Moder
Slope (%): 60
Aspect: 300°
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (80), Mv (20)
Line B: Fd (55), Cw (10), Mv (15), Ep (05), Haz nt (15)
Line C: Fd (55), Cw (10), Ep (10), Mv (10), Haz nt (15)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (03%), Fd (02%), vine maple (60%), beaked hazelnut (10%), paper birch (05%), dull Oregon-grape (50%), baldhip rose (02%), orange honeysuckle (02%), birch-leaved spirea (01%), falsebox (01%), ocean-spray (01%)
Herbs: Broad-leaved starflower (06%), sword fern (05%), wild strawberry (02%), rattlesnake plantain (01%), false Solomon's-seal (01%), twistedstalk (01%)
Moss: Electrified cat's-tail moss (30%), lichen (01%)



LOCATION

Skagit Valley (Whitworth Ranch)
Latitude and Longitude: 49° 02' 45" 121° 03' 27"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701056 (Plot 056)
Elevation (m): 600

STAND CHARACTERISTICS

Crown Cover (%): 55
Stems/Hectare: 767
Average Forest Floor Depth (cms): 7.27

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Cw	4.2	4.0	1.0	Repres
Fd	55.3	51.3	21.0	trees
Pw	14.4	11.8	3.5	were
Fd	34.3	35.6	16.0	aged
Fd	23.9	23.5	6.0	at 106
Hw	4.9	6.0	0.5	& 95 yrs

FUEL LOADS (Tonnes per hectare)

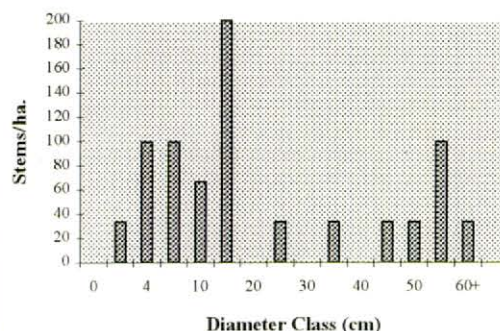
0.1cm - 0.5cm:	1.04	3.1cm - 5.0cm:	1.75
0.6cm - 1.0cm:	1.26	5.1cm - 7.0cm:	1.20
1.1cm - 3.0cm:	3.11	>7.0cm:	64.95

TOTAL = 73.31

STAND CLASSIFICATION

Vegetation Type: IDFww-DO5
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 35
Aspect: South (180°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

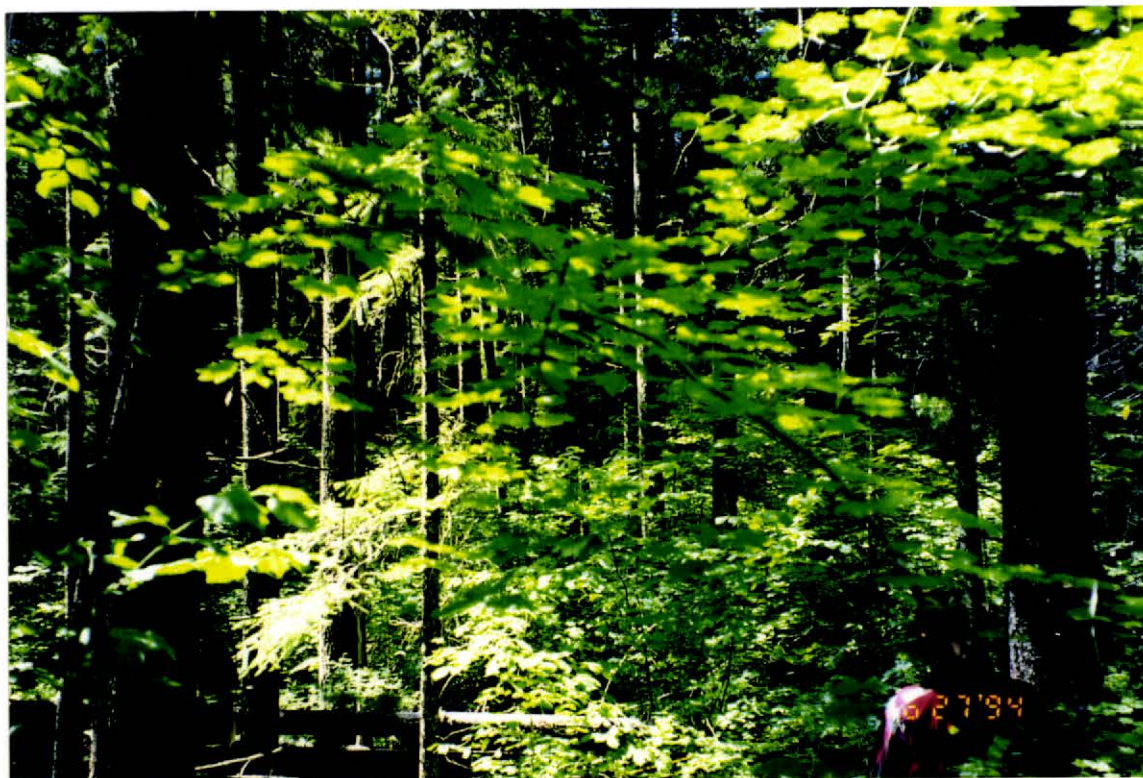
Line A: Fd (70), Cw (15), Mv (15)
Line B: Fd (80), Mv (20)
Line C: Fd (40), Cw (30), Mv (30)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (03%), Fd (01%), Bg (01%), Hw (<01%), vine maple (30%), beaked hazelnut (10%), dull Oregon-grape (60%), baldhip rose (13%), falsebox (05%), prince's pine (04%), Saskatoon (03%), orange honeysuckle (02%), cascara (<01%)

Herbs: Sword fern (03%), broad-leaved starflower (02%), twistedstalk (02%), false Solomon's-seal (01%), one-sided wintergreen (01%)

Moss: Step moss (15%), electrified cat's-tail moss (05%), coastal leafy moss (05%), lichen (01%)



LOCATION

Skagit Valley (Whitworth Ranch)
Latitude and Longitude: 49° 02' 45" 121° 03' 27"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701056 (Plot 057)
Elevation (m): 575

STAND CHARACTERISTICS

Crown Cover (%): 65
Stems/Hectare: 533
Average Forest Floor Depth (cms): 8.03

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Bg	6.6	5.5	1.5	Repres
Fd	22.2	22.0	6.0	tree
Ep	26.3	27.2	1.0	was
Fd	41.2	43.1	8.0	aged
Fd	47.5	42.2	10.5	at 100
Fd	13.6	17.6	8.0	years

FUEL LOADS (Tonnes per hectare)

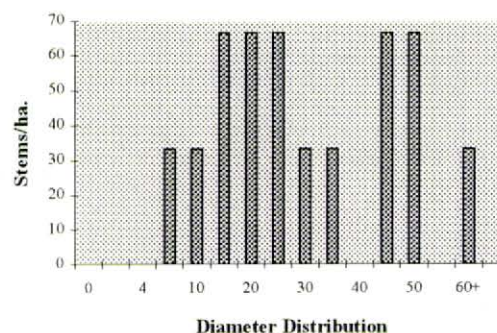
0.1cm - 0.5cm: 0.87 3.1cm - 5.0cm: 1.95
0.6cm - 1.0cm: 1.02 5.1cm - 7.0cm: 0.31
1.1cm - 3.0cm: 1.72 >7.0cm: 5.42

TOTAL = 11.29

STAND CLASSIFICATION

Vegetation Type: IDFww-DO5
Soil Texture: Silty
Humus Form: Mor
Slope (%): 04
Aspect: South (180°)
Slope Position: Flat

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (70), Bg (10), Mv (10), Ep (10)
Line B: Fd (50), Bg (10), Mv (20), Ep (10)
Line C: Fd (50), Hw (30), Cw (15), Mv (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (03%), Fd (01%), Bg (01%), Hw (<01%), vine maple (40%), beaked hazelnut (04%), dull Oregon-grape (60%), baldhip rose (02%), orange honeysuckle (02%), prince's pine (02%), twinflower (02%), falsebox (01%), red huckleberry (01%), Saskatoon (01%), tall Oregon-grape (01%), devil's club (<01%)
Herbs: Twistedstalk (03%), broad-leaved starflower (01%), Queen's cup (01%), sword fern (01%), Indian-pipe (<01%), lady fern (<01%), rattlesnake plantain (<01%)
Moss: Step moss (35%), Oregon beaked moss (10%), electrified cat's-tail moss (03%), pipecleaner moss (03%), coastal leafy moss (03%), lichen (<01%)



LOCATION

Skagit Valley (Shawatum Creek)
Latitude and Longitude: 49° 06' 42" 121° 07' 11"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701058 (Plot 058)
Elevation (m): 675

STAND CHARACTERISTICS

Crown Cover (%): 75
Stems/Hectare: 733
Average Forest Floor Depth (cms): 6.10

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	20.5	13.9	6.0	46
Fd	7.3	7.5	3.0	
Fd	23.5	22.9	7.0	
Fd	10.6	9.1	5.0	
Fd	23.0	15.3	9.0	55
Fd	33.6	30.4	15.0	

FUEL LOADS (Tonnes per hectare)

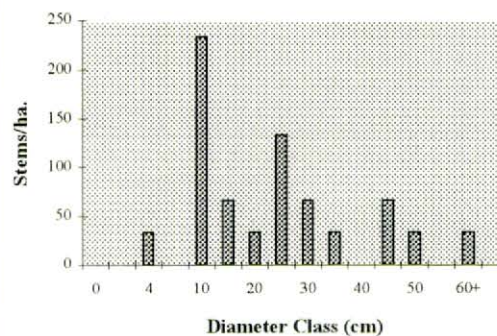
0.1cm - 0.5cm: 0.35 3.1cm - 5.0cm: 3.79
0.6cm - 1.0cm: 0.53 5.1cm - 7.0cm: 3.76
1.1cm - 3.0cm: 1.68 >7.0cm: 26.87

TOTAL = 36.98

STAND CLASSIFICATION

Vegetation Type: IDFww-8DO5, 2SS6
Soil Texture: Silty
Humus Form: Moder
Slope (%): 35
Aspect: Southwest (220°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (60), Mv (30), Cw (10)
Line B: Fd (40), Mv (50), Cw (10)
Line C: Fd (70), Mv (20), Cw (10)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (03%), Fd (01%), vine maple (30%), beaked hazelnut (05%), dull Oregon-grape (60%), orange honeysuckle (01%), thimbleberry (01%), falsebox (<01%)
Herbs: Twistedstalk (02%), bracken fern (01%), broad-leaved starflower (01%), rattlesnake plantain (01%), three-leaved foamflower (01%), vanilla leaf (01%), wild strawberry (01%)
Moss: Step moss (02%), electrified cat's-tail moss (02%), pipecleaner moss (02%), Dicranium spp. (01%)



LOCATION

Skagit Valley (Shawatum Creek)
Latitude and Longitude: 49° 06' 42" 121° 07' 11"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701058 (Plot 059)
Elevation (m): 687

STAND CHARACTERISTICS

Crown Cover (%): 75
Stems/Hectare: 800
Average Forest Floor Depth (cms): 7.97

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	8.1	9.0	3.0	Repres
Cw	18.2	20.5	11.0	trees
Fd	13.6	13.1	6.0	were
Fd	19.2	22.4	7.0	aged
Cw	16.3	21.4	13.0	at 58&
Cw	15.4	22.0	15.0	60 yrs.

FUEL LOADS (Tonnes per hectare)

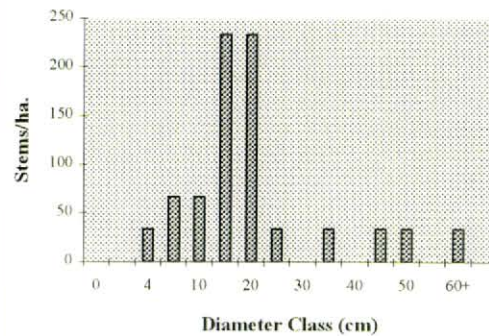
0.1cm - 0.5cm: 0.40 3.1cm - 5.0cm: 3.35
0.6cm - 1.0cm: 0.80 5.1cm - 7.0cm: 3.17
1.1cm - 3.0cm: 2.44 >7.0cm: 19.86

TOTAL = 30.02

STAND CLASSIFICATION

Vegetation Type: IDFww-8DO5, 2SS6
Soil Texture: Silty
Humus Form: Moder
Slope (%): 45
Aspect: Southwest (230°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (60), Mv (20), Cw (20)
Line B: Fd (70), Mv (20), Cw (10)
Line C: Fd (80), Mv (20)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (03%), Fd (01%), vine maple (15%), beaked hazelnut (15%), dull Oregon-grape (55%), prince's pine (20%), thimbleberry (02%), baldhip rose (01%), falsebox (01%), orange honeysuckle (01%)
Herbs: Broad-leaved starflower (02%), bracken fern (01%), one-sided wintergreen (01%), rattlesnake plantain (01%), three-leaved foamflower (01%), vanilla leaf (01%), false bugbane (<01%)
Moss: Electrified cat's-tail moss (05%), Oregon beaked moss (05%), step moss (05%), lichen (01%)



3.2 CWHds1 PLOTS

The CWHds1 variant occurs below 650m elevation. This variant is located on the east facing lower slopes along the Skagit Valley Recreation Area valley floor, and also to the west and north in the valley.

The climate in this variant is influenced to an extent by the Pacific Ocean. Warm, dry summers and cool, moist winters are common.

Douglas-fir and western hemlock trees are dominant, with western red cedar trees less abundant. Falsebox, prince's pine and dull Oregon-grape are common in the sparse shrub layer. A sparse herb layer is dominated by Queen's cup. Step moss, pipecleaner moss and red-stemmed feathermoss make up a normally thick moss layer.

Figure 11 shows the location of the plots that were located in the CWHds1 variant.

LOCATION

Skagit Valley Floor

Latitude and Longitude: 49° 07' 50" 121° 12' 20"

BC Parks District: Fraser Valley

Forest Service District: Chilliwack

Plot Identification Number: 94701042 (Plot 042)

Elevation (m): 620

STAND CHARACTERISTICS

Crown Cover (%): 55

Stems/Hectare: 200

Average Forest Floor Depth (cms): 6.87

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	16.2	10.0	3.0	
Fd	22.0	15.8	4.0	
Fd	30.0	21.0	8.0	
Fd	23.0	15.8	5.0	
Fd	51.2	38.4	5.0	
Fd	28.2	22.0	4.0	

FUEL LOADS (Tonnes per hectare)

0.1cm - 0.5cm: 0.07

3.1cm - 5.0cm: 0.59

0.6cm - 1.0cm: 0.14

5.1cm - 7.0cm: 0.55

1.1cm - 3.0cm: 0.43

>7.0cm: 27.60

TOTAL = 29.38

STAND CLASSIFICATION

Vegetation Type: CWHds1-DL6

Soil Texture: Loamy

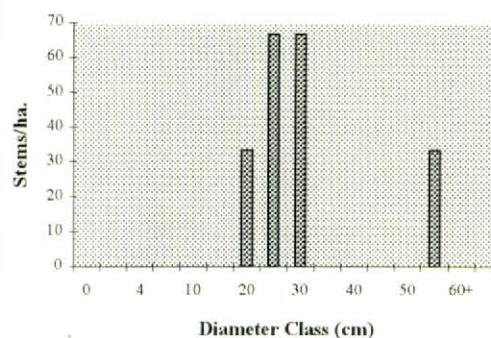
Humus Form: Moder

Slope (%): 70

Aspect: south (170°)

Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (85), Mv (15)

Line B: Fd (80), Mv (20)

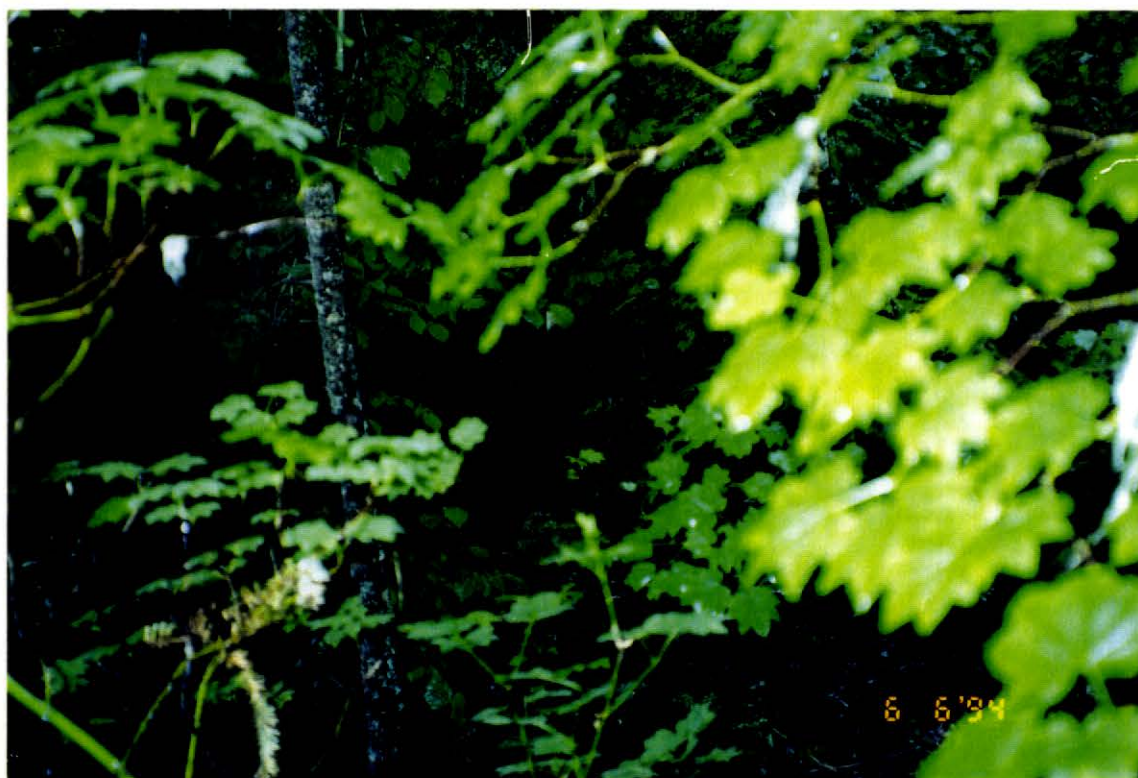
Line C: Fd (70), Mv (30)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Mv (50), red alder (10), Douglas maple (08), baldhip rose (02), orange honeysuckle (01)

Herbs: Sweet-scented bedstraw (08), vanilla leaf (02), baneberry (<01), broad-leaved starflower (<01)

Moss: Lanky moss (06), step moss (06), leafy moss (02), lichen (06)



LOCATION

Skagit Valley Floor
Latitude and Longitude: 49° 07'50" 121° 12'20"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701042 (Plot 043)
Elevation (m): 620

STAND CHARACTERISTICS

Crown Cover (%): 70
Stems/Hectare: 133
Average Forest Floor Depth (cms): 7.50

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	25.5	20.4	6.0	
Fd	101.9	40.0	15.0	180+
Fd	90.2	48.0	20.0	190+
Fd	15.0	9.8	4.0	

FUEL LOADS (Tonnes per hectare)

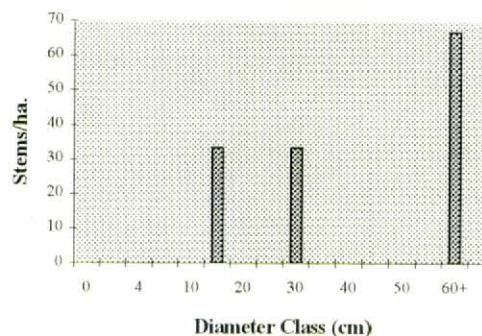
0.1cm - 0.5cm: 0.12 3.1cm - 5.0cm: 1.49
0.6cm - 1.0cm: 0.19 5.1cm - 7.0cm: 0.89
1.1cm - 3.0cm: 0.76 >7.0cm: 12.79

TOTAL = 16.24

STAND CLASSIFICATION

Vegetation Type: CWHds1-DL6
Soil Texture: Sandy
Humus Form: Mor
Slope (%): 75
Aspect: South (170°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (50), Mv (50)
Line B: Fd (40), Mv (60)
Line C: Fd (35), Mv (65)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Fd (03%), Mv (20%), baldhip rose (10%), dull Oregon-grape (05%), orange honeysuckle (01%)
Herbs: Vanilla leaf (15%), broad-leaved starflower (10%), sweet-scented bedstraw (05%), twistedstalk (01%), sword fern (<01%)
Moss: Oregon beaked moss (04%), broken-leaf moss (03%), step moss (03%), lichen (08%)



LOCATION

Skagit Valley Floor (Silvertip Campground)
Latitude and Longitude: 49° 08'30" 121° 12'55"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701044 (Plot 044)
Elevation (m): 625

STAND CHARACTERISTICS

Crown Cover (%): 50
Stems/Hectare: 333
Average Forest Floor Depth (cms): 5.27

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	9.0	9.0	1.5	
Fd	12.0	11.0	2.0	
Fd	66.5	33.0	6.0	206
Fd	44.9	33.6	7.0	
Fd	38.9	30.3	10.0	72
Fd	42.4	40.8	11.0	

FUEL LOADS (Tonnes per hectare)

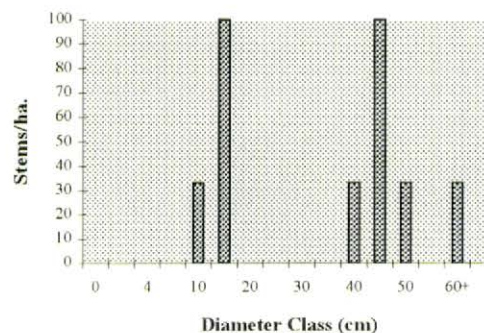
0.1cm - 0.5cm: 0.15	3.1cm - 5.0cm: 0.75
0.6cm - 1.0cm: 0.25	5.1cm - 7.0cm: 1.34
1.1cm - 3.0cm: 0.73	>7.0cm: 5.31

TOTAL = 8.53

STAND CLASSIFICATION

Vegetation Type: CWHds1-6DL6, 4RD6
Soil Texture: Loamy
Humus Form: Mor
Slope (%): 72
Aspect: Southeast (140°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (30), Mv (60), Cw (10)
Line B: Fd (60), Mv (30), Cw (10)
Line C: Fd (30), Mv (50), Cw (20)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Fd (08%), Mv (15%), beaked hazelnut (08%), bigleaf maple (01%), red alder (<01%), baldhip rose (04%), dull Oregon-grape (01%), orange honeysuckle (01%)
Herbs: Broad-leaved starflower (03%), licorice fern (01%), parsley fern (01%), wood horsetail (<01%), saxifrage spp. (<01%)
Moss: Red-stemmed feathermoss (02%), leafy moss (01%), haircap moss (<01%), lichen (03%), liverworts (01%)



LOCATION

Skagit Valley Floor (Silvertip Campground)
Latitude and Longitude: 49° 08'30" 121° 12'55"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701044 (Plot 045)
Elevation (m): 555

STAND CHARACTERISTICS

Crown Cover (%): 60
Stems/Hectare: 400
Average Forest Floor Depth (cms): 5.10

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	14.8	16.4	4.0	
Fd	27.9	24.9	8.0	
Fd	50.4	35.5	6.0	
Fd	76.6	29.3	7.0	
Fd	46.2	21.7	11.0	211
Fd	15.9	13.7	5.0	62

FUEL LOADS (Tonnes per hectare)

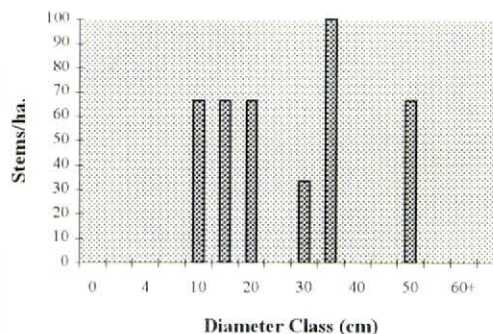
0.1cm - 0.5cm: 0.14 3.1cm - 5.0cm: 0.62
0.6cm - 1.0cm: 0.30 5.1cm - 7.0cm: 0.82
1.1cm - 3.0cm: 0.89 >7.0cm: 2.64

TOTAL = 5.41

STAND CLASSIFICATION

Vegetation Type: CWHds1-6DL6, 4RD6
Soil Texture: Silty
Humus Form: Mor
Slope (%): 80
Aspect: Southeast (129°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

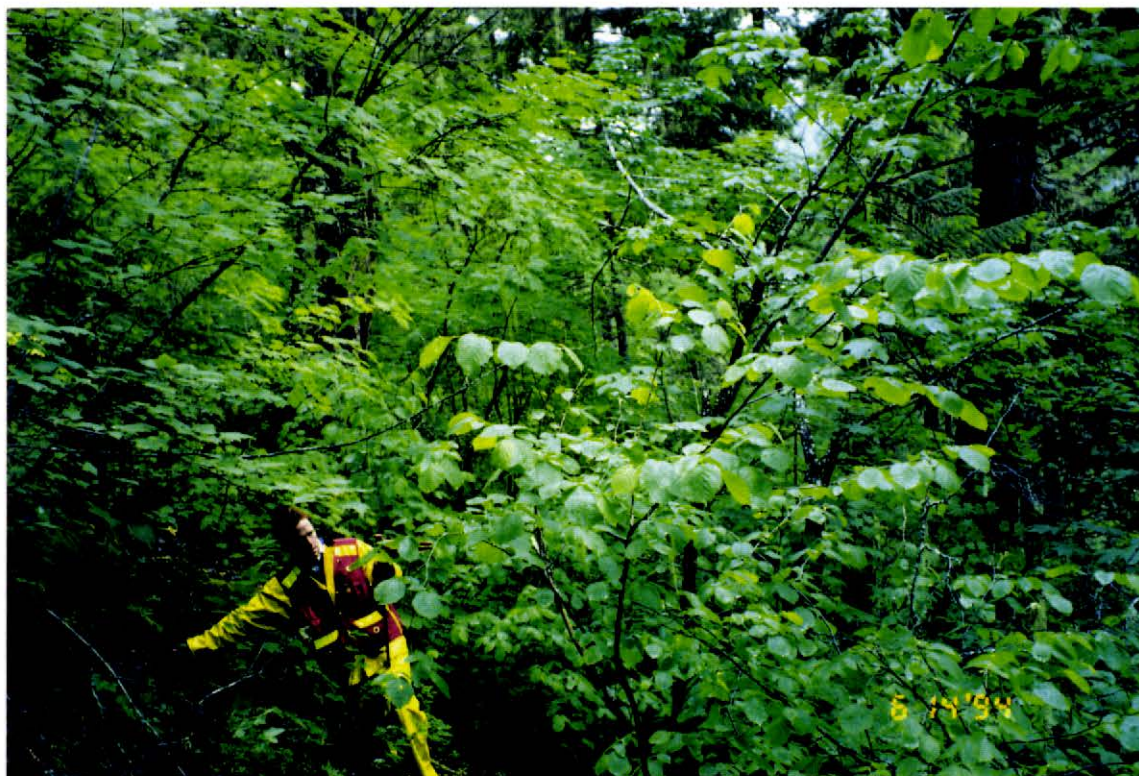
Line A: Fd (80), Mv (20)
Line B: Fd (30), Mv (60), beaked hazelnut (10)
Line C: Fd (90), Mv (10)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Fd (03%), Mv (60%), beaked hazelnut (02%), paper birch (<01%), baldhip rose (15%), prince's pine (10%), birch-leaved spirea (<01%)

Herbs: Broad-leaved starflower (12%), big-leaved sandwort (04%), sweet-scented bedstraw (03%), parsley fern (<01%)

Moss: Step moss (15%), electrified cat's-tail moss (08%), haircap moss (07%), lichen (06%), liverworts (10%)



LOCATION

Skagit Valley Floor (Silvertip Campground)
Latitude and Longitude: 49° 08'40" 121° 09'43"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701046 (Plot 046)
Elevation (m): 545

STAND CHARACTERISTICS

Crown Cover (%): 75
Stems/Hectare: 1066
Average Forest Floor Depth (cms): 11.23

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	22.5	24.5	15.0	
Fd	21.4	18.8	5.0	
Hw	39.4	30.8	8.0	
Hw	10.9	9.3	6.5	
Hw	8.2	6.2	4.0	
Fd	4.0	6.0	5.0	

FUEL LOADS (Tonnes per hectare)

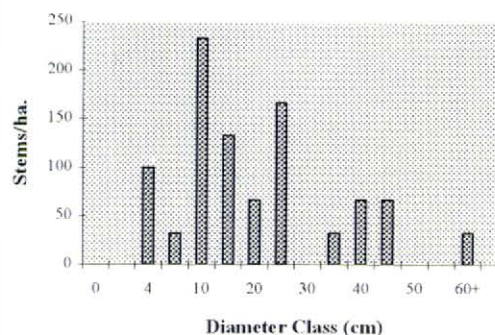
0.1cm - 0.5cm: 0.64 3.1cm - 5.0cm: 1.49
0.6cm - 1.0cm: 0.51 5.1cm - 7.0cm: 1.37
1.1cm - 3.0cm: 1.31 >7.0cm: 45.70

TOTAL = 51.02

STAND CLASSIFICATION

Vegetation Type: CWHds1-8DL6, 2HM5
Soil Texture: Loamy
Humus Form: Mor
Slope (%): 02
Aspect: Flat
Slope Position: Flat

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (50), Cw (40), Hw (05), Mv (05)
Line B: Fd (30), Cw (45), Hw (20), Mv (05)
Line C: Fd (40), Cw (30), Hw (150), Mv (15)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (18%), Hw (12%), Fd (02%), western yew (01%), Mv (25%), dull Oregon-grape (15%), falsebox (01%), prince's pine (01%), Vaccinium spp. (01%)
Herbs: Queen's cup (01%), twinflower (01%), twistedstalk (01%)
Moss: Step moss (55%), Dicranum spp. (05%), pipecleaner moss (05%), Oregon beaked moss (03%), lanky moss (03%), lichen (01%)



LOCATION

Skagit Valley Floor (Silvertip Campground)
Latitude and Longitude: 49° 08'40" 121° 09'43"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701046 (Plot 047)
Elevation (m): 550

STAND CHARACTERISTICS

Crown Cover (%): 65
Stems/Hectare: 1833
Average Forest Floor Depth (cms): 7.00

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Cw	2.4	3.0	1.0	
Cw	21.8	14.0	4.0	90
Fd	39.0	27.6	18.0	120
Fd	21.8	21.8	10.0	
Cw	5.1	6.0	5.0	
Cw	23.2	17.6	8.0	

FUEL LOADS (Tonnes per hectare)

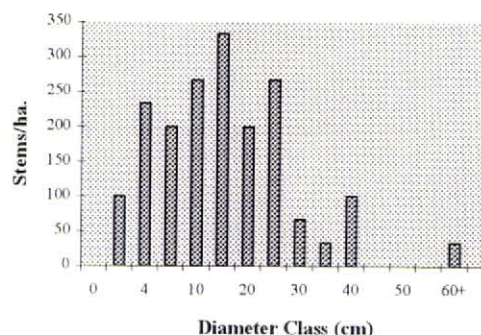
0.1cm - 0.5cm: 0.77 3.1cm - 5.0cm: 2.17
0.6cm - 1.0cm: 1.05 5.1cm - 7.0cm: 3.32
1.1cm - 3.0cm: 4.27 >7.0cm: 36.74

TOTAL = 48.32

STAND CLASSIFICATION

Vegetation Type: CWHds1-8DL6, 2HM5
Soil Texture: Loamy
Humus Form: Mor
Slope (%): 00
Aspect: Flat
Slope Position: Flat

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (40), Cw (20), Hw (35), Mv (05)
Line B: Fd (15), Cw (45), Hw (10), Mv (30)
Line C: Fd (35), Cw (25), Mv (40)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (10%), Hw (05%), Fd (02%), Ep (<01%), Mv (<01%), dull Oregon-grape (60%), prince's pine (04%), red huckleberry (01%), red rhododendron (01%)
Herbs: Bunchberry (02%), Pyrola spp. (01%), broad-leaved starflower (01%), vanilla leaf (01%)
Moss: Step moss (55%), leafy moss (05%), lichen (01%), liverwort (01%)



LOCATION

Skagit Valley (Somallo Grove)
Latitude and Longitude: 49° 12'04" 121° 04'12"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701060 (Plot 060)
Elevation (m): 670

STAND CHARACTERISTICS

Crown Cover (%): 50
Stems/Hectare: 1733
Average Forest Floor Depth (cms): 8.47

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Cw	6.1	4.0	0.3	
Fd	42.6	23.6	12.0	
Cw	2.9	3.5	0.5	
Cw	7.2	5.0	0.3	
Cw	9.8	7.3	0.5	71
Fd	20.7	16.4	8.5	102

FUEL LOADS (Tonnes per hectare)

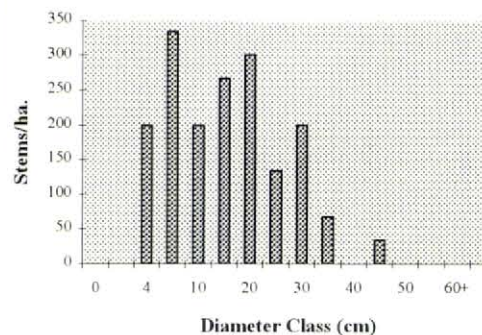
0.1cm - 0.5cm: 0.09 3.1cm - 5.0cm: 0.29
0.6cm - 1.0cm: 0.23 5.1cm - 7.0cm: 0.55
1.1cm - 3.0cm: 0.35 >7.0cm: 2.14

TOTAL = 3.65

STAND CLASSIFICATION

Vegetation Type: CWHds1-8HM4, 2RD4
Soil Texture: Silty
Humus Form: Mor
Slope (%): 55
Aspect: South (170°)
Slope Position: Upper slope

Diameter Distribution

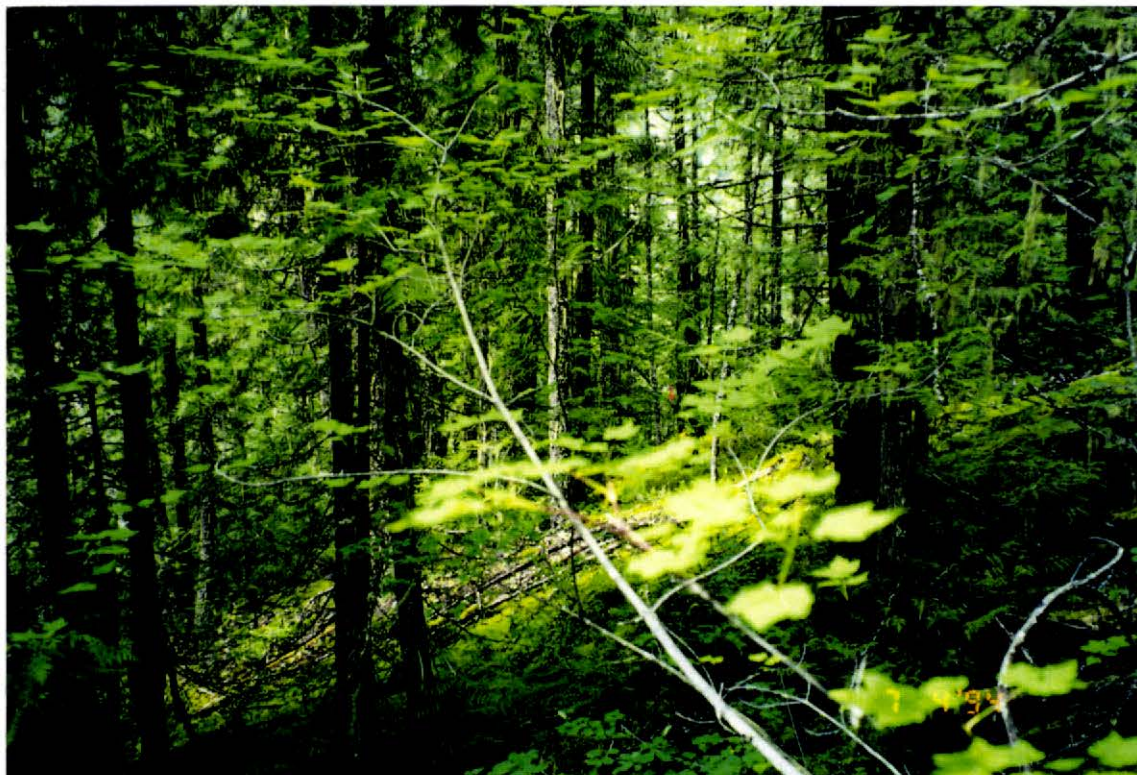


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (65), Cw (25), Se (05), Hw (05)
Line B: Fd (70), Cw (25), Se (05)
Line C: Fd (20), Cw (30), Hw (50)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (04%), Hw (01%), western yew (01%), Pw (<01%), Douglas maple (<01%), vine maple (<01%), twinflower (40%), falsebox (20%), prince's pine (15%), red huckleberry (02%), Saskatoon (01%), dull Oregon-grape (<01%), black huckleberry (<01%), red elderberry (<01%), red rhododendron (<01%)
Herbs: Rattlesnake plantain (05%), pink wintergreen (02%), Queen's cup (<01%)
Moss: Red-stemmed feathermoss (25%), step moss (25%), Dicranium sp. (05%), pipecleaner moss (02%), lichen (01%)



LOCATION

Skagit Valley (Somallo Grove)
Latitude and Longitude: 49° 12'04" 121° 04'12"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701060 (Plot 061)
Elevation (m): 670

STAND CHARACTERISTICS

Crown Cover (%): 65
Stems/Hectare: 2100
Average Forest Floor Depth (cms): 9.10

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Hw	19.5	15.3	6.0	
Hw	22.5	15.2	2.5	130
Cw	5.4	4.0	0.2	
Fd	35.3	19.5	10.0	120
Cw	13.8	7.8	0.5	
Fd	13.5	12.0	5.0	

FUEL LOADS (Tonnes per hectare)

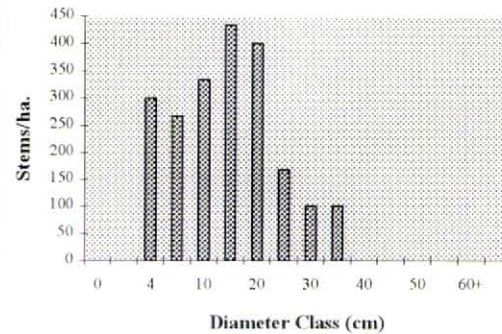
0.1cm - 0.5cm: 0.08 3.1cm - 5.0cm: 0.54
0.6cm - 1.0cm: 0.17 5.1cm - 7.0cm: 0.54
1.1cm - 3.0cm: 0.43 >7.0cm: 11.01

TOTAL = 12.77

STAND CLASSIFICATION

Vegetation Type: CWHds1-8HM4, 2RD4
Soil Texture: Silty
Humus Form: Mor
Slope (%): 55
Aspect: Southeast (140°)
Slope Position: Upper slope

Diameter Distribution

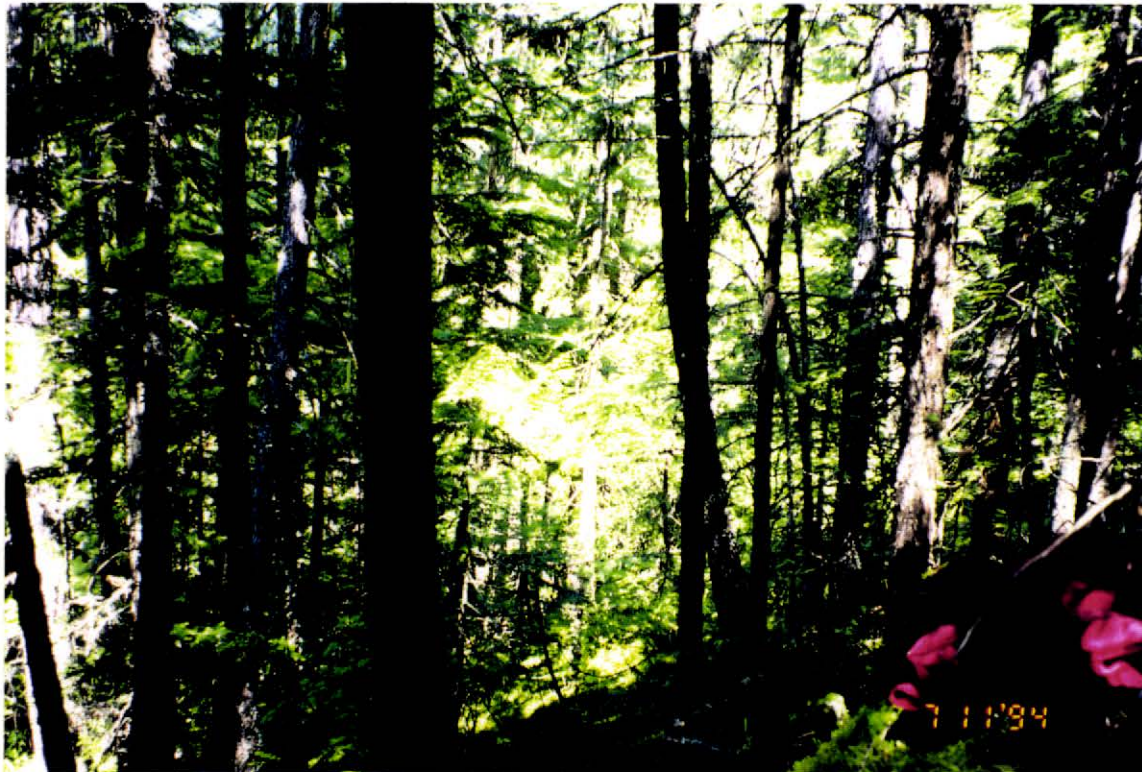


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (50), Cw (40), Hw (10)
Line B: Fd (30), Cw (40), Hw (30)
Line C: Fd (45), Cw (20), Hw (30), Mv (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (25%), Hw (05%), vine maple (05%), Salix spp. (<01%), twinflower (15%), falsebox (02%), prince's pine (02%), red huckleberry (02%), black huckleberry (01%), dull Oregon-grape (01%), Saskatoon (01%)
Herbs: Birch-leaved spirea (01%), pink wintergreen (01%)
Moss: Step moss (35%), red-stemmed feathermoss (20%), Dicranium sp. (20%), pipecleaner moss (05%), electrified cat's-tail moss (03%), lichen (02%)



LOCATION

Skagit Valley (Galene Lake)
Latitude and Longitude: 49° 02' 53" 121° 06' 15"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701074 (Plot 074)
Elevation (m): 690

STAND CHARACTERISTICS

Crown Cover (%): 75
Stems/Hectare: 1600
Average Forest Floor Depth (cms): 6.43

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Hw	7.5	6.0	3.5	60
Hw	13.3	8.4	6.0	
Hw	7.9	6.0	4.0	
Hw	10.3	8.0	3.0	
Fd	16.5	18.9	14.0	109
Fd	22.0	20.2	14.0	

FUEL LOADS (Tonnes per hectare)

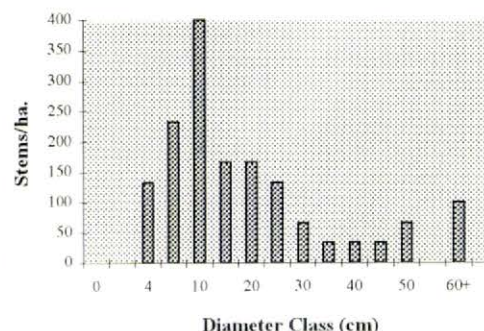
0.1cm - 0.5cm:	0.39	3.1cm - 5.0cm:	1.63
0.6cm - 1.0cm:	0.46	5.1cm - 7.0cm:	2.43
1.1cm - 3.0cm:	1.10	>7.0cm:	30.84

TOTAL = 36.85

STAND CLASSIFICATION

Vegetation Type: CWHds1-HM5
Soil Texture: Silty
Humus Form: Moder
Slope (%): 58
Aspect: East (070°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (40), Hw (40), Cw (20)
Line B: Fd (35), Hw (45), Cw (20)
Line C: Fd (30), Hw (60), Cw (10)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (<01%), Cw (<01%), western yew (<01%), dull Oregon-grape (02%), falsebox (01%), prince's pine (01%)
Herbs: Pink wintergreen (01%), green wintergreen (01%), rattlesnake plantain (01%)
Moss: Step moss (10%), Oregon beaked moss (03%), electrified cat's-tail moss (03%), lichen (01%)



LOCATION

Skagit Valley (Galene Lake)
Latitude and Longitude: 49° 02'53" 121° 06'15"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701074 (Plot 075)
Elevation (m): 670

STAND CHARACTERISTICS

Crown Cover (%): 90
Stems/Hectare: 5467
Average Forest Floor Depth (cms): 6.80

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Hw	6.5	5.0	2.5	
Hw	5.4	4.0	2.0	
Fd	11.7	12.0	7.0	
Hw	4.9	5.0	4.0	
Hw	12.8	12.0	8.0	101
Fd	13.4	15.0	6.0	100

FUEL LOADS (Tonnes per hectare)

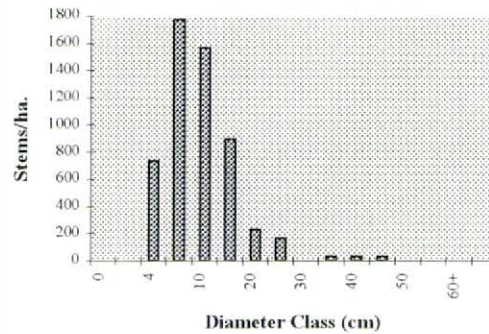
0.1cm - 0.5cm: 0.14 3.1cm - 5.0cm: 1.42
0.6cm - 1.0cm: 0.26 5.1cm - 7.0cm: 2.19
1.1cm - 3.0cm: 0.96 >7.0cm: 18.89

TOTAL = 23.86

STAND CLASSIFICATION

Vegetation Type: CWHds1-HM5
Soil Texture: Silty
Humus Form: Moder
Slope (%): 61
Aspect: East (090°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (10), Hw (85), Cw (05)
Line B: Fd (10), Hw (75), Cw (05), Pw (10)
Line C: Fd (45), Hw (35), Cw (15), Pw (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (04%), Cw (03%), western yew (01%), falsebox (02%), twinflower (02%), dull Oregon-grape (01%), red huckleberry (<01%)
Herbs: Green wintergreen (<01%), rattlesnake plantain (<01%)
Moss: Step moss (65%), electrified cat's-tail moss (04%), pipecleaner moss (04%), red-stemmed feathermoss (<01%), lichen (<01%)



LOCATION

Skagit Valley (Snass Creek)
Latitude and Longitude: 49° 14' 19" 121° 03' 04"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701084 (Plot 084)
Elevation (m): 900

STAND CHARACTERISTICS

Crown Cover (%): 55
Stems/Hectare: 600
Average Forest Floor Depth (cms): 4.17

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Hw	25.6	19.0	3.0	
Fd	37.0	31.0	10.0	
Fd	43.0	31.0	20.0	160
Fd	30.3	27.4	10.0	155
Fd	41.6	34.2	13.0	
Fd	27.0	24.0	7.0	

FUEL LOADS (Tonnes per hectare)

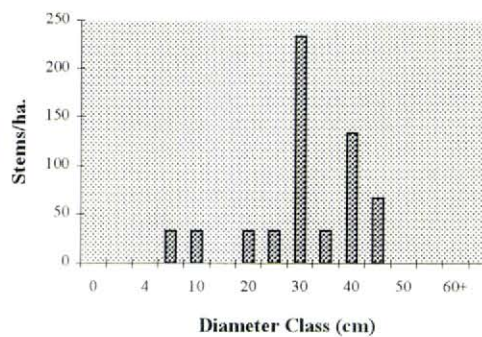
0.1cm - 0.5cm: 0.15 3.1cm - 5.0cm: 1.02
0.6cm - 1.0cm: 0.30 5.1cm - 7.0cm: 1.14
1.1cm - 3.0cm: 0.80 >7.0cm: 9.12

TOTAL = 12.53

STAND CLASSIFICATION

Vegetation Type: CWHds1-DL6
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 46
Aspect: East southeast (110°)
Slope Position: Middle slope

Diameter Distribution

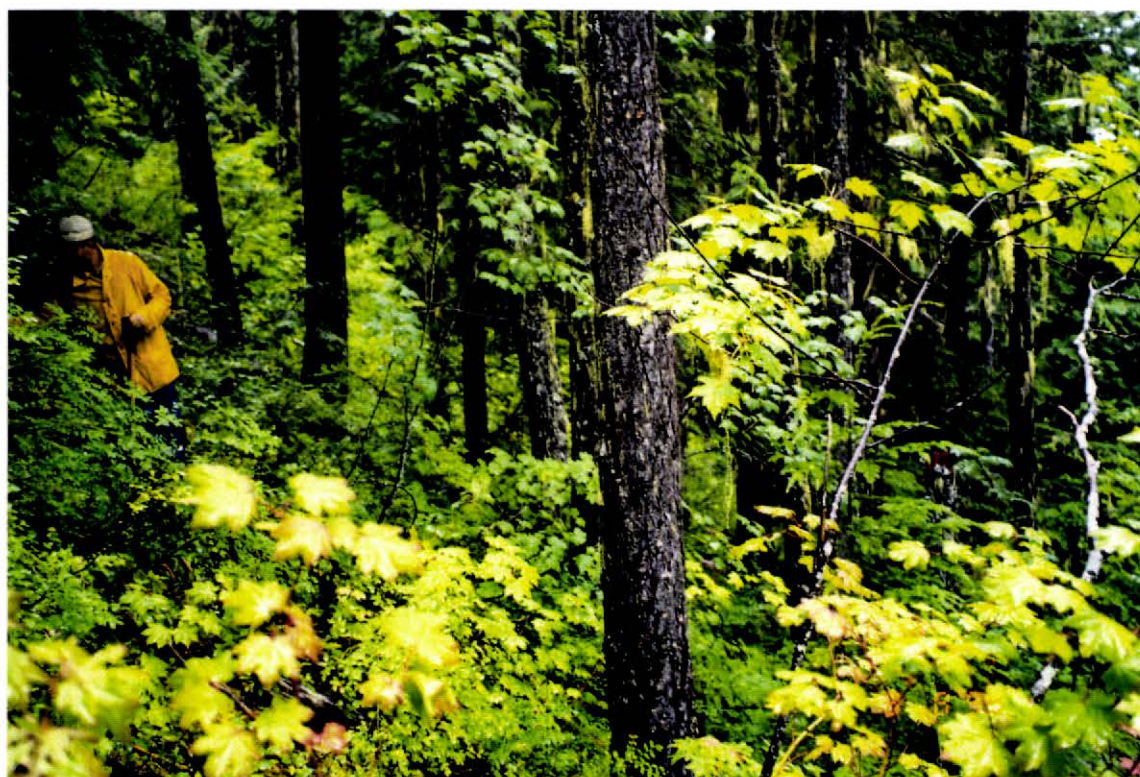


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (70), Cw (20), Mv (10)
Line B: Fd (60), Cw (10), Hw (15), Mv (15)
Line C: Fd (40), Cw (30), Mv (30)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (10%), western yew (10%), vine maple (20%), Douglas maple (<01%), red huckleberry (15%), falsebox (10%), prince's pine (10%), twinflower (05%), black huckleberry (02%), orange honeysuckle (01%), ocean-spray (01%), Saskatoon (<01%)
Herbs: Queen's cup (02%), false Solomon's-seal (02%), twistedstalk (02%), one-sided wintergreen (01%), pink wintergreen (<01%), white-veined wintergreen (<01%)
Moss: Step moss (20%), pipecleaner moss (05%), red-stemmed feathermoss (02%), lichen (01%)



LOCATION

Skagit Valley (Snass Creek)
Latitude and Longitude: 49° 14' 19" 121° 03' 04"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701084 (Plot 085)
Elevation (m): 900

STAND CHARACTERISTICS

Crown Cover (%): 55
Stems/Hectare: 867
Average Forest Floor Depth (cms): 4.17

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Hw	54.4	33.0	6.0	150
Hw	37.5	31.0	4.0	
Fd	27.2	14.5	10.0	
Hw	16.7	11.0	8.0	
Fd	41.7	35.5	17.0	165
Fd	60.8	38.0	12.0	

FUEL LOADS (Tonnes per hectare)

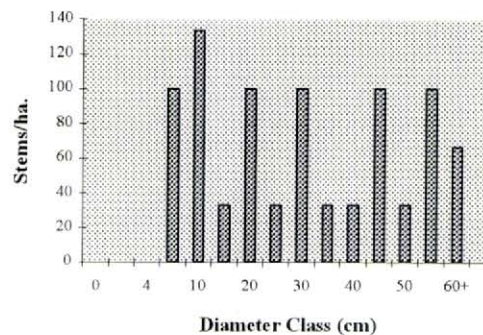
0.1cm - 0.5cm: 0.11 3.1cm - 5.0cm: 1.22
0.6cm - 1.0cm: 0.20 5.1cm - 7.0cm: 0.99
.1cm - 3.0cm: 0.61 >7.0cm: 11.72

TOTAL = 14.85

STAND CLASSIFICATION

Vegetation Type: CWHds1-DL6
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 45
Aspect: Southeast (140°)
Slope Position: Middle slope

Diameter Distribution

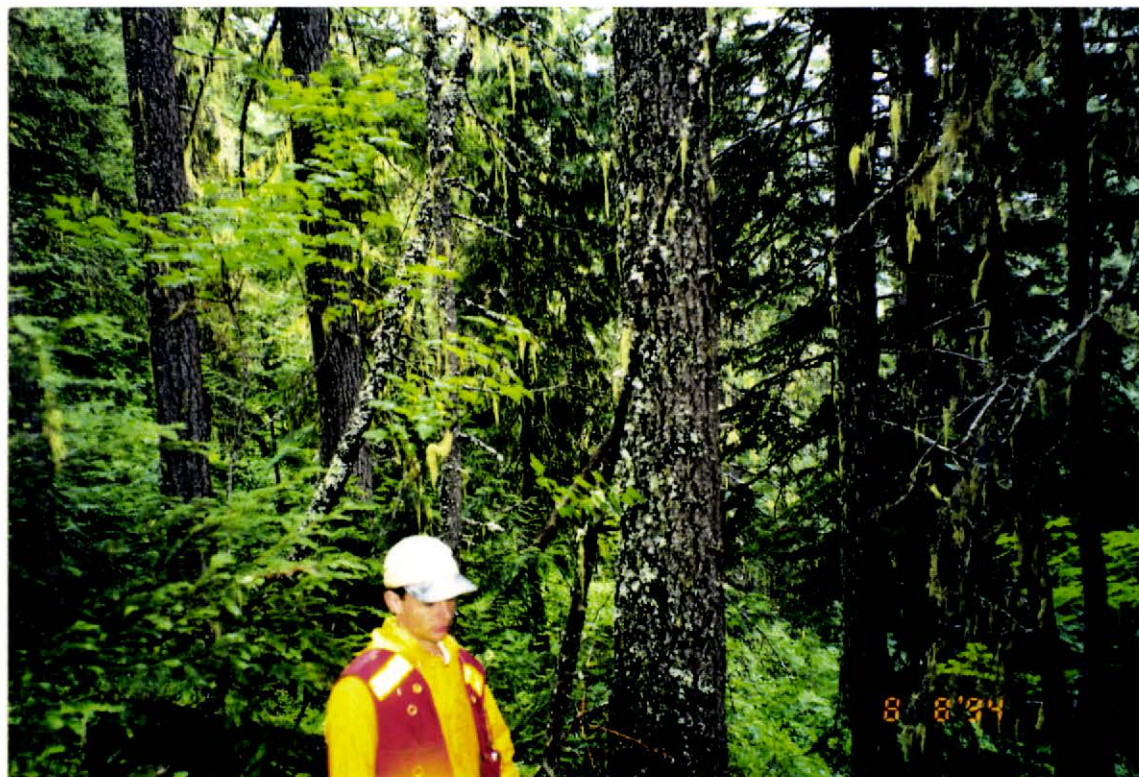


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (40), Hw (45), Cw (10), Ba (05)
Line B: Fd (30), Cw (05), Hw (60), Ba (05)
Line C: Fd (35), Hw (45), Cw (15), Ba (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (10%), western yew (10%), vine maple (15%), Douglas maple (01%), prince's pine (10%), red huckleberry (03%), twinflower (03%), falsebox (02%), dull Oregon-grape (02%), orange honeysuckle (01%)
Herbs: Queen's cup (01%), twistedstalk (01%), rattlesnake plantain (<01%)
Moss: Step moss (30%), pipecleaner moss (25%), red-stemmed feathermoss (05%), lichen (02%)



LOCATION

Skagit Valley (Skaist River)
Latitude and Longitude: 49° 13'36" 120° 57'12"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701088 (Plot 088)
Elevation (m): 850

STAND CHARACTERISTICS

Crown Cover (%): 65
Stems/Hectare: 1100
Average Forest Floor Depth (cms): 3.57

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	14.6	13.5	2.0	86
Fd	35.0	25.8	5.0	
Fd	35.9	24.5	13.0	
Bg	5.4	4.5	1.0	79
Fd	16.9	17.0	6.0	
Fd	23.3	21.0	6.0	

FUEL LOADS (Tonnes per hectare)

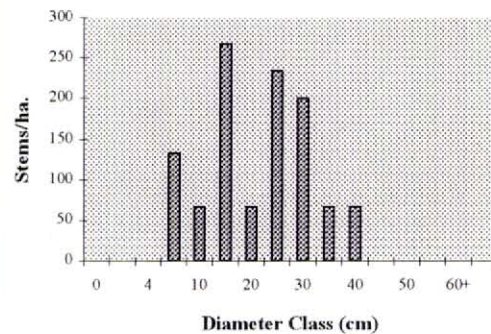
0.1cm - 0.5cm: 0.25 3.1cm - 5.0cm: 0.80
0.6cm - 1.0cm: 0.45 5.1cm - 7.0cm: 1.06
1.1cm - 3.0cm: 1.19 >7.0cm: 4.42

TOTAL = 8.17

STAND CLASSIFICATION

Vegetation Type: CWHds1-6DL6, 4HM5
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 65
Aspect: West (280°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (85), Cw (05), Hw (10)
Line B: Fd (65), Hw (15), Cw (10), Bg (10)
Line C: Fd (55), Hw(05), Bg (20), Mv (10), Cw(10)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Western yew (03%), Cw (02%), Hw (01%), falsebox (85%), prince's pine (15%), oval-leaved blueberry (04%), orange honeysuckle (01%), dull Oregon-grape (01%), baldhip rose (01%), Saskatoon (01%), thimbleberry (01%)
Herbs: False Solomon's-seal (02%), one-sided wintergreen (01%), oak fern (<01%), Queen's cup (<01%)
Moss: Step moss (03%), pipecleaner moss (02%), lichen (01%)



LOCATION

Skagit Valley (Skaist River)
Latitude and Longitude: 49° 13'36" 120° 57'12"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701088 (Plot 089)
Elevation (m): 850

STAND CHARACTERISTICS

Crown Cover (%): 70
Stems/Hectare: 1367
Average Forest Floor Depth (cms): 4.73

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	30.9	22.9	10.0	94
Cw	4.5	4.0	0.5	
Cw	6.0	5.0	1.0	
Hw	13.4	10.5	1.5	
Fd	28.2	22.3	14.0	
Bg	14.1	8.4	3.0	63

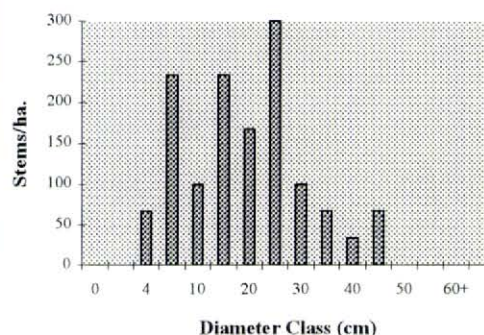
FUEL LOADS (Tonnes per hectare)

0.1cm - 0.5cm: 0.10	3.1cm - 5.0cm: 0.54
0.6cm - 1.0cm: 0.36	5.1cm - 7.0cm: 0.05
1.1cm - 3.0cm: 1.01	>7.0cm: 40.09
TOTAL = 42.15	

STAND CLASSIFICATION

Vegetation Type: CWHds1-6DL6, 4HM5
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 60
Aspect: West (280°)
Slope Position: Lower slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (50), Cw (10), Hw (30), Bg (10)
Line B: Fd (40), Hw (40), Cw (10), Bg (10)
Line C: Fd (40), Hw(50), Bg (05), Cw(05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (15%), western yew (01%), falsebox (40%), prince's pine (02%), twinflower (02%), dull Oregon-grape (01%)
Herbs: Pink wintergreen (01%), Queen's cup (<01%), rattlesnake plantain (<01%)
Moss: Pipecleaner moss (05%), Oregon beaked moss (05%), lichen (01%)



3.3 CWHms1 PLOTS

The CWHms1 variant occurs between 650m and 1200m elevation. This variant is located on the west facing lower slopes along the Skagit Valley Recreation Area valley floor, and also to the west and north in the valley, branching up all of the watersheds.

The climate in this variant is influenced to an extent by the Pacific Ocean. Cool, dry summers and cool, moist winters are common.

Western hemlock and Douglas-fir trees are dominant, with amabilis fir and western red cedar trees less abundant. Alaskan blueberry, black huckleberry and oval-leaved blueberry are common in the shrub layer. A sparse herb layer is dominated by Queen's cup, bunchberry and five-leaved bramble. Step moss, pipecleaner moss and red-stemmed feathermoss make up a normally thick moss layer.

Figure 11 shows the location of the plots that were located in the CWHms1 variant.

LOCATION

Skagit Valley (Somallo Grove)
Latitude and Longitude: 49° 11' 49" 121° 04' 15"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701062 (Plot 062)
Elevation (m): 810

STAND CHARACTERISTICS

Crown Cover (%): 55
Stems/Hectare: 967
Average Forest Floor Depth (cms): 6.27

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	31.2	22.8	17.0	92
Fd	23.3	19.7	12.0	90
Fd	20.9	19.2	5.5	
Fd	14.7	12.6	6.0	
Fd	28.7	15.7	5.0	
Fd	11.9	9.8	3.5	

FUEL LOADS (Tonnes per hectare)

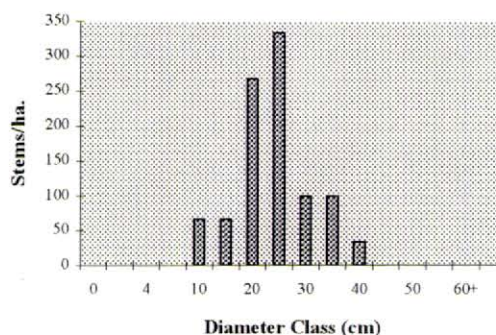
0.1cm - 0.5cm: 0.96 3.1cm - 5.0cm: 1.32
0.6cm - 1.0cm: 0.89 5.1cm - 7.0cm: 2.77
1.1cm - 3.0cm: 1.61 >7.0cm: 6.68

TOTAL = 14.23

STAND CLASSIFICATION

Vegetation Type: CWHms1-AM5
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 52
Aspect: East southeast (120°)
Slope Position: Middle slope

Diameter Distribution

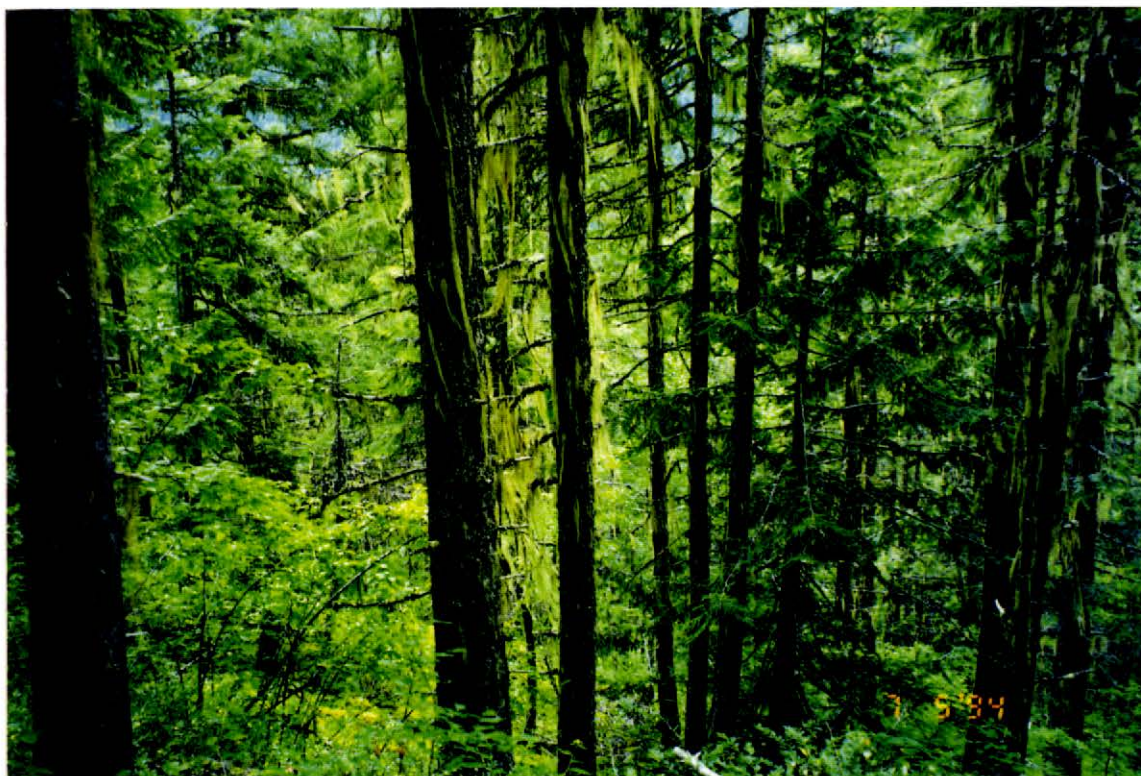


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (90), Cw (05), Hw (05)
Line B: Fd (80), Cw (10), Hw (05), Mv (05)
Line C: Fd (75), Cw (15), Hw (05), Mv (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (05), Cw (01), Fd (<01), Sitka alder (07), Mv (05), Douglas maple (05), twinflower (30), falsebox (18), prince's pine (17), black huckleberry (15), dull Oregon-grape (15), orange honeysuckle (10), red huckleberry (02), ocean-spray (04), baldhip rose (04), Saskatoon (03), red rhododendron (01)
Herbs: Birch-leaved spirea (05), wild strawberry (05), sword fern (01), pink wintergreen (01), Queen's cup (<01)
Moss: Step moss (20), red-stemmed feathermoss (03), pipecleaner moss (02), Oregon beaked moss (02), lichen (<01)



LOCATION

Skagit Valley (Somallo Grove)
Latitude and Longitude: 49° 11' 49" 121° 04' 15"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701062 (Plot 063)
Elevation (m): 800

STAND CHARACTERISTICS

Crown Cover (%): 65
Stems/Hectare: 933
Average Forest Floor Depth (cms): 5.50

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	29.7	20.4	14.0	84
Hw	13.1	9.0	0.5	
Fd	23.5	21.6	14.5	78
Fd	29.5	21.4	13.0	
Fd	26.5	25.1	16.0	
Fd	37.3	28.6	19.0	

FUEL LOADS (Tonnes per hectare)

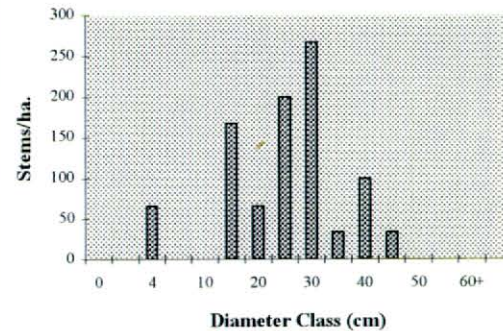
0.1cm - 0.5cm: 0.76 3.1cm - 5.0cm: 0.38
0.6cm - 1.0cm: 1.03 5.1cm - 7.0cm: 1.76
1.1cm - 3.0cm: 2.14 >7.0cm: 19.82

TOTAL = 25.89

STAND CLASSIFICATION

Vegetation Type: CWHms1-AM5
Soil Texture: Sandy
Humus Form: Moder
Slope (%): 54
Aspect: West (280°)
Slope Position: Middle slope

Diameter Distribution

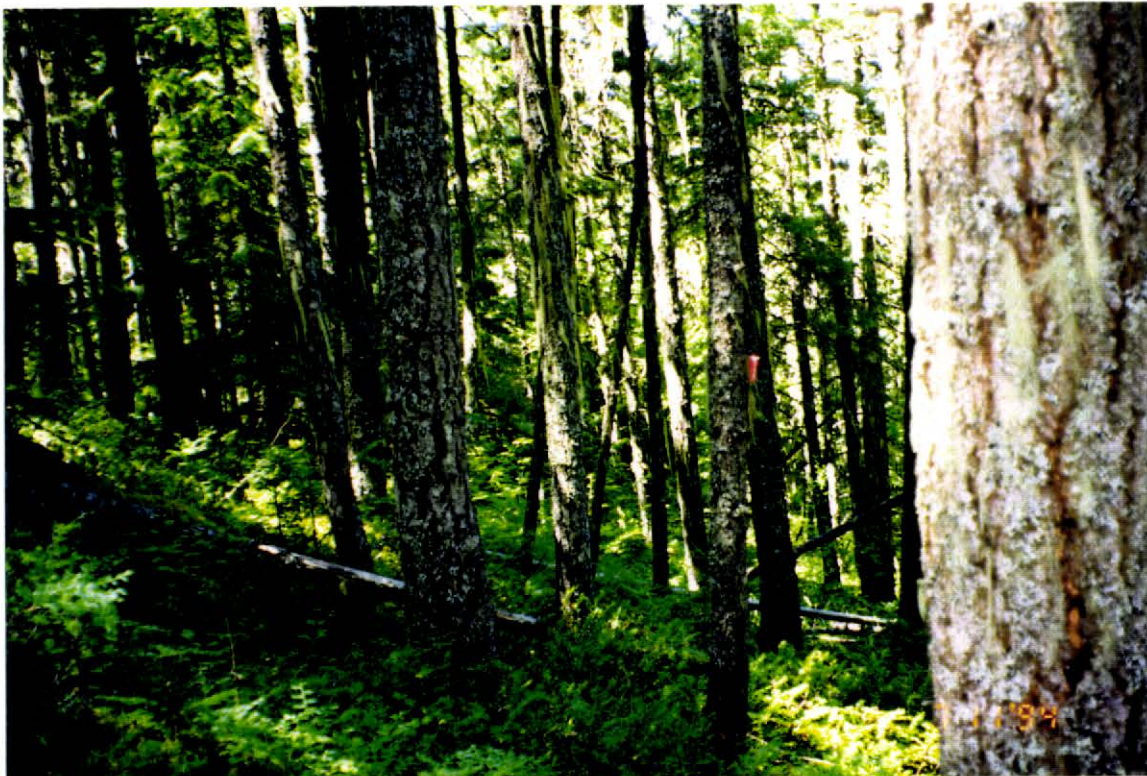


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (85), Cw (05), Hw (10)
Line B: Fd (80), Cw (05), Hw (15)
Line C: Fd (80), Cw (05), Hw (15)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (01), Hw (<01), Fd (<01), western yew (<01), Mv (01), Douglas maple (01), Sitka mountain ash (<01), twinflower (40), dull Oregon-grape (35), prince's pine (15), falsebox (07), red huckleberry (05), baldhip rose (02), black huckleberry (01), false azalea (<01), ocean-spray (<01), red rhododendron (<01)
Herbs: Birch-leaved spirea (01), pink wintergreen (01), Queen's cup (<01), false Solomon's-seal (<01), spiny wood fern (<01), tiger lily (<01)
Moss: Step moss (40), electrified cat's-tail moss (15), red-stemmed feathermoss (05), lichen (01)



LOCATION

Skagit Valley (Whitworth Ranch)
Latitude and Longitude: 49° 02' 01" 121° 00' 00"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701070 (Plot 070)
Elevation (m): 1280

STAND CHARACTERISTICS

Crown Cover (%): 70
Stems/Hectare: 400
Average Forest Floor Depth (cms): 4.23

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	35.10	25.0	14.0	
Fd	33.9	28.6	13.0	125
Fd	56.40	32.2	10.0	129
Fd	36.8	27.3	7.0	
Ba	13.6	8.8	2.0	
Fd	47.9	35.7	9.0	

FUEL LOADS (Tonnes per hectare)

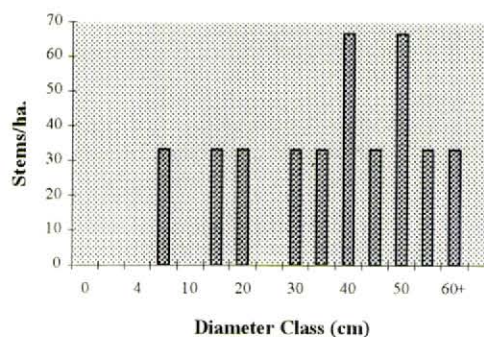
0.1cm - 0.5cm: 0.12 3.1cm - 5.0cm: 1.08
0.6cm - 1.0cm: 0.26 5.1cm - 7.0cm: 0.89
1.1cm - 3.0cm: 0.75 >7.0cm: 19.59

TOTAL = 22.69

STAND CLASSIFICATION

Vegetation Type: CWHms1-6AM5, 4DB6
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 67
Aspect: Northwest (320°)
Slope Position: Middle slope

Diameter Distribution

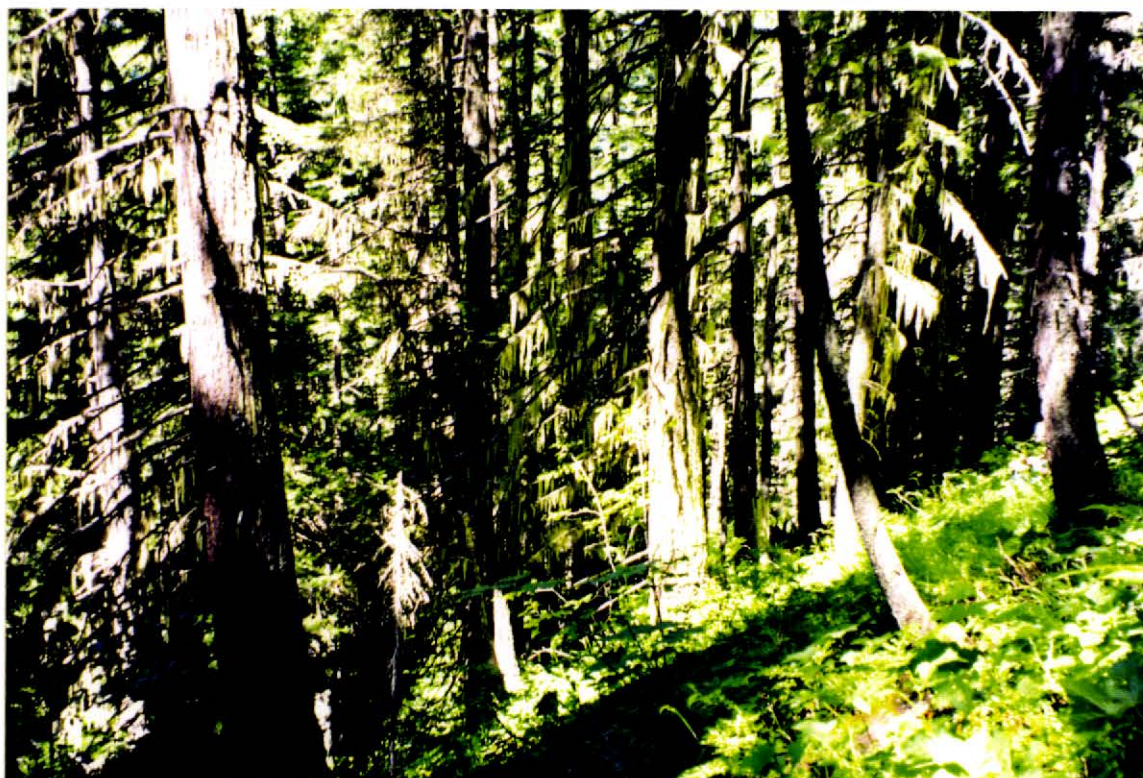


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (60), Hw (40)
Line B: Fd (60), Hw (40)
Line C: Fd (70), Hw (30)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (<01%), Sitka alder (02%), black huckleberry (05%), thimbleberry (05%), falsebox (02%), Sitka mountain ash (02%), twinflower (01%), dull Oregon-grape (<01%), devil's club (<01%)
Herbs: False Solomon's-seal (05%), Queen's cup (04%), Sitka valerian (02%), one-sided wintergreen (01%), rattlesnake plantain (01%), sweet-scented bedstraw (01%)
Moss: Electrified cat's-tail moss (03%)



LOCATION

Skagit Valley (Whitworth Ranch)
Latitude and Longitude: 49° 02'01" 121° 00'00"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701070 (Plot 071)
Elevation (m): 1230

STAND CHARACTERISTICS

Crown Cover (%): 45
Stems/Hectare: 533
Average Forest Floor Depth (cms): 3.07

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Ba	8.4	7.0	1.0	
Hw	14.2	14.0	6.0	
Fd	41.9	31.0	13.0	121
Fd	45.2	31.0	15.0	142
Fd	44.0	30.0	12.0	
Fd	45.3	30.0	16.0	

FUEL LOADS (Tonnes per hectare)

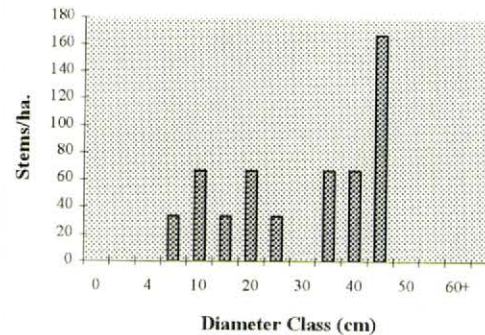
0.1cm - 0.5cm: 0.13 3.1cm - 5.0cm: 1.40
0.6cm - 1.0cm: 0.52 5.1cm - 7.0cm: 1.65
1.1cm - 3.0cm: 1.28 >7.0cm: 19.59

TOTAL = 24.57

STAND CLASSIFICATION

Vegetation Type: CWHms1-6AM5, 4DB6
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 65
Aspect: Northwest (310°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (80), Ba (10), Hw (10)
Line B: Fd(60), Hw (30), Se (10)
Line C: Fd (80), Hw (20)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (02%), dull Oregon-grape (15%), thimbleberry (15%), black huckleberry (10%), falsebox (04%), twinflower (02%), white-flowered rhododendron (02%), Sitka mountain ash (01%), Saskatoon (01%), black twinberry (01%), ocean-spray (<01%)

Herbs: Queen's cup (04%), false Solomon's-seal (02%), twistedstalk (02%), sweet-scented bedstraw (01%), one-leaved foamflower (01%), one-sided wintergreen (01%), rattlesnake plantain (01%), fern-leaved goldthread (<01%)

Moss: Pipecleaner moss (05%), step moss (05%)



LOCATION

Skagit Valley (Whitworth Ranch)
Latitude and Longitude: 49° 02'25" 121° 01'15"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701072 (Plot 072)
Elevation (m): 1300

STAND CHARACTERISTICS

Crown Cover (%): 65
Stems/Hectare: 967
Average Forest Floor Depth (cms): 3.60

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	10.8	12.0	6.0	92
Fd	19.6	18.4	12.0	
Fd	5.0	3.5	1.5	
Fd	8.4	5.0	2.0	
Fd	21.7	17.3	7.0	103
Fd	35.0	21.3	12.0	

FUEL LOADS (Tonnes per hectare)

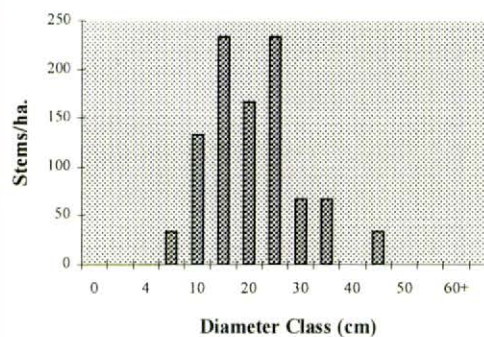
0.1cm - 0.5cm: 0.25 3.1cm - 5.0cm: 1.29
0.6cm - 1.0cm: 0.54 5.1cm - 7.0cm: 1.40
1.1cm - 3.0cm: 1.25 >7.0cm: 10.76

TOTAL = 15.49

STAND CLASSIFICATION

Vegetation Type: CWHms1-6AM5, 4DB6
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 65
Aspect: South southwest (214°)
Slope Position: Middle slope

Diameter Distribution

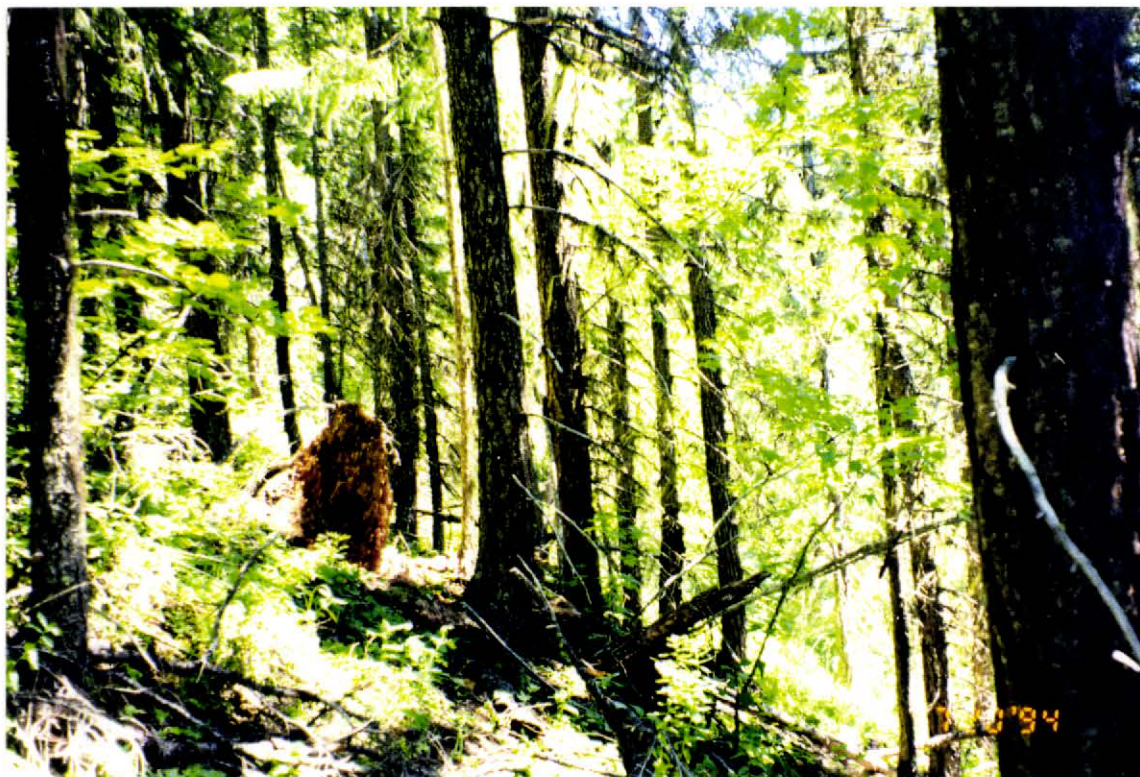


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (70), Pl (20), Ba (10)
Line B: Fd(90), Pl (10)
Line C: Fd (100)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Fd (<01%), Douglas maple (03%), vine maple (01%), baldhip rose (15%), prince's pine (02%), Saskatoon (02%), orange honeysuckle (01%)
Herbs: Heart-leaved arnica (04%), broad-leaved starflower (02%), twistedstalk (01%), one-sided wintergreen (<01%)
Moss: Pipecleaner moss (01%)



LOCATION

Skagit Valley (Whitworth Ranch)
Latitude and Longitude: 49° 02'25" 121° 01'15"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701072 (Plot 073)
Elevation (m): 1340

STAND CHARACTERISTICS

Crown Cover (%): 70
Stems/Hectare: 733
Average Forest Floor Depth (cms): 2.40

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Fd	11.5	11.0	7.0	
Fd	11.4	12.0	4.0	
Fd	47.5	24.7	13.0	
Fd	23.7	18.3	8.0	93
Fd	29.4	23.4	9.0	101
Fd	14.2	13.0	4.0	

FUEL LOADS (Tonnes per hectare)

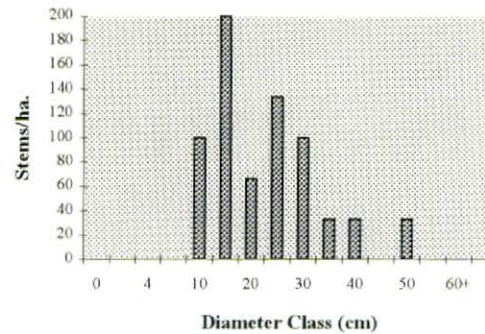
0.1cm - 0.5cm: 0.11 3.1cm - 5.0cm: 0.73
0.6cm - 1.0cm: 0.27 5.1cm - 7.0cm: 0.83
1.1cm - 3.0cm: 0.98 >7.0cm: 3.35

TOTAL = 6.27

STAND CLASSIFICATION

Vegetation Type: CWHms1-6AM5, 4DB6
Soil Texture: Loamy
Humus Form: Moder
Slope (%): 67
Aspect: South southwest (210°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (90), Ba (10)
Line B: Fd (90), Ba (10)
Line C: Fd (80), Ba (20)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Fd (<01%), Douglas maple (10%), vine maple (<01%), dull Oregon-grape (20%), baldhip rose (10%), black huckleberry (10%), orange honeysuckle (01%), Saskatoon (02%), falsebox (<01%)
Herbs: Twistedstalk (03%), Lupinus spp. (01%), birch-leaved spirea (01%), heart-leaved arnica (<01%), rattlesnake plantain (<01%)
Moss: None



LOCATION

Skagit Valley (Galene Lake)
Latitude and Longitude: 49° 02'25" 121° 06'40"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701076 (Plot 076)
Elevation (m): 1000

STAND CHARACTERISTICS

Crown Cover (%): 90
Stems/Hectare: 900
Average Forest Floor Depth (cms): 5.30

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Hw	8.4	8.0	5.0	
Hw	16.9	10.7	7.0	
Hw	12.7	8.0	5.0	
Hw	16.7	12.0	4.0	
Hw	37.0	28.4	9.0	177
Hw	19.3	14.3	5.0	200

FUEL LOADS (Tonnes per hectare)

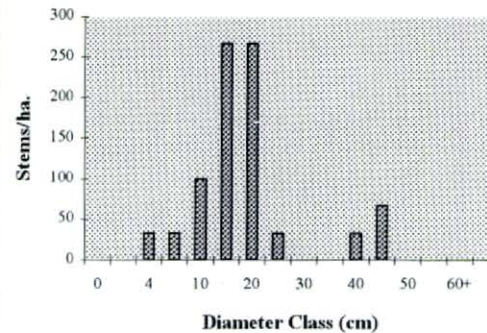
0.1cm - 0.5cm: 0.15 3.1cm - 5.0cm: 0.84
0.6cm - 1.0cm: 0.25 5.1cm - 7.0cm: 1.03
.1cm - 3.0cm: 0.47 >7.0cm: 15.44

TOTAL = 18.18

STAND CLASSIFICATION

Vegetation Type: CWHms1-8AM7, 2RH7
Soil Texture: Silty
Humus Form: Moder
Slope (%): 55
Aspect: North northwest (350°)
Slope Position: Middle slope

Diameter Distribution

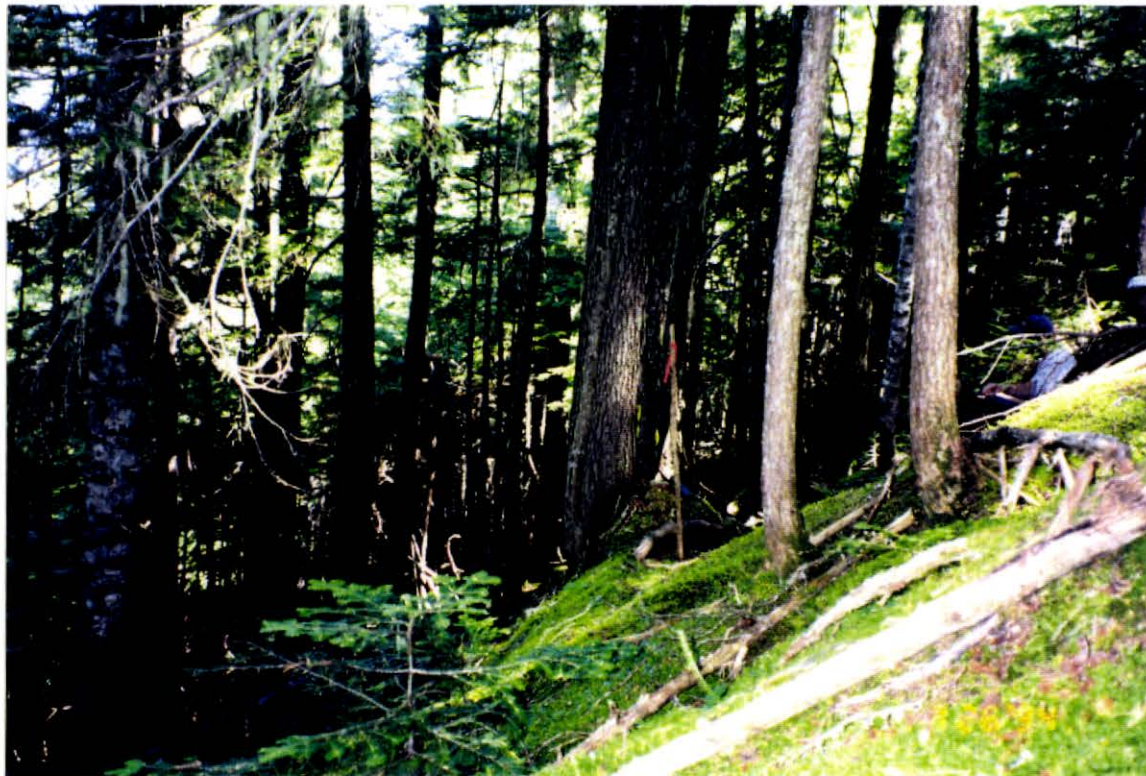


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (20), Hw (80)
Line B: Fd (20), Hw (70), Cw (10)
Line C: Fd (15), Hw (80), Cw (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (10%), Cw (01%), twinflower (20%), red huckleberry (02%)
Herbs: None
Moss: Pipecleaner moss (75%), step moss (05%)



LOCATION

Skagit Valley (Galene Lake)
Latitude and Longitude: 49° 02'25" 121° 06'40"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701076 (Plot 077)
Elevation (m): 1020

STAND CHARACTERISTICS

Crown Cover (%): 80
Stems/Hectare: 767
Average Forest Floor Depth (cms): 6.50

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Hw	6.0	5.0	4.0	
Hw	40.0	32.4	15.0	147
Hw	63.6	25.2	5.0	
Hw	6.9	4.0	3.5	
Hw	10.5	7.0	3.5	
Hw	43.8	33.4	7.0	173

FUEL LOADS (Tonnes per hectare)

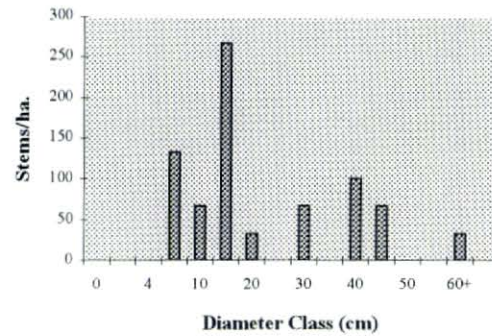
0.1cm - 0.5cm: 0.08 3.1cm - 5.0cm: 0.87
0.6cm - 1.0cm: 0.28 5.1cm - 7.0cm: 0.83
.1cm - 3.0cm: 0.82 >7.0cm: 4.82

TOTAL = 7.70

STAND CLASSIFICATION

Vegetation Type: CWHms1-8AM7, 2RH7
Soil Texture: Loamy
Humus Form: Moder and mor
Slope (%): 40
Aspect: North (354°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (30), Hw (60), Cw (10)
Line B: Fd (30), Hw (70)
Line C: Fd (35), Hw (60), Cw (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (06%), Cw (01%), Ba (<01%), twinflower (20%), falsebox (01%), black huckleberry (01%), prince's pine (<01%), red rhododendron (<01%)
Herbs: One-sided wintergreen (05%), bunchberry (03%)
Moss: Step moss (45%), Pipecleaner moss (30%), red-stemmed feathermoss (10%)



LOCATION

Skagit Valley (Galene Lake)
Latitude and Longitude: 49° 01'45" 121° 06'30"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701078 (Plot 078)
Elevation (m): 1225

STAND CHARACTERISTICS

Crown Cover (%): 80
Stems/Hectare: 900
Average Forest Floor Depth (cms): 8.63

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Hw	6.0	5.0	4.0	
Hw	40.0	32.4	15.0	147
Hw	63.6	25.2	5.0	
Cw	6.9	4.0	3.5	
Ba	10.5	7.0	3.5	
Hw	43.8	33.4	7.0	173

FUEL LOADS (Tonnes per hectare)

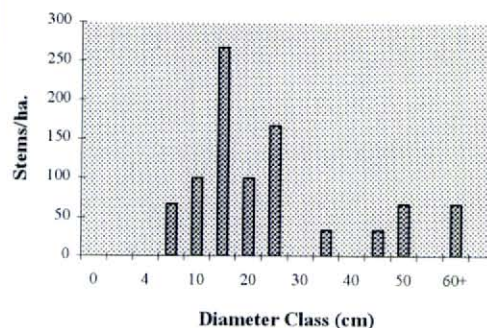
0.1cm - 0.5cm: 0.56 3.1cm - 5.0cm: 1.31
0.6cm - 1.0cm: 1.36 5.1cm - 7.0cm: 1.32
.1cm - 3.0cm: 2.23 >7.0cm: 12.48

TOTAL = 19.26

STAND CLASSIFICATION

Vegetation Type: CWHms1-AM7
Soil Texture: Silty
Humus Form: Mor
Slope (%): 52
Aspect: Northeast (055°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Ba (20), Hw (60), Cw (20)
Line B: Ba (15), Hw (80), Cw (05)
Line C: Ba (05), Hw (95)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (06%), Cw (01), Ba (<01%), black huckleberry (02%), white-flowered rhododendron (01%)
Herbs: Queen's cup (02%), one-sided wintergreen (02%), bunchberry (01%), five-leaved bramble (<01%)
Moss: Pipecleaner moss (50%)



LOCATION

Skagit Valley (Galene Lake)
Latitude and Longitude: 49° 01'45" 121° 06'30"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701078 (Plot 079)
Elevation (m): 1200

STAND CHARACTERISTICS

Crown Cover (%): 95
Stems/Hectare: 700
Average Forest Floor Depth (cms): 7.27

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Hw	9.9	6.0	4.0	
Hw	20.6	11.1	5.0	
Hw	68.8	39.6	20.0	500
Ba	25.2	15.7	7.0	200
Hw	4.1	3.5	1.0	
Ba	63.8	38.6	15.0	

FUEL LOADS (Tonnes per hectare)

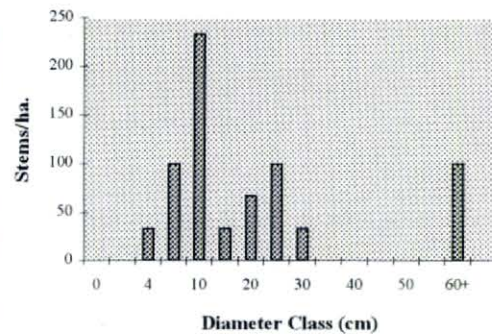
0.1cm - 0.5cm: 0.34 3.1cm - 5.0cm: 2.54
0.6cm - 1.0cm: 1.17 5.1cm - 7.0cm: 0.94
.1cm - 3.0cm: 2.30 >7.0cm: 1.27

TOTAL = 8.56

STAND CLASSIFICATION

Vegetation Type: CWHms1-AM7
Soil Texture: Silty
Humus Form: Mor
Slope (%): 55
Aspect: Northeast (055°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Ba (20), Hw (75), Cw (05)
Line B: Ba (10), Hw (85), Cw (05)
Line C: Ba (10), Hw (80), Cw (10)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (10%), black huckleberry (02%), red huckleberry (01%), white-flowered rhododendron (<01%)
Herbs: Queen's cup (10%), bunchberry (05%), five-leaved bramble (01%), one-sided wintergreen (01%)
Moss: Pipecleaner moss (40%)



LOCATION

Skagit Valley (Mt. Outram)
Latitude and Longitude: 49° 16'34" 121° 09'42"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701086 (Plot 086)
Elevation (m): 1325

STAND CHARACTERISTICS

Crown Cover (%): 85
Stems/Hectare: 1033
Average Forest Floor Depth (cms): 3.23

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Se	19.0	15.8	5.0	132
Ba	45.5	30.4	12.0	
Hw	14.7	11.6	3.0	
Hw	15.6	12.4	5.0	
Hm	20.6	18.7	9.0	145
Ba	19.9	18.0	9.0	

FUEL LOADS (Tonnes per hectare)

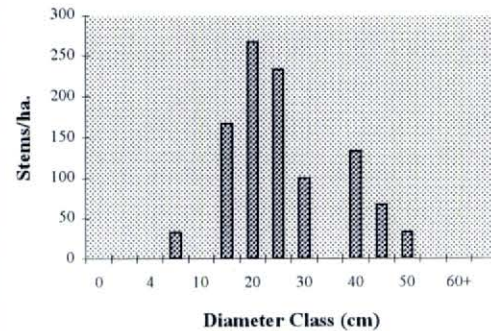
0.1cm - 0.5cm: 0.15 3.1cm - 5.0cm: 0.74
0.6cm - 1.0cm: 0.47 5.1cm - 7.0cm: 0.54
.1cm - 3.0cm: 1.40 >7.0cm: 4.96

TOTAL = 8.26

STAND CLASSIFICATION

Vegetation Type: CWHms1-4AM5, 4RH5, 2DB6
Soil Texture: Silty
Humus Form: Mor
Slope (%): 40
Aspect: Northwest (300°)
Slope Position: Ridge crest

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Fd(05), Hw(10), Ba(40), Pw(30), Sc(10), Hm(05)
Line B: Fd(10), Hw(30), Ba(30), Pw(20), Sc(10)
Line C: Fd(20), Hw(40), Ba(10), Pw(05), Sc(20), Cw(05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (02%), Hm (<01%), twinflower (03%), falsebox (<01%), white-flowered rhododendron (<01%)
Herbs: One-sided wintergreen (03%)
Moss: Pipecleaner moss (60%), Dicranium spp. (10%)



LOCATION

Skagit Valley (Mt. Outram)
Latitude and Longitude: 49° 16'34" 121° 09'42"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701086 (Plot 087)
Elevation (m): 1330

STAND CHARACTERISTICS

Crown Cover (%): 80
Stems/Hectare: 633
Average Forest Floor Depth (cms): 3.80

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Hw	48.5	24.7	4.0	105
Pl	34.0	26.8	14.0	
Hw	43.9	25.5	5.0	
Hw	36.6	18.0	6.0	
Cw	17.1	12.1	5.0	120
Hw	23.9	21.8	1.5	

FUEL LOADS (Tonnes per hectare)

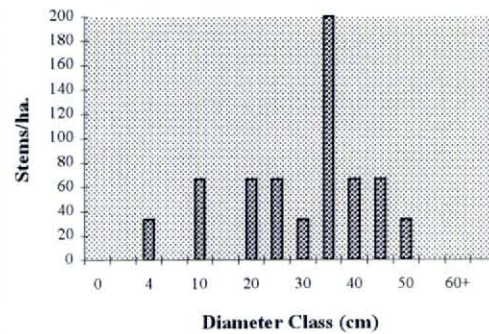
0.1cm - 0.5cm: 0.19 3.1cm - 5.0cm: 0.70
0.6cm - 1.0cm: 0.63 5.1cm - 7.0cm: 0.56
.1cm - 3.0cm: 1.16 >7.0cm: 2.28

TOTAL = 5.52

STAND CLASSIFICATION

Vegetation Type: CWHms1-4AM5, 4RH5, 2DB6
Soil Texture: Silty
Humus Form: Moder
Slope (%): 28
Aspect: West (275°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Cw (05), Hw (45), Ba (35), Pw (05), Se (10)
Line B: Hw (50), Ba (20), Pw (150), Se (15)
Line C: Pl (05), Hw(60), Ba(25), Pw(05), Cw(05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Cw (03%), Hw (02%), Ba (<01%), black huckleberry (05%), falsebox (02%), prince's pine (02%), white-flowered rhododendron (<01%)
Herbs: One-sided wintergreen (<01%)
Moss: Pipecleaner moss (20%), Dicranium spp. (10%), lichen (05%)



3.4 MHmm2 PLOTS

The MHmm2 variant occurs between 900m and 1400m elevation. This variant was discovered on the east facing upper slopes near the Galene Lakes in the Skagit Valley Recreation Area.

Cool, moist summers and long cold, moist winters are common in this leeward variant.

Mountain hemlock and amabilis fir trees are dominant, with western hemlock and sub-alpine fir trees less abundant. Alaskan blueberry, black huckleberry and oval-leaved blueberry are common in the shrub layer. A sparse herb layer is usually dominated by five-leaved bramble. Pipecleaner moss and red-stemmed feathermoss are common in the moss layer.

Figure 11 shows the location of the plots that were located in the MHmm2 variant.

LOCATION

Skagit Valley (Galene Lake)
Latitude and Longitude: 49° 01' 53" 121° 06' 45"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701080 (Plot 080)
Elevation (m): 1400

STAND CHARACTERISTICS

Crown Cover (%): 45
Stems/Hectare: 1367
Average Forest Floor Depth (cms): 5.17

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Hm	31.9	19.6	6.0	163
Hm	39.3	25.0	7.0	
Ba	8.0	5.0	2.5	
Ba	51.8	30.0	9.0	
Hm	31.5	25.0	8.0	148
Ba	11.4	6.5	3.5	

FUEL LOADS (Tonnes per hectare)

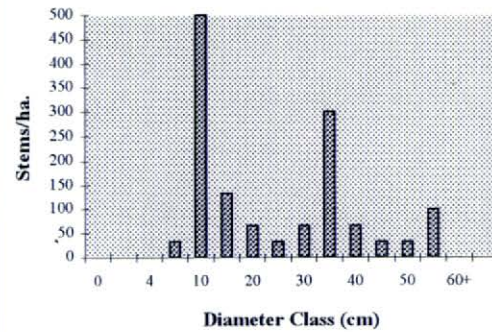
0.1cm - 0.5cm: 1.73 3.1cm - 5.0cm: 3.57
0.6cm - 1.0cm: 3.07 5.1cm - 7.0cm: 2.65
.1cm - 3.0cm: 4.32 >7.0cm: 40.59

TOTAL = 55.93

STAND CLASSIFICATION

Vegetation Type: MHmm2-(SB7 in ESSFmw)
Soil Texture: Loamy
Humus Form: Mor
Slope (%): 15
Aspect: East (085°)
Slope Position: Ridge crest

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Ba (50), Hm (50)
Line B: Ba (80), Hm (20)
Line C: Ba (60), Hm (30), Bl (10)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Ba (10%), Hm (07%), black huckleberry (15%), white-flowered rhododendron (15%), prince's pine (02%), mountain-heather (01%)

Herbs: None

Moss: Pipecleaner moss (10%), lichen (01%)



LOCATION

Skagit Valley (Galene Lake)
Latitude and Longitude: 49° 01' 53" 121° 06' 45"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701080 (Plot 081)
Elevation (m): 1400

STAND CHARACTERISTICS

Crown Cover (%): 50
Stems/Hectare: 1667
Average Forest Floor Depth (cms): 5.03

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Ba	39.3	23.1	9.0	260
Ba	30.1	19.8	8.0	
Hm	28.3	15.8	6.0	177
Ba	8.5	4.0	1.5	
Ba	17.0	4.0	2.0	
Ba	9.8	7.0	3.0	

FUEL LOADS (Tonnes per hectare)

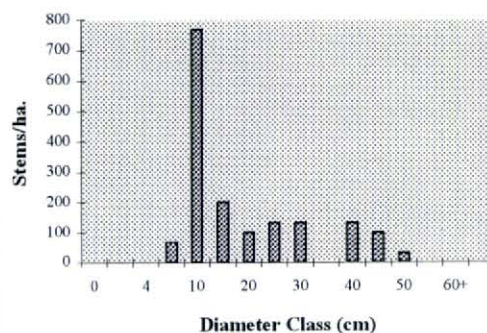
0.1cm - 0.5cm: 1.03 3.1cm - 5.0cm: 2.51
0.6cm - 1.0cm: 2.20 5.1cm - 7.0cm: 4.02
.1cm - 3.0cm: 5.58 >7.0cm: 15.68

TOTAL = 31.02

STAND CLASSIFICATION

Vegetation Type: MHmm2-(SB7 in ESSFmw)
Soil Texture: Silty
Humus Form: Mor
Slope (%): 05
Aspect: Southeast (130°)
Slope Position: Ridge crest

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Ba (80), Hm (20)
Line B: Ba (60), Hm (40)
Line C: Ba (45), Hm (55)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Ba (10%), Hm (10%), white-flowered rhododendron (20%), black huckleberry (15%), mountain-heather (01%)
Herbs: None
Moss: Pipecleaner moss (20%), Dicranium spp. (20%)



LOCATION

Skagit Valley (Galene Lake)
Latitude and Longitude: 49° 01'55" 121° 07'05"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701082 (Plot 082)
Elevation (m): 1575

STAND CHARACTERISTICS

Crown Cover (%): 35
Stems/Hectare: 1233
Average Forest Floor Depth (cms): 5.30

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Ba	66.3	19.3	8.0	
Hm	89.1	26.4	8.0	
Ba	6.2	3.0	0.1	
Hm	12.4	6.0	2.0	208
Ba	45.9	26.4	6.0	153
Ba	58.6	27.2	8.0	

FUEL LOADS (Tonnes per hectare)

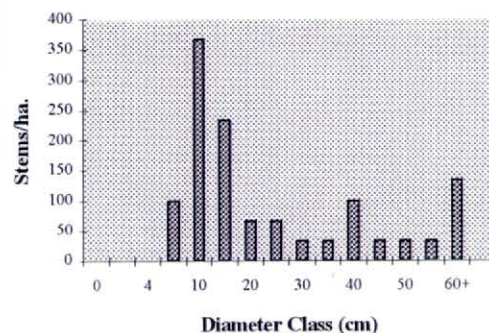
0.1cm - 0.5cm: 0.15 3.1cm - 5.0cm: 1.38
0.6cm - 1.0cm: 0.39 5.1cm - 7.0cm: 1.56
.1cm - 3.0cm: 1.13 >7.0cm: 6.84

TOTAL = 11.45

STAND CLASSIFICATION

Vegetation Type: MHmm2-(SB7 in ESSFmw)
Soil Texture: Silty
Humus Form: Mor
Slope (%): 25
Aspect: East (090°)
Slope Position: Upper slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Ba (45), Hm (45), Bl (10)
Line B: Ba (40), Hm (60)
Line C: Ba (25), Hm (75)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Ba (10%), Hm (10%), black huckleberry (30%), white-flowered rhododendron (20%), Alaskan blueberry (02%), oval-leaved blueberry (02%)
Herbs: Five-leaved bramble (10%)
Moss: Dicranum spp. (25%), pipecleaner moss (05%)



3.5 ESSFmw PLOTS

The ESSFmw subzone occurs between 1300m and 1650m elevation. This subzone is located at all of the higher elevations in the Skagit Valley Recreation Area.

Cool, moist summers and long cold, moist winters are common in this subzone.

Englemann spruce and sub-alpine fir trees are dominant, with amabilis fir and mountain hemlock trees less abundant. White-flowered rhododendron, black huckleberry and oval-leaved blueberry are common in the shrub layer. A sparse herb layer is usually dominated by five-leaved bramble, one-sided wintergreen and Sitka valerian. Pipecleaner moss and red-stemmed feathermoss are common in the moss layer.

Figure 11 shows the location of the plots that were located in the ESSFmw subzone.

LOCATION

Skagit Valley (Silver Daisy Mountain)
Latitude and Longitude: 49° 09'36" 121° 02'08"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701064 (Plot 064)
Elevation (m): 1520

STAND CHARACTERISTICS

Crown Cover (%): 55
Stems/Hectare: 1133
Average Forest Floor Depth (cms): 4.70

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Bl	28.2	20.3	7.0	100
Hw	21.2	14.1	4.0	78
Bl	8.3	4.5	1.5	
Fd	39.9	20.8	6.0	
Fd	24.5	15.1	6.0	
Bl	6.1	5.0	1.5	

FUEL LOADS (Tonnes per hectare)

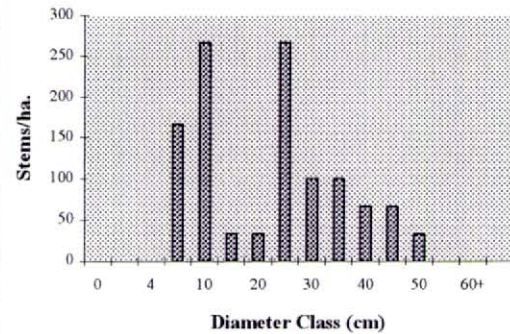
0.1cm - 0.5cm: 0.21 3.1cm - 5.0cm: 0.94
0.6cm - 1.0cm: 0.46 5.1cm - 7.0cm: 1.09
1.1cm - 3.0cm: 0.96 >7.0cm: 39.92

TOTAL = 43.58

STAND CLASSIFICATION

Vegetation Type: ESSFmw-8SB7, 2SV7
Soil Texture: Silty
Humus Form: Mor
Slope (%): 57
Aspect: Southwest (230°)
Slope Position: Middle slope

Diameter Distribution

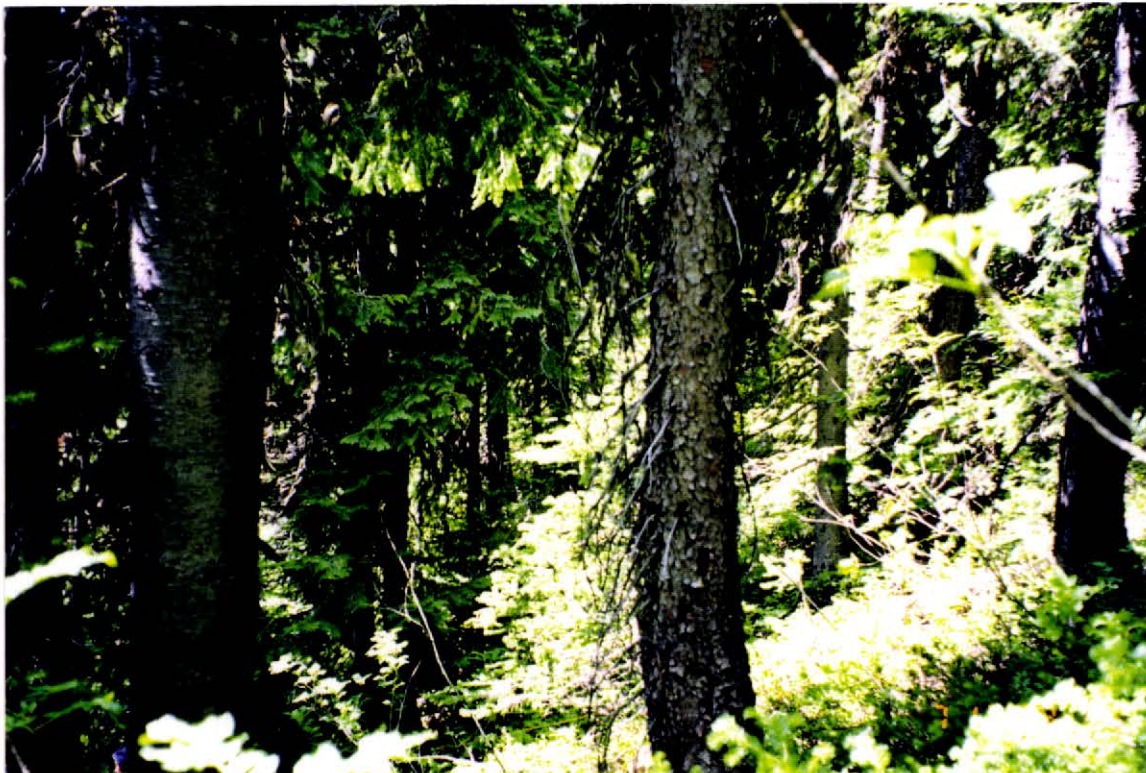


SPECIES COMPOSITION OF FUEL (%)

Line A: Fd (60), Cw (05), Hw (10), Bl (15), Se (10)
Line B: Fd (75), Bl (10), Se (15)
Line C: Fd (75), Bl (05), Hw (15), Se (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (02%), Fd (<01%), Bl (<01%), Se (<01%), black huckleberry (40%), Sitka mountain ash (05%), falsebox (05%), prince's pine (01%)
Herbs: One-sided wintergreen (02%), Sitka valerian (02%), Queen's cup (01%), Indian hellebore (01%), rattlesnake plantain (01%), fireweed (<01%)
Moss: Lanky moss (03%), lichen (<01%)



LOCATION

Skagit Valley (Silver Daisy Mountain)
Latitude and Longitude: 49° 09'36" 121° 02'08"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701064 (Plot 065)
Elevation (m): 1540

STAND CHARACTERISTICS

Crown Cover (%): 55
Stems/Hectare: 933
Average Forest Floor Depth (cms): 3.02

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Bl	7.7	5.0	1.0	
Bl	21.3	18.5	5.0	85
Fd	24.8	15.8	10.0	90
Bl	41.4	25.2	6.0	
Bl	11.9	8.0	1.5	
Bl	14.4	11.6	1.0	

FUEL LOADS (Tonnes per hectare)

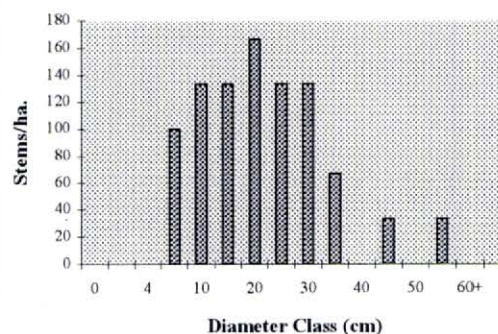
0.1cm - 0.5cm: 0.14 3.1cm - 5.0cm: 0.95
0.6cm - 1.0cm: 0.57 5.1cm - 7.0cm: 1.06
1.1cm - 3.0cm: 1.38 >7.0cm: 4.26

TOTAL = 8.36

STAND CLASSIFICATION

Vegetation Type: ESSFmw-8SB7, 2SV7
Soil Texture: Loamy
Humus Form: Mor
Slope (%): 55
Aspect: Southwest (225°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Bl (100)
Line B: Fd (40), Bl (40), Hw (20)
Line C: Fd (15), Bl (40), Hw (30), Sc (15)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (05%), Fd (05%), Bl (05%), Sc (05%), Pw (05%), black huckleberry (33%), Sitka mountain ash (15%), twinflower (05%), falsebox (04%)
Herbs: Sitka valerian (05%), rattlesnake plantain (04%), Lupinus spp. (03%)
Moss: Lanky moss (04%), pipecleaner moss (04%)



LOCATION

Skagit Valley (Silver Daisy Mountain)
Latitude and Longitude: 49° 09'36" 121° 02'08"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701066 (Plot 066)
Elevation (m): 1350

STAND CHARACTERISTICS

Crown Cover (%): 90
Stems/Hectare: 1267
Average Forest Floor Depth (cms): 4.30

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Ba	10.8	11.0	8.0	94
Hw	29.5	22.7	14.0	
Hw	40.2	28.9	12.0	
Hw	27.5	23.2	9.0	
Hw	37.3	26.7	10.0	130
Ba	31.6	27.4	12.0	

FUEL LOADS (Tonnes per hectare)

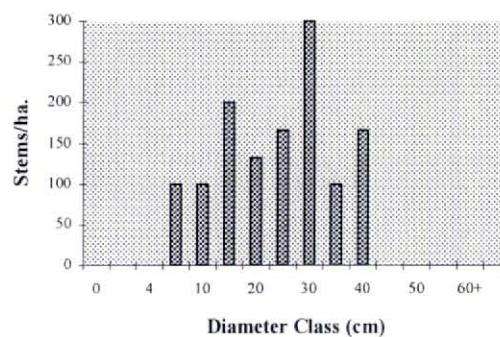
0.1cm - 0.5cm: 0.79 3.1cm - 5.0cm: 2.02
0.6cm - 1.0cm: 1.52 5.1cm - 7.0cm: 3.74
1.1cm - 3.0cm: 2.44 >7.0cm: 14.20

TOTAL = 24.71

STAND CLASSIFICATION

Vegetation Type: ESSFmw-6SB7, 4SV7
Soil Texture: Silty
Humus Form: Moder (Mor in some areas)
Slope (%): 45
Aspect: West (262°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Ba (70), Hw (25), Cw (05)
Line B: Fd (15), Ba (70), Hw (15)
Line C: Ba (80), Hw (20)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (15%), Cw (03%), Douglas-maple (01%), black huckleberry (03%)
Herbs: Five-leaved bramble (05%), Queen's cup (02%), one-leaved foamflower (01%), rattlesnake plantain (01%)
Moss: Pipecleaner moss (25%), Dicranium spp. (15%)



LOCATION

Skagit Valley (Silver Daisy Mountain)
Latitude and Longitude: 49° 09'36" 121° 02'08"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701066 (Plot 067)
Elevation (m): 1390

STAND CHARACTERISTICS

Crown Cover (%): 85
Stems/Hectare: 2533
Average Forest Floor Depth (cms): 3.93

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Ba	20.58	16.5	10.0	125
Ba	23.1	17.8	11.0	
Ba	23.7	21.0	15.0	
Ba	20.3	17.5	10.0	
Ba	23.3	18.7	5.0	111
Ba	15.1	16.0	11.0	

FUEL LOADS (Tonnes per hectare)

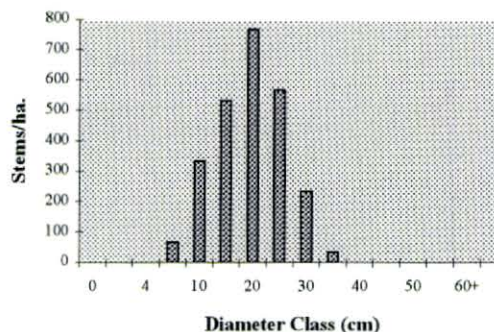
0.1cm - 0.5cm: 0.41 3.1cm - 5.0cm: 4.47
0.6cm - 1.0cm: 1.28 5.1cm - 7.0cm: 4.14
1.1cm - 3.0cm: 2.47 >7.0cm: 8.22

TOTAL = 20.99

STAND CLASSIFICATION

Vegetation Type: ESSFmw-6SB7, 4SV7
Soil Texture: Silty
Humus Form: Mor
Slope (%): 48
Aspect: Southwest (230°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Ba (80), Hw (15), Se (05)
Line B: Se (10), Ba (70), Hw (20)
Line C: Ba (75), Hw (15), Se (10)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hw (04%), Ba (<01%), Se (<01%), black huckleberry (13%), falsebox (<01%)
Herbs: Five-leaved bramble (20%), Queen's cup (04%), one-leaved foamflower (04%), pink wintergreen (04%), Sitka valerian (03%), red-flowering current (<01%)
Moss: Pipecleaner moss (05%), Dicranium spp. (01%), Oregon beaked moss (01%)



LOCATION

Skagit Valley (Somallo Grove)
Latitude and Longitude: 49° 11'25" 121° 03'20"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701068 (Plot 068)
Elevation (m): 1250

STAND CHARACTERISTICS

Crown Cover (%): 65
Stems/Hectare: 1633
Average Forest Floor Depth (cms): 5.77

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Ba	26.5	20.4	6.0	125
Hw	5.1	5.0	1.5	
Hw	20.0	16.3	5.0	101
Ba	37.6	28.0	6.0	
Ba	16.9	11.0	4.0	
Ba	5.1	4.0	1.5	

FUEL LOADS (Tonnes per hectare)

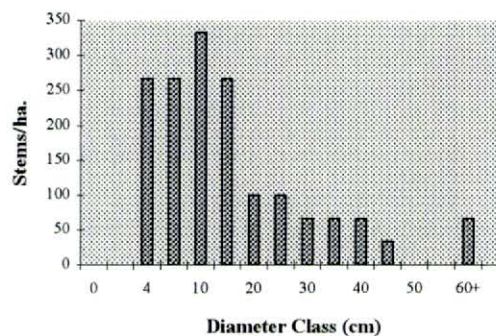
0.1cm - 0.5cm: 0.24 3.1cm - 5.0cm: 0.73
0.6cm - 1.0cm: 0.39 5.1cm - 7.0cm: 1.05
1.1cm - 3.0cm: 1.07 >7.0cm: 76.48

TOTAL = 79.96

STAND CLASSIFICATION

Vegetation Type: ESSFmw-6SB7, 4SV7
Soil Texture: Loamy
Humus Form: Mor
Slope (%): 35
Aspect: North (360°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Ba (50), Hw (50)
Line B: Ba (30), Hw (70)
Line C: Ba (35), Hw (65)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Ba (05%), Hw (03%), Se (01%), black huckleberry (20%), false azalea (10%), red huckleberry (03%), salmonberry (02%), red-flowering current (02%)
Herbs: Five-leaved bramble (50%), oak fern (05%), one-leaved foamflower (03%), false Solomon's-seal (02%), lady fern (02%), twistedstalk (01%)
Moss: Pipecleaner moss (40%), lichen (<01%)



LOCATION

Skagit Valley (Somallo Grove)
Latitude and Longitude: 49° 11'25" 121° 03'20"
BC Parks District: Fraser Valley
Forest Service District: Chilliwack
Plot Identification Number: 94701068 (Plot 069)
Elevation (m): 1270

STAND CHARACTERISTICS

Crown Cover (%): 85
Stems/Hectare: 1600
Average Forest Floor Depth (cms): 4.77

Species	DBH (cm)	Height (m)	Ht to Crown (m)	Age
Ba	13.0	12.0	1.5	
Ba	33.4	24.5	1.0	
Ba	27.0	20.4	3.0	100
Hm	9.6	7.0	1.5	
Ba	26.4	23.3	13.3	116
Ba	3.3	3.5	1.8	

FUEL LOADS (Tonnes per hectare)

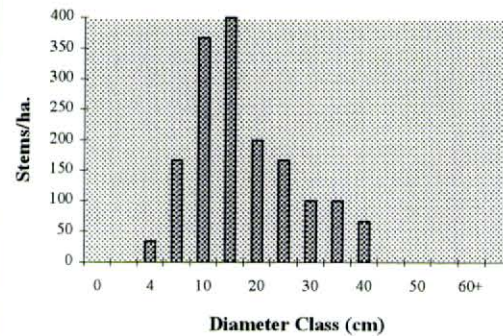
0.1cm - 0.5cm: 0.27 3.1cm - 5.0cm: 0.62
0.6cm - 1.0cm: 0.70 5.1cm - 7.0cm: 0.58
1.1cm - 3.0cm: 1.08 >7.0cm: 3.74

TOTAL = 6.99

STAND CLASSIFICATION

Vegetation Type: ESSFmw-6SB7, 4SV7
Soil Texture: Clayey
Humus Form: Moder
Slope (%): 62
Aspect: North (010°)
Slope Position: Middle slope

Diameter Distribution



SPECIES COMPOSITION OF FUEL (%)

Line A: Ba (60), Hm (30), Hw (10)
Line B: Ba (70), Hm (15), Hw (05), Se (05), Cw (05)
Line C: Ba (50), Hm (30), Se (15), Cw (05)

UNDERSTORY VEGETATION (% COVER)

Shrubs: Hm (10%), Ba (05%), Hw (03%), Se (01%), black huckleberry (20%), white-flowered rhododendron (25%), red-flowering current (05%), devil's club (04%), red huckleberry (02%), red rhododendron (<01%), salmonberry (<01%)
Herbs: Five-leaved bramble (30%), oak fern (05%), one-leaved foamflower (20%), lady fern (05%), twistedstalk (<01%), one-sided wintergreen (<01%)
Moss: Lanky moss (05%), pipecleaner moss (10%), club moss (02%)



4.0 WILDLIFE IN THE SKAGIT VALLEY RECREATION AREA

Wildlife sightings and signs (scat, tracks, burrows, wildlife trees, nests, marked trees, diggings or squirrel tables) were recorded during this study.

The large mammals determined to be using the habitat within the Skagit Valley Recreation Area include; black bears (*Ursus americanus*), coyotes (*Canis latrans*), mule deer (*Odocoileus hemionus*), beavers (*Castor canadensis*) and muskrats (*Ondatra zibethicus*).

The small mammals determined to be using the habitat within the Skagit Valley Recreation Area include; Jack rabbits (*Lepus americanus*), chipmunks (*Eutamias* sp.), Douglas squirrels (*Tamiasciurus douglasii*) and deer mice (*Peromyscus maniculatus*).

The birds determined to be using the habitat within the Skagit Valley Recreation Area include; Oregon juncos (*Junco oreganus*), northern flickers (*Colaptes auratus*), gray jays (*Perisoreus canadensis*), yellow-bellied sapsuckers (*Sphyrapicus varius*), tree sparrows (*Spizella arborea*), Townsend's warblers (*Dendroica townsendi*), American dippers (*Cinclus mexicanus*), pine grosbeaks (*Pinicola enucleator*), black-headed grosbeaks (*Pheucticus melanocephalus*), common ravens (*Corvus corax*), olive-sided flycatchers (*Contopus borealis*), hummingbirds (*Trochilidae* sp.), ruffed grouse (*Bonasa umbellus*), red-headed woodpeckers (*Melanerpes erythrocephalus*), hairy woodpeckers (*Picoides villosus*), barred owls (*Strix varia*) and spotted owls (*Strix occidentalis*).

The reptiles and amphibians determined to be using the habitat within the Skagit Valley Recreation Area include; Pacific tree frogs (*Hyla regilla*), spotted frogs (*Rana pretiosa*), western toads (*Bufo boreas*) and alligator lizards.

5.0 RECOMMENDATIONS

Only the Pre-Burn Procedures and Plot Descriptions methods were adapted from the FRDA Handbook for use during this study. As a result, some equipment requirements and methods were altered to suit the field data information gathering.

Equipment recommendations include:

- 1/ omitting the rebar, creosoted fence posts, depth of burn pins, pliers and a hammer and nails because the plots were not burned,
- 2/ purchasing 5/16" solid braid polyester rope, which will not split and fray,
- 3/ purchasing a small rock hammer to split rocks for bedrock geology determination, and
- 4/ purchasing a soil sieve to separate sand from fine soil particles, allowing for easy determination of less than or greater than 50% sand (some of the graininess tests were borderline).

Soil analysis methods in the FRDA Handbook included, choosing one representative location near but not inside either plot in the strata, and digging a soil pit to assess soil properties. During this study a soil pit was assessed in each plot. The soil pits were dug as close to the center of the plot as possible. The vegetation disturbance associated with the soil pits may help in the relocation of the plots if a follow-up study occurs.

Vegetation analysis studies at higher elevations in the Skagit Valley Recreation Area may provide more information on the location of the MHmm subzone and its approximate boundaries.

During this study a Site Assessment Form from the Vancouver Forest Region Field Guide and three forms from the FRDA Handbook (Form 3, Form 4 and Section 1 and Section 2 of Form 1) were filled out for each plot. The relevant data collection space on the three FRDA forms can be fit onto one page for use in the field (see Figure 13).

LIST OF REFERENCES

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- Schofield, W.B., 1992. Some Common Mosses of British Columbia. Royal British Columbia Museum, Victoria.
- Trowbridge, R., Hawkes, B., Macadam, A., Parminter, J., 1989. Field Handbook for Prescribed Fire Assessments in British Columbia: Logging Slash Fuels. Ministry of Forests, Victoria.

Appendix 1: Common and scientific names of vegetation species found in the Skagit Valley Recreation Area.

Common Name	Scientific Name
alder, red	<i>Alnus rubra</i>
alder, Sitka	<i>Alnus crispa</i>
arnica, heart-leaved	<i>Arnica cordifolia</i>
ash, Sitka mountain	<i>Sorbus sitchensis</i>
azalea, false	<i>Menziesia ferruginea</i>
baneberry	<i>Actaea rubra</i>
bedstraw, sweet-scented	<i>Galium triflorum</i>
bleeding heart	<i>Dicentra formosa</i>
blueberry, Alaskan	<i>Vaccinium alaskaense</i>
blueberry, oval-leaved	<i>Vaccinium ovalifolium</i>
bramble, five-leaved	<i>Rubus pedatus</i>
bugbane, false	<i>Trautvetteria caroliniensis</i>
bunchberry	<i>Cornus canadensis</i>
cascara	<i>Rhamnus purshiana</i>
cedar, western red	<i>Thuja plicata</i>
copperbush	<i>Cladodammus pyroliflorus</i>
current, red-flowering	<i>Ribes sanguineum</i>
devil's club	<i>Oplopanax horridus</i>
Douglas-fir	<i>Pseudotsuga menziesii</i>
	<i>Dicranum spp.</i>
falsebox	<i>Paxistima myrsinites</i>
fern, bracken	<i>Pteridium aquilinum</i>
fern, lady	<i>Athyrium filix-femina</i>
fern, licorice	<i>Polypodium glycyrrhiza</i>
fern, oak	<i>Gymnocarpium dryopteris</i>
fern, parsley	<i>Cryptogramma crispa</i>
fern, spiny wood	<i>Dryopteris expansa</i>
fern, sword	<i>Polystichum munitum</i>
fir, amabilis	<i>Abies amabilis</i>
fir, grand	<i>Abies grandis</i>
fir, sub-alpine	<i>Abies lasiocarpa</i>
fireweed	<i>Epilobium angustifolium</i>
foamflower, three-leaved	<i>Tiarella trifoliata</i>
goldthread, fern-leaved	<i>Coptis asplenifolia</i>
hazelnut, beaked	<i>Corylus cornuta</i>
hellebore, Indian	<i>Veratrum viride</i>
hemlock, western	<i>Tsuga heterophylla</i>
honeysuckle, orange	<i>Lonicera ciliosa</i>
horsetail, wood	<i>Equisetum sylvaticum</i>
huckleberry, black	<i>Vaccinium membranaceum</i>

Common Name**Scientific Name**

huckleberry, red
Indian-pipe
kinnikinnik
lichens
lily, tiger
liverwort spp.

maple, bigleaf
maple, Douglas
maple, vine
moss, broken-leaf
moss, club
moss, coastal leafy
moss, electrified cat's-tail
moss, flat
moss, haircap
moss, lanky
moss, Oregon-beaked
moss, pipecleaner
moss, red-stemmed feather
moss, step
mountain-heather
ocean spray
Oregon grape, dull
Oregon grape, tall
pinegrass
pine, prince's
pine, western white
Queen's cup
rattlesnake plantain
rhododendron, red
rhododendron, white-flowered
rose, baldhip
salal
salmonberry
sandwort, big-leaved
Saskatoon
saxifrage spp.
Solomon's-seal, false
spirea, birch-leaved
spruce, Englemann
starflower, broad-leaved
stepmoss

Vaccinium parvifolium
Monotropa uniflora
Arctostaphylos uva-ursi
Cladonia/Cladina spp.
Lilium columbianum

Lupinus spp.
Acer macrophyllum
Acer glabrum
Acer circinatum
Dicranum tauricum
Lycopodium spp.
Plagiomnium insigne
Rhytidiadelphus triquetrus
Plagiothecium undulatum
Polytrichum piliferum
Rhytidiadelphus loreus
Kindbergia oregana
Rhytidiopsis robusta
Pleurozium schreberi
Hylocomium splendens
Cassiope spp.
Holodiscus discolor
Mahonia nervosa
Mahonia aquifolium
Calamagrostis rubescens
Chimaphila umbellata
Pinus monticola
Clintonia uniflora
Goodyera oblongifolia
Rhododendron macrophyllum
Rhododendron albiflorum
Rosa gymnocarpa
Gaultheria shallon
Rubus spectabilis
Mahringia macrophylla
Amelanchier alnifolia

Smilacina racemosa
Spirea betulifolia
Picea englemannii
Trientalis latifolia
Hylocomium splendens

Common Name**Scientific Name**

strawberry, wild
tea-berry, western
thimbleberry
trillium, western
twinberry, black
twinflor, northern
twistedstalk
valerian, Sitka
vanilla leaf
western yew
wild ginger
willow spp.
wintergreen, one-sided
wintergreen, pink
wintergreen, white-vened
yarrow, western

Fragaria virginiana
Gaultheria ovatifolia
Rubus parviflorus
Trillium ovatum
Lonicera involucrata
Linnaea borealis
Streptopus amplexifolius
Valeriana sitchensis
Achlys triphylla
Taxus brevifolia
Asarum caudatum
Salix spp.
Orthilia secunda
Pyrola asarifolia
Pyrola picta
Achillea millefolium