



Forest / Forêt

Association CNVC00053

*Tsuga heterophylla* / *Vaccinium alaskaense* / *Hylocomium splendens*

Western Hemlock / Alaskan Blueberry / Stairstep Moss

Pruche de l'Ouest / Airelle d'Alaska / Hypne éclatante

**Subassociations:** none

**CNVC Alliance:** not yet determined

**CNVC Group:** not yet determined

## Type Description

**Concept:** Within the wet maritime climate of north-central coastal British Columbia, this coniferous association occupies poorly productive forested sites, usually on exposed ridge crests and upper slopes. CNVC00053 is found on dry to mesic, nutritionally poor to medium soils at elevations between near sea level and approximately 600 mASL. The open canopy is dominated by western hemlock (*Tsuga heterophylla*), with a minor presence of Sitka spruce (*Picea sitchensis*). The shrub layer consists mostly of regenerating western hemlock and Alaskan blueberry (*Vaccinium alaskaense*), with some false azalea (*Menziesia ferruginea*). The sparse herb layer mainly includes bunchberry (*Cornus canadensis*) and five-leaved dwarf bramble (*Rubus pedatus*). The dominant mosses are lanky moss (*Rhytidiadelphus loreus*) and stairstep moss (*Hylocomium splendens*). These exposed low-canopy forests can offer valuable habitat in the form of complex vertical structure, variable sizes and decay stages of snags, and coarse woody debris.

**Vegetation:** The canopy of CNVC00053, a coniferous old-forest association, is characteristically patchy due to the presence of rock outcrops or colluvium that support a variety of non-forested ecosystems. The tree layer is dominated by *Tsuga heterophylla*, with a minor presence of *Picea sitchensis* and, at lower elevations, *Thuja plicata*. The open canopy supports formation of a moderately well-developed shrub layer containing *Tsuga heterophylla* regeneration and a low-diversity ericaceous mixture of *Vaccinium alaskaense* and *Menziesia ferruginea*, often with *Vaccinium parvifolium* and/or *V. ovalifolium*. The relatively sparse herb layer mostly consists of *Cornus canadensis* and *Rubus pedatus*. The well-developed moss layer is dominated by *Rhytidiadelphus loreus* and *Hylocomium splendens*.

**Environment:** CNVC00053 is a lower productivity association that occupies forested sites with the lowest moisture holding capacity in the wet maritime climate of north central coastal British Columbia. It usually occurs on exposed ridge crests and upper slopes. Examples of this association have been sampled at elevations between near sea level and approximately 600 mASL, on very steep to gentle slope gradients with a variety of aspects, as well as on level ground. The dry to mesic, nutritionally poor to medium soils are typically well-drained organic or shallow mineral veneers over bedrock and sandy rapidly drained soils on glaciofluvial terraces. Thick, well-developed mor humus forms prevail.



***Tsuga heterophylla* / *Vaccinium alaskaense* / *Hylocomium splendens* CNVC00053**

**Type Description (cont'd)**

**Dynamics:** The exposed upper slope and ridge crest sites associated with CNVC00053 are vulnerable to intense weather events. These naturally open forests are relatively windfirm with regard to catastrophic windthrow. Nevertheless, breakage and uprooting of individually susceptible trees due to wind and snow or ice loading is to be expected. Stand replacement is normally gradual, through the mortality of individual or small numbers of canopy trees, resulting in an uneven-aged composition. Although not tall, these forests can offer valuable habitat in the form of complex vertical structure, variable sizes and decay stages of snags, and coarse woody debris. The cedar strain of laminated root rot (*Phellinus weirii*) causes butt rot in *Thuja plicata* and can increase susceptibility to windthrow. Hemlock dwarf mistletoe (*Arceuthobium tsugense*) and annosus root disease (*Heterobasidion annosum*) can be very damaging to *Tsuga heterophylla*, significantly reducing growth, stressing the trees and thereby making them more susceptible to other forest pests or pathogens. Wildfire is infrequent in this wet maritime climate regime.

**Range:** CNVC00053 occurs at low to moderate elevations along the north-central coast of British Columbia, from Stewart to the mouth of the Nass River, and in the middle and upper Khutzeymateen and Kateen drainages, about 45 km northeast from Prince Rupert. Its main distribution is in the Alaska Panhandle from Portland Inlet north to the Yukon border.

**Conservation Status (NatureServe)**

**Global Conservation Rank:** GNR

**National Conservation Rank:** not yet determined

**Subnational Conservation Rank:** S3



# Canadian National Vegetation Classification (CNVC) Classification nationale de la végétation du Canada (CNVC)

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## Distribution

**Countries:** Canada

**Provinces / Territories / States:** British Columbia

**Terrestrial Ecozones and Ecoregions of Canada:** Pacific Maritime: Northern Coastal Mountains

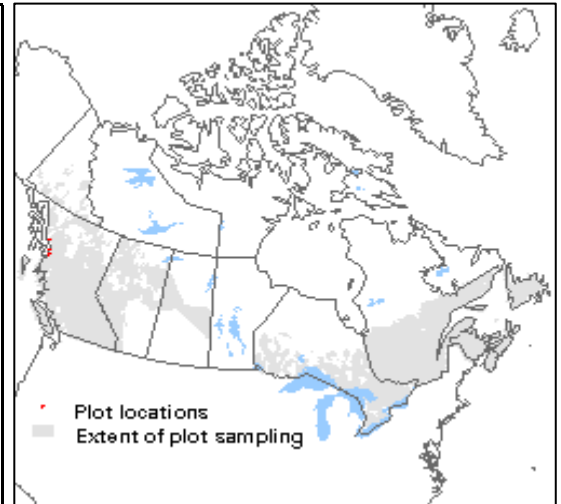
**Rowe's Forest Regions and Sections of Canada:** Coast: Northern Pacific Coast

**NAAEC CEC Ecoregions of North America (Levels I & II):** Marine West Coast Forests

**Nature Conservancy of Canada Ecoregions:** Coastal Forests and Mountains of Southeast Alaska and B.C.

**Biogeoclimatic Ecosystem Classification of British Columbia (zones and subzones):** CWHwm

**British Columbia Ecoregion Classification (ecoregions and ecosections):** Boundary Ranges: Central Boundary Ranges, Southern Boundary Ranges



## Corresponding Types and Associations

CNVC00053

British Columbia

CWHwm /02

Western Hemlock - Sitka Spruce - Step Moss



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### Vegetation Summary\*

Species Name <sup>†</sup>	Association CNVC00053 11 plots	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<b>Overstory Trees</b>		
<i>Tsuga heterophylla</i>	45	100
<i>Picea sitchensis</i>	3	82
<i>Thuja plicata</i>	9	45
<b>Tree Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(22 32 50 80 80)</b>	
<b>Understory Woody Shrubs and Regenerating Trees</b>		
<i>Tsuga heterophylla</i>	21	100
<i>Vaccinium alaskaense</i>	28	82
<i>Menziesia ferruginea</i>	8	73
<i>Vaccinium parvifolium</i>	5	55
<i>Vaccinium ovalifolium</i>	19	45
<i>Thuja plicata</i>	5	27
<b>Shrub Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(33 40 57 75 85)</b>	
<b>Understory Herbs and Dwarf Shrubs</b>		
<i>Cornus canadensis</i>	7	73
<i>Rubus pedatus</i>	2	64
<i>Clintonia uniflora</i>	4	45
<i>Streptopus lanceolatus</i>	1	45
<i>Gymnocarpium dryopteris</i>	1	36
<i>Dryopteris expansa</i>	4	27
<b>Herb Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(2 6 12 18 25)</b>	
<b>Bryophytes and Lichens</b>		
<i>Rhytidiadelphus loreus</i>	21	91
<i>Hylocomium splendens</i>	36	82
<i>Polytrichastrum alpinum</i>	9	36
<i>Dicranum</i> sp.	4	36
<i>Plagiochila asplenoides</i>	2	36
<i>Rhytidiopsis robusta</i>	22	27
<i>Plagiothecium undulatum</i>	10	27
<b>Bryo-Lichen Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(2 57 66 90 90)</b>	



*Tsuga heterophylla* / *Vaccinium alaskaense* / *Hylocomium splendens* CNVC00053

**Vegetation Summary (cont'd)\***

\* species present in > 20% of sample plots are listed

† see **Botanical Nomenclature** link at <http://cnvc-cnvc.ca> for botanical sources, synonyms and common names

‡ average percent cover of a species within the plots in which it occurs (i.e., characteristic cover)

^ percent frequency occurrence for a species within the total plots

‡ P<sub>x</sub> = X<sup>th</sup> percentile (e.g., P<sub>10</sub> = 10<sup>th</sup> percentile)



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## Site / Soil Characteristics

Association  
CNVC00053  
11 plots

### Elevation Range (min–mean–max meters)

10–200–1000

### Slope Gradient (% frequency)

very steep (27)  
**steep (36)**  
moderately steep (9)  
moderate (9)  
gentle (18)

### Aspect (% frequency)

north (18)  
east (18)  
south (18)  
**west (27)**  
missing data (18)

### Meso Toposition (% frequency)

**crest / upper (64)**  
mid (18)  
lower / toe (18)

### Moisture Regime (% frequency)

dry (18)  
**mesic (82)**

### Nutrient Regime (% frequency)

**poor (73)**  
medium (27)



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**Site / Soil Characteristics (cont'd)**

Association  
CNVC00053

**Soil Parent Material (% frequency)**

bedrock (9)  
colluvium (18)  
organic (9)  
missing data (64)

**Soil Rooting Zone Substrate (% frequency)**

non-soil (27)  
sandy (9)  
**organic (64)**

**Root Restricting Depth (% frequency)**

0 – 20 cm (36)  
21 – 99 cm (18)  
missing data (45)

**Humus Form (% frequency)**

**mor (82)**  
moder (9)  
missing data (9)



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### Additional Characteristics

Species of High Conservation Concern:

Non-native Species:

Management Issues:

### Type Statistics

Internal Similarity:

Confidence: high

Strength:

### Related Concepts

Similar CNVC Associations: CNVC00052 [*Tsuga heterophylla* / *Vaccinium alaskaense* / *Dryopteris expansa*]

Related United States National Vegetation Classification Associations: CEG000118 *Tsuga heterophylla* / *Vaccinium ovalifolium* Forest

Relationships with Other Classifications:

### Comments

CNVC00052 [*Tsuga heterophylla* / *Vaccinium alaskaense* / *Dryopteris expansa*] occurs in the same climatic areas as CNVC00053 but is found on mesic sites and has consistent presence of *Dryopteris expansa* and *Streptopus streptopoides*.

### Source Information

Number of source plots for CNVC00053: 11

Information Sources: British Columbia Ministry of Forests and Range, Research Branch BECMaster database, October 2007 (11 plots)

Concept Authors: K. Klinka, J. Pojar, D. Meidinger, C. Chappell, C. Cadrin, G. Kittel, C. McCain, K. Boggs, J. Kagan, G. Cushon, A. Banner and T. DeMeo

Description Authors: A. Inselberg, D. Meidinger, and K. Baldwin

Date of Concept: 1991, 2005

Date of Description: June, 2011





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### Classification References:

British Columbia Ministry of Forests and Range, Research Branch. 2007. Vegetation classification hierarchy: BECMaster database (October 2007). B.C. Min. For., Victoria, BC.

Meidinger, D.; Chappell, C.; Cadrin, C.; Kittel, G.; McCain, C.; Boggs, K.; Kagan, J.; Cushon, G.; Banner, A.; DeMeo, T. 2005. International vegetation classification of the Pacific Northwest: International correlation of temperate coastal forest plant associations of Oregon, Washington, British Columbia and Alaska. Contributors: B.C. Ministry of Forests, USDA Forest Service, B.C. Conservation Data Centre, Alaska Natural Heritage Program, Washington Natural Heritage Program, Oregon Natural Heritage Information Center.

### Characterization References:

Banner, A.; MacKenzie, W.; Haeussler, S.; Thomson, S.; Pojar, J.; Trowbridge, R. 1993. A field guide to site identification and interpretation for the Prince Rupert Forest Region. B.C. Min. For., Res. Branch, Victoria, BC. Land Manage. Handb. No. 26.

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Wong, C.; Sandmann, H.; Dorner, B. 2003. Historical variability of natural disturbances in British Columbia: A literature review. FORREX-Forest Research Extension Partnership, Kamloops, BC. FORREX Series 12. Available: <http://www.forrex.org/publications/forrexseries/fs12.pdf> (accessed Nov., 2008).

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