



Forest / Forêt

Association CNVC00019

Thuja plicata* - *Pseudotsuga menziesii* - *Tsuga heterophylla* / *Acer circinatum* / *Polystichum munitum

Western Red Cedar - Douglas-fir - Western Hemlock / Vine Maple / Western Sword Fern

Thuja géant - Douglas de Menzies - Pruche de l'Ouest / Érable circiné / Fougère épée

Subassociations: none

CNVC Alliance: not yet determined

CNVC Group: not yet determined

Type Description

Concept: CNVC00019 is a forest association that occurs on rich, mesic or moist sites in coastal British Columbia, along drainages of the Fraser River, and in the eastern Coast Mountains. Elevations range from sea level to approximately 650 m. This association is characterized by a closed canopy dominated by high cover of western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), and Douglas-fir (*Pseudotsuga menziesii*). The shrub layer is dominated by moderate cover of vine maple (*Acer circinatum*) and regenerating western hemlock and western red cedar, with low cover of red huckleberry (*Vaccinium parvifolium*). The herb layer is mostly western sword fern (*Polystichum munitum*) with low cover of northern wood fern (*Dryopteris expansa*) and bracken (*Pteridium aquilinum*). The moss layer can be sparse to moderately well-developed, with stairstep moss (*Hylocomium splendens*), Oregon beaked moss (*Eurhynchium oreganum*) and leafy mosses (*Rhizomnium* spp. and *Plagiomnium* spp.) as predominant species.

Vegetation: Overstories in CNVC00019 are dominated by high cover of *Thuja plicata*, *Tsuga heterophylla*, and *Pseudotsuga menziesii*. Low to moderate cover of *Acer macrophyllum* and *Alnus rubra* also sometimes occur. The moderately well-developed shrub layer is dominated by *Acer circinatum* and regenerating *Thuja plicata* and *Tsuga heterophylla*, with low cover of *Vaccinium parvifolium* and sometimes *Gaultheria shallon* and *Mahonia nervosa*. *Polystichum munitum* dominates the moderately well-developed herb layer and is accompanied by low cover of *Dryopteris expansa*, *Tiarella trifoliata* (see the Comments section), *Rubus ursinus*, and *Pteridium aquilinum*. Often there is low cover of *Trillium ovatum* and *Trientalis borealis*. The sparse to moderately well-developed moss layer is dominated by low to moderate cover of *Hylocomium splendens* and *Eurhynchium oreganum* with low cover of *Rhytidiadelphus loreus*, *Plagiomnium insigne*, and sometimes *Plagiothecium undulatum* or *Rhizomnium glabrescens*.

Environment: CNVC00019 occurs on rich, mesic or moist sites in coastal British Columbia, along drainages of the Fraser River, and in the eastern Coast Mountains. Elevations range from sea level to approximately 650 m. This association is usually found on steep slopes on all aspects. Soils are typically coarse-textured loams and show well-developed podzolic soil horizons.



***Thuja plicata - Pseudotsuga menziesii - Tsuga heterophylla / Acer circinatum / Polystichum munitum* CNVC00019**

Type Description (cont'd)

Dynamics: CNVC00019 is a late-successional (mature and climax) edaphic forest association. Stands originated from infrequent stand-replacing fires (perhaps every 150-200 years on average) and occasionally from windthrow. Within mature and old forests, small gaps result from the death of single trees or small groups of trees due to root-rots, bark beetles or windthrow. Gap dynamics in old forests result in an all-aged stand structure.

Range: CNVC00019 occurs at low elevations of southern coastal British Columbia, north to Hardwicke Island; also in the coast-interior transition climates in low elevation drainages of the Fraser River near Chilliwack, and in the eastern Coast Mountains. Although known only from British Columbia, this association is similar to several associations found in Washington, USA.

Conservation Status (NatureServe)

Global Conservation Rank: not yet determined

National Conservation Rank: not yet determined

Subnational Conservation Rank: not yet determined



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Distribution

Countries: Canada

Provinces / Territories / States: British Columbia

Ecozones and Ecoregions of Canada: Pacific Maritime: Lower Mainland, Pacific Ranges

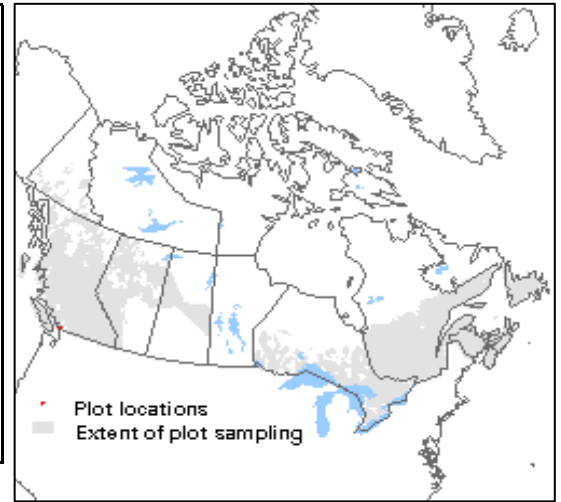
Rowe's Forest Regions and Sections: Coast: Southern Pacific Coast

Commission for Environmental Cooperation Ecological Regions of North America:
 Marine West Coast Forests

The Nature Conservancy (USA) and Nature Conservancy of Canada Ecoregions:
 North Cascades, Puget Trough

Biogeoclimatic Ecosystem Classification of British Columbia (zones and subzones):
 CWH dm, CWH ds

Ecoregion Classification System of British Columbia (ecosections): Fraser Lowland,
 Southern Pacific Ranges



Corresponding Types and Associations

CNVC00019	British Columbia	CWH dm /05	<i>Pseudotsuga menziesii</i> - <i>Tsuga heterophylla</i> - <i>Achlys triphylla</i> ; <i>Polystichum munitum</i> (in part)
		CWH ds 1 /05	<i>Tsuga heterophylla</i> - <i>Pseudotsuga menziesii</i> - <i>Acer circinatum</i>



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Vegetation Summary*

Species Name†	Association CNVC00019	
	50 plots	
	% Cover	% Presence
Overstory Trees		
<i>Thuja plicata</i>	31	100
<i>Tsuga heterophylla</i>	21	96
<i>Pseudotsuga menziesii</i>	33	94
<i>Acer macrophyllum</i>	12	56
<i>Alnus rubra</i>	10	50
<i>Betula papyrifera</i>	7	28
Tree Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)‡	(50 60 72 85 95)	
Understory Woody Shrubs and Regenerating Trees		
<i>Acer circinatum</i>	14	96
<i>Vaccinium parvifolium</i>	2	74
<i>Thuja plicata</i>	11	66
<i>Tsuga heterophylla</i>	7	62
<i>Gaultheria shallon</i>	3	46
<i>Rubus spectabilis</i>	2	42
<i>Mahonia nervosa</i>	10	30
<i>Menziesia ferruginea</i>	1	30
<i>Rhamnus purshiana</i>	0	28
<i>Sambucus racemosa</i>	2	26
<i>Oplopanax horridus</i>	1	22
<i>Ribes lacustre</i>	1	22
Shrub Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)‡	(10 15 26 35 50)	
Understory Herbs and Dwarf Shrubs		
<i>Polystichum munitum</i>	23	100
<i>Dryopteris expansa</i>	4	80
<i>Rubus ursinus</i>	2	72
<i>Pteridium aquilinum</i>	2	70
<i>Tiarella trifoliata</i>	2	56
<i>Trillium ovatum</i>	1	56
<i>Trientalis borealis</i> ssp. <i>latifolia</i>	1	48
<i>Lactuca muralis</i>	1	42
<i>Blechnum spicant</i>	2	40
<i>Galium triflorum</i>	1	38
<i>Athyrium filix-femina</i>	1	36
<i>Achlys triphylla</i>	4	30
<i>Claytonia sibirica</i>	1	26



***Thuja plicata - Pseudotsuga menziesii - Tsuga heterophylla / Acer circinatum / Polystichum munitum* CNVC00019**

Vegetation Summary (cont'd)*

Species Name [†]	Association CNVC00019	
	% Cover	% Presence
<i>Streptopus amplexifolius</i>	1	24
<i>Polypodium glycyrrhiza</i>	1	24
<i>Tiarella trifoliata</i> var. <i>unifoliata</i>	10	22
<i>Luzula parviflora</i>	1	22
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(5 14 30 40 56)	
Bryophytes and Lichens		
<i>Hylocomium splendens</i>	10	94
<i>Eurhynchium oreganum</i>	9	90
<i>Rhytidiadelphus loreus</i>	2	62
<i>Plagiomnium insigne</i>	6	56
<i>Plagiothecium undulatum</i>	5	44
<i>Rhizomnium glabrescens</i>	2	40
<i>Leucolepis acanthoneuron</i>	2	30
<i>Rhytidiadelphus triquetrus</i>	4	26
Bryo-Lichen Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(20 26 41 54 66)	

* 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

[‡] P_x = Xth percentile (e.g., P₁₀ = 10th percentile)



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Site / Soil Characteristics

Association

CNVC00019

50 plots

Elevation Range (min–mean–max meters)

34–240–650

Slope Gradient (% frequency)

very steep (28)

steep (24)

moderately steep (6)

moderate (6)

gentle (10)

level (26)

Aspect (% frequency)

north (14)

east (10)

south (4)

west (18)

level (12)

missing data (42)

Meso Toposition (% frequency)

mid (14)

missing data (86)

Moisture Regime (% frequency)

dry (4)

mesic (44)

moist (28)

missing data (24)

Nutrient Regime (% frequency)

rich (14)

missing data (86)



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Site / Soil Characteristics (cont'd)

	Association CNVC00019
Soil Parent Material (% frequency)	missing data (100)
Soil Rooting Zone Substrate (% frequency)	sandy (6) coarse loamy (78) silty (2) clayey (2) missing data (12)
Root Restricting Depth (% frequency)	21 – 99 cm (4) missing data (96)
Humus Form (% frequency)	mor (12) moder (54) mull (4) peatymor (2) missing data (28)



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

<http://cnvc-cnvc.ca>

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Additional Characteristics

Species of High Conservation Concern: Reported habitat for spotted owl (*Strix occidentalis*) (G3 [NatureServe], S1 [BC CDC], E [COSEWIC]); marbled murrelet (*Brachyramphus marmoratus*) (G3G4 [NatureServe], S2B, S4N [BC CDC], T [COSEWIC]); dotted leafy moss (*Rhizomnium punctatum*) (G5 [NatureServe], S1S3 [BC CDC]).

Non-native Species:

Management Issues:

Type Statistics

Internal Similarity:

Confidence: high

Strength:

Related Concepts

Similar CNVC Associations: CNVC00070 *Pseudotsuga menziesii* - *Tsuga heterophylla* / *Gaultheria shallon* / *Polystichum munitum*

CNVC00075 *Pseudotsuga menziesii* - *Tsuga heterophylla* - *Thuja plicata* / *Rubus spectabilis* / *Polystichum munitum* - *Athyrium filix-femina*

Related United States National Vegetation Classification Associations: CEG002849 *Thuja plicata* - *Pseudotsuga menziesii* - *Tsuga heterophylla* / *Polystichum munitum* - *Dryopteris expansa* Forest

Relationships with Other Classifications:

Comments

Tiarella trifoliata (three-leaved foamflower) may include *T. trifoliata* var. *laciniata* (cut-leaved foamflower), *T. trifoliata* var. *trifoliata* (three-leaved foamflower) and/or *T. trifoliata* var. *unifoliata* (one-leaved foamflower).

CNVC00019 can be differentiated from several other richer *Pseudotsuga menziesii* - *Polystichum munitum* associations as follows: CNVC00070 [*Pseudotsuga menziesii* - *Tsuga heterophylla* / *Gaultheria shallon* / *Polystichum munitum*] occurs on dryer sites so lacks *Tiarella trifoliata* and has *Gaultheria shallon*; CNVC00075 [*Pseudotsuga menziesii* - *Tsuga heterophylla* - *Thuja plicata* / *Rubus spectabilis* / *Polystichum munitum* - *Athyrium filix-femina*] and CNVC00046 [*Thuja plicata* - *Pseudotsuga menziesii* - *Tsuga heterophylla* / *Oplopanax horridus* / *Polystichum munitum* / *Plagiomnium insigne*] are moister and are characterized by *Rubus spectabilis* and/or *Oplopanax horridus* or greater cover of *Athyrium filix-femina*.

Source Information

Number of source plots for CNVC00019: 50

Information Sources: British Columbia Ministry of Forests and Range, Research Branch BECMaster database, October 2007 (50 plots)

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

Description Authors: D. Meidinger, K. Iverson, C. Cadrin and K. Baldwin

Date of Concept: November, 2005

Date of Description: March, 2011



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Source Information (cont'd)

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:

British Columbia Conservation Data Centre. 2007. B.C. Species and Ecosystems Explorer. B.C. Min. of Environ. Victoria, BC. Available: <http://www.env.gov.bc.ca/cdc/access.html> (accessed November 26, 2007).

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Green, R.N.; Klinka, K. 1994. A field guide to site identification and interpretation for the Vancouver Forest Region. B.C. Min. For., Res. Branch, Victoria, BC. Land Manage. Handb. No. 28. 285 p.

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe. Arlington, VA, USA. Available: <http://www.natureserve.org/explorer> (accessed November 26, 2007).

The information contained in this factsheet is based on data and expert knowledge that is current to the date of description. As new information becomes available, the factsheet will be updated.

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