



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

<http://cnvc-cnvc.ca>

Woodland / Forêt ouverte

Association CNVC00021

***Pseudotsuga menziesii* - *Pinus contorta* var. *contorta* / *Festuca occidentalis* / *Niphotrichum canescens* - *Racomitrium lanuginosum* - *Cladina* spp.**

Douglas-fir - Shore Pine / Western Fescue / Grey Rock Moss - Hoary Rock Moss - Reindeer Lichen

Douglas de Menzies - Pin tordu côtier / Fétuque de l'Ouest / Racomitre blanchâtre - Racomitre laineux - Cladonie

Subassociations: none

CNVC Alliance: not yet determined

CNVC Group: not yet determined

Type Description

Concept: CNVC00021 is an endemic association that occurs in southwestern coastal British Columbia and southeastern Vancouver Island. It is restricted to crests and steep upper slopes where soils are very shallow and exposed bedrock is present. This low elevation conifer woodland is characterized by scattered, stunted Douglas-fir (*Pseudotsuga menziesii*) and/or shore pine (*Pinus contorta* var. *contorta*) - both of variable heights. Salal (*Gaultheria shallon*) is the most common shrub species. Herb / dwarf shrub cover is sparse, with western fescue (*Festuca occidentalis*) and Pacific trailing blackberry (*Rubus ursinus*) being the most consistently occurring species. The moss layer is dominated by rock mosses; grey rock moss (*Niphotrichum canescens*) and hoary rock moss (*Racomitrium lanuginosum*).

Vegetation: CNVC00021 is a coniferous woodland characterized by scattered, stunted *Pseudotsuga menziesii* and/or *Pinus contorta* var. *contorta*. *Gaultheria shallon*, *Holodiscus discolor*, *Rosa gymnocarpa*, *Mahonia nervosa* and *Vaccinium parvifolium* are the most common species in the variable and generally sparse shrub layer. Herbs and dwarf shrubs are also sparse, the most common being *Festuca occidentalis*, *Rubus ursinus*, and *Hypochaeris radicata*. *Arctostaphylos uva-ursi* is often present. The abundant moss layer is dominated by *Niphotrichum canescens* and *Racomitrium lanuginosum*, with varying amounts of *Pleurozium schreberi*, *Hylocomium splendens*, *Eurynchium oreganum*, *Cladina* spp. and *Polytrichum juniperinum*.

Environment: CNVC00021 occurs up to 450 mASL in coastal areas of southern British Columbia with relatively dry, warm summers and moist, mild winters with very little snowfall. It is restricted to very dry crests and steep upper slopes where soils are very shallow and exposed bedrock is present. The average soil depth is usually 20 cm or less. The nutrient-poor to medium, coarse-textured soils are derived from morainal or colluvial parent materials. These communities are typically very small, averaging less than 0.1 ha in area.



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Type Description (cont'd)

Dynamics: CNVC00021 is a late successional (mature seral and climax) edaphic woodland association. Historically, natural disturbance patterns likely included infrequent, localized stand-initiating fires that were medium to high intensity but relatively small in area. Local light surface fires, resulting from natural events or human activities, were more frequent and likely maintained the open stand structure on these sites, reducing the buildup of organic matter that could potentially shift the composition and structure of the vegetation to a closed stand with increased amounts of *Thuja plicata*, *Tsuga heterophylla* and *Gaultheria shallon* with the elimination of *Pinus contorta* var. *contorta*, *Niphotrichum canescens* and *Cladina* spp. Alternatively, less frequent but more intense surface fires would remove much of the organic matter, increase the potential for soil erosion and seriously impede the recovery of these sites to closed forest conditions. Windthrow is also important, given the shallow soils and exposed location of these sites on upper slopes and crest positions. Blowdown of individual trees provides pockets of exposed mineral soil that allows the recruitment of *Pseudotsuga menziesii* and *Pinus contorta* var. *contorta*. Drought, insect infestation and root rot may also contribute to the mortality of individual or small groups of trees. Successional rates are very slow, given the droughty conditions and the long period of time required to create structural elements such as old trees, snags, coarse woody debris and large mats of moss overlying exposed bedrock.

Range: CNVC00021 occurs at low elevations on southeastern Vancouver Island and along the southwestern mainland coast and adjacent islands of British Columbia. It is a Canadian endemic association.

Conservation Status (NatureServe)

Global Conservation Rank: GNR

National Conservation Rank: not yet determined

Subnational Conservation Rank: SNR



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Distribution

Countries: Canada

Provinces / Territories / States: British Columbia

Ecozones and Ecoregions of Canada: Pacific Maritime: Eastern Vancouver Island, Lower Mainland

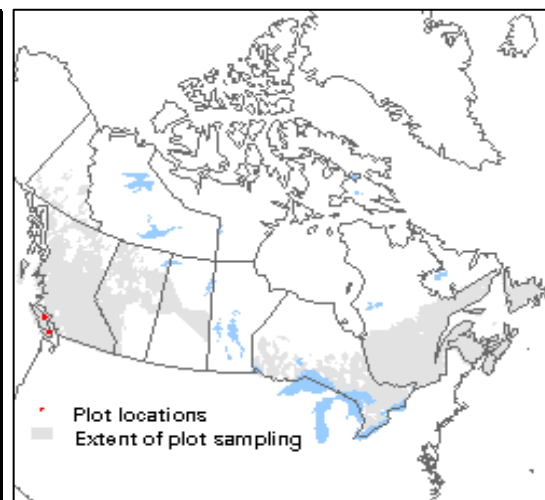
Rowe's Forest Regions and Sections: Coast: Southern Pacific Coast, Strait of Georgia

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

The Nature Conservancy (USA) and Nature Conservancy of Canada Ecoregions: Northwest Coast, Puget Trough

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

Ecoregion Classification System of British Columbia (ecosections): Leeward Island Mountains, Nanaimo Lowland, Georgia Lowland, Southern Gulf Islands



Corresponding Types and Associations

CNVC00021	British Columbia	CWH dm /02	<i>Pseudotsuga menziesii</i> - <i>Niphotrichum canescens</i> - <i>Cladina</i> spp.
		CWH xm 1 /02	<i>Pseudotsuga menziesii</i> - <i>Niphotrichum canescens</i> - <i>Cladina</i> spp.



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Vegetation Summary*

	Association CNVC00021	
	18 plots	
Species Name†	% Cover	% Presence
Overstory Trees		
<i>Pseudotsuga menziesii</i>	35	56
<i>Pinus contorta</i> var. <i>contorta</i>	31	56
<i>Arbutus menziesii</i>	16	22
Tree Stratum Cover (P ₁₀ P ₂₅ Mean P ₇₅ P ₉₀)‡	(0 0 33 60 65)	
Understory Woody Shrubs and Regenerating Trees		
<i>Gaultheria shallon</i>	19	67
<i>Pseudotsuga menziesii</i>	3	67
<i>Rosa gymnocarpa</i>	2	56
<i>Holodiscus</i> sp.	13	50
<i>Mahonia nervosa</i>	5	50
<i>Vaccinium parvifolium</i>	3	50
<i>Pinus contorta</i>	2	39
<i>Amelanchier alnifolia</i>	3	33
<i>Holodiscus discolor</i>	2	22
<i>Symphoricarpos albus</i>	2	22
Shrub Stratum Cover (P ₁₀ P ₂₅ Mean P ₇₅ P ₉₀)‡	(4 15 31 34 84)	
Understory Herbs and Dwarf Shrubs		
<i>Rubus ursinus</i>	2	83
<i>Festuca occidentalis</i>	2	72
<i>Hypochaeris radicata</i>	3	61
<i>Achillea millefolium</i>	2	56
<i>Arctostaphylos uva-ursi</i>	3	50
<i>Polystichum munitum</i>	1	44
<i>Fragaria vesca</i>	1	39
<i>Goodyera oblongifolia</i>	1	39
<i>Holcus lanatus</i>	13	33
<i>Aira praecox</i>	5	33
<i>Trientalis borealis</i> ssp. <i>latifolia</i>	2	33
<i>Selaginella wallacei</i>	2	33
<i>Polypodium glycyrrhiza</i>	1	33
<i>Elymus glaucus</i>	3	28
<i>Prunella vulgaris</i>	2	28
<i>Hieracium scouleri</i> var. <i>albertinum</i>	2	28
<i>Listera cordata</i>	1	28



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Vegetation Summary (cont'd)*

	Association CNVC00021	
	% Cover	% Presence
Species Name [†]		
<i>Luzula multiflora</i>	3	22
<i>Cryptogramma acrostichoides</i>	2	22
<i>Eriophyllum lanatum</i>	2	22
<i>Hieracium albiflorum</i>	1	22
<i>Fragaria virginiana</i>	1	22
<i>Lilium columbianum</i>	1	22
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(5 6 22 29 48)	
Bryophytes and Lichens		
<i>Polytrichum juniperinum</i>	8	67
<i>Niphotrichum canescens</i>	27	56
<i>Hylocomium splendens</i>	9	56
<i>Dicranum scoparium</i>	5	56
<i>Eurhynchium oreganum</i>	17	44
<i>Pleurozium schreberi</i>	19	39
<i>Cladina rangiferina</i>	5	39
<i>Peltigera aphthosa</i>	1	33
<i>Rhytidiadelphus triquetrus</i>	4	28
<i>Polytrichum commune</i>	2	28
<i>Cladonia gracilis</i>	2	28
<i>Cladonia furcata</i>	1	22
<i>Racomitrium lanuginosum</i>	38	17
<i>Cladina</i> sp.	8	17
<i>Cladina mitis</i>	2	11
Bryo-Lichen Stratum Cover		
(P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(19 42 67 90 95)	

* 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

CNVC00021

18 plots

Elevation Range (min–mean–max meters)

65–205–400

Slope Gradient (% frequency)

very steep (6)
steep (17)
moderately steep (22)
moderate (11)
gentle (28)
level (17)

Aspect (% frequency)

north (17)
east (33)
south (11)
west (6)
level (17)
missing data (17)

Meso Topoposition (% frequency)

crest / upper (44)
missing data (56)

Moisture Regime (% frequency)

very dry (67)
dry (6)
mesic (6)
missing data (22)

Nutrient Regime (% frequency)

poor (22)
medium (56)
missing data (22)



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Site / Soil Characteristics (cont'd)

Association
CNVC00021

Soil Parent Material (% frequency)

bedrock (39)
moraine / till (6)
missing data (56)

Soil Rooting Zone Substrate (% frequency)

non-soil (39)
coarse loamy (61)

Root Restricting Depth (% frequency)

0 – 20 cm (61)
21 – 99 cm (17)
missing data (22)

Humus Form (% frequency)

mor (50)
moder (33)
missing data (17)



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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: CNVC00008 *Pinus contorta* var. *contorta* / *Gaultheria shallon* - *Vaccinium alaskaense* / *Cladina* spp.

Related United States National Vegetation Classification Associations: CEG002792 *Pseudotsuga menziesii* / *Racomitrium canescens*
Woodland

Relationships with Other Classifications:

Comments

CNVC00008, which occurs in moister climatic conditions, has little *Pseudotsuga menziesii* in the overstory and has abundant *Vaccinium alaskaense* in the shrub layer.

Source Information

Number of source plots for CNVC00021: 18

Information Sources: British Columbia Ministry of Forests and Range, Research Branch BECMaster database, October 2007 (18 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, M. Ryan, 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.

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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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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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