



Forest / Forêt

Association CNVC00028

Tsuga heterophylla* - *Abies amabilis* / *Oplopanax horridus* / *Gymnocarpium dryopteris

Western Hemlock - Pacific Silver Fir / Devil's-club / Common Oak Fern

Pruche de l'Ouest - Sapin gracieux / Bois piquant / Gymnocarpe du chêne

Subassociations: 28a *Vaccinium alaskaense*, 28b *Athyrium filix-femina*, 28c *Picea sitchensis*

CNVC Alliance: not yet determined

CNVC Group: not yet determined

Type Description

Concept: CNVC00028 is a highly productive coniferous old-forest association that is common on lower and toe slope seepage sites at low and mid elevations along the Coast Mountains of British Columbia and on the coastal islands. Soils are moist and nutritionally rich. Western hemlock (*Tsuga heterophylla*) and Pacific silver fir (*Abies amabilis*) usually co-dominate the canopy. Sitka spruce (*Picea sitchensis*) or western redcedar (*Thuja plicata*) can be present in varying amounts. The shrub layer is normally dominated by devil's club (*Oplopanax horridus*), with lesser amounts of salmonberry (*Rubus spectabilis*), Alaskan blueberry (*Vaccinium alaskaense*) and regenerating tree species. The herb layer is well-developed and dominated by common oak fern (*Gymnocarpium dryopteris*), common lady fern (*Athyrium filix-femina*), spreading wood fern (*Dryopteris expansa*) and three-leaved foamflower (*Tiarella trifoliata*). Along with lanky moss (*Rhytidiadelphus loreus*) and stairstep moss (*Hylocomium splendens*), various leafy mosses (e.g., *Plagiomnium insigne*, *Rhizomnium glabrescens* and *Rhizomnium nudum*) are common on the forest floor. These forests are generally long-lived and are typically renewed by regeneration in small gaps formed by the loss of individual trees to wind damage (e.g., stem breakage or windthrow). Three subassociations are recognized: *Vaccinium alaskaense*, *Athyrium filix-femina* and *Picea sitchensis*.



***Tsuga heterophylla* - *Abies amabilis* / *Oplopanax horridus* / *Gymnocarpium dryopteris*
CNVC00028**

Type Description (cont'd)

Vegetation: *Tsuga heterophylla* and *Abies amabilis* are the dominant trees in this coniferous, old-forest association, although *Abies amabilis* is absent from Haida Gwaii (Queen Charlotte Islands). *Picea sitchensis* and *Thuja plicata*, when present, occur with variable canopy cover. If there are sufficient openings in the canopy, the shrub layer of CNVC00028 can be very well developed. *Oplopanax horridus* typically dominates the shrub layer, becoming at times nearly impenetrable. Other important species in the shrub layer include *Rubus spectabilis*, *Vaccinium alaskaense* and regenerating tree species. *Vaccinium ovalifolium*, *V. parvifolium*, and *Menziesia ferruginea* are often present as well. The herb layer is normally well developed and dominated by fern species, especially *Gymnocarpium dryopteris*, *Athyrium filix-femina* and *Dryopteris expansa*. *Tiarella trifoliata* (see the Comments section), *Streptopus lanceolatus*, *S. amplexifolius*, *Rubus pedatus* and *Cornus canadensis* are other common herb species. The moss layer is typically dominated by *Rhytidiadelphus loreus* and *Hylocomium splendens*, along with a broad diversity of rich-site leafy mosses (*Mnium* spp., *Plagiomnium* spp. and *Rhizomnium* spp.) in varying amounts. Three subassociations are recognized for CNVC00028: *Vaccinium alaskaense*, *Athyrium filix-femina* and *Picea sitchensis*. *Picea sitchensis* and *Blechnum spicant* are more prevalent in the *Picea sitchensis* subassociation, which occurs exclusively in maritime and hypermaritime coastal climates. *Clintonia uniflora* is more common in both the *Vaccinium alaskaense* and *Athyrium filix-femina* subassociations, both of which often occur in subarctic climates. The *Vaccinium alaskaense* subassociation contains lower abundances of *Oplopanax horridus* and leafy mosses (see above) relative to the *Athyrium filix-femina* subassociation.

Environment: CNVC00028 occurs on moist, nutrient-rich sites over much of the range of the coastal temperate rainforests of British Columbia. Elevations range from near sea level to over 1200 mASL; the highest elevation occurrences are found mostly in subarctic climatic areas. Soils tend to be either coarse-textured colluvial and fluvial deposits, or shallow morainal blankets and organic veneers over bedrock. Mid-, lower- and toe-slope, as well as level, topographic positions are necessary to receive sufficient seepage for these vegetation conditions to develop. Mor and moder humus forms are equally common; the high frequency of moders indicating the high site productivity. The soils are mainly imperfectly to moderately well-drained, and are mostly gleyed subgroups of Podzols or Brunisols, but also include some Folisols.

Dynamics: This old-forest association develops on very productive sites in moist to wet maritime and subarctic climates where fire is uncommon. Fire can occur, however, especially in the southern and eastern portions of the range. Overall, disturbances tend to be small, typically from wind, flooding, mass-wasting, or combinations of these factors. Under natural conditions, for most stands, time since a major disturbance would be well over 250 years. However, as a productive forest type, CNVC00028 is under harvesting pressure where it is accessible. Older stands are multi-aged and multi-storied due to loss of individual trees infected by root and butt diseases, and subsequent within-stand wind damage (e.g., stem breakage or windthrow) and gap regeneration. Hemlock dwarf mistletoe (*Arceuthobium tsugense*) 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. Balsam woolly adelgid (*Adelges piceae*) is a significant defoliator of *Abies amabilis* in the southern portion of the range of this association, causing deformity, dieback and mortality. *Tsuga heterophylla* is impacted somewhat by western blackheaded budworm (*Acleris gloverana*) and western hemlock looper (*Lambdina fiscellaria lugubrosa*) in part of the range of this association, mostly north Vancouver Island and Howe Sound areas, respectively.

Range: CNVC00028 occurs primarily at low and mid elevations of coastal British Columbia, including western and northern Vancouver Island, the mainland coast of British Columbia, and the windward side of Haida Gwaii (Queen Charlotte Islands). It also occurs in the Cascade Mountains of Washington and Oregon States.

Conservation Status (NatureServe)

Global Conservation Rank: no applicable rank

National Conservation Rank: not yet determined

Subnational Conservation Rank: no applicable rank



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

<http://cnvc-cnvc.ca>

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Distribution

Countries: Canada

Provinces / Territories / States: British Columbia

Terrestrial Ecozones and Ecoregions of Canada: Pacific Maritime: Coastal Gap, Eastern Vancouver Island, Lower Mainland, Nass Ranges, Northern Coastal Mountains, Pacific Ranges, Queen Charlotte Ranges, Western Vancouver Island

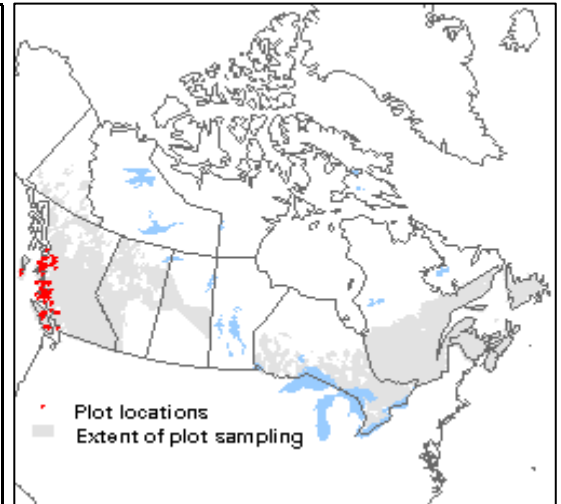
Rowe's Forest Regions and Sections of Canada: Coast: Northern Pacific Coast, Queen Charlotte Islands, Southern Pacific Coast, Strait of Georgia

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

Nature Conservancy of Canada Ecoregions: North Cascades and Pacific Ranges, Pacific Northwest Coast, Puget Trough-Willamette Valley-Georgia Basin, Coastal Forests and Mountains of Southeast Alaska and B.C.

Biogeoclimatic Ecosystem Classification of British Columbia (zones and subzones): CWHws, CWHmm, CWHms, CWHvh, CWHvm

British Columbia Ecoregion Classification (ecoregions and ecosections): Pacific Ranges: Central Pacific Ranges, Northern Pacific Ranges, Southern Pacific Ranges; Nass Ranges: Nass Mountains, Meziadin Mountains; Lower Mainland: Fraser Lowland; Coastal Gap: Hecate Lowland, Kimsquit Mountains, Kitimat Ranges; Eastern Vancouver Island: Leeward Island Mountains, Nanaimo Lowland; Western Vancouver Island: Northern Island Mountains; Gwaii Haanas: Queen Charlotte Ranges



Corresponding Types and Associations

28a <i>Vaccinium alaskaense</i>	British Columbia	CWHws 1 /04	Amabilis Fir - Western Redcedar - Oak fern
		CWHws 2 /04	Amabilis Fir - Western Redcedar - Oak fern
28b <i>Athyrium filix-femina</i>	British Columbia	CWHmm 1 /07	Amabilis Fir - Western Redcedar - Salmonberry
		CWHmm 2 /08	Amabilis Fir - Western Redcedar - Salmonberry
		CWHms 1 /06	Amabilis Fir - Western Redcedar - Devil's Club
		CWHms 2 /06	Amabilis Fir - Western Redcedar - Devil's Club
		CWHvm 2 /08	Amabilis Fir - Sitka Spruce - Devil's Club
		CWHws 1 /06	Amabilis Fir - Western Redcedar - Devil's Club
28c <i>Picea sitchensis</i>	British Columbia	CWHvh 2 /07	Western Redcedar - Sitka Spruce - Devil's Club
		CWHvm 1 /08	Amabilis Fir - Sitka Spruce - Devil's Club



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Vegetation Summary*

Species Name [†]	Association CNVC00028		Subassociation 28a <i>Vaccinium alaskaense</i>		Subassociation 28b <i>Athyrium filix-femina</i>	
	196 plots		25 plots		95 plots	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Overstory Trees						
<i>Tsuga heterophylla</i>	31	89	45	96	29	85
<i>Abies amabilis</i>	26	66	23	84	28	67
<i>Thuja plicata</i>	20	45	22	36	22	53
<i>Picea sitchensis</i>	17	36	8	8	9	16
<i>Pseudotsuga menziesii</i>	20	12	-	-	20	24
Tree Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(30 50 61 80 86)		(61 65 76 85 90)		(29 50 61 76 88)	
Understory Woody Shrubs and Regenerating Trees						
<i>Oplopanax horridus</i>	23	92	11	96	27	91
<i>Tsuga heterophylla</i>	12	88	14	96	10	83
<i>Vaccinium alaskaense</i>	11	69	16	80	9	72
<i>Abies amabilis</i>	10	68	12	88	10	73
<i>Rubus spectabilis</i>	8	63	2	28	6	65
<i>Menziesia ferruginea</i>	4	57	5	76	3	42
<i>Vaccinium ovalifolium</i>	6	54	6	88	7	56
<i>Vaccinium parvifolium</i>	4	53	3	40	3	47
<i>Thuja plicata</i>	6	32	9	36	6	29
<i>Sambucus racemosa</i>	3	27	5	8	2	19
<i>Ribes lacustre</i>	2	21	1	32	2	31
<i>Picea sitchensis</i>	4	19	-	-	1	7
<i>Rubus parviflorus</i>	4	17	3	16	5	27
Shrub Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(24 40 56 75 87)		(28 46 62 81 97)		(25 40 56 71 85)	
Understory Herbs and Dwarf Shrubs						
<i>Tiarella trifoliata</i>	8	91	7	84	10	97
<i>Gymnocarpium dryopteris</i>	14	83	17	92	16	94
<i>Athyrium filix-femina</i>	7	75	2	56	9	82
<i>Dryopteris expansa</i>	9	69	7	60	7	61
<i>Streptopus lanceolatus</i>	6	67	3	84	6	81
<i>Streptopus amplexifolius</i>	2	64	2	56	2	71
<i>Rubus pedatus</i>	6	60	9	92	6	65
<i>Cornus canadensis</i>	5	60	6	88	6	68
<i>Clintonia uniflora</i>	4	48	4	72	5	65
<i>Blechnum spicant</i>	5	42	5	12	4	31
<i>Viola glabella</i>	3	37	5	24	4	45
<i>Orthilia secunda</i>	2	26	2	60	3	35
<i>Phegopteris connectilis</i>	3	24	1	16	2	5



***Tsuga heterophylla* - *Abies amabilis* / *Oplopanax horridus* / *Gymnocarpium dryopteris*
 CNVC00028**

Vegetation Summary (cont'd)*

Species Name [†]	Association CNVC00028		Subassociation 28a <i>Vaccinium alaskaense</i>		Subassociation 28b <i>Athyrium filix-femina</i>	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
<i>Circaea alpina</i>	4	22	4	16	4	20
<i>Polystichum munitum</i>	4	22	-	-	3	27
<i>Streptopus streptopoides</i>	1	22	2	32	1	20
<i>Galium triflorum</i>	1	21	1	12	1	34
<i>Listera cordata</i>	1	20	1	28	1	22
<i>Maianthemum dilatatum</i>	3	19	-	-	1	12
<i>Lysichiton americanus</i>	3	18	< 1	12	3	8
<i>Veratrum viride</i>	2	17	< 1	12	2	29
<i>Actaea rubra</i>	1	17	< 1	24	2	27
<i>Prosartes hookeri</i>	3	15	1	4	3	26
<i>Coptis asplenifolia</i>	3	15	2	4	3	11
<i>Linnaea borealis</i>	2	14	1	12	2	25
<i>Goodyera oblongifolia</i>	1	14	1	16	1	25
<i>Trautvetteria caroliniensis</i>	3	13	-	-	3	24
<i>Maianthemum stellatum</i>	6	12	-	-	6	24
<i>Osmorhiza berteroi</i>	1	12	-	-	1	24
<i>Moneses uniflora</i>	1	10	1	32	1	9
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(14 30 49 70 80)		(20 28 50 72 77)		(24 40 58 75 85)	
Bryophytes and Lichens						
<i>Rhytidiadelphus loreus</i>	19	82	26	92	11	71
<i>Hylocomium splendens</i>	12	63	19	76	9	55
<i>Rhizomnium glabrescens</i>	10	63	7	56	10	46
<i>Plagiothecium undulatum</i>	2	44	2	24	2	37
<i>Plagiomnium insigne</i>	10	43	3	36	11	46
<i>Pellia neesiana</i>	4	29	3	12	2	16
<i>Plagiochila asplenioides</i>	4	28	3	56	5	19
<i>Sphagnum</i> sp.	6	27	3	28	8	11
<i>Rhytidiopsis robusta</i>	9	24	6	44	10	38
<i>Rhizomnium nudum</i>	10	22	5	40	11	29
<i>Conocephalum salebrosum</i>	5	22	4	4	4	12
<i>Polytrichastrum alpinum</i>	3	21	2	12	1	14
<i>Hookeria lucens</i>	1	18	1	8	1	18
<i>Brachythecium</i> sp.	7	17	6	16	8	23
<i>Rhytidiadelphus triquetrus</i>	6	15	10	32	4	17
<i>Mnium</i> sp.	11	9	6	24	14	11
<i>Dicranum fuscescens</i>	1	5	1	24	1	4
Bryo-Lichen Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(16 35 55 75 91)		(18 52 62 85 99)		(12 25 50 73 88)	

* 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_x = Xth percentile (e.g., P₁₀ = 10th percentile)



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Vegetation Summary (cont'd)*

Subassociation
 28c *Picea sitchensis*

76 plots

Species Name [†]	% 76 plots	
	Cover [‡]	Presence [^]
Overstory Trees		
<i>Tsuga heterophylla</i>	28	92
<i>Abies amabilis</i>	25	59
<i>Thuja plicata</i>	14	39
<i>Picea sitchensis</i>	19	70
<i>Pseudotsuga menziesii</i>	-	-
Tree Stratum Cover (P ₁₀ P ₂₅ Mean P ₇₅ P ₉₀) [‡]	(25 39 57 76 85)	
Understory Woody Shrubs and Regenerating Trees		
<i>Oplopanax horridus</i>	22	92
<i>Tsuga heterophylla</i>	13	91
<i>Vaccinium alaskaense</i>	11	62
<i>Abies amabilis</i>	7	55
<i>Rubus spectabilis</i>	11	72
<i>Menziesia ferruginea</i>	5	68
<i>Vaccinium ovalifolium</i>	6	41
<i>Vaccinium parvifolium</i>	4	64
<i>Thuja plicata</i>	5	34
<i>Sambucus racemosa</i>	4	42
<i>Ribes lacustre</i>	2	7
<i>Picea sitchensis</i>	4	39
<i>Rubus parviflorus</i>	3	5
Shrub Stratum Cover (P ₁₀ P ₂₅ Mean P ₇₅ P ₉₀) [‡]	(22 40 54 75 85)	
Understory Herbs and Dwarf Shrubs		
<i>Tiarella trifoliata</i>	6	86
<i>Gymnocarpium dryopteris</i>	8	66
<i>Athyrium filix-femina</i>	7	72
<i>Dryopteris expansa</i>	11	83
<i>Streptopus lanceolatus</i>	7	45
<i>Streptopus amplexifolius</i>	2	58
<i>Rubus pedatus</i>	3	43
<i>Cornus canadensis</i>	4	41
<i>Clintonia uniflora</i>	4	20
<i>Blechnum spicant</i>	6	67
<i>Viola glabella</i>	2	30
<i>Orthilia secunda</i>	3	4
<i>Phegopteris connectilis</i>	3	51



***Tsuga heterophylla* - *Abies amabilis* / *Oplopanax horridus* / *Gymnocarpium dryopteris*
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Vegetation Summary (cont'd)*

Species Name [†]	Subassociation 28c <i>Picea sitchensis</i>	
	% Cover [‡]	% Presence [^]
<i>Circaea alpina</i>	4	26
<i>Polystichum munitum</i>	4	24
<i>Streptopus streptopoides</i>	2	21
<i>Galium triflorum</i>	1	8
<i>Listera cordata</i>	2	16
<i>Maianthemum dilatatum</i>	4	36
<i>Lysichiton americanus</i>	3	32
<i>Veratrum viride</i>	6	3
<i>Actaea rubra</i>	1	1
<i>Prosartes hookeri</i>	< 1	4
<i>Coptis aspleniifolia</i>	2	24
<i>Linnaea borealis</i>	-	-
<i>Goodyera oblongifolia</i>	-	-
<i>Trautvetteria caroliniensis</i>	1	4
<i>Maianthemum stellatum</i>	10	1
<i>Osmorhiza berteroi</i>	-	-
<i>Moneses uniflora</i>	1	4
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(4 18 38 60 75)	
Bryophytes and Lichens		
<i>Rhytidiadelphus loreus</i>	24	93
<i>Hylocomium splendens</i>	11	70
<i>Rhizomnium glabrescens</i>	11	86
<i>Plagiothecium undulatum</i>	2	59
<i>Plagiomnium insigne</i>	11	42
<i>Pellia neesiana</i>	5	51
<i>Plagiochila asplenioides</i>	5	29
<i>Sphagnum</i> sp.	7	47
<i>Rhytidiopsis robusta</i>	-	-
<i>Rhizomnium nudum</i>	17	8
<i>Conocephalum salebrosum</i>	6	41
<i>Polytrichastrum alpinum</i>	4	34
<i>Hookeria lucens</i>	2	21
<i>Brachythecium</i> sp.	6	9
<i>Rhytidiadelphus triquetrus</i>	4	8
<i>Mnium</i> sp.	10	1
<i>Dicranum fuscescens</i>	-	-
Bryo-Lichen Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(22 40 59 80 94)	

* 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_x = Xth percentile (e.g., P₁₀ = 10th percentile)



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Site / Soil Characteristics

	Association CNVC00028 196 plots	Subassociation 28a <i>Vaccinium alaskaense</i> 25 plots	Subassociation 28b <i>Athyrium filix-femina</i> 95 plots
Elevation Range (min–mean–max meters)	0–338–1225 missing data (15)	30–419–750 missing data (68)	0–546–1225 missing data (12)
Slope Gradient (% frequency)	very steep (6) steep (19) moderately steep (21) moderate (7) gentle (14) level (17) missing data (16)	very steep (4) steep (12) moderately steep (0) moderate (0) gentle (8) level (0) missing data (76)	very steep (3) steep (11) moderately steep (25) moderate (5) gentle (21) level (23) missing data (12)
Aspect (% frequency)	north (26) east (14) south (9) west (22) level (11) missing data (19)	north (16) east (4) south (0) west (4) level (8) missing data (68)	north (24) east (16) south (9) west (21) level (14) missing data (16)
Meso Toposition (% frequency)	crest / upper (2) mid (17) lower / toe (33) depression (7) level (12) missing data (30)	crest / upper (0) mid (16) lower / toe (8) depression (0) level (8) missing data (68)	crest / upper (2) mid (13) lower / toe (22) depression (9) level (13) missing data (41)
Moisture Regime (% frequency)	dry (1) mesic (12) moist (74) missing data (13)	dry (0) mesic (8) moist (36) missing data (56)	dry (0) mesic (5) moist (84) missing data (11)
Nutrient Regime (% frequency)	poor (1) medium (6) rich (72) saline (6) missing data (15)	poor (0) medium (8) rich (24) saline (0) missing data (68)	poor (0) medium (6) rich (69) saline (13) missing data (12)



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 CNVC00028**

Site / Soil Characteristics (cont'd)

	Association CNVC00028	Subassociation 28a <i>Vaccinium alaskaense</i>	Subassociation 28b <i>Athyrium filix-femina</i>
Soil Parent Material (% frequency)	colluvium (21) moraine / till (5) fluvial (17) glaciofluvial (2) organic (4) anthropogenic (1) missing data (50)	colluvium (12) moraine / till (4) fluvial (0) glaciofluvial (4) organic (0) anthropogenic (0) missing data (80)	colluvium (5) moraine / till (8) fluvial (11) glaciofluvial (2) organic (1) anthropogenic (1) missing data (72)
Soil Rooting Zone Substrate (% frequency)	non-soil (21) sandy (23) coarse loamy (20) fine loamy (5) silty (4) clayey (1) organic (9) missing data (17)	non-soil (12) sandy (8) coarse loamy (4) fine loamy (4) silty (0) clayey (0) organic (4) missing data (68)	non-soil (5) sandy (31) coarse loamy (28) fine loamy (9) silty (6) clayey (0) organic (6) missing data (14)
Root Restricting Depth (% frequency)	0 – 20 cm (3) 21 – 99 cm (29) ≥ 100 cm (1) missing data (67)	0 – 20 cm (0) 21 – 99 cm (12) ≥ 100 cm (0) missing data (88)	0 – 20 cm (4) 21 – 99 cm (25) ≥ 100 cm (1) missing data (69)
Humus Form (% frequency)	mor (37) moder (33) peatymor (1) missing data (30)	mor (20) moder (12) peatymor (0) missing data (68)	mor (32) moder (32) peatymor (1) missing data (36)



Forest / Forêt

Association CNVC00028

Tsuga heterophylla - *Abies amabilis* / *Oplopanax horridus* / *Gymnocarpium dryopteris*

Western Hemlock - Pacific Silver Fir / Devil's-club / Common Oak Fern

Pruche de l'Ouest - Sapin gracieux / Bois piquant / Gymnocarpe du chêne

Site / Soil Characteristics (cont'd)

Subassociation
 28c *Picea sitchensis*
 76 plots

Elevation Range (min–mean–max meters)

5–96–420
 missing data (1)

Slope Gradient (% frequency)

very steep (9)
 steep (33)
 moderately steep (24)
 moderate (11)
 gentle (7)
 level (16)
 missing data (1)

Aspect (% frequency)

north (30)
 east (14)
 south (11)
 west (29)
 level (8)
 missing data (8)

Meso Toposition (% frequency)

crest / upper (3)
 mid (22)
 lower / toe (54)
 depression (5)
 level (12)
 missing data (4)

Moisture Regime (% frequency)

dry (1)
 mesic (22)
 moist (75)
 missing data (1)

Nutrient Regime (% frequency)

poor (1)
 medium (5)
 rich (92)
 saline (0)
 missing data (1)



***Tsuga heterophylla* - *Abies amabilis* / *Oplopanax horridus* / *Gymnocarpium dryopteris*
CNVC00028**

Site / Soil Characteristics (cont'd)

Subassociation
28c *Picea sitchensis*

Soil Parent Material (% frequency)

colluvium (45)
moraine / till (1)
fluvial (32)
glaciofluvial (0)
organic (9)
anthropogenic (0)
missing data (13)

Soil Rooting Zone Substrate (% frequency)

non-soil (45)
sandy (20)
coarse loamy (14)
fine loamy (0)
silty (3)
clayey (1)
organic (13)
missing data (4)

Root Restricting Depth (% frequency)

0 – 20 cm (3)
21 – 99 cm (39)
≥ 100 cm (1)
missing data (57)

Humus Form (% frequency)

mor (49)
moder (42)
peatymor (0)
missing data (9)



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00028

Tsuga heterophylla* - *Abies amabilis* / *Oplopanax horridus* / *Gymnocarpium dryopteris

Western Hemlock - Pacific Silver Fir / Devil's-club / Common Oak Fern

Pruche de l'Ouest - Sapin gracieux / Bois piquant / Gymnocarpe du chêne

Additional Characteristics

Species of High Conservation Concern:

Non-native Species:

Management Issues:

Type Statistics

Internal Similarity:

Confidence: high

Strength:

Related Concepts

Similar CNVC Associations: CNVC00056 *Tsuga heterophylla* - *Picea sitchensis* / *Oplopanax horridus* / *Athyrium filix-femina*; CNVC00003 *Picea sitchensis* - *Tsuga heterophylla* / *Oplopanax horridus* - *Rubus spectabilis* / *Gymnocarpium dryopteris*; CNVC00046 *Thuja plicata* - *Pseudotsuga menziesii* - *Tsuga heterophylla* / *Oplopanax horridus* / *Polystichum munitum* / *Plagiomnium insigne*

Related United States National Vegetation Classification Associations: CEGLO00004 *Abies amabilis* / *Oplopanax horridus* Forest CEGLO02832 *Tsuga heterophylla* - (*Abies amabilis*) - *Picea sitchensis* / *Oplopanax horridus* Forest [for *Picea sitchensis* subassociation]

Relationships with Other Classifications:

Comments

Where CNVC00028 occurs on Haida Gwaii (Queen Charlotte Islands), it is influenced by intense browsing by Sitka black-tailed deer (*Odocoileus hemionus sitkensis*), which were introduced in the early 1900s. Browsing is now so intense that understory shrub- and herb-layer vegetation is either absent, or is at best poorly developed.

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).

Three other western coastal coniferous forest associations have a high cover of *Oplopanax horridus*. CNVC00056 [*Tsuga heterophylla* - *Picea sitchensis* / *Oplopanax horridus* / *Athyrium filix-femina*] is found on seepage slopes on the north-central coast of British Columbia, north of the range of *Abies amabilis*. CNVC00046 [*Thuja plicata* - *Pseudotsuga menziesii* - *Tsuga heterophylla* / *Oplopanax horridus* / *Polystichum munitum* / *Plagiomnium insigne*] occurs on high-bench floodplains in a drier, subarctic climate. It typically contains *Pseudotsuga menziesii* in the canopy and lacks *Abies amabilis*, *Vaccinium alaskaense* and *Rubus pedatus*. CNVC00003 [*Picea sitchensis* - *Tsuga heterophylla* / *Oplopanax horridus* - *Rubus spectabilis* / *Gymnocarpium dryopteris*] is a *Picea sitchensis*-dominated association that occurs on high bench floodplains rather than seepage sites, as does CNVC00028.

Source Information

Number of source plots for CNVC00028: 196

Number of source plots for 28a *Vaccinium alaskaense*: 25

Number of source plots for 28b *Athyrium filix-femina*: 95

Number of source plots for 28c *Picea sitchensis*: 76

Information Sources: British Columbia Ministry of Forests and Range, Research Branch BECMaster database, October 2007 (196 plots)

Concept Authors: D. Meidinger, K. Klinka, and J. Pojar

Description Authors: D. Meidinger and K. Baldwin

Date of Concept: 1991, 2008

Date of Description: April, 2011



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

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Tsuga heterophylla - *Abies amabilis* / *Oplopanax horridus* / *Gymnocarpium dryopteris* CNVC00028

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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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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.

For more information about the contents of this factsheet and definitions of attribute names and data classes, see the **Understanding the Factsheet** link at <http://cnvc-cnvc.ca>.

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