



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00107

***Pinus contorta* / *Alnus viridis* / *Arnica cordifolia* / *Pleurozium schreberi***

**Lodgepole Pine / Green Alder / Heart-leaved Arnica / Red-stemmed Feathermoss**

**Pin tordu / Aulne vert / Arnica à feuilles cordées / Pleurozie dorée**

**Subassociations:** 107a *Vaccinium membranaceum*, 107b *Alnus viridis*, 107c *Rhododendron groenlandicum*, 107d *inops*

**CNVC Alliance:** CA00035 *Picea glauca* – *Pinus contorta* / *Hylocomium splendens*

**CNVC Group:** CG0014 Cordilleran Boreal Mesic Trembling Aspen – White Spruce Forest



Source: D. Downing

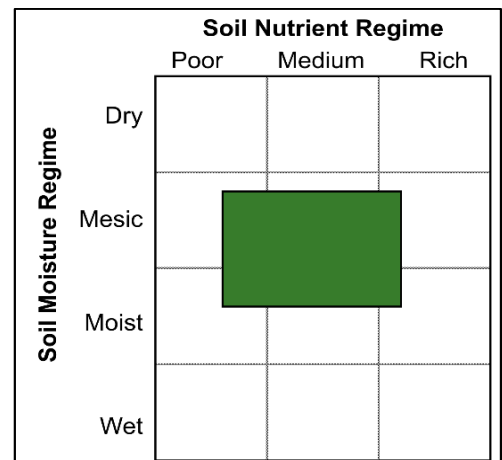
## Type Description

**Concept:** CNVC00107 is a boreal coniferous forest Association that occurs in Alberta and British Columbia. It has a moderately closed canopy dominated by lodgepole pine (*Pinus contorta*), sometimes with black spruce (*Picea mariana*) and/or white spruce (*P. glauca*) as canopy constituents. Shrub layer development is variable, from poorly developed to dense, depending on the patchiness of shrubs. Common Labrador tea (*Rhododendron groenlandicum*) is typically present and can be abundant. Green alder (*Alnus viridis*) and mountain huckleberry (*Vaccinium membranaceum*) occur less frequently but can be dominant on some sites. The herb and dwarf shrub layer is moderately to well developed and typically includes bunchberry (*Cornus canadensis*), twinflower (*Linnaea borealis*), fireweed (*Chamerion angustifolium*), lingonberry (*Vaccinium vitis-idaea*), stiff clubmoss (*Lycopodium annotinum*) and heart-leaved arnica (*Arnica cordifolia*). The moss layer is typically well developed with abundant red-stemmed feathermoss (*Pleurozium schreberi*), knight's plume moss (*Ptilium crista-castrensis*) and stairstep moss (*Hylocomium splendens*). CNVC00107 occurs on mesic, nutrient-medium sites in a region with a subhumid continental climate. It typically establishes as the first cohort after fire. Four subassociations are distinguished: *Vaccinium membranaceum*, *Alnus viridis*, *Rhododendron groenlandicum* and *inops*.

**Vegetation:** CNVC00107 is a boreal coniferous forest Association with a moderately closed canopy that is dominated by *Pinus contorta* (see Comments), sometimes with *Picea mariana* and/or *P. glauca* as canopy constituents. The shrub layer can vary from poorly developed to dense depending on the patchiness of shrubs. *Rhododendron groenlandicum* is typically present and can be the dominant shrub. *Alnus viridis* and *Vaccinium membranaceum* are dominant shrubs on some sites. The herb and dwarf shrub layer is usually moderately developed and commonly includes *Cornus canadensis*, *Linnaea borealis*, *Chamerion angustifolium*, *Vaccinium vitis-idaea*, *Lycopodium annotinum* and *Arnica cordifolia*. The moss layer is well developed and dominated by *Pleurozium schreberi* with lower cover of *Ptilium crista-castrensis* and *Hylocomium splendens*.

The *inops* subassociation has less tree, shrub, herb and moss layer cover than other subassociations. It typically has low abundance of *R. groenlandicum*, *Vaccinium myrtilloides* and *Rosa acicularis* in the shrub layer. The *Vaccinium membranaceum* subassociation has this shrub dominant in the shrub layer and often includes the higher elevation species *Rubus pedatus* in the herb layer. The *Alnus viridis* subassociation has *A. viridis* as a dominant shrub. The *Rhododendron groenlandicum* subassociation has the densest shrub cover with abundant *R. groenlandicum* as well as *V. myrtilloides* and regenerating *Abies lasiocarpa* and *P. glauca* in this layer.

**Environment:** CNVC00107 occurs in a subhumid continental climate where regional fire cycles are short (<100 years) or intermediate (100 – 270 years). It is typically found on mesic, nutrient-medium sites. Stands are usually on gentle to moderately steep slopes, or sometimes level sites, on middle to upper-slope or crest topopositions. On slopes, stands are more commonly on warmer, south- or west-facing aspects, except for the *Rhododendron groenlandicum* subassociation, which is more common on cooler, north-facing aspects. Soils are primarily fine textured (e.g., loams, silts, clays) and derived from morainal or (glacio)fluvial parent materials. Mor humus forms are typical.





***Pinus contorta* / *Alnus viridis* / *Arnica cordifolia* / *Pleurozium schreberi* CNVC00107**

### Type Description (cont'd)

**Dynamics:** CNVC00107 is an early to mid-successional Association that is naturally perpetuated by stand-replacing fire. *Pinus contorta* has medium thick bark, with only moderate tolerance to fire, but reaches reproductive maturity at a young age and produces abundant seeds in serotinous cones. Moderate and high severity fires melt the resin of cones to release their seeds. These fires also remove competing vegetation and improve seedbed quality by reducing organic matter and exposing mineral soil. Maximum seed release can therefore coincide with optimal conditions for seedling establishment, survival and growth.

Succession typically proceeds with ingress of *Picea mariana*, *P. glauca* and/or *Abies lasiocarpa* into the stand by seed dissemination from nearby sources. If seeds are available following disturbance, *Picea* spp. sometimes re-colonize at approximately the same time as *P. contorta*, but since they grow more slowly they usually require several decades to attain canopy height. *Picea* spp. and *A. lasiocarpa* are shade-tolerant and able to self-replace once established in a stand. Fire often re-initiates CNVC00107 before a stand reaches the mid-successional stage, but in the prolonged absence of disturbance *A. lasiocarpa* and/or *Picea* spp. can gradually dominate the overstory. Mid- or late successional conditions such as CNVC00322 [*Pinus contorta* – *Picea mariana* / *Vaccinium membranaceum* / *Pleurozium schreberi*] or CNVC00106 [*Abies lasiocarpa* – *Picea glauca* / *Vaccinium membranaceum* / *Hylocomium splendens*] could develop over time.

In recent years, mountain pine beetle (*Dendroctonus ponderosae*) has caused significant economic and ecological impacts to *P. contorta* forests in temperate British Columbia (BC). Within its historic range in interior BC, beetle cycles occur every 20-40 years. At low population densities, the insect preferentially attacks and kills older, less vigorous trees, opening canopy gaps. At epidemic levels however, mass attacks can extend over large areas and overwhelm the defenses of vigorously growing immature pines. Recently the beetle has spread northward and eastward into boreal *P. contorta* forests, affecting even hybrid *Pinus x murraybanksiana* and *P. banksiana* stands in northern Alberta. Climate change and forest management practices, including fire suppression, have likely contributed to these unprecedented beetle densities as well as to the expansion of its range and host species. Because the mountain pine beetle is novel to boreal ecosystems, long-term effects on these forests are uncertain.

**Range:** CNVC00107 occurs in the Rocky Mountain foothills of Alberta and British Columbia. The *Vaccinium membranaceum* subassociation occurs in both provinces. The *Alnus viridis*, *Rhododendron groenlandicum* and *inops* subassociations are described only from Alberta.

### Conservation Status (NatureServe)

**Global Conservation Rank:** no applicable rank

**National Conservation Rank:** not yet determined

**Subnational Conservation Rank:** not yet determined



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## Distribution

**Countries:** Canada

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

**Terrestrial Ecozones and Ecoregions of Canada:** Boreal Plains: Clear Hills Upland, Western Alberta Upland; Montane Cordillera: Central Canadian Rocky Mountains

**Rowe's Forest Regions and Sections of Canada:** Boreal: Lower Foothills, Mixedwood, Upper Foothills

**NAAEC CEC Ecoregions of North America (Levels I & II):** Northern Forests: Boreal Plains; Northwestern Forested Mountains: Western Cordillera

**Nature Conservancy of Canada Ecoregions:** Boreal Plains, Central Interior

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

**British Columbia Ecoregion Classification (ecoregions):** Central Canadian Rocky Mountains, Southern Alberta Upland

**Natural Regions and Subregions of Alberta:** Boreal Forest: Upper Boreal Highlands; Foothills: Lower Foothills, Upper Foothills



## Corresponding Types and Associations

<b>107a <i>Vaccinium membranaceum</i></b>	British Columbia	BWBSwk 1 /101	<i>Picea glauca</i> – <i>Abies lasiocarpa</i> – <i>Vaccinium membranaceum</i> – <i>Pleurozium schreberi</i>
	Alberta	WC/UF/E/01/02	PI / tall bilberry / feather moss
<b>107b <i>Alnus viridis</i></b>	Alberta	WC/UF/E/01/01	PI / green alder / feather moss
<b>107c <i>Rhododendron groenlandicum</i></b>	Alberta	WC/UF/E/01/03	PI / Labrador tea / feather moss
<b>107d <i>inops</i></b>	Alberta	WC/UF/E/01/05	PI / feather moss



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Vegetation Summary\*

Species Name <sup>†</sup>	Association CNVC00107		Subassociation 107a <i>Vaccinium membranaceum</i>		Subassociation 107b <i>Alnus viridis</i>	
	80 plots		25 plots		30 plots	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<b>Overstory Trees</b>						
<i>Pinus contorta</i>	38	99	40	100	37	97
<i>Picea mariana</i>	6	43	2	32	9	50
<i>Picea glauca</i>	11	32	11	40	8	23
<i>Populus tremuloides</i>	4	20	6	8	3	33
<i>Abies lasiocarpa</i>	4	14	4	20	5	10
<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>(25 33 45 57 68)</b>		<b>(22 29 46 58 74)</b>		<b>(28 33 44 56 62)</b>	
<b>Understory Woody Shrubs and Regenerating Trees</b>						
<i>Rhododendron groenlandicum</i>	12	77	8	80	13	70
<i>Alnus viridis</i>	17	68	8	64	25	100
<i>Vaccinium myrtilloides</i>	6	54	9	32	7	57
<i>Rosa acicularis</i>	3	54	3	48	3	53
<i>Abies lasiocarpa</i>	6	50	7	52	5	43
<i>Vaccinium membranaceum</i>	13	49	17	96	8	20
<i>Picea glauca</i>	4	45	2	44	3	37
<i>Viburnum edule</i>	4	45	5	44	4	50
<i>Picea mariana</i>	3	32	1	24	3	33
<i>Spiraea lucida</i>	3	24	4	28	3	23
<i>Sorbus scopulina</i>	1	22	1	32	1	13
<i>Pinus contorta</i>	5	19	8	24	3	20
<i>Rubus idaeus</i>	4	17	4	8	7	20
<i>Lonicera involucrata</i>	2	17	1	12	3	27
<i>Populus tremuloides</i>	2	17	3	12	1	23
<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>(14 22 44 60 89)</b>		<b>(16 25 44 61 80)</b>		<b>(24 34 51 68 93)</b>	
<b>Understory Herbs and Dwarf Shrubs</b>						
<i>Cornus canadensis</i>	9	94	9	100	12	90
<i>Linnaea borealis</i>	4	86	5	100	3	83
<i>Chamerion angustifolium</i>	3	76	2	60	4	83
<i>Vaccinium vitis-idaea</i>	9	70	5	56	8	70
<i>Lycopodium annotinum</i>	4	69	5	84	2	53
<i>Arnica cordifolia</i>	4	56	4	56	4	63
<i>Rubus pedatus</i>	8	50	9	72	7	40
<i>Petasites frigidus</i>	2	50	2	52	2	60
<i>Orthilia secunda</i>	1	46	2	64	1	40
<i>Calamagrostis canadensis</i>	4	44	4	40	6	43
<i>Pyrola asarifolia</i>	2	39	2	40	2	40
<i>Streptopus amplexifolius</i>	2	39	1	52	1	37



***Pinus contorta* / *Alnus viridis* / *Arnica cordifolia* / *Pleurozium schreberi* CNVC00107**

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

Species Name <sup>†</sup>	Association CNVC00107		Subassociation 107a <i>Vaccinium membranaceum</i>		Subassociation 107b <i>Alnus viridis</i>	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<i>Leymus innovatus</i>	6	36	4	32	9	37
<i>Equisetum sylvaticum</i>	2	31	1	24	2	37
<i>Rubus pubescens</i>	3	30	6	24	2	33
<i>Maianthemum canadense</i>	2	29	1	28	2	17
<i>Vaccinium caespitosum</i>	4	28	3	12	4	30
<i>Mertensia paniculata</i>	2	24	1	12	3	37
<i>Pyrola chlorantha</i>	1	20	1	20	1	23
<i>Neottia cordata</i>	1	17	1	16	1	13
<i>Mitella nuda</i>	2	16	1	4	2	23
<i>Diphasiastrum complanatum</i>	1	13	1	24	1	13
<i>Gymnocarpium dryopteris</i>	2	11	2	16	1	3
<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>(16 26 44 58 82)</b>		<b>(15 19 40 48 65)</b>		<b>(26 30 46 57 86)</b>	
<b>Bryophytes and Lichens</b>						
<i>Pleurozium schreberi</i>	<b>34</b>	<b>94</b>	<b>38</b>	<b>96</b>	<b>37</b>	<b>87</b>
<i>Ptilium crista-castrensis</i>	23	89	28	80	24	90
<i>Hylocomium splendens</i>	14	77	14	80	14	67
<i>Peltigera aphthosa</i>	2	52	2	52	2	47
<i>Cladonia sp.</i>	3	32	2	36	2	20
<i>Polytrichum commune</i>	3	30	2	36	4	27
<i>Dicranum polysetum</i>	1	29	1	24	2	33
<i>Cladina mitis</i>	1	22	1	12	2	17
<i>Dicranum fuscescens</i>	1	22	2	32	1	10
<i>Polytrichum juniperinum</i>	1	21	1	24	1	17
<i>Ptilidium pulcherrimum</i>	1	16	1	12	1	13
<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>(24 50 68 97 100)</b>		<b>(11 54 73 100 100)</b>		<b>(24 55 68 90 100)</b>	

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

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

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

<sup>^</sup> percent frequency occurrence for a species within the total plots

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





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

Species Name <sup>†</sup>	Subassociation 107c <i>Rhododendron groenlandicum</i>		Subassociation 107d <i>inops</i>	
	10 plots		15 plots	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<b>Overstory Trees</b>				
<b><i>Pinus contorta</i></b>	<b>35</b>	<b>100</b>	<b>38</b>	<b>100</b>
<i>Picea mariana</i>	7	40	3	47
<i>Picea glauca</i>	14	80	12	7
<i>Populus tremuloides</i>	6	20	7	13
<i>Abies lasiocarpa</i>	2	30	-	-
<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>(36 39 51 60 74)</b>		<b>(21 32 41 56 62)</b>	
<b>Understory Woody Shrubs and Regenerating Trees</b>				
<b><i>Rhododendron groenlandicum</i></b>	<b>29</b>	<b>100</b>	<b>2</b>	<b>73</b>
<b><i>Alnus viridis</i></b>	<b>2</b>	<b>40</b>	<b>2</b>	<b>27</b>
<i>Vaccinium myrtilloides</i>	6	90	3	60
<i>Rosa acicularis</i>	2	50	2	67
<i>Abies lasiocarpa</i>	6	100	3	27
<b><i>Vaccinium membranaceum</i></b>	<b>7</b>	<b>40</b>	<b>2</b>	<b>33</b>
<i>Picea glauca</i>	9	90	2	33
<i>Viburnum edule</i>	2	40	2	40
<i>Picea mariana</i>	2	30	3	47
<i>Spiraea lucida</i>	3	20	4	20
<i>Sorbus scopulina</i>	1	50	1	7
<i>Pinus contorta</i>	6	20	1	7
<i>Rubus idaeus</i>	1	20	1	27
<i>Lonicera involucrata</i>	1	10	2	13
<i>Populus tremuloides</i>	2	20	2	13
<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>(30 40 60 74 96)</b>		<b>(9 12 19 19 28)</b>	
<b>Understory Herbs and Dwarf Shrubs</b>				
<i>Cornus canadensis</i>	7	80	5	100
<i>Linnaea borealis</i>	3	70	5	80
<i>Chamerion angustifolium</i>	2	80	2	87
<i>Vaccinium vitis-idaea</i>	17	100	7	73
<i>Lycopodium annotinum</i>	5	80	3	67
<b><i>Arnica cordifolia</i></b>	<b>1</b>	<b>50</b>	<b>3</b>	<b>47</b>
<i>Rubus pedatus</i>	11	50	3	33
<i>Petasites frigidus</i>	2	40	1	33
<i>Orthilia secunda</i>	1	30	1	40
<i>Calamagrostis canadensis</i>	3	50	4	47
<i>Pyrola asarifolia</i>	1	30	3	40
<i>Streptopus amplexifolius</i>	2	50	4	13



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

Species Name <sup>†</sup>	Subassociation 107c <i>Rhododendron groenlandicum</i>		Subassociation 107d <i>inops</i>	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<i>Leymus innovatus</i>	3	20	5	53
<i>Equisetum sylvaticum</i>	2	40	2	27
<i>Rubus pubescens</i>	2	30	2	33
<i>Maianthemum canadense</i>	1	40	1	47
<i>Vaccinium caespitosum</i>	4	20	3	53
<i>Mertensia paniculata</i>	1	20	2	20
<i>Pyrola chlorantha</i>	1	10	1	20
<i>Neottia cordata</i>	1	30	1	20
<i>Mitella nuda</i>	1	20	1	20
<i>Diphasiastrum complanatum</i>	-	-	-	-
<i>Gymnocarpium dryopteris</i>	2	30	1	7
<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>(28 38 54 62 75)</b>		<b>(8 18 36 56 67)</b>	
<b>Bryophytes and Lichens</b>				
<i>Pleurozium schreberi</i>	<b>30</b>	<b>100</b>	<b>27</b>	<b>100</b>
<i>Ptilium crista-castrensis</i>	25	100	12	93
<i>Hylocomium splendens</i>	17	100	14	80
<i>Peltigera aphthosa</i>	2	50	2	67
<i>Cladonia sp.</i>	5	40	3	47
<i>Polytrichum commune</i>	3	30	1	27
<i>Dicranum polysetum</i>	1	10	1	40
<i>Cladina mitis</i>	1	30	1	47
<i>Dicranum fuscescens</i>	1	40	1	20
<i>Polytrichum juniperinum</i>	1	10	1	33
<i>Ptilidium pulcherrimum</i>	1	30	1	20
<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>(48 64 76 89 100)</b>		<b>(30 34 56 80 93)</b>	

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

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

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

<sup>^</sup> percent frequency occurrence for a species within the total plots

<sup>‡</sup> 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 CNVC00107	Subassociation 107a <i>Vaccinium membranaceum</i>	Subassociation 107b <i>Alnus viridis</i>
	80 plots	25 plots	30 plots
<b>Elevation Range (min–mean–max meters)</b>	820–1207–1645 missing data (4)	820–1237–1645 missing data (4)	975–1196–1600 missing data (3)
<b>Slope Gradient (% frequency)</b>	steep (4) moderately steep (14) moderate (16) gentle (28) <b>level (36)</b> missing data (3)	steep (0) moderately steep (20) moderate (24) gentle (24) <b>level (28)</b> missing data (4)	steep (3) moderately steep (20) moderate (10) gentle (27) <b>level (40)</b> missing data (0)
<b>Aspect (% frequency)</b>	north (20) east (13) <b>south (28)</b> west (24) level (13) missing data (4)	north (16) east (12) south (28) <b>west (32)</b> level (8) missing data (4)	north (20) east (13) south (23) <b>west (27)</b> level (13) missing data (3)
<b>Meso Toposition (% frequency)</b>	crest / upper (11) mid (21) lower / toe (3) level (11) missing data (54)	crest / upper (20) mid (16) lower / toe (4) level (12) missing data (48)	crest / upper (3) mid (23) lower / toe (3) level (17) missing data (53)
<b>Moisture Regime (% frequency)</b>	<b>mesic (85)</b> moist (15)	<b>mesic (88)</b> moist (12)	<b>mesic (80)</b> moist (20)
<b>Nutrient Regime (% frequency)</b>	poor (31) <b>medium (56)</b> rich (11) missing data (1)	poor (28) <b>medium (56)</b> rich (16) missing data (0)	poor (30) <b>medium (57)</b> rich (10) missing data (3)





***Pinus contorta* / *Alnus viridis* / *Arnica cordifolia* / *Pleurozium schreberi* CNVC00107**

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

	Association CNVC00107	Subassociation 107a <i>Vaccinium membranaceum</i>	Subassociation 107b <i>Alnus viridis</i>
<b>Soil Parent Material (% frequency)</b>	colluvium (5) eolian (3) <b>moraine / till (65)</b> fluvial (5) glaciofluvial (13) lacustrine (1) missing data (9)	colluvium (4) eolian (0) <b>moraine / till (60)</b> fluvial (4) glaciofluvial (8) lacustrine (0) missing data (24)	colluvium (3) eolian (7) <b>moraine / till (73)</b> fluvial (3) glaciofluvial (10) lacustrine (0) missing data (3)
<b>Soil Rooting Zone Substrate (% frequency)</b>	non-soil (5) sandy (1) coarse loamy (15) <b>fine loamy (35)</b> silty (9) clayey (14) missing data (21)	non-soil (4) sandy (0) coarse loamy (24) <b>fine loamy (28)</b> silty (8) clayey (8) missing data (28)	non-soil (3) sandy (3) coarse loamy (10) <b>fine loamy (37)</b> silty (10) clayey (17) missing data (20)
<b>Root Restricting Depth (% frequency)</b>	≥ 100 cm (1) missing data (99)	≥ 100 cm (4) missing data (96)	≥ 100 cm (0) missing data (100)
<b>Humus Form (% frequency)</b>	mor (21) moder (4) missing data (75)	mor (20) moder (8) missing data (72)	mor (27) moder (0) missing data (73)



Forest / Forêt

Association CNVC00107

*Pinus contorta* / *Alnus viridis* / *Arnica cordifolia* / *Pleurozium schreberi*

Lodgepole Pine / Green Alder / Heart-leaved Arnica / Red-stemmed Feathermoss

Pin tordu / Aulne vert / Arnica à feuilles cordées / Pleurozie dorée

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

Subassociation	Subassociation
107c <i>Rhododendron groenlandicum</i>	107d <i>inops</i>
<b>10 plots</b>	<b>15 plots</b>

Elevation Range (min–mean–max meters)		
825–1159–1514	899–1214–1385	
missing data (0)	missing data (7)	

Slope Gradient (% frequency)		
steep (0)	steep (13)	
moderately steep (0)	moderately steep (0)	
moderate (30)	moderate (7)	
<b>gentle (40)</b>	gentle (27)	
level (20)	<b>level (53)</b>	
missing data (10)	missing data (0)	

Aspect (% frequency)		
<b>north (40)</b>	north (13)	
east (20)	east (7)	
south (10)	<b>south (47)</b>	
west (20)	west (7)	
level (0)	level (27)	
missing data (10)	missing data (0)	

Meso Toposition (% frequency)		
crest / upper (10)	crest / upper (13)	
mid (30)	mid (20)	
lower / toe (0)	lower / toe (0)	
level (0)	level (7)	
missing data (60)	missing data (60)	

Moisture Regime (% frequency)		
<b>mesic (70)</b>	<b>mesic (100)</b>	
moist (30)	moist (0)	

Nutrient Regime (% frequency)		
poor (40)	poor (33)	
<b>medium (60)</b>	<b>medium (53)</b>	
rich (0)	rich (13)	
missing data (0)	missing data (0)	



***Pinus contorta* / *Alnus viridis* / *Arnica cordifolia* / *Pleurozium schreberi* CNVC00107**

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

	Subassociation 107c <i>Rhododendron groenlandicum</i>	Subassociation 107d <i>inops</i>
<b>Soil Parent Material (% frequency)</b>	colluvium (0) eolian (0) <b>moraine / till (60)</b> fluvial (20) glaciofluvial (20) lacustrine (0) missing data (0)	colluvium (13) eolian (0) <b>moraine / till (60)</b> fluvial (0) glaciofluvial (20) lacustrine (7) missing data (0)
<b>Soil Rooting Zone Substrate (% frequency)</b>	non-soil (0) sandy (0) coarse loamy (10) <b>fine loamy (30)</b> silty (10) clayey (20) missing data (30)	non-soil (13) sandy (0) coarse loamy (13) <b>fine loamy (47)</b> silty (7) clayey (13) missing data (7)
<b>Root Restricting Depth (% frequency)</b>	≥ 100 cm (0) missing data (100)	≥ 100 cm (0) missing data (100)
<b>Humus Form (% frequency)</b>	mor (0) moder (0) missing data (100)	mor (27) moder (7) missing data (67)



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00107

***Pinus contorta* / *Alnus viridis* / *Arnica cordifolia* / *Pleurozium schreberi***

Lodgepole Pine / Green Alder / Heart-leaved Arnica / Red-stemmed Feathermoss

Pin tordu / Aulne vert / Arnica à feuilles cordées / Pleurozie dorée

## Additional Characteristics

Species of High Conservation Concern:

Non-native Species:

Management Issues:

## Type Statistics

Internal Similarity:

Confidence:

Strength:

## Related Concepts

Similar CNVC Associations:

CNVC00118 [*Pinus contorta* / *Vaccinium vitis-idaea* – *Arctostaphylos uva-ursi* / *Cladina* spp.] occurs on drier, poorer boreal sites in the same range and has *Arctostaphylos uva-ursi* and *Cladina* spp. dominant in the understory.

CNVC00119 [*Pinus contorta* / *Shepherdia canadensis* / *Geocaulon lividum*] occurs on poorer boreal sites in northeastern British Columbia and Yukon. It has less *Rhododendron groenlandicum* and more *Shepherdia canadensis* and *Geocaulon lividum* in the understory.

CNVC00120 [*Pinus contorta* – *Picea mariana* / *Vaccinium vitis-idaea* / *Pleurozium schreberi*] occurs on poorer, moister boreal sites in the same range. It has more *Picea mariana* in the overstory and less *Vaccinium membranaceum*, *Rubus pedatus* and *Arnica cordifolia* in the understory.

CNVC00121 [*Pinus contorta* / *Shepherdia canadensis* / *Leymus innovatus*] occurs on drier boreal sites in the same range. It has less *Rhododendron groenlandicum* and *Vaccinium membranaceum* and more *Shepherdia canadensis* and *Leymus innovatus* in the understory.

CNVC00122 [*Pinus contorta* / *Viburnum edule* – *Rosa acicularis* / *Hylocomium splendens*] occurs on moister boreal sites in the same range, typically at lower elevations. It has less *Vaccinium membranaceum* and *Rubus pedatus* and greater *Viburnum edule* in the understory.

CNVC00123 [*Pinus contorta* / *Gymnocarpium dryopteris*] occurs on richer, moister boreal sites in Alberta. It has greater species diversity and an understory with higher constancy and cover of species such as *Lonicera involucrata*, *Ribes lacustre*, *Gymnocarpium dryopteris*, *Mitella nuda* and *Rubus pubescens*.

CNVC00124 [*Pinus contorta* / *Oplonanax horridus*] occurs on moister, richer boreal sites in Alberta. It has greater species diversity overall and *Oplonanax horridus* as a diagnostic shrub.

CNVC00322 [*Pinus contorta* – *Picea mariana* / *Vaccinium membranaceum* / *Pleurozium schreberi*] occurs on comparable boreal sites in the same range. It has more *Picea mariana* in the tree and shrub layers and usually less *Alnus viridis* (see Dynamics).

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

## Comments

*Pinus contorta* here refers to var. *latifolia* (lodgepole pine).



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

<http://cnvc-cnvc.ca>

## *Pinus contorta* / *Alnus viridis* / *Arnica cordifolia* / *Pleurozium schreberi* CNVC00107

### Source Information

Number of source plots for CNVC00107: 80

Number of source plots for 107a *Vaccinium membranaceum*: 25

Number of source plots for 107b *Alnus viridis*: 30

Number of source plots for 107c *Rhododendron groenlandicum*: 10

Number of source plots for 107d *inops*: 15

#### Information Sources:

Alberta Environment and Parks. 2014. Ecological Site Information System (ESIS). Govt. AB, Edmonton, AB.

Biogeoclimatic Ecosystem Classification Program of British Columbia. 2011. BECMaster ecosystem plot database [VPro13/MSAccess 2010 format]. W.H. MacKenzie (ed.) B.C. Min. For., Lands, and Nat. Res. Ops., Smithers, BC. Available: [www.for.gov.bc.ca/hre/becweb/resources/information-requests](http://www.for.gov.bc.ca/hre/becweb/resources/information-requests) (accessed: June 2015).

**Concept Authors:** L. Allen, K. Baldwin, K. Chapman, W. MacKenzie, D. Meidinger

**Description Authors:** D. Downing, K. Chapman, K. Baldwin and D. Meidinger

**Date of Concept:** March, 2012

**Date of Description:** November, 2017

### Classification References:

Beckingham, J.D.; Corns, I.G.W.; Archibald, J.H. 1996. Field guide to ecosites of west-central Alberta. Nat. Resour. Can., Can. For. Serv., North. For. Centre, Edmonton, AB. Spec. Rep. 9.

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### Characterization References:

Abrahamson, I. 2015. *Picea glauca*. In: Fire Effects Information System. U.S. Dept. Agric., For. Serv., Rocky Mt. Res. Stn., Fire Sci. Lab., Missoula, MT, US. Available: <http://www.fs.fed.us/database/feis/plants/tree/picgla/all.html> (accessed: October 2, 2015).

Anderson, M.D. 2003. *Pinus contorta* var. *latifolia*. In: Fire Effects Information System. U.S. Dept. Agric., For. Serv., Rocky Mt. Res. Stn., Fire Sci. Lab., Missoula, MT, US. Available: <http://www.fs.fed.us/database/feis/plants/tree/pinconl/all.html> (accessed: August 13, 2015).

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Greene, D.F.; Zasada, J.C.; Sirois, L.; Kneeshaw, D.; Morin, H.; Charron, I.; Simard, M.J. 1999. A review of the regeneration dynamics of North American boreal forest tree species. *Can. J. For. Res.* 29:824-839.

Kenkel, N.C.; Walker, D.J.; Watson, P.R.; Caners, R.T.; Lastra, R.A. 1997. Vegetation dynamics in boreal forest ecosystems. *Coenoses* 12(2-3):97-108.

Nealis, V.G.; Cooke, B. J. 2014. Risk assessment of the threat of mountain pine beetle to Canada's boreal and eastern pine forests. Nat. Resour. Can., Can. Counc. For. Min., Forest Pest Working Group, CA.

Peters, V.S.; Macdonald, E.; Dale, M.R.T. 2006. Patterns of initial versus delayed regeneration of white spruce in boreal mixedwood succession. *Can. J. For. Res.* 36:1597-1609.

Safranyik, L.; Wilson, B. (eds.). 2006. The mountain pine beetle: a synthesis of biology, management and impacts on lodgepole pine. Pac. For. Centre, Can. For. Serv., Nat. Resour. Can., Victoria, BC.



Canadian National Vegetation Classification (CNVC)  
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***Pinus contorta* / *Alnus viridis* / *Arnica cordifolia* / *Pleurozium schreberi* CNVC00107**

**Characterization References (cont'd):**

Stockdale, C. 2014. Fire regimes of western boreal Canada and the foothills of Alberta. A discussion document and literature review for the LANDWEB Project.

Uchytel, R.J. 1991. *Abies lasiocarpa*. In: Fire Effects Information System. U.S. Dept. Agric. For. Serv. Rocky Mt. Res. Stn., Fire Sci. Lab., Missoula, MT, US. Available: <http://www.fs.fed.us/database/feis/plants/tree/abibal/all.html> (accessed: May 26, 2015).

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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