



Forest / Forêt

Association CNVC00121

***Pinus contorta* / *Shepherdia canadensis* / *Leymus innovatus***

Lodgepole Pine / Soapberry / Downy Lymegrass

Pin tordu / Shépherdie du Canada / Élyme innovant

**Subassociations:** 121a *typic*, 121b *Shepherdia canadensis*, 121c *Alnus viridis*

**CNVC Alliance:** CA00033 *Pinus contorta* – *Picea glauca* / *Shepherdia canadensis* / *Leymus innovatus*

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



Source: D. Downing

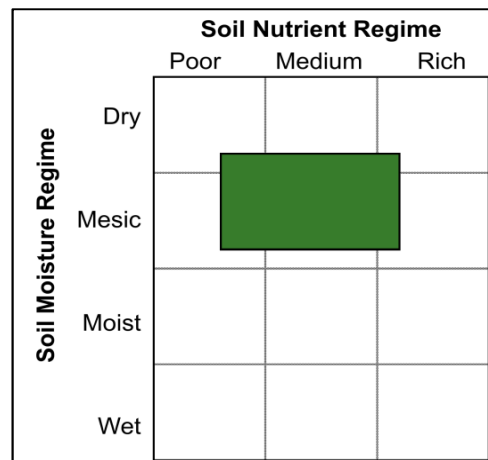
### Type Description

**Concept:** CNVC00121 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*). White spruce (*Picea glauca*) is usually present in the tree and shrub layers. The shrub layer is typically moderately developed and commonly includes prickly rose (*Rosa acicularis*) and soapberry (*Shepherdia canadensis*), although green alder (*Alnus viridis*) can be abundant when present. The herb and dwarf shrub layer is well developed and characterized by abundant downy lymegrass (*Leymus innovatus*), usually accompanied by twinflower (*Linnaea borealis*), fireweed (*Chamerion angustifolium*), heart-leaved arnica (*Arnica cordifolia*), wild strawberry (*Fragaria virginiana*) and one-sided wintergreen (*Orthilia secunda*). The moderately developed moss layer mainly consists of stairstep moss (*Hylocomium splendens*) and red-stemmed feathermoss (*Pleurozium schreberi*), with lower cover of knight's plume moss (*Ptilium crista-castrensis*). CNVC00121 occurs on mesic, nutrient-medium to poor sites in a region with a subhumid continental climate. It typically establishes as the first cohort after fire. Three subassociations are distinguished: *typic*, *Shepherdia canadensis* and *Alnus viridis*.

**Vegetation:** CNVC00121 is a coniferous forest Association with a moderately closed canopy that is dominated by *Pinus contorta* (see Comments) often with a minor component of *Picea glauca*. The shrub layer is usually moderately developed but can vary from sparse to dense depending on the patchiness of shrubs. It typically includes *Rosa acicularis*, *Shepherdia canadensis* and regenerating *Picea glauca*, but *Alnus viridis* can be abundant. The herb and dwarf shrub layer is well developed and characterized by abundant *Leymus innovatus*. This layer typically has low cover of several other species such as *Linnaea borealis*, *Chamerion angustifolium*, *Arnica cordifolia*, *Fragaria virginiana* and *Orthilia secunda*. The moss layer is usually moderately developed and dominated by *Hylocomium splendens* and *Pleurozium schreberi*, with lower cover of *Ptilium crista-castrensis*. The *Shepherdia canadensis* and *Alnus viridis* subassociations are distinguished from the *typic* by dominance of these shrub species.

**Environment:** CNVC00121 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 to poor sites. Stands are usually on moderate slopes on water-shedding, middle to upper-slope or crest topositions. They are frequently on warmer (often drier) aspects, either south or west-facing. Soils are commonly fine loams, silts or clays, but vary in texture because they can be derived from a wide range of parent materials. Humus forms are typically thin (< 10 cm) mors.

Compared to the *typic* and *Shepherdia canadensis* subassociations, stands of the *Alnus viridis* subassociation occur more frequently on nutrient-poor sites on steep slopes, and on alluvial parent materials.





***Pinus contorta* / *Shepherdia canadensis* / *Leymus innovatus* CNVC00121**

**Type Description (cont'd)**

**Dynamics:** CNVC00121 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 usually proceeds slowly on these sites, typically with ingress of *Picea glauca* into the stand by seed dissemination from nearby sources. If seeds are available immediately following disturbance, *P. glauca* sometimes re-colonizes at approximately the same time as *P. contorta*, but since it grows more slowly it usually requires several decades to attain canopy height. *P. glauca* is shade-tolerant and able to self-replace once established in a stand. Succession is often re-initiated by fire before a stand reaches the mid-successional stage, but in the prolonged absence of disturbance *P. glauca* can gradually dominate the overstory. A late successional *P. glauca*-dominated condition (e.g., CNVC00104 [*Picea glauca* (*Pinus contorta*) / *Shepherdia canadensis* / *Leymus innovatus* / *Hylocomium splendens*]) could develop after approximately 120 years.

In recent years, mountain pine beetle (*Dendroctonus ponderosae*) has caused significant economic and ecological impacts to *P. contorta* forests in sub-boreal 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:** CNVC00121 occurs primarily in the Rocky Mountain foothills of British Columbia (BC) and Alberta. It is mainly described from south of Chetwynd, BC to west of Calgary, Alberta. It also occurs occasionally in the boreal highlands of northwestern and northern Alberta (Cameron Hills, Clear Hills, Buffalo Head Hills, Naylor Hills and Caribou Mountains). The *Shepherdia canadensis* subassociation occurs in both provinces, but the *typic* and *Alnus viridis* subassociations are only described from Alberta.

**Conservation Status (NatureServe)**

**Global Conservation Rank:** no applicable rank

**National Conservation Rank:** not yet determined

**Subnational Conservation Rank:** not yet determined



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

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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

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

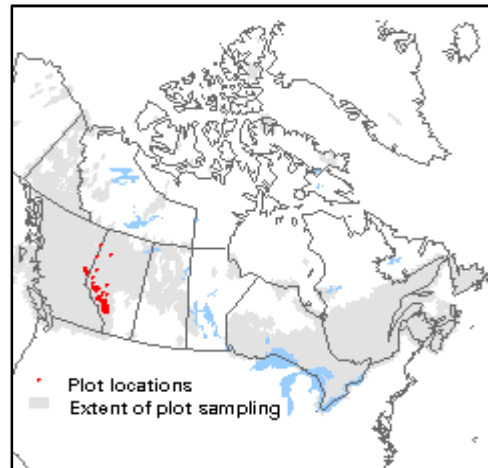
**NAAEC CEC Ecoregions of North America (Levels I & II):** Northern Forests: Boreal Plains

**Nature Conservancy of Canada Ecoregions:** Boreal Plains

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

**British Columbia Ecoregion Classification (ecoregions):** Southern Alberta Upland

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



**Corresponding Types and Associations**

<b>121a typic</b>	Alberta	SW/UF/B/01/01	PI / hairy wild rye
		WC/UF/C/01/03	PI / hairy wild rye
<b>121b Shepherdia canadensis</b>	British Columbia	BWBSwk 1 /103	Picea glauca - Pinus contorta - Shepherdia canadensis - Aster conspicuus
	Alberta	SW/LF/B/01/01	PI / Canada buffalo-berry / hairy wild rye
		SW/UF/C/01/05	PI / Canada buffalo-berry
		WC/LF/C/01/01	PI / Canada buffalo-berry / hairy wild rye
<b>121c Alnus viridis</b>	Alberta	WC/UF/C/01/01	PI / Canada buffalo-berry / hairy wild rye
		SW/UF/B/01/02	PI / green alder / hairy wild rye
		WC/LF/C/01/02	PI / green alder / hairy wild rye
		WC/UF/C/01/02	PI / green alder / hairy wild rye



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Vegetation Summary\*

Species Name <sup>†</sup>	Association CNVC00121		Subassociation 121a <i>typic</i>		Subassociation 121b <i>Shepherdia canadensis</i>	
	81 plots		23 plots		43 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>	37	100	38	100	35	100
<i>Picea glauca</i>	10	63	10	65	12	65
<i>Populus tremuloides</i>	5	25	13	9	4	37
<i>Picea mariana</i>	3	16	4	26	3	16
<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 44 51 61)</b>		<b>(27 35 47 51 80)</b>		<b>(25 30 43 52 61)</b>	
<b>Understory Woody Shrubs and Regenerating Trees</b>						
<i>Rosa acicularis</i>	3	86	3	78	3	93
<i>Shepherdia canadensis</i>	9	83	3	91	12	98
<i>Picea glauca</i>	3	69	3	87	2	67
<i>Juniperus communis</i>	3	51	2	61	3	49
<i>Pinus contorta</i>	3	38	2	39	3	35
<i>Alnus viridis</i>	16	31	4	13	2	16
<i>Populus tremuloides</i>	3	27	3	13	3	40
<i>Spiraea lucida</i>	2	27	1	4	2	30
<i>Salix bebbiana</i>	4	20	1	17	5	26
<i>Rhododendron groenlandicum</i>	5	19	2	13	6	26
<i>Picea mariana</i>	3	19	2	17	4	21
<i>Abies lasiocarpa</i>	1	19	1	17	1	16
<i>Vaccinium myrtilloides</i>	7	15	-	-	11	16
<i>Viburnum edule</i>	2	14	-	-	3	16
<i>Dasiphora fruticosa</i>	1	11	1	22	1	9
<i>Rubus idaeus</i>	1	6	1	4	-	-
<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>(9 16 26 34 52)</b>		<b>(8 9 15 21 24)</b>		<b>(13 18 29 35 51)</b>	
<b>Understory Herbs and Dwarf Shrubs</b>						
<i>Leymus innovatus</i>	15	89	16	100	15	91
<i>Linnaea borealis</i>	7	89	8	83	7	91
<i>Chamerion angustifolium</i>	2	79	2	78	2	84
<i>Arnica cordifolia</i>	3	68	2	70	4	70
<i>Fragaria virginiana</i>	2	64	2	78	2	70
<i>Orthilia secunda</i>	1	60	1	65	1	56
<i>Eurybia conspicua</i>	6	58	6	65	6	63
<i>Cornus canadensis</i>	4	52	2	39	3	51
<i>Galium boreale</i>	1	49	1	48	1	63
<i>Lathyrus ochroleucus</i>	2	48	3	48	2	63
<i>Arctostaphylos uva-ursi</i>	5	47	2	52	7	51
<i>Anticlea elegans</i>	1	43	2	61	1	44
<i>Vaccinium vitis-idaea</i>	7	41	6	26	7	47
<i>Pyrola chlorantha</i>	1	41	1	43	1	37



***Pinus contorta* / *Shepherdia canadensis* / *Leymus innovatus* CNVC00121**

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

Species Name†	Association CNVC00121		Subassociation 121a <i>typic</i>		Subassociation 121b <i>Shepherdia canadensis</i>	
	% Cover‡	% Presence^	% Cover‡	% Presence^	% Cover‡	% Presence^
<i>Pyrola asarifolia</i>	2	35	2	26	1	40
<i>Vaccinium caespitosum</i>	2	33	2	22	3	35
<i>Mertensia paniculata</i>	2	33	2	43	2	28
<i>Symphotrichum ciliolatum</i>	1	33	2	35	1	40
<i>Achillea millefolium</i>	1	27	1	35	1	30
<i>Hedysarum alpinum</i>	2	25	1	35	2	26
<i>Calamagrostis canadensis</i>	4	22	1	17	6	21
<i>Castilleja miniata</i>	2	21	2	22	2	28
<i>Vicia americana</i>	1	19	1	13	2	28
<i>Anemone multifida</i>	1	17	1	22	1	21
<i>Petasites frigidus</i>	2	16	2	22	2	16
<i>Maianthemum canadense</i>	3	15	-	-	2	21
<i>Platanthera obtusata</i>	1	15	1	30	1	9
<i>Astragalus alpinus</i>	1	14	1	26	1	12
<i>Rubus pubescens</i>	1	12	1	9	2	7
<b>Herb Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)‡</b>	<b>(22 30 47 65 85)</b>		<b>(26 31 48 67 72)</b>		<b>(23 30 52 73 95)</b>	
<b>Bryophytes and Lichens</b>						
<i>Hylocomium splendens</i>	25	86	23	96	30	81
<i>Pleurozium schreberi</i>	17	75	10	70	21	70
<i>Ptilium crista-castrensis</i>	5	69	4	65	6	67
<i>Peltigera aphthosa</i>	2	64	1	61	2	63
<i>Cladonia sp.</i>	3	49	3	57	3	44
<i>Dicranum polysetum</i>	1	37	1	30	1	37
<i>Peltigera canina</i>	1	36	1	43	1	42
<i>Pohlia nutans</i>	1	30	1	30	1	23
<i>Sanionia uncinata</i>	1	25	2	35	1	19
<i>Vulpicida pinastri</i>	1	25	1	17	1	26
<i>Cladina mitis</i>	1	21	1	13	1	21
<i>Ptilidium pulcherrimum</i>	1	21	1	22	1	16
<i>Brachythecium salebrosum</i>	1	20	1	26	1	16
<i>Polytrichum juniperinum</i>	1	20	1	9	1	21
<i>Dicranum scoparium</i>	1	16	1	22	1	16
<i>Abietinella abietina</i>	2	14	3	22	1	14
<i>Eurhynchium pulchellum</i>	1	14	1	22	1	9
<b>Bryo-Lichen Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)‡</b>	<b>(9 25 46 70 87)</b>		<b>(11 23 41 58 82)</b>		<b>(6 28 51 78 89)</b>	

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

Subassociation  
 121c *Alnus viridis*

15 plots

Species Name <sup>†</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<b>Overstory Trees</b>		
<b><i>Pinus contorta</i></b>	<b>40</b>	<b>100</b>
<i>Picea glauca</i>	4	53
<i>Populus tremuloides</i>	2	13
<i>Picea mariana</i>	-	-
<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>(28 40 43 48 57)</b>	
<b>Understory Woody Shrubs and Regenerating Trees</b>		
<i>Rosa acicularis</i>	2	80
<b><i>Shepherdia canadensis</i></b>	<b>8</b>	<b>27</b>
<i>Picea glauca</i>	3	47
<i>Juniperus communis</i>	2	40
<i>Pinus contorta</i>	2	47
<b><i>Alnus viridis</i></b>	<b>25</b>	<b>100</b>
<i>Populus tremuloides</i>	1	13
<i>Spiraea lucida</i>	2	53
<i>Salix bebbiana</i>	1	7
<i>Rhododendron groenlandicum</i>	2	7
<i>Picea mariana</i>	1	13
<i>Abies lasiocarpa</i>	1	27
<i>Vaccinium myrtilloides</i>	2	33
<i>Viburnum edule</i>	2	27
<i>Dasiphora fruticosa</i>	-	-
<i>Rubus idaeus</i>	1	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>(16 22 36 48 58)</b>	
<b>Understory Herbs and Dwarf Shrubs</b>		
<b><i>Leymus innovatus</i></b>	<b>11</b>	<b>67</b>
<i>Linnaea borealis</i>	6	93
<i>Chamerion angustifolium</i>	2	67
<i>Arnica cordifolia</i>	4	60
<i>Fragaria virginiana</i>	1	27
<i>Orthilia secunda</i>	1	67
<i>Eurybia conspicua</i>	3	33
<i>Cornus canadensis</i>	7	73
<i>Galium boreale</i>	1	13
<i>Lathyrus ochroleucus</i>	1	7
<i>Arctostaphylos uva-ursi</i>	3	27
<i>Anticlea elegans</i>	1	13
<i>Vaccinium vitis-idaea</i>	9	47
<i>Pyrola chlorantha</i>	1	47



***Pinus contorta* / *Shepherdia canadensis* / *Leymus innovatus* CNVC00121**

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

Species Name†	Subassociation 121c <i>Alnus viridis</i>	
	Cover‡	Presence^
<i>Pyrola asarifolia</i>	2	33
<i>Vaccinium caespitosum</i>	1	47
<i>Mertensia paniculata</i>	1	33
<i>Symphytotrichum ciliolatum</i>	1	13
<i>Achillea millefolium</i>	1	7
<i>Hedysarum alpinum</i>	1	7
<i>Calamagrostis canadensis</i>	1	33
<i>Castilleja miniata</i>	-	-
<i>Vicia americana</i>	-	-
<i>Anemone multifida</i>	-	-
<i>Petasites frigidus</i>	1	7
<i>Maianthemum canadense</i>	3	20
<i>Platanthera obtusata</i>	1	7
<i>Astragalus alpinus</i>	-	-
<i>Rubus pubescens</i>	1	33
<b>Herb Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)‡</b>	<b>(13 22 36 49 59)</b>	
<b>Bryophytes and Lichens</b>		
<i>Hylocomium splendens</i>	16	87
<i>Pleurozium schreberi</i>	15	100
<i>Ptilium crista-castrensis</i>	4	80
<i>Peltigera aphthosa</i>	1	73
<i>Cladonia sp.</i>	3	53
<i>Dicranum polysetum</i>	1	47
<i>Peltigera canina</i>	1	7
<i>Pohlia nutans</i>	1	47
<i>Sanionia uncinata</i>	1	27
<i>Vulpicida pinastri</i>	2	33
<i>Cladina mitis</i>	1	33
<i>Ptilidium pulcherrimum</i>	1	33
<i>Brachythecium salebrosum</i>	1	20
<i>Polytrichum juniperinum</i>	1	33
<i>Dicranum scoparium</i>	1	7
<i>Abietinella abietina</i>	-	-
<i>Eurhynchium pulchellum</i>	1	13
<b>Bryo-Lichen Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)‡</b>	<b>(18 28 40 52 66)</b>	

\* 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 CNVC00121 <b>81 plots</b>	Subassociation 121a <i>typic</i> <b>23 plots</b>	Subassociation 121b <i>Shepherdia canadensis</i> <b>43 plots</b>
<b>Elevation Range (min–mean–max meters)</b>	650–1366–1980 missing data (4)	1333–1524–1980 missing data (13)	650–1300–1740 missing data (0)
<b>Slope Gradient (% frequency)</b>	steep (15) moderately steep (14) <b>moderate (30)</b> gentle (17) level (23) missing data (1)	steep (9) moderately steep (26) moderate (26) gentle (13) level (26) missing data (0)	steep (7) moderately steep (12) <b>moderate (33)</b> gentle (21) level (26) missing data (2)
<b>Aspect (% frequency)</b>	north (4) east (21) <b>south (37)</b> west (26) level (11) missing data (1)	north (0) east (17) <b>south (39)</b> west (30) level (13) missing data (0)	north (5) east (23) <b>south (40)</b> west (19) level (12) missing data (2)
<b>Meso Topoposition (% frequency)</b>	crest / upper (30) <b>mid (36)</b> lower / toe (11) level (5) missing data (19)	crest / upper (35) <b>mid (39)</b> lower / toe (13) level (4) missing data (9)	crest / upper (26) <b>mid (37)</b> lower / toe (12) level (5) missing data (21)
<b>Moisture Regime (% frequency)</b>	dry (17) <b>mesic (80)</b> moist (1) missing data (1)	dry (13) <b>mesic (87)</b> moist (0) missing data (0)	dry (14) <b>mesic (81)</b> moist (2) missing data (2)
<b>Nutrient Regime (% frequency)</b>	poor (31) <b>medium (52)</b> rich (10) missing data (7)	poor (22) <b>medium (61)</b> rich (9) missing data (9)	poor (28) <b>medium (53)</b> rich (12) missing data (7)





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

	Association CNVC00121	Subassociation 121a <i>typic</i>	Subassociation 121b <i>Shepherdia canadensis</i>
<b>Soil Parent Material (% frequency)</b>	colluvium (12) eolian (19) <b>moraine / till (32)</b> fluvial (9) glaciofluvial (17) lacustrine (1) glaciolacustrine (2) missing data (6)	colluvium (9) eolian (13) <b>moraine / till (39)</b> fluvial (4) glaciofluvial (13) lacustrine (4) glaciolacustrine (0) missing data (13)	colluvium (5) eolian (23) <b>moraine / till (30)</b> fluvial (12) glaciofluvial (21) lacustrine (0) glaciolacustrine (5) missing data (5)
<b>Soil Rooting Zone Substrate (% frequency)</b>	non-soil (12) sandy (9) coarse loamy (15) <b>fine loamy (35)</b> silty (14) clayey (10) missing data (6)	non-soil (9) sandy (0) coarse loamy (17) <b>fine loamy (43)</b> silty (22) clayey (4) missing data (4)	non-soil (5) sandy (12) coarse loamy (9) <b>fine loamy (35)</b> silty (14) clayey (16) missing data (9)
<b>Root Restricting Depth (% frequency)</b>	missing data (100)	missing data (100)	missing data (100)
<b>Humus Form (% frequency)</b>	mor (57) moder (2) peatymor (1) missing data (40)	<b>mor (65)</b> moder (0) peatymor (0) missing data (35)	mor (53) moder (2) peatymor (2) missing data (42)



Forest / Forêt

Association CNVC00121

***Pinus contorta* / *Shepherdia canadensis* / *Leymus innovatus***

Lodgepole Pine / Soapberry / Downy Lyme grass

Pin tordu / Shépherdie du Canada / Élyme innovant

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

Subassociation

121c *Alnus viridis*

15 plots

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

700–1342–1810

missing data (0)

**Slope Gradient (% frequency)**

**steep (47)**

moderately steep (0)

moderate (27)

gentle (13)

level (13)

missing data (0)

**Aspect (% frequency)**

north (7)

east (20)

south (27)

**west (40)**

level (7)

missing data (0)

**Meso Topoposition (% frequency)**

**crest / upper (33)**

mid (27)

lower / toe (7)

level (7)

missing data (27)

**Moisture Regime (% frequency)**

dry (33)

**mesic (67)**

moist (0)

missing data (0)

**Nutrient Regime (% frequency)**

**poor (53)**

medium (33)

rich (7)

missing data (7)



***Pinus contorta* / *Shepherdia canadensis* / *Leymus innovatus* CNVC00121**

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

Subassociation  
121c *Alnus viridis*

**Soil Parent Material (% frequency)**

**colluvium (40)**  
eolian (13)  
moraine / till (27)  
fluvial (7)  
glaciofluvial (13)  
lacustrine (0)  
glaciolacustrine (0)  
missing data (0)

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

**non-soil (40)**  
sandy (13)  
coarse loamy (27)  
fine loamy (20)  
silty (0)  
clayey (0)  
missing data (0)

**Root Restricting Depth (% frequency)**

missing data (100)

**Humus Form (% frequency)**

mor (53)  
moder (7)  
peatymor (0)  
missing data (40)



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00121

***Pinus contorta* / *Shepherdia canadensis* / *Leymus innovatus***

Lodgepole Pine / Soapberry / Downy Lymegrass

Pin tordu / Shépherdie du Canada / Élyme innovant

## Additional Characteristics

Species of High Conservation Concern:

Non-native Species:

Management Issues:

## Type Statistics

Internal Similarity:

Confidence:

Strength:

## Related Concepts

### Similar CNVC Associations:

CNVC00091 [*Populus tremuloides* – *Picea glauca* – *Pinus contorta* / *Leymus innovatus*] is a similar mixedwood Association that occurs on comparable boreal sites in the same range.

CNVC00104 [*Picea glauca* (*Pinus contorta*) / *Shepherdia canadensis* / *Leymus innovatus* / *Hylocomium splendens*] occurs on similar boreal sites in the same range and is dominated by *Picea glauca* rather than *Pinus contorta*.

CNVC00107 [*Pinus contorta* / *Alnus viridis* / *Arnica cordifolia* / *Pleurozium schreberi*] occurs on comparable boreal sites in the same range and has more *Rhododendron groenlandicum* in the shrub layer and less *Leymus innovatus* in the herb and dwarf shrub layer.

CNVC00118 [*Pinus contorta* / *Vaccinium vitis-idaea* – *Arctostaphylos uva-ursi* / *Cladina* spp.] occurs on drier, poorer boreal sites in the same range and has a herb and dwarf shrub layer dominated by *Vaccinium vitis-idaea* and *Arctostaphylos uva-ursi* rather than *Leymus innovatus*.

CNVC00119 [*Pinus contorta* / *Shepherdia canadensis* / *Geocaulon lividum*] occurs on comparable boreal sites in British Columbia and has less *Leymus innovatus* in the herb and dwarf shrub layer.

CNVC00120 [*Pinus contorta* – *Picea mariana* / *Vaccinium vitis-idaea* / *Pleurozium schreberi*] occurs on comparable boreal sites in the same range and usually has *Picea mariana* codominant in the canopy, abundant *Rhododendron groenlandicum* in the shrub layer and less *Leymus innovatus* in the herb and dwarf shrub layer.

CNVC00122 [*Pinus contorta* / *Viburnum edule* – *Rosa acicularis* / *Hylocomium splendens*] occurs on comparable boreal sites in the same range and has a shrub layer with greater constancy of *Viburnum edule* and a herb and dwarf shrub layer with less *Leymus innovatus*.

CNVC00322 [*Pinus contorta* – *Picea mariana* / *Vaccinium membranaceum* / *Pleurozium schreberi*] occurs on comparable sites in the same range and usually has *Picea mariana* codominant in the canopy, abundant *Rhododendron groenlandicum* and *Vaccinium membranaceum* in the shrub layer and less *Leymus innovatus* in the herb and dwarf shrub layer.

CNVC00337 [*Picea glauca* (*Pinus contorta*) / *Arctostaphylos uva-ursi* – *Leymus innovatus*] occurs on comparable boreal sites in the same range and is dominated by *Picea glauca* rather than *Pinus contorta*.

### Related United States National Vegetation Classification Associations:

### Relationships with Other Classifications:



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

<http://cnvc-cnvc.ca>

## *Pinus contorta* / *Shepherdia canadensis* / *Leymus innovatus* CNVC00121

### Comments

Where CNVC00121 occurs at higher elevations (i.e., above 650 mASL) in the boreal highlands of northwestern and northern Alberta (see Range), *Pinus contorta* may form fertile hybrids with *P. banksiana* that are recognized by intermediate cone characters; ecologically, the hybrid pine (*P. x murraybanksiana*) occupies comparable sites. Stands containing hybrid pine with similar understories on comparable sites are classified as CNVC00121.

Similar *P. contorta* dominated forests occur in the montane and subalpine zones of the Rocky Mountains, in the sub-boreal zone of British Columbia, and in Yukon and Northwest Territories. These forests are described elsewhere in the CNVC.

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

### Source Information

**Number of source plots for CNVC00121:** 81

**Number of source plots for 121a typic:** 23

**Number of source plots for 121b *Shepherdia canadensis*:** 43

**Number of source plots for 121c *Alnus viridis*:** 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, J. Archibald, K. Baldwin, K. Chapman, W. MacKenzie, D. Meidinger

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

**Date of Concept:** March, 2012

**Date of Description:** July, 2016

### Classification References:

Archibald, J.H.; Klappstein, G.D.; Corns, I.G.W. 1996. Field guide to ecosites of southwestern Alberta. Nat. Resour. Can., Can. For. Ser., North. For. Cent., Edmonton, AB. Spec. Rep. 8.

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DeLong, C.; Banner, A.; MacKenzie, W.H.; Rogers, B.J.; Kaytor, B. 2011. A field guide to ecosystem identification for the Boreal White and Black Spruce zone of British Columbia. B.C. Min. For. Range, For. Sci. Prog., Victoria, BC. Land Manage. Handb. No. 65.

### Characterization References:

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Andison, D.W. 1998. Temporal patterns of age-class distributions on foothills landscapes in Alberta. *Ecography* 21(5):543-550.

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***Pinus contorta* / *Shepherdia canadensis* / *Leymus innovatus* CNVC00121**

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

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. Coun. For. Min., Forest Pest Working Group, CA.*

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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.

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

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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