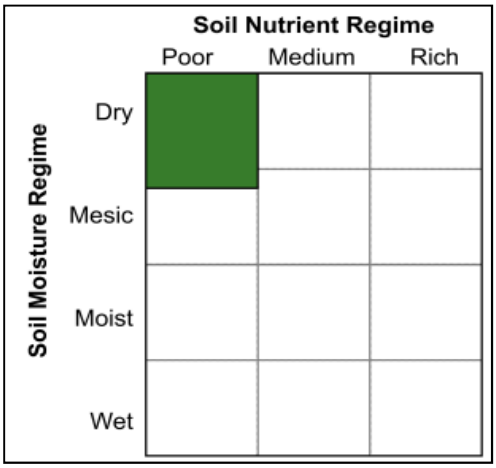
Forest / Forêt **Association CNVC00127**

Pinus banksiana / Vaccinium myrtilloides / Arctostaphylos uva-ursi / Cladina spp.

Jack Pine / Velvet-leaved Blueberry / Common Bearberry / Reindeer Lichens
Pin gris / Bleuet fausse-myrtille / Raisin d'ours / Cladonies

Subassociations: none
CNVC Alliance: CA00019 *Pinus banksiana / Vaccinium myrtilloides / V. vitis-idaea / Cladina* spp.
CNVC Group: CG0009 Central Boreal Dry Jack Pine Forest

Source: M. McLaughlan



Type Description

Concept: CNVC00127 is a boreal coniferous forest Association that ranges from Alberta to Ontario. It has an open tree layer of jack pine (*Pinus banksiana*) and a poorly developed shrub layer made up primarily of velvet-leaved blueberry (*Vaccinium myrtilloides*). Lingonberry (*V. vitis-idaea*) and common bearberry (*Arctostaphylos uva-ursi)* are the only common species in the poorly developed herb and dwarf shrub layer. The moss and lichen layer is well developed and dominated by reindeer lichens (*Cladina mitis, C. stellaris* and *C. rangiferina*). Patches of *Cladonia* lichens and red-stemmed feathermoss (*Pleurozium schreberi*) are also present. CNVC00127 occurs on dry, nutrient-poor sites in a region with a subhumid continental boreal climate. These are the driest, most nutrient-impoverished sites capable of supporting tree-dominated vegetation in the region. CNVC00127 is an early seral condition with dynamics that are driven by fire and limited by edaphic conditions.

Vegetation: CNVC00127 is a coniferous forest Association with an open tree layer of *Pinus banksiana*. Sporadically, *Picea mariana* occurs in the tree and/or shrub layers. *Vaccinium myrtilloides* is the only common species in the poorly developed shrub layer. *V. vitis-idaea* and *Arctostaphylos uva-ursi* are common but have low abundance in the poorly developed herb and dwarf shrub layer. The moss and lichen layer is well developed and characterized by abundant drought-tolerant lichens, especially *Cladina mitis* but also *C. stellaris, C. rangiferina* and *Cladonia* spp. Patches of *Pleurozium schreberi* are often present on moister microsites (e.g., shady areas and depressions).

Environment: CNVC00127 occurs in a subhumid continental boreal climate where regional fire cycles are short (<100 years) or intermediate (100-270 years). It is found on dry, nutrient-poor sites; these are the driest, poorest sites capable of supporting tree-dominated vegetation in the region. Stands are usually on level sites or gentle slopes on water-shedding, crest or upper to middle-slope topopositions. On slopes, stands are more frequently on warmer (often drier) aspects, either south or west-facing. Soils are usually deep, rapidly drained and sandy, developed in fluvial, morainal, glaciofluvial or eolian surficial deposits. Mor humus forms are typical.

Pinus banksiana / *Vaccinium myrtilloides* / *Arctostaphylos uva-ursi* / *Cladina* spp. CNVC00127

Type Description (cont'd)

Dynamics: CNVC00127 is an early seral Association that usually develops on edaphically limited sites where fire is the primary disturbance. *Pinus banksiana* has medium thick bark, with only moderate tolerance to fire, but it reaches reproductive maturity at a young age and produces abundant seeds in serotinous cones. Moderate and high severity fires can melt the resin of cones to release their seeds.

Picea mariana is sometimes a component of these stands. It also recolonizes fire-prepared sites as part of the first cohort. Although slower growing than *P. banksiana*, it is longer lived and better able to regenerate in the absence of fire so can become dominant on these sites over time (e.g., CNVC00244 [*Picea mariana – Pinus banksiana / Vaccinium myrtilloides / V. vitis-idaea / Cladina* spp.]). However, because of the high frequency of fires within the range of CNVC00127 and the slow rate of succession on these dry, poor sites, such late seral conditions are rare.

CNVC00127 typically occurs on sites that do not support a closed canopy forest, but it can also result from regeneration failure in a closed stand (e.g., CNVC00248 [*Pinus banksiana (Picea mariana) / Vaccinium myrtilloides / Pleurozium schreberi*] or CNVC00323 [*Pinus banksiana – Picea mariana / Vaccinium vitis-idaea / Pleurozium schreberi (Hylocomium splendens)*]). This could happen when successive fires occur before trees have reached reproductive maturity, when a low severity fire kills trees without generating enough heat to release seeds or when seedling mortality is unusually high. The resulting open canopy promotes an increase in *Cladina* cover. Lichens dry out quickly, becoming a highly flammable and continuous fuel source, contributing to more frequent ignitions and faster-burning but lower severity fires that perpetuate the openness of the stand. Lichen cover can also inhibit conifer germination and seedling survival.

Jack pine budworm (*Choristoneura pinus pinus*) can reduce growth and cause top kill of *P. banksiana* but does not usually result in widespread tree mortality. Dead wood and needle litter may increase the flammability of stands after an outbreak.

Mountain pine beetle (*Dendroctonus ponderosae*) is a significant pest of *Pinus contorta* var. *latifolia* west of the range of CNVC00127. The insect's range has been extending northwards and eastwards into the boreal region and stands of *P. banksiana* may be at risk.

Range: CNVC00127 occurs in the boreal region of west-central Canada from Alberta, east of the Rocky Mountain foothills, to north of Lake Nipigon in northwestern Ontario. It is described from the boreal plains in Alberta and Saskatchewan and from the Precambrian Shield in Alberta, Saskatchewan and Ontario.

Conservation Status (NatureServe)

Global Conservation Rank: no applicable rank
National Conservation Rank: not yet determined
Subnational Conservation Rank: not yet determined

Forest / Forêt **Association CNVC00127**

Pinus banksiana / *Vaccinium myrtilloides* / *Arctostaphylos uva-ursi* / *Cladina* spp.

Jack Pine / Velvet-leaved Blueberry / Common Bearberry / Reindeer Lichens
Pin gris / Bleuet fausse-myrtille / Raisin d'ours / Cladonies

Distribution

Countries: Canada

Provinces / Territories / States: Alberta, Manitoba, Ontario, Saskatchewan

Terrestrial Ecozones and Ecoregions of Canada: Boreal Plains: Boreal Transition, Mid-Boreal Lowland, Mid-Boreal Uplands, Peace Lowland, Wabasca Lowland, Western Boreal; Boreal Shield: Athabasca Plain, Big Trout Lake, Churchill River Upland, Lac Seul Upland; Taiga Plains: Northern Alberta Uplands; Taiga Shield: Tazin Lake Upland

Rowe's Forest Regions and Sections of Canada: Boreal: Athabasca South, Central Plateau, Hay River, Lower English River, Lower Foothills, Manitoba Lowlands, Mixedwood, Northern Coniferous, Northwestern Transition, Upper Churchill, Upper Mackenzie

NAAEC CEC Ecoregions of North America (Levels I & II): Northern Forests: Boreal Plains, Softwood Shield; Taiga: Taiga Plains, Taiga Shield

Nature Conservancy of Canada Ecoregions: Boreal Plains, Boreal Shield, Taiga Plains, Western Taiga Shield

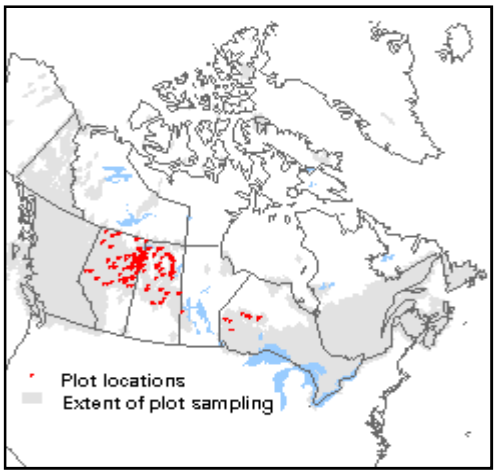
Natural Regions and Subregions of Alberta: Boreal Forest: Athabasca Plain, Boreal Subarctic, Central Mixedwood, Dry Mixedwood, Lower Boreal Highlands, Northern Mixedwood, Upper Boreal Highlands; Canadian Shield: Kazan Uplands

Ecozones and Ecoregions of Saskatchewan: Boreal Plain: Boreal Transition, Mid-Boreal Lowland, Mid-Boreal Upland; Boreal Shield: Athabasca Plain, Churchill River Upland

Ecozones and Ecoregions of Manitoba: Boreal Plains, Boreal Shield

Manitoba Protected Areas Initiative Natural Regions: Boreal Plains, Manitoba Lowlands, Precambrian Boreal Forest, Western Upland

Ecological Land Classification of Ontario (ecoregions and ecodistricts): 2W-1, 2W-3, 3S-1, 3S-2, 4S-2



Corresponding Types and Associations

CNVC00127	Alberta	NN/BH/A/01/01	Pj / bearberry / lichen
		NN/BM/A/01/01	Pj / bearberry / lichen
		NN/BM/A/01/02	Pj / blueberry / lichen
		NN/BM/A/01/03	Pj / green alder / lichen
		NN/CS/A/01/01	Pj / bearberry / lichen
		NN/CS/A/01/02	Pj / blueberry / lichen
		NN/CS/A/01/03	Pj / juniper / lichen
		NN/CS/A/01/04	Pj / green alder / lichen
		NN/SB/A/01/01	Pl / bearberry / lichen
	Saskatchewan	BP2	Jack pine / lichen: Moderately fresh sand
		BS3	Jack pine / blueberry / lichen: Dry nonsoil
	Ontario	BTr1-2	Pinus banksiana / Vaccinium myrtilloides / Cladonia spp.

Forest / Forêt **Association CNVC00127**

Pinus banksiana / *Vaccinium myrtilloides* / *Arctostaphylos uva-ursi* / *Cladina* spp.

Jack Pine / Velvet-leaved Blueberry / Common Bearberry / Reindeer Lichens
Pin gris / Bleuet fausse-myrtille / Raisin d'ours / Cladonies

Vegetation Summary*

Species Name[T]	Association CNVC00127 272 plots % Cover[±]	% Presence^
Overstory Trees		
Pinus banksiana	**28**	**100**
Picea mariana	9	28
Tree Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})[‡]	**(10 16 31 40 60)**	
Understory Woody Shrubs and Regenerating Trees		
Vaccinium myrtilloides	**11**	**86**
Pinus banksiana	3	58
Picea mariana	4	37
Rhododendron groenlandicum	5	28
Shrub Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})[‡]	**(2 4 18 25 46)**	
Understory Herbs and Dwarf Shrubs		
Vaccinium vitis-idaea	6	76
Arctostaphylos uva-ursi	**9**	**60**
Maianthemum canadense	2	36
Linnaea borealis	4	21
Herb Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})[‡]	**(1 2 16 22 41)**	
Bryophytes and Lichens		
Cladina mitis	**33**	**93**
Cladonia sp.	7	79
Pleurozium schreberi	11	63
Cladina stellaris	**6**	**57**
Cladina rangiferina	**8**	**50**
Dicranum polysetum	1	44
Evernia mesomorpha	1	38
Hypogymnia physodes	1	38
Tuckermannopsis americana	1	34
Vulpicida pinastri	1	31
Flavocetraria nivalis	1	29
Dicranum sp.	1	29
Usnea hirta	1	27
Polytrichum piliferum	3	26
Polytrichum juniperinum	1	25
Ptilidium ciliare	1	25
Polytrichum sp.	1	24
Parmeliopsis ambigua	1	23

Pinus banksiana / *Vaccinium myrtilloides* / *Arctostaphylos uva-ursi* / *Cladina* spp. CNVC00127

Vegetation Summary (cont'd)*

	Association CNVC00127	
Species Name[†]	% Cover[±]	% Presence^
Parmelia sulcata	1	21
Pohlia nutans	1	20
Bryo-Lichen Stratum Cover		
(P_{10} P_{25} Mean P_{75} P_{90})[‡]	**(20 36 58 80 98)**	

* 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

[‡] $P_x = X^{th}$ percentile (e.g., $P_{10} = 10^{th}$ percentile)

Forest / Forêt **Association CNVC00127**

Pinus banksiana / *Vaccinium myrtilloides* / *Arctostaphylos uva-ursi* / *Cladina* spp.

Jack Pine / Velvet-leaved Blueberry / Common Bearberry / Reindeer Lichens
Pin gris / Bleuet fausse-myrtille / Raisin d'ours / Cladonies

Site / Soil Characteristics

	Association CNVC00127
	272 plots
Elevation Range (min–mean–max meters)	
	131–439–811
	missing data (13)
Slope Gradient (% frequency)	
	steep (4)
	moderately steep (7)
	moderate (8)
	gentle (19)
	level (59)
	missing data (3)
Aspect (% frequency)	
	north (19)
	east (12)
	south (24)
	west (23)
	level (19)
	missing data (3)
Meso Topoposition (% frequency)	
	crest / upper (42)
	mid (24)
	lower / toe (12)
	depression (0)
	level (19)
	missing data (3)
Moisture Regime (% frequency)	
	very dry (4)
	dry (76)
	mesic (15)
	moist (4)
Nutrient Regime (% frequency)	
	poor (36)
	medium (5)
	missing data (59)

Pinus banksiana / *Vaccinium myrtilloides* / *Arctostaphylos uva-ursi* / *Cladina* spp. CNVC00127

Site / Soil Characteristics (cont'd)

	Association CNVC00127
Soil Parent Material (% frequency)	
	bedrock (3)
	colluvium (1)
	eolian (19)
	moraine / till (24)
	fluvial (24)
	glaciofluvial (20)
	lacustrine (3)
	glaciolacustrine (4)
	missing data (2)
Soil Rooting Zone Substrate (% frequency)	
	non-soil (4)
	sandy (36)
	coarse loamy (2)
	clayey (1)
	missing data (57)
Root Restricting Depth (% frequency)	
	0 – 20 cm (3)
	21 – 99 cm (3)
	≥ 100 cm (50)
	missing data (44)
Humus Form (% frequency)	
	mor (67)
	mull (1)
	peatymor (2)
	missing data (27)

Forest / Forêt **Association CNVC00127**

Pinus banksiana / Vaccinium myrtilloides / Arctostaphylos uva-ursi / Cladina spp.

Jack Pine / Velvet-leaved Blueberry / Common Bearberry / Reindeer Lichens
Pin gris / Bleuet fausse-myrtille / Raisin d'ours / Cladonies

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 comparable boreal and foothills sites in western Alberta and northern British Columbia and has dominance of *Pinus contorta* var. *latifolia*, rather than *P. banksiana*.

CNVC00244 [*Picea mariana – Pinus banksiana / Vaccinium myrtilloides / V. vitis-idaea / Cladina* spp.] occurs on similar sites from Saskatchewan to northwestern Ontario but has both *Picea mariana* and *Pinus banksiana* in the tree layer, usually with *P. mariana* dominant (see Dynamics).

CNVC00245 [*Pinus banksiana / Vaccinium angustifolium / Cladina* spp.] occurs in southeastern Manitoba and Ontario on comparable boreal sites but lacks *Vaccinium vitis-idaea* and *Arctostaphylos uva-ursi* and has *V. angustifolium* as the dominant shrub.

CNVC00248 [*Pinus banksiana (Picea mariana) / Vaccinium myrtilloides / Pleurozium schreberi*] ranges from Saskatchewan to northwestern Ontario but usually occurs on better sites with greater canopy cover, sometimes including *Picea mariana*. It also has greater cover of feathermosses and less of *Cladina* lichens (see Dynamics).

CNVC00323 [*Pinus banksiana – Picea mariana / Vaccinium vitis-idaea / Pleurozium schreberi (Hylocomium splendens)*] occurs in Alberta and Saskatchewan, usually on better sites with greater canopy cover, sometimes including *Picea mariana*. It also has greater cover of feathermosses and less of *Cladina* lichens (see Dynamics).

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

In southwestern Manitoba, CNVC00127 partially matches the concept of ES13 [Jack Pine - Black Spruce - Feathermoss on Dry to Fresh Sandy Soil] in Arnup et al. 2006.

Comments

Where CNVC00127 occurs at higher elevations (i.e., above 650 mASL) in northern Alberta, *Pinus banksiana* may form fertile hybrids with *P. contorta* var. *latifolia* that are recognized by intermediate cone characters; ecologically, the hybrid pine (*P. murraybanksiana*) occupies comparable sites. Stands of hybrid pine with similar understories on comparable sites are classified as CNVC00127 in northeastern Alberta (e.g., Birch Mountains). Such stands at higher elevations in the Caribou Mountains and west are classified as CNVC00118 [*Pinus contorta / Vaccinium vitis-idaea – Arctostaphylos uva-ursi / Cladina* spp.].

Pinus banksiana / *Vaccinium myrtilloides* / *Arctostaphylos uva-ursi* / *Cladina* spp. CNVC00127

Source Information

Number of source plots for CNVC00127: 272

Information Sources:

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Concept Authors: L. Allen, K. Baldwin, K. Chapman, M. McLaughlan, P. Uhlig, M. Wester

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

Date of Concept: November, 2011

Date of Description: March, 2016

Classification References:

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Pinus banksiana / *Vaccinium myrtilloides* / *Arctostaphylos uva-ursi* / *Cladina* spp. CNVC00127

Characterization References (cont'd):

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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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