



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00248

Pinus banksiana (Picea mariana) / Vaccinium myrtilloides / Pleurozium schreberi
Jack Pine (Black Spruce) / Velvet-leaved Blueberry / Red-stemmed Feathermoss
Pin gris (Épinette noire) / Bleuets fausse-myrtille / Pleurozie dorée

Subassociations: none

CNVC Alliance: CA00021 *Picea mariana* – *Pinus banksiana* / *Vaccinium myrtilloides* / *V. vitis-idaea* / *Pleurozium schreberi*

CNVC Group: CG0010 Central Boreal Mesic-Moist Black Spruce – Jack Pine Forest



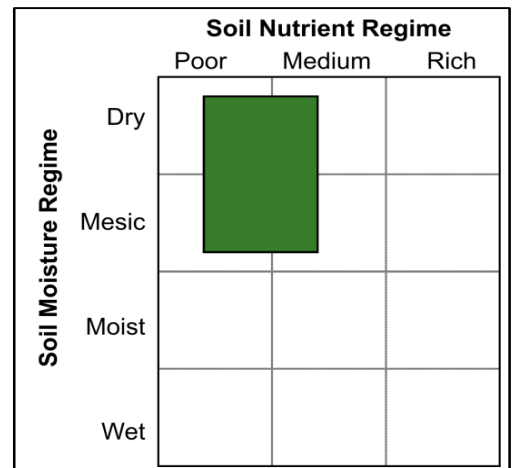
Source: Natural Resources Canada - Canadian Forest Service

Type Description

Concept: CNVC00248 is a boreal coniferous forest Association that ranges from Saskatchewan to Ontario. It has an open to closed canopy of jack pine (*Pinus banksiana*), often with a minor component of black spruce (*Picea mariana*). The moderately developed shrub layer typically includes velvet-leaved blueberry (*Vaccinium myrtilloides*), usually with regenerating black spruce. The herb and dwarf shrub layer is sparse; lingonberry (*V. vitis-idaea*) is the only common species. A well-developed moss layer dominated by red-stemmed feathermoss (*Pleurozium schreberi*) further characterizes this Association. CNVC00248 occurs on dry to mesic, nutrient-poor to medium sites in a region with a subhumid continental boreal climate. It is an early seral condition with dynamics that are driven by fire.

Vegetation: CNVC00248 is a coniferous forest Association with an open to closed canopy of *Pinus banksiana*, often with a minor component of *Picea mariana*. The shrub layer is usually moderately developed but can vary from sparse to dense, depending on the patchiness of shrubs. *Vaccinium myrtilloides* is the only common species, but *Alnus viridis*, *Rhododendron groenlandicum* and/or regenerating *P. mariana* are sometimes present. The herb and dwarf shrub layer is sparse, with *V. vitis-idaea* the only common species. The moss layer is well developed and dominated by *Pleurozium schreberi*, with minor amounts of *Cladonia* and *Cladonia* lichens and *Dicranum* mosses.

Environment: CNVC00248 occurs in a subhumid continental boreal climate where regional fire cycles are short (<100 years) or intermediate (100-270 years). It is mainly found on dry to mesic, nutrient-poor to medium sites. Stands are usually on level sites, or less commonly, on gentle to moderate slopes, on water-shedding, crest or upper to middle-slope topopositions. Soils are usually deep and rapidly or well drained. Often they are sands or coarse loams in morainal, fluvial or glaciofluvial surficial deposits. Mor humus forms are common.





Pinus banksiana (Picea mariana) / Vaccinium myrtilloides / Pleurozium schreberi
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Type Description (cont'd)

Dynamics: CNVC00248 is an early seral Association that is naturally perpetuated by stand-replacing fire. *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 melt the resin of cones to release their seeds. These fires also 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.

Picea mariana is often a component of these stands. It also recolonizes fire-prepared sites as part of the first cohort. *P. banksiana* grows more rapidly than *P. mariana*, so it usually dominates the initial stand with *P. mariana* in the understory or subcanopy. *P. mariana* is longer lived, more shade tolerant and better able to regenerate in the absence of fire, so it can become dominant on these sites over time, forming CNVC00249 [*Picea mariana (Pinus banksiana) / Vaccinium myrtilloides / Pleurozium schreberi*].

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 these stands after an outbreak.

Range: CNVC00248 occurs in the boreal region of west-central Canada from Saskatchewan, near the Alberta border, to north of Lake Nipigon in northwestern Ontario. It is described from the boreal plains in Saskatchewan and the Precambrian Shield in Saskatchewan and Ontario.

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: Manitoba, Ontario, Saskatchewan

Terrestrial Ecozones and Ecoregions of Canada: Boreal Plains: Boreal Transition, Mid-Boreal Lowland, Mid-Boreal Uplands; Boreal Shield: Athabasca Plain, Big Trout Lake, Churchill River Upland, Lac Seul Upland

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

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

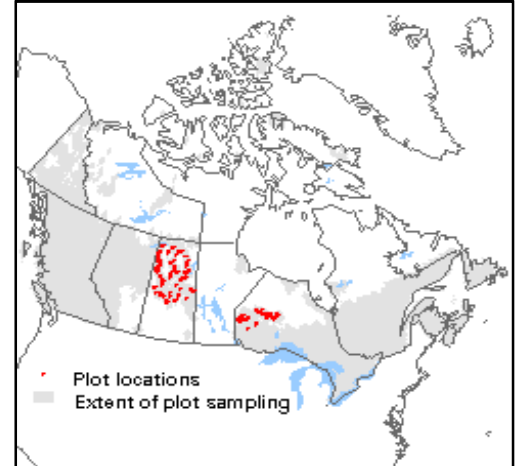
Nature Conservancy of Canada Ecoregions: Boreal Plains, Boreal Shield

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: Manitoba Lowlands, Precambrian Boreal Forest, Western Upland

Ecological Land Classification of Ontario (ecoregions and ecodistricts): 2W-1, 2W-3, 3S-1, 3S-2, 3S-3, 3S-4, 3S-5



Corresponding Types and Associations

CNVC00248	Saskatchewan	BP3	Jack pine / feathermoss: Moderately fresh loamy sand
		BS4	Jack pine - black spruce / feathermoss: Moderately dry sand
		BS5	Jack pine - white birch / feathermoss: Moderately dry sand
	Ontario	BTr4-1	<i>Pinus banksiana (Picea mariana) / Vaccinium myrtilloides / Pleurozium schreberi</i>



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Pin gris (Épinette noire) / Bleuets fausse-myrtille / Pleurozie dorée

Vegetation Summary*

Species Name ^T	Association CNVC00248 268 plots	
	% Cover ^z	% Presence ^A
Overstory Trees		
<i>Pinus banksiana</i>	39	100
<i>Picea mariana</i>	14	49
<i>Betula papyrifera</i>	8	24
Tree Stratum Cover (P ₁₀ P ₂₅ Mean P ₇₅ P ₉₀) [‡]	(20 31 47 61 77)	
Understory Woody Shrubs and Regenerating Trees		
<i>Vaccinium myrtilloides</i>	9	91
<i>Picea mariana</i>	13	56
<i>Alnus viridis</i>	14	52
<i>Rhododendron groenlandicum</i>	8	49
<i>Betula papyrifera</i>	5	26
<i>Pinus banksiana</i>	2	25
<i>Rosa acicularis</i>	3	22
Shrub Stratum Cover (P ₁₀ P ₂₅ Mean P ₇₅ P ₉₀) [‡]	(3 6 29 42 77)	
Understory Herbs and Dwarf Shrubs		
<i>Vaccinium vitis-idaea</i>	5	69
<i>Linnaea borealis</i>	2	45
<i>Maianthemum canadense</i>	2	39
<i>Cornus canadensis</i>	4	37
<i>Arctostaphylos uva-ursi</i>	5	33
<i>Chamerion angustifolium</i>	1	21
Herb Stratum Cover (P ₁₀ P ₂₅ Mean P ₇₅ P ₉₀) [‡]	(1 3 13 18 35)	
Bryophytes and Lichens		
<i>Pleurozium schreberi</i>	43	93
<i>Cladonia</i> sp.	3	74
<i>Cladina mitis</i>	4	71
<i>Dicranum polysetum</i>	2	67
<i>Hylocomium splendens</i>	2	53
<i>Ptilium crista-castrensis</i>	4	51
<i>Cladina rangiferina</i>	3	50
<i>Dicranum</i> sp.	2	49
<i>Evernia mesomorpha</i>	1	44
<i>Hypogymnia physodes</i>	1	43
<i>Cladina stellaris</i>	3	40
<i>Polytrichum</i> sp.	1	34
<i>Parmelia sulcata</i>	1	32
<i>Polytrichum juniperinum</i>	1	29



Pinus banksiana (Picea mariana) / Vaccinium myrtilloides / Pleurozium schreberi
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Vegetation Summary (cont'd)*

Species Name [†]	Association CNVC00248	
	% Cover [‡]	% Presence [^]
<i>Vulpicida pinastri</i>	1	29
<i>Ptilidium ciliare</i>	< 1	29
<i>Tuckermannopsis americana</i>	1	27
<i>Usnea hirta</i>	1	26
<i>Peltigera sp.</i>	1	25
<i>Pohlia nutans</i>	1	21
Bryo-Lichen Stratum Cover (P ₁₀ P ₂₅ Mean P ₇₅ P ₉₀) [‡]	(10 26 58 94 99)	

* 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

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268 plots

Elevation Range (min–mean–max meters)

214–429–722

missing data (13)

Slope Gradient (% frequency)

very steep (0)

steep (3)

moderately steep (4)

moderate (10)

gentle (14)

level (66)

missing data (1)

Aspect (% frequency)

north (15)

east (18)

south (15)

west (21)

level (31)

missing data (0)

Meso Toposition (% frequency)

crest / upper (38)

mid (19)

lower / toe (18)

depression (2)

level (24)

Moisture Regime (% frequency)

very dry (5)

dry (60)

mesic (25)

moist (10)

Nutrient Regime (% frequency)

missing data (100)



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Site / Soil Characteristics (cont'd)

Association
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Soil Parent Material (% frequency)

bedrock (1)
colluvium (0)
eolian (5)
moraine / till (36)
fluvial (19)
glaciofluvial (18)
lacustrine (10)
glaciolacustrine (3)
organic (1)
missing data (7)

Soil Rooting Zone Substrate (% frequency)

non-soil (1)
sandy (20)
coarse loamy (7)
organic (1)
missing data (71)

Root Restricting Depth (% frequency)

0 – 20 cm (5)
21 – 99 cm (15)
≥ 100 cm (68)
missing data (13)

Humus Form (% frequency)

mor (83)
mull (1)
peatymor (13)
missing data (0)



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Additional Characteristics

Species of High Conservation Concern:

Non-native Species:

Management Issues:

Type Statistics

Internal Similarity:

Confidence:

Strength:

Related Concepts

Similar CNVC Associations:

CNVC00127 [*Pinus banksiana / Vaccinium myrtilloides / Arctostaphylos uva-ursi / Cladina* spp.] occurs on drier, poorer sites in the same range and has a more open tree layer and a moss layer with lower cover of feathermosses and more of *Cladina* lichens.

CNVC00207 [*Pinus banksiana (Picea mariana) / Vaccinium angustifolium / Pleurozium schreberi*] occurs in Ontario on comparable boreal sites. It has little to no *Vaccinium vitis-idaea* in the understory but more *V. angustifolium*, *Diervilla lonicera* and *Gaultheria hispidula*.

CNVC00249 [*Picea mariana (Pinus banksiana) / Vaccinium myrtilloides / Pleurozium schreberi*] occurs on similar or slightly moister sites in the same range but has more abundant (usually dominant) *Picea mariana* (see Dynamics).

CNVC00323 [*Pinus banksiana – Picea mariana / Vaccinium vitis-idaea / Pleurozium schreberi (Hylocomium splendens)*] occurs on the boreal plains of Alberta, Saskatchewan and Manitoba on comparable sites. It can have more *Picea mariana* in the tree layer and has richer herb diversity because of the greater nutrient status of the glacial soils of the boreal plains.

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

Comments

On the Precambrian Shield in Alberta, all mixed *Picea mariana – Pinus banksiana / Pleurozium schreberi* stands are classified as CNVC00249 [*Picea mariana (Pinus banksiana) / Vaccinium myrtilloides / Pleurozium schreberi*].

Source Information

Number of source plots for CNVC00248: 268

Information Sources:

McLaughlan, M.S.; Wright, R.A.; Jiricka, R.D. 2010. Saskatchewan forest ecosystem classification [data set]. Sask. Min. Environ. For. Serv., Prince Albert, SK.

McMurray, S.C., Johnson, J.A., Zhou, K., Uhlig, P.W.C. 2015. Ontario ecological land classification program - Ecological Data Repository (EDR). Ont. Min. Nat. Resour. & For., Sci. & Info. Branch, Sault Ste. Marie, ON.

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

Description Authors: K. Baldwin and K. Chapman

Date of Concept: November, 2011

Date of Description: March, 2016



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Classification References:

McLaughlan, M.S.; Wright, R.A.; Jiricka, R.D. 2010. Field guide to the ecosites of Saskatchewan's provincial forests. Sask. Min. Environ., For. Serv., Prince Albert, SK.

Uhlig, P.W.C., Chapman, K., Baldwin, K., Wester, M., Yanni, S. 2016. Draft boreal treed vegetation type factsheets. Ecol. Land Class. Prog., Ont. Min. Nat. Resour. & For., Sci. & Info Branch, Sault Ste. Marie, ON.

Characterization References:

Bergeron, Y.; Chen, H.Y.H.; Kenkel, N.C.; Leduc, A.; Macdonald, S.E. 2014. Boreal mixedwood stand dynamics: ecological processes underlying multiple pathways. *For. Chron.* 90(2):202-213.

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Gauthier, S.; Gagnon, J.; Bergeron, Y. 1993. Population age structure of *Pinus banksiana* at the southern edge of the Canadian boreal forest. *J. Veg. Sci.* 4:783-790.

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. 1995. Population biology of the jack pine budworm. Pages 55-71 in: W.J.A. Volney, V.G. Nealis, G.M. Howse, A.R. Westwood, D.R. McCullough, and B.L. Laishley (eds.) *Jack Pine Budworm Biology and Management*, Proc. of the Jack Pine Budworm Symp. January 24-26, 1995. Winnipeg, MB. Nat. Resour. Can., Can. For. Serv., North. For. Centre, Edmonton, AB. Info. Rep. NOR-X-342.

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

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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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