Canadian National Vegetation Classification (CNVC)
Classification nationale de la végétation du Canada (CNVC)
http://cnvc-cnvc.ca

Forest / Forêt **Association CNVC00249**

Picea mariana (Pinus banksiana) / Vaccinium myrtilloides / Pleurozium schreberi

Black Spruce (Jack Pine) / Velvet-leaved Blueberry / Red-stemmed Feathermoss
Épinette noire (Pin gris) / Bleuet 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

Type Description

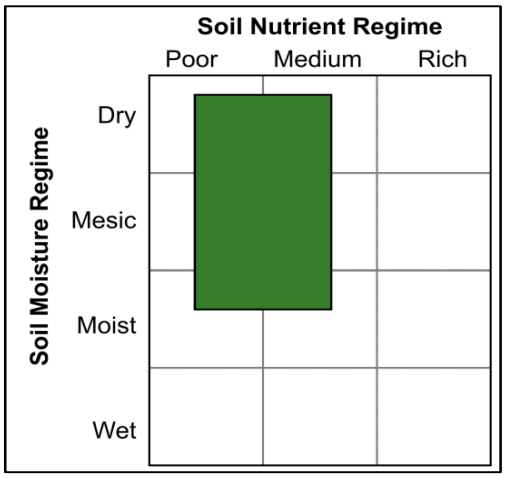
Concept: CNVC00249 is a boreal coniferous forest Association that ranges from Alberta to Ontario. It has a moderately closed canopy dominated by black spruce (*Picea mariana*), usually with lower abundance of jack pine (*Pinus banksiana*). The shrub layer varies from poorly to well developed but typically includes regenerating black spruce and the ericaceous species velvet-leaved blueberry (*Vaccinium myrtilloides*) and common Labrador tea (*Rhododendron groenlandicum*). The herb and dwarf shrub layer is sparse; lingonberry (*V. vitis-idaea*) is the only common species. A continuous moss layer dominated by red-stemmed feathermoss (*Pleurozium schreberi*), with lower abundance of stairstep moss (*Hylocomium splendens*), knight's plume moss (*Ptilium crista-castrensis*), wavy-leaved broom moss (*Dicranum polysetum*) and reindeer (*Cladina* spp.) and *Cladonia* lichens, further characterizes this Association. CNVC00249 occurs on dry to moist, nutrient-poor to medium sites in a region with a subhumid continental boreal climate. It can be the first cohort after fire or succeed earlier seral conditions.

Vegetation: CNVC00249 is a coniferous forest Association with a moderately closed canopy dominated by *Picea mariana,* with lower abundance of *Pinus banksiana.* The shrub layer is usually moderately developed but can vary from poorly to well developed, depending on the patchiness of shrubs. It typically includes regenerating *P. mariana* and the heath species *Vaccinium myrtilloides* and *Rhododendron groenlandicum,* although *Alnus viridis* can be abundant where present. The herb and dwarf shrub layer is sparse; *V. vitis-idaea* is the only common species. The moss layer is continuous and dominated by *Pleurozium schreberi,* with lower abundance of *Hylocomium splendens* and *Ptilium crista-castrensis* and occasional patches of *Dicranum* mosses and *Cladonia* and *Cladina* lichens.

Environment: CNVC00249 occurs in a subhumid continental boreal climate. It can occupy a wide range of site conditions; it is commonly found on dry to moist, nutrient-poor to medium sites. Stands are usually on level sites or gentle slopes on water-shedding, crest or upper to middle-slope topopositions, but they also occur on lower or toe slopes. Soils are typically deep to moderately deep and well drained. Often they are sands or coarse loams in morainal surficial deposits, but stands also occur on fine-textured lacustrine sediments. The variation in soil textures, surficial deposits and site topopositions gives rise to the large range in moisture regime for this Association. Mor humus forms are common, but peatymors frequently develop on moist sites.

CNVC00249 occurs where regional fire cycles are short (<100 years) or intermediate (100-270 years). Fire cycle length and site conditions influence the relative dominance of *Picea mariana* and *Pinus banksiana* in each stand. Moister sites and longer fire cycles favour *P. mariana*.

Source: Natural Resources Canada - Canadian Forest Service



Picea mariana (Pinus banksiana) / Vaccinium myrtilloides / Pleurozium schreberi
CNVC00249

Type Description (cont'd)

Dynamics: CNVC00249 can recolonize after fire or succeed earlier seral Associations in which pioneer species are dominant. Stands commonly comprise both *Picea mariana* and *Pinus banksiana*. Both of these species rarely survive fire but have cones that open when heated to disperse seeds. Seedbeds are usually improved by a fire that reduces the organic matter thickness and exposes mineral soil. Fire can also reduce competing vegetation and help to release nutrients from the organic matter. Maximum seed release can therefore coincide with optimal conditions for seedling establishment, survival and growth of both species.

P. banksiana grows more rapidly than *P. mariana,* so it can dominate the initial post-fire stand with *P. mariana* in the understory or subcanopy (e.g., CNVC00248 [*Pinus banksiana (Picea mariana) / Vaccinium myrtilloides / Pleurozium schreberi*]). *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. These older stands develop an uneven-age structure.

On occasion, pioneer species such as *Populus tremuloides* or *Betula papyrifera* can play a greater role in the initial post-fire stand (e.g., CNVC00125 [*Populus tremuloides – Pinus banksiana / Vaccinium myrtilloides / V. vitis-idaea*]). Unless the time between successive fires is short (<100 years), this early seral condition can succeed to CNVC00249 as *P. mariana* becomes dominant and self-replaces over time.

Range: CNVC00249 occurs on the Precambrian Shield in the boreal region of west-central Canada, from northeastern Alberta to northwestern Ontario, north of Lake Nipigon.

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, Manitoba, Ontario, Saskatchewan

Terrestrial Ecozones and Ecoregions of Canada: Boreal Shield: Athabasca Plain, Big Trout Lake, Churchill River Upland, Lac Seul Upland, Lake Nipigon; Taiga Plains; Taiga Shield: Tazin Lake Upland

Rowe's Forest Regions and Sections of Canada: Boreal: Athabasca South, Central Plateau, Northern Coniferous, Northwestern Transition

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

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

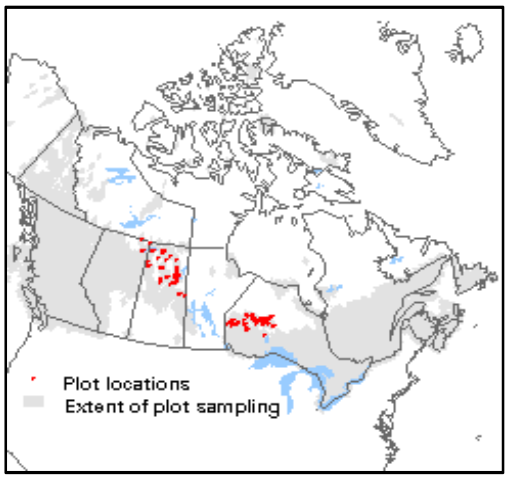
Natural Regions and Subregions of Alberta: Canadian Shield: Kazan Uplands

Ecozones and Ecoregions of Saskatchewan: Boreal Shield: Athabasca Plain, Churchill River Upland

Ecozones and Ecoregions of Manitoba: Boreal Shield

Manitoba Protected Areas Initiative Natural Regions: Precambrian Boreal Forest

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



Corresponding Types and Associations

CNVC00249	Alberta	NN/CS/C/01/01	Pj - Sb / black spruce - Labrador tea / feather moss
		NN/CS/D/01/01	Sb - Pj / black spruce - Labrador tea / feather moss
	Saskatchewan	BS10	Black spruce - white birch / feathermoss: Fresh sand
		BS8	Black spruce - white birch / lichen: Moderately fresh sandy loam
		BS9	Black spruce - jack pine / feathermoss: Moderately fresh sandy loam
	Ontario	BTr7-1	Picea mariana (Pinus banksiana) / Vaccinium myrtilloides / Pleurozium schreberi
		BTr7-4	Picea mariana - Pinus banksiana (Populus tremuloides) / Vaccinium myrtilloides / Pleurozium schreberi

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Picea mariana (Pinus banksiana) / Vaccinium myrtilloides / Pleurozium schreberi

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Vegetation Summary*

Species Name[T]	Association CNVC00249 309 plots % Cover[±]	% Presence^
Overstory Trees		
Picea mariana	**44**	**96**
Pinus banksiana	**18**	**65**
Betula papyrifera	7	25
Populus tremuloides	14	22
Tree Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})‡	**(28 40 57 73 88)**	
Understory Woody Shrubs and Regenerating Trees		
Picea mariana	15	90
Vaccinium myrtilloides	**5**	**80**
Rhododendron groenlandicum	13	73
Alnus viridis	14	37
Betula papyrifera	7	28
Shrub Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})‡	**(4 11 35 52 83)**	
Understory Herbs and Dwarf Shrubs		
Vaccinium vitis-idaea	3	62
Cornus canadensis	6	41
Gaultheria hispidula	4	41
Linnaea borealis	3	28
Goodyera repens	< 1	23
Herb Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})‡	**(1 1 11 14 28)**	
Bryophytes and Lichens		
Pleurozium schreberi	**54**	**99**
Dicranum polysetum	3	90
Hylocomium splendens	8	87
Ptilium crista-castrensis	16	77
Cladonia sp.	2	61
Cladina rangiferina	2	57
Cladina mitis	5	50
Cladina stellaris	2	40
Ptilidium ciliare	1	39
Dicranum ontariense	2	28
Peltigera aphthosa	1	25
Dicranum sp.	1	25
Evernia mesomorpha	1	23
Hypogymnia physodes	1	23
Peltigera sp.	1	21
Ptilidium pulcherrimum	1	21
Bryo-Lichen Stratum Cover (P10 P25 Mean P75 P90)‡	**(55 79 84 99 100)**	

Picea mariana (Pinus banksiana) / Vaccinium myrtilloides / Pleurozium schreberi CNVC00249

* 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)

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Site / Soil Characteristics

	Association CNVC00249
	309 plots
Elevation Range (min–mean–max meters)	
	180–385–543
	missing data (27)
Slope Gradient (% frequency)	
	steep (4)
	moderately steep (5)
	moderate (10)
	gentle (20)
	level (61)
	missing data (0)
Aspect (% frequency)	
	north (18)
	east (16)
	south (13)
	west (17)
	level (36)
	missing data (0)
Meso Topoposition (% frequency)	
	crest / upper (30)
	mid (24)
	lower / toe (19)
	depression (2)
	level (26)
Moisture Regime (% frequency)	
	very dry (6)
	dry (39)
	mesic (33)
	moist (21)
	wet (0)
	missing data (0)
Nutrient Regime (% frequency)	
	poor (2)
	medium (1)
	missing data (97)

Picea mariana (Pinus banksiana) / Vaccinium myrtilloides / Pleurozium schreberi
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Site / Soil Characteristics (cont'd)

	Association CNVC00249
Soil Parent Material (% frequency)	
	bedrock (1)
	colluvium (0)
	eolian (1)
	moraine / till (40)
	fluvial (3)
	glaciofluvial (7)
	lacustrine (28)
	glaciolacustrine (5)
	organic (2)
	missing data (14)
Soil Rooting Zone Substrate (% frequency)	
	non-soil (1)
	sandy (23)
	coarse loamy (16)
	fine loamy (4)
	silty (3)
	clayey (4)
	organic (2)
	missing data (49)
Root Restricting Depth (% frequency)	
	0 – 20 cm (6)
	21 – 99 cm (27)
	≥ 100 cm (37)
	missing data (29)
Humus Form (% frequency)	
	mor (70)
	moder (1)
	mull (0)
	peatymor (26)
	missing data (3)

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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:

CNVC00128 [*Picea mariana / Vaccinium vitis-idaea / Pleurozium schreberi (Hylocomium splendens)*] occurs on the boreal plains of Alberta, Saskatchewan and Manitoba on comparable sites. It has richer herb diversity because of the greater nutrient status of the glacial soils of the boreal plains.

CNVC00208 [*Picea mariana – Pinus banksiana / Vaccinium angustifolium / Pleurozium schreberi*] occurs in southeastern Manitoba and Ontario on comparable boreal sites but has less *Vaccinium vitis-idaea* and more abundant *V. angustifolium, Diervilla lonicera, Gaultheria hispidula, Clintonia borealis* and *Eurybia macrophylla*.

CNVC00244 [*Picea mariana – Pinus banksiana / Vaccinium myrtilloides / V. vitis-idaea / 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 (see Dynamics).

CNVC00248 [*Pinus banksiana (Picea mariana) / Vaccinium myrtilloides / Pleurozium schreberi*] occurs on similar or slightly drier sites in the same range and is dominated by *Pinus banksiana* (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 has *Pinus banksiana* dominant and 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.

Source Information

Number of source plots for CNVC00249: 309
Information Sources:

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

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: L. Allen, 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

Picea mariana (Pinus banksiana) / Vaccinium myrtilloides / Pleurozium schreberi
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Classification References:

Beckingham, J.D.; Archibald, J.H. 1996. Field guide to ecosites of northern Alberta. Nat. Resour. Can., Can. For. Serv., North. For. Cent., Edmonton, AB. Spec. Rep. 5.

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:

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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.

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Nealis, V.G. 2015. Comparative ecology of conifer-feeding spruce budworms (Lepidoptera: Tortricidae). Can. Entomol. 00:1-25.

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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.

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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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