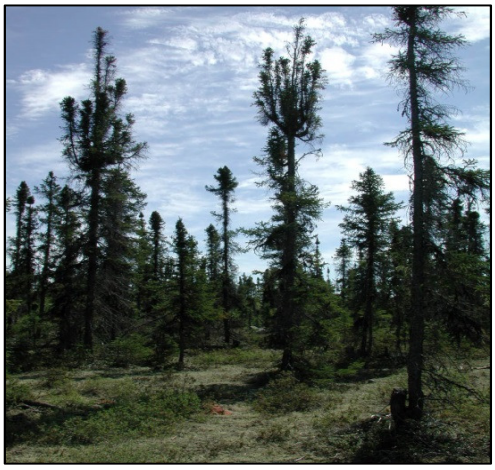
Forest / Forêt **Association CNVC00244**

Picea mariana – Pinus banksiana / Vaccinium myrtilloides / V. vitis-idaea / Cladina spp.

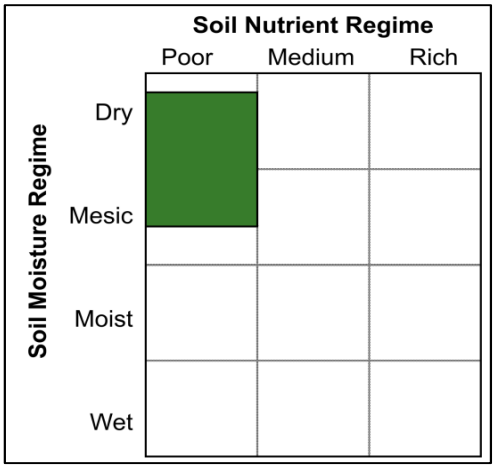
Black Spruce – Jack Pine / Velvet-leaved Blueberry / Lingonberry / Reindeer Lichens

Épinette noire – Pin gris / Bleuet fausse-myrtille / Airelle rouge / 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: CNVC00244 is a boreal coniferous forest Association that ranges from Saskatchewan to Ontario. It has an open to moderately closed tree layer of black spruce (*Picea mariana*) and jack pine (*Pinus banksiana*), usually with black spruce dominant. Shrub and herb layers are poorly developed, with low abundance of black spruce, velvet-leaved blueberry (*Vaccinium myrtilloides*) and common Labrador tea (*Rhododendron groenlandicum*) in the shrub layer and lingonberry (*V. vitis-idaea*) in the 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 red-stemmed feathermoss (*Pleurozium schreberi*) and *Cladonia* lichens are also present. CNVC00244 occurs mainly on dry, nutrient-poor sites in a region with a subhumid continental boreal climate. The dynamics of CNVC00244 are driven by fire. It can be the first cohort after fire or succeed earlier seral conditions. Time since fire and site conditions can affect the relative dominance of black spruce and jack pine in each stand of this Association.

Vegetation: CNVC00244 is a coniferous forest Association with an open to moderately closed tree layer of *Picea mariana* and *Pinus banksiana*, usually with *P. mariana* dominant. Shrub and herb layers are poorly developed. *P. mariana* and ericaceous species characterize the understory: *Vaccinium myrtilloides* and *Rhododendron groenlandicum* in the shrub layer and *V. vitis-idaea* in the herb and dwarf shrub layer. The moss and lichen layer is well developed and characterized by abundant drought-tolerant lichens, including *Cladina mitis, C. stellaris* and *C. rangiferina,* with some *Cladonia* spp. Patches of *Pleurozium schreberi* are often present on moister microsites (e.g., shady areas and depressions).

Environment: CNVC00244 occurs in a subhumid continental boreal climate, mainly on dry, nutrient-poor sites. Stands are usually on level sites or gentle to moderate slopes on water-shedding, crest or upper to middle-slope topopositions. Less frequently, CNVC00244 develops on moist sites. Soils are coarse-textured and well or rapidly drained, typically developed in deep morainal deposits, although some stands can also be found on shallow soils over bedrock. Mor humus forms are typical.

CNVC00244 occurs where regional fire cycles are short (<100 years) or intermediate (100-270 years). Time since fire as well as site conditions influence the relative dominance of *Picea mariana* and *Pinus banksiana* in each stand. Greater time since fire and moister site conditions, such as finer-textured soils and lower slope topopositions, favour increased *P. mariana* content.

Picea mariana – Pinus banksiana / *Vaccinium myrtilloides* / *V. vitis-idaea* / *Cladina* spp. CNVC00244

Type Description (cont'd)

Dynamics: CNVC00244 usually develops on edaphically limited sites where fire is the primary disturbance. Stands generally comprise both *Picea mariana* and *Pinus banksiana*. These species rarely survive fire, but both have cones that open when heated to release large quantities of seeds, enabling them to recolonize fire-prepared sites. *P. mariana* is slower growing than *P. banksiana* but longer lived and better able to regenerate in the absence of fire, so it can become dominant on these sites over time. However, because of the high frequency of fires within the range of CNVC00244 and the slow rate of succession on these dry, poor sites, late seral conditions are rare.

CNVC00244 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*]). 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.

Range: CNVC00244 occurs in the boreal region of west-central Canada from Saskatchewan, near Lake Athabasca, to north of Lake Nipigon in northwestern Ontario. It is described from 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

Forest / Forêt **Association CNVC00244**

Picea mariana – Pinus banksiana / Vaccinium myrtilloides / V. vitis-idaea / Cladina spp.

Black Spruce – Jack Pine / Velvet-leaved Blueberry / Lingonberry / Reindeer Lichens
Épinette noire – Pin gris / Bleuet fausse-myrtille / Airelle rouge / Cladonies

Distribution

Countries: Canada

Provinces / Territories / States: Manitoba, Ontario, Saskatchewan

Terrestrial Ecozones and Ecoregions of Canada: 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, Northern Coniferous, Northwestern Transition

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

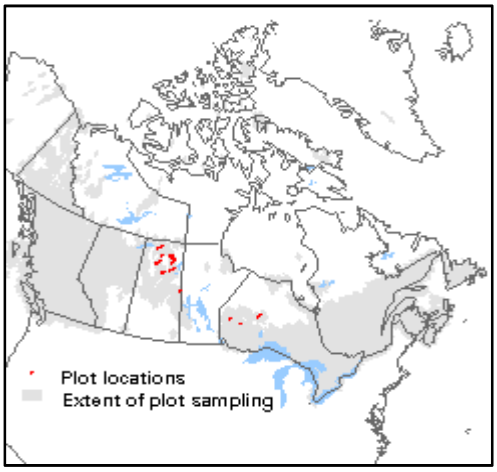
Nature Conservancy of Canada Ecoregions: Boreal Shield

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



Corresponding Types and Associations

CNVC00244	Saskatchewan	BS7	Black spruce / blueberry / lichen: Moderately dry sand
	Ontario	BTr4-11	Pinus banksiana - Picea mariana - Vaccinium myrtilloides / Cladonia spp.

Forest / Forêt **Association CNVC00244**

Picea mariana – Pinus banksiana / Vaccinium myrtilloides / V. vitis-idaea / Cladina spp.

Black Spruce – Jack Pine / Velvet-leaved Blueberry / Lingonberry / Reindeer Lichens

Épinette noire – Pin gris / Bleuet fausse-myrtille / Airelle rouge / Cladonies

Vegetation Summary*

Species Name†	Association CNVC00244 33 plots % Cover±	% Presence^
Overstory Trees		
Picea mariana	**31**	**97**
Pinus banksiana	**15**	**85**
Tree Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})‡	**(14 22 42 58 75)**	
Understory Woody Shrubs and Regenerating Trees		
Picea mariana	6	91
Vaccinium myrtilloides	**8**	**85**
Rhododendron groenlandicum	6	79
Salix sp.	2	24
Shrub Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})‡	**(4 11 18 24 35)**	
Understory Herbs and Dwarf Shrubs		
Vaccinium vitis-idaea	**2**	**85**
Herb Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})‡	**(1 1 3 3 6)**	
Bryophytes and Lichens		
Pleurozium schreberi	10	94
Cladonia sp.	7	94
Cladina mitis	**25**	**91**
Cladina stellaris	**10**	**85**
Cladina rangiferina	**6**	**82**
Dicranum polysetum	1	64
Tuckermannopsis americana	1	55
Hypogymnia physodes	1	52
Dicranum sp.	4	48
Flavocetraria nivalis	1	48
Evernia mesomorpha	1	48
Parmeliopsis ambigua	1	45
Parmeliopsis hyperopta	1	45
Vulpicida pinastri	1	45
Imshaugia aleurites	1	39
Stereocaulon tomentosum	4	36
Hylocomium splendens	1	36
Peltigera sp.	1	36
Parmelia sulcata	1	36
Ptilidium pulcherrimum	< 1	36
Dicranum fuscescens	1	33
Ptilidium ciliare	1	33

Picea mariana – Pinus banksiana / *Vaccinium myrtilloides* / *V. vitis-idaea* / *Cladina* spp. CNVC00244

Vegetation Summary (cont'd)*

	Association CNVC00244	
Species Name†	% Cover±	% Presence^
Bryoria furcellata	1	33
Bryoria simplicior	1	30
Pohlia nutans	1	27
Polytrichum juniperinum	< 1	24
Polytrichum sp.	< 1	24
Bryo-Lichen Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})‡	**(20 46 66 88 100)**	

* 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 CNVC00244**

Picea mariana – Pinus banksiana / Vaccinium myrtilloides / V. vitis-idaea / Cladina spp.

Black Spruce – Jack Pine / Velvet-leaved Blueberry / Lingonberry / Reindeer Lichens
Épinette noire – Pin gris / Bleuet fausse-myrtille / Airelle rouge / Cladonies

Site / Soil Characteristics

	Association CNVC00244
	33 plots
Elevation Range (min–mean–max meters)	
	242–444–544
	missing data (6)
Slope Gradient (% frequency)	
	steep (3)
	moderately steep (3)
	moderate (21)
	gentle (21)
	level (52)
Aspect (% frequency)	
	north (21)
	east (21)
	south (24)
	west (24)
	level (9)
Meso Topoposition (% frequency)	
	crest / upper (39)
	mid (24)
	lower / toe (24)
	depression (3)
	level (9)
Moisture Regime (% frequency)	
	very dry (12)
	dry (64)
	mesic (12)
	moist (12)
Nutrient Regime (% frequency)	
	missing data (100)

Picea mariana – Pinus banksiana / *Vaccinium myrtilloides* / *V. vitis-idaea* / *Cladina* spp. CNVC00244

Site / Soil Characteristics (cont'd)

	Association CNVC00244
Soil Parent Material (% frequency)	
	bedrock (6)
	eolian (3)
	moraine / till (70)
	fluvial (6)
	glaciofluvial (6)
	glaciolacustrine (6)
	missing data (3)
Soil Rooting Zone Substrate (% frequency)	
	non-soil (6)
	sandy (6)
	coarse loamy (3)
	missing data (85)
Root Restricting Depth (% frequency)	
	0 – 20 cm (18)
	21 – 99 cm (15)
	≥ 100 cm (61)
	missing data (6)
Humus Form (% frequency)	
	mor (94)
	peatymor (6)

Forest / Forêt **Association CNVC00244**

Picea mariana – Pinus banksiana / Vaccinium myrtilloides / V. vitis-idaea / Cladina spp.

Black Spruce – Jack Pine / Velvet-leaved Blueberry / Lingonberry / Reindeer Lichens
Épinette noire – Pin gris / Bleuet fausse-myrtille / Airelle rouge / Cladonies

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 similar or slightly drier and poorer sites in the same range but generally lacks *Picea mariana* in the tree layer.

CNVC00128 [*Picea mariana / Vaccinium vitis-idaea / Pleurozium schreberi (Hylocomium splendens)*] occurs on better sites on the boreal plains from Alberta to Manitoba and has greater canopy cover. It also has richer herb diversity and greater cover of feathermosses and less of *Cladina* lichens.

CNVC00245 [*Pinus banksiana / Vaccinium angustifolium / Cladina* spp.] occurs in southeastern Manitoba and Ontario on comparable boreal sites but is dominated by *Pinus banksiana* and has *Vaccinium angustifolium* in the shrub layer.

CNVC00246 [*Picea mariana / Rhododendron groenlandicum – Vaccinium angustifolium / Cladina* spp.] occurs in Ontario on comparable boreal sites but has *Vaccinium angustifolium* and more *Rhododendron groenlandicum* in the shrub layer and less *V. vitis-idaea* in the herb and dwarf shrub layer.

CNVC00249 [*Picea mariana (Pinus banksiana) / Vaccinium myrtilloides / Pleurozium schreberi*] usually occurs on slightly better sites in the same range and has greater canopy cover. 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:

Comments

Picea mariana – Pinus banksiana / *Vaccinium myrtilloides* / *V. vitis-idaea* / *Cladina* spp. CNVC00244

Source Information

Number of source plots for CNVC00244: 33

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. Chapman and K. Baldwin
Date of Concept: November, 2011
Date of Description: March, 2016

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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Picea mariana – Pinus banksiana / Vaccinium myrtilloides / V. vitis-idaea / Cladina spp. CNVC00244

Characterization References (cont'd):

Ontario Ministry of Natural Resources. 2009. Ecological land classification ecosites field manual – operational draft, April 20th, 2009 – boreal. Ecol. Land Class. Working Grp, Ont. Min. Nat. Resour., Sci. & Info Branch, Inven. Monit. Assess. Sect., Sault Ste. Marie, ON.

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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.

Suggested Citation: K. Chapman and K. Baldwin. *Picea mariana – Pinus banksiana / Vaccinium myrtilloides / V. vitis-idaea / Cladina* spp. [online]. Sault Ste. Marie, Ontario, Canada: Canadian National Vegetation Classification. March, 2016; generated Jun/21/2016; cited ENTER DATE ACCESSED. 10 p. Canadian National Vegetation Classification Association: CNVC00244. Available from http://cnvc-cnvc/ca. System Requirements: Adobe Acrobat Reader v. 7.0 or higher. ISSN 1916-3266.