



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00208

Picea mariana* – *Pinus banksiana* / *Vaccinium angustifolium* / *Pleurozium schreberi

Black Spruce – Jack Pine / Early Lowbush Blueberry / Red-stemmed Feathermoss

Épinette noire – Pin gris / Bleuets à feuilles étroites / Pleurozie dorée

Subassociations: 208a *typic*, 208b *Diervilla lonicera*

CNVC Alliance: CA00012 *Picea mariana* (*Pinus banksiana*) / *Vaccinium angustifolium* / *Pleurozium schreberi*

CNVC Group: CG0006 Ontario-Quebec Boreal Mesic-Moist Black Spruce (Jack Pine) Forest



Source: Natural Resources Canada - Canadian Forest Service

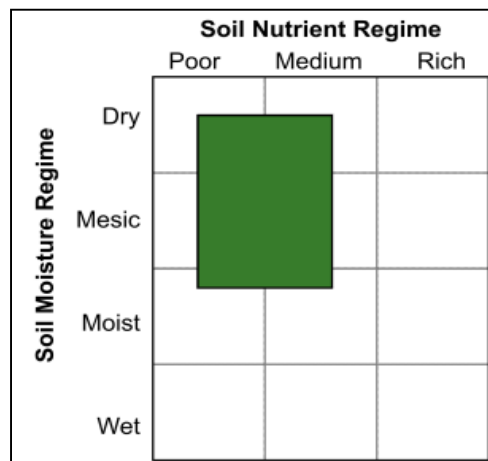
Type Description

Concept: CNVC00208 is a boreal coniferous forest Association that occurs in Manitoba and Ontario. It has a moderately closed canopy of black spruce (*Picea mariana*) and/or jack pine (*Pinus banksiana*), usually with black spruce dominant. The moderately to well-developed shrub layer usually includes regenerating black spruce and balsam fir (*Abies balsamea*) and blueberries, both velvet-leaved blueberry (*Vaccinium myrtilloides*) and early lowbush blueberry (*V. angustifolium*). The herb layer is poorly to well developed, depending on subassociation. Bunchberry (*Cornus canadensis*), wild lily-of-the-valley (*Maianthemum canadense*) and twinflower (*Linnaea borealis*) are common. A well-developed moss layer dominated by red-stemmed feathermoss (*Pleurozium schreberi*), with minor amounts of wavy-leaved broom moss (*Dicranum polysetum*) and knight's plume moss (*Ptilium crista-castrensis*), further characterizes this Association. CNVC00208 occurs in a region with a continental boreal climate that grades from subhumid in the western portion of its range to humid in the east. It is found on dry to moist, nutrient-poor to medium sites. It can be the first cohort after fire or succeed earlier seral conditions. Two subassociations are distinguished, *typic* and *Diervilla lonicera*.

Vegetation: CNVC00208 is a coniferous forest Association with a moderately closed canopy of *Picea mariana* and/or *Pinus banksiana*. *P. mariana* is usually dominant but *P. banksiana* can be the leading species, particularly in the *Diervilla lonicera* subassociation. The shrub layer varies from moderately to well developed, with regenerating *P. mariana* and *Abies balsamea* usually present, along with the heath species *Vaccinium myrtilloides* and *V. angustifolium*. The herb layer is poorly to well developed, depending on subassociation. *Cornus canadensis*, *Maianthemum canadense* and *Linnaea borealis* are common. The moss layer is well developed and dominated by *Pleurozium schreberi*, with minor amounts of *Dicranum polysetum* and *Ptilium crista-castrensis*. Compared to the *typic* subassociation, the *Diervilla lonicera* subassociation has greater abundance of *P. banksiana* in the overstory and a more diverse, better-developed understory with *Diervilla lonicera* in the shrub layer and *Clintonia borealis*, *Aralia nudicaulis*, *Eurybia macrophylla* and *Lysimachia borealis* in the herb layer.

Environment: CNVC00208 occurs in a continental boreal climate that is subhumid in the western part of its range, becoming increasingly humid farther east. It is most commonly found on mesic, nutrient-poor to medium sites but can occupy a wide range of site conditions. Stands are usually on level sites or gentle slopes on water-shedding, crest or upper to middle-slope toppositions. Soils are typically deep to moderately deep and well drained. Often they are coarse loams or sands in morainal or glaciofluvial surficial deposits, but stands also occur on fine-textured lacustrine sediments. Mor humus forms are common, but compared to other boreal Associations, moders are relatively frequent. The *Diervilla lonicera* subassociation is slightly richer than the *typic*; it occurs more frequently on deeper and/or finer-textured soils (often lacustrine clays).

CNVC00208 mainly occurs where regional fire cycles are intermediate (100-270 years), although the fire cycle is longer near the north shore of Lake Superior. 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*.





***Picea mariana* – *Pinus banksiana* / *Vaccinium angustifolium* / *Pleurozium schreberi*
CNVC00208**

Type Description (cont'd)

Dynamics: CNVC00208 usually recolonizes after fire, although it can also 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 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., CNVC00207 [*Pinus banksiana* (*Picea mariana*) / *Vaccinium angustifolium* / *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 CNVC00208. 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., CNVC00213 [*Populus tremuloides* – *Betula papyrifera* – *Picea mariana* – *Pinus banksiana* / *Diervilla lonicera* / *Pleurozium schreberi*]). Unless the time between successive fires is short (<100 years), this early seral condition can succeed to CNVC00208 as *P. mariana* becomes dominant and self-replaces over time. On sites with greater nutrient status, *Abies balsamea* may eventually become established, forming CNVC00217 [*Picea mariana* – *Abies balsamea* / *Rhododendron groenlandicum* / *Pleurozium schreberi*].

Range: CNVC00208 occurs in the boreal region of Ontario and likely extends into southeastern Manitoba as far west as Lake Winnipeg. It occurs sporadically in the northern temperate region, usually on sites with poor soils or that are more fire-prone than is normal for that region.

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

Terrestrial Ecozones and Ecoregions of Canada: Boreal Shield: Abitibi Plains, Algonquin-Lake Nipissing, Lac Seul Upland, Lake Nipigon, Lake of the Woods, Lake Timiskaming Lowland, Thunder Bay-Quetico; Hudson Plains

Rowe's Forest Regions and Sections of Canada: Boreal: Central Plateau, Hudson Bay Lowlands, Lower English River, Missinaibi-Cabonga, Nipigon, Northern Clay, Northern Coniferous, Superior, Upper English River; Great Lakes-St. Lawrence: Algoma, Algonquin-Pontiac, Haileybury Clay, Quetico, Sudbury-North Bay, Timagami

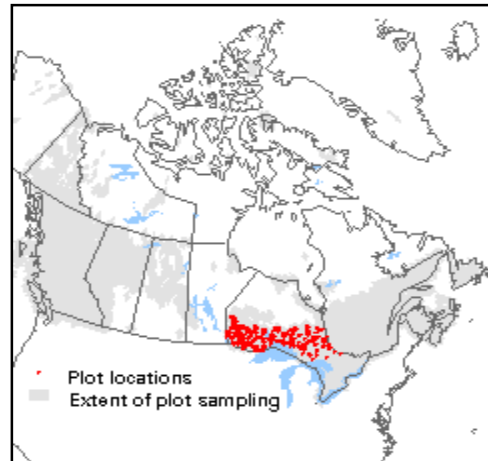
NAAEC CEC Ecoregions of North America (Levels I & II): Hudson Plains; Northern Forests: Mixed Wood Shield, Softwood Shield

Nature Conservancy of Canada Ecoregions: Boreal Shield, Great Lakes, Hudson Plains, Superior-Lake of the Woods

Ecozones and Ecoregions of Manitoba: Boreal Shield

Manitoba Protected Areas Initiative Natural Regions: Manitoba Lowlands: Lake of the Woods; Precambrian Boreal Forest: Lac Seul Upland

Ecological Land Classification of Ontario (ecoregions and ecodistricts): 2E-2, 3E-1, 3E-2, 3E-4, 3E-5, 3E-6, 3E-7, 3S-1, 3S-2, 3S-5, 3W-1, 3W-2, 3W-3, 3W-4, 3W-5, 4E-3, 4E-4, 4S-1, 4S-2, 4S-3, 4S-4, 4S-5, 4S-6, 4W-1, 4W-2, 5E-4, 5E-5, 5E-6, 5E-10



Corresponding Types and Associations

208a typic	Ontario	BTr7-7	<i>Picea mariana</i> (<i>Pinus banksiana</i>) / <i>Vaccinium angustifolium</i> / <i>Pleurozium schreberi</i>
		BTr7-9	<i>Picea mariana</i> - <i>Pinus banksiana</i> (<i>Populus tremuloides</i>) / <i>Vaccinium angustifolium</i> / <i>Clintonia borealis</i> / <i>Pleurozium schreberi</i>
208b Diervilla lonicera	Ontario	BTr7-3	<i>Pinus banksiana</i> (<i>Picea mariana</i>) / <i>Vaccinium angustifolium</i> / <i>Clintonia borealis</i> / <i>Pleurozium schreberi</i>



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Vegetation Summary*

Species Name [†]	Association CNVC00208 744 plots		Subassociation 208a <i>typic</i> 619 plots		Subassociation 208b <i>Diervilla lonicera</i> 125 plots	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
	Overstory Trees					
<i>Picea mariana</i>	26	85	27	90	20	62
<i>Pinus banksiana</i>	20	72	17	68	28	95
<i>Populus tremuloides</i>	11	32	12	35	3	17
<i>Betula papyrifera</i>	8	28	8	33	3	6
Tree Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(19 26 43 55 75)		(19 26 43 56 75)		(19 26 41 50 63)	
Understory Woody Shrubs and Regenerating Trees						
<i>Picea mariana</i>	9	79	9	81	7	70
<i>Vaccinium myrtilloides</i>	3	77	3	77	4	76
<i>Vaccinium angustifolium</i>	4	70	4	69	3	74
<i>Abies balsamea</i>	6	62	7	59	5	75
<i>Diervilla lonicera</i>	7	48	5	41	11	82
<i>Rhododendron groenlandicum</i>	8	47	9	51	5	30
<i>Betula papyrifera</i>	4	40	4	39	6	45
<i>Rosa acicularis</i>	2	36	1	30	2	66
<i>Alnus viridis</i>	8	33	8	30	8	45
<i>Populus tremuloides</i>	2	31	2	29	2	43
<i>Sorbus decora</i>	1	30	1	27	1	40
<i>Corylus cornuta</i>	5	19	3	14	9	44
<i>Acer spicatum</i>	4	15	3	13	6	26
<i>Lonicera canadensis</i>	2	14	2	11	1	27
<i>Picea glauca</i>	3	11	3	9	2	23
<i>Rubus idaeus</i>	1	10	1	8	1	21
Shrub Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(6 13 31 44 64)		(5 11 29 42 62)		(16 22 43 57 85)	
Understory Herbs and Dwarf Shrubs						
<i>Cornus canadensis</i>	5	85	4	83	6	94
<i>Maianthemum canadense</i>	3	81	2	79	4	93
<i>Linnaea borealis</i>	2	67	2	63	2	89
<i>Gaultheria hispidula</i>	2	61	2	64	2	43
<i>Clintonia borealis</i>	2	58	2	53	2	83
<i>Aralia nudicaulis</i>	3	48	3	42	5	78
<i>Lysimachia borealis</i>	1	47	1	42	1	67
<i>Coptis trifolia</i>	1	40	1	38	2	49
<i>Eurybia macrophylla</i>	8	34	6	25	11	77
<i>Rubus pubescens</i>	2	29	2	23	2	58
<i>Lycopodium annotinum</i>	2	25	2	25	4	24
<i>Goodyera repens</i>	1	24	1	23	1	26
<i>Lycopodium clavatum</i>	1	23	1	21	1	32



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Vegetation Summary (cont'd)*

Species Name [†]	Association CNVC00208		Subassociation 208a <i>typic</i>		Subassociation 208b <i>Diervilla lonicera</i>	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
<i>Lycopodium obscurum</i>	1	23	1	21	1	34
<i>Streptopus lanceolatus</i>	1	22	1	16	1	50
<i>Petasites frigidus</i>	1	20	1	16	1	39
<i>Chamerion angustifolium</i>	1	20	1	16	1	41
<i>Viola renifolia</i>	1	17	1	15	1	30
<i>Fragaria virginiana</i>	1	16	1	10	1	46
<i>Equisetum sylvaticum</i>	1	16	1	14	1	26
<i>Anemone quinquefolia</i>	1	15	1	10	1	38
<i>Melampyrum lineare</i>	1	15	1	12	1	30
<i>Oryzopsis asperifolia</i>	1	13	1	9	1	30
<i>Galium triflorum</i>	1	10	1	7	1	22
<i>Dryopteris expansa</i>	1	9	1	5	1	24
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(3 7 22 29 50)		(2 6 18 24 40)		(18 24 41 51 71)	
Bryophytes and Lichens						
<i>Pleurozium schreberi</i>	52	99	53	99	46	98
<i>Dicranum polysetum</i>	3	92	3	92	3	90
<i>Ptilium crista-castrensis</i>	9	79	9	82	7	65
<i>Hylocomium splendens</i>	5	56	5	60	4	34
<i>Cladina rangiferina</i>	2	50	2	53	1	35
<i>Dicranum fuscescens</i>	1	39	1	42	1	26
<i>Polytrichum commune</i>	1	24	1	25	2	20
<i>Cladina mitis</i>	2	21	2	23	1	11
<i>Dicranum ontariense</i>	2	19	2	20	1	15
<i>Cladonia</i> sp.	1	19	2	20	1	15
Bryo-Lichen Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(16 43 69 95 100)		(18 50 71 96 100)		(9 31 58 87 97)	

* 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 CNVC00208 744 plots	Subassociation 208a <i>typic</i> 619 plots	Subassociation 208b <i>Diervilla lonicera</i> 125 plots
Elevation Range (min–mean–max meters)	154–381–531 missing data (2)	157–380–524 missing data (2)	154–385–531 missing data (3)
Slope Gradient (% frequency)	very steep (1) steep (3) moderately steep (7) moderate (13) gentle (28) level (44) missing data (4)	very steep (1) steep (3) moderately steep (7) moderate (14) gentle (28) level (43) missing data (3)	very steep (0) steep (2) moderately steep (5) moderate (12) gentle (26) level (50) missing data (6)
Aspect (% frequency)	north (19) east (16) south (17) west (21) level (26) missing data (1)	north (19) east (16) south (16) west (22) level (27) missing data (1)	north (18) east (17) south (20) west (18) level (25) missing data (2)
Meso Toposition (% frequency)	crest / upper (40) mid (24) lower / toe (15) depression (2) level (19) missing data (0)	crest / upper (40) mid (23) lower / toe (16) depression (2) level (19) missing data (0)	crest / upper (42) mid (25) lower / toe (13) depression (2) level (18) missing data (1)
Moisture Regime (% frequency)	very dry (7) dry (33) mesic (39) moist (20) wet (2) missing data (0)	very dry (7) dry (32) mesic (37) moist (21) wet (2) missing data (0)	very dry (2) dry (34) mesic (47) moist (15) wet (1) missing data (1)
Nutrient Regime (% frequency)	missing data (100)	missing data (100)	missing data (100)



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

	Association CNVC00208	Subassociation 208a <i>typic</i>	Subassociation 208b <i>Diervilla lonicera</i>
Soil Parent Material (% frequency)	bedrock (1) colluvium (1) eolian (1) moraine / till (40) fluvial (1) glaciofluvial (31) lacustrine (19) glaciolacustrine (1) organic (3) missing data (3)	bedrock (1) colluvium (1) eolian (1) moraine / till (41) fluvial (1) glaciofluvial (32) lacustrine (16) glaciolacustrine (1) organic (4) missing data (3)	bedrock (0) colluvium (2) eolian (1) moraine / till (31) fluvial (1) glaciofluvial (30) lacustrine (31) glaciolacustrine (2) organic (0) missing data (3)
Soil Rooting Zone Substrate (% frequency)	non-soil (2) sandy (28) coarse loamy (31) fine loamy (3) silty (7) clayey (8) organic (3) missing data (18)	non-soil (2) sandy (29) coarse loamy (32) fine loamy (2) silty (7) clayey (5) organic (4) missing data (18)	non-soil (2) sandy (23) coarse loamy (27) fine loamy (6) silty (6) clayey (18) organic (0) missing data (18)
Root Restricting Depth (% frequency)	0 – 20 cm (9) 21 – 99 cm (33) ≥ 100 cm (49) missing data (9)	0 – 20 cm (10) 21 – 99 cm (36) ≥ 100 cm (47) missing data (8)	0 – 20 cm (4) 21 – 99 cm (19) ≥ 100 cm (62) missing data (15)
Humus Form (% frequency)	mor (70) moder (21) mull (2) peatymor (2) missing data (5)	mor (69) moder (23) mull (2) peatymor (2) missing data (4)	mor (76) moder (14) mull (1) peatymor (2) missing data (7)



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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:

CNVC00207 [*Pinus banksiana* (*Picea mariana*) / *Vaccinium angustifolium* / *Pleurozium schreberi*] occurs in the same range, frequently on drier sites and is dominated by *Pinus banksiana*. It has less *Diervilla lonicera*, *Eurybia macrophylla*, *Clintonia borealis*, *Aralia nudicaulis* and *Lysimachia borealis* in the understory (see Dynamics).

CNVC00211 [*Picea mariana* / *Rhododendron groenlandicum* – *Kalmia angustifolia* / *Pleurozium schreberi*] occurs in northeastern Ontario on comparable boreal sites but has more abundant ericaceous shrubs, including *Kalmia angustifolia*.

CNVC00217 [*Picea mariana* – *Abies balsamea* / *Rhododendron groenlandicum* / *Pleurozium schreberi*] occurs on similar sites in the same range but has *Abies balsamea* codominant in the canopy (see Dynamics).

CNVC00246 [*Picea mariana* / *Rhododendron groenlandicum* – *Vaccinium angustifolium* / *Cladina* spp.] occurs on 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.

CNVC00249 [*Picea mariana* (*Pinus banksiana*) / *Vaccinium myrtilloides* / *Pleurozium schreberi*] ranges from Alberta to northwestern Ontario and occurs on comparable boreal sites but has more abundant *Vaccinium vitis-idaea* and little to no *V. angustifolium*, *Diervilla lonicera*, *Gaultheria hispidula*, *Clintonia borealis* and *Eurybia macrophylla*.

CNVC00276 [*Picea mariana* / *Rhododendron groenlandicum* – *Vaccinium angustifolium* / *Pleurozium schreberi* (*Sphagnum* spp.)] occurs on moister sites in the same range and has greater cover of *Sphagnum* mosses.

CNVC00295 [*Picea mariana* / *Alnus incana* / *Pleurozium schreberi*] occurs on moister, richer sites in the same range and has a shrub layer with abundant *Alnus incana*.

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

Comments



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Source Information

Number of source plots for CNVC00208: 744

Number of source plots for 208a typic: 619

Number of source plots for 208b Diervillea lonicera: 125

Information Sources:

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, P. Uhlig, M. Wester

Description Authors: K. Baldwin and K. Chapman

Date of Concept: November, 2011

Date of Description: March, 2016

Classification References:

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.

Boulanger, Y.; Gauthier, S.; Burton, P.J. 2014. A refinement of models projecting future Canadian fire regimes using homogeneous fire regime zones. *Can. J. For. Res.* 44(4):365-376.

Bridge, S.R.J. 2001. Spatial and temporal variations in the fire cycle across Ontario. OMNR, Northeast Sci. Tech., South Porcupine, ON. NEST TR-043.

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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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