



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00213

Populus tremuloides – *Betula papyrifera* – *Picea mariana* – *Pinus banksiana* / *Diervilla lonicera* / *Pleurozium schreberi*

Trembling Aspen – Paper Birch – Black Spruce – Jack Pine / Northern Bush-honeysuckle / Red-stemmed Feathermoss

Peuplier faux-tremble – Bouleau à papier – Épinette noire – Pin gris / Dièreville chèvrefeuille / Pleurozie dorée

Subassociations: 213a *typic*, 213b *Pteridium aquilinum*

CNVC Alliance: CA00014 *Betula papyrifera* – *Populus tremuloides* – *Abies balsamea* / *Clintonia borealis*

CNVC Group: CG0007 Ontario-Quebec Boreal Mesic Paper Birch – Balsam Fir – Trembling Aspen Forest

Type Description

Concept: CNVC00213 is a boreal mixedwood forest Association that ranges from Manitoba to Quebec. It has a closed canopy of trembling aspen (*Populus tremuloides*) and/or paper birch (*Betula papyrifera*), with black spruce (*Picea mariana*) and/or jack pine (*Pinus banksiana*). The shrub layer is well developed and includes a mix of regenerating tree species, especially black spruce and balsam fir (*Abies balsamea*), as well as the low shrub species northern bush-honeysuckle (*Diervilla lonicera*), velvet-leaved blueberry (*Vaccinium myrtilloides*) and early lowbush blueberry (*V. angustifolium*). The herb layer is moderately developed and commonly includes bunchberry (*Cornus canadensis*), wild lily-of-the-valley (*Maianthemum canadense*), twinflower (*Linnaea borealis*), yellow clintonia (*Clintonia borealis*), wild sarsaparilla (*Aralia nudicaulis*) and northern starflower (*Lysimachia borealis*). The moss layer is poorly to moderately developed, depending on the amount of broad-leaf litter on the forest floor. It is dominated by feathermosses, particularly red-stemmed feathermoss (*Pleurozium schreberi*). CNVC00213 is an early seral condition that typically establishes after fire or harvesting. It occurs mainly in a region with a continental boreal climate that grades from subhumid in the west to humid in the east and is most frequently found on mesic, nutrient-medium sites. Two subassociations are distinguished, *typic* and *Pteridium aquilinum*.

Vegetation: CNVC00213 is a mixedwood forest Association with a closed canopy consisting of the hardwood species *Populus tremuloides* and/or *Betula papyrifera* and the conifer species *Picea mariana* and/or *Pinus banksiana*, in various combinations. The shrub layer is well developed and includes a mix of regenerating tree species (*P. mariana*, *Abies balsamea*, *B. papyrifera* and *P. tremuloides*) and low shrubs, especially *Diervilla lonicera*, *Vaccinium myrtilloides* and *V. angustifolium*. *B. papyrifera* and *P. tremuloides* saplings tend to be limited to larger canopy openings because of their shade intolerance. The herb layer is moderately developed and usually includes *Cornus canadensis*, *Maianthemum canadense*, *Linnaea borealis*, *Clintonia borealis*, *Aralia nudicaulis* and *Lysimachia borealis*. The moss layer is poorly to moderately developed and dominated by *Pleurozium schreberi*, usually with a small component of *Ptilium crista-castrensis*. The moss layer is typically better developed in stands with less broad-leaf litter (i.e., greater conifer cover). Compared to the *typic*, the *Pteridium aquilinum* subassociation describes stands with more abundant *P. aquilinum* in the herb layer and generally higher shrub cover, often including *Kalmia angustifolia* and *Viburnum nudum* (see Comments).



Source: Natural Resources Canada - Canadian Forest Service

		Soil Nutrient Regime		
		Poor	Medium	Rich
Soil Moisture Regime	Dry			
	Mesic			
	Moist			
	Wet			



***Populus tremuloides* – *Betula papyrifera* – *Picea mariana* – *Pinus banksiana* / *Diervilla lonicera* / *Pleurozium schreberi* CNVC00213**

Type Description (cont'd)

Environment: CNVC00213 occurs in a continental boreal climate that is subhumid in the western part of its range, becoming increasingly humid farther east. It is commonly found on mesic, nutrient-medium sites, although it can occupy a wide range of site conditions. Stands are often on level sites or gentle to moderate slopes on water-shedding, middle to upper-slope or crest topopositions. Soils are usually moderately deep to deep, well drained and coarse-textured, often coarse loams or sands derived from morainal, or less commonly, glaciofluvial parent materials. Mor humus forms are typical.

CNVC00213 is most prevalent where the regional fire cycle is intermediate (100-270 years), but it also occurs where regional fire cycles are very long (>500 years) or long (270-500 years). Where the regional fire cycle is longer, stands of CNVC00213 likely occur on sites that burn more frequently than the regional average.

Dynamics: CNVC00213 is an early seral condition that typically establishes after stand-replacing fire or harvesting. All four of the main canopy species are adapted to disturbance. Following any disturbance that does not kill their roots, *Populus tremuloides* and *Betula papyrifera* can reproduce vegetatively, *P. tremuloides* from root suckers and *B. papyrifera* from stump sprouts. These species also produce abundant, light, wind-dispersed seeds that can readily colonize mineral soil seedbeds exposed by disturbance. *Picea mariana* and *Pinus banksiana* have cones that open when heated by fire, releasing large quantities of seeds onto fire-prepared seedbeds.

P. tremuloides, *B. papyrifera* and *P. banksiana* are intolerant of shade so do not replace themselves in a stand without further disturbance. If seed sources are available, shade tolerant conifers (especially *Abies balsamea*) can become established in these stands and may grow into the canopy as the pioneer species decline. Over time, mid-seral mixedwood Associations could develop (e.g., CNVC00234 [*Picea mariana* – *Betula papyrifera* – *Abies balsamea* / *Clintonia borealis*] or, in the western part of the range, CNVC00231 [*Abies balsamea* – *Betula papyrifera* – *Populus tremuloides* / *Clintonia borealis*]).

Forest tent caterpillar (*Malacosoma disstria*) and *Armillaria* root disease (*Armillaria* spp.) can have significant impacts on *P. tremuloides*. Defoliation by the caterpillar can reduce growth, cause dieback and sometimes lead to mortality. *Armillaria* spp. can weaken or kill individual or small groups of trees. Canopy openings that result from insect or pathogen disturbance can promote forest succession by enhancing the growth of understory trees, such as *A. balsamea* and *P. mariana*.

Range: CNVC00213 occurs in the boreal region of Quebec and Ontario and likely extends into southeastern Manitoba as far west as Lake Winnipeg. In Quebec, it is more common west of Baie-Comeau but occurs sporadically as far east as the Romaine River on the Lower North Shore of the Gulf of Saint Lawrence and in the Gaspé region. CNVC00213 occurs sporadically in the northern temperate region, usually on sites with poor soils or that are cooler than normal for that region. The *typic* subassociation is recognized in Ontario and Quebec. The *Pteridium aquilinum* subassociation is described only from Quebec.

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, Quebec

Terrestrial Ecozones and Ecoregions of Canada: Atlantic Highlands: Appalachians, Northern New Brunswick Uplands; Boreal Shield: Abitibi Plains, Central Laurentians, Lac Seul Upland, Lake Nipigon, Lake of the Woods, Lake Timiskaming Lowland, Mecatina Plateau, Rivière Rupert Plateau, Southern Laurentians, Thunder Bay-Quetico

Rowe's Forest Regions and Sections of Canada: Boreal: Central Plateau, Chibougamau-Natashquan, Gaspé, Gouin, Laurentide-Onatchiway, Lower English River, Missinaibi-Cabonga, Nipigon, Northern Clay, Northern Coniferous, Superior, Upper English River; Great Lakes-St. Lawrence: Algoma, Algonquin-Pontiac, Eastern Townships, Haileybury Clay, Laurentian, Middle Ottawa, Quetico, Saguenay, Temiscouata-Restigouche, Timagami

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

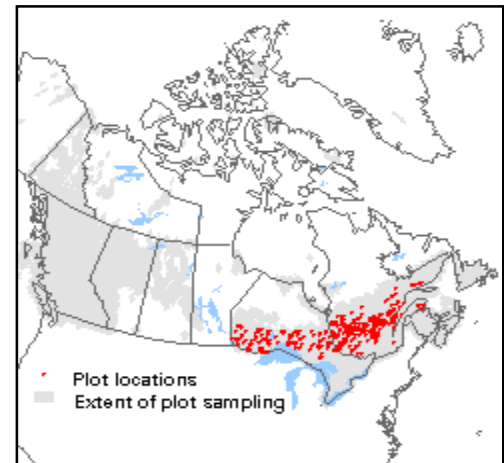
Nature Conservancy of Canada Ecoregions: Boreal Shield, Great Lakes, Northern Appalachians-Acadia, Superior-Lake of the Woods

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): 3E-1, 3E-2, 3E-4, 3E-5, 3E-6, 3E-7, 3S-1, 3S-2, 3S-3, 3S-4, 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

Bioclimatic Domains and Subdomains of Québec: 2 Ouest, 3 Est, 3 Ouest, 4 Est, 4 Ouest, 5 Est, 5 Ouest, 6 Est, 6 Ouest





***Populus tremuloides* – *Betula papyrifera* – *Picea mariana* – *Pinus banksiana* / *Diervilla lonicera* / *Pleurozium schreberi* CNVC00213**

Corresponding Types and Associations

213a typic	Ontario	BTr7-8	<i>Populus tremuloides</i> - <i>Picea mariana</i> (<i>Pinus banksiana</i>) / <i>Diervilla lonicera</i> / <i>Clintonia borealis</i> / <i>Pleurozium schreberi</i>
	Quebec	QC057A	<i>Pinus banksiana</i> - <i>Picea mariana</i> - <i>Betula papyrifera</i> / <i>Cornus canadensis</i> / <i>Pleurozium schreberi</i> [Typique]
		QC085A	<i>Populus tremuloides</i> - <i>Picea mariana</i> (<i>Betula papyrifera</i>) / <i>Pleurozium schreberi</i> [Typique]
213b <i>Pteridium aquilinum</i>	Quebec	QC056B	<i>Pinus banksiana</i> - <i>Betula papyrifera</i> / <i>Cornus canadensis</i> / <i>Pleurozium schreberi</i> [<i>Pteridium aquilinum</i>]
		QC057B	<i>Pinus banksiana</i> - <i>Picea mariana</i> - <i>Betula papyrifera</i> / <i>Cornus canadensis</i> / <i>Pleurozium schreberi</i> [<i>Pteridium aquilinum</i>]
		QC083	<i>Pinus banksiana</i> - <i>Populus tremuloides</i> (<i>Betula papyrifera</i>) / <i>Cornus canadensis</i>
		QC085B	<i>Populus tremuloides</i> - <i>Picea mariana</i> (<i>Betula papyrifera</i>) / <i>Pleurozium schreberi</i> [<i>Pteridium aquilinum</i>]



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Vegetation Summary*

Species Name [†]	Association CNVC00213 387 plots		Subassociation 213a <i>typic</i> 269 plots		Subassociation 213b <i>Pteridium aquilinum</i> 118 plots	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Overstory Trees						
<i>Populus tremuloides</i>	28	89	31	91	21	85
<i>Picea mariana</i>	18	88	19	87	16	90
<i>Betula papyrifera</i>	17	74	16	65	17	93
<i>Pinus banksiana</i>	22	58	15	51	34	73
<i>Abies balsamea</i>	8	44	8	38	7	58
<i>Picea glauca</i>	6	23	5	23	6	23
<i>Prunus pensylvanica</i>	4	14	4	6	4	31
<i>Acer rubrum</i>	5	8	3	3	6	20
Tree Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(33 49 66 86 99)		(30 46 63 83 99)		(49 51 73 86 99)	
Understory Woody Shrubs and Regenerating Trees						
<i>Picea mariana</i>	9	85	8	83	10	90
<i>Abies balsamea</i>	10	78	11	78	8	78
<i>Vaccinium myrtilloides</i>	5	77	4	76	6	79
<i>Vaccinium angustifolium</i>	5	72	5	71	4	76
<i>Diervilla lonicera</i>	10	71	8	65	12	85
<i>Betula papyrifera</i>	4	66	4	61	4	78
<i>Populus tremuloides</i>	3	61	3	63	3	56
<i>Amelanchier</i> sp.	4	45	3	33	4	71
<i>Kalmia angustifolia</i>	6	41	5	28	8	72
<i>Salix</i> sp.	4	40	4	29	4	64
<i>Alnus viridis</i>	12	39	12	40	12	36
<i>Sorbus americana</i>	3	37	3	27	4	61
<i>Rhododendron groenlandicum</i>	5	36	5	39	4	31
<i>Acer spicatum</i>	6	33	5	28	8	47
<i>Viburnum nudum</i>	5	33	4	16	6	71
<i>Sorbus decora</i>	2	30	2	38	4	14
<i>Prunus pensylvanica</i>	3	26	3	19	3	42
<i>Corylus cornuta</i>	5	24	4	20	6	33
<i>Ilex mucronata</i>	4	24	4	14	4	47
<i>Picea glauca</i>	3	24	3	23	3	24
<i>Ribes glandulosum</i>	2	21	2	19	2	27
<i>Viburnum edule</i>	2	20	2	25	3	7
<i>Rosa acicularis</i>	1	20	1	29	2	1
<i>Acer rubrum</i>	6	17	3	9	7	37
Shrub Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(19 31 47 66 83)		(16 24 43 60 83)		(32 49 57 66 83)	



***Populus tremuloides* – *Betula papyrifera* – *Picea mariana* – *Pinus banksiana* / *Diervilla lonicera* / *Pleurozium schreberi* CNVC00213**

Vegetation Summary (cont'd)*

Species Name [†]	Association CNVC00213		Subassociation 213a <i>typic</i>		Subassociation 213b <i>Pteridium aquilinum</i>	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Understory Herbs and Dwarf Shrubs						
<i>Cornus canadensis</i>	10	97	9	97	12	97
<i>Maianthemum canadense</i>	5	95	4	95	7	95
<i>Linnaea borealis</i>	3	83	3	84	4	81
<i>Clintonia borealis</i>	5	81	4	81	7	82
<i>Aralia nudicaulis</i>	6	80	5	77	7	87
<i>Lysimachia borealis</i>	2	75	2	71	3	83
<i>Coptis trifolia</i>	3	57	2	55	4	60
<i>Gaultheria hispidula</i>	3	56	2	58	3	53
<i>Lycopodium obscurum</i>	2	47	2	46	2	50
<i>Eurybia macrophylla</i>	8	44	8	41	7	51
<i>Pteridium aquilinum</i>	14	39	4	20	20	82
<i>Lycopodium annotinum</i>	4	34	4	39	3	24
<i>Streptopus lanceolatus</i>	1	30	1	36	2	17
<i>Lycopodium clavatum</i>	2	28	2	32	2	19
<i>Rubus pubescens</i>	2	28	2	36	2	8
<i>Chamerion angustifolium</i>	2	25	1	27	2	19
<i>Dryopteris spinulosa complex</i>	3	21	3	16	3	32
<i>Goodyera repens</i>	1	21	1	26	2	9
<i>Viola renifolia</i>	1	20	1	29	-	-
<i>Viola</i> sp.	2	18	2	16	2	24
<i>Petasites frigidus</i>	1	14	1	20	-	-
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(15 16 37 50 70)		(12 16 33 48 61)		(16 33 47 50 70)	
Bryophytes and Lichens						
<i>Pleurozium schreberi</i>	22	98	22	99	21	97
<i>Ptilium crista-castrensis</i>	6	70	6	72	5	64
<i>Dicranum</i> sp.	3	56	3	41	3	89
<i>Cladina rangiferina</i>	2	48	2	44	3	57
<i>Polytrichum</i> sp.	3	39	3	29	3	64
<i>Cladonia</i> sp.	2	36	2	33	2	42
<i>Hylocomium splendens</i>	3	35	3	44	3	13
<i>Dicranum polysetum</i>	2	30	2	43	-	-
<i>Cladina mitis</i>	2	20	2	18	3	25
<i>Rhytidiadelphus triquetrus</i>	3	18	3	23	4	7
<i>Dicranum fuscescens</i>	1	18	1	25	-	-
Bryo-Lichen Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(3 10 31 50 84)		(3 10 33 50 90)		(3 3 28 50 70)	

* 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 CNVC00213 387 plots	Subassociation 213a <i>typic</i> 269 plots	Subassociation 213b <i>Pteridium aquilinum</i> 118 plots
Elevation Range (min–mean–max meters)	20–356–640 missing data (2)	20–357–640 missing data (2)	50–354–555 missing data (0)
Slope Gradient (% frequency)	very steep (1) steep (5) moderately steep (14) moderate (17) gentle (34) level (27) missing data (1)	very steep (1) steep (6) moderately steep (14) moderate (16) gentle (31) level (31) missing data (2)	very steep (0) steep (3) moderately steep (16) moderate (21) gentle (42) level (18) missing data (0)
Aspect (% frequency)	north (19) east (17) south (21) west (23) level (20) missing data (1)	north (19) east (17) south (17) west (26) level (20) missing data (1)	north (19) east (16) south (31) west (16) level (19) missing data (0)
Meso Toposition (% frequency)	crest / upper (35) mid (40) lower / toe (8) depression (1) level (16)	crest / upper (37) mid (35) lower / toe (10) depression (0) level (17)	crest / upper (29) mid (51) lower / toe (4) depression (3) level (14)
Moisture Regime (% frequency)	very dry (2) dry (16) mesic (69) moist (13)	very dry (3) dry (21) mesic (60) moist (16)	very dry (1) dry (3) mesic (91) moist (5)
Nutrient Regime (% frequency)	missing data (100)	missing data (100)	missing data (100)



***Populus tremuloides* – *Betula papyrifera* – *Picea mariana* – *Pinus banksiana* / *Diervilla lonicera* / *Pleurozium schreberi* CNVC00213**

Site / Soil Characteristics (cont'd)

	Association CNVC00213	Subassociation 213a <i>typic</i>	Subassociation 213b <i>Pteridium aquilinum</i>
Soil Parent Material (% frequency)	bedrock (1) colluvium (2) eolian (1) moraine / till (54) glaciofluvial (24) lacustrine (7) glaciolacustrine (7) marine (2) organic (1) missing data (3)	bedrock (0) colluvium (2) eolian (0) moraine / till (48) glaciofluvial (29) lacustrine (10) glaciolacustrine (6) marine (0) organic (1) missing data (4)	bedrock (2) colluvium (1) eolian (1) moraine / till (69) glaciofluvial (13) lacustrine (1) glaciolacustrine (9) marine (5) organic (0) missing data (0)
Soil Rooting Zone Substrate (% frequency)	non-soil (2) sandy (17) coarse loamy (21) fine loamy (3) silty (3) clayey (4) organic (1) missing data (50)	non-soil (2) sandy (19) coarse loamy (23) fine loamy (4) silty (4) clayey (5) organic (1) missing data (41)	non-soil (3) sandy (12) coarse loamy (15) fine loamy (1) silty (0) clayey (1) organic (0) missing data (69)
Root Restricting Depth (% frequency)	0 – 20 cm (5) 21 – 99 cm (50) ≥ 100 cm (23) missing data (23)	0 – 20 cm (5) 21 – 99 cm (41) ≥ 100 cm (33) missing data (22)	0 – 20 cm (5) 21 – 99 cm (69) ≥ 100 cm (0) missing data (25)
Humus Form (% frequency)	mor (80) moder (16) mull (1) peatymor (1) missing data (3)	mor (76) moder (18) mull (2) peatymor (0) missing data (4)	mor (87) moder (12) mull (0) peatymor (1) 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:

CNVC00125 [*Populus tremuloides* – *Pinus banksiana* / *Vaccinium myrtilloides* / *V. vitis-idaea*] ranges from northwestern Ontario to Alberta and occurs on comparable boreal sites. It lacks *Acer spicatum*, *Sorbus* spp., *Vaccinium angustifolium*, *Diervilla lonicera*, *Clintonia borealis* and *Eurybia macrophylla*.

CNVC00214 [*Picea mariana* – *Betula papyrifera* / *Kalmia angustifolia* / *Pleurozium schreberi*] occurs in Quebec on similar or slightly poorer sites but has abundant ericaceous shrubs.

CNVC00215 [*Betula papyrifera* – *Populus tremuloides* – *Pinus banksiana* / *Acer spicatum* / *Clintonia borealis*] occurs on slightly richer sites in the same range and has abundant *Acer spicatum* and *Corylus cornuta* in the shrub layer.

CNVC00231 [*Abies balsamea* – *Betula papyrifera* – *Populus tremuloides* / *Clintonia borealis*] occurs on similar sites in the same range but has abundant *Abies balsamea* in the overstory (see Dynamics).

CNVC00234 [*Picea mariana* – *Betula papyrifera* – *Abies balsamea* / *Clintonia borealis*] occurs in Quebec and northeastern Ontario on similar sites but has less *Pinus banksiana* and more *Abies balsamea* (see Dynamics).

CNVC00238 [*Populus tremuloides* (*Betula papyrifera*) / *Diervilla lonicera*] is a similar hardwood Association that occurs on comparable sites in the same range.

CNVC00272 [*Populus tremuloides* – *Picea mariana* / *Alnus incana*] occurs on moister, richer sites in the same range and has abundant *Alnus incana* in the shrub layer.

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

Comments

Viburnum nudum here refers to var. *cassinoides* (wild raisin).



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Source Information

Number of source plots for CNVC00213: 387

Number of source plots for 213a typic: 269

Number of source plots for 213b *Pteridium aquilinum*: 118

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.

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Description Authors: K. Chapman, K. Baldwin and J.-P. Saucier

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

<http://cnvc-cnvc.ca>

***Populus tremuloides* – *Betula papyrifera* – *Picea mariana* – *Pinus banksiana* / *Diervilla lonicera* / *Pleurozium schreberi* CNVC00213**

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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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