



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00214

Picea mariana* – *Betula papyrifera* / *Kalmia angustifolia* / *Pleurozium schreberi

Black Spruce – Paper Birch / Sheep Laurel / Red-stemmed Feathermoss

Épinette noire – Bouleau à papier / Kalmia à feuilles étroites / Pleurozie dorée

Subassociations: 214a *typic*, 214b *Alnus viridis*, 214c *Ilex mucronata*

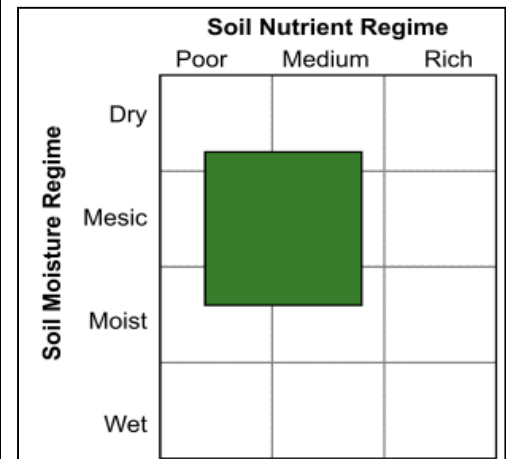
CNVC Alliance: CA00012 *Picea mariana* (*Pinus banksiana*) / *Vaccinium angustifolium* / *Pleurozium schreberi*

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

Type Description

Concept: CNVC00214 is a boreal mixedwood forest Association that occurs in Quebec. It has a moderately closed canopy comprising black spruce (*Picea mariana*) and paper birch (*Betula papyrifera*), sometimes with a smaller component of trembling aspen (*Populus tremuloides*), balsam fir (*Abies balsamea*) or jack pine (*Pinus banksiana*). Regenerating black spruce, paper birch and balsam fir are also common in the dense shrub layer, which is usually dominated by the ericaceous species sheep laurel (*Kalmia angustifolia*), early lowbush blueberry (*Vaccinium angustifolium*), velvet-leaved blueberry (*V. myrtilloides*) and common Labrador tea (*Rhododendron groenlandicum*). Serviceberries (*Amelanchier* spp.) and willows (*Salix* spp.) are often present but not abundant. The herb layer is poorly to moderately developed and typically includes low cover of bunchberry (*Cornus canadensis*), wild lily-of-the-valley (*Maianthemum canadense*), creeping snowberry (*Gaultheria hispidula*) and yellow clintonia (*Clintonia borealis*). The moss layer is moderately to well developed; usually it is better developed in stands with less broad-leaf litter. It is dominated by red-stemmed feathermoss (*Pleurozium schreberi*), with minor amounts of broom mosses (*Dicranum* spp.), grey reindeer lichen (*Cladina rangiferina*), knight's plume moss (*Ptilium crista-castrensis*) and haircap mosses (*Polytrichum* spp.). CNVC00214 occurs in a region with a humid continental boreal climate on mesic, nutrient-poor to medium sites. It typically establishes as the first cohort after fire, but harvesting also plays a role in its dynamics. Three subassociations are recognized: *typic*, *Alnus viridis* and *Ilex mucronata*.

Vegetation: CNVC00214 is a mixedwood forest Association with a moderately closed canopy dominated by *Picea mariana* and *Betula papyrifera*. When present, *Populus tremuloides* may be as abundant as *B. papyrifera*. *Abies balsamea* and *Pinus banksiana* are occasional companion species. The shrub layer is dense; it includes regenerating *P. mariana*, *B. papyrifera* and *A. balsamea*, as well as abundant ericaceous species, including *Kalmia angustifolia*, *Vaccinium angustifolium*, *V. myrtilloides* and *Rhododendron groenlandicum*. *Amelanchier* spp. and *Salix* spp. are usually present, but not abundant. *Cornus canadensis*, *Maianthemum canadense*, *Gaultheria hispidula* and *Clintonia borealis* are the most common species in the poorly to moderately developed herb layer. The moss layer is moderately to well developed and dominated by *Pleurozium schreberi* with presence of *Dicranum* spp., *Cladina rangiferina*, *Ptilium crista-castrensis* and *Polytrichum* spp. The moss layer is usually better developed in stands with less broad-leaf litter (i.e., those with fewer hardwoods and lower cover of heath species, especially *K. angustifolia*). Compared to the *typic* subassociation, the *Alnus viridis* subassociation has abundant *A. viridis* and the *Ilex mucronata* subassociation has more *I. mucronata*, *Viburnum nudum* (see Comments) and *Pteridium aquilinum*.





***Picea mariana* – *Betula papyrifera* / *Kalmia angustifolia* / *Pleurozium schreberi*
CNVC00214**

Type Description (cont'd)

Environment: CNVC00214 occurs mainly in a humid continental boreal climate. It is found primarily on mesic, nutrient-poor to medium sites. Stands are usually on gentle to moderately steep slopes, on water-shedding, middle to upper-slope or crest topositions. Soils are commonly moderately deep, well drained, coarse-textured and derived from morainal parent materials. Occasionally, stands occur on fine-textured materials deposited by proglacial lakes or seas. Humus forms are typically mors.

CNVC00214 is most prevalent where the regional fire cycle is intermediate (100-270 years), but it also occurs in areas where the fire cycle is long (270-500 years) or even very long (>500 years). Where the regional fire cycle is longer, stands of CNVC00214 likely occur on sites that burn more frequently than the regional average.

Compared to the *typic* and *Alnus viridis* subassociations, the *Ilex mucronata* subassociation occurs more frequently on moist soils with peatymor humus forms.

Dynamics: CNVC00214 typically establishes as the first cohort after fire, if *Betula papyrifera* and *Picea mariana* seed availability and regeneration success are high. Both species are adapted to disturbance. *B. papyrifera* can reproduce vegetatively from stump sprouts and also produces abundant, light, wind-dispersed seeds that can readily colonize mineral soil seedbeds exposed by disturbance. *P. mariana* has cones that open when heated to release seeds. Although its seeds can germinate on a variety of substrates, seedbeds are usually improved by a fire that reduces organic matter and exposes mineral soil. *B. papyrifera* grows rapidly in full-light conditions and is intolerant of shade, whereas *P. mariana* grows more slowly and is self-replacing in a stand because of its shade tolerance.

Harvesting and natural disturbances, such as windthrow events, help to maintain CNVC00214 on the landscape. Canopy openings that result from these disturbances can release *P. mariana* regeneration in the understory or conversely, provide opportunities for *B. papyrifera* to regenerate from seeds or sprouts, maintaining the mixedwood condition. In the absence of disturbance, these stands may succeed to CNVC00211 [*Picea mariana* / *Rhododendron groenlandicum* – *Kalmia angustifolia* / *Pleurozium schreberi*].

Kalmia angustifolia is an aggressive competitor to conifer regeneration. It vigorously sprouts after disturbances that do not eliminate its root system (e.g., low severity fires or harvesting), reducing space available for tree establishment. Its litter may inhibit *P. mariana* seed germination (physically and chemically) and affect seedling growth by reducing available nitrogen and limiting ectomycorrhizal relationships.

Range: CNVC00214 occurs in the boreal region of Quebec. It is most common in western Quebec but extends east to the Little Mecatina River on the Lower North Shore of the Gulf of Saint Lawrence and also occurs in the Gaspé region. The *typic* and *Alnus viridis* subassociations have more northern distributions, whereas the *Ilex mucronata* subassociation occurs farther south.

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: Quebec

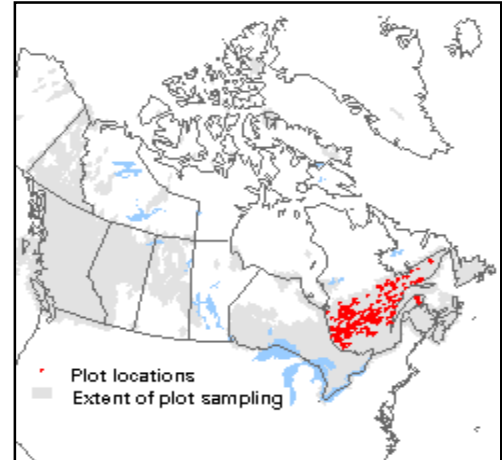
Terrestrial Ecozones and Ecoregions of Canada: Atlantic Highlands: Appalachians; Boreal Shield: Abitibi Plains, Central Laurentians, Lake Timiskaming Lowland, Mecatina Plateau, Rivière Rupert Plateau, Southern Laurentians; Hudson Plains: James Bay Lowland

Rowe's Forest Regions and Sections of Canada: Boreal: Chibougamau-Natashquan, East James Bay, Gaspé, Gouin, Hudson Bay Lowlands, Laurentide-Onatchiway, Missinaibi-Cabonga, Northern Clay; Great Lakes-St. Lawrence: Algonquin-Pontiac, Laurentian, Saguenay, Temiscouata-Restigouche

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

Nature Conservancy of Canada Ecoregions: Boreal Shield, Hudson Plains, Northern Appalachians-Acadia

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



Corresponding Types and Associations

214a typic	Quebec	QC056A	<i>Pinus banksiana</i> - <i>Betula papyrifera</i> / <i>Cornus canadensis</i> / <i>Pleurozium schreberi</i> [<i>Kalmia angustifolia</i>]
		QC060A	<i>Picea mariana</i> - <i>Betula papyrifera</i> / <i>Kalmia angustifolia</i> - <i>Ledum groenlandicum</i> / <i>Pleurozium schreberi</i> [Typique]
		QC069	<i>Larix laricina</i> - <i>Betula papyrifera</i> / <i>Kalmia angustifolia</i> / <i>Pleurozium schreberi</i>
		QC082A	<i>Populus tremuloides</i> - <i>Pinus banksiana</i> (<i>Betula papyrifera</i>) / <i>Kalmia angustifolia</i> - <i>Vaccinium</i> spp. [Typique]
		QC090A	<i>Populus tremuloides</i> - <i>Picea mariana</i> / <i>Kalmia angustifolia</i> - <i>Ledum groenlandicum</i> / <i>Pleurozium schreberi</i> [Typique]
214b <i>Alnus viridis</i>	Quebec	QC060B	<i>Picea mariana</i> - <i>Betula papyrifera</i> / <i>Kalmia angustifolia</i> - <i>Ledum groenlandicum</i> / <i>Pleurozium schreberi</i> [<i>Alnus viridis</i>]
		QC082B	<i>Populus tremuloides</i> - <i>Pinus banksiana</i> (<i>Betula papyrifera</i>) / <i>Kalmia angustifolia</i> - <i>Vaccinium</i> spp. [<i>Alnus viridis</i>]
		QC090B	<i>Populus tremuloides</i> - <i>Picea mariana</i> / <i>Kalmia angustifolia</i> - <i>Ledum groenlandicum</i> / <i>Pleurozium schreberi</i> [<i>Alnus viridis</i>]
214c <i>Ilex mucronata</i>	Quebec	QC060C	<i>Picea mariana</i> - <i>Betula papyrifera</i> / <i>Kalmia angustifolia</i> - <i>Ledum groenlandicum</i> / <i>Pleurozium schreberi</i> [<i>Nemopanthus mucronatus</i>]



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Vegetation Summary*

Species Name [†]	Association CNVC00214 282 plots		Subassociation 214a <i>typic</i> 164 plots		Subassociation 214b <i>Alnus viridis</i> 88 plots	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Overstory Trees						
<i>Picea mariana</i>	20	97	18	96	21	98
<i>Betula papyrifera</i>	19	92	17	90	19	93
<i>Abies balsamea</i>	8	54	9	61	7	38
<i>Populus tremuloides</i>	18	52	22	51	16	56
<i>Pinus banksiana</i>	15	36	17	34	13	41
<i>Prunus pensylvanica</i>	5	18	6	15	4	18
<i>Sorbus americana</i>	3	11	4	5	3	17
Tree Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(32 49 57 66 83)		(32 49 56 66 83)		(32 49 57 66 83)	
Understory Woody Shrubs and Regenerating Trees						
<i>Picea mariana</i>	11	96	12	95	11	99
<i>Kalmia angustifolia</i>	23	85	24	85	22	84
<i>Vaccinium angustifolium</i>	10	85	11	85	9	85
<i>Vaccinium myrtilloides</i>	10	85	11	83	9	88
<i>Betula papyrifera</i>	5	83	6	85	5	78
<i>Rhododendron groenlandicum</i>	17	77	17	74	21	82
<i>Amelanchier sp.</i>	6	76	5	76	7	74
<i>Abies balsamea</i>	11	73	11	79	9	64
<i>Salix sp.</i>	5	66	5	66	4	68
<i>Alnus viridis</i>	20	58	8	38	31	97
<i>Sorbus americana</i>	4	54	4	48	4	58
<i>Ilex mucronata</i>	6	49	4	48	4	35
<i>Viburnum nudum</i>	7	42	5	45	4	19
<i>Prunus pensylvanica</i>	4	39	4	37	4	41
<i>Populus tremuloides</i>	4	35	4	37	4	33
<i>Diervilla lonicera</i>	4	33	4	38	4	25
<i>Ribes glandulosum</i>	3	18	2	12	3	30
<i>Alnus incana</i>	9	17	10	23	6	6
<i>Sorbus decora</i>	4	16	4	20	3	8
<i>Acer spicatum</i>	4	13	3	12	6	8
<i>Acer rubrum</i>	4	12	4	13	3	5
Shrub Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(49 66 79 99 99)		(49 66 74 99 99)		(66 83 87 99 99)	
Understory Herbs and Dwarf Shrubs						
<i>Cornus canadensis</i>	8	88	7	93	9	76
<i>Maianthemum canadense</i>	4	72	3	74	4	64
<i>Gaultheria hispidula</i>	4	71	4	72	3	64
<i>Clintonia borealis</i>	4	70	3	70	4	66
<i>Linnaea borealis</i>	3	52	3	51	3	55



***Picea mariana* – *Betula papyrifera* / *Kalmia angustifolia* / *Pleurozium schreberi*
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Vegetation Summary (cont'd)*

Species Name [†]	Association CNVC00214		Subassociation 214a <i>typic</i>		Subassociation 214b <i>Alnus viridis</i>	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
<i>Lysimachia borealis</i>	2	52	2	44	2	64
<i>Coptis trifolia</i>	3	51	3	49	2	48
<i>Aralia nudicaulis</i>	3	41	3	39	4	41
<i>Pteridium aquilinum</i>	9	38	9	37	8	26
<i>Lycopodium annotinum</i>	5	35	3	30	8	47
<i>Lycopodium obscurum</i>	2	30	2	26	2	34
<i>Dryopteris spinulosa complex</i>	2	22	2	17	3	31
<i>Carex</i> sp.	3	21	3	20	2	24
<i>Cypripedium acaule</i>	2	17	2	15	2	8
<i>Lycopodium clavatum</i>	3	13	3	12	2	13
<i>Osmunda claytoniana</i>	4	10	4	10	6	5
<i>Trillium undulatum</i>	2	7	2	5	2	1
<i>Oclemena acuminata</i>	2	6	2	5	2	2
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(3 3 21 33 50)		(3 3 19 33 45)		(3 3 21 33 50)	
Bryophytes and Lichens						
<i>Pleurozium schreberi</i>	38	98	41	98	36	100
<i>Dicranum</i> sp.	4	87	4	80	3	94
<i>Cladina rangiferina</i>	3	79	4	79	3	77
<i>Ptilium crista-castrensis</i>	6	72	7	66	7	85
<i>Polytrichum</i> sp.	3	68	4	65	3	67
<i>Cladonia</i> sp.	3	59	3	55	2	65
<i>Cladina mitis</i>	3	46	3	50	2	41
<i>Sphagnum</i> sp.	6	45	7	43	4	41
<i>Cladina stellaris</i>	3	34	3	33	2	36
<i>Hylocomium splendens</i>	3	26	4	30	2	20
<i>Ptilidium ciliare</i>	3	19	3	12	2	36
<i>Sphagnum fuscum</i>	3	16	3	14	2	17
Bryo-Lichen Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(16 16 50 70 90)		(16 33 55 90 90)		(3 16 46 70 90)	

* 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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Black Spruce – Paper Birch / Sheep Laurel / Red-stemmed Feathermoss

Épinette noire – Bouleau à papier / Kalmia à feuilles étroites / Pleurozie dorée

Vegetation Summary (cont'd)*

Species Name [†]	Subassociation	
	214c <i>Ilex mucronata</i>	
	30 plots	
	% Cover [‡]	% Presence [^]
Overstory Trees		
<i>Picea mariana</i>	24	100
<i>Betula papyrifera</i>	23	100
<i>Abies balsamea</i>	6	60
<i>Populus tremuloides</i>	7	50
<i>Pinus banksiana</i>	9	33
<i>Prunus pensylvanica</i>	4	37
<i>Sorbus americana</i>	4	27
Tree Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(32 49 58 66 83)	
Understory Woody Shrubs and Regenerating Trees		
<i>Picea mariana</i>	12	97
<i>Kalmia angustifolia</i>	24	93
<i>Vaccinium angustifolium</i>	10	87
<i>Vaccinium myrtilloides</i>	7	87
<i>Betula papyrifera</i>	7	90
<i>Rhododendron groenlandicum</i>	8	80
<i>Amelanchier</i> sp.	5	83
<i>Abies balsamea</i>	10	67
<i>Salix</i> sp.	3	57
<i>Alnus viridis</i>	10	50
<i>Sorbus americana</i>	4	73
<i>Ilex mucronata</i>	13	97
<i>Viburnum nudum</i>	14	93
<i>Prunus pensylvanica</i>	4	47
<i>Populus tremuloides</i>	3	37
<i>Diervilla lonicera</i>	6	27
<i>Ribes glandulosum</i>	2	20
<i>Alnus incana</i>	9	17
<i>Sorbus decora</i>	6	20
<i>Acer spicatum</i>	3	33
<i>Acer rubrum</i>	4	33
Shrub Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(49 66 80 99 99)	
Understory Herbs and Dwarf Shrubs		
<i>Cornus canadensis</i>	9	93
<i>Maianthemum canadense</i>	4	87
<i>Gaultheria hispidula</i>	3	83
<i>Clintonia borealis</i>	4	87
<i>Linnaea borealis</i>	3	53



***Picea mariana* – *Betula papyrifera* / *Kalmia angustifolia* / *Pleurozium schreberi*
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Vegetation Summary (cont'd)*

Species Name [†]	Subassociation	
	214c <i>Ilex mucronata</i>	
	% Cover [‡]	% Presence [^]
<i>Lysimachia borealis</i>	3	67
<i>Coptis trifolia</i>	3	67
<i>Aralia nudicaulis</i>	4	57
<i>Pteridium aquilinum</i>	10	83
<i>Lycopodium annotinum</i>	4	27
<i>Lycopodium obscurum</i>	2	43
<i>Dryopteris spinulosa complex</i>	2	27
<i>Carex</i> sp.	5	20
<i>Cypripedium acaule</i>	2	50
<i>Lycopodium clavatum</i>	2	23
<i>Osmunda claytoniana</i>	4	27
<i>Trillium undulatum</i>	2	37
<i>Oclemena acuminata</i>	2	23
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(16 16 27 33 50)	
Bryophytes and Lichens		
<i>Pleurozium schreberi</i>	26	93
<i>Dicranum</i> sp.	4	97
<i>Cladina rangiferina</i>	3	87
<i>Ptilium crista-castrensis</i>	5	67
<i>Polytrichum</i> sp.	3	83
<i>Cladonia</i> sp.	2	60
<i>Cladina mitis</i>	2	43
<i>Sphagnum</i> sp.	7	63
<i>Cladina stellaris</i>	2	30
<i>Hylocomium splendens</i>	5	17
<i>Ptilidium ciliare</i>	3	7
<i>Sphagnum fuscum</i>	2	23
Bryo-Lichen Stratum Cover		
(P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(16 16 39 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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Black Spruce – Paper Birch / Sheep Laurel / Red-stemmed Feathermoss

Épinette noire – Bouleau à papier / Kalmia à feuilles étroites / Pleurozie dorée

Site / Soil Characteristics

	Association CNVC00214 282 plots	Subassociation 214a <i>typic</i> 164 plots	Subassociation 214b <i>Alnus viridis</i> 88 plots
Elevation Range (min–mean–max meters)	56–368–755	56–366–710	105–385–755
Slope Gradient (% frequency)	steep (7) moderately steep (21) moderate (26) gentle (28) level (18)	steep (7) moderately steep (16) moderate (27) gentle (27) level (23)	steep (8) moderately steep (30) moderate (23) gentle (30) level (10)
Aspect (% frequency)	north (18) east (18) south (23) west (23) level (18)	north (19) east (18) south (23) west (21) level (20)	north (20) east (22) south (24) west (20) level (14)
Meso Toposition (% frequency)	crest / upper (30) mid (49) lower / toe (7) depression (1) level (13)	crest / upper (30) mid (43) lower / toe (9) depression (2) level (16)	crest / upper (33) mid (57) lower / toe (2) depression (1) level (7)
Moisture Regime (% frequency)	very dry (1) dry (5) mesic (82) moist (12) wet (0)	very dry (1) dry (7) mesic (80) moist (12) wet (0)	very dry (1) dry (2) mesic (88) moist (8) wet (1)
Nutrient Regime (% frequency)	missing data (100)	missing data (100)	missing data (100)



***Picea mariana* – *Betula papyrifera* / *Kalmia angustifolia* / *Pleurozium schreberi*
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Site / Soil Characteristics (cont'd)

	Association CNVC00214	Subassociation 214a <i>typic</i>	Subassociation 214b <i>Alnus viridis</i>
Soil Parent Material (% frequency)	bedrock (3) colluvium (1) eolian (1) moraine / till (73) glaciofluvial (8) lacustrine (0) glaciolacustrine (8) marine (4) organic (1)	bedrock (5) colluvium (1) eolian (1) moraine / till (70) glaciofluvial (9) lacustrine (1) glaciolacustrine (9) marine (5) organic (1)	bedrock (1) colluvium (1) eolian (2) moraine / till (77) glaciofluvial (7) lacustrine (0) glaciolacustrine (10) marine (1) organic (0)
Soil Rooting Zone Substrate (% frequency)	non-soil (4) sandy (11) coarse loamy (12) fine loamy (3) silty (2) clayey (1) organic (2) missing data (65)	non-soil (5) sandy (9) coarse loamy (10) fine loamy (3) silty (2) clayey (1) organic (2) missing data (66)	non-soil (2) sandy (14) coarse loamy (17) fine loamy (2) silty (1) clayey (1) organic (1) missing data (61)
Root Restricting Depth (% frequency)	0 – 20 cm (10) 21 – 99 cm (63) missing data (28)	0 – 20 cm (13) 21 – 99 cm (61) missing data (26)	0 – 20 cm (5) 21 – 99 cm (65) missing data (31)
Humus Form (% frequency)	mor (91) moder (6) peatymor (3)	mor (90) moder (7) peatymor (3)	mor (97) moder (3) peatymor (0)



Forest / Forêt

Association CNVC00214

Picea mariana – *Betula papyrifera* / *Kalmia angustifolia* / *Pleurozium schreberi*

Black Spruce – Paper Birch / Sheep Laurel / Red-stemmed Feathermoss

Épinette noire – Bouleau à papier / Kalmia à feuilles étroites / Pleurozie dorée

Site / Soil Characteristics (cont'd)

Subassociation

214c *Ilex mucronata*

30 plots

Elevation Range (min–mean–max meters)

105–331–495

Slope Gradient (% frequency)

steep (0)
 moderately steep (20)
moderate (33)
 gentle (27)
 level (20)

Aspect (% frequency)

north (7)
 east (13)
 south (20)
west (37)
 level (23)

Meso Toposition (% frequency)

crest / upper (20)
mid (57)
 lower / toe (7)
 depression (0)
 level (17)

Moisture Regime (% frequency)

very dry (0)
 dry (0)
mesic (73)
 moist (27)
 wet (0)

Nutrient Regime (% frequency)

missing data (100)



Picea mariana* – *Betula papyrifera* / *Kalmia angustifolia* / *Pleurozium schreberi
CNVC00214

Site / Soil Characteristics (cont'd)

Subassociation
 214c *Ilex mucronata*

Soil Parent Material (% frequency)

bedrock (0)
 colluvium (0)
 eolian (0)
moraine / till (77)
 glaciofluvial (10)
 lacustrine (0)
 glaciolacustrine (0)
 marine (10)
 organic (3)

Soil Rooting Zone Substrate (% frequency)

non-soil (0)
 sandy (17)
 coarse loamy (10)
 fine loamy (3)
 silty (0)
 clayey (0)
 organic (3)
 missing data (67)

Root Restricting Depth (% frequency)

0 – 20 cm (7)
21 – 99 cm (67)
 missing data (27)

Humus Form (% frequency)

mor (83)
 moder (7)
 peatymor (10)



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00214

Picea mariana – *Betula papyrifera* / *Kalmia angustifolia* / *Pleurozium schreberi*

Black Spruce – Paper Birch / Sheep Laurel / Red-stemmed Feathermoss

Épinette noire – Bouleau à papier / Kalmia à feuilles étroites / Pleurozie dorée

Additional Characteristics

Species of High Conservation Concern:

Non-native Species:

Management Issues:

Type Statistics

Internal Similarity:

Confidence:

Strength:

Related Concepts

Similar CNVC Associations:

CNVC00213 [*Populus tremuloides* – *Betula papyrifera* – *Picea mariana* – *Pinus banksiana* / *Diervilla lonicera* / *Pleurozium schreberi*] occurs on slightly richer sites in the same range. It has more *Populus tremuloides* in the overstory and lower abundance of ericaceous shrubs.

CNVC00216 [*Picea mariana* – *Betula papyrifera* (*Abies balsamea*) / *Acer spicatum*] occurs on richer sites in the same range and has abundant *Acer spicatum*, rather than ericaceous species, in the shrub layer.

CNVC00234 [*Picea mariana* – *Betula papyrifera* – *Abies balsamea* / *Clintonia borealis*] occurs on slightly richer sites in the same range. It has more *Abies balsamea*, lower abundance of ericaceous shrubs and a less developed moss layer.

CNVC00344 [*Picea mariana* – *Betula papyrifera* – *Abies balsamea* / *Pleurozium schreberi*] occurs on similar sites in the same range but has more *Abies balsamea* and lower abundance of ericaceous shrubs.

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

Comments

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

Source Information

Number of source plots for CNVC00214: 282

Number of source plots for 214a typic: 164

Number of source plots for 214b *Alnus viridis*: 88

Number of source plots for 214c *Ilex mucronata*: 30

Information Sources:

Ministère des Ressources naturelles, de la Faune et des Parcs, Forêt Québec. 2003. Base de données des points d'observation écologique (version 2003). Gouv. du Qué., Min. des Res. nat., de la Faune et des Parcs, Forêt Qué., Dir. des inv. for., QC.

Concept Authors: K. Baldwin, K. Chapman, C. Morneau

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

Date of Concept: May, 2010

Date of Description: February, 2016



***Picea mariana* – *Betula papyrifera* / *Kalmia angustifolia* / *Pleurozium schreberi*
CNVC00214**

Classification References:

Bergeron, J.-F.; Grondin, P.; Blouin, J. 1999. Rapport de classification écologique du sous-domaine bioclimatique de la pessière à mousses de l'ouest. Min. des Res. nat. du Qué., Dir. des inv. for., Sainte-Foy, QC.

Gosselin, J.; Grondin, P.; Saucier, J.-P. 1998. Rapport de classification écologique du sous-domaine bioclimatique de la sapinière à bouleau jaune de l'ouest. Min. des Res. nat. du Qué., Dir. de la gestion des stocks forestiers, QC.

Grondin, P.; Blouin, J.; Racine, P. 1998. Rapport de classification écologique du sous-domaine bioclimatique de la sapinière à bouleau blanc de l'ouest. Min. des Res. nat. du Qué., Dir. des inv. for., QC.

Grondin, P.; Blouin, J.; Racine, P. 1999. Rapport de classification écologique du sous-domaine bioclimatique de la sapinière à bouleau jaune de l'est. Min. des Res. nat. du Qué., Dir. des inv. for., QC.

Morneau, C. In prep. Rapport de classification écologique du sous-domaine bioclimatique de la pessière à mousses de l'est. Min. des forêts, de la Faune et des Parcs, Dir. des inv. for., QC.

Characterization References:

Bergeron, Y. 2000. Species and stand dynamics in the mixed woods of Quebec's southern boreal forest. *Ecology* 81(6):1500-1516.

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.

Bouchard, M.; Pothier, D.; Gauthier, S. 2008. Fire return intervals and tree species succession in the North Shore region of eastern Quebec. *Can. J. For. Res.* 38(6):1621-1633.

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.

Fryer, J.L. 2014. *Picea mariana*. In: Fire Effects Information System. U.S. Dept. Agric., For. Serv., Rocky Mt. Res. Stn., Fire Sci. Lab., Missoula, MT, US. Available: <http://www.fs.fed.us/database/feis/plants/tree/picmar/all.html> (accessed: May 26, 2015).

Gagnon, R.; Morin, H. 2001. Les forêts d'épinette noire du Québec: dynamique, perturbations et biodiversité. *Nat. Can.* 125:26-35.

Gauthier, S.; Raulier, F.; Robitaille, A.; Chabot, M.; Duval, J.; Lord, D. 2013. Vulnérabilité face au risque de feu: description du critère et de l'indicateur, justification des seuils, méthode retenue et résultats détaillés. Chapitre 4 dans Rapport du Comité scientifique chargé d'examiner la limite nordique des forêts attribuables. Min. des Res. nat. du Qué., Sect. des for., QC.

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.

Jobidon, R. 1995. Autécologie de quelques espèces de compétition d'importance pour la régénération forestière au Québec. *Revue de littérature*. Min. des Res. nat., Dir. de la rech. for., QC. Mémoire de recherche forestière n° 117.

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.

Kneeshaw, D.D.; Bergeron, Y. 1998. Canopy gap characteristics and tree replacement in the southeastern boreal forest. *Ecology* 79(3):783-794.

Mallik, A.U. 2003. Conifer regeneration problems in boreal and temperate forests with ericaceous understory: role of disturbance, seedbed limitation, and keystone species change. *Crit. Rev. Plant Sci.* 22(3&4):341-366.



***Picea mariana* – *Betula papyrifera* / *Kalmia angustifolia* / *Pleurozium schreberi*
CNVC00214**

Characterization References (cont'd):

Mansuy, N.; Gauthier, S.; Robitaille, A.; Bergeron, Y. 2010. The effects of surficial deposit-drainage combinations on spatial variations of fire cycles in the boreal forest of eastern Canada. *Int. J. Wildland Fire* 19:1083-1098.

McCarthy, J. 2001. Gap dynamics of forest trees: a review with particular attention to boreal forests. *Environ. Rev.* 9(1):1-59.

Ministère des Ressources naturelles. 2013. Le guide sylvicole du Québec, Tome 1, Les fondements biologiques de la sylviculture. Ouvrage collectif sous la supervision de B. Boulet et M. Huot. Les Publications du Québec, QC. 1044.

Ministère des Ressources naturelles du Québec, Forêt Québec. 2002+. Les guides de reconnaissance des types écologiques. Gouv. du Québec, Québec, QC. Available: <http://www.mffp.gouv.qc.ca/forets/inventaire/guide-types-ecologiques-carte.jsp> (accessed: May 2015).

Uchytel, R.J. 1991. *Betula papyrifera*. In: Fire Effects Information System. U.S. Dept. Agric., For. Serv., Rocky Mt. Res. Stn., Fire Sci. Lab., Missoula, MT, US. Available: <http://www.fs.fed.us/database/feis/plants/tree/betpap/all.html> (accessed: May 27, 2015).

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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