



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00237

Betula papyrifera* / *Vaccinium angustifolium* – *Kalmia angustifolia* / *Pleurozium schreberi
Paper Birch / Early Lowbush Blueberry – Sheep Laurel / Red-stemmed Feathermoss
Bouleau à papier / Bleuets à feuilles étroites – Kalmia à feuilles étroites / Pleurozie dorée

Subassociations: 237a *Alnus viridis*, 237b *Rhododendron groenlandicum*, 237c *Vaccinium angustifolium*, 237d *Pleurozium schreberi*, 237e *Kalmia angustifolia*

CNVC Alliance: CA00011 *Betula papyrifera* / *Vaccinium angustifolium* / *Pleurozium schreberi*

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

Type Description

Concept: CNVC00237 is a boreal hardwood forest Association that occurs in Quebec and on insular Newfoundland. It has a closed canopy dominated by paper birch (*Betula papyrifera*), usually with a minor component of black spruce (*Picea mariana*) and/or balsam fir (*Abies balsamea*). The well-developed to dense shrub layer includes regeneration of these tree species as well as serviceberries (*Amelanchier* spp.) and green alder (*Alnus viridis*), along with the heath species velvet-leaved blueberry (*Vaccinium myrtilloides*), early lowbush blueberry (*V. angustifolium*), common Labrador tea (*Rhododendron groenlandicum*) and sheep laurel (*Kalmia angustifolia*). The herb layer can vary from poorly developed to dense and usually includes low cover of bunchberry (*Cornus canadensis*), wild lily-of-the-valley (*Maianthemum canadense*), yellow clintonia (*Clintonia borealis*), northern starflower (*Lysimachia borealis*) and creeping snowberry (*Gaultheria hispidula*). Moss layer development is poor to moderate, usually consisting of patches of red-stemmed feathermoss (*Pleurozium schreberi*). CNVC00237 occurs in a region with a humid to very humid, continental to maritime boreal climate, usually on mesic, nutrient-poor to medium sites. It is an early seral condition that typically follows fire. There are five subassociations: *Alnus viridis*, *Rhododendron groenlandicum*, *Vaccinium angustifolium*, *Pleurozium schreberi* and *Kalmia angustifolia*.

Vegetation: CNVC00237 is a hardwood forest Association with a closed canopy of *Betula papyrifera*. *Picea mariana* and/or *Abies balsamea* are often present but low in cover. Regeneration of these tree species is common and sometimes dominant in the well-developed to dense shrub layer, along with the ericaceous species *Vaccinium angustifolium*, *V. myrtilloides*, *Rhododendron groenlandicum* and *Kalmia angustifolia*, and sometimes *Amelanchier* spp. and *Alnus viridis*. The herb layer can be poorly developed to dense. It usually includes at least low cover of *Cornus canadensis*, *Maianthemum canadense*, *Clintonia borealis*, *Lysimachia borealis* and *Gaultheria hispidula*. Because of abundant broad-leaf litter, the moss layer is only poorly to moderately developed, consisting mainly of patches of *Pleurozium schreberi*, with minor cover of *Dicranum* and *Polytrichum* mosses and *Cladina* and *Cladonia* lichens.

Five subassociations are recognized. The *Alnus viridis* subassociation has *A. viridis* dominant in the shrub layer. *Pteridium aquilinum* is sometimes locally abundant in this subassociation. The *Rhododendron groenlandicum* subassociation has a shrub layer dominated by *R. groenlandicum* and *K. angustifolia*. The *Vaccinium angustifolium* subassociation has a shrub layer dominated by *V. angustifolium* and *V. myrtilloides*. The *Pleurozium schreberi* subassociation has a more open shrub layer than all other subassociations and a prominent moss layer. The *Kalmia angustifolia* subassociation has *K. angustifolia* dominant with, at most, low cover of *R. groenlandicum* in the shrub layer and patches of *Lycopodium annotinum* in the herb layer.



Source: B. Meades

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



***Betula papyrifera* / *Vaccinium angustifolium* – *Kalmia angustifolia* / *Pleurozium schreberi*
CNVC00237**

Type Description (cont'd)

Environment: CNVC00237 occurs in a humid to very humid, continental to maritime-influenced boreal climate. It is usually on mesic, nutrient-poor to medium sites. Stands are commonly on gentle to moderately steep slopes on water-shedding, middle to upper-slope or crest topositions. Soils are usually moderately deep, well drained and coarse-textured; often they are loams or sands derived from morainal parent materials. Less frequently, soils can be shallow over bedrock. Mor humus forms are prevalent. CNVC00237 occurs where regional fire cycles are intermediate (100-270 years) or long (270-500 years).

The various subassociations have similar site characteristics, except the *Pleurozium schreberi* subassociation is more common on cooler, north or east-facing aspects.

Dynamics: CNVC00237 is an early seral condition that typically establishes after fire when conifer regeneration is inadequate because of poor seed supply or poor seedbed conditions. *Betula papyrifera* is a pioneer species adapted to disturbance. It produces abundant, light, wind-dispersed seeds that can readily colonize mineral soil seedbeds exposed by disturbance and can reproduce vegetatively from stump sprouts. It grows rapidly in full-light conditions but is intolerant of shade so does not replace itself in a stand without further disturbance.

Picea mariana can also recolonize after fire. It has cones that open when heated to release seeds, and it germinates well on a seedbed where fire has reduced the organic material and exposed mineral soil. If it establishes at the same time as *B. papyrifera*, CNVC00214 [*Picea mariana* – *Betula papyrifera* / *Kalmia angustifolia* / *Pleurozium schreberi*] can form. Often CNVC00237 and CNVC00214 co-exist spatially in a landscape matrix. *P. mariana* is slower growing but longer lived and self replacing in the absence of fire so can become dominant as the *B. papyrifera* declines. *Abies balsamea* can also become established in these stands if seeds are disseminated from nearby areas. Once established, it is highly shade tolerant and self replacing. In the absence of further disturbance, these stands could succeed to CNVC00217 [*Picea mariana* – *Abies balsamea* / *Rhododendron groenlandicum* / *Pleurozium schreberi*].

Range: CNVC00237 occurs in the boreal regions of Quebec and insular Newfoundland. It is most common in western Quebec but extends to the Lower North Shore of the Gulf of Saint Lawrence near the Little Mecatina River and occurs in the Gaspé region and the northeastern part of insular Newfoundland. The *Alnus viridis*, *Rhododendron groenlandicum*, *Vaccinium angustifolium* and *Pleurozium schreberi* subassociations are described from Quebec. The *Kalmia angustifolia* subassociation is described from Newfoundland.

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: Newfoundland and Labrador, Quebec

Terrestrial Ecozones and Ecoregions of Canada: Atlantic Highlands: Appalachians; Boreal Shield: Abitibi Plains, Central Laurentians, Central Newfoundland, Lake Timiskaming Lowland, Mecatina Plateau, Rivière Rupert Plateau, Southern Laurentians; Taiga Shield: Smallwood Reservoir-Michikamau

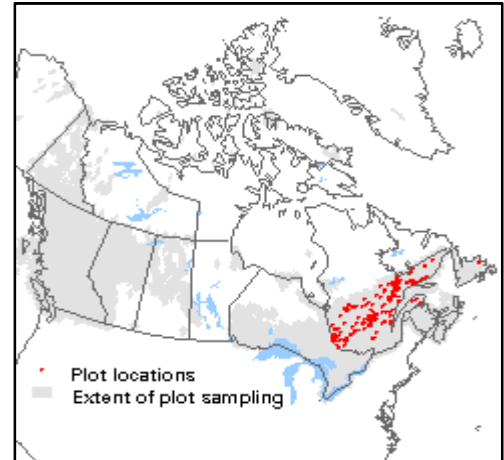
Rowe's Forest Regions and Sections of Canada: Boreal: Chibougamau-Natashquan, Gaspé, Gouin, Grand Falls, Laurentide-Onatchiway, Missinaibi-Cabonga, Northeastern Transition, Northern Clay; Great Lakes-St. Lawrence: Algonquin-Pontiac, Haileybury Clay, Laurentian, Saguenay, Timagami

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

Nature Conservancy of Canada Ecoregions: Boreal Shield, Eastern Taiga Shield, Northern Appalachians-Acadia

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

Ecoregions of Newfoundland: Central Newfoundland



Corresponding Types and Associations

237a <i>Alnus viridis</i>	Quebec	QC101A	<i>Betula papyrifera</i> / <i>Alnus viridis</i> - <i>Vaccinium</i> spp. [<i>Alnus viridis</i>]
237b <i>Rhododendron groenlandicum</i>	Quebec	QC101B	<i>Betula papyrifera</i> / <i>Alnus viridis</i> - <i>Vaccinium</i> spp. [<i>Ledum groenlandicum</i>]
237c <i>Vaccinium angustifolium</i>	Quebec	QC101C	<i>Betula papyrifera</i> / <i>Alnus viridis</i> - <i>Vaccinium</i> spp. [<i>Vaccinium</i> spp.]
237d <i>Pleurozium schreberi</i>	Quebec	QC102	<i>Betula papyrifera</i> / <i>Cornus canadensis</i> / <i>Pleurozium schreberi</i>
237e <i>Kalmia angustifolia</i>	Newfoundland and Labrador	W Bk	Western: <i>Kalmia</i> - birch forest



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Vegetation Summary*

Species Name [†]	Association CNVC00237		Subassociation 237a <i>Alnus viridis</i>		Subassociation 237b <i>Rhododendron groenlandicum</i>	
	157 plots		65 plots		25 plots	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Overstory Trees						
<i>Betula papyrifera</i>	47	100	47	100	45	100
<i>Picea mariana</i>	9	79	10	92	11	76
<i>Abies balsamea</i>	6	65	6	58	5	56
<i>Populus tremuloides</i>	10	46	12	57	6	44
<i>Prunus pensylvanica</i>	5	27	6	37	5	24
<i>Picea glauca</i>	5	18	15	3	3	8
<i>Pinus banksiana</i>	11	15	8	20	15	32
<i>Sorbus americana</i>	4	13	3	23	3	4
<i>Acer rubrum</i>	6	11	8	6	-	-
Tree Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(36 50 68 86 99)		(49 53 70 86 99)		(36 49 64 83 86)	
Understory Woody Shrubs and Regenerating Trees						
<i>Betula papyrifera</i>	7	90	4	80	10	100
<i>Picea mariana</i>	9	87	8	92	8	84
<i>Abies balsamea</i>	13	85	6	80	10	68
<i>Vaccinium angustifolium</i>	8	78	6	83	11	80
<i>Vaccinium myrtilloides</i>	9	75	7	75	16	92
<i>Amelanchier sp.</i>	8	69	12	89	3	56
<i>Rhododendron groenlandicum</i>	14	66	14	72	25	92
<i>Alnus viridis</i>	23	62	31	91	12	60
<i>Kalmia angustifolia</i>	15	59	13	63	36	76
<i>Salix sp.</i>	5	54	5	69	7	68
<i>Sorbus americana</i>	4	45	4	60	6	20
<i>Prunus pensylvanica</i>	4	39	4	43	4	56
<i>Ilex mucronata</i>	4	36	4	46	3	36
<i>Ribes glandulosum</i>	2	36	2	43	2	12
<i>Populus tremuloides</i>	3	34	3	40	3	32
<i>Sorbus decora</i>	4	29	4	34	4	16
<i>Diervilla lonicera</i>	4	27	5	34	6	16
<i>Viburnum nudum</i>	8	25	12	32	4	16
<i>Acer spicatum</i>	4	22	4	22	2	12
<i>Picea glauca</i>	4	17	4	9	4	4
<i>Viburnum edule</i>	4	17	5	18	3	16
<i>Acer rubrum</i>	7	14	9	9	2	4
<i>Rubus idaeus</i>	3	13	5	11	-	-
<i>Alnus incana</i>	7	11	3	5	6	20
<i>Corylus cornuta</i>	4	9	2	5	3	4
<i>Pinus strobus</i>	3	5	-	-	-	-
Shrub Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(32 49 70 86 99)		(49 66 75 99 99)		(66 83 87 99 99)	



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

Species Name [†]	Association CNVC00237		Subassociation 237a <i>Alnus viridis</i>		Subassociation 237b <i>Rhododendron groenlandicum</i>	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Understory Herbs and Dwarf Shrubs						
<i>Cornus canadensis</i>	11	89	11	92	8	80
<i>Maianthemum canadense</i>	5	71	6	82	4	60
<i>Clintonia borealis</i>	5	70	6	83	5	40
<i>Lysimachia borealis</i>	3	68	3	78	3	36
<i>Gaultheria hispidula</i>	4	67	3	57	3	68
<i>Linnaea borealis</i>	4	55	3	71	4	40
<i>Lycopodium annotinum</i>	6	54	7	65	4	48
<i>Dryopteris spinulosa complex</i>	3	53	3	71	2	20
<i>Coptis trifolia</i>	2	48	2	68	2	28
<i>Lycopodium obscurum</i>	2	43	2	60	2	32
<i>Aralia nudicaulis</i>	4	39	5	46	3	24
<i>Solidago macrophylla</i>	3	37	3	46	2	28
<i>Pteridium aquilinum</i>	10	30	14	35	3	16
<i>Poaceae</i>	3	29	3	31	2	44
<i>Carex sp.</i>	2	29	2	29	2	36
<i>Chamerion angustifolium</i>	2	21	2	11	2	36
<i>Gymnocarpium dryopteris</i>	2	18	2	20	2	8
<i>Lycopodium clavatum</i>	4	17	3	20	2	16
<i>Oxalis montana</i>	3	14	3	3	-	-
<i>Monotropa uniflora</i>	2	10	2	20	-	-
<i>Rubus pubescens</i>	3	5	2	5	2	4
<i>Calamagrostis canadensis</i>	4	1	-	-	-	-
<i>Dryopteris intermedia</i>	4	1	-	-	-	-
<i>Anaphalis margaritacea</i>	2	1	-	-	-	-
<i>Dryopteris carthusiana</i>	2	1	-	-	-	-
<i>Solidago rugosa</i>	2	1	-	-	2	4
<i>Achillea millefolium</i>	1	1	-	-	-	-
<i>Poa pratensis</i>	1	1	-	-	-	-
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(3 16 28 50 70)		(3 16 34 50 70)		(3 3 16 16 33)	
Bryophytes and Lichens						
<i>Pleurozium schreberi</i>	22	95	12	95	28	100
<i>Dicranum sp.</i>	4	85	4	92	3	88
<i>Polytrichum sp.</i>	3	69	3	80	3	76
<i>Cladina rangiferina</i>	3	67	3	71	4	80
<i>Cladonia sp.</i>	2	64	2	69	3	68
<i>Ptilium crista-castrensis</i>	3	50	2	51	3	44
<i>Cladina mitis</i>	3	47	2	45	3	64
<i>Sphagnum sp.</i>	4	46	3	57	8	40
<i>Cladina stellaris</i>	2	25	2	22	3	44
<i>Hylocomium splendens</i>	6	20	2	8	2	8
<i>Sphagnum fuscum</i>	2	14	2	15	2	28
<i>Rhytidiadelphus triquetrus</i>	2	2	3	3	-	-



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

Species Name [†]	Association CNVC00237		Subassociation 237a <i>Alnus viridis</i>		Subassociation 237b <i>Rhododendron groenlandicum</i>	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Bryophytes and Lichens (cont'd)						
<i>Brachythecium rutabulum</i>	1	1	-	-	-	-
<i>Dicranum scoparium</i>	1	1	-	-	-	-
<i>Dicranum undulatum</i>	1	1	-	-	-	-
Bryo-Lichen Stratum Cover						
(P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(3 3 30 50 70)		(3 3 17 16 50)		(3 16 39 70 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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Vegetation Summary (cont'd)*

Species Name [†]	Subassociation 237c <i>Vaccinium angustifolium</i>		Subassociation 237d <i>Pleurozium schreberi</i>		Subassociation 237e <i>Kalmia angustifolia</i>	
	29 plots		36 plots		2 plots	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Overstory Trees						
<i>Betula papyrifera</i>	41	100	53	100	63	100
<i>Picea mariana</i>	8	62	9	75	-	-
<i>Abies balsamea</i>	4	72	9	78	1	50
<i>Populus tremuloides</i>	5	48	11	25	4	50
<i>Prunus pensylvanica</i>	9	14	2	22	1	50
<i>Picea glauca</i>	5	45	5	31	-	-
<i>Pinus banksiana</i>	10	7	-	-	-	-
<i>Sorbus americana</i>	3	3	7	11	-	-
<i>Acer rubrum</i>	7	41	3	6	-	-
Tree Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(32 49 62 83 89)		(42 63 72 86 99)		(65 66 66 66 67)	
Understory Woody Shrubs and Regenerating Trees						
<i>Betula papyrifera</i>	8	97	9	100	-	-
<i>Picea mariana</i>	12	76	10	89	4	50
<i>Abies balsamea</i>	21	93	19	100	9	50
<i>Vaccinium angustifolium</i>	18	72	2	69	10	100
<i>Vaccinium myrtilloides</i>	11	79	3	61	-	-
<i>Amelanchier sp.</i>	3	59	7	50	1	50
<i>Rhododendron groenlandicum</i>	5	52	6	47	1	100
<i>Alnus viridis</i>	11	24	8	39	1	100
<i>Kalmia angustifolia</i>	6	62	3	36	21	100
<i>Salix sp.</i>	6	41	6	31	-	-
<i>Sorbus americana</i>	3	31	4	44	2	50
<i>Prunus pensylvanica</i>	3	38	3	22	-	-
<i>Ilex mucronata</i>	3	38	5	17	-	-
<i>Ribes glandulosum</i>	3	31	2	42	1	50
<i>Populus tremuloides</i>	4	38	3	19	4	50
<i>Sorbus decora</i>	3	21	4	36	-	-
<i>Diervilla lonicera</i>	3	34	3	17	-	-
<i>Viburnum nudum</i>	4	38	7	11	-	-
<i>Acer spicatum</i>	3	28	5	25	-	-
<i>Picea glauca</i>	3	31	5	28	-	-
<i>Viburnum edule</i>	2	7	3	22	-	-
<i>Acer rubrum</i>	6	48	4	3	-	-
<i>Rubus idaeus</i>	3	21	2	17	2	50
<i>Alnus incana</i>	11	21	8	8	2	50
<i>Corylus cornuta</i>	4	31	3	3	-	-
<i>Pinus strobus</i>	3	28	-	-	-	-
Shrub Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(46 49 69 83 99)		(19 32 51 66 84)		(25 33 46 58 66)	



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

Species Name [†]	Subassociation 237c <i>Vaccinium angustifolium</i>		Subassociation 237d <i>Pleurozium schreberi</i>		Subassociation 237e <i>Kalmia angustifolia</i>	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Understory Herbs and Dwarf Shrubs						
<i>Cornus canadensis</i>	11	79	9	94	41	100
<i>Maianthemum canadense</i>	7	79	3	56	9	50
<i>Clintonia borealis</i>	4	66	4	72	1	50
<i>Lysimachia borealis</i>	2	55	2	78	4	100
<i>Gaultheria hispidula</i>	6	62	4	92	-	-
<i>Linnaea borealis</i>	4	41	3	50	19	50
<i>Lycopodium annotinum</i>	4	34	4	50	10	100
<i>Dryopteris spinulosa complex</i>	2	21	4	72	-	-
<i>Coptis trifolia</i>	3	38	3	39	-	-
<i>Lycopodium obscurum</i>	3	28	2	31	1	50
<i>Aralia nudicaulis</i>	3	45	3	36	-	-
<i>Solidago macrophylla</i>	3	10	4	50	-	-
<i>Pteridium aquilinum</i>	6	55	6	11	-	-
<i>Poaceae</i>	2	24	2	19	-	-
<i>Carex sp.</i>	2	28	2	25	-	-
<i>Chamerion angustifolium</i>	2	17	2	28	3	100
<i>Gymnocarpium dryopteris</i>	2	7	2	31	-	-
<i>Lycopodium clavatum</i>	5	21	6	8	15	50
<i>Oxalis montana</i>	3	17	4	42	-	-
<i>Monotropa uniflora</i>	-	-	2	3	1	50
<i>Rubus pubescens</i>	3	3	3	6	4	50
<i>Calamagrostis canadensis</i>	-	-	-	-	4	50
<i>Dryopteris intermedia</i>	-	-	-	-	4	50
<i>Anaphalis margaritacea</i>	-	-	-	-	2	50
<i>Dryopteris carthusiana</i>	-	-	-	-	2	50
<i>Solidago rugosa</i>	-	-	-	-	2	50
<i>Achillea millefolium</i>	-	-	-	-	1	50
<i>Poa pratensis</i>	-	-	-	-	1	50
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(3 16 29 50 54)		(3 13 24 33 41)		(60 66 78 89 96)	
Bryophytes and Lichens						
<i>Pleurozium schreberi</i>	16	86	40	100	2	50
<i>Dicranum sp.</i>	7	62	4	94	-	-
<i>Polytrichum sp.</i>	2	45	2	67	-	-
<i>Cladina rangiferina</i>	5	59	2	61	-	-
<i>Cladonia sp.</i>	2	38	2	78	-	-
<i>Ptilium crista-castrensis</i>	2	17	5	78	1	50
<i>Cladina mitis</i>	4	38	2	50	-	-
<i>Sphagnum sp.</i>	3	21	5	53	-	-
<i>Cladina stellaris</i>	3	17	2	28	-	-
<i>Hylocomium splendens</i>	3	3	7	67	-	-
<i>Sphagnum fuscum</i>	2	3	2	11	-	-
<i>Rhytidiadelphus triquetrus</i>	-	-	-	-	1	50



***Betula papyrifera* / *Vaccinium angustifolium* – *Kalmia angustifolia* / *Pleurozium schreberi*
 CNVC00237**

Vegetation Summary (cont'd)*

Species Name [†]	Subassociation 237c <i>Vaccinium angustifolium</i>		Subassociation 237d <i>Pleurozium schreberi</i>		Subassociation 237e <i>Kalmia angustifolia</i>	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Bryophytes and Lichens (cont'd)						
<i>Brachythecium rutabulum</i>	-	-	-	-	1	100
<i>Dicranum scoparium</i>	-	-	-	-	1	100
<i>Dicranum undulatum</i>	-	-	-	-	1	50
Bryo-Lichen Stratum Cover						
(P ₁₀ P ₂₅ Mean P ₇₅ P ₉₀) [‡]	(3 16 23 16 54)		(33 33 52 70 90)		(2 3 4 6 6)	

* 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)



Forest / Forêt

Association CNVC00237

Betula papyrifera / *Vaccinium angustifolium* – *Kalmia angustifolia* / *Pleurozium schreberi*

Paper Birch / Early Lowbush Blueberry – Sheep Laurel / Red-stemmed Feathermoss

Bouleau à papier / Bleuets à feuilles étroites – Kalmia à feuilles étroites / Pleurozie dorée

Site / Soil Characteristics

	Association CNVC00237	Subassociation 237a <i>Alnus viridis</i>	Subassociation 237b <i>Rhododendron groenlandicum</i>
	157 plots	65 plots	25 plots
Elevation Range (min–mean–max meters)	46–426–830	130–409–830	130–451–740
Slope Gradient (% frequency)	steep (15) moderately steep (26) moderate (28) gentle (22) level (8) missing data (1)	steep (14) moderately steep (32) moderate (28) gentle (25) level (2) missing data (0)	steep (12) moderately steep (24) moderate (16) gentle (36) level (12) missing data (0)
Aspect (% frequency)	north (22) east (26) south (18) west (24) level (9) missing data (1)	north (15) east (32) south (23) west (29) level (0) missing data (0)	north (20) east (20) south (20) west (20) level (20) missing data (0)
Meso Toposition (% frequency)	crest / upper (24) mid (65) lower / toe (3) level (7) missing data (1)	crest / upper (18) mid (77) lower / toe (5) level (0) missing data (0)	crest / upper (28) mid (52) lower / toe (4) level (16) missing data (0)
Moisture Regime (% frequency)	very dry (1) dry (5) mesic (85) moist (8) wet (1)	very dry (0) dry (2) mesic (92) moist (6) wet (0)	very dry (0) dry (12) mesic (80) moist (8) wet (0)
Nutrient Regime (% frequency)	missing data (100)	missing data (100)	missing data (100)



***Betula papyrifera* / *Vaccinium angustifolium* – *Kalmia angustifolia* / *Pleurozium schreberi*
 CNVC00237**

Site / Soil Characteristics (cont'd)

	Association CNVC00237	Subassociation 237a <i>Alnus viridis</i>	Subassociation 237b <i>Rhododendron groenlandicum</i>
Soil Parent Material (% frequency)	bedrock (4) colluvium (2) eolian (1) moraine / till (87) glaciofluvial (4) glaciolacustrine (1) marine (1) organic (1)	bedrock (2) colluvium (3) eolian (0) moraine / till (91) glaciofluvial (0) glaciolacustrine (2) marine (3) organic (0)	bedrock (4) colluvium (0) eolian (4) moraine / till (88) glaciofluvial (4) glaciolacustrine (0) marine (0) organic (0)
Soil Rooting Zone Substrate (% frequency)	non-soil (6) sandy (6) coarse loamy (14) fine loamy (1) silty (1) organic (1) missing data (71)	non-soil (5) sandy (5) coarse loamy (17) fine loamy (0) silty (2) organic (0) missing data (72)	non-soil (4) sandy (12) coarse loamy (12) fine loamy (0) silty (0) organic (0) missing data (72)
Root Restricting Depth (% frequency)	0 – 20 cm (13) 21 – 99 cm (59) missing data (28)	0 – 20 cm (15) 21 – 99 cm (55) missing data (29)	0 – 20 cm (8) 21 – 99 cm (72) missing data (20)
Humus Form (% frequency)	mor (90) moder (5) mull (1) peatymor (3) missing data (1)	mor (98) moder (2) mull (0) peatymor (0) missing data (0)	mor (80) moder (12) mull (0) peatymor (8) missing data (0)



Forest / Forêt

Association CNVC00237

Betula papyrifera* / *Vaccinium angustifolium* – *Kalmia angustifolia* / *Pleurozium schreberi
 Paper Birch / Early Lowbush Blueberry – Sheep Laurel / Red-stemmed Feathermoss
 Bouleau à papier / Bleuets à feuilles étroites – Kalmia à feuilles étroites / Pleurozie dorée

Site / Soil Characteristics (cont'd)

	Subassociation 237c <i>Vaccinium angustifolium</i>	Subassociation 237d <i>Pleurozium schreberi</i>	Subassociation 237e <i>Kalmia angustifolia</i>
	29 plots	36 plots	2 plots
Elevation Range (min–mean–max meters)	150–379–665	235–498–805	46–69–91
Slope Gradient (% frequency)	steep (10) moderately steep (10) moderate (34) gentle (17) level (28) missing data (0)	steep (25) moderately steep (31) moderate (33) gentle (11) level (0) missing data (0)	steep (0) moderately steep (0) moderate (0) gentle (50) level (0) missing data (50)
Aspect (% frequency)	north (17) east (14) south (14) west (24) level (31) missing data (0)	north (42) east (31) south (8) west (19) level (0) missing data (0)	north (0) east (0) south (50) west (0) level (0) missing data (50)
Meso Toposition (% frequency)	crest / upper (38) mid (41) lower / toe (0) level (21) missing data (0)	crest / upper (19) mid (75) lower / toe (3) level (3) missing data (0)	crest / upper (0) mid (0) lower / toe (0) level (0) missing data (100)
Moisture Regime (% frequency)	very dry (3) dry (14) mesic (69) moist (7) wet (7)	very dry (0) dry (0) mesic (89) moist (11) wet (0)	very dry (0) dry (0) mesic (100) moist (0) wet (0)
Nutrient Regime (% frequency)	missing data (100)	missing data (100)	missing data (100)



***Betula papyrifera* / *Vaccinium angustifolium* – *Kalmia angustifolia* / *Pleurozium schreberi*
 CNVC00237**

Site / Soil Characteristics (cont'd)

	Subassociation 237c <i>Vaccinium angustifolium</i>	Subassociation 237d <i>Pleurozium schreberi</i>	Subassociation 237e <i>Kalmia angustifolia</i>
Soil Parent Material (% frequency)	bedrock (10) colluvium (0) eolian (0) moraine / till (76) glaciofluvial (10) glaciolacustrine (0) marine (0) organic (3)	bedrock (6) colluvium (3) eolian (0) moraine / till (86) glaciofluvial (6) glaciolacustrine (0) marine (0) organic (0)	bedrock (0) colluvium (0) eolian (0) moraine / till (100) glaciofluvial (0) glaciolacustrine (0) marine (0) organic (0)
Soil Rooting Zone Substrate (% frequency)	non-soil (10) sandy (3) coarse loamy (10) fine loamy (0) silty (0) organic (3) missing data (72)	non-soil (8) sandy (8) coarse loamy (14) fine loamy (3) silty (3) organic (0) missing data (64)	non-soil (0) sandy (0) coarse loamy (0) fine loamy (0) silty (0) organic (0) missing data (100)
Root Restricting Depth (% frequency)	0 – 20 cm (21) 21 – 99 cm (59) missing data (21)	0 – 20 cm (8) 21 – 99 cm (58) missing data (33)	0 – 20 cm (0) 21 – 99 cm (0) missing data (100)
Humus Form (% frequency)	mor (83) moder (7) mull (3) peatymor (7) missing data (0)	mor (94) moder (6) mull (0) peatymor (0) missing data (0)	mor (0) moder (0) mull (0) peatymor (0) missing data (100)



Forest / Forêt

Association CNVC00237

Betula papyrifera* / *Vaccinium angustifolium* – *Kalmia angustifolia* / *Pleurozium schreberi
Paper Birch / Early Lowbush Blueberry – Sheep Laurel / Red-stemmed Feathermoss
Bouleau à papier / Bleuet à feuilles étroites – 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:

CNVC00238 [*Populus tremuloides* (*Betula papyrifera*) / *Diervilla lonicera*] occurs in Quebec on slightly richer sites. It typically has *Populus tremuloides* rather than *Betula papyrifera* dominant and less abundant ericaceous shrub cover.

CNVC00239 [*Betula papyrifera* (*Populus tremuloides*) / *Acer spicatum* / *Clintonia borealis*] occurs in Quebec on moister, richer sites and has abundant *Acer spicatum*, rather than heath species, in the shrub layer.

CNVC00242 [*Betula papyrifera* / *Alnus incana*] occurs in Quebec on moister, richer sites and has abundant *Alnus incana* in the shrub layer.

CNVC00269 [*Betula papyrifera* / *Vaccinium angustifolium* / *Pleurozium schreberi*] is described from the north shore of Lake Superior in Ontario but is not well sampled. It lacks *Kalmia angustifolia*.

CNVC00315 [*Betula papyrifera* – *B. alleghaniensis* / *Dryopteris carthusiana*] occurs in the western part of insular Newfoundland on mesic, medium sites. It often includes *Betula alleghaniensis* in the overstory and has abundant *Dryopteris carthusiana*, rather than ericaceous species, in the understory.

CNVC00316 [*Betula papyrifera* / *Alnus viridis* / *Solidago macrophylla*] occurs in the western part of insular Newfoundland on moister, richer sites and has more nutrient-demanding species, rather than ericaceous shrubs, in the understory.

CNVC00349 [*Betula papyrifera* (*Populus tremuloides*) / *Dryopteris carthusiana* – *Rubus pubescens*] occurs in Newfoundland and Labrador on moist, rich sites and has more nutrient-demanding species in the understory, rather than ericaceous shrubs.

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

CNVC00237 includes the concept of BK #29 Kalmia – Birch from Meades & Moores 1994.

Comments



***Betula papyrifera* / *Vaccinium angustifolium* – *Kalmia angustifolia* / *Pleurozium schreberi*
CNVC00237**

Source Information

Number of source plots for CNVC00237: 157

Number of source plots for 237a *Alnus viridis*: 65

Number of source plots for 237b *Rhododendron groenlandicum*: 25

Number of source plots for 237c *Vaccinium angustifolium*: 29

Number of source plots for 237d *Pleurozium schreberi*: 36

Number of source plots for 237e *Kalmia angustifolia*: 2

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.

Natural Resources Canada, Canadian Forest Service, Atlantic Region. 2006. Forest vegetation plot descriptions from the following publications: Damman, A.W.H. 1963, 1964, 1967; Meades, W.J. (1976, 1986). Nat. Res. Canada, Corner Brook, NL.

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

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

Date of Concept: January, 2011

Date of Description: March, 2016

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.

Damman, A.W.H. 1967. The forest vegetation of western Newfoundland and site degradation associated with vegetation change. PhD thesis, Univ. of Michigan, Ann Arbor, MI, US.

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.

Meades, W.J.; Moores, L. 1994. Forest site classification manual: a field guide to the Damman forest types of Newfoundland. 2nd ed. Corner Brook, Western Newfoundland Model Forest, Inc., NL. FRDA Rep. 003.

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

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.

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.

Foster, D.R. 1984. Phytosociological description of the forest vegetation of southeastern Labrador. *Can. J. Bot.* 62:899-906.

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.



***Betula papyrifera* / *Vaccinium angustifolium* – *Kalmia angustifolia* / *Pleurozium schreberi*
CNVC00237**

Characterization References (cont'd):

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.

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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