



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00222

## *Abies balsamea* / *Pleurozium schreberi*

Balsam Fir / Red-stemmed Feathermoss

Sapin baumier / Pleurozie dorée

**Subassociations:** 222a *typic*, 222b *Hylocomium splendens*, 222c *Oxalis montana*, 222d *Cornus canadensis*, 222e *Taxus canadensis*

**CNVC Alliance:** CA00005 *Abies balsamea* (*Betula papyrifera*) / *Pleurozium schreberi*

**CNVC Group:** CG0003 Atlantic Boreal Mesic Balsam Fir – Paper Birch – White Spruce Forest

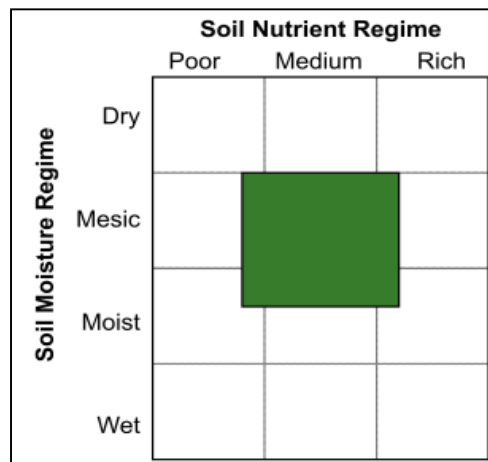


Source: B. Meades

### Type Description

**Concept:** CNVC00222 is a boreal coniferous forest Association that occurs in Quebec, on insular Newfoundland and in New Brunswick and Nova Scotia. It has a closed canopy dominated by balsam fir (*Abies balsamea*), usually with smaller components of paper birch (*Betula papyrifera*), white spruce (*Picea glauca*) and/or black spruce (*P. mariana*). Regeneration of these tree species, particularly balsam fir, dominates the moderately developed shrub layer. The herb layer varies from poorly to well developed, depending on subassociation, but usually includes bunchberry (*Cornus canadensis*), wild lily-of-the-valley (*Maianthemum canadense*), northern starflower (*Lysimachia borealis*) and yellow clintonia (*Clintonia borealis*). The moss layer is typically well developed and dominated by red-stemmed feathermoss (*Pleurozium schreberi*). CNVC00222 is most common on mesic, nutrient-medium sites in a region where the boreal climate grades from humid continental in the western part of its range to very humid, maritime-influenced in the east. It is a late successional condition that can form extensive stands where fire has been absent for a long period. Insect outbreaks and windthrow are the primary natural disturbances. The canopy gaps or large patches that result from these disturbances promote self-replacement of this Association by the release of balsam fir regeneration. There are five subassociations: *typic*, *Hylocomium splendens*, *Oxalis montana*, *Cornus canadensis* and *Taxus canadensis*.

**Vegetation:** CNVC00222 is a coniferous forest Association with a closed canopy dominated by *Abies balsamea*. Minor amounts of *Betula papyrifera*, *Picea glauca* and/or *P. mariana* are often present in the tree layer. Regeneration of these tree species, especially *A. balsamea*, dominates the moderately developed shrub layer. Shrub species occur but not consistently. The herb layer varies from sparse to well developed, depending on subassociation; *Cornus canadensis*, *Maianthemum canadense*, *Lysimachia borealis* and *Clintonia borealis* are common species. *Pleurozium schreberi* dominates the generally well-developed moss layer. The *typic* and *Hylocomium splendens* subassociations have poorly developed herb layers. The *Hylocomium splendens* subassociation is distinguished from the *typic* by dominance of *H. splendens* in the moss layer. The *Cornus canadensis* subassociation is distinguished from other subassociations by a sparse moss layer. The *Oxalis montana* subassociation has a well-developed herb layer with abundant *O. montana* and *Dryopteris* spp. The *Taxus canadensis* subassociation also has a well-developed herb layer but usually has the shrubs *T. canadensis* and *Cornus stolonifera*. It also has *Dicranum majus* and often *Hylocomiastrum umbratum* in addition to the common feathermoss species.





***Abies balsamea* / *Pleurozium schreberi* CNVC00222**

**Type Description (cont'd)**

**Environment:** CNVC00222 occurs mainly in a very humid, maritime-influenced boreal climate, becoming less common as the climate becomes less humid and more continental farther west. It is usually found on mesic, nutrient-medium sites but has a broad edaphic scope. Stands are commonly on gentle to moderately steep slopes, typically on middle-slope topopositions. Soils are usually moderately deep to deep, coarse-textured and well drained, and derived from morainal parent materials. Mor humus forms are typical.

Site conditions vary among subassociations. The *Hylocomium splendens* subassociation tends toward slightly moister sites on cooler aspects. The *Oxalis montana* subassociation occurs in the southern portion of the range, often at higher elevations (up to about 1050 mASL). The *Cornus canadensis* subassociation is found slightly more frequently on upper-slope topopositions and on colluvium. The *Taxus canadensis* subassociation is described from moist calcareous soils in northern Newfoundland where limestone bedrock is overlain by a deep humus layer, limiting the occurrence of nutrient-demanding species to those that are deeply rooted, like *Taxus canadensis* and *Cornus stolonifera*.

CNVC00222 occurs where regional fire cycles are very long (>500 years), long (270-500 years) or intermediate (100-270 years). Where the regional fire cycle is intermediate, stands likely occur on sites that have escaped fire.

**Dynamics:** CNVC00222 is a self-perpetuating, late successional forest Association. It occurs where fires are typically infrequent. Natural disturbance processes are primarily insect outbreaks, windthrow or natural mortality of individual or small groups of trees by disease and other factors. Extensive outbreaks of spruce budworm (*Choristoneura fumiferana*) and hemlock looper (*Lambdina fiscellaria fiscellaria*) occur periodically across the range of this Association, causing widespread canopy mortality of *Abies balsamea*. Following disturbance, stands tend to recover rapidly through the release of abundant *A. balsamea* in the understory. Small-scale gap or patch disturbances typically result in an uneven-age structure within stands, but severe large-scale disturbances can release understory trees that are more or less the same age. Severe insect epidemics can enhance the proportions of *Betula papyrifera*, *Picea glauca* and *P. mariana* in the canopy since these species are less vulnerable to spruce budworm and hemlock looper, but ultimately the highly shade tolerant *A. balsamea* re-establishes canopy dominance.

When fires do occur, *A. balsamea* is eliminated. Instead, *B. papyrifera*, *P. mariana* or *Populus tremuloides* are likely to dominate the initial post-fire stand (e.g., CNVC00238 [*Populus tremuloides* (*Betula papyrifera*) / *Diervilla lonicera*]). Over time, however, the stand is likely to return to *A. balsamea* dominance, typically with intermediate stages characterized by mixedwoods (e.g., CNVC00232 [*Abies balsamea* – *Betula papyrifera* / *Pleurozium schreberi*]).

On Anticosti Island, *A. balsamea* regeneration is heavily grazed by white-tailed deer (*Odocoileus virginianus*), so these forests often become dominated by *P. glauca*, which is not grazed to the same extent. Heavy browsing by moose (*Alces alces*) in parts of insular Newfoundland and the Cape Breton Highlands can cause the same effect. The *P. glauca* stands are considered to be an alternative steady state to CNVC00222.

**Range:** CNVC00222 occurs in the boreal regions of Quebec, insular Newfoundland, New Brunswick and Nova Scotia. In Quebec, it is described from the Ontario border to the Lower North Shore of the Gulf of Saint Lawrence near the St. Augustine River, as well as in the Gaspé region and on Anticosti Island and the Magdalen Islands. It occurs throughout insular Newfoundland and in the highlands of northern New Brunswick and Cape Breton Island. The *typic* and *Hylocomium splendens* subassociations occur in Quebec and Newfoundland. The *Cornus canadensis* subassociation is described from Quebec. The *Taxus canadensis* subassociation is unique to western and northern Newfoundland. The *Oxalis montana* subassociation occurs farther south, often at higher elevations than other subassociations; it is described from the Gaspé region as well as from New Brunswick and Cape Breton Island.

**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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**Balsam Fir / Red-stemmed Feathermoss**

**Sapin baumier / Pleurozie dorée**

## Distribution

**Countries:** Canada

**Provinces / Territories / States:** New Brunswick, Newfoundland and Labrador, Nova Scotia, Quebec

**Terrestrial Ecoregions and Ecoregions of Canada:** Atlantic Highlands: Appalachians, New Brunswick Highlands, Northern New Brunswick Uplands; Atlantic Maritime: Cape Breton Highlands, Îles-de-la-Madeleine, Nova Scotia Highlands; Boreal Shield: Abitibi Plains, Anticosti Island, Avalon Forest, Central Laurentians, Central Newfoundland, Maritime Barrens, Mecatina Plateau, Northern Peninsula, Rivière Rupert Plateau, Southern Laurentians, Southwestern Newfoundland, Strait of Belle Isle; Hudson Plains: James Bay Lowland; Mixedwood Plains: St. Lawrence Lowlands

**Rowe's Forest Regions and Sections of Canada:** Acadian: Cape Breton-Antigonish, Cape Breton Plateau, New Brunswick Uplands, Prince Edward Island, Southern Uplands, Upper Miramichi-Tobique; Boreal: Anticosti, Avalon, Chibougamau-Natashquan, Corner Brook, Forest-Tundra, Gaspé, Gouin, Grand Falls, Hudson Bay Lowlands, Laurentide-Onatchiway, Missinaibi-Cabonga, Newfoundland-Labrador Barrens, Northern Clay, Northern Peninsula; Great Lakes-St. Lawrence: Algonquin-Pontiac, Eastern Townships, Laurentian, Middle St. Lawrence, Saguenay, Temiscouata-Restigouche

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

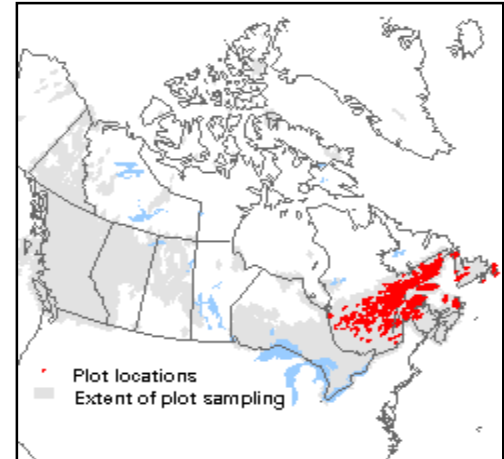
**Nature Conservancy of Canada Ecoregions:** Boreal Shield, Hudson Plains, Northern Appalachians-Acadia, St. Lawrence Lowland

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

**Ecological Land Classification of New Brunswick (ecoregions):** Central Uplands, Highlands, Northern Uplands

**Ecological Land Classification of Nova Scotia (ecozones and ecoregions):** Atlantic Maritime: Cape Breton Highlands

**Ecoregions of Newfoundland:** Avalon Forest, Central Newfoundland, Maritime Barrens, Northern Peninsula, Southwestern Newfoundland, Strait of Belle Isle





***Abies balsamea* / *Pleurozium schreberi* CNVC00222**

**Corresponding Types and Associations**

<b>222a <i>typic</i></b>	Quebec	QC023A	<i>Abies balsamea</i> / <i>Pleurozium schreberi</i> [Typique]
	Newfoundland and Labrador	C PI_bF	Central: <i>Pleurozium</i> - balsam fir forest
		E bF	Eastern: <i>Dicranum</i> - balsam fir forest
		E bFp	Eastern: <i>Pleurozium</i> - balsam fir forest
	W Fp	Western: <i>Pleurozium</i> - balsam fir forest	
<b>222b <i>Hylocomium splendens</i></b>	Quebec	QC023B	<i>Abies balsamea</i> / <i>Pleurozium schreberi</i> [ <i>Hylocomium splendens</i> ]
	Newfoundland and Labrador	C Hyl_bF	Central: <i>Hylocomium</i> - balsam fir forest
		E bFc	Eastern: <i>Clintonia</i> - balsam fir forest
		E bFh	Eastern: <i>Hylocomium</i> - balsam fir forest
	W Fh	Western: <i>Hylocomium</i> - balsam fir forest	
<b>222c <i>Oxalis montana</i></b>	Quebec	QC023C	<i>Abies balsamea</i> / <i>Pleurozium schreberi</i> [ <i>Oxalis montana</i> ]
	Maritimes Region	A178a <i>Typic-u</i>	<i>Abies balsamea</i> - <i>Picea glauca</i> / <i>Sorbus americana</i> / <i>Dryopteris intermedia</i> / <i>Pleurozium schreberi</i> Forest [Typic]
		A178b <i>Acer spicatum-u</i>	<i>Abies balsamea</i> - <i>Picea glauca</i> / <i>Sorbus americana</i> / <i>Dryopteris intermedia</i> / <i>Pleurozium schreberi</i> Forest [ <i>Acer spicatum</i> ]
<b>222d <i>Cornus canadensis</i></b>	Quebec	QC039	<i>Abies balsamea</i> / <i>Cornus canadensis</i>
<b>222e <i>Taxus canadensis</i></b>	Newfoundland and Labrador	N CA	Northern: <i>Clintonia</i> - balsam fir forest
		N TA	Northern: <i>Taxus</i> - balsam fir forest
		W Ft	Western: <i>Taxus</i> - balsam fir forest
		W Fte	Western: <i>Taxus</i> - balsam fir forest [ <i>Epigaea</i> subtype]



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**Vegetation Summary\***

Species Name <sup>†</sup>	Association CNVC00222		Subassociation 222a <i>typic</i>		Subassociation 222b <i>Hylocomium splendens</i>	
	1229 plots		544 plots		283 plots	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<b>Overstory Trees</b>						
<i>Abies balsamea</i>	46	100	43	100	50	99
<i>Betula papyrifera</i>	8	75	8	77	7	66
<i>Picea glauca</i>	10	60	10	51	8	50
<i>Picea mariana</i>	9	58	10	72	10	77
<i>Betula cordifolia</i>	2	1	-	-	-	-
<b>Tree Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(48 49 65 83 86)</b>		<b>(36 49 64 83 86)</b>		<b>(49 49 67 83 92)</b>	
<b>Understory Woody Shrubs and Regenerating Trees</b>						
<i>Abies balsamea</i>	24	98	25	98	27	98
<i>Betula papyrifera</i>	6	86	6	87	5	86
<i>Picea mariana</i>	8	61	9	76	8	82
<i>Picea glauca</i>	5	54	5	48	4	42
<i>Amelanchier</i> sp.	4	48	4	56	3	44
<i>Sorbus americana</i>	3	38	3	35	3	31
<i>Vaccinium myrtilloides</i>	3	27	3	39	3	19
<i>Vaccinium angustifolium</i>	3	26	3	38	2	23
<i>Rubus idaeus</i>	5	25	3	18	4	11
<i>Sorbus decora</i>	3	24	3	27	3	21
<i>Acer spicatum</i>	4	23	3	19	3	16
<i>Ribes glandulosum</i>	3	21	2	17	2	9
<i>Viburnum edule</i>	3	19	3	19	3	22
<i>Kalmia angustifolia</i>	3	14	4	20	3	16
<i>Ribes lacustre</i>	3	13	2	11	2	12
<i>Prunus pensylvanica</i>	3	10	3	9	3	3
<i>Sambucus racemosa</i>	3	9	3	6	2	2
<i>Cornus stolonifera</i>	5	6	3	3	3	4
<b><i>Taxus canadensis</i></b>	4	4	2	2	2	4
<i>Amelanchier bartramiana</i>	4	3	1	0	4	0
<i>Vaccinium ovalifolium</i>	2	3	2	4	2	2
<b>Shrub Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(6 19 38 49 83)</b>		<b>(6 19 43 66 83)</b>		<b>(6 19 40 51 86)</b>	
<b>Understory Herbs and Dwarf Shrubs</b>						
<b><i>Cornus canadensis</i></b>	7	90	7	92	4	88
<i>Maianthemum canadense</i>	3	74	3	80	3	65
<i>Lysimachia borealis</i>	2	73	3	75	2	60
<i>Clintonia borealis</i>	4	72	3	72	3	61
<i>Gaultheria hispidula</i>	4	67	4	78	4	87
<i>Linnaea borealis</i>	3	63	3	68	3	73
<i>Coptis trifolia</i>	3	59	3	64	2	56
<b><i>Oxalis montana</i></b>	11	50	3	37	3	34
<i>Dryopteris spinulosa</i> complex	5	47	2	45	2	31





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**Vegetation Summary (cont'd)\***

Species Name <sup>†</sup>	Association CNVC00222		Subassociation 222a <i>typic</i>		Subassociation 222b <i>Hylocomium splendens</i>	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<i>Aralia nudicaulis</i>	3	37	3	34	3	20
<i>Gymnocarpium dryopteris</i>	3	26	3	26	2	28
<i>Solidago macrophylla</i>	3	24	3	25	2	14
<i>Carex</i> sp.	2	22	2	24	2	14
<i>Lycopodium annotinum</i>	3	21	3	27	2	16
<i>Streptopus lanceolatus</i>	2	18	2	14	2	12
<i>Orthilia secunda</i>	2	16	2	14	2	21
Poaceae	3	15	2	14	2	5
<i>Phegopteris connectilis</i>	2	15	2	10	2	12
<i>Viola</i> sp.	2	13	2	12	2	5
<i>Neottia cordata</i>	2	13	2	14	2	27
<i>Rubus pubescens</i>	3	12	2	12	2	9
<i>Chamerion angustifolium</i>	2	10	3	10	2	4
<i>Mitella nuda</i>	3	9	3	10	2	9
<i>Dryopteris intermedia</i>	3	6	11	1	2	0
<i>Dryopteris carthusiana</i>	3	5	1	2	2	6
<i>Lycopodium clavatum</i>	2	5	2	5	2	2
<i>Epigaea repens</i>	4	2	2	2	2	0
<i>Platanthera obtusata</i>	1	1	-	-	2	0
<b>Herb Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(3 4 25 33 50)</b>		<b>(3 3 19 33 38)</b>		<b>(3 3 12 16 33)</b>	
<b>Bryophytes and Lichens</b>						
<b><i>Pleurozium schreberi</i></b>	<b>39</b>	<b>98</b>	<b>51</b>	<b>99</b>	<b>30</b>	<b>100</b>
<i>Ptilium crista-castrensis</i>	8	84	11	87	8	96
<i>Dicranum</i> sp.	5	81	4	88	3	86
<b><i>Hylocomium splendens</i></b>	<b>22</b>	<b>79</b>	<b>8</b>	<b>78</b>	<b>48</b>	<b>100</b>
<i>Polytrichum</i> sp.	2	56	2	60	2	64
<i>Cladonia</i> sp.	2	54	2	60	2	69
<i>Cladina rangiferina</i>	2	41	2	53	2	42
<i>Sphagnum</i> sp.	6	40	5	44	7	64
<i>Bazzania trilobata</i>	3	36	3	38	3	42
<i>Cladina mitis</i>	2	21	2	28	2	20
<i>Sphagnum girgensohnii</i>	6	18	6	17	4	22
<i>Dicranum scoparium</i>	7	9	3	2	5	5
<i>Peltigera aphthosa</i>	2	5	3	4	2	11
<i>Dicranum majus</i>	15	4	10	2	11	6
<i>Hylocomiastrum umbratum</i>	7	3	3	0	1	0
<i>Sphagnum capillifolium</i>	2	3	1	1	5	3
<i>Rhytidiadelphus loreus</i>	7	2	4	1	4	5
<i>Dicranum fuscescens</i>	3	2	3	2	2	3
<i>Peltigera canina</i>	1	1	1	0	-	-
<b>Bryo-Lichen Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(16 50 70 90 90)</b>		<b>(33 70 73 90 90)</b>		<b>(70 90 87 90 90)</b>	

\* species present in > 20% of sample plots are listed

<sup>†</sup> see **Botanical Nomenclature** link at <http://cnvc-cnvc.ca> for botanical sources, synonyms and common names

<sup>‡</sup> average percent cover of a species within the plots in which it occurs (i.e., characteristic cover)

<sup>^</sup> percent frequency occurrence for a species within the total plots

<sup>‡</sup> P<sub>x</sub> = X<sup>th</sup> percentile (e.g., P<sub>10</sub> = 10<sup>th</sup> percentile)



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**Vegetation Summary (cont'd)\***

Species Name <sup>†</sup>	Subassociation 222c <i>Oxalis montana</i>		Subassociation 222d <i>Cornus canadensis</i>		Subassociation 222e <i>Taxus canadensis</i>	
	312 plots		66 plots		24 plots	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<b>Overstory Trees</b>						
<i>Abies balsamea</i>	47	100	42	100	67	100
<i>Betula papyrifera</i>	9	78	10	80	3	50
<i>Picea glauca</i>	12	84	14	74	3	50
<i>Picea mariana</i>	7	22	6	35	12	58
<i>Betula cordifolia</i>	2	1	-	-	2	38
<b>Tree Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(48 53 65 73 86)</b>		<b>(36 51 69 86 99)</b>		<b>(58 66 77 92 93)</b>	
<b>Understory Woody Shrubs and Regenerating Trees</b>						
<i>Abies balsamea</i>	20	99	16	97	9	92
<i>Betula papyrifera</i>	9	91	5	80	2	8
<i>Picea mariana</i>	5	25	4	36	5	17
<i>Picea glauca</i>	6	74	6	70	2	8
<i>Amelanchier</i> sp.	3	41	4	48	-	-
<i>Sorbus americana</i>	4	51	3	32	3	38
<i>Vaccinium myrtilloides</i>	4	18	3	17	-	-
<i>Vaccinium angustifolium</i>	2	8	3	24	1	8
<i>Rubus idaeus</i>	6	51	9	36	1	13
<i>Sorbus decora</i>	3	21	4	38	2	13
<i>Acer spicatum</i>	5	31	4	42	4	38
<i>Ribes glandulosum</i>	3	38	2	29	1	4
<i>Viburnum edule</i>	3	15	3	20	2	17
<i>Kalmia angustifolia</i>	3	3	3	8	-	-
<i>Ribes lacustre</i>	3	15	3	23	1	13
<i>Prunus pensylvanica</i>	4	14	3	24	-	-
<i>Sambucus racemosa</i>	3	20	3	23	-	-
<i>Cornus stolonifera</i>	3	4	5	23	13	54
<b><i>Taxus canadensis</i></b>	2	1	3	5	7	79
<i>Amelanchier bartramiana</i>	6	7	-	-	2	71
<i>Vaccinium ovalifolium</i>	2	1	-	-	2	33
<b>Shrub Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(4 16 31 49 66)</b>		<b>(6 19 34 46 66)</b>		<b>(7 12 28 38 56)</b>	
<b>Understory Herbs and Dwarf Shrubs</b>						
<b><i>Cornus canadensis</i></b>	8	92	10	92	14	46
<i>Maianthemum canadense</i>	3	72	3	85	10	71
<i>Lysimachia borealis</i>	2	80	3	74	2	83
<i>Clintonia borealis</i>	5	81	3	68	11	83
<i>Gaultheria hispidula</i>	3	40	2	27	4	54
<i>Linnaea borealis</i>	4	45	4	58	10	100
<i>Coptis trifolia</i>	3	54	3	58	4	42
<b><i>Oxalis montana</i></b>	21	91	3	45	-	-
<i>Dryopteris spinulosa</i> complex	11	65	3	62	-	-



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***Abies balsamea* / *Pleurozium schreberi* CNVC00222**

**Vegetation Summary (cont'd)\***

Species Name <sup>†</sup>	Subassociation 222c <i>Oxalis montana</i>		Subassociation 222d <i>Cornus canadensis</i>		Subassociation 222e <i>Taxus canadensis</i>	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<i>Aralia nudicaulis</i>	3	54	3	53	2	25
<i>Gymnocarpium dryopteris</i>	3	23	4	39	-	-
<i>Solidago macrophylla</i>	3	30	2	24	2	46
<i>Carex</i> sp.	2	23	3	41	-	-
<i>Lycopodium annotinum</i>	2	16	5	24	-	-
<i>Streptopus lanceolatus</i>	2	28	2	24	1	13
<i>Orthilia secunda</i>	2	13	2	14	1	17
Poaceae	3	21	3	41	-	-
<i>Phegopteris connectilis</i>	2	25	2	27	-	-
<i>Viola</i> sp.	2	19	3	35	-	-
<i>Neottia cordata</i>	2	2	-	-	3	33
<i>Rubus pubescens</i>	3	12	3	36	-	-
<i>Chamerion angustifolium</i>	2	12	2	26	-	-
<i>Mitella nuda</i>	2	7	4	23	3	4
<i>Dryopteris intermedia</i>	3	23	-	-	1	4
<i>Dryopteris carthusiana</i>	3	3	-	-	4	75
<i>Lycopodium clavatum</i>	2	5	2	21	-	-
<i>Epigaea repens</i>	< 1	1	-	-	8	29
<i>Platanthera obtusata</i>	1	0	-	-	1	25
<b>Herb Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(16 33 45 50 90)</b>		<b>(3 16 28 50 60)</b>		<b>(20 28 46 61 82)</b>	
<b>Bryophytes and Lichens</b>						
<b><i>Pleurozium schreberi</i></b>	<b>32</b>	<b>97</b>	<b>3</b>	<b>88</b>	<b>33</b>	<b>92</b>
<i>Ptilium crista-castrensis</i>	3	74	2	47	8	100
<i>Dicranum</i> sp.	7	67	3	85	-	-
<b><i>Hylocomium splendens</i></b>	<b>14</b>	<b>69</b>	<b>3</b>	<b>33</b>	<b>28</b>	<b>96</b>
<i>Polytrichum</i> sp.	3	47	3	47	-	-
<i>Cladonia</i> sp.	2	33	2	56	1	4
<i>Cladina rangiferina</i>	2	26	2	32	-	-
<i>Sphagnum</i> sp.	7	20	5	15	-	-
<i>Bazzania trilobata</i>	4	31	2	17	3	46
<i>Cladina mitis</i>	2	13	2	17	-	-
<i>Sphagnum girgensohnii</i>	8	19	2	3	1	4
<i>Dicranum scoparium</i>	8	26	-	-	2	33
<i>Peltigera aphthosa</i>	-	-	-	-	1	38
<i>Dicranum majus</i>	-	-	-	-	20	100
<i>Hylocomiastrum umbratum</i>	4	8	-	-	13	63
<i>Sphagnum capillifolium</i>	1	4	-	-	2	21
<i>Rhytidiadelphus loreus</i>	< 1	0	-	-	12	50
<i>Dicranum fuscescens</i>	-	-	-	-	2	25
<i>Peltigera canina</i>	-	-	-	-	1	33
<b>Bryo-Lichen Stratum Cover (P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(16 33 57 74 90)</b>		<b>(3 3 13 16 24)</b>		<b>(76 97 93 100 100)</b>	

\* species present in > 20% of sample plots are listed

<sup>†</sup> see **Botanical Nomenclature** link at <http://cnvc-cnvc.ca> for botanical sources, synonyms and common names

<sup>‡</sup> average percent cover of a species within the plots in which it occurs (i.e., characteristic cover)

<sup>^</sup> percent frequency occurrence for a species within the total plots

<sup>‡</sup> P<sub>x</sub> = X<sup>th</sup> percentile (e.g., P<sub>10</sub> = 10<sup>th</sup> percentile)





Forest / Forêt

Association CNVC00222

*Abies balsamea* / *Pleurozium schreberi*

Balsam Fir / Red-stemmed Feathermoss

Sapin baumier / Pleurozie dorée

Site / Soil Characteristics

	Association CNVC00222 1229 plots	Subassociation 222a <i>typic</i> 544 plots	Subassociation 222b <i>Hylocomium splendens</i> 283 plots
<b>Elevation Range (min–mean–max meters)</b>	5–423–1050 missing data (2)	5–415–1000 missing data (1)	10–372–900 missing data (5)
<b>Slope Gradient (% frequency)</b>	very steep (0) steep (11) <b>moderately steep (26)</b> moderate (25) gentle (20) level (15) missing data (1)	very steep (0) steep (9) moderately steep (25) <b>moderate (28)</b> gentle (21) level (15) missing data (1)	very steep (0) steep (14) <b>moderately steep (33)</b> moderate (28) gentle (12) level (12) missing data (0)
<b>Aspect (% frequency)</b>	north (23) <b>east (25)</b> south (17) west (23) level (10) missing data (1)	north (21) <b>east (25)</b> south (20) west (23) level (10) missing data (1)	<b>north (29)</b> east (28) south (16) west (22) level (6) missing data (0)
<b>Meso Toposition (% frequency)</b>	crest / upper (18) <b>mid (58)</b> lower / toe (9) depression (2) level (7) missing data (6)	crest / upper (19) <b>mid (61)</b> lower / toe (8) depression (2) level (7) missing data (3)	crest / upper (11) <b>mid (69)</b> lower / toe (5) depression (4) level (4) missing data (7)
<b>Moisture Regime (% frequency)</b>	dry (2) <b>mesic (79)</b> moist (18) wet (1) missing data (0)	dry (1) <b>mesic (82)</b> moist (16) wet (1) missing data (0)	dry (2) <b>mesic (74)</b> moist (23) wet (1) missing data (1)
<b>Nutrient Regime (% frequency)</b>	poor (2) medium (4) rich (1) missing data (93)	poor (0) medium (0) rich (0) missing data (100)	poor (0) medium (0) rich (0) missing data (100)



***Abies balsamea* / *Pleurozium schreberi* CNVC00222**

**Site / Soil Characteristics (cont'd)**

	Association CNVC00222	Subassociation 222a <i>typic</i>	Subassociation 222b <i>Hylocomium splendens</i>
<b>Soil Parent Material (% frequency)</b>	bedrock (0) colluvium (12) <b>moraine / till (73)</b> fluvial (1) glaciofluvial (4) lacustrine (0) glaciolacustrine (1) marine (3) glaciomarine (0) organic (1) missing data (4)	bedrock (0) colluvium (11) <b>moraine / till (74)</b> fluvial (1) glaciofluvial (6) lacustrine (0) glaciolacustrine (1) marine (5) glaciomarine (0) organic (1) missing data (1)	bedrock (0) colluvium (5) <b>moraine / till (78)</b> fluvial (1) glaciofluvial (3) lacustrine (0) glaciolacustrine (2) marine (3) glaciomarine (0) organic (1) missing data (7)
<b>Soil Rooting Zone Substrate (% frequency)</b>	non-soil (12) sandy (6) coarse loamy (17) fine loamy (5) silty (1) clayey (1) organic (1) missing data (57)	non-soil (11) sandy (8) coarse loamy (15) fine loamy (4) silty (1) clayey (1) organic (1) missing data (59)	non-soil (5) sandy (8) coarse loamy (18) fine loamy (2) silty (0) clayey (1) organic (1) missing data (64)
<b>Root Restricting Depth (% frequency)</b>	0 – 20 cm (3) 21 – 99 cm (52) ≥ 100 cm (5) missing data (40)	0 – 20 cm (3) <b>21 – 99 cm (58)</b> ≥ 100 cm (0) missing data (38)	0 – 20 cm (4) <b>21 – 99 cm (60)</b> ≥ 100 cm (0) missing data (36)
<b>Humus Form (% frequency)</b>	<b>mor (83)</b> moder (2) mull (0) peatymor (3) missing data (12)	<b>mor (90)</b> moder (1) mull (0) peatymor (4) missing data (5)	<b>mor (86)</b> moder (0) mull (0) peatymor (4) missing data (10)



Forest / Forêt

Association CNVC00222

*Abies balsamea* / *Pleurozium schreberi*

Balsam Fir / Red-stemmed Feathermoss

Sapin baumier / Pleurozie dorée

Site / Soil Characteristics (cont'd)

	Subassociation 222c <i>Oxalis montana</i> 312 plots	Subassociation 222d <i>Cornus canadensis</i> 66 plots	Subassociation 222e <i>Taxus canadensis</i> 24 plots
<b>Elevation Range (min–mean–max meters)</b>	5–524–1050 missing data (2)	20–316–865 missing data (0)	31–199–381 missing data (0)
<b>Slope Gradient (% frequency)</b>	very steep (1) steep (15) moderately steep (24) moderate (22) gentle (24) level (13) missing data (2)	very steep (2) steep (5) moderately steep (17) moderate (21) gentle (27) <b>level (29)</b> missing data (0)	very steep (0) steep (0) moderately steep (21) moderate (0) gentle (33) <b>level (42)</b> missing data (4)
<b>Aspect (% frequency)</b>	north (22) east (23) south (14) <b>west (28)</b> level (10) missing data (2)	north (20) east (14) <b>south (24)</b> west (20) level (23) missing data (0)	north (21) <b>east (33)</b> south (8) west (17) level (17) missing data (4)
<b>Meso Toposition (% frequency)</b>	crest / upper (22) <b>mid (48)</b> lower / toe (15) depression (1) level (10) missing data (4)	crest / upper (30) <b>mid (48)</b> lower / toe (8) depression (0) level (14) missing data (0)	crest / upper (0) mid (0) lower / toe (0) depression (0) level (0) missing data (100)
<b>Moisture Regime (% frequency)</b>	dry (4) <b>mesic (81)</b> moist (14) wet (1) missing data (0)	dry (3) <b>mesic (85)</b> moist (11) wet (2) missing data (0)	dry (0) mesic (17) <b>moist (75)</b> wet (4) missing data (4)
<b>Nutrient Regime (% frequency)</b>	poor (7) medium (18) rich (4) missing data (71)	poor (0) medium (0) rich (0) missing data (100)	poor (0) medium (0) rich (0) missing data (100)



***Abies balsamea* / *Pleurozium schreberi* CNVC00222**

**Site / Soil Characteristics (cont'd)**

	Subassociation 222c <i>Oxalis montana</i>	Subassociation 222d <i>Cornus canadensis</i>	Subassociation 222e <i>Taxus canadensis</i>
<b>Soil Parent Material (% frequency)</b>	bedrock (1) colluvium (18) <b>moraine / till (74)</b> fluvial (0) glaciofluvial (2) lacustrine (0) glaciolacustrine (0) marine (1) glaciomarine (0) organic (1) missing data (3)	bedrock (0) colluvium (26) <b>moraine / till (58)</b> fluvial (0) glaciofluvial (3) lacustrine (2) glaciolacustrine (0) marine (12) glaciomarine (0) organic (0) missing data (0)	bedrock (0) colluvium (0) moraine / till (54) fluvial (0) glaciofluvial (0) lacustrine (0) glaciolacustrine (0) marine (0) glaciomarine (0) organic (0) missing data (46)
<b>Soil Rooting Zone Substrate (% frequency)</b>	non-soil (18) sandy (2) coarse loamy (22) fine loamy (6) silty (1) clayey (1) organic (1) missing data (47)	non-soil (26) sandy (5) coarse loamy (5) fine loamy (15) silty (0) clayey (2) organic (0) missing data (48)	non-soil (0) sandy (0) coarse loamy (4) fine loamy (0) silty (0) clayey (0) organic (0) missing data (96)
<b>Root Restricting Depth (% frequency)</b>	0 – 20 cm (2) 21 – 99 cm (37) ≥ 100 cm (20) missing data (41)	0 – 20 cm (2) 21 – 99 cm (58) ≥ 100 cm (0) missing data (41)	0 – 20 cm (0) 21 – 99 cm (0) ≥ 100 cm (0) missing data (100)
<b>Humus Form (% frequency)</b>	<b>mor (72)</b> moder (3) mull (1) peatymor (3) missing data (22)	<b>mor (89)</b> moder (8) mull (2) peatymor (0) missing data (0)	mor (0) moder (0) mull (0) peatymor (0) missing data (100)



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Forest / Forêt

Association CNVC00222

***Abies balsamea* / *Pleurozium schreberi***

Balsam Fir / Red-stemmed Feathermoss

Sapin baumier / 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:

CNVC00217 [*Picea mariana* – *Abies balsamea* / *Rhododendron groenlandicum* / *Pleurozium schreberi*] occurs in Quebec on comparable boreal sites but has more *Picea mariana* in the tree and shrub layers.

CNVC00220 [*Abies balsamea* (*Picea mariana*) / *Oxalis montana* / *Pleurozium schreberi*] occurs in New Brunswick and Nova Scotia on comparable boreal sites but has more *Picea mariana* in the tree and shrub layers.

CNVC00225 [*Abies balsamea* (*Picea glauca*) / *Acer spicatum* / *Oxalis montana*] occurs on moister, richer boreal sites in Quebec. It has more *Acer spicatum*, greater constancy and cover of more nutrient-demanding herb layer species and lower feathermoss cover.

CNVC00278 [*Abies balsamea* / *Pleurozium schreberi* – *Sphagnum* spp.] occurs on moister sites in Quebec and on insular Newfoundland and has greater cover of *Sphagnum* mosses.

CNVC00297 [*Abies balsamea* / *Alnus incana*] occurs in Quebec on moister, richer sites and has a tall shrub layer with abundant *Alnus incana*.

CNVC00310 [*Abies balsamea* / *Dryopteris* spp. / *Hylocomiastrum umbratum*] occurs in New Brunswick, Nova Scotia and insular Newfoundland on comparable boreal sites but has abundant *Dryopteris* spp. in the understory.

CNVC00348 [*Abies balsamea* / *Taxus canadensis* / *Rubus pubescens* / *Dicranum majus*] occurs on moister, richer sites on insular Newfoundland. It has more *Acer spicatum*, *Cornus stolonifera* and *Taxus canadensis* in the shrub layer, abundant *Dryopteris* spp. and greater constancy and cover of more nutrient-demanding herb layer species, such as *Rubus pubescens*.

CNVC00351 [*Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)] occurs in Quebec and on insular Newfoundland on comparable boreal sites but has more *Picea mariana* in the tree and shrub layers.

**Related United States National Vegetation Classification Associations:**

**Relationships with Other Classifications:**

Nova Scotia plots in CNVC00222 are classified as HL1 [Balsam fir / Mountain-ash / Large-leaved goldenrod] in Neily et al. 2011.

CNVC00222 includes the concepts of Fh #9 [Hylocomium – Balsam fir], Fc #3 [Clintonia – Balsam Fir] and Ft #4 [Taxus – Balsam fir] and contains elements of Fp #11 [Pleurozium – Balsam fir] from Meades & Moores 1994.

### Comments





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

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## ***Abies balsamea* / *Pleurozium schreberi* CNVC00222**

### **Source Information**

**Number of source plots for CNVC00222:** 1229

**Number of source plots for 222a *typic*:** 544

**Number of source plots for 222b *Hylocomium splendens*:** 283

**Number of source plots for 222c *Oxalis montana*:** 312

**Number of source plots for 222d *Cornus canadensis*:** 66

**Number of source plots for 222e *Taxus canadensis*:** 24

#### **Information Sources:**

Basquill, S.P. (compiler). 2015. Maritime provinces of Canada regional forest ecosystem plot database. Standardized forest ecosystem plot data compilation and classification from N.B. Dept. Nat. Resour.; P.E.I. For., Fish, & Wildlife Div., Dept. Commun., Land, & Environ.; N.S. Dept. Nat. Resour.; N.S. Environ.; Parks Can.; the Atlantic Can. Conserv. Data Centre; and other sources. Atlantic Can. Conserv. Data Centre, Sackville, NB.

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.

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

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

**Date of Concept:** May, 2010

**Date of Description:** March, 2016

### **Classification References:**

Basquill, S.; Beaudette, D.; Cameron, R.; Curley, R.; Fenton, N.; Glen, W.; Gordon, S.; Hutchinson, J.; Kelly, G.; Loo, J.; Lynds, A.; MacAskill, D.; MacKinnon, D.; MacQuarrie, K.; Makepeace, S.; Matson, B.; Neily, P.; Quigley, E.; Zelazny, V. 2009 (updated 2015). Forest communities of the Maritime provinces of Canada. Atlantic Canada Conservation Data Centre, Sackville, NB.

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***Abies balsamea* / *Pleurozium schreberi* CNVC00222**

**Characterization References:**

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***Abies balsamea* / *Pleurozium schreberi* CNVC00222**

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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