



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

<http://cnvc-cnvc.ca>

## Forest / Forêt

Association CNVC00351

### *Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)

Black Spruce – Balsam Fir / Red-stemmed Feathermoss (Stairstep Moss)

Épinette noire – Sapin baumier / Pleurozie dorée (*Hylocomie brillante*)

**Subassociations:** 351a *typic*, 351b *Hylocomium splendens*, 351c *Viburnum nudum*, 351d *Cornus stolonifera*, 351e *Sphagnum spp*

**CNVC Alliance:** CA00003 *Picea mariana* – *Abies balsamea* / *Gaultheria hispidula* / *Pleurozium schreberi*

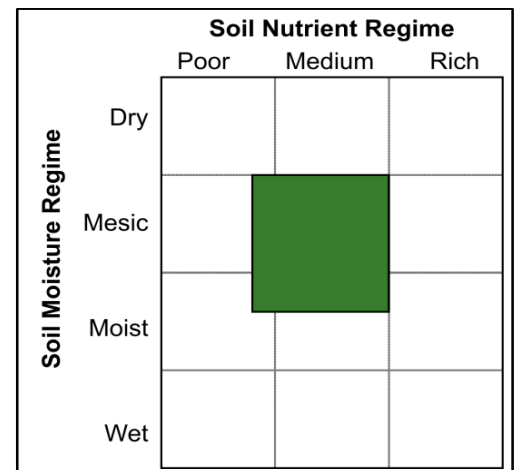
**CNVC Group:** CG0002 Atlantic Boreal Mesic-Moist Black Spruce – Balsam Fir – Paper Birch Forest

## Type Description

**Concept:** CNVC00351 is a boreal coniferous forest Association that occurs in Quebec and insular Newfoundland. The canopy is moderately closed to closed, comprising roughly equal proportions of balsam fir (*Abies balsamea*) and black spruce (*Picea mariana*), sometimes with a minor component of paper birch (*Betula papyrifera*). The shrub layer is usually well developed with abundant regenerating balsam fir, black spruce and, to a lesser degree, paper birch. The herb layer is poorly developed but usually includes low cover of bunchberry (*Cornus canadensis*), creeping snowberry (*Gaultheria hispidula*), yellow clintonia (*Clintonia borealis*), twinflower (*Linnaea borealis*) and wild lily-of-the-valley (*Maianthemum canadense*). A continuous moss layer of predominantly red-stemmed feathermoss (*Pleurozium schreberi*), knight's plume moss (*Ptilium crista-castrensis*) and stairstep moss (*Hylocomium splendens*) helps to characterize this Association. CNVC00351 generally occurs on mesic to moist, nutrient-poor to medium sites in a region with a very humid, maritime-influenced boreal climate. It is a late seral condition with dynamics that are mainly driven by fire, insect outbreaks and windthrow. Although black spruce and balsam fir are present in every stand, climate, disturbance type and history, and site conditions affect the relative dominance of each species. Five subassociations are distinguished: *typic*, *Hylocomium splendens*, *Viburnum nudum*, *Cornus stolonifera* and *Sphagnum spp.*

**Vegetation:** CNVC00351 is a coniferous forest Association with a moderately closed to closed canopy co-dominated by *Abies balsamea* and *Picea mariana*. *Betula papyrifera* is often a minor component. The shrub layer is usually well developed and dominated by regenerating *A. balsamea* and *P. mariana*, often with a minor amount of *B. papyrifera*. Shrub species occur but not consistently. The herb layer is poorly developed, with low cover of *Cornus canadensis*, *Gaultheria hispidula*, *Clintonia borealis*, *Linnaea borealis* and *Maianthemum canadense*. The moss layer is usually continuous; *Pleurozium schreberi* forms a thick mat with smaller amounts of *Ptilium crista-castrensis*, *Hylocomium splendens*, *Dicranum spp.*, *Sphagnum spp.* and *Polytrichum spp.*, as well as *Cladonia* and *Cladonia* lichens.

CNVC00351 has five subassociations: *typic*, *Hylocomium splendens*, *Viburnum nudum* (see Comments), *Cornus stolonifera* and *Sphagnum spp.* The *Hylocomium splendens* subassociation has a moss layer dominated by *H. splendens*, rather than *P. schreberi*. The *Viburnum nudum* subassociation has more abundant shrubs, including *Amelanchier spp.*, *Vaccinium myrtilloides*, *Diervilla lonicera*, *V. nudum* and *Sorbus americana*. A closed canopy and presence of *Cornus stolonifera* in the shrub layer distinguishes the *Cornus stolonifera* subassociation. The *Sphagnum spp.* subassociation has more abundant *P. mariana* in the shrub layer, *Carex trisperma* in the herb layer and *Bazzania trilobata* and *Sphagnum* mosses in the moss layer.





***Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)**  
**CNVC00351**

### Type Description (cont'd)

**Environment:** CNVC00351 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 typically found on mesic, or sometimes moist, nutrient-poor to medium sites, although it has broad ecological range. Stands are usually on slopes with grades ranging from gentle to steep and on middle to upper-slope topopositions. Soils are typically moderately deep to deep, well-drained and coarse-textured, often coarse loams or sands that develop in morainal parent materials. Mor humus forms are prevalent.

There are some site distinctions among the five subassociations. The *Hylocomium splendens* subassociation tends to describe slightly moister, cooler and older stands than the *typic*; stands with more *H. splendens* are more frequently on colder aspects, either north or east-facing. The *Viburnum nudum* subassociation occurs more frequently on hill crests or upper-slope topopositions and on warmer (often drier) aspects, either south or west-facing. These sites are almost always mesic, not moist, and can be on colluvium or shallow soils over bedrock. The *Cornus stolonifera* subassociation is described from 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 *Cornus stolonifera*. The *Sphagnum spp.* subassociation is usually on level, wetter sites in central Newfoundland.

CNVC00351 occurs where regional fire cycles are long (270-500 years) or intermediate (100-270 years). Fire cycle length and site conditions influence the relative dominance of *Picea mariana* and *Abies balsamea* in each stand. Longer fire cycles favour the late seral species *A. balsamea*. More extreme site conditions, either drier or wetter (and usually poorer), tend to favour the less nutrient-demanding species *P. mariana*. Conversely, *A. balsamea* is more competitive on sites with better nutrient status.

**Dynamics:** CNVC00351 is a late seral condition with dynamics typically driven by fire, insect outbreaks, primarily of spruce budworm (*Choristoneura fumiferana*) but sometimes of hemlock looper (*Lambdina fuscicollis fuscicollis*), and windthrow. It can succeed a *Picea mariana* Association such as CNVC00350 [*Picea mariana* / *Pleurozium schreberi* – *Hylocomium splendens*].

*Picea mariana* and *Abies balsamea* both have thin bark and are unlikely to survive fire, but *P. mariana* has semi-serotinous cones that open when heated to release seeds while *A. balsamea* cones are destroyed. Consequently, *P. mariana* typically forms the initial post-fire cohort, while *A. balsamea* becomes established in the stand later when seeds are disseminated from nearby areas. As *A. balsamea* grows into the canopy over time, the CNVC00351 condition is formed.

Compared to *P. mariana*, *A. balsamea* is more vulnerable to spruce budworm and hemlock looper, so outbreaks of either defoliator favour *P. mariana* in the short term. Proportions of these tree species are thus affected by the disturbance type, history, frequency and severity, in addition to site conditions (see Environment).

Repeated anthropogenic fires on dry, nutrient-poor sites near settlements have led to the conversion of some CNVC00351 stands to semi-stable open woodlands or heath conditions on insular Newfoundland (e.g., CNVC00307 [*Picea mariana* (*Abies balsamea*) / *Kalmia angustifolia* / *Pleurozium schreberi*] or CNVC00205 [*Picea mariana* / *Kalmia angustifolia* – *Rhododendron canadense* / *Cladina spp.*]).

**Range:** CNVC00351 occurs in the boreal regions of Quebec and insular Newfoundland. In Quebec, it is most common in the east but extends from the Labrador border on the Lower North Shore of the Gulf of Saint Lawrence as far west as Rouyn-Noranda. It also occurs in the Gaspé region and on Anticosti Island and the Magdalen Islands. On Newfoundland, CNVC00351 is described from the Northern Peninsula and from central Newfoundland. The *Hylocomium splendens* subassociation is described from eastern Quebec and central Newfoundland. The *typic* and *Viburnum nudum* subassociations are described from Quebec, with the *typic* extending farther north. The *Cornus stolonifera* and *Sphagnum spp.* subassociations are described from northern and central Newfoundland respectively.

### 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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***Picea mariana – Abies balsamea / Pleurozium schreberi (Hylocomium splendens)***  
**Black Spruce – Balsam Fir / Red-stemmed Feathermoss (Stairstep Moss)**  
**Épinette noire – Sapin baumier / Pleurozie dorée (Hylocomie brillante)**

## Distribution

**Countries:** Canada

**Provinces / Territories / States:** Newfoundland and Labrador, Quebec

**Terrestrial Ecozones and Ecoregions of Canada:** Atlantic Highlands: Appalachians, Northern New Brunswick Uplands; Atlantic Maritime: Îles-de-la-Madeleine; Boreal Shield: Abitibi Plains, Anticosti Island, Central Laurentians, Central Newfoundland, Lake Timiskaming Lowland, Long Range Mountains, Maritime Barrens, Mecatina Plateau, Northern Peninsula, Rivière Rupert Plateau, Southern Laurentians; Taiga Shield: Mecatina River, Smallwood Reservoir-Michikamau

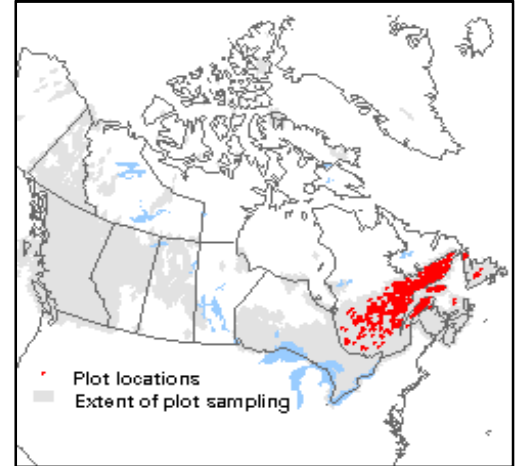
**Rowe's Forest Regions and Sections of Canada:** Acadian: Prince Edward Island; Boreal: Anticosti, Chibougamau-Natashquan, Gaspé, Gouin, Grand Falls, Laurentide-Onatchiway, Missinaibi-Cabonga, Newfoundland-Labrador Barrens, Northeastern Transition, Northern Clay, Northern Peninsula; Great Lakes-St. Lawrence: Algonquin-Pontiac, Laurentian, Middle Ottawa, Saguenay, Temiscouata-Restigouche

**NAAEC CEC Ecoregions of North America (Levels I & II):** Eastern Temperate Forests: Mixed Wood Plains; 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, Long Range Mountains, Maritime Barrens, Northern Peninsula



## Corresponding Types and Associations

<b>351a typic</b>	Quebec	QC131A	<i>Picea mariana</i> - <i>Abies balsamea</i> / <i>Pleurozium schreberi</i> [Typique]
		QC131C	<i>Picea mariana</i> - <i>Abies balsamea</i> / <i>Pleurozium schreberi</i> [ <i>Alnus viridis</i> ]
<b>351b Hylocomium splendens</b>	Quebec	QC131B	<i>Picea mariana</i> - <i>Abies balsamea</i> / <i>Pleurozium schreberi</i> [ <i>Hylocomium splendens</i> ]
	Newfoundland and Labrador	C Ru_bF	Central: <i>Rubus</i> - balsam fir forest
<b>351c Viburnum nudum</b>	Quebec	QC131D	<i>Picea mariana</i> - <i>Abies balsamea</i> / <i>Pleurozium schreberi</i> [ <i>Viburnum nudum</i> var. <i>cassinoides</i> ]



***Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)  
CNVC00351**

***Corresponding Types and Associations (cont'd)***

<b>351d <i>Cornus stolonifera</i></b>	Newfoundland and Labrador	N PA/IP	Northern: Pleurozium - balsam fir forest (IP)
		N PA/IPca	Northern: Pleurozium - balsam fir forest (IPca)
		N PA/P	Northern: Pleurozium - balsam fir forest (P)
<b>351e <i>Sphagnum spp</i></b>	Newfoundland and Labrador	C C_bF	Central: Carex - balsam fir forest



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Black Spruce – Balsam Fir / Red-stemmed Feathermoss (Stairstep Moss)

Épinette noire – Sapin baumier / Pleurozie dorée (*Hylocomie brillante*)

Vegetation Summary\*

Species Name <sup>T</sup>	Association CNVC00351		Subassociation 351a <i>typic</i>		Subassociation 351b <i>Hylocomium splendens</i>	
	634 plots		441 plots		162 plots	
	% Cover <sup>±</sup>	% Presence <sup>^</sup>	% Cover <sup>±</sup>	% Presence <sup>^</sup>	% Cover <sup>±</sup>	% Presence <sup>^</sup>
<b>Overstorey Trees</b>						
<i>Abies balsamea</i>	23	100	23	100	24	99
<i>Picea mariana</i>	24	99	24	100	25	99
<i>Betula papyrifera</i>	6	55	7	54	5	53
<i>Picea glauca</i>	7	18	7	18	5	17
<i>Populus tremuloides</i>	7	7	7	8	4	3
<i>Sorbus americana</i>	4	4	3	3	6	2
<i>Prunus pensylvanica</i>	2	3	2	2	3	1
<i>Acer rubrum</i>	6	2	7	2	-	-
<i>Betula cordifolia</i>	1	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>(32 49 56 66 83)</b>		<b>(32 49 56 66 83)</b>		<b>(32 49 57 66 83)</b>	
<b>Understorey Woody Shrubs and Regenerating Trees</b>						
<i>Abies balsamea</i>	22	99	22	99	26	98
<i>Picea mariana</i>	15	98	15	99	16	96
<i>Betula papyrifera</i>	5	73	5	74	5	73
<i>Vaccinium angustifolium</i>	3	59	3	66	3	41
<i>Amelanchier sp.</i>	5	56	5	57	3	54
<i>Vaccinium myrtilloides</i>	4	55	4	58	3	46
<i>Rhododendron groenlandicum</i>	3	47	3	53	3	35
<i>Kalmia angustifolia</i>	4	34	4	33	3	38
<i>Sorbus americana</i>	3	31	3	30	3	28
<i>Salix sp.</i>	4	19	3	23	4	4
<i>Sorbus decora</i>	3	19	3	18	3	22
<i>Alnus viridis</i>	10	17	11	20	4	7
<i>Ilex mucronata</i>	4	17	3	17	4	12
<i>Picea glauca</i>	4	15	4	16	4	12
<i>Viburnum edule</i>	2	13	3	11	2	18
<i>Acer spicatum</i>	4	11	4	12	3	10
<i>Alnus incana</i>	7	10	8	8	5	14
<b><i>Viburnum nudum</i></b>	4	10	3	10	2	4
<i>Diervilla lonicera</i>	3	10	3	10	2	2
<i>Prunus pensylvanica</i>	3	6	3	5	3	4
<i>Ribes lacustre</i>	2	5	2	4	2	5
<i>Acer rubrum</i>	4	4	5	3	3	1
<i>Taxus canadensis</i>	2	4	2	3	2	2
<b><i>Cornus stolonifera</i></b>	3	3	2	1	2	4
<i>Amelanchier bartramiana</i>	1	1	-	-	-	-
<i>Viburnum opulus</i>	2	0	2	0	2	1
<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>(26 32 52 66 83)</b>		<b>(32 32 52 66 83)</b>		<b>(19 32 51 66 83)</b>	



***Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)  
 CNVC00351**

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

Species Name <sup>†</sup>	Association CNVC00351		Subassociation 351a <i>typic</i>		Subassociation 351b <i>Hylocomium splendens</i>	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<b>Understory Herbs and Dwarf Shrubs</b>						
<i>Cornus canadensis</i>	6	94	6	95	5	96
<i>Gaultheria hispidula</i>	4	92	4	92	5	96
<i>Clintonia borealis</i>	3	69	3	66	3	70
<i>Linnaea borealis</i>	3	65	3	65	3	64
<i>Maianthemum canadense</i>	3	62	3	61	3	64
<i>Coptis trifolia</i>	3	58	3	56	3	64
<i>Lysimachia borealis</i>	2	51	2	52	2	51
<i>Lycopodium annotinum</i>	3	26	3	31	3	19
<i>Neottia cordata</i>	2	25	2	23	2	32
<i>Aralia nudicaulis</i>	3	24	3	26	3	14
<i>Vaccinium vitis-idaea</i>	2	23	2	26	2	17
<i>Carex sp.</i>	2	23	2	23	2	23
<i>Gymnocarpium dryopteris</i>	2	15	2	18	2	9
<i>Solidago macrophylla</i>	2	15	3	15	2	12
<i>Lycopodium obscurum</i>	2	15	2	18	2	6
<i>Pteridium aquilinum</i>	5	13	3	13	2	2
<i>Orthilia secunda</i>	2	13	2	12	2	15
<i>Goodyera repens</i>	2	8	2	7	2	11
<i>Moneses uniflora</i>	2	8	2	6	2	15
<i>Monotropa uniflora</i>	2	7	2	6	2	10
<i>Rubus pubescens</i>	3	6	3	5	2	8
<i>Streptopus amplexifolius</i>	2	6	2	5	2	7
<i>Equisetum sylvaticum</i>	2	4	2	4	2	4
<i>Phegopteris connectilis</i>	2	4	2	3	2	7
<i>Athyrium filix-femina</i>	2	3	2	2	2	5
<i>Trillium undulatum</i>	2	2	2	2	2	1
<i>Carex trisperma</i>	6	1	-	-	-	-
<i>Dryopteris carthusiana</i>	2	1	-	-	2	3
<i>Platanthera obtusata</i>	1	1	-	-	-	-
<i>Viola blanda</i>	1	1	-	-	1	1
<i>Pyrola chlorantha</i>	2	0	-	-	1	1
<i>Pyrola minor</i>	1	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 3 15 16 33)</b>		<b>(3 3 15 16 33)</b>		<b>(3 3 14 16 33)</b>	
<b>Bryophytes and Lichens</b>						
<b><i>Pleurozium schreberi</i></b>	<b>48</b>	<b>99</b>	<b>54</b>	<b>99</b>	<b>34</b>	<b>100</b>
<i>Dicranum sp.</i>	3	91	3	94	3	92
<i>Ptilium crista-castrensis</i>	15	90	17	90	10	96
<b><i>Hylocomium splendens</i></b>	<b>19</b>	<b>79</b>	<b>6</b>	<b>73</b>	<b>44</b>	<b>100</b>
<i>Cladina rangiferina</i>	2	69	2	74	2	60
<i>Cladonia sp.</i>	2	66	2	65	2	75
<i>Sphagnum sp.</i>	7	65	6	63	9	77
<i>Polytrichum sp.</i>	3	65	3	66	2	66



***Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)  
 CNVC00351**

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

Species Name <sup>†</sup>	Association CNVC00351		Subassociation 351a <i>typic</i>		Subassociation 351b <i>Hylocomium splendens</i>	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<i>Bazzania trilobata</i>	3	42	3	40	2	47
<i>Cladina mitis</i>	2	32	2	37	2	23
<i>Sphagnum fuscum</i>	3	25	3	25	2	27
<b><i>Sphagnum girgensohnii</i></b>	4	21	4	20	2	22
<i>Ptilidium ciliare</i>	3	18	3	18	2	21
<i>Cladina stellaris</i>	2	18	2	23	2	6
<i>Peltigera aphthosa</i>	3	11	4	6	3	20
<i>Rhytidiadelphus triquetrus</i>	3	4	2	3	3	5
<i>Dicranum scoparium</i>	2	2	-	-	2	2
<i>Dicranum majus</i>	4	1	-	-	-	-
<b><i>Sphagnum squarrosum</i></b>	3	1	2	0	3	1
<i>Dicranum undulatum</i>	2	1	-	-	2	4
<i>Polytrichum commune</i>	2	1	-	-	1	1
<i>Dicranum fuscescens</i>	1	1	-	-	1	1
<i>Peltigera canina</i>	1	1	-	-	1	1
<b><i>Sphagnum russowii</i></b>	51	0	-	-	-	-
<i>Hylocomiastrum umbratum</i>	2	0	-	-	1	1
<i>Rhytidiadelphus loreus</i>	2	0	-	-	1	1
<b><i>Sphagnum capillifolium</i></b>	2	0	-	-	1	1
<b>Bryo-Lichen Stratum Cover</b>						
<b>(P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(50 90 80 90 90)</b>		<b>(33 70 79 90 90)</b>		<b>(90 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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Black Spruce – Balsam Fir / Red-stemmed Feathermoss (Stairstep Moss)

Épinette noire – Sapin baumier / Pleurozie dorée (*Hylocomie brillante*)

Vegetation Summary (cont'd)\*

Species Name <sup>T</sup>	Subassociation 351c <i>Viburnum nudum</i>		Subassociation 351d <i>Cornus stolonifera</i>		Subassociation 351e <i>Sphagnum</i> spp	
	21 plots		6 plots		4 plots	
	% Cover <sup>±</sup>	% Presence <sup>^</sup>	% Cover <sup>±</sup>	% Presence <sup>^</sup>	% Cover <sup>±</sup>	% Presence <sup>^</sup>
<b>Overstorey Trees</b>						
<i>Abies balsamea</i>	21	100	52	100	27	100
<i>Picea mariana</i>	22	100	42	83	38	75
<i>Betula papyrifera</i>	7	81	1	17	2	100
<i>Picea glauca</i>	7	43	1	17	-	-
<i>Populus tremuloides</i>	6	38	-	-	-	-
<i>Sorbus americana</i>	3	24	-	-	-	-
<i>Prunus pensylvanica</i>	2	29	-	-	-	-
<i>Acer rubrum</i>	3	29	-	-	-	-
<i>Betula cordifolia</i>	-	-	1	83	-	-
<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>(32 32 54 66 66)</b>		<b>(77 78 88 96 100)</b>		<b>(43 44 58 63 80)</b>	
<b>Understorey Woody Shrubs and Regenerating Trees</b>						
<i>Abies balsamea</i>	17	100	4	100	3	100
<i>Picea mariana</i>	11	100	11	67	19	75
<i>Betula papyrifera</i>	6	81	-	-	3	25
<i>Vaccinium angustifolium</i>	6	52	1	33	1	25
<i>Amelanchier</i> sp.	8	90	-	-	1	25
<i>Vaccinium myrtilloides</i>	8	76	-	-	-	-
<i>Rhododendron groenlandicum</i>	3	29	-	-	-	-
<i>Kalmia angustifolia</i>	9	52	-	-	-	-
<i>Sorbus americana</i>	5	71	1	17	1	50
<i>Salix</i> sp.	4	38	-	-	-	-
<i>Sorbus decora</i>	3	29	-	-	-	-
<i>Alnus viridis</i>	8	29	1	17	-	-
<i>Ilex mucronata</i>	12	57	-	-	-	-
<i>Picea glauca</i>	6	29	-	-	-	-
<i>Viburnum edule</i>	3	5	1	17	1	75
<i>Acer spicatum</i>	4	14	-	-	1	25
<i>Alnus incana</i>	4	24	-	-	-	-
<b><i>Viburnum nudum</i></b>	<b>8</b>	<b>62</b>	-	-	1	25
<i>Diervilla lonicera</i>	5	67	-	-	-	-
<i>Prunus pensylvanica</i>	3	29	-	-	-	-
<i>Ribes lacustre</i>	3	5	-	-	1	25
<i>Acer rubrum</i>	3	48	-	-	-	-
<i>Taxus canadensis</i>	2	5	2	17	1	75
<b><i>Cornus stolonifera</i></b>	-	-	<b>5</b>	<b>100</b>	-	-
<i>Amelanchier bartramiana</i>	-	-	1	67	-	-
<i>Viburnum opulus</i>	-	-	-	-	1	25
<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>(32 49 63 83 99)</b>		<b>(6 7 19 31 32)</b>		<b>(9 10 21 27 38)</b>	





***Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)  
 CNVC00351**

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

Species Name <sup>†</sup>	Subassociation 351c <i>Viburnum nudum</i>		Subassociation 351d <i>Cornus stolonifera</i>		Subassociation 351e <i>Sphagnum</i> spp	
	% Cover <sup>±</sup>	% Presence <sup>^</sup>	% Cover <sup>±</sup>	% Presence <sup>^</sup>	% Cover <sup>±</sup>	% Presence <sup>^</sup>
<b>Understory Herbs and Dwarf Shrubs</b>						
<i>Cornus canadensis</i>	8	100	-	-	15	75
<i>Gaultheria hispidula</i>	3	52	10	83	3	100
<i>Clintonia borealis</i>	5	100	2	67	2	75
<i>Linnaea borealis</i>	5	71	3	67	7	75
<i>Maianthemum canadense</i>	5	86	2	83	1	25
<i>Coptis trifolia</i>	3	81	2	17	11	75
<i>Lysimachia borealis</i>	3	52	1	50	2	50
<i>Lycopodium annotinum</i>	2	5	-	-	1	25
<i>Neottia cordata</i>	-	-	2	67	1	75
<i>Aralia nudicaulis</i>	4	76	-	-	-	-
<i>Vaccinium vitis-idaea</i>	-	-	2	17	-	-
<i>Carex</i> sp.	2	24	-	-	-	-
<i>Gymnocarpium dryopteris</i>	3	10	-	-	2	75
<i>Solidago macrophylla</i>	2	10	2	17	1	50
<i>Lycopodium obscurum</i>	3	29	-	-	-	-
<i>Pteridium aquilinum</i>	12	86	-	-	-	-
<i>Orthilia secunda</i>	3	10	2	17	2	50
<i>Goodyera repens</i>	2	14	1	33	-	-
<i>Moneses uniflora</i>	-	-	-	-	1	25
<i>Monotropa uniflora</i>	2	5	1	50	-	-
<i>Rubus pubescens</i>	-	-	-	-	2	75
<i>Streptopus amplexifolius</i>	2	5	-	-	1	50
<i>Equisetum sylvaticum</i>	-	-	-	-	2	100
<i>Phegopteris connectilis</i>	-	-	-	-	1	25
<i>Athyrium filix-femina</i>	3	5	-	-	1	50
<i>Trillium undulatum</i>	2	24	-	-	-	-
<i>Carex trisperma</i>	-	-	-	-	6	100
<i>Dryopteris carthusiana</i>	-	-	-	-	1	75
<i>Platanthera obtusata</i>	-	-	1	17	1	75
<i>Viola blanda</i>	-	-	-	-	1	75
<i>Pyrola chlorantha</i>	-	-	-	-	3	25
<i>Pyrola minor</i>	-	-	-	-	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 16 28 33 50)</b>		<b>(7 8 16 24 28)</b>		<b>(25 46 48 60 63)</b>	
<b>Bryophytes and Lichens</b>						
<b><i>Pleurozium schreberi</i></b>	<b>36</b>	<b>95</b>	<b>55</b>	<b>100</b>	<b>12</b>	<b>100</b>
<i>Dicranum</i> sp.	6	81	-	-	-	-
<i>Ptilium crista-castrensis</i>	3	52	17	100	9	100
<b><i>Hylocomium splendens</i></b>	<b>2</b>	<b>29</b>	<b>33</b>	<b>100</b>	<b>39</b>	<b>100</b>
<i>Cladina rangiferina</i>	2	67	-	-	-	-
<i>Cladonia</i> sp.	2	48	1	50	-	-
<i>Sphagnum</i> sp.	6	38	-	-	-	-
<i>Polytrichum</i> sp.	3	52	-	-	-	-



***Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)  
 CNVC00351**

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

Species Name <sup>†</sup>	Subassociation 351c <i>Viburnum nudum</i>		Subassociation 351d <i>Cornus stolonifera</i>		Subassociation 351e <i>Sphagnum</i> spp	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<i>Bazzania trilobata</i>	3	33	1	50	9	100
<i>Cladina mitis</i>	2	19	-	-	-	-
<i>Sphagnum fuscum</i>	3	29	-	-	-	-
<b><i>Sphagnum girgensohnii</i></b>	2	24	-	-	<b>15</b>	<b>50</b>
<i>Ptilidium ciliare</i>	-	-	-	-	-	-
<i>Cladina stellaris</i>	-	-	-	-	-	-
<i>Peltigera aphthosa</i>	-	-	1	100	2	75
<i>Rhytidiadelphus triquetrus</i>	2	10	-	-	1	25
<i>Dicranum scoparium</i>	-	-	3	67	2	75
<i>Dicranum majus</i>	-	-	2	67	15	25
<b><i>Sphagnum squarrosum</i></b>	-	-	-	-	<b>3</b>	<b>25</b>
<i>Dicranum undulatum</i>	-	-	-	-	1	50
<i>Polytrichum commune</i>	-	-	-	-	2	75
<i>Dicranum fuscescens</i>	-	-	1	50	-	-
<i>Peltigera canina</i>	-	-	1	17	1	25
<b><i>Sphagnum russowii</i></b>	-	-	-	-	<b>51</b>	<b>50</b>
<i>Hylocomiastrum umbratum</i>	-	-	-	-	3	50
<i>Rhytidiadelphus loreus</i>	-	-	-	-	2	50
<b><i>Sphagnum capillifolium</i></b>	-	-	1	17	<b>3</b>	<b>25</b>
<b>Bryo-Lichen Stratum Cover</b>						
<b>(P<sub>10</sub> P<sub>25</sub> Mean P<sub>75</sub> P<sub>90</sub>)<sup>‡</sup></b>	<b>(16 33 41 50 70)</b>		<b>(88 95 96 100 100)</b>		<b>(95 98 98 100 100)</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 CNVC00351

*Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)

Black Spruce – Balsam Fir / Red-stemmed Feathermoss (Stairstep Moss)

Épinette noire – Sapin baumier / Pleurozie dorée (*Hylocomie brillante*)

Site / Soil Characteristics

	Association CNVC00351 634 plots	Subassociation 351a <i>typic</i> 441 plots	Subassociation 351b <i>Hylocomium splendens</i> 162 plots
<b>Elevation Range (min–mean–max meters)</b>	5–430–1110 missing data (2)	5–458–1110 missing data (0)	15–376–805 missing data (4)
<b>Slope Gradient (% frequency)</b>	very steep (1) steep (13) <b>moderately steep (29)</b> moderate (27) gentle (18) level (11) missing data (0)	very steep (1) steep (15) moderately steep (27) <b>moderate (28)</b> gentle (19) level (10) missing data (0)	very steep (1) steep (11) <b>moderately steep (36)</b> moderate (23) gentle (18) level (10) missing data (1)
<b>Aspect (% frequency)</b>	north (24) east (20) south (21) <b>west (27)</b> level (8) missing data (0)	north (22) east (20) south (21) <b>west (29)</b> level (8) missing data (0)	<b>north (29)</b> east (24) south (17) west (22) level (7) missing data (1)
<b>Meso Topoposition (% frequency)</b>	crest / upper (19) <b>mid (64)</b> lower / toe (7) depression (2) level (5) missing data (3)	crest / upper (19) <b>mid (67)</b> lower / toe (7) depression (2) level (5) missing data (0)	crest / upper (17) <b>mid (64)</b> lower / toe (6) depression (4) level (5) missing data (4)
<b>Moisture Regime (% frequency)</b>	dry (2) <b>mesic (79)</b> moist (16) wet (2)	dry (2) <b>mesic (80)</b> moist (17) wet (1)	dry (1) <b>mesic (78)</b> moist (17) wet (4)
<b>Nutrient Regime (% frequency)</b>	missing data (100)	missing data (100)	missing data (100)



***Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)**  
**CNVC00351**

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

	Association CNVC00351	Subassociation 351a <i>typic</i>	Subassociation 351b <i>Hylocomium splendens</i>
<b>Soil Parent Material (% frequency)</b>	bedrock (0) colluvium (4) <b>moraine / till (84)</b> glaciofluvial (3) glaciolacustrine (1) marine (2) organic (2) missing data (3)	bedrock (0) colluvium (4) <b>moraine / till (85)</b> glaciofluvial (4) glaciolacustrine (1) marine (3) organic (2) missing data (0)	bedrock (0) colluvium (2) <b>moraine / till (88)</b> glaciofluvial (2) glaciolacustrine (1) marine (1) organic (2) missing data (4)
<b>Soil Rooting Zone Substrate (% frequency)</b>	non-soil (4) sandy (8) coarse loamy (16) fine loamy (2) silty (1) clayey (0) organic (3) missing data (66)	non-soil (5) sandy (10) coarse loamy (15) fine loamy (2) silty (1) clayey (0) organic (3) missing data (64)	non-soil (2) sandy (4) coarse loamy (19) fine loamy (2) silty (2) clayey (0) organic (2) missing data (69)
<b>Root Restricting Depth (% frequency)</b>	0 – 20 cm (6) <b>21 – 99 cm (61)</b> missing data (34)	0 – 20 cm (7) <b>21 – 99 cm (62)</b> missing data (32)	0 – 20 cm (2) <b>21 – 99 cm (61)</b> missing data (36)
<b>Humus Form (% frequency)</b>	<b>mor (89)</b> moder (2) peatymor (6) missing data (3)	<b>mor (92)</b> moder (2) peatymor (6) missing data (0)	<b>mor (89)</b> moder (0) peatymor (7) missing data (4)



Forest / Forêt

Association CNVC00351

*Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)

Black Spruce – Balsam Fir / Red-stemmed Feathermoss (Stairstep Moss)

Épinette noire – Sapin baumier / Pleurozie dorée (Hylocomie brillante)

Site / Soil Characteristics (cont'd)

	Subassociation 351c <i>Viburnum nudum</i> 21 plots	Subassociation 351d <i>Cornus stolonifera</i> 6 plots	Subassociation 351e <i>Sphagnum</i> spp 4 plots
<b>Elevation Range (min–mean–max meters)</b>	150–358–610 missing data (0)	15–51–69 missing data (0)	— missing data (100)
<b>Slope Gradient (% frequency)</b>	very steep (0) steep (0) moderately steep (24) <b>moderate (38)</b> gentle (14) level (24) missing data (0)	very steep (0) steep (0) moderately steep (0) moderate (0) gentle (0) <b>level (100)</b> missing data (0)	very steep (0) steep (0) moderately steep (0) moderate (0) gentle (0) <b>level (75)</b> missing data (25)
<b>Aspect (% frequency)</b>	north (10) east (10) <b>south (48)</b> west (24) level (10) missing data (0)	north (0) east (17) south (33) west (17) level (33) missing data (0)	<b>north (50)</b> east (0) south (0) west (25) level (0) missing data (25)
<b>Meso Toposition (% frequency)</b>	<b>crest / upper (43)</b> mid (38) lower / toe (14) depression (0) level (5) missing data (0)	crest / upper (0) mid (0) lower / toe (0) depression (0) level (0) missing data (100)	crest / upper (0) mid (0) lower / toe (0) depression (0) level (0) missing data (100)
<b>Moisture Regime (% frequency)</b>	dry (5) <b>mesic (90)</b> moist (5) wet (0)	dry (33) <b>mesic (50)</b> moist (17) wet (0)	dry (0) mesic (0) moist (0) <b>wet (100)</b>
<b>Nutrient Regime (% frequency)</b>	missing data (100)	missing data (100)	missing data (100)



***Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)**  
**CNVC00351**

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

	Subassociation 351c <i>Viburnum nudum</i>	Subassociation 351d <i>Cornus stolonifera</i>	Subassociation 351e <i>Sphagnum</i> spp
<b>Soil Parent Material (% frequency)</b>	bedrock (5) colluvium (14) <b>moraine / till (67)</b> glaciofluvial (10) glaciolacustrine (5) marine (0) organic (0) missing data (0)	bedrock (0) colluvium (0) moraine / till (0) glaciofluvial (0) glaciolacustrine (0) marine (0) organic (0) missing data (100)	bedrock (0) colluvium (0) moraine / till (0) glaciofluvial (0) glaciolacustrine (0) marine (0) organic (0) missing data (100)
<b>Soil Rooting Zone Substrate (% frequency)</b>	non-soil (19) sandy (5) coarse loamy (24) fine loamy (0) silty (0) clayey (0) organic (0) missing data (52)	non-soil (0) sandy (0) coarse loamy (0) fine loamy (0) silty (0) clayey (0) organic (0) missing data (100)	non-soil (0) sandy (0) coarse loamy (0) fine loamy (0) silty (0) clayey (0) organic (0) missing data (100)
<b>Root Restricting Depth (% frequency)</b>	0 – 20 cm (10) <b>21 – 99 cm (71)</b> missing data (19)	0 – 20 cm (0) 21 – 99 cm (0) missing data (100)	0 – 20 cm (0) 21 – 99 cm (0) missing data (100)
<b>Humus Form (% frequency)</b>	<b>mor (81)</b> moder (14) peatymor (5) missing data (0)	mor (0) moder (0) peatymor (0) missing data (100)	mor (0) moder (0) peatymor (0) missing data (100)



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

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Forest / Forêt

Association CNVC00351

*Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*)

Black Spruce – Balsam Fir / Red-stemmed Feathermoss (Stairstep Moss)

Épinette noire – Sapin baumier / Pleurozie dorée (Hylocomie brillante)

### 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 on similar sites in Quebec but has more abundant ericaceous shrubs, particularly *Rhododendron groenlandicum*, and less *Hylocomium splendens* in the moss layer.

CNVC00220 [*Abies balsamea* (*Picea mariana*) / *Oxalis montana* / *Pleurozium schreberi*] occurs on comparable boreal sites in New Brunswick and Nova Scotia and has presence of more temperate species, such as *Acer rubrum* and a better developed herb layer with *Dryopteris* spp. and *Oxalis montana*.

CNVC00222 [*Abies balsamea* / *Pleurozium schreberi*] occurs on similar sites in the same range but has less *Picea mariana*, often has more *P. glauca* and has less ericaceous shrubs.

CNVC00277 [*Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* – *Sphagnum* spp.] occurs on moister sites in Quebec and has significant *Sphagnum* moss cover.

CNVC00292 [*Picea mariana* – *Abies balsamea* / *Vaccinium vitis-idaea* / *Pleurozium schreberi* – *Bazzania trilobata*] occurs on coastal sites in Nova Scotia and has a more open canopy. It often has *Viburnum nudum* in the shrub layer, higher constancy of *Pteridium aquilinum* and *Vaccinium vitis-idaea* in the herb layer and more *Bazzania trilobata* in the moss layer.

CNVC00296 [*Picea mariana* – *Abies balsamea* / *Alnus incana*] occurs on moister, richer sites in Quebec and has abundant *Alnus incana* in the shrub layer.

CNVC00307 [*Picea mariana* (*Abies balsamea*) / *Kalmia angustifolia* / *Pleurozium schreberi*] occurs on poorer sites on insular Newfoundland and has a dense shrub layer of *Kalmia angustifolia* (see Dynamics).

CNVC00350 [*Picea mariana* / *Pleurozium schreberi* – *Hylocomium splendens*] occurs on similar sites in the same range but has less *Abies balsamea* in the overstory (see Dynamics).

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

CNVC00351 includes elements of Fr #2 [Rubus – Balsam fir] and Fp #11 [Pleurozium – Balsam fir] from Meades & Moores 1994.

### Comments

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



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

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## ***Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*) CNVC00351**

### Source Information

Number of source plots for CNVC00351: 634

Number of source plots for 351a typic: 441

Number of source plots for 351b *Hylocomium splendens*: 162

Number of source plots for 351c *Viburnum nudum*: 21

Number of source plots for 351d *Cornus stolonifera*: 6

Number of source plots for 351e *Sphagnum* spp: 4

#### 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.

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

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

**Date of Concept:** November, 2013

**Date of Description:** March, 2016

### Classification References:

Damman, A.W.H. 1963. A reconnaissance survey of the ecological conditions in the forests of the Roddickton area, Newfoundland. For. Res. Branch, Can. Dept. For., NL. Mimeo 63-N-1.

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Grondin, P.; Blouin, J.; Racine, P.; D'Avignon, H.; Tremblay, S. 2000. Rapport de classification écologique du sous-domaine bioclimatique de la sapinière à bouleau blanc de l'est. Forêt Qué., Dir. des inv. for., Min. des Res. nat. du Qué., 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.

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### Characterization References:

Baskerville, G.L. 1975. Spruce budworm: super silviculturist. For. Chron. 51(4):138-140.

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.

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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.

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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.





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

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## ***Picea mariana* – *Abies balsamea* / *Pleurozium schreberi* (*Hylocomium splendens*) CNVC00351**

### **Characterization References (cont'd):**

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