



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00309

***Abies balsamea* / *Vaccinium vitis-idaea* / *Pleurozium schreberi* – *Bazzania trilobata***  
**Balsam Fir / Lingonberry / Red-stemmed Feathermoss – Three-lobed Whipwort**  
**Sapin baumier / Airelle rouge / Pleurozie dorée – Bazzanie trilobée**

**Subassociations:** 309a *typic*, 309b *Vaccinium vitis-idaea*

**CNVC Alliance:** CA00004 *Abies balsamea* / *Vaccinium vitis-idaea* / *Pleurozium schreberi* – *Bazzania trilobata*

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



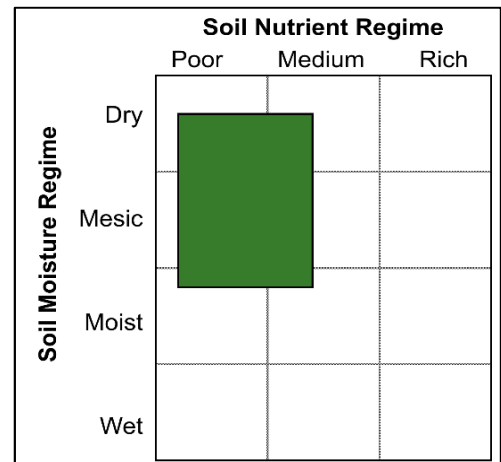
Source: S. Basquill

## Type Description

**Concept:** CNVC00309 is a boreal coniferous forest or woodland Association that occurs in coastal environments of Nova Scotia and southeastern Newfoundland. It has a tree layer dominated by balsam fir (*Abies balsamea*) often with sporadic black spruce (*Picea mariana*) and/or white spruce (*P. glauca*). Regenerating balsam fir dominates the moderately developed to dense shrub layer; American mountain-ash (*Sorbus americana*) and sheep laurel (*Kalmia angustifolia*) are also usually present. Twinflower (*Linnaea borealis*), bunchberry (*Cornus canadensis*) and creeping snowberry (*Gaultheria hispidula*) are often abundant in the moderately developed to dense herb layer. Other common but less abundant species in this layer include wild lily-of-the-valley (*Maianthemum canadense*), northern starflower (*Lysimachia borealis*), wild sarsaparilla (*Aralia nudicaulis*) and lingonberry (*Vaccinium vitis-idaea*). Three-lobed whipwort (*Bazzania trilobata*) is a characteristic bryophyte, usually occurring with red-stemmed feathermoss (*Pleurozium schreberi*) and stairstep moss (*Hylocomium splendens*) in the often well-developed moss layer. CNVC00309 occurs on nutrient-poor sites in a very humid maritime climate. It is often found on headlands where soils are shallow over bedrock, but there can be some nutrient enrichment from seepage. It is a stable, self-perpetuating condition but, because it is subject to strong coastal winds, there is considerable variation in structural phases from open woodland to closed forest. Two subassociations are distinguished, *typic* and *Vaccinium vitis-idaea*.

**Vegetation:** CNVC00309 is a coniferous forest or woodland Association with an overstory dominated by *Abies balsamea*, occasionally with lower abundance of *Picea mariana* and/or *P. glauca*. The moderately developed to dense shrub layer is dominated by *A. balsamea* regeneration, but *Sorbus americana* and *Kalmia angustifolia* are often present. The herb layer is moderately developed to dense and commonly includes abundant *Linnaea borealis*, *Cornus canadensis* and *Gaultheria hispidula* and presence of *Maianthemum canadense*, *Lysimachia borealis*, *Aralia nudicaulis* and *Vaccinium vitis-idaea*. *Bazzania trilobata* is characteristic of the usually well-developed moss layer. In the *typic* subassociation, *B. trilobata* forms extensive ground cover with *Pleurozium schreberi* and *Hylocomium splendens*. The *Vaccinium vitis-idaea* subassociation has better developed shrub and herb layers, including greater abundance of *V. vitis-idaea*, but the moss layer is less developed.

**Environment:** CNVC00309 occurs on headlands, islands, or shallow ground moraines on Atlantic coastal sites. These areas are characterized by cool wet summers, mild wet winters, high humidity (including fog during summer and fall) and strong winds. Sites are nutrient poor, with soils often shallow over bedrock and covered by thick mor humus. There can be some nutrient enrichment from seepage, however. The regional fire cycle is very long (>500 years).





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CNVC00309**

**Type Description (cont'd)**

**Dynamics:** CNVC00309 is a self-perpetuating condition that is adapted to the humid and windy near-coastal areas of Atlantic Canada. Natural fires in this region are rare, but wind is an overriding factor controlling the structure and productivity of these stands. This Association readily regenerates following smaller gap or larger patch disturbances by windthrow, disease, logging and/or insects (particularly spruce budworm [*Choristoneura fumiferana*]) because of abundant *Abies balsamea* regeneration in the understory. In eastern Newfoundland, the *Vaccinium vitis-idaea* subassociation may develop into ericaceous heathland after repeated anthropogenic fires and/or logging.

**Range:** CNVC00309 is described from Nova Scotia and Newfoundland, but has been reported on exposed coastal sites on Prince Edward Island and likely occurs in similar locations in the Gulf of St. Lawrence and on islands off New Brunswick's Fundy coast. In Nova Scotia, sample plots occur along the Bay of Fundy, on the South and Eastern Shores, on Cape Breton Island and on St Paul Island. In Newfoundland, CNVC00309 is known from the Avalon Peninsula, but stands probably occur in coastal areas around the island. The *typic* subassociation is described from Nova Scotia and the *Vaccinium vitis-idaea* subassociation, 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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**Sapin baumier / Airelle rouge / Pleurozie dorée – Bazzanie trilobée**

**Distribution**

**Countries:** Canada

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

**Terrestrial Ecozones and Ecoregions of Canada:** Atlantic Maritime: Atlantic Coast, Fundy Coast; Boreal Shield: Maritime Barrens

**Rowe's Forest Regions and Sections of Canada:** Acadian: East Atlantic Shore; Boreal: Avalon

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

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

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

**Ecoregions of Newfoundland:** Maritime Barrens



**Corresponding Types and Associations**

<b>309a typic</b>	Maritimes Region	A314-u	<i>Abies balsamea</i> – <i>Picea mariana</i> / <i>Vaccinium angustifolium</i> / <i>Sphagnum capillifolium</i> Woodland
<b>309b <i>Vaccinium vitis-idaea</i></b>	Newfoundland and Labrador	E bFv	Eastern: <i>Vaccinium</i> – balsam fir forest



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Vegetation Summary\*

Species Name <sup>†</sup>	Association CNVC00309		Subassociation 309a <i>typic</i>		Subassociation 309b <i>Vaccinium vitis-idaea</i>	
	28 plots		23 plots		5 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>	53	93	52	100	63	60
<i>Picea mariana</i>	9	57	8	65	19	20
<i>Picea glauca</i>	8	50	7	57	19	20
<i>Betula papyrifera</i>	4	36	3	35	6	40
<i>Acer rubrum</i>	2	18	2	22	-	-
<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>(39 52 61 76 85)</b>		<b>(46 54 64 74 84)</b>		<b>(0 0 48 85 87)</b>	
<b>Understory Woody Shrubs and Regenerating Trees</b>						
<i>Abies balsamea</i>	19	93	16	91	32	100
<i>Sorbus americana</i>	2	75	2	83	7	40
<i>Kalmia angustifolia</i>	2	75	2	74	4	80
<i>Viburnum nudum</i>	2	57	1	52	6	80
<i>Ilex mucronata</i>	1	57	1	70	-	-
<i>Picea mariana</i>	7	43	1	39	24	60
<i>Vaccinium angustifolium</i>	4	43	1	30	7	100
<i>Betula papyrifera</i>	4	32	4	39	-	-
<i>Amelanchier sp.</i>	1	25	1	30	-	-
<i>Alnus viridis</i>	2	21	1	13	3	60
<i>Picea glauca</i>	2	21	2	26	-	-
<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>(1 8 29 38 76)</b>		<b>(1 5 22 26 69)</b>		<b>(30 37 60 89 96)</b>	
<b>Understory Herbs and Dwarf Shrubs</b>						
<i>Linnaea borealis</i>	16	82	18	83	6	80
<i>Cornus canadensis</i>	7	79	3	74	22	100
<i>Maianthemum canadense</i>	1	79	1	83	5	60
<i>Lysimachia borealis</i>	1	79	1	78	3	80
<i>Aralia nudicaulis</i>	5	71	5	74	9	60
<i>Gaultheria hispidula</i>	13	61	12	57	16	80
<i>Vaccinium vitis-idaea</i>	3	61	< 1	52	10	100
<i>Oxalis oregana</i>	2	50	2	61	-	-
<i>Coptis trifolia</i>	2	43	2	52	-	-
<i>Oclemena acuminata</i>	2	36	2	43	-	-
<i>Dryopteris intermedia</i>	1	36	1	39	1	20
<i>Monotropa uniflora</i>	1	32	< 1	30	3	40
<i>Pteridium aquilinum</i>	< 1	29	< 1	35	-	-
<i>Dryopteris campyloptera</i>	4	25	4	30	-	-
<i>Clintonia borealis</i>	3	25	3	30	-	-
<i>Solidago macrophylla</i>	1	21	< 1	13	2	60



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

Species Name <sup>†</sup>	Association CNVC00309		Subassociation 309a <i>typic</i>		Subassociation 309b <i>Vaccinium vitis-idaea</i>	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<i>Osmundastrum cinnamomeum</i>	1	18	1	22	-	-
<i>Orthilia secunda</i>	2	11	-	-	2	60
<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>(1 3 41 74 89)</b>		<b>(1 2 36 72 85)</b>		<b>(38 46 65 90 96)</b>	
<b>Bryophytes and Lichens</b>						
<i>Pleurozium schreberi</i>	<b>31</b>	<b>75</b>	<b>31</b>	<b>91</b>	-	-
<i>Bazzania trilobata</i>	<b>20</b>	<b>75</b>	<b>21</b>	<b>83</b>	<b>6</b>	<b>40</b>
<i>Hylocomium splendens</i>	17	64	17	78	-	-
<i>Dicranum scoparium</i>	2	64	2	78	-	-
<i>Ptilium crista-castrensis</i>	2	54	2	65	-	-
<i>Dicranum polysetum</i>	4	39	3	39	4	40
<i>Sphagnum capillifolium</i>	3	39	3	48	-	-
<i>Dicranum majus</i>	10	32	1	17	18	100
<i>Hypnum imponens</i>	1	29	1	35	-	-
<i>Polytrichum commune</i>	8	21	8	26	-	-
<i>Rhytidiadelphus triquetrus</i>	8	18	8	22	-	-
<i>Cladonia sp.</i>	< 1	18	< 1	22	-	-
<i>Dicranum fuscescens</i>	8	14	-	-	8	80
<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>(14 34 67 100 100)</b>		<b>(15 58 75 100 100)</b>		<b>(14 17 30 38 51)</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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**Site / Soil Characteristics**

	Association CNVC00309 <b>28 plots</b>	Subassociation 309a <i>typic</i> <b>23 plots</b>	Subassociation 309b <i>Vaccinium vitis-idaea</i> <b>5 plots</b>
<b>Elevation Range (min–mean–max meters)</b>	5–34–118	5–22–95	50–91–118
<b>Slope Gradient (% frequency)</b>	steep (11) moderately steep (11) <b>moderate (25)</b> gentle (21) level (11) missing data (21)	steep (13) moderately steep (9) moderate (22) gentle (22) level (9) missing data (26)	steep (0) moderately steep (20) <b>moderate (40)</b> gentle (20) level (20) missing data (0)
<b>Aspect (% frequency)</b>	north (29) east (18) <b>south (32)</b> west (7) missing data (14)	north (30) east (13) south (30) west (9) missing data (17)	north (20) east (40) south (40) west (0) missing data (0)
<b>Meso Toposition (% frequency)</b>	crest / upper (29) <b>mid (32)</b> lower / toe (11) level (21) missing data (7)	crest / upper (26) <b>mid (30)</b> lower / toe (13) level (26) missing data (4)	crest / upper (40) mid (40) lower / toe (0) level (0) missing data (20)
<b>Moisture Regime (% frequency)</b>	dry (36) <b>mesic (50)</b> moist (11) missing data (4)	dry (43) <b>mesic (48)</b> moist (9) missing data (0)	dry (0) <b>mesic (60)</b> moist (20) missing data (20)
<b>Nutrient Regime (% frequency)</b>	<b>poor (64)</b> medium (18) missing data (18)	<b>poor (78)</b> medium (22) missing data (0)	poor (0) medium (0) missing data (100)





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

	Association CNVC00309	Subassociation 309a <i>typic</i>	Subassociation 309b <i>Vaccinium vitis-idaea</i>
<b>Soil Parent Material (% frequency)</b>	colluvium (7) <b>moraine / till (79)</b> marine (4) organic (4) missing data (7)	colluvium (4) <b>moraine / till (87)</b> marine (4) organic (4) missing data (0)	colluvium (20) moraine / till (40) marine (0) organic (0) missing data (40)
<b>Soil Rooting Zone Substrate (% frequency)</b>	non-soil (7) sandy (4) <b>coarse loamy (54)</b> organic (4) missing data (32)	non-soil (4) sandy (4) <b>coarse loamy (65)</b> organic (4) missing data (22)	non-soil (20) sandy (0) coarse loamy (0) organic (0) missing data (80)
<b>Root Restricting Depth (% frequency)</b>	missing data (100)	missing data (100)	missing data (100)
<b>Humus Form (% frequency)</b>	<b>mor (86)</b> missing data (14)	<b>mor (83)</b> missing data (17)	<b>mor (100)</b> missing data (0)



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### Additional Characteristics

Species of High Conservation Concern:

Non-native Species:

Management Issues:

### Type Statistics

Internal Similarity:

Confidence:

Strength:

### Related Concepts

Similar CNVC Associations:

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

Nova Scotia plots in CNVC00309 are classified as CO4 Balsam fir / Foxberry – Twinflower in Neily et al. 2011.

CNVC00309 occurs on insular Newfoundland but is not treated in Meades & Moores 1994.

### Comments

### Source Information

Number of source plots for CNVC00309: 28

Number of source plots for 309a *typic*: 23

Number of source plots for 309b *Vaccinium vitis-idaea*: 5

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.

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, S. Basquill, K. Chapman, B. Meades

**Description Authors:** B. Meades, K. Chapman, K. Baldwin and S. Basquill

**Date of Concept:** August, 2013

**Date of Description:** May, 2018





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**CNVC00309**

**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.

Meades, W.J. 1986. Successional status of ericaceous dwarf-shrub heath in eastern Newfoundland. PhD thesis, Univ. of Connecticut, Storrs, CT.

**Characterization References:**

Banfield, C.E. 1983. Climate. Pages 37-106 in G.R. South, ed. Biogeography and ecology of the island of Newfoundland. Dr W Junk Publishers, The Hague.

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.

Burley, S.T.; Harper, K.A.; Lundholm, J.T. 2010. Vegetation composition, structure and soil properties across coastal forest-barren ecotones. Plant Ecology 211(2):279-296.

Damman, A.W.H. 1983. An ecological subdivision of the Island of Newfoundland. Pages 163-206 in G.R. South, ed. Biogeography and ecology of the Island of Newfoundland. Dr W Junk Publishers, The Hague, NL.

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

Neily, P.; Basquill, S.; Quigley, E.; Stewart, B.; Keys, K. 2011. Forest ecosystem classification for Nova Scotia, Part I: Vegetation types. N.S. Dept. Nat. Resour., Renew. Resour. Branch, NS.

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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