



Forest / Forêt

Association CNVC00349

Betula papyrifera (Populus tremuloides) / Dryopteris carthusiana – Rubus pubescens
Paper Birch (Trembling Aspen) / Spinulose Wood Fern – Dwarf Raspberry
Bouleau à papier (Peuplier faux-tremble) / Dryoptère spinuleuse – Ronce pubescente

Subassociations: none

CNVC Alliance: CA00008 *Abies balsamea – Betula papyrifera / Rubus pubescens*

CNVC Group: CG0004 Atlantic Boreal Moist Balsam Fir – White Spruce – Paper Birch Forest



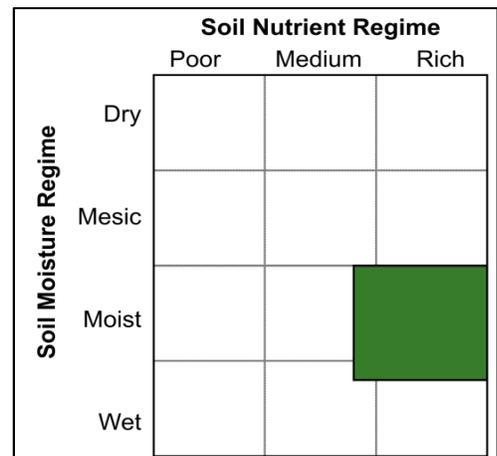
Source: B. Meades

Type Description

Concept: CNVC00349 is a boreal hardwood forest Association that occurs in Newfoundland and Labrador. It has a closed canopy dominated by paper birch (*Betula papyrifera*), sometimes with trembling aspen (*Populus tremuloides*) as a codominant, and often minor components of balsam fir (*Abies balsamea*), black spruce (*Picea mariana*) and/or red maple (*Acer rubrum*). It is one of the most floristically diverse forest Associations in the province. The shrub layer is usually moderately developed and typically includes American mountain-ash (*Sorbus americana*) and regenerating balsam fir and black spruce. The herb layer is dense and relatively diverse. It usually includes bunchberry (*Cornus canadensis*), yellow clintonia (*Clintonia borealis*), twinflower (*Linnaea borealis*), wild lily-of-the-valley (*Maianthemum canadense*), northern starflower (*Lysimachia borealis*), dwarf raspberry (*Rubus pubescens*), spinulose wood fern (*Dryopteris carthusiana*) and large-leaved goldenrod (*Solidago macrophylla*). The forest floor cover is mainly broad-leaf litter, so the moss layer is sparse, with only minor cover of (primarily) common broom moss (*Dicranum scoparium*) and red-stemmed feathermoss (*Pleurozium schreberi*). CNVC00349 occurs in a region with a very humid maritime boreal climate on moist, nutrient-rich sites. These are some of the most productive sites in Newfoundland and Labrador. CNVC00349 is an early seral condition that typically establishes after fire.

Vegetation: CNVC00349 is a hardwood forest Association with a closed canopy dominated by *Betula papyrifera* (see Comments) sometimes with *Populus tremuloides* codominant. *Abies balsamea*, *Picea mariana* and/or *Acer rubrum* (see Comments) are often present but low in cover. This is one of the most floristically diverse Associations in Newfoundland and Labrador, and the shrub and herb layers include many species indicative of nutrient-rich sites. The moderately developed shrub layer typically includes regenerating *A. balsamea* and *P. mariana*, as well as the shrub species *Sorbus americana*. *Acer rubrum* and *A. spicatum* are sometimes abundant in this layer. The herb layer is dense and commonly includes *Cornus canadensis*, *Clintonia borealis*, *Linnaea borealis*, *Maianthemum canadense*, *Lysimachia borealis*, *Rubus pubescens*, *Dryopteris carthusiana* and *Solidago macrophylla*. *Aralia nudicaulis* is less constant, but can be abundant. Forest floor cover is predominantly broad-leaf and herbaceous litter, so the moss layer is usually poorly developed, with only *Dicranum scoparium* and *Pleurozium schreberi* common, mainly on fallen logs and at tree bases.

Environment: CNVC00349 occurs in a very humid maritime boreal climate where the regional fire cycle is long (270-500 years). It is found most frequently on moist, nutrient-rich sites; these are among the most productive sites in Newfoundland and Labrador. Stands are often on moderate slopes on water-receiving middle to lower slope topopositions where seepage enhances moisture and nutrient availability. Soils are often shallow and derived from morainal parent materials or colluvium. Mor humus forms are typical, but mulls can develop from the abundant broad-leaf litter.





Betula papyrifera (Populus tremuloides) / Dryopteris carthusiana – Rubus pubescens
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Type Description (cont'd)

Dynamics: CNVC00349 is an early seral condition that typically develops after fire, although this scenario is uncommon in the humid coastal environments where it occurs. *Betula papyrifera* and *Populus tremuloides* are pioneer species adapted to disturbance. They produce abundant, light, wind-dispersed seeds that can readily colonize mineral soil seedbeds exposed by fire and can reproduce vegetatively, *B. papyrifera* from stump sprouts and *P. tremuloides* from root suckers. Both species grow rapidly in full-light conditions but are intolerant of shade so do not replace themselves in a stand without further disturbance. If seed sources are available, *Abies balsamea* can become established in these stands and may grow into the canopy as the pioneer hardwoods decline. These sites usually succeed to the conifer condition CNVC00348 [*Abies balsamea* / *Taxus canadensis* / *Rubus pubescens* / *Dicranum majus*] over time.

Range: CNVC00349 occurs on the island of Newfoundland and in southeastern Labrador.

Conservation Status (NatureServe)

Global Conservation Rank: no applicable rank

National Conservation Rank: not yet determined

Subnational Conservation Rank: not yet determined



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

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Distribution

Countries: Canada

Provinces / Territories / States: Newfoundland and Labrador

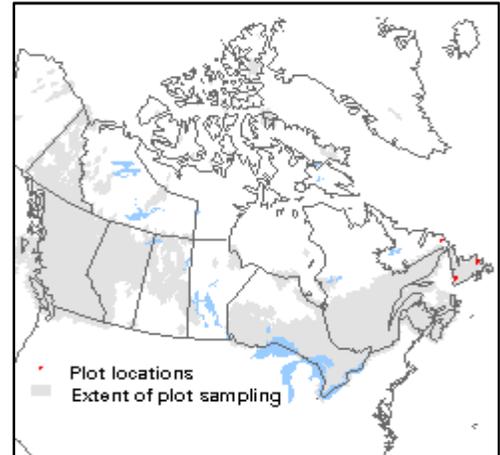
Terrestrial Ecozones and Ecoregions of Canada: Boreal Shield: Central Newfoundland, Paradise River, Southwestern Newfoundland

Rowe's Forest Regions and Sections of Canada: Boreal: Corner Brook, Grand Falls, Hamilton and Eagle Valleys

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

Nature Conservancy of Canada Ecoregions: Boreal Shield

Ecoregions of Newfoundland: Central Newfoundland, Southwestern Newfoundland



Corresponding Types and Associations

CNVC00349	Newfoundland and Labrador	Lab B_lyc	Labrador: Lycopodium - birch forest
		TNP BtA	Terra Nova Park: Birch - aspen
		W Br	Western: Rubus - birch forest



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Vegetation Summary*

Species Name [†]	Association CNVC00349	
	10 plots	
	% Cover [‡]	% Presence [^]
Overstory Trees		
<i>Betula papyrifera</i>	34	100
<i>Abies balsamea</i>	14	70
<i>Picea mariana</i>	7	60
<i>Acer rubrum</i>	6	60
<i>Populus tremuloides</i>	29	50
<i>Betula alleghaniensis</i>	8	30
Tree Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(54 58 69 83 86)	
Understory Woody Shrubs and Regenerating Trees		
<i>Abies balsamea</i>	6	80
<i>Sorbus americana</i>	2	70
<i>Picea mariana</i>	6	60
<i>Acer rubrum</i>	10	50
<i>Acer spicatum</i>	10	50
<i>Populus tremuloides</i>	6	50
<i>Betula papyrifera</i>	12	40
<i>Viburnum nudum</i>	2	40
<i>Vaccinium angustifolium</i>	3	30
<i>Taxus canadensis</i>	3	30
Shrub Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(11 22 37 49 71)	
Understory Herbs and Dwarf Shrubs		
<i>Cornus canadensis</i>	20	90
<i>Clintonia borealis</i>	15	90
<i>Linnaea borealis</i>	12	90
<i>Maianthemum canadense</i>	5	90
<i>Lysimachia borealis</i>	3	90
<i>Rubus pubescens</i>	11	70
<i>Dryopteris carthusiana</i>	8	70
<i>Solidago macrophylla</i>	4	70
<i>Aralia nudicaulis</i>	32	40
<i>Huperzia lucidula</i>	12	40
<i>Viola blanda</i>	8	40
<i>Lycopodium annotinum</i>	5	40
<i>Galearis rotundifolia</i>	3	40
<i>Orthilia secunda</i>	1	40
<i>Streptopus lanceolatus</i>	1	40
<i>Viola cucullata</i>	15	30
<i>Gymnocarpium dryopteris</i>	14	30
<i>Lycopodium obscurum</i>	8	30



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Vegetation Summary (cont'd)*

Species Name [†]	Association CNVC00349	
	% Cover [‡]	% Presence [^]
<i>Solidago rugosa</i>	6	30
<i>Galium triflorum</i>	1	30
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(64 73 86 100 100)	
Bryophytes and Lichens		
<i>Dicranum scoparium</i>	4	90
<i>Pleurozium schreberi</i>	9	60
<i>Hylocomium splendens</i>	11	50
<i>Dicranum fuscescens</i>	5	50
<i>Dicranum majus</i>	3	40
<i>Hylocomiastrum umbratum</i>	2	40
<i>Rhytidiadelphus triquetrus</i>	7	30
<i>Lobaria pulmonaria</i>	3	30
Bryo-Lichen Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(6 9 27 48 53)	

* 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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Site / Soil Characteristics

Association
CNVC00349

10 plots

Elevation Range (min–mean–max meters)

122–156–183
missing data (60)

Slope Gradient (% frequency)

moderately steep (10)
moderate (30)
level (10)
missing data (50)

Aspect (% frequency)

north (20)
south (20)
west (10)
missing data (50)

Meso Topoposition (% frequency)

lower / toe (10)
missing data (90)

Moisture Regime (% frequency)

moist (50)
missing data (50)

Nutrient Regime (% frequency)

missing data (100)

Soil Parent Material (% frequency)

colluvium (10)
moraine / till (30)
missing data (60)

Soil Rooting Zone Substrate (% frequency)

non-soil (10)
missing data (90)

Root Restricting Depth (% frequency)

missing data (100)

Humus Form (% frequency)

mor (20)
missing data (80)



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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:

CNVC00237 [*Betula papyrifera / Vaccinium angustifolium – Kalmia angustifolia / Pleurozium schreberi*] occurs on mesic, nutrient-poor to medium sites in the same range and has abundant ericaceous shrubs in the understory.

CNVC00315 [*Betula papyrifera – B. alleghaniensis / Dryopteris carthusiana*] is a hardwood Association that occurs on mesic to moist, nutrient-medium to rich sites on insular Newfoundland and has very high abundance of *Dryopteris* spp. in the understory.

CNVC00316 [*Betula papyrifera / Alnus viridis / Solidago macrophylla*] is a floristically similar hardwood Association that occurs on insular Newfoundland. It occurs on unstable scree slopes and unlike CNVC00349, is unlikely to succeed to *Abies balsamea* because conifers are less competitive on these sites.

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

CNVC00349 includes the concepts of BtA #24 [Birch – Aspen] and Br #27 [Rubus - Birch] from Meades & Moores 1994.

Comments

In the general context of boreal forests, this Association is notable for its content of *Acer rubrum* and *Betula alleghaniensis*, which are usually considered temperate species. CNVC00349 lacks understory species typically associated with temperate forests, so is classified here as a boreal forest Association.

Betula papyrifera here refers to both *B. papyrifera* (paper birch) and *B. cordifolia* (heart-leaved birch).

Source Information

Number of source plots for CNVC00349: 10

Information Sources:

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

Description Authors: B. Meades, K. Chapman and K. Baldwin

Date of Concept: May, 2013

Date of Description: October, 2016



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Classification References:

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.

Meades, W.J. 1976. Vegetation of Terra Nova National Park. In: Biophysical classification of Terra Nova National Park: environmental component 3c. Can. Dept. Indian & North. Aff., Parks Branch, CA.

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.

Characterization References:

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. 1983. The history and pattern of fire in the boreal forest of southeastern Labrador. *Can. J. Bot.* 61:2459-2471.

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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.

Howard, J.L. 1996. *Populus tremuloides*. 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/poptre/all.html> (accessed: May 27, 2015).

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.

Meades, S.J.; Meades, W.J. 2016+. Flora of Newfoundland and Labrador. In prep. Centre for Forest Science and Innovation (CFSI), For. Branch, For. and Agrifoods Agency, Gov. NL, and Atlantic For. Centre-Corner Brook, Can. For. Serv., Nat. Resour. Can, Corner Brook, NL.

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).

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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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