



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

<http://cnvc-cnvc.ca>

Forest / Forêt

Association CNVC00316

Betula papyrifera* / *Alnus viridis* / *Solidago macrophylla
Paper Birch / Green Alder / Large-leaved Goldenrod
Bouleau à papier / Aulne vert / Verge d'or à grandes feuilles

Subassociations: none

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

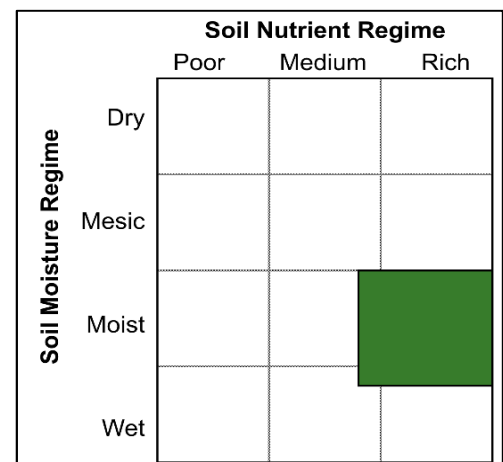
CNVC Group: CG0004 Atlantic Boreal Moist Balsam Fir – White Spruce – Paper Birch Forest

Type Description

Concept: CNVC00316 is a pioneer boreal hardwood forest Association that occurs on talus deposits on insular Newfoundland. It can have an open to closed canopy and is dominated by paper birch (*Betula papyrifera*), sometimes with a minor component of balsam fir (*Abies balsamea*). The shrub layer is usually moderately to well developed, and any of mountain maple (*Acer spicatum*), green alder (*Alnus viridis*) or balsam fir are sometimes abundant. Red-osier dogwood (*Cornus stolonifera*) and early lowbush blueberry (*Vaccinium angustifolium*) are often present. The herb layer can be dense and typically has numerous species in low abundance, often including dwarf raspberry (*Rubus pubescens*), large-leaved goldenrod (*Solidago macrophylla*), wild lily-of-the-valley (*Maianthemum canadense*), yellow clintonia (*Clintonia borealis*), northern starflower (*Lysimachia borealis*), three-flowered bedstraw (*Galium triflorum*) and rough-stemmed goldenrod (*S. rugosa*). Usually, there is a significant amount of exposed talus and moss cover is sparse. CNVC00316 occurs in a region with a very humid maritime boreal climate. It is described from moist, nutrient-rich sites in western Newfoundland but probably occurs on other sites elsewhere on insular Newfoundland and in the boreal region of Atlantic Canada where there are talus deposits in hilly or mountainous terrain.

Vegetation: CNVC00316 is a hardwood forest Association with an open to closed canopy dominated by *Betula papyrifera* (see Comments), often with sporadic *Abies balsamea*. The shrub layer is moderately to well developed; *Acer spicatum*, *Alnus viridis* or *Abies balsamea* are sometimes abundant, and *Cornus stolonifera* and *Vaccinium angustifolium* are often present. The herb layer is usually dense but typically has low cover of a large number of species, such as *Rubus pubescens*, *Solidago macrophylla*, *Maianthemum canadense*, *Clintonia borealis*, *Lysimachia borealis*, *Galium triflorum*, *S. rugosa*, *Dryopteris carthusiana*, *Monotropa uniflora* and *Streptopus lanceolatus*. *Pyrola asarifolia* may be abundant where present. Often, more than half of the substrate is bare rock (talus) and the moss layer is sparse to nonexistent because of the site conditions as well as broadleaf litter.

Environment: CNVC00316 occurs on talus slopes in a region with a very humid maritime boreal climate where the regional fire cycle is long (270-500 years). Stands develop on water-receiving lower or toe slope topopositions, once the substrate has stabilized. In these areas, colluvial material is washed into the spaces between rocks allowing vegetation to establish, forming this pioneer community. CNVC00316 is described from sites experiencing seepage and sample plots are all moist and nutrient-rich, but drier and poorer variants probably also exist.





***Betula papyrifera* / *Alnus viridis* / *Solidago macrophylla* CNVC00316**

Type Description (cont'd)

Dynamics: CNVC00316 is a pioneer condition that develops on colluvial sites once substrate conditions have stabilized. *Betula papyrifera* is a pioneer species that produces abundant, light, wind-dispersed seeds that can readily colonize mineral soil seedbeds. It can also reproduce vegetatively from stump sprouts. It grows rapidly in full-light conditions but is intolerant of shade so does not self-replace in a stand without further disturbance. If seed sources are available, *Abies balsamea* becomes established in these stands and may grow into the canopy as the pioneer hardwoods decline.

Range: CNVC00316 is described from western Newfoundland where it is frequent in the hilly landscape formed by the Long Range Mountains. It probably occurs elsewhere on insular Newfoundland and in the boreal region of Atlantic Canada in hilly terrain wherever there are talus slopes.

Conservation Status (NatureServe)

Global Conservation Rank: no applicable rank

National Conservation Rank: not yet determined

Subnational Conservation Rank: not yet determined



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Distribution

Countries: Canada

Provinces / Territories / States: Newfoundland and Labrador

Terrestrial Ecozones and Ecoregions of Canada: Boreal Shield: Long Range Mountains, Northern Peninsula

Rowe's Forest Regions and Sections of Canada: Boreal: Newfoundland-Labrador Barrens, Northern Peninsula

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

Nature Conservancy of Canada Ecoregions: Boreal Shield

Ecoregions of Newfoundland: Long Range Mountains, Northern Peninsula



Corresponding Types and Associations

CNVC00316

Newfoundland and
 Labrador

W Bu

Western: Birch forests on unstable soils



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Vegetation Summary*

Species Name [†]	Association CNVC00316	
	3 plots	
	% Cover [‡]	% Presence [^]
Overstory Trees		
<i>Betula papyrifera</i>	63	100
<i>Abies balsamea</i>	15	67
<i>Acer rubrum</i>	3	33
<i>Prunus pensylvanica</i>	1	33
Tree Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(58 60 73 82 93)	
Understory Woody Shrubs and Regenerating Trees		
<i>Acer spicatum</i>	32	67
<i>Alnus viridis</i>	9	67
<i>Abies balsamea</i>	8	67
<i>Cornus stolonifera</i>	2	67
<i>Vaccinium angustifolium</i>	1	67
<i>Acer rubrum</i>	4	33
<i>Betula papyrifera</i>	3	33
<i>Picea glauca</i>	3	33
<i>Viburnum edule</i>	3	33
<i>Corylus cornuta</i>	1	33
<i>Ilex mucronata</i>	1	33
<i>Kalmia angustifolia</i>	1	33
<i>Rhamnus alnifolia</i>	1	33
<i>Ribes lacustre</i>	1	33
<i>Viburnum nudum</i>	1	33
Shrub Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(21 27 41 52 62)	
Understory Herbs and Dwarf Shrubs		
<i>Rubus pubescens</i>	11	100
<i>Solidago macrophylla</i>	6	100
<i>Maianthemum canadense</i>	8	67
<i>Clintonia borealis</i>	6	67
<i>Lysimachia borealis</i>	3	67
<i>Galium triflorum</i>	3	67
<i>Solidago rugosa</i>	2	67
<i>Dryopteris carthusiana</i>	1	67
<i>Monotropa uniflora</i>	1	67
<i>Streptopus lanceolatus</i>	1	67
<i>Pyrola asarifolia</i>	19	33
<i>Avenella flexuosa</i>	15	33
<i>Epigaea repens</i>	15	33
<i>Mitella nuda</i>	9	33



***Betula papyrifera* / *Alnus viridis* / *Solidago macrophylla* CNVC00316**

Vegetation Summary (cont'd)*

Species Name [†]	Association CNVC00316	
	% Cover [‡]	% Presence [^]
<i>Carex deflexa</i>	3	33
<i>Carex leptonevia</i>	3	33
<i>Carex pedunculata</i>	3	33
<i>Cinna latifolia</i>	3	33
<i>Fragaria virginiana</i>	3	33
<i>Linnaea borealis</i>	3	33
<i>Viola blanda</i>	3	33
<i>Phegopteris connectilis</i>	2	33
Apiaceae	1	33
<i>Chimaphila umbellata</i>	1	33
<i>Cirsium muticum</i>	1	33
<i>Coptis trifolia</i>	1	33
<i>Dryopteris intermedia</i>	1	33
<i>Dryopteris marginalis</i>	1	33
<i>Elymus trachycaulus</i>	1	33
<i>Gymnocarpium dryopteris</i>	1	33
<i>Polystichum braunii</i>	1	33
<i>Symphyotrichum puniceum</i>	1	33
<i>Thalictrum pubescens</i>	1	33
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(49 52 64 72 82)	
Bryophytes and Lichens		
<i>Dicranum scoparium</i>	3	33
<i>Polytrichum juniperinum</i>	3	33
<i>Fissidens taxifolius</i>	1	33
<i>Hylocomium splendens</i>	1	33
<i>Pleurozium schreberi</i>	1	33
<i>Thuidium recognitum</i>	1	33
Bryo-Lichen Stratum Cover		
(P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(0 0 3 5 8)	

* 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
CNVC00316

3 plots

Elevation Range (min–mean–max meters)

171–179–183

Slope Gradient (% frequency)

steep (33)
moderately steep (33)
gentle (33)

Aspect (% frequency)

north (33)
south (67)

Meso Toposition (% frequency)

missing data (100)

Moisture Regime (% frequency)

moist (67)
missing data (33)

Nutrient Regime (% frequency)

missing data (100)

Soil Parent Material (% frequency)

colluvium (33)
moraine / till (67)

Soil Rooting Zone Substrate (% frequency)

non-soil (33)
missing data (67)

Root Restricting Depth (% frequency)

missing data (100)

Humus Form (% frequency)

missing data (100)



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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 in the same region on mesic, nutrient-poor to -medium sites. It is characterized by abundant ericaceous species in the understory.

CNVC00242 [*Betula papyrifera* / *Alnus incana*] occurs in Quebec on moist, nutrient-rich sites and has abundant *Alnus incana* in the shrub layer.

CNVC00315 [*Betula papyrifera* – *B. alleghaniensis* / *Dryopteris carthusiana*] occurs in the same region on mesic, nutrient-medium sites. It often includes *Betula alleghaniensis* in the overstory and has abundant *Dryopteris carthusiana* in the understory.

CNVC00349 [*Betula papyrifera* (*Populus tremuloides*) / *Dryopteris carthusiana* – *Rubus pubescens*] is a floristically similar hardwood Association that occurs in the same range, but typically on humus-enriched deeper soils. Whereas CNVC00316 is a pioneer condition, CNVC00349 is an early seral stage that follows stand-replacing disturbance on previously vegetated sites.

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

CNVC00316 occurs on the island of Newfoundland but is not treated in Meades & Moores 1994.

Comments

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

Source Information

Number of source plots for CNVC00316: 3

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: August, 2011

Date of Description: March, 2018



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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.

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.

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.

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.

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.

Uchytel, R.J. 1991. *Abies balsamea*. 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/abibal/all.html> (accessed: May 26, 2015).

Uchytel, R.J. 1991. *Betula papyrifera*. In: Fire Effects Information System. U.S. Dept. Agric., For. Serv., Rocky Mt. Res. Stn., Fire Sci. Lab., Missoula, MT, US. Available: <http://www.fs.fed.us/database/feis/plants/tree/betpap/all.html> (accessed: May 27, 2015).

The information contained in this factsheet is based on data and expert knowledge that is current to the date of description. As new information becomes available, the factsheet will be updated.

For more information about the contents of this factsheet and definitions of attribute names and data classes, see the **Understanding the Factsheet** link at <http://cnvc-cnvc.ca>.

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