



**Wetland / Tourbière boisée**

**Association CNVC00288**

***Picea mariana* – *Larix laricina* / *Rhododendron groenlandicum* / *Gaultheria hispidula* / *Sphagnum* spp.**

**Black Spruce – Tamarack / Common Labrador Tea / Creeping Snowberry / Peat Mosses  
 Épinette noire – Mélèze laricin / Thé du Labrador / Petit thé / Sphaignes**

**Subassociations:** none

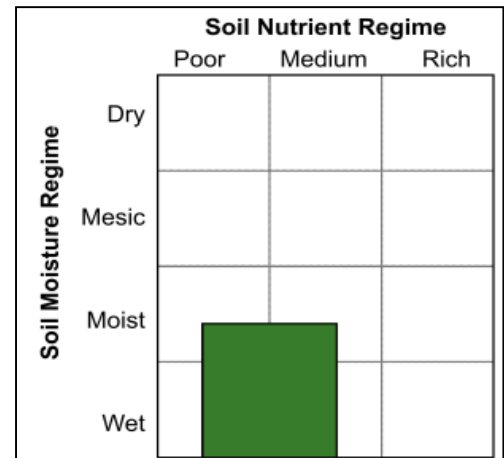
**CNVC Alliance:** CA00044 *Picea mariana* / *Rhododendron groenlandicum* – *Vaccinium angustifolium* / *Sphagnum* spp.

**CNVC Group:** CG0019 Ontario-Quebec Boreal Black Spruce Poor – Intermediate Treed Wetland

**Type Description**

**Concept:** CNVC00288 is a boreal wetland coniferous forest Association that ranges from Manitoba to Quebec. It has an open to moderately closed canopy of black spruce (*Picea mariana*) and tamarack (*Larix laricina*). The understory is species poor, with a preponderance of ericaceous species. The shrub layer is well developed, comprising abundant common Labrador tea (*Rhododendron groenlandicum*) and regenerating black spruce, with lower abundance of velvet-leaved blueberry (*Vaccinium myrtilloides*). Speckled alder (*Alnus incana*) can be abundant in the shrub layer. The poorly to moderately developed herb layer commonly includes creeping snowberry (*Gaultheria hispidula*), three-leaved false Solomon's seal (*Maianthemum trifolium*), bunchberry (*Cornus canadensis*) and *Carex* spp. The moss layer is continuous and dominated by peat mosses (*Sphagnum* spp.), but feathermosses including red-stemmed feathermoss (*Pleurozium schreberi*), knight's plume moss (*Ptilium crista-castrensis*) and stairstep moss (*Hylocomium splendens*) are common on dry microsites (e.g., peat hummocks). CNVC00288 occurs on wet, nutrient-poor to medium sites in a region with a boreal continental climate that grades from subhumid in the west to humid in the east. Substrates are usually organic soils formed from slowly decomposing *Sphagnum* and other mosses. Although fire can occasionally occur, this is typically a stable condition that is maintained by a persistently high water table and poor to medium nutrient conditions; local hydrology is the main driver of vegetation dynamics.

**Vegetation:** CNVC00288 is a coniferous forest Association with an open to moderately closed canopy of *Picea mariana* and *Larix laricina*. *Abies balsamea* is occasionally present in the tree layer, especially in the Quebec portion of the range. The shrub layer is well developed but species poor, primarily consisting of abundant *Rhododendron groenlandicum* and regenerating *P. mariana*, with lower abundance of *Vaccinium myrtilloides*. When present, *Alnus incana* (see Comments) can be abundant in the shrub layer. The herb layer is poorly to moderately developed, but *Gaultheria hispidula*, *Maianthemum trifolium*, *Cornus canadensis* and *Carex* spp. (e.g., *C. trisperma* and *C. disperma*) commonly occur. Species indicative of greater nutrient status, such as *Rubus pubescens* and *Mitella nuda*, are occasionally present. The continuous moss layer is dominated by *Sphagnum* spp. (particularly *S. capillifolium*, *S. girgensohnii*, *S. magellanicum* and *S. angustifolium*). Some of these species form dense hummocks with dry exposed tops that are covered by feathermosses (primarily *Pleurozium schreberi* but also *Ptilium crista-castrensis* and *Hylocomium splendens*).





***Picea mariana* – *Larix laricina* / *Rhododendron groenlandicum* / *Gaultheria hispidula* / *Sphagnum* spp. CNVC00288**

### Type Description (cont'd)

**Environment:** CNVC00288 occurs on peat-accumulating sites with permanently high water tables in a region with a continental boreal climate that grades from subhumid in the west to humid in the east. Organic material thickness over mineral or bedrock substrates is typically > 40 cm. Groundwater flow is adequate to maintain a forest physiognomy with moderately minerotrophic conditions in the rooting layer; nutrient status is poor to medium. Surface microtopography is moderately hummocky; hollows can be in contact with groundwater at certain times of the growing season. CNVC00288 often occurs in a wetland mosaic with CNVC00282 [*Picea mariana* / *Rhododendron groenlandicum* – *Kalmia angustifolia* / *Sphagnum* spp.] and/or CNVC00300 [*Larix laricina* – *Picea mariana* / *Alnus incana* / *Gaultheria hispidula* / *Sphagnum* spp.].

**Dynamics:** CNVC00288 is generally a stable condition that is maintained by a persistently high water table and poor to medium nutrient status. Local hydrology is the main driver of vegetation dynamics, although successional replacement of *Larix laricina* by *Picea mariana* can occur over time.

Because of limited groundwater inputs and a cold climate, decomposition is slow, and peat accumulates over time. In the absence of hydrological changes, this process can raise the rooting zone above the water table, which further reduces nutrient availability for tree growth and promotes succession to a less productive, woodland community, such as CNVC00283 [*Picea mariana* / *Chamaedaphne calyculata* – *Vaccinium angustifolium* / *Sphagnum* spp.], and ultimately to an open bog condition (M876 [North American Boreal & Sub-boreal Acidic Bog & Fen]).

Long-term change in the water table (either by anthropogenic activities or natural causes [e.g., beaver dams]) usually results in changes to the vegetation community. A rise in the water table can result in tree mortality and transition to open wetland vegetation. A drop in the water table can sometimes result in the development of more productive feathermoss forests (e.g., CNVC00276 [*Picea mariana* / *Rhododendron groenlandicum* – *Vaccinium angustifolium* / *Pleurozium schreberi* (*Sphagnum* spp.)]). Enrichment of the rooting layer, typically by groundwater flow, can stimulate development of more productive wetland forest conditions (e.g., CNVC00300) by increasing supplies of oxygen and macronutrients, and by reducing acidity.

Although fires occur on peatlands, they are infrequent and of limited extent because these sites are so wet. When a fire does occur, both *Larix laricina* and *Picea mariana* can regenerate from seed under favourable conditions (e.g., suitable seedbed), *L. laricina* typically by wind-dispersed seeds from trees in the surrounding area and *P. mariana* from semi-serotinous cones. *L. laricina* is a pioneer species that grows more rapidly than *P. mariana*, but *P. mariana* is more shade tolerant and better able to regenerate in the absence of fire (usually by vegetative layering), so it can become dominant on these sites over time, forming CNVC00282 [*Picea mariana* / *Rhododendron groenlandicum* – *Kalmia angustifolia* / *Sphagnum* spp.]. Stands of CNVC00288 tend to be long lived and multi-aged, with trees up to or exceeding 200 years.

Larch sawfly (*Pristiphora erichsonii*) can cause extensive mortality to *L. laricina* stands if heavy defoliation occurs successively for 6 to 9 years.

**Range:** CNVC00288 occurs in the boreal region of Quebec and Ontario and likely extends into southeastern Manitoba as far west as Lake Winnipeg. In Quebec, it ranges east to the Gaspé region.

### 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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Épinette noire – Mélèze laricin / Thé du Labrador / Petit thé / Sphaignes**

## Distribution

**Countries:** Canada

**Provinces / Territories / States:** Manitoba, Ontario, Quebec

**Terrestrial Ecozones and Ecoregions of Canada:** Atlantic Highlands: Appalachians; Boreal Shield: Abitibi Plains, Big Trout Lake, Central Laurentians, Lac Seul Upland, Lake Nipigon, Lake of the Woods, Lake Timiskaming Lowland, Rivière Rupert Plateau, Southern Laurentians, Thunder Bay-Quetico; Hudson Plains

**Rowe's Forest Regions and Sections of Canada:** Boreal: Central Plateau, Chibougamau-Natashquan, Gaspé, Gouin, Hudson Bay Lowlands, Laurentide-Onatchiway, Lower English River, Missinaibi-Cabonga, Northern Clay, Northern Coniferous, Superior, Upper English River; Great Lakes-St. Lawrence: Laurentian, Middle Ottawa, Quetico, Saguenay, Timagami

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

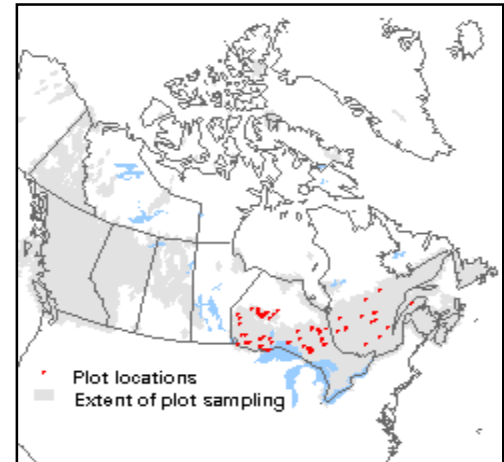
**Nature Conservancy of Canada Ecoregions:** Boreal Shield, Great Lakes, Hudson Plains, Northern Appalachians-Acadia, Superior-Lake of the Woods

**Ecozones and Ecoregions of Manitoba:** Boreal Shield

**Manitoba Protected Areas Initiative Natural Regions:** Manitoba Lowlands: Lake of the Woods; Precambrian Boreal Forest: Lac Seul Upland

**Ecological Land Classification of Ontario (ecoregions and ecodistricts):** 2E-2, 2E-4, 2W-1, 2W-2, 2W-3, 3E-1, 3E-2, 3E-4, 3E-5, 3E-6, 3E-7, 3S-1, 3S-2, 3S-3, 3S-4, 3S-5, 3W-1, 3W-2, 3W-3, 3W-4, 3W-5, 4E-1, 4E-3, 4E-4, 4E-5, 4S-1, 4S-2, 4S-3, 4S-4, 4S-5, 4S-6, 4W-1, 4W-2, 5S-2

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



## Corresponding Types and Associations

CNVC00288	Ontario	BwTr12-6	<i>Picea mariana</i> - <i>Larix laricina</i> / <i>Rhododendron groenlandicum</i> / <i>Sphagnum</i> spp.
	Quebec	QC049	<i>Larix laricina</i> - <i>Picea mariana</i> / <i>Ledum groenlandicum</i> / <i>Sphagnum</i> spp.



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**Black Spruce – Tamarack / Common Labrador Tea / Creeping Snowberry / Peat Mosses**

**Épinette noire – Mélèze laricin / Thé du Labrador / Petit thé / Sphaignes**

## Vegetation Summary\*

Species Name <sup>†</sup>	Association CNVC00288	
	72 plots	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<b>Overstory Trees</b>		
<i>Larix laricina</i>	16	96
<i>Picea mariana</i>	26	92
<i>Abies balsamea</i>	10	11
<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>(12 25 40 51 73)</b>	
<b>Understory Woody Shrubs and Regenerating Trees</b>		
<i>Rhododendron groenlandicum</i>	23	94
<i>Picea mariana</i>	18	93
<i>Vaccinium myrtilloides</i>	3	60
<i>Alnus incana</i>	14	51
<i>Abies balsamea</i>	5	50
<i>Chamaedaphne calyculata</i>	5	50
<i>Vaccinium angustifolium</i>	3	50
<i>Larix laricina</i>	7	44
<i>Kalmia polifolia</i>	2	44
<i>Lonicera villosa</i>	1	25
<i>Betula pumila</i>	5	21
<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>(18 24 56 97 100)</b>	
<b>Understory Herbs and Dwarf Shrubs</b>		
<i>Gaultheria hispidula</i>	3	92
<i>Maianthemum trifolium</i>	3	72
<i>Cornus canadensis</i>	3	67
<i>Coptis trifolia</i>	2	51
<i>Linnaea borealis</i>	2	47
<i>Rubus pubescens</i>	2	42
<i>Equisetum sylvaticum</i>	2	39
<i>Mitella nuda</i>	3	38
<i>Carex trisperma</i>	2	32
<i>Vaccinium macrocarpon</i>	1	32
<i>Maianthemum canadense</i>	2	31
<i>Carex disperma</i>	4	29
<i>Vaccinium vitis-idaea</i>	1	29
<i>Rubus chamaemorus</i>	1	28
<i>Vaccinium oxycoccos</i>	2	26
<i>Carex</i> sp.	9	25
<i>Orthilia secunda</i>	1	25
<i>Clintonia borealis</i>	2	24



***Picea mariana* – *Larix laricina* / *Rhododendron groenlandicum* / *Gaultheria hispidula* / *Sphagnum* spp. CNVC00288**

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

Species Name <sup>†</sup>	Association CNVC00288	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<i>Poaceae</i>	2	22
<i>Petasites frigidus</i>	2	22
<i>Lysimachia borealis</i>	1	22
<i>Geocaulon lividum</i>	1	21
<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 10 23 28 50)</b>	
<b>Bryophytes and Lichens</b>		
<i>Pleurozium schreberi</i>	27	97
<i>Ptilium crista-castrensis</i>	6	78
<b><i>Sphagnum capillifolium</i></b>	<b>15</b>	<b>69</b>
<b><i>Sphagnum girgensohnii</i></b>	<b>19</b>	<b>64</b>
<i>Hylocomium splendens</i>	6	64
<i>Dicranum polysetum</i>	2	63
<i>Cladina rangiferina</i>	3	58
<b><i>Sphagnum magellanicum</i></b>	<b>9</b>	<b>53</b>
<b><i>Sphagnum angustifolium</i></b>	<b>12</b>	<b>35</b>
<i>Cladonia</i> sp.	1	33
<i>Sphagnum fuscum</i>	9	32
<i>Ptilidium ciliare</i>	1	31
<i>Cladina mitis</i>	2	24
<i>Sphagnum wulfianum</i>	8	22
<i>Aulacomnium palustre</i>	2	22
<i>Dicranum ontariense</i>	< 1	22
<i>Dicranum fuscescens</i>	1	21
<i>Polytrichum juniperinum</i>	1	21
<b><i>Sphagnum</i> sp.</b>	<b>46</b>	<b>18</b>
<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>(65 80 85 96 100)</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)



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### Site / Soil Characteristics

Association

CNVC00288

72 plots

#### Elevation Range (min–mean–max meters)

105–356–805

missing data (11)

#### Slope Gradient (% frequency)

moderately steep (1)

moderate (1)

gentle (3)

**level (90)**

missing data (4)

#### Aspect (% frequency)

north (7)

east (3)

south (6)

west (4)

**level (78)**

missing data (3)

#### Meso Toposition (% frequency)

mid (6)

lower / toe (10)

depression (10)

**level (75)**

#### Moisture Regime (% frequency)

very dry (1)

mesic (1)

moist (14)

**wet (83)**

#### Nutrient Regime (% frequency)

missing data (100)



*Picea mariana* – *Larix laricina* / *Rhododendron groenlandicum* / *Gaultheria hispidula* /  
*Sphagnum* spp. CNVC00288

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

Association

CNVC00288

#### Soil Parent Material (% frequency)

moraine / till (6)  
glaciofluvial (4)  
lacustrine (6)  
glaciolacustrine (4)  
marine (1)  
**organic (71)**  
missing data (8)

#### Soil Rooting Zone Substrate (% frequency)

sandy (4)  
fine loamy (3)  
**organic (78)**  
missing data (15)

#### Root Restricting Depth (% frequency)

0 – 20 cm (21)  
**21 – 99 cm (47)**  
≥ 100 cm (14)  
missing data (18)

#### Humus Form (% frequency)

mor (3)  
moder (1)  
**peatymor (93)**  
missing data (3)





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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:

CNVC00282 [*Picea mariana* / *Rhododendron groenlandicum* – *Kalmia angustifolia* / *Sphagnum* spp.] occurs on similar sites in the same range but lacks codominance of *Larix laricina* (see Environment and Dynamics).

CNVC00298 [*Picea mariana* / *Alnus incana* / *Gaultheria hispidula* / *Sphagnum* spp.] occurs on wet, nutrient-medium to rich sites in the same range but lacks codominance of *Larix laricina* and has greater abundance of *Alnus incana* in the shrub layer (see Environment).

CNVC00289 [*Larix laricina* – *Picea mariana* / *Ilex mucronata* / *Sphagnum* spp.] occurs on similar sites in the temperate region of Ontario, Quebec, New Brunswick, Nova Scotia and Prince Edward Island. It has temperate indicator species such as *Acer rubrum*, *Ilex mucronata* and *Viburnum nudum*.

CNVC00300 [*Larix laricina* – *Picea mariana* / *Alnus incana* / *Gaultheria hispidula* / *Sphagnum* spp.] occurs on boreal sites with richer nutrient status in Quebec. It has abundant *Alnus incana* in the shrub layer.

CNVC00326 [*Larix laricina* / *Alnus incana* / *Rubus pubescens*] occurs on boreal sites with richer nutrient status in Ontario. It has *Larix laricina* dominant in the canopy, *Alnus incana* dominant in the shrub layer and greater constancy of more nutrient-demanding species such as *Cornus stolonifera*, *Rubus pubescens* and *Mitella nuda*, as well as more *Carex* spp., with less *Sphagnum* spp.

CNVC00327 [*Picea mariana* – *Larix laricina* / *Vaccinium vitis-idaea* – *Mitella nuda*] occurs on boreal sites with richer nutrient status in Saskatchewan and western Manitoba. It has lower abundance of ericaceous species and higher constancy of more nutrient-demanding species such as *Mitella nuda* and *Rubus pubescens*, as well as more abundant *Vaccinium vitis-idaea* and *Carex* spp., with less *Sphagnum* spp.

CNVC00335 [*Picea mariana* / *Kalmia angustifolia* / *Pleurozium schreberi* – *Sphagnum capillifolium*] occurs on similar or slightly poorer sites on insular Newfoundland. It lacks codominance of *Larix laricina* and has a shrub layer with greater *Kalmia angustifolia*, *Ilex mucronata* and *Viburnum nudum*.

### Related United States National Vegetation Classification Associations:

### Relationships with Other Classifications:

## Comments

*Alnus incana* here refers to ssp. *rugosa* (speckled alder).

CNVC00288 is consistent with the concept of a coniferous treed swamp in the Canadian Wetland Classification System.





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***Picea mariana* – *Larix laricina* / *Rhododendron groenlandicum* / *Gaultheria hispidula* / *Sphagnum* spp. CNVC00288**

## Source Information

**Number of source plots for CNVC00288:** 72

### Information Sources:

McMurray, S.C., Johnson, J.A., Zhou, K., Uhlig, P.W.C. 2015. Ontario ecological land classification program - Ecological Data Repository (EDR). Ont. Min. Nat. Resour. & For., Sci. & Info. Branch, Sault Ste. Marie, ON.

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.

**Concept Authors:** K. Baldwin, K. Chapman, M. Major, C. Morneau, P. Uhlig, M. Wester

**Description Authors:** K. Baldwin and K. Chapman

**Date of Concept:** December, 2012

**Date of Description:** November, 2016

## Classification References:

Bergeron, J-F.; Grondin, P.; Blouin, J. 1999. Rapport de classification écologique du sous-domaine bioclimatique de la pessière à mousses de l'ouest. Min. des Res. nat. du Qué., Dir. des inv. for., Sainte-Foy, QC.

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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.

Uhlig, P.W.C., Chapman, K., Baldwin, K., Wester, M., Yanni, S. 2016. Draft boreal treed vegetation type factsheets. Ecol. Land Class. Prog., Ont. Min. Nat. Resour. & For., Sci. & Info Branch, Sault Ste. Marie, ON.

## Characterization References:

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.

Bridge, S.R.J. 2001. Spatial and temporal variations in the fire cycle across Ontario. OMNR, Northeast Sci. Tech., South Porcupine, ON. NEST TR-043.

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Harris, A.G. 1996. Field guide to the wetland ecosystem classification for northwestern Ontario. Ont. Min. Nat. Resour., Northwest Sci. Tech., Thunder Bay, ON. NWST Field Guide FG-01.

Ministère des Ressources naturelles. 2013. Le guide sylvicole du Québec, Tome 1, Les fondements biologiques de la sylviculture. Ouvrage collectif sous la supervision de B. Boulet et M. Huot. Les Publications du Québec, QC. 1044.

Ministère des Ressources naturelles du Québec, Forêt Québec. 2002+. Les guides de reconnaissance des types écologiques. Gouv. du Québec, Québec, QC. Available: <http://www.mffp.gouv.qc.ca/forets/inventaire/guide-types-ecologiques-carte.jsp> (accessed: May 2015).

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***Picea mariana* – *Larix laricina* / *Rhododendron groenlandicum* / *Gaultheria hispidula* / *Sphagnum* spp. CNVC00288**

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

Ontario Ministry of Natural Resources. 2009. Ecological land classification ecosites field manual – operational draft, April 20th, 2009 – boreal. Ecol. Land Class. Working Grp, Ont. Min. Nat. Resour., Sci. & Info Branch, Inven. Monit. Assess. Sect., Sault Ste. Marie, ON.

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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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