



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

<http://cnvc-cnvc.ca>

## Wetland

Association CNVC00114

***Picea mariana* / *Salix myrtilifolia* / *Hylocomium splendens* – *Aulacomnium palustre***  
**Black Spruce / Low Blueberry Willow / Ribbed Bog Moss – Stairstep Moss**  
**Épinette noire / Saule à feuilles de myrtille / Aulacomnie des marais – Hylocomie brillante**

**Subassociations:** 114a *typic*, 114b *Rhododendron groenlandicum*

**CNVC Alliance:** CA00050 *Picea mariana* (*Larix laricina*) / *Vaccinium vitis-idaea* – *Equisetum* spp.

**CNVC Group:** CG0022 West-Central Boreal Black Spruce – Tamarack Poor – Intermediate Treed Wetland



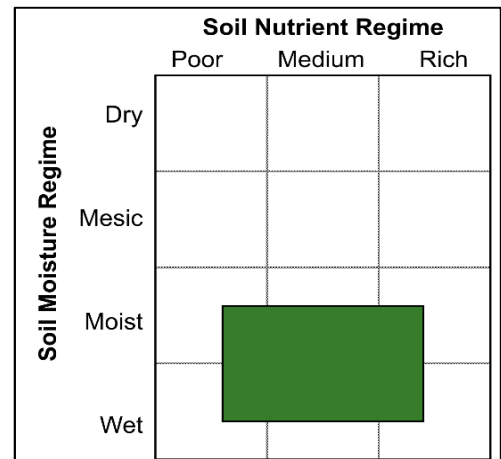
Source: Yukon government

## Type Description

**Concept:** CNVC00114 is a boreal wetland coniferous woodland or forest Association that ranges from Yukon to Alberta. It has a sparse to moderately closed tree layer of stunted (usually < 10m height), narrow-crowned black spruce (*Picea mariana*), typically with a minor component of white spruce (*P. glauca*), although the two species can occur in varying proportions. The shrub layer is dense and characterized by abundant common Labrador tea (*Rhododendron groenlandicum*) and low blueberry willow (*Salix myrtilifolia*), often with patches of black spruce and either glandular birch (*Betula glandulosa*) or arctic dwarf birch (*B. nana*). Bog bilberry (*Vaccinium uliginosum*) is less common but can be abundant when present. The herb and dwarf shrub layer is poorly to well developed; lingonberry (*Vaccinium vitis-idaea*) and red bearberry (*Arctous rubra*) are common, and usually occur with low cover of horsetails (*Equisetum scirpoides*, *E. arvense*, *E. sylvaticum* and/or *E. fluviatile*). The moss layer is continuous and dominated by stairstep moss (*Hylocomium splendens*) and ribbed bog moss (*Aulacomnium palustre*), with small patches of reindeer lichens (*Cladina mitis*, *C. rangiferina* and/or *C. stellaris*) on drier microsites. CNVC00114 occurs on cold, moist to wet, mainly nutrient-medium sites in a region with a subhumid boreal climate. Substrates are either mineral or organic, and may be underlain by permafrost, particularly in the northwestern part of the range. Although fire can occasionally occur, this is typically a stable condition. Local hydrology is the main driver of vegetation dynamics. There are two subassociations, *typic* and *Rhododendron groenlandicum*.

**Vegetation:** CNVC00114 is a coniferous woodland or forest Association with a sparse to moderately closed tree layer of typically stunted (< 10m height), narrow-crowned *Picea mariana* and *P. glauca*. *Picea mariana* is usually dominant, but the two species can occur in various proportions. The shrub layer is well developed to dense with abundant *Rhododendron groenlandicum* and less abundant, but constant, *Salix myrtilifolia* and *P. mariana* of various ages. *Betula glandulosa* or *B. nana* and *Vaccinium uliginosum* are less common but can occur in patches. The herb and dwarf shrub layer is poorly to well developed; the only constant species are *Vaccinium vitis-idaea* and *Arctous rubra*. *Equisetum scirpoides*, *E. arvense*, *E. sylvaticum* and/or *E. fluviatile* are frequently present. The moss and lichen layer is generally continuous and dominated by *Hylocomium splendens* and *Aulacomnium palustre*, often with smaller amounts of *Pleurozium schreberi*, *Tomentypnum nitens* and *Sphagnum* spp. (*C. mitis*, *C. rangiferina* and *C. stellaris*) may form patches on drier microsites.

Compared to the *typic*, the *Rhododendron groenlandicum* subassociation has a denser understory dominated by *R. groenlandicum*. It usually has *Empetrum nigrum* present in its less developed herb and dwarf shrub layer.





***Picea mariana* / *Salix myrtilifolia* / *Hylocomium splendens* – *Aulacomnium palustre*  
CNVC00114**

### Type Description (cont'd)

**Environment:** CNVC00114 occurs in a region with a subhumid continental boreal climate. Stands typically occur around the edges of peatlands in the ecotone between upland and wetland forests on moist to wet, usually nutrient-medium sites. Sites can be level or on gently graded, moisture-receiving, lower or toe slope topographies. These sites are usually cooler than surrounding areas, either on north aspects or on level sites subjected to cold air ponding. Substrates can be organic soils formed from slowly decomposing mosses, or poorly drained mineral soils of different textures developed in morainal, (glacio)fluvial and (glacio)lacustrine parent materials. Water tables are generally high throughout the year, and sub-surface water movement often contributes nutrient enrichment. Decomposition is slow on these cold sites; as mosses and peat accumulate and insulate the soil, permafrost may develop.

**Dynamics:** CNVC00114 is generally a stable condition that is maintained by a persistently high water table and moderate nutrient status. Local hydrology is the main driver of vegetation dynamics, although fires occur occasionally on these moist to wet sites. Consequently, stands of CNVC00114 tend to be long lived and multi-aged. Both *Picea mariana* and *P. glauca* can establish from seed under favourable conditions (e.g., suitable seedbed); *P. mariana* also self-replaces on these sites by vegetative layering.

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 shrubby wetland vegetation. A drop in the water table can sometimes result in the development of more productive feathermoss forests.

**Range:** CNVC00114 occurs in the boreal regions of Yukon, British Columbia and Alberta as well as the Rocky Mountain foothills of Alberta. The *typic* subassociation occurs throughout the range, the *Rhododendron groenlandicum* subassociation is described from Yukon.

### 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)

<http://cnvc-cnvc.ca>

**Wetland**

**Association CNVC00114**

***Picea mariana* / *Salix myrtilifolia* / *Hylocomium splendens* – *Aulacomnium palustre***  
**Black Spruce / Low Blueberry Willow / Ribbed Bog Moss – Stairstep Moss**  
**Épinette noire / Saule à feuilles de myrtille / Aulacomnie des marais – Hylocomie brillante**

## Distribution

**Countries:** Canada

**Provinces / Territories / States:** Alberta, British Columbia, Yukon

**Terrestrial Ecozones and Ecoregions of Canada:** Boreal Cordillera: Boreal Mountains and Plateaus, Hyland Highland, Liard Basin, Pelly Mountains, Ruby Ranges, Yukon Plateau Central, Yukon Plateau - North, Yukon Southern Lakes; Boreal Plains: Clear Hills Upland, Western Alberta Upland

**Rowe's Forest Regions and Sections of Canada:** Boreal: Central Yukon, Eastern Yukon, Hay River, Kluane, Lower Foothills, Stikine Plateau, Upper Foothills, Upper Liard, Upper Mackenzie

**NAAEC CEC Ecoregions of North America (Levels I & II):** Northern Forests: Boreal Plains; Northwestern Forested Mountains: Boreal Cordillera

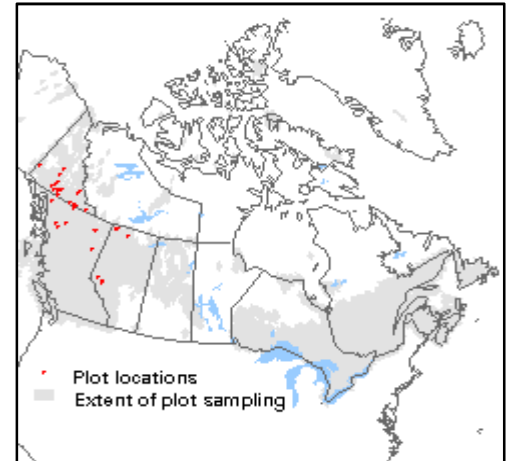
**Nature Conservancy of Canada Ecoregions:** Boreal Cordillera, Boreal Plains, Muskwa - Kechika

**Ecozones and Ecoregions of the Yukon:** Boreal Cordillera: Hyland Highland, Liard Basin, Pelly Mountains, Ruby Ranges, Yukon Plateau-Central, Yukon Plateau-North, Yukon Southern Lakes

**Biogeoclimatic Ecosystem Classification of British Columbia (zones and subzones):** BWBSdk, BWBSmk, BWBSmw

**British Columbia Ecoregion Classification (ecoregions):** Boreal Mountains and Plateaus, Central Alberta Uplands, Hay-Slave Lowland, Liard Basin, Skeena Mountains, Yukon Southern Lakes

**Natural Regions and Subregions of Alberta:** Foothills: Lower Foothills, Upper Foothills



## Corresponding Types and Associations

<b>114a typic</b>	Yukon	Sb32	<i>Picea mariana</i> / <i>Salix myrtilifolia</i> / <i>Equisetum scirpoides</i> / <i>Hylocomium splendens</i>
	British Columbia	BWBSdk /Ws15	<i>Picea glauca</i> – <i>Picea mariana</i> – <i>Ledum groenlandicum</i> – <i>Aulacomnium palustre</i>
		BWBSmk /Ws15	<i>Picea glauca</i> – <i>Picea mariana</i> – <i>Ledum groenlandicum</i> – <i>Aulacomnium palustre</i>
		BWBSmw /Ws15	<i>Picea glauca</i> – <i>Picea mariana</i> – <i>Ledum groenlandicum</i> – <i>Aulacomnium palustre</i>
Alberta	NN/SB/G/01/01	Sb – Lt / Labrador tea – dwarf birch / sedge / peat moss	
	WC/UF/M/01/01	Sb – Lt / dwarf birch / sedge / golden moss	
<b>114b <i>Rhododendron groenlandicum</i></b>	Yukon	SbSw32	<i>Picea mariana</i> ( <i>Picea glauca</i> ) / <i>Ledum groenlandicum</i> / <i>Vaccinium vitis-idaea</i> – <i>Empetrum nigrum</i> / Feathermoss - Brown moss



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

<http://cnvc-cnvc.ca>

Wetland

Association CNVC00114

*Picea mariana* / *Salix myrtilifolia* / *Hylocomium splendens* – *Aulacomnium palustre*

Black Spruce / Low Blueberry Willow / Ribbed Bog Moss – Stairstep Moss

Épinette noire / Saule à feuilles de myrtille / Aulacomnie des marais – Hylocomie brillante

Vegetation Summary\*

Species Name <sup>†</sup>	Association CNVC00114		Subassociation 114a <i>typic</i>		Subassociation 114b <i>Rhododendron groenlandicum</i>	
	42 plots		28 plots		14 plots	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<b>Overstory Trees</b>						
<i>Picea mariana</i>	26	81	21	71	33	100
<i>Picea glauca</i>	12	52	11	36	13	86
<i>Larix laricina</i>	5	21	5	32	-	-
<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>(8 11 28 40 51)</b>		<b>(5 10 21 30 40)</b>		<b>(26 28 44 51 67)</b>	
<b>Understory Woody Shrubs and Regenerating Trees</b>						
<i>Rhododendron groenlandicum</i>	28	88	18	82	46	100
<i>Salix myrtilifolia</i>	13	76	15	82	9	64
<i>Picea mariana</i>	11	62	9	79	18	29
<i>Betula glandulosa</i>	8	48	9	61	3	21
<i>Salix sp.</i>	6	43	4	29	7	71
<i>Dasiphora fruticosa</i>	4	36	4	36	3	36
<i>Vaccinium uliginosum</i>	10	33	13	29	6	43
<i>Rosa acicularis</i>	2	33	1	29	2	43
<i>Betula nana</i>	13	29	13	43	-	-
<i>Salix glauca</i>	8	26	8	25	7	29
<i>Picea glauca</i>	9	24	10	32	1	7
<i>Larix laricina</i>	3	19	3	29	-	-
<i>Salix arbusculoides</i>	1	14	1	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>(25 40 60 79 100)</b>		<b>(24 37 53 71 84)</b>		<b>(55 58 74 99 100)</b>	
<b>Understory Herbs and Dwarf Shrubs</b>						
<i>Vaccinium vitis-idaea</i>	7	83	5	82	12	86
<i>Arctous rubra</i>	5	74	6	64	4	93
<i>Empetrum nigrum</i>	5	57	3	43	7	86
<i>Equisetum scirpoides</i>	4	48	3	57	10	29
<i>Geocaulon lividum</i>	1	43	1	39	1	50
<i>Equisetum arvense</i>	5	36	7	39	< 1	29
<i>Petasites frigidus</i>	5	31	5	46	-	-
<i>Vaccinium oxycoccos</i>	2	31	2	46	-	-
<i>Carex aquatilis</i>	4	29	5	36	3	14
<i>Cornus canadensis</i>	3	29	3	32	1	21
<i>Mertensia paniculata</i>	1	29	1	39	0	7
<i>Equisetum sylvaticum</i>	13	21	13	32	-	-
<i>Linnaea borealis</i>	2	21	2	32	-	-
<i>Mitella nuda</i>	2	21	2	32	-	-
<i>Carex vaginata</i>	5	19	5	29	-	-
<i>Rubus chamaemorus</i>	4	19	5	14	3	29



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

<http://cnvc-cnvc.ca>

***Picea mariana* / *Salix myrtilifolia* / *Hylocomium splendens* – *Aulacomnium palustre***  
**CNVC00114**

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

Species Name <sup>†</sup>	Association CNVC00114		Subassociation 114a <i>typic</i>		Subassociation 114b <i>Rhododendron groenlandicum</i>	
	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>	% Cover <sup>‡</sup>	% Presence <sup>^</sup>
<i>Achillea millefolium</i>	1	19	1	29	-	-
<i>Chamerion angustifolium</i>	1	19	1	29	-	-
<i>Rubus arcticus</i>	2	17	2	25	-	-
<i>Pedicularis labradorica</i>	1	17	1	25	-	-
<i>Equisetum fluviatile</i>	3	14	7	7	2	29
<i>Carex gynocrates</i>	3	14	3	21	-	-
<i>Orthilia secunda</i>	< 1	12	< 1	7	< 1	21
Poaceae	1	10	1	4	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>(2 9 29 45 64)</b>		<b>(9 18 35 50 69)</b>		<b>(0 1 16 22 48)</b>	
<b>Bryophytes and Lichens</b>						
<b><i>Hylocomium splendens</i></b>	<b>35</b>	<b>83</b>	<b>30</b>	<b>89</b>	<b>45</b>	<b>71</b>
<i>Cladina mitis</i>	4	64	4	57	4	79
<b><i>Aulacomnium palustre</i></b>	<b>27</b>	<b>55</b>	<b>28</b>	<b>75</b>	<b>18</b>	<b>14</b>
<i>Peltigera aphthosa</i>	3	55	3	54	3	57
<i>Pleurozium schreberi</i>	18	45	20	57	5	21
<i>Tomentypnum nitens</i>	18	43	22	46	7	36
<i>Cladina rangiferina</i>	3	33	1	32	5	36
<i>Sphagnum sp.</i>	10	29	13	29	3	29
<i>Cladonia sp.</i>	2	29	2	25	2	36
<i>Peltigera sp.</i>	4	26	4	21	2	36
<i>Dicranum sp.</i>	2	26	2	11	2	57
<i>Cladina stellaris</i>	3	19	2	21	6	14
<i>Ptilium crista-castrensis</i>	7	17	8	21	2	7
Unknown bryophyte	50	12	5	4	62	29
<i>Aulacomnium turgidum</i>	10	12	-	-	10	36
<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>(52 77 83 96 100)</b>		<b>(70 82 85 95 99)</b>		<b>(35 56 77 98 100)</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)





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

<http://cnvc-cnvc.ca>

Wetland

Association CNVC00114

*Picea mariana* / *Salix myrtilifolia* / *Hylocomium splendens* – *Aulacomnium palustre*

Black Spruce / Low Blueberry Willow / Ribbed Bog Moss – Stairstep Moss

Épinette noire / Saule à feuilles de myrtille / Aulacomnie des marais – Hylocomie brillante

Site / Soil Characteristics

	Association CNVC00114	Subassociation 114a <i>typic</i>	Subassociation 114b <i>Rhododendron groenlandicum</i>
	42 plots	28 plots	14 plots
<b>Elevation Range (min–mean–max meters)</b>	425–749–1260 missing data (5)	425–762–1260 missing data (4)	581–723–905 missing data (7)
<b>Slope Gradient (% frequency)</b>	steep (5) moderately steep (2) gentle (24) <b>level (62)</b> missing data (7)	steep (4) moderately steep (0) gentle (21) <b>level (64)</b> missing data (11)	steep (7) moderately steep (7) gentle (29) <b>level (57)</b> missing data (0)
<b>Aspect (% frequency)</b>	<b>north (24)</b> east (10) south (5) west (10) level (19) missing data (33)	north (21) east (11) south (7) west (4) level (18) missing data (39)	<b>north (29)</b> east (7) south (0) west (21) level (21) missing data (21)
<b>Meso Toposition (% frequency)</b>	crest / upper (2) mid (10) <b>lower / toe (31)</b> depression (2) level (24) missing data (29)	crest / upper (4) mid (7) <b>lower / toe (36)</b> depression (4) level (21) missing data (29)	crest / upper (0) mid (14) lower / toe (21) depression (0) <b>level (29)</b> missing data (29)
<b>Moisture Regime (% frequency)</b>	dry (2) <b>moist (40)</b> wet (33) missing data (24)	dry (4) moist (39) <b>wet (50)</b> missing data (7)	dry (0) moist (43) wet (0) missing data (57)
<b>Nutrient Regime (% frequency)</b>	poor (19) medium (17) rich (19) missing data (45)	poor (25) medium (21) rich (25) missing data (29)	poor (7) medium (7) rich (7) missing data (79)



***Picea mariana* / *Salix myrtilifolia* / *Hylocomium splendens* – *Aulacomnium palustre*  
 CNVC00114**

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

	Association CNVC00114	Subassociation 114a <i>typic</i>	Subassociation 114b <i>Rhododendron groenlandicum</i>
<b>Soil Parent Material (% frequency)</b>			
	moraine / till (7)	moraine / till (11)	moraine / till (0)
	fluvial (10)	fluvial (0)	<b>fluvial (29)</b>
	glaciofluvial (7)	glaciofluvial (4)	glaciofluvial (14)
	lacustrine (12)	lacustrine (11)	lacustrine (14)
	organic (21)	organic (21)	organic (21)
	missing data (43)	missing data (54)	missing data (21)
<b>Soil Rooting Zone Substrate (% frequency)</b>			
	sandy (7)	sandy (4)	sandy (14)
	coarse loamy (10)	coarse loamy (4)	coarse loamy (21)
	fine loamy (10)	fine loamy (11)	fine loamy (7)
	silty (2)	silty (4)	silty (0)
	clayey (7)	clayey (11)	clayey (0)
	<b>organic (26)</b>	<b>organic (32)</b>	organic (14)
	missing data (38)	missing data (36)	missing data (43)
<b>Root Restricting Depth (% frequency)</b>			
	0 – 20 cm (2)	0 – 20 cm (4)	0 – 20 cm (0)
	21 – 99 cm (17)	21 – 99 cm (7)	21 – 99 cm (36)
	≥ 100 cm (2)	≥ 100 cm (4)	≥ 100 cm (0)
	missing data (79)	missing data (86)	missing data (64)
<b>Humus Form (% frequency)</b>			
	mor (12)	mor (11)	mor (14)
	moder (2)	moder (0)	moder (7)
	mull (2)	mull (4)	mull (0)
	peatymor (33)	<b>peatymor (50)</b>	peatymor (0)
	missing data (50)	missing data (36)	missing data (79)



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

<http://cnvc-cnvc.ca>

Wetland

Association CNVC00114

***Picea mariana* / *Salix myrtilifolia* / *Hylocomium splendens* – *Aulacomnium palustre***  
**Black Spruce / Low Blueberry Willow / Ribbed Bog Moss – Stairstep Moss**  
**Épinette noire / Saule à feuilles de myrtille / Aulacomnie des marais – 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:

CNVC00130 [*Picea mariana* / *Equisetum arvense* (*E. pratense*) / *Hylocomium splendens*] occurs on comparable boreal sites in Alberta but at lower elevations or latitudes. It has a shrub layer with less *Salix myrtilifolia* and *Betula glandulosa* and more *Rosa acicularis* and *Lonicera involucrata*. It lacks *Arctous rubra* in the herb and dwarf shrub layer, but has abundant *Equisetum arvense* and *E. pratense*. It has feathermosses (*Hylocomium splendens*, *Pleurozium schreberi* and *Ptilium crista-castrensis*) dominant in the moss layer.

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

### Comments

*Betula glandulosa* here includes both *B. glandulosa* and *B. nana* as the two species were not always reliably identified in the plot data.

CNVC00114 is consistent with the concept of a treed swamp in the Canadian Wetland Classification System.

### Source Information

Number of source plots for CNVC00114: 42

Number of source plots for 114a *typic*: 28

Number of source plots for 114b *Rhododendron groenlandicum*: 14

Information Sources:

Alberta Environment and Parks. 2014. Ecological Site Information System (ESIS). Govt. AB, Edmonton, AB.

Biogeoclimatic Ecosystem Classification Program of British Columbia. 2011. BECMaster ecosystem plot database [VPro13/MSAccess 2010 format]. W.H. MacKenzie (ed.) B.C. Min. For., Lands, and Nat. Res. Ops., Smithers, BC. Available: [www.for.gov.bc.ca/hre/becweb/resources/information-requests](http://www.for.gov.bc.ca/hre/becweb/resources/information-requests) (accessed: June 2015).

Ecosystem and Landscape Classification Program. 2017. YBECMaster ecosystem plot database [VPro13/MSAccess 2010 format]. Ecol. Land Class. Prog. Dept. Env., Govt. Yukon, Whitehorse, Yukon.

**Concept Authors:** L. Allen, K. Baldwin, K. Chapman, N. Flynn, C. Kennedy, W. MacKenzie, K. McKenna, D. Meidinger

**Description Authors:** D. Downing, D. Meidinger, K. Chapman and K. Baldwin

**Date of Concept:** March, 2017

**Date of Description:** December, 2017





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

<http://cnvc-cnvc.ca>

## *Picea mariana* / *Salix myrtillifolia* / *Hylocomium splendens* – *Aulacomnium palustre* CNVC00114

### Classification References:

Beckingham, J.D.; Archibald, J.H. 1996. Field guide to ecosites of northern Alberta. Nat. Resour. Can., Can. For. Serv., North. For. Cent., Edmonton, AB. Spec. Rep. 5.

Beckingham, J.D.; Corns, I.G.W.; Archibald, J.H. 1996. Field guide to ecosites of west-central Alberta. Nat. Resour. Can., Can. For. Serv., North. For. Centre, Edmonton, AB. Spec. Rep. 9.

DeLong, C.; Banner, A.; MacKenzie, W.H.; Rogers, B.J.; Kaytor, B. 2011. A field guide to ecosystem identification for the Boreal White and Black Spruce zone of British Columbia. B.C. Min. For. Range, For. Sci. Prog., Victoria, BC. Land Manage. Handb. No. 65.

Meidinger, D.; Kennedy, C.E.; McKenna, K. 2017. In prep. Boreal treed vegetation associations of Yukon factsheets. Ecol. Land Class. Prog. Dept. Env. Govt. Yukon, Whitehorse, Yukon.

### 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.

Crum, H.A.; Planisek, S. 1988. A focus on peatlands and peat mosses. Univ. of Michigan Press, MI, US.

Ducks Unlimited Canada. 2014. Field guide: boreal wetland classes in the Boreal Plains ecozone of Canada. Ducks Unlimited Canada, Canada.

Fryer, J.L. 2014. *Picea mariana*. 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/picmar/all.html> (accessed: May 26, 2015).

Horton, K.W.; Lees, J.C. 1961. Black spruce in the foothills of Alberta. Can. Dept. For., For. Res. Branch., AB. Tech. Note No. 110.

MacKenzie, W.H.; Moran, J.R. 2004. Wetlands of British Columbia: a guide to identification. B.C. Min. For., Res. Branch, Victoria, BC. Land Manage. Handb. No. 52.

National Wetlands Working Group. 1988. Wetlands of Canada. Sustain. Dev. Branch, Environ. Can., Ottawa, ON and Polyscience Publications Inc., Montreal, QC. ELC Series No. 24.

National Wetlands Working Group. 1997. The Canadian wetland classification system. B.G. Warner, and C.D.A. Rubec (eds.) Wetlands Res. Centre, Univ. of Waterloo, Waterloo, ON.

Rydin, H.; Jeglum, J.K. 2006. The biology of peatlands. Oxford Univ. Press, Oxford, UK.

Smith, K.B.; Smith, C.E.; Forest, S.F.; Richard, A.J. 2007. A field guide to the wetlands of the Boreal Plains ecozone of Canada. Ducks Unlimited Canada, Western Boreal Office, Edmonton, AB.

Stockdale, C. 2014. Fire regimes of western boreal Canada and the foothills of Alberta. A discussion document and literature review for the LANDWEB Project.

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>.

**Suggested Citation:** D. Downing, D. Meidinger, K. Chapman and K. Baldwin. *Picea mariana* / *Salix myrtillifolia* / *Hylocomium splendens* – *Aulacomnium palustre* [online]. Sault Ste. Marie, Ontario, Canada: Canadian National Vegetation Classification. December, 2017; generated Dec-05-2017; cited ENTER DATE ACCESSED. 9 p. Canadian National Vegetation Classification Association: CNVC00114. Available from <http://cnvc-cnvc.ca>. System Requirements: Adobe Acrobat Reader v. 7.0 or higher. ISSN 1916-3266.