Forest / Forêt **Association CNVC00096**

Picea glauca / Equisetum arvense – E. pratense

White Spruce / Field Horsetail – Meadow Horsetail

Épinette blanche / Prêle des champs – Prêle des prés

Subassociations: *96a typic, 96b Alnus incana*
CNVC Alliance: CA00037 *Picea glauca / Equisetum arvense – E. pratense*
CNVC Group: CG0015 Cordilleran Boreal Moist White Spruce – Trembling Aspen (Balsam Poplar) Forest

Type Description

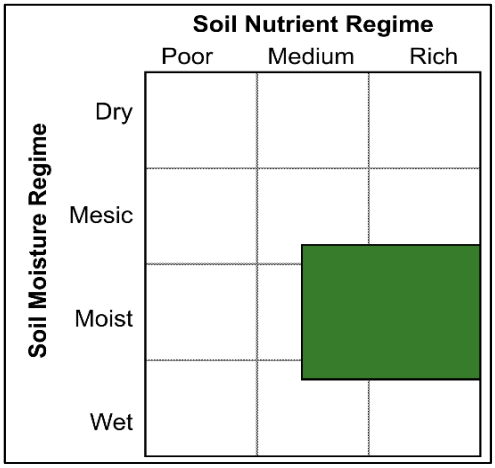
Concept: CNVC00096 is a boreal coniferous forest Association that occurs in Alberta, British Columbia and Yukon. It has an open tree layer that is dominated by white spruce (*Picea glauca*) and a relatively diverse understory. Prickly rose (*Rosa acicularis*) and squashberry (*Viburnum edule*) are common species in the moderately developed shrub layer. A dense species-rich herb and dwarf shrub layer dominated by field horsetail (*Equisetum arvense*) and/or meadow horsetail (*E. pratense*) characterizes this Association. Other common species in this layer include twinflower (*Linnaea borealis*), tall bluebells (*Mertensia paniculata*), bunchberry (*Cornus canadensis*), naked mitrewort (*Mitella nuda*) and dwarf raspberry (*Rubus pubescens*). The moss layer is well developed, made up primarily of stairstep moss (*Hylocomium splendens*). CNVC00096 is a late successional condition that occurs on moist, nutrient-rich sites (often floodplains) in a region with a subhumid continental climate. Insect outbreaks, flooding and windthrow are the primary natural disturbances. Canopy gaps or large patches resulting from these disturbances promote self-replacement of this Association. Two subassociations are distinguished, *typic* and *Alnus incana.*

Vegetation: CNVC00096 is a coniferous forest Association with an open canopy of *Picea glauca*. The understory is relatively species rich. *Rosa acicularis* and *Viburnum edule* are common, and sometimes abundant, in the moderately developed shrub layer. The herb and dwarf shrub layer is dense and characterized by dominance of *Equisetum arvense* and/or *E. pratense,* with lower cover of several other species including *Linnaea borealis, Mertensia paniculata*, *Cornus canadensis, Mitella nuda* and *Rubus pubescens*. *Calamagrostis canadensis* may be locally abundant in larger canopy openings in the Alberta and British Columbia portions of the range. The moss layer is well developed and consists mainly of *Hylocomium splendens*. Compared to the *typic,* the *Alnus incana* subassociation has higher constancy of this shrub (see Comments).

Environment: CNVC00096 occurs in a subhumid continental climate on moist, nutrient-rich sites. It is typically found on floodplains, in narrow linear bands along rivers and lakeshores, or in localized stands on valley slopes. These are some of the most productive sites in this region of the boreal. Stands are frequently on level sites or lower and toe-slope topopositions. Soils are often fine textured and parent materials, although variable, are most commonly fluvial. The medium to high nutrient status of these sites is maintained by cation-rich mineral substrates (e.g., fine loams, silts and clays) that are replenished by occasional flooding or by nutrient-rich seepage or groundwater fluctuation. Mor and moder humus forms are common, although peatymors can develop over time on sites that are less freely drained and not usually flooded.

Within the range of CNVC00096 regional fire cycles are short (<100 years) or intermediate (100-270 years). However, these stands often occur where there are natural fire breaks (e.g., water bodies) and may be less prone to fire than the surrounding landscape because of their moisture status.

Source: Yukon government



Picea glauca / Equisetum arvense – E. pratense CNVC00096

Type Description (cont'd)

Dynamics: CNVC00096 is a self-perpetuating, late successional forest Association that develops after a century or more without fire. Natural disturbance processes are primarily insect outbreaks, windthrow, flooding, erosion or natural mortality of individual or small groups of trees by disease and other factors. Following these gap or patch disturbances, stands tend to regenerate through the release of *Picea glauca* in the understory.

After stand-replacing disturbance (especially fire), *P. glauca* is usually eliminated. Instead, the pioneer species *Populus balsamifera, P. tremuloides* and/or *Betula papyrifera* are likely to form the initial stand on these sites because they are adapted to disturbance (e.g., CNVC00078 [*Populus balsamifera – P. tremuloides / Equisetum arvense – E. pratense*]). *P. glauca* becomes established in these stands when seeds are disseminated from nearby sources, either at the same time as the pioneer hardwoods or by ingress into the stand over time. It grows more slowly, so usually requires several decades to attain canopy height. If seed sources are available, the stand is likely to return to *P. glauca* dominance over time, typically with intermediate stages characterized by mixedwoods (e.g., CNVC00079 [*Picea glauca – Betula papyrifera (Populus tremuloides) / Equisetum arvense – E. pratense*]). A fire-free interval of at least 100 years is usually necessary for the development of CNVC00096.

After disturbance, species such as *Calamagrostis canadensis* and *Alnus incana* can be highly competitive with regenerating *P. glauca* on these sites and delay stand re-establishment. *A. incana* can form dense thickets in canopy openings, particularly after harvesting when tree removal can contribute to a rise in the water table by reducing evapotranspiration. Being moderately shade tolerant, *A. incana* persists even as the canopy closes, limiting available light for plants beneath it.

Range: CNVC00096 occurs in boreal regions of Yukon, British Columbia (BC) and Alberta, as well as the Rocky Mountain foothills and montane regions of Alberta. The *typic* subassociation is described from throughout the range of CNVC00096. The *Alnus incana* subassociation is described only from northern BC and Yukon.

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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Épinette blanche / Prêle des champs – Prêle des prés

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, Northern Canadian Rocky Mountains, Yukon Plateau - Central, Yukon Plateau - North, Yukon Southern Lakes; Boreal Plains: Clear Hills Upland, Mid-Boreal Uplands, Muskwa Plateau, Peace Lowland, Western Alberta Upland, Western Boreal; Montane Cordillera: Central Canadian Rocky Mountains, Eastern Continental Ranges, Northern Continental Divide, Omineca Mountains, Skeena Mountains; Taiga Cordillera: North Ogilvie Mountains; Taiga Plains

Rowe's Forest Regions and Sections of Canada: Boreal: Alpine Forest - Tundra, Aspen Grove, Central Yukon, Eastern Yukon, Hay River, Lower Foothills, Mixedwood, Northern Foothills, Stikine Plateau, Upper Foothills, Upper Liard, Upper Mackenzie; Montane: Douglas-fir and Lodgepole Pine; Subalpine: East Slope Rockies, Interior Subalpine

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

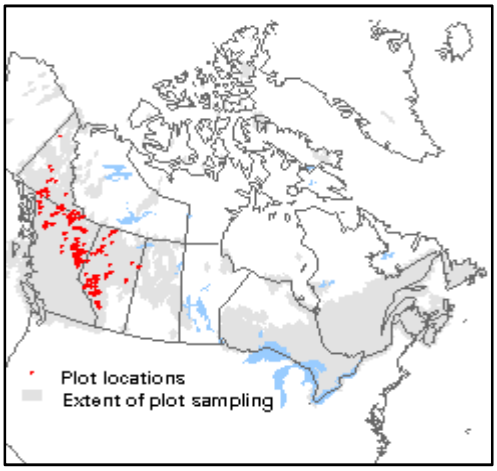
Nature Conservancy of Canada Ecoregions: Boreal Cordillera, Boreal Plains, Canadian Rocky Mountains, Central Interior, Montane Cordillera, Muskwa - Kechika, Taiga Plains, Yukon Plateau and Flats

Ecozones and Ecoregions of the Yukon: Boreal Cordillera: Boreal Mountains and Plateaus, Hyland Highland, Liard Basin, Pelly Mountains, Yukon Plateau - Central, Yukon Plateau - North, Yukon Southern Lakes; Boreal Plains: Muskwa Plateau; Taiga Cordillera: North Ogilvie Mountains

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

British Columbia Ecoregion Classification (ecoregions): Boreal Mountains and Plateaus, Central Alberta Uplands, Central Canadian Rocky Mountains, Hay-Slave Lowland, Hyland Highland, Liard Basin, Muskwa Plateau, Northern Canadian Rocky Mountains, Omineca Mountains, Peace River Basin, Skeena Mountains, Southern Alberta Upland

Natural Regions and Subregions of Alberta: Boreal Forest: Central Mixedwood, Dry Mixedwood, Lower Boreal Highlands, Northern Mixedwood; Foothills: Lower Foothills, Upper Foothills; Rocky Mountain: Montane



Picea glauca / Equisetum arvense – E. pratense CNVC00096

Corresponding Types and Associations

96a typic	Yukon	Sw36	*Picea glauca / Viburnum edule / Equisetum arvense – E. pratense*
	British Columbia	BWBSdk /110	*Picea glauca – Ribes spp. – Equisetum* spp.
		BWBSmk /110	*Picea glauca – Ribes triste – Equisetum* spp.
		BWBSmw /111	*Picea glauca – Ribes spp. – Equisetum* spp.
		BWBSwk 1 /110	*Picea glauca – Ribes spp. – Equisetum* spp.
		BWBSwk 2 /111	*Picea glauca – Ribes spp. – Equisetum* spp.
		BWBSwk 3 /110	*Picea glauca – Ribes spp. – Equisetum* spp.
	Alberta	NN/BM/F/03/01	Sw / horsetail
		SW/LF/H/01/01	Sw / horsetail / stair-step moss
		SW/MN/G/02/01	Sw / horsetail
		SW/UF/H/01/01	Sw / horsetail / stair-step moss
		WC/LF/I/03/01	Sw / horsetail
		WC/MN/F/02/01	Sw / horsetail
		WC/UF/J/01/01	Sw / horsetail
96b Alnus incana	Yukon	Sw18	*Picea glauca / Cornus stolonifera / Equisetum arvense – E. pratense – Mitella nuda*
	British Columbia	BWBSdk /111	*Picea glauca – Alnus incana – Equisetum* spp.
		BWBSmk /111	*Picea glauca – Alnus incana – Equisetum* spp.

Forest / Forêt **Association CNVC00096**

Picea glauca / Equisetum arvense – E. pratense

White Spruce / Field Horsetail – Meadow Horsetail
Épinette blanche / Prêle des champs – Prêle des prés

Vegetation Summary*

	Association CNVC00096		Subassociation 96a *typic*		Subassociation 96b *Alnus incana*	
	248 plots		**165 plots**		**83 plots**	
Species Name†	% Cover±	% Presence^	% Cover±	% Presence^	% Cover±	% Presence^
Overstory Trees						
Picea glauca	**34**	**99**	**35**	**99**	**31**	**100**
Populus balsamifera	5	25	5	23	6	28
Betula papyrifera	4	16	4	8	5	33
Tree Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})‡	**(20 26 39 50 66)**		**(20 27 40 50 70)**		**(20 26 37 40 59)**	
Understory Woody Shrubs and Regenerating Trees						
Rosa acicularis	8	89	7	84	10	98
Viburnum edule	7	73	6	64	8	89
Picea glauca	4	55	4	58	3	49
Ribes lacustre	2	44	2	47	1	40
Ribes triste	2	40	2	42	2	34
Alnus incana	12	38	11	21	**13**	**71**
Cornus stolonifera	6	28	4	19	8	47
Shepherdia canadensis	2	28	3	28	2	27
Salix sp.	5	24	7	24	2	23
Lonicera involucrata	6	22	6	33	-	-
Rubus idaeus	3	22	3	21	4	23
Alnus viridis	8	20	9	22	8	17
Betula papyrifera	3	19	2	14	3	29
Rhododendron groenlandicum	3	19	2	17	4	22
Salix bebbiana	3	16	4	13	2	22
Shrub Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})‡	**(8 15 32 41 68)**		**(8 14 29 38 68)**		**(10 25 37 52 67)**	
Understory Herbs and Dwarf Shrubs						
Linnaea borealis	6	81	5	82	7	80
Mertensia paniculata	4	78	5	79	3	75
Equisetum arvense	**23**	**75**	**23**	**76**	**23**	**73**
Cornus canadensis	9	71	9	67	10	78
Mitella nuda	4	71	4	66	4	80
Rubus pubescens	6	61	5	56	8	70
Petasites frigidus	3	56	3	67	3	35
Chamerion angustifolium	2	53	3	63	1	34
Equisetum pratense	**25**	**44**	**23**	**45**	**29**	**43**
Orthilia secunda	1	42	1	39	2	49
Equisetum scirpoides	3	37	3	34	2	43
Fragaria virginiana	1	35	1	39	1	27
Calamagrostis canadensis	9	34	12	36	3	30
Pyrola asarifolia	2	33	2	30	4	39
Galium boreale	1	29	1	36	1	16

Picea glauca / Equisetum arvense – E. pratense CNVC00096

Vegetation Summary (cont'd)*

Species Name†	Association CNVC00096 % Cover±	Association CNVC00096 % Presence^	Subassociation 96a *typic* % Cover±	Subassociation 96a *typic* % Presence^	Subassociation 96b *Alnus incana* % Cover±	Subassociation 96b *Alnus incana* % Presence^
Delphinium glaucum	1	28	1	36	1	12
Vaccinium vitis-idaea	3	27	3	27	3	28
Actaea rubra	1	24	1	26	1	20
Leymus innovatus	7	22	8	27	2	12
Moneses uniflora	1	22	1	26	1	14
Viola renifolia	1	21	1	18	2	25
Goodyera repens	1	21	1	13	1	36
Geocaulon lividum	3	20	3	20	3	20
Equisetum sylvaticum	8	16	8	21	8	6
Aralia nudicaulis	6	14	6	10	6	22
Herb Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})‡	**(31 45 65 82 99)**		**(30 45 66 86 100)**		**(32 42 62 77 88)**	
Bryophytes and Lichens						
Hylocomium splendens	37	78	39	80	33	75
Pleurozium schreberi	15	58	16	65	15	43
Ptilium crista-castrensis	16	55	16	53	15	58
Peltigera aphthosa	1	33	2	33	1	34
Aulacomnium palustre	8	17	8	22	6	8
Bryo-Lichen Stratum Cover (P_{10} P_{25} Mean P_{75} P_{90})‡	**(10 28 59 90 95)**		**(8 35 62 90 98)**		**(11 25 52 82 92)**	

* 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 = X^{th} percentile (e.g., P_{10} = 10^{th} percentile)

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Site / Soil Characteristics

	Association CNVC00096	Subassociation 96a *typic*	Subassociation 96b *Alnus incana*
	248 plots	**165 plots**	**83 plots**
Elevation Range (min–mean–max meters)			
	0–806–1582	0–897–1582	280–586–1060
	missing data (10)	missing data (5)	missing data (22)
Slope Gradient (% frequency)			
	very steep (0)	very steep (1)	very steep (0)
	steep (1)	steep (1)	steep (1)
	moderately steep (3)	moderately steep (4)	moderately steep (0)
	moderate (6)	moderate (8)	moderate (2)
	gentle (9)	gentle (13)	gentle (2)
	level (68)	**level (66)**	**level (72)**
	missing data (12)	missing data (7)	missing data (22)
Aspect (% frequency)			
	north (14)	north (20)	north (2)
	east (9)	east (11)	east (6)
	south (10)	south (13)	south (5)
	west (8)	west (10)	west (4)
	level (37)	**level (34)**	level (43)
	missing data (21)	missing data (12)	missing data (40)
Meso Topoposition (% frequency)			
	crest / upper (2)	crest / upper (4)	crest / upper (0)
	mid (8)	mid (12)	mid (0)
	lower / toe (21)	lower / toe (27)	lower / toe (8)
	depression (3)	depression (4)	depression (2)
	level (33)	**level (29)**	level (42)
	missing data (32)	missing data (25)	missing data (47)
Moisture Regime (% frequency)			
	dry (0)	dry (0)	dry (1)
	mesic (11)	mesic (10)	mesic (14)
	moist (67)	**moist (72)**	**moist (57)**
	wet (8)	wet (10)	wet (6)
	missing data (13)	missing data (9)	missing data (22)
Nutrient Regime (% frequency)			
	poor (4)	poor (4)	poor (2)
	medium (30)	medium (26)	**medium (37)**
	rich (46)	**rich (52)**	rich (35)
	missing data (21)	missing data (18)	missing data (25)

Picea glauca / *Equisetum arvense – E. pratense* CNVC00096

Site / Soil Characteristics (cont'd)

	Association CNVC00096	Subassociation 96a *typic*	Subassociation 96b *Alnus incana*
Soil Parent Material (% frequency)			
	colluvium (3)	colluvium (4)	colluvium (0)
	eolian (2)	eolian (2)	eolian (0)
	moraine / till (4)	moraine / till (7)	moraine / till (0)
	fluvial (32)	**fluvial (38)**	fluvial (22)
	glaciofluvial (7)	glaciofluvial (5)	glaciofluvial (10)
	lacustrine (4)	lacustrine (6)	lacustrine (0)
	glaciolacustrine (4)	glaciolacustrine (5)	glaciolacustrine (0)
	organic (6)	organic (8)	organic (1)
	anthropogenic (0)	anthropogenic (0)	anthropogenic (1)
	missing data (38)	missing data (24)	missing data (66)
Soil Rooting Zone Substrate (% frequency)			
	non-soil (3)	non-soil (4)	non-soil (0)
	sandy (6)	sandy (5)	sandy (8)
	coarse loamy (14)	coarse loamy (15)	coarse loamy (13)
	fine loamy (11)	fine loamy (14)	fine loamy (5)
	silty (4)	silty (5)	silty (1)
	clayey (5)	clayey (7)	clayey (2)
	organic (7)	organic (9)	organic (2)
	missing data (50)	missing data (41)	missing data (67)
Root Restricting Depth (% frequency)			
	0 – 20 cm (1)	0 – 20 cm (0)	0 – 20 cm (2)
	21 – 99 cm (2)	21 – 99 cm (2)	21 – 99 cm (2)
	≥ 100 cm (3)	≥ 100 cm (3)	≥ 100 cm (4)
	missing data (94)	missing data (95)	missing data (92)
Humus Form (% frequency)			
	mor (23)	mor (25)	mor (19)
	moder (18)	moder (17)	moder (19)
	mull (4)	mull (3)	mull (5)
	peatymor (5)	peatymor (4)	peatymor (6)
	missing data (50)	missing data (50)	missing data (51)

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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:

CNVC00079 [*Picea glauca – Betula papyrifera (Populus tremuloides) / Equisetum arvense – E. pratense*] is a similar mixedwood Association that occurs on comparable sites in the Alberta, and likely British Columbia, portions of the range. It has codominance of *Betula papyrifera, Populus tremuloides* or *P. balsamifera*.

CNVC00097 [*Picea glauca / Lonicera involucrata / Rubus pubescens*] occurs on moist, nutrient-rich sites in the same range and also has a species rich understory, however it lacks the abundance of *Equisetum* spp.

CNVC00098 [*Picea glauca / Gymnocarpium dryopteris*] occurs on moist, nutrient-rich sites in the same range. It has greater abundance of *Gymnocarpium dryopteris* and *Aralia nudicaulis* in the understory, rather than *Equisetum* spp.

CNVC00099 [*Picea glauca / Oplopanax horridus*] occurs on moist, nutrient-rich sites in the same range and also has a species rich understory, often including *Oplopanax horridus*. It lacks the abundance of *Equisetum* spp. that characterizes CNVC00096.

CNVC00102 [*Picea glauca / Rosa acicularis / Hylocomium splendens*] occurs primarily on mesic, nutrient-medium sites in the same range and lacks the abundance of *Equisetum* spp. that characterizes CNVC00096.

CNVC00110 [*Picea mariana – P. glauca / Mertensia paniculata / Hylocomium splendens*] occurs on moist, nutrient-medium sites in the same range. It has codominance of *Picea mariana* and less *Equisetum arvense* and *E. pratense* in the herb and dwarf shrub layer.

CNVC00113 [*Picea mariana / Equisetum arvense / Sphagnum* spp. – *Hylocomium splendens*] occurs on wetter, nutrient-poor to medium sites in the same range. It has a more open tree layer with dominance of *Picea mariana* rather than *P. glauca*, abundant *Rhododendron groenlandicum* in the shrub layer and greater cover of *Sphagnum* mosses.

CNVC00130 [*Picea mariana / Equisetum arvense (E. pratense) / Hylocomium splendens*] occurs on moist to wet, nutrient-medium sites in the Alberta part of the range. *Picea glauca* is often absent from the overstory and *Rhododendron groenlandicum* is abundant in the shrub layer.

CNVC00373 [*Picea glauca / Equisetum arvense - E. pratense – Arctous rubra / Hylocomium splendens*] occurs on comparable sites in Yukon. Its understory has less *Rosa acicularis, Viburnum edule, Mertensia paniculata* and *Mitella nuda* and more *Salix* spp., *Arctous rubra* and *Empetrum nigrum*.

CNVC00379 [*Picea glauca / Equisetum arvense – Arctous rubra*] occurs on colder sites in Yukon. It has a sparse canopy, a shrub layer with greater *Salix* spp. and *Vaccinium uliginosum*, without *Rosa acicularis* and *Viburnum edule*, and a dwarf shrub and herb layer with more *Arctous rubra, Dryas integrifolia* and *Rhododendron lapponicum*.

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

Picea glauca / Equisetum arvense – E. pratense CNVC00096

Comments

The Alberta Montane community types SW/MN/G21 and WC/MN/F21 are classified as CNVC00096 because they are ecologically similar to and not floristically distinguishable from comparable Lower and Upper Foothills units (see Range).

Alnus incana here refers to ssp. *tenuifolia* (mountain alder).

Source Information

Number of source plots for CNVC00096: 248
Number of source plots for 96a typic: 165
Number of source plots for 96b Alnus incana: 83
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 (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, J. Archibald, K. Baldwin, K. Chapman, N. Flynn, C. Kennedy, W. MacKenzie, K. McKenna, D. Meidinger
Description Authors: D. Downing, K. Chapman, K. Baldwin and D. Meidinger
Date of Concept: March, 2012
Date of Description: August, 2017

Classification References:

Archibald, J.H.; Klappstein, G.D.; Corns, I.G.W. 1996. Field guide to ecosites of southwestern Alberta. Nat. Resour. Can., Can. For. Ser., North. For. Cent., Edmonton, AB. Spec. Rep. 8.

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. Cent., 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.

Picea glauca / Equisetum arvense – E. pratense CNVC00096

Characterization References:

Abrahamson, I. 2015. Picea glauca. 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/picgla/all.html (accessed: October 2, 2015).

Andison, D.W. 1998. Temporal patterns of age-class distributions on foothills landscapes in Alberta. Ecography 21(5):543-550.

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.

Haeussler, S.; Coates, D. 1986. Autecological characteristics of selected species that compete with conifers in British Columbia: a literature review. Skeena For. Consult. and B.C. Min. For. and Lands, Smithers and Victoria, BC. FRDA Rep. 001.

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.

Peters, V.S.; Macdonald, E.; Dale, M.R.T. 2006. Patterns of initial versus delayed regeneration of white spruce in boreal mixedwood succession. Can. J. For. Res. 36:1597-1609.

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.

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