



Forest / Forêt

Association CNVC00241

Populus tremuloides* (*P. balsamifera*) / *Alnus incana* / *Eurybia macrophylla
Trembling Aspen (Balsam Poplar) / Speckled Alder / Large-leaved Aster
Peuplier faux-tremble (Peuplier baumier) / Aulne rugueux / Aster à grandes feuilles

Subassociations: 241a *typic*, 241b *Populus balsamifera*

CNVC Alliance: CA00017 *Populus tremuloides* / *Alnus incana* / *Eurybia macrophylla*

CNVC Group: CG0008 Ontario-Quebec Boreal Moist Black Spruce – Trembling Aspen – Balsam Fir – Paper Birch Forest



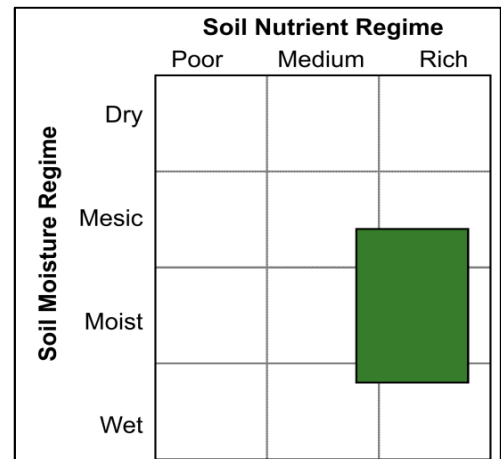
Source: Natural Resources Canada - Canadian Forest Service

Type Description

Concept: CNVC00241 is a boreal hardwood forest Association that ranges from Manitoba to Quebec. It has a closed canopy of trembling aspen (*Populus tremuloides*) and/or balsam poplar (*P. balsamifera*) overtopping a dense tall shrub layer that is dominated by speckled alder (*Alnus incana*), with lower abundance of red raspberry (*Rubus idaeus*) and regenerating trembling aspen and balsam fir (*Abies balsamea*). Mountain maple (*Acer spicatum*) is less common but can be locally abundant. The herb layer is usually dense and typically includes dwarf raspberry (*Rubus pubescens*), wild lily-of-the-valley (*Maianthemum canadense*), large-leaved aster (*Eurybia macrophylla*), bunchberry (*Cornus canadensis*), wild sarsaparilla (*Aralia nudicaulis*) and yellow clintonia (*Clintonia borealis*), with lower constancy and cover of several other species. Grasses (*Poaceae*) can be abundant where present. The forest floor cover is mainly broad-leaf litter, so the moss layer is sparse, with only minor cover of red-stemmed feathermoss (*Pleurozium schreberi*). CNVC00241 occurs in a region with a continental boreal climate that grades from subhumid in the western portion of its range to humid in the east. It is primarily found on moist, nutrient-rich sites; these are some of the most productive sites in the region. It is an early seral condition that typically establishes after fire or harvesting. Two subassociations are distinguished, *typic* and *Populus balsamifera*.

Vegetation: CNVC00241 is a hardwood forest Association with a closed canopy of *Populus tremuloides* and/or *P. balsamifera*. A dense tall shrub layer dominated by *Alnus incana* (see Comments) helps to characterize this association. *Rubus idaeus* is also common in the shrub layer as are regenerating *Abies balsamea* and *Populus tremuloides*. *Acer spicatum* is less common but can be locally abundant. The herb layer is typically dense and usually includes *Rubus pubescens*, *Maianthemum canadense*, *Eurybia macrophylla*, *Cornus canadensis*, *Aralia nudicaulis* and *Clintonia borealis*. Grasses are sometimes abundant and several other herb layer species may be present but have lower constancy and cover. Forest floor cover is predominantly broad-leaf litter, so the moss layer is poorly developed, with only *Pleurozium schreberi* common, mainly on fallen logs and at the base of trees.

P. tremuloides is dominant in the *typic* subassociation whereas *P. balsamifera* is dominant in its subassociation. Compared to the *typic*, the *Populus balsamifera* subassociation has slightly lower constancy and abundance of *A. incana* but greater constancy and abundance of *A. spicatum*. It also has higher constancy of nutrient-demanding herbs such as *Mitella nuda*, *Galium triflorum* and *Petasites frigidus*.





***Populus tremuloides* (*P. balsamifera*) / *Alnus incana* / *Eurybia macrophylla* CNVC00241**

Type Description (cont'd)

Environment: CNVC00241 occurs in a continental boreal climate that becomes increasingly humid farther east and more temperate farther south. It is primarily found on moist, nutrient-rich sites; these are some of the most productive sites in this region of the boreal. Stands are commonly on level sites or gentle slopes, usually on water-receiving, middle to lower or toe-slope topopositions where seepage carries additional water and nutrients through the rooting zone. Soils are moderately deep to deep and usually fine textured clays, fine loams or silts of glaciolacustrine or lacustrine origin. Even in the subhumid climate of the western part of its range, the fine-textured soils retain enough moisture to support *Alnus incana*, a shrub that fixes nitrogen, further enriching the soil nutrient status. Mor humus forms are common, but compared to other boreal Associations, moders and particularly mulls are relatively frequent.

Within the range of CNVC00241, regional fire cycles are intermediate (100-270 years), long (270-500 years) or even very long (>500 years). However, these stands often exist where there are natural fire breaks (e.g., water bodies) and are less prone to fire because of their moisture status. Where the regional fire cycle is intermediate, stands are less likely to burn than the surrounding landscape.

Dynamics: CNVC00241 is an early seral condition that typically establishes after fire or harvesting. *Populus tremuloides* and *P. balsamifera* are pioneer species adapted to disturbance. Following any disturbance that does not kill their roots they can reproduce vegetatively from root suckers. These species also produce abundant, light, wind-dispersed seeds that can readily colonize mineral soil seedbeds exposed by disturbance. Both species grow rapidly in full-light conditions but are intolerant of shade so do not replace themselves in a stand without further disturbance.

Alnus incana can form dense thickets in canopy openings, particularly after harvesting when tree removal can contribute to a rise in the water table. These thickets can significantly delay the growth of regenerating trees. The deep roots of *A. incana* can survive even high-severity fires and it can respond quickly after disturbance by sprouting. Being semi-shade tolerant, *A. incana* persists as the canopy closes, limiting available light for plants beneath it.

Forest tent caterpillar (*Malacosoma disstria*) and *Armillaria* root disease (*Armillaria* spp.) can have significant impacts on *P. tremuloides*. Defoliation by the caterpillar can reduce growth, cause dieback and sometimes lead to mortality. *Armillaria* spp. can weaken or kill individual or small groups of trees. Canopy openings that result from insect or pathogen disturbance can promote forest succession by enhancing the growth of understory trees, such as *A. balsamea* and *Picea* spp.

Range: CNVC00241 occurs in the boreal region of Quebec and Ontario and likely extends into southeastern Manitoba as far west as Lake Winnipeg. In Quebec it is most common on the Clay Belt in the west, but it extends east to the Upper North Shore of the Gulf of Saint Lawrence north of Baie-Comeau and is also known from the Gaspé region and Anticosti Island. CNVC00241 occurs sporadically in the northern temperate region, usually on sites that are cooler than normal for that region (e.g., at higher elevations or on north aspects).

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: Manitoba, Ontario, Quebec

Terrestrial Ecozones and Ecoregions of Canada: Atlantic Highlands: Appalachians; Boreal Shield: Abitibi Plains, Algonquin-Lake Nipissing, Anticosti Island, Central Laurentians, Lac Seul Upland, Lake Nipigon, Lake of the Woods, Lake Timiskaming Lowland, Rainy River, Rivière Rupert Plateau, Southern Laurentians, Thunder Bay-Quetico; Hudson Plains: James Bay Lowland

Rowe's Forest Regions and Sections of Canada: Boreal: Anticosti, Central Plateau, Chibougamau-Natashquan, East James Bay, Gaspé, Laurentide-Onatchiway, Lower English River, Missinaibi-Cabonga, Northern Clay, Superior, Upper English River; Great Lakes-St. Lawrence: Algoma, Algonquin-Pontiac, Georgian Bay, Haileybury Clay, Middle Ottawa, Quetico, Rainy River, Saguenay, Temiscouata-Restigouche, Timagami

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

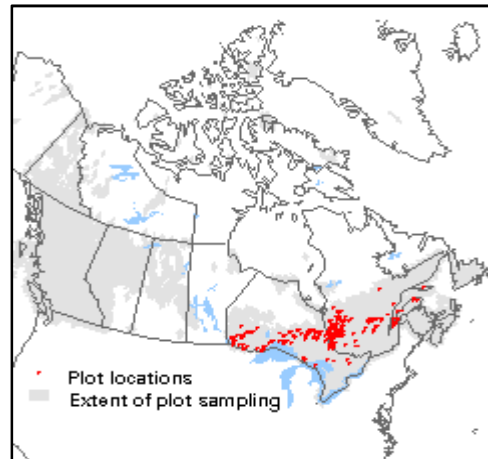
Nature Conservancy of Canada Ecoregions: Boreal Shield, Great Lakes, Hudson Plains, Northern Appalachians-Acadia, Superior-Lake of the Woods

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): 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-3, 4E-4, 4S-2, 4S-3, 4S-4, 4S-6, 4W-1, 4W-2, 5E-1, 5E-7, 5E-8, 5E-9, 5E-11, 5E-13, 5S-2

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



Corresponding Types and Associations

241a typic	Ontario	BTr6-1	<i>Populus tremuloides</i> / <i>Alnus incana</i> / <i>Rubus pubescens</i>
	Quebec	QC109A	<i>Populus tremuloides</i> / <i>Alnus incana</i> [Typique]
		QC109B	<i>Populus tremuloides</i> / <i>Alnus incana</i> [<i>Rubus pubescens</i>]
241b <i>Populus balsamifera</i>	Ontario	BTr9-2	<i>Populus balsamifera</i> - <i>P. tremuloides</i> / <i>Alnus incana</i> / <i>Rubus pubescens</i>
	Quebec	QC116	<i>Populus balsamifera</i> (<i>Populus tremuloides</i>) / <i>Rubus pubescens</i>



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

<http://cnvc-cnvc.ca>

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Vegetation Summary*

Species Name [†]	Association CNVC00241		Subassociation 241a <i>typic</i>		Subassociation 241b <i>Populus balsamifera</i>	
	305 plots		186 plots		119 plots	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Overstory Trees						
<i>Populus tremuloides</i>	43	83	51	99	23	59
<i>Populus balsamifera</i>	31	47	11	13	35	100
<i>Betula papyrifera</i>	10	38	11	42	9	33
<i>Abies balsamea</i>	10	32	8	32	14	34
<i>Picea mariana</i>	9	31	8	35	12	24
<i>Picea glauca</i>	9	21	7	15	11	30
<i>Prunus pensylvanica</i>	6	13	6	20	9	2
Tree Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(33 49 67 86 99)		(36 50 71 86 99)		(30 40 61 83 99)	
Understory Woody Shrubs and Regenerating Trees						
<i>Alnus incana</i>	33	80	39	90	20	64
<i>Rubus idaeus</i>	8	76	9	83	5	64
<i>Abies balsamea</i>	7	68	7	61	8	79
<i>Populus tremuloides</i>	4	62	5	73	2	45
<i>Ribes glandulosum</i>	4	54	5	64	2	39
<i>Ribes triste</i>	3	51	4	40	2	69
<i>Salix sp.</i>	10	45	9	61	13	21
<i>Diervilla lonicera</i>	8	41	9	46	6	32
<i>Ribes lacustre</i>	3	38	3	26	2	58
<i>Rosa acicularis</i>	2	38	3	27	2	55
<i>Acer spicatum</i>	17	36	12	30	22	46
<i>Cornus stolonifera</i>	7	36	7	32	6	43
<i>Picea mariana</i>	4	36	4	42	4	27
<i>Populus balsamifera</i>	3	36	4	15	3	69
<i>Corylus cornuta</i>	9	35	7	31	12	41
<i>Viburnum edule</i>	4	31	4	27	4	36
<i>Betula papyrifera</i>	5	30	5	32	3	26
<i>Vaccinium myrtilloides</i>	3	30	3	41	1	12
<i>Amelanchier sp.</i>	4	29	4	44	3	7
<i>Vaccinium angustifolium</i>	3	28	3	40	1	9
<i>Prunus virginiana</i>	4	27	5	22	4	34
<i>Picea glauca</i>	4	27	5	19	4	40
<i>Lonicera canadensis</i>	2	26	3	12	2	49
<i>Rhododendron groenlandicum</i>	4	23	4	32	1	8
<i>Sorbus decora</i>	2	20	3	19	2	22
<i>Viburnum nudum</i>	6	17	7	24	2	6
<i>Sorbus americana</i>	4	17	4	22	2	10
<i>Prunus pensylvanica</i>	5	16	5	25	4	2
<i>Kalmia angustifolia</i>	7	14	7	23	1	1
Shrub Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(27 40 63 92 99)		(32 49 68 99 99)		(21 36 54 74 96)	



***Populus tremuloides* (*P. balsamifera*) / *Alnus incana* / *Eurybia macrophylla* CNVC00241**

Vegetation Summary (cont'd)*

Species Name [†]	Association CNVC00241		Subassociation 241a <i>typic</i>		Subassociation 241b <i>Populus balsamifera</i>	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Understory Herbs and Dwarf Shrubs						
<i>Rubus pubescens</i>	8	88	9	85	7	92
<i>Maianthemum canadense</i>	2	75	3	82	1	64
<i>Eurybia macrophylla</i>	12	67	12	66	11	67
<i>Cornus canadensis</i>	5	65	7	72	2	55
<i>Aralia nudicaulis</i>	9	63	11	55	7	76
<i>Clintonia borealis</i>	3	63	4	65	2	60
<i>Lysimachia borealis</i>	2	58	2	59	1	56
<i>Mitella nuda</i>	4	55	4	37	4	84
<i>Petasites frigidus</i>	3	51	3	46	2	59
<i>Poaceae</i>	10	50	9	69	14	21
<i>Viola</i> sp.	6	48	6	63	3	23
<i>Chamerion angustifolium</i>	3	44	3	56	2	26
<i>Galium triflorum</i>	2	42	3	24	1	71
<i>Linnaea borealis</i>	3	40	3	50	1	24
<i>Dryopteris spinulosa</i> complex	5	38	5	56	5	10
<i>Carex</i> sp.	3	38	3	48	3	23
<i>Actaea rubra</i>	2	38	2	28	1	54
<i>Athyrium filix-femina</i>	4	35	5	33	3	39
<i>Streptopus lanceolatus</i>	3	34	3	27	2	45
<i>Equisetum sylvaticum</i>	4	33	4	26	4	45
<i>Gymnocarpium dryopteris</i>	2	33	3	30	2	39
<i>Galium</i> sp.	3	31	3	42	3	13
<i>Coptis trifolia</i>	2	30	2	34	2	23
<i>Equisetum</i> sp.	4	28	4	39	4	10
<i>Fragaria virginiana</i>	2	24	2	13	2	40
<i>Lycopodium annotinum</i>	9	23	11	31	2	11
<i>Fragaria</i> sp.	5	23	5	31	6	11
<i>Viola renifolia</i>	2	21	2	6	2	45
<i>Anemone quinquefolia</i>	1	21	1	8	1	41
<i>Mertensia paniculata</i>	2	19	2	6	2	39
<i>Lycopodium obscurum</i>	2	18	2	27	1	5
<i>Symphyotrichum ciliolatum</i>	2	18	3	10	1	31
<i>Oclemena acuminata</i>	6	16	5	23	9	6
<i>Calamagrostis canadensis</i>	4	15	4	9	4	26
<i>Dryopteris expansa</i>	1	15	1	5	2	29
<i>Botrypus virginianus</i>	1	15	1	7	1	29
<i>Equisetum pratense</i>	4	10	1	3	5	21
Herb Stratum Cover (P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(21 33 57 76 90)		(27 40 60 86 90)		(19 29 52 70 90)	
Bryophytes and Lichens						
<i>Pleurozium schreberi</i>	4	73	4	80	3	63
<i>Dicranum</i> sp.	2	33	2	48	2	11
<i>Ptilium crista-castrensis</i>	2	31	3	37	1	23
<i>Cladonia</i> sp.	2	28	2	34	2	17



Populus tremuloides (P. balsamifera) / Alnus incana / Eurybia macrophylla CNVC00241

Vegetation Summary (cont'd)*

Species Name [†]	Association CNVC00241		Subassociation 241a <i>typic</i>		Subassociation 241b <i>Populus balsamifera</i>	
	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]	% Cover [‡]	% Presence [^]
Bryophytes and Lichens (cont'd)						
<i>Rhytidiadelphus triquetrus</i>	2	25	2	23	2	29
<i>Polytrichum sp.</i>	3	24	3	37	2	3
<i>Mnium sp.</i>	2	21	2	28	2	10
<i>Plagiomnium cuspidatum</i>	1	20	1	10	1	36
<i>Hylocomium splendens</i>	2	18	2	16	2	23
<i>Sanionia uncinata</i>	1	16	1	7	1	29
<i>Brachythecium salebrosum</i>	1	15	2	10	1	24
<i>Brachythecium sp.</i>	1	13	1	6	1	24
Bryo-Lichen Stratum Cover						
(P₁₀ P₂₅ Mean P₇₅ P₉₀)[‡]	(0 3 8 12 17)		(0 3 8 12 16)		(0 3 8 11 18)	

* 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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Peuplier faux-tremble (Peuplier baumier) / Aulne rugueux / Aster à grandes feuilles

Site / Soil Characteristics

	Association CNVC00241 305 plots	Subassociation 241a <i>typic</i> 186 plots	Subassociation 241b <i>Populus balsamifera</i> 119 plots
Elevation Range (min–mean–max meters)	10–281–474 missing data (2)	10–282–474 missing data (3)	100–281–418 missing data (1)
Slope Gradient (% frequency)	very steep (1) steep (1) moderately steep (2) moderate (7) gentle (21) level (63) missing data (7)	very steep (0) steep (1) moderately steep (2) moderate (9) gentle (19) level (67) missing data (2)	very steep (2) steep (1) moderately steep (1) moderate (4) gentle (23) level (56) missing data (13)
Aspect (% frequency)	north (16) east (11) south (12) west (15) level (44) missing data (2)	north (15) east (11) south (10) west (17) level (46) missing data (2)	north (18) east (11) south (15) west (12) level (41) missing data (3)
Meso Toposition (% frequency)	crest / upper (11) mid (24) lower / toe (14) depression (4) level (47)	crest / upper (11) mid (26) lower / toe (12) depression (3) level (48)	crest / upper (11) mid (22) lower / toe (17) depression (5) level (45)
Moisture Regime (% frequency)	dry (2) mesic (31) moist (61) wet (5)	dry (2) mesic (33) moist (59) wet (6)	dry (2) mesic (29) moist (65) wet (4)
Nutrient Regime (% frequency)	missing data (100)	missing data (100)	missing data (100)



Populus tremuloides (P. balsamifera) / Alnus incana / Eurybia macrophylla CNVC00241

Site / Soil Characteristics (cont'd)

	Association CNVC00241	Subassociation 241a <i>typic</i>	Subassociation 241b <i>Populus balsamifera</i>
Soil Parent Material (% frequency)	colluvium (6) moraine / till (11) fluvial (4) glaciofluvial (4) lacustrine (27) glaciolacustrine (40) marine (5) organic (2) missing data (2)	colluvium (4) moraine / till (13) fluvial (4) glaciofluvial (3) lacustrine (9) glaciolacustrine (56) marine (8) organic (2) missing data (2)	colluvium (9) moraine / till (8) fluvial (4) glaciofluvial (6) lacustrine (54) glaciolacustrine (15) marine (0) organic (3) missing data (2)
Soil Rooting Zone Substrate (% frequency)	non-soil (6) sandy (4) coarse loamy (8) fine loamy (8) silty (4) clayey (19) organic (2) missing data (49)	non-soil (4) sandy (4) coarse loamy (6) fine loamy (7) silty (3) clayey (17) organic (2) missing data (58)	non-soil (9) sandy (3) coarse loamy (12) fine loamy (9) silty (7) clayey (22) organic (3) missing data (35)
Root Restricting Depth (% frequency)	0 – 20 cm (2) 21 – 99 cm (52) ≥ 100 cm (23) missing data (23)	0 – 20 cm (2) 21 – 99 cm (65) ≥ 100 cm (9) missing data (24)	0 – 20 cm (2) 21 – 99 cm (33) ≥ 100 cm (45) missing data (20)
Humus Form (% frequency)	mor (50) moder (25) mull (15) peatymor (5) missing data (5)	mor (56) moder (23) mull (11) peatymor (4) missing data (5)	mor (40) moder (29) mull (21) peatymor (6) missing data (4)



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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:

CNVC00238 [*Populus tremuloides (Betula papyrifera) / Diervilla lonicera*] occurs on drier, poorer sites in the same range and lacks a dense tall shrub layer of *Alnus incana*.

CNVC00239 [*Betula papyrifera (Populus tremuloides) / Acer spicatum / Clintonia borealis*] occurs on sites that are not quite as moist or rich in the same range and has more *Acer spicatum* and less *Alnus incana* in the shrub layer.

CNVC00242 [*Betula papyrifera / Alnus incana*] occurs in Quebec, usually on moist, rich tills, rather than on glaciolacustrine deposits, and *Betula papyrifera* dominates the overstory.

CNVC00272 [*Populus tremuloides – Picea mariana / Alnus incana*] is a similar mixedwood Association that occurs on comparable sites in the same range.

CNVC00333 [*Populus tremuloides – P. balsamifera / Alnus incana – Cornus stolonifera*] occurs in northwestern Ontario and eastern Manitoba on comparable boreal sites. It has more *Alnus viridis*, *Cornus stolonifera*, *Rosa acicularis* and *Viburnum edule* in the shrub layer and more *Eurybia macrophylla* in the herb layer.

Related United States National Vegetation Classification Associations:

Relationships with Other Classifications:

Comments

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



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Source Information

Number of source plots for CNVC00241: 305

Number of source plots for 241a typic: 186

Number of source plots for 241b *Populus balsamifera*: 119

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. Chapman, K. Baldwin and J.-P. Saucier

Date of Concept: February, 2014

Date of Description: March, 2016

Classification References:

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***Populus tremuloides (P. balsamifera) / Alnus incana / Eurybia macrophylla* CNVC00241**

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