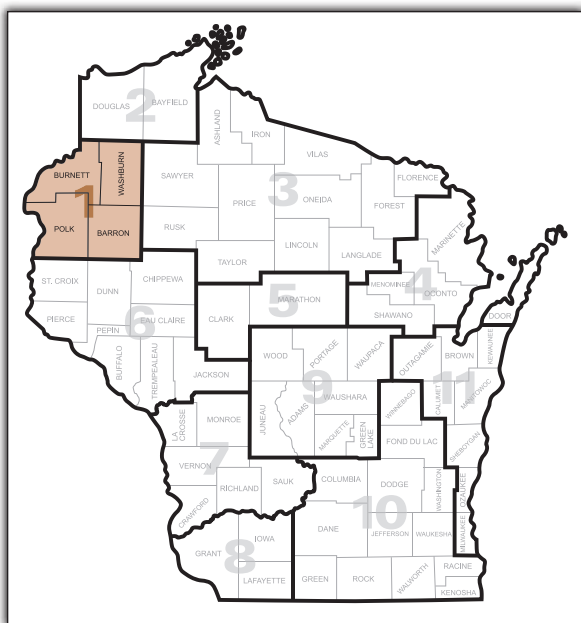


*(Photo from Department of Natural Resources Archives)*

## Region 1

### GENERAL DESCRIPTION

Region 1 encompasses Barron, Burnett, Polk and Washburn Counties. The greater part of the region was glaciated during the Wisconsin Glacial Period; only the southern fringe of Barron County is blanketed by older till. The most extensive glacial feature is the level of rolling pitted outwash plain that covers much of Burnett and Washburn Counties and extends northeast into Region 2. Podzolized stony loams are the principal soils.



*Region 1: Barron, Burnett, Polk and Washburn Counties*



(Photo from Kemp Natural Resources Station Archives)

Hydrological features are reflected in the two main ecological landscapes (Northwest Sands and Forest Transition). The highly porous soils in the Northwest Sands act like a sponge rapidly storing groundwater discharge. Forest wetlands are dominated by poor nutrient, forested peatlands of black spruce and tamarack. In the Forest Transition, the St. Croix basin was dominated by clusters of small lakes, streams and forested wetlands of black spruce and tamarack.

## **WETLAND FOREST HABITAT TYPES OF REGION 1**

### **PmLLe**

- *Picea-Larix/Ledum*
- Black Spruce-Tamarack/Labrador Tea

### **PmLNe**

- *Picea-Larix/Nemopanthus*
- Black Spruce-Tamarack/Mountain Holly

### **LArIx**

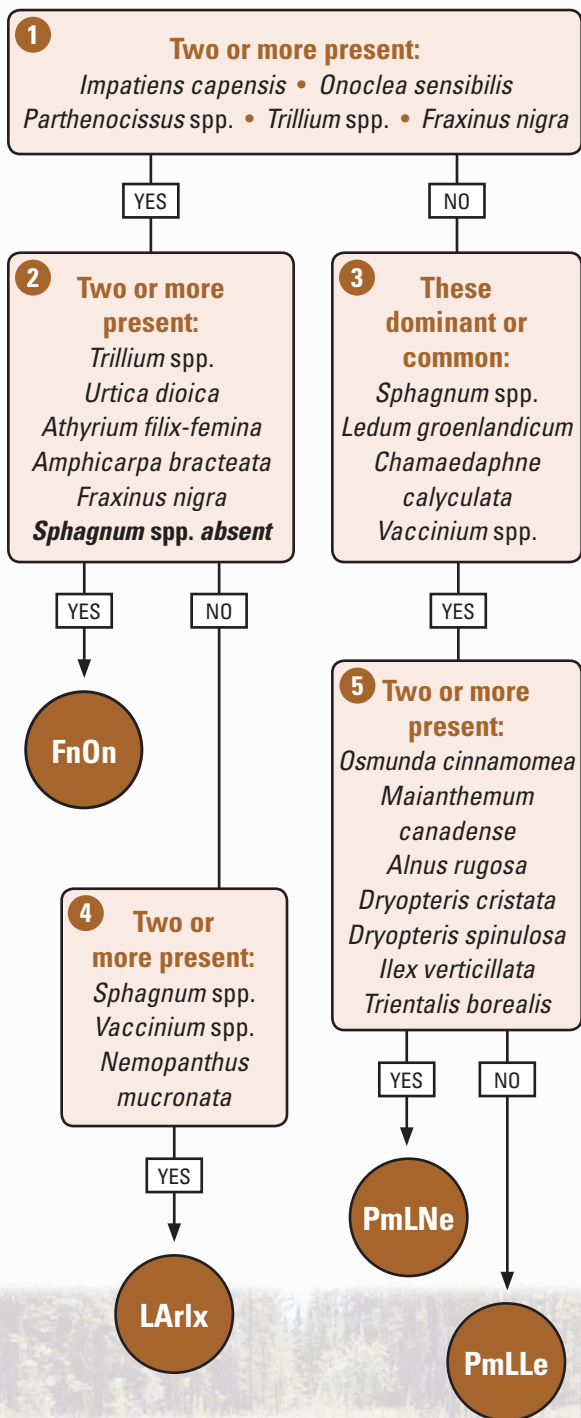
- *Larix-Acer/Ilex*
- Tamarack-Red Maple/Winterberry

### **FnOn**

- *Fraxinus/Onoclea*
- Black Ash/Sensitive Fern

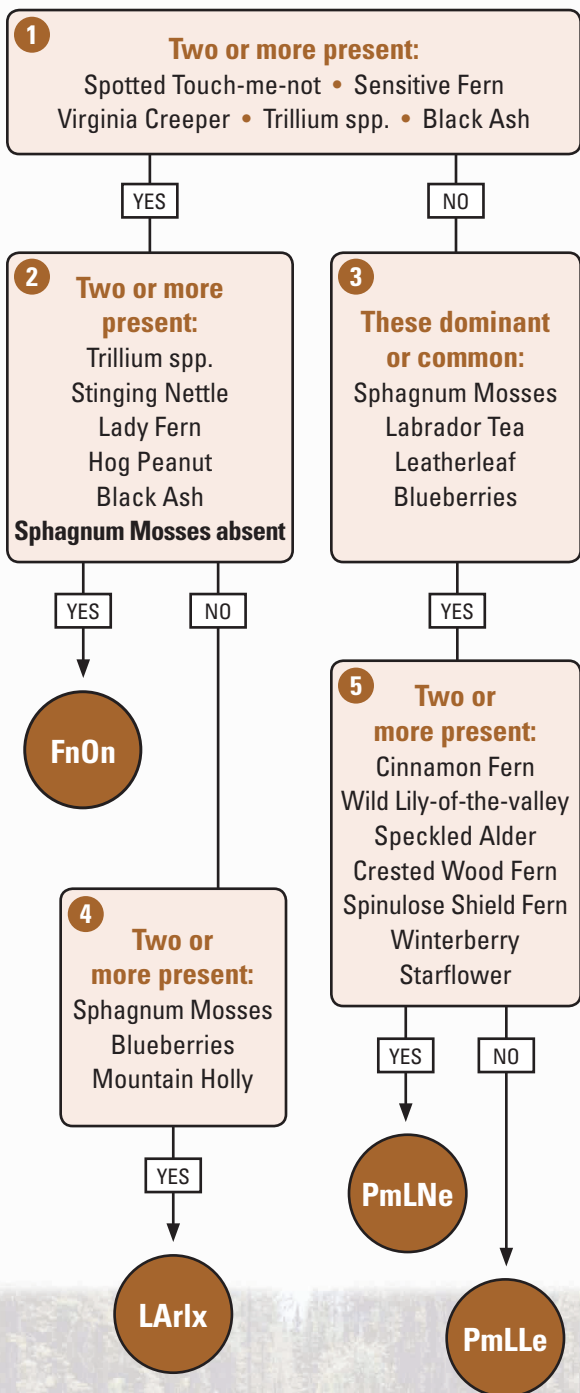
# REGION 1

## Key to Wetland Habitat Types (Scientific Names)

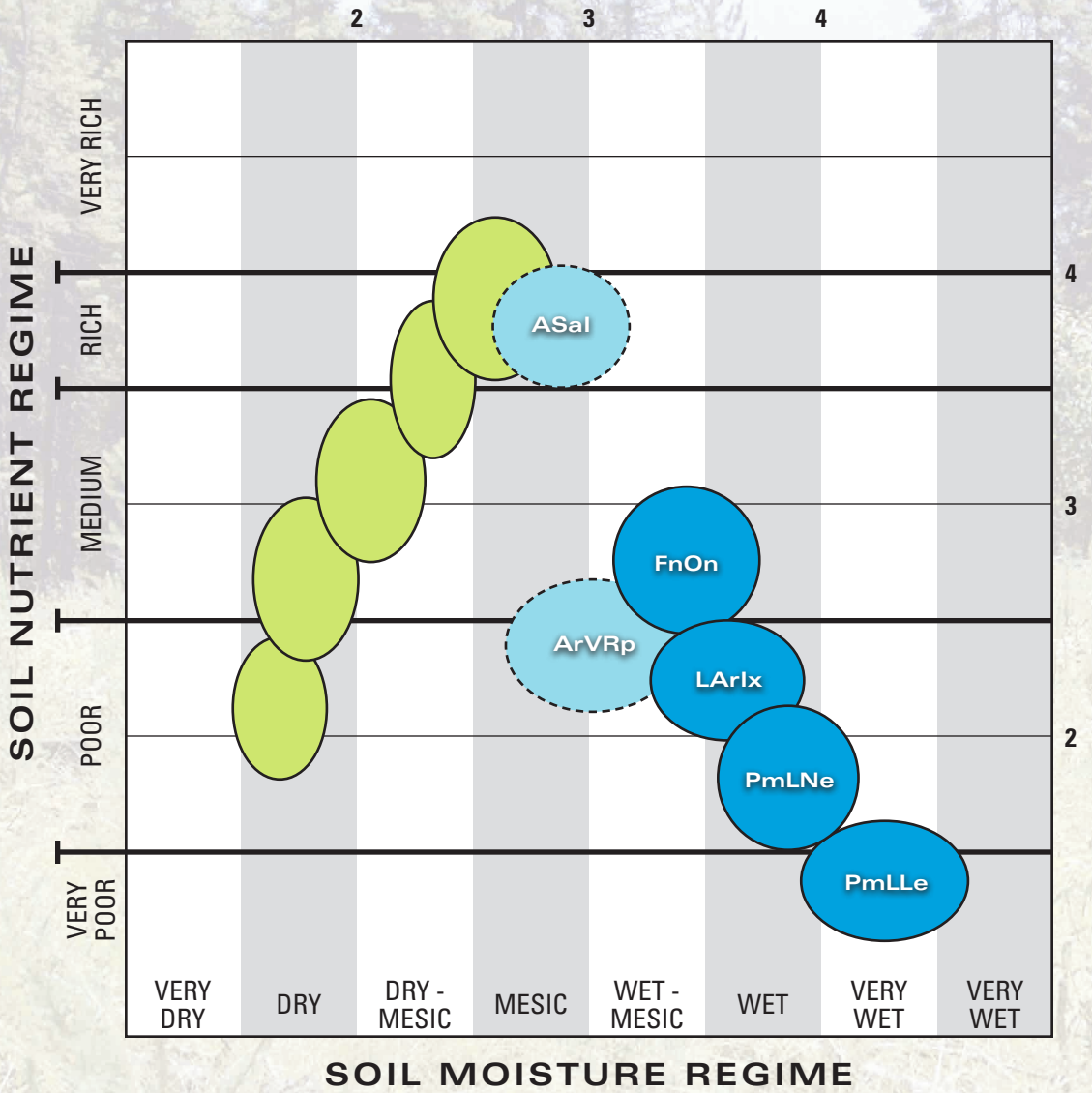


# REGION 1

## Key to Wetland Habitat Types (Common Names)



# RELATIONSHIP OF HABITAT TYPES TO SOIL MOISTURE AND NUTRIENT REGIMES IN REGION 1



- Upland Habitat Types
- Borderline Habitat Types
- Wetland Habitat Types



# Region 1 Habitat Type Descriptions

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## **PmLLe**

*Picea-Larix/Ledum*

*Picea mariana-Larix laricina/Ledum groenlandicum*

**Black Spruce-Tamarack/Labrador Tea**

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### **DISTRIBUTION**

Throughout the region.

### **LANDFORM AND SOILS**

Deep organic substrate – peat bog.

### **VEGETATION**

**Common Forest Cover Types:** Stands are dominated entirely by black spruce and tamarack. Only paper birch, white pine, and occasionally jack pine, occur as temporary associates. Advance reproduction also consists almost entirely of black spruce and tamarack, but paper birch saplings are at times well represented.

**Shrub and Small Tree Layer:** Tall shrubs are not well represented. The only conspicuous species with occasionally high coverage are Leatherleaf (*Chamaedaphne calyculata*), Labrador Tea (*Ledum groenlandicum*), Mountain Holly (*Nemopanthus mucronata*), Canada Blueberry (*Vaccinium myrtilloides*) and Low-sweet Blueberry (*Vaccinium angustifolium*). Several other woody species characteristic of this type are inconspicuous and best described with ground flora.

**Ground Flora Characteristics:** *Sphagnum* spp. and sedges are dominant characteristics. Herb species are poorly represented. The following occur with low frequencies: Three-leaved Solomon's Seal (*Smilacina trifolia*), Purple-stemmed Aster (*Aster puniceus*), Bunchberry (*Cornus canadensis*), and various species of Lady's Slippers (*Cypripedium* spp.). More frequent, although often inconspicuous, are several species of the Heath family (*Ericaceae*), such as Wintergreen (*Gaultheria procumbens*), Creeping Snowberry (*Gaultheria hispidula*), Pale Laurel (*Kalmia polifolia*), Small Cranberry (*Vaccinium oxycoccus*) and Bog Rosemary (*Andromeda glaucophylla*).

**Disturbance and Succession:** See the Introduction.

**Management Implications:** On the relative scale of wetland habitat type productivity (very poor, poor, poor to medium, medium, medium to rich) **PmLLe** type is classified as "very poor" (see the **Management Implications** section).

## REGION 1: PLANT SPECIES BY HABITAT TYPE (PmLLe)

### *Understory Species in Order of Decreasing Frequency of Occurrence*

<b>Common Name (<i>Scientific Name</i>)</b>	<b>Freq. Cover</b>	
	%	%
Labrador Tea ( <i>Ledum groenlandicum</i> ) .....	100	20
Sphagnum Mosses ( <i>Sphagnum</i> spp.).....	100	84
Leatherleaf ( <i>Chamaedaphne calyculata</i> ) .....	96	9
Sedges ( <i>Sedge</i> spp.).....	96	18
Low-sweet Blueberry ( <i>Vaccinium angustifolium</i> ).....	93	10
Pale Laurel ( <i>Kalmia polifolia</i> ).....	89	1
Small Cranberry ( <i>Vaccinium oxycoccus</i> ).....	71	1
Three-leaved Solomon's Seal ( <i>Smilacina trifolia</i> ).....	68	2
Pink Lady's Slipper ( <i>Cypripedium acaule</i> ).....	57	1
Bog Rosemary ( <i>Andromeda glaucophylla</i> )....	54	1
Mountain Holly ( <i>Nemopanthus mucronata</i> ).....	43	2
Indian Pipe ( <i>Monotropa uniflora</i> ).....	32	1
Cinnamon Fern ( <i>Osmunda cinnamomea</i> ).....	25	1
Creeping Snowberry ( <i>Gaultheria hispidula</i> )..	21	1
Bog Birch ( <i>Betula pumila</i> ).....	14	5
Winterberry ( <i>Ilex verticillata</i> ).....	14	1
Blue Cohosh ( <i>Caulophyllum thalictroides</i> )....	11	1
American Hazelnut ( <i>Corylus americana</i> ).....	11	1
Crested Wood Fern ( <i>Dryopteris cristata</i> ).....	11	1
Larger Blue Flag ( <i>Iris versicolor</i> ).....	11	1
Chokecherry ( <i>Prunus virginiana</i> ) .....	11	1
Pitcher Plant ( <i>Sarracenia purpurea</i> ) .....	11	1
Large Cranberry ( <i>Vaccinium macrocarpon</i> ).....	11	1
Canada Blueberry ( <i>Vaccinium myrtilloides</i> ).....	11	5

## REGION 1: TREE SPECIES BY HABITAT TYPE (PmLLe)

### *Tree Species Frequency of Occurrence and Average Cover by Size Class*

<b>Sawtimber</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Larix laricina</i> .....	18.....	3
<i>Pinus banksiana</i> .....	7.....	3
<i>Pinus strobus</i> .....	7.....	1

<b>Poles</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Larix laricina</i> .....	93.....	12
<i>Picea mariana</i> .....	82.....	6
<i>Pinus strobus</i> .....	36.....	4
<i>Pinus banksiana</i> .....	18.....	5

<b>Saplings</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Larix laricina</i> .....	100.....	8
<i>Picea mariana</i> .....	82.....	13
<i>Betula papyrifera</i> .....	46.....	4
<i>Pinus strobus</i> .....	36.....	3
<i>Pinus banksiana</i> .....	18.....	2

<b>Large Seedlings</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Picea mariana</i> .....	96.....	3
<i>Larix laricina</i> .....	71.....	1
<i>Betula papyrifera</i> .....	46.....	1
<i>Pinus strobus</i> .....	36.....	1
<i>Quercus rubra</i> .....	36.....	1
<i>Acer rubrum</i> .....	32.....	1
<i>Pinus banksiana</i> .....	11.....	1

<b>Small Seedlings</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Picea mariana</i> .....	86.....	1
<i>Quercus rubra</i> .....	82.....	1
<i>Acer rubrum</i> .....	68.....	1
<i>Larix laricina</i> .....	64.....	1
<i>Pinus strobus</i> .....	43.....	1
<i>Betula papyrifera</i> .....	29.....	1



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## PmLNe

*Picea-Larix/Nemopanthus*

*Picea mariana-Larix laricina/Nemopanthus mucronata*

**Black Spruce-Tamarack/Mountain Holly**

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### DISTRIBUTION

Throughout the region.

### LANDFORM AND SOILS

Deep organic substrate – peat bog. Often in narrow zones adjacent to uplands. Hydrologically nutrient enriched, therefore less acid than PmLLe type.

### VEGETATION

**Common Forest Cover Types:** Most stands are dominated by tamarack and black spruce, but white pine, red maple and paper birch are common associates. Advance reproduction is typically dominated by the same species.

**Shrub and Small Tree Layer:** This layer may be sparse or moderately well developed. The best represented shrubs are Mountain Holly (*Nemopanthus mucronata*), Leatherleaf (*Chamaedaphne calyculata*), Winterberry (*Ilex verticillata*), Labrador Tea (*Ledum groenlandicum*), Canada Blueberry (*Vaccinium myrtilloides*), Low-sweet Blueberry (*Vaccinium angustifolium*) and speckled alder (*Alnus rugosa*). Some of the “low shrubs” (or “sub-shrubs”) mostly of the Heath family and characteristic of PmLLe habitat type, are occasionally present.

**Ground Flora Characteristics:** *Sphagnum* spp. and sedges are dominant characteristics. Herb species are few and some are characteristic of wet-mesic uplands, e.g., Cinnamon Fern (*Osmunda cinnamomea*), Bunchberry (*Cornus canadensis*), Starflower (*Trientalis borealis*), Spinulose Shield Fern (*Dryopteris spinulosa*), Wild Lily-of-the-valley (*Maianthemum canadense*), Goldthread (*Coptis groenlandica*), and Yellow Beadlily (*Clintonia borealis*).

**Disturbance and Succession:** See the Introduction.

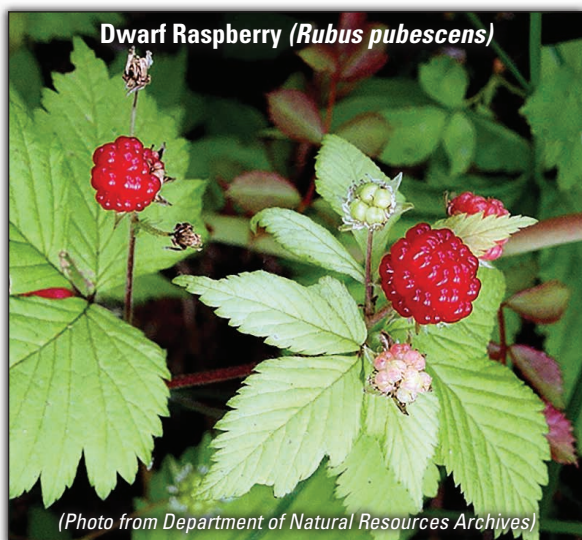
**Management Implications:** On the relative scale of wetland habitat type productivity (very poor, poor, poor to medium, medium, medium to rich) PmLNe type is classified as “poor” (see the **Management Implications** section).

## REGION 1: PLANT SPECIES BY HABITAT TYPE (PmLNe)

### *Understory Species in Order of Decreasing Frequency of Occurrence*

<b>Common Name (<i>Scientific Name</i>)</b>	<b>Freq. Cover</b>	
	%	%
Sphagnum Mosses ( <i>Sphagnum</i> spp.).....	100	63
Sedges ( <i>Sedge</i> spp.) .....	92	16
Winterberry ( <i>Ilex verticillata</i> ).....	88	2
Cinnamon Fern ( <i>Osmunda cinnamomea</i> ).....	88	6
Leatherleaf ( <i>Chamaedaphne calyculata</i> ) .....	85	1
Mountain Holly ( <i>Nemopanthus mucronata</i> ).....	85	2
Labrador tea ( <i>Ledum groenlandicum</i> ).....	81	6
Starflower ( <i>Trientalis borealis</i> ).....	81	1
Low-sweet Blueberry ( <i>Vaccinium angustifolium</i> ).....	81	4
Pink Lady's Slipper ( <i>Cypripedium acaule</i> ).....	77	1
Wild Lily-of-the-valley ( <i>Maianthemum canadense</i> ).....	77	1
Spinulose Shield Fern ( <i>Dryopteris spinulosa</i> ) .....	73	1
Crested Wood Fern ( <i>Dryopteris cristata</i> ).....	65	1
Three-leaved Solomon's Seal ( <i>Smilacina trifolia</i> ).....	65	1
Small Cranberry ( <i>Vaccinium oxycoccus</i> ).....	65	1
Speckled Alder ( <i>Alnus rugosa</i> ).....	58	5
Bugleweed ( <i>Lycopus uniflorus</i> ).....	58	1
Pale Laurel ( <i>Kalmia polifolia</i> ) .....	50	1
Juneberries ( <i>Amelanchier</i> spp.).....	46	1
Wild Sarsaparilla ( <i>Aralia nudicaulis</i> ).....	46	1
Narrow-leaved Meadowsweet ( <i>Spiraea alba</i> ).....	46	1
Bunchberry ( <i>Cornus canadensis</i> ) .....	42	1
Raspberries/Blackberries ( <i>Rubus</i> spp.) .....	59	6
Bog Birch ( <i>Betula pumila</i> ) .....	38	2
Creeping Snowberry ( <i>Gaultheria hispidula</i> ) .....	35	1
Indian Pipe ( <i>Monotropa uniflora</i> ).....	35	1
Arrow-leaved Tearthumb ( <i>Polygonum sagittatum</i> ).....	35	1
Violets ( <i>Viola</i> spp.) .....	35	1
Purple-stemmed Aster ( <i>Aster puniceus</i> ) .....	31	1
Larger Blue Flag ( <i>Iris versicolor</i> ).....	31	1
Goldthread ( <i>Coptis groenlandica</i> ).....	27	1

<b>Common Name (<i>Scientific Name</i>)</b>	<b>Freq. Cover</b>	
	<b>%</b>	<b>%</b>
Dwarf Raspberry ( <i>Rubus pubescens</i> ) .....	27	1
Common Cattail ( <i>Typha latifolia</i> ).....	27	1
Bog Rosemary ( <i>Andromeda glaucophylla</i> )....	23	1
Asters ( <i>Aster</i> spp.).....	23	1
Water Arum ( <i>Calla palustris</i> ).....	23	3
Yellow Beadlily ( <i>Clintonia borealis</i> ).....	23	1
Wood Horsetail ( <i>Equisetum sylvaticum</i> ).....	19	1
Wintergreen ( <i>Gaultheria procumbens</i> ).....	19	1
Marsh Cinquefoil ( <i>Potentilla palustris</i> ).....	19	1
Shinleaves ( <i>Pyrola</i> spp.).....	19	1
Currants/Gooseberries ( <i>Ribes</i> spp.) .....	19	1
Blue Cohosh ( <i>Caulophyllum thalictroides</i> )....	15	1
Purple-leaved Willow Herb ( <i>Epilobium coloratum</i> ) .....	15	1
Wild Strawberry ( <i>Fragaria virginiana</i> ).....	15	1
Rough Bedstraw ( <i>Galium asprellum</i> ).....	15	1
Buckbean ( <i>Menyanthes trifoliata</i> ).....	15	1
Halberd-leaved Tearthumb ( <i>Polygonum arifolium</i> ) .....	15	1
Meadowsweets ( <i>Spiraea</i> spp.) .....	15	1



## REGION 1: TREE SPECIES BY HABITAT TYPE (PmLNe)

### *Tree Species Frequency of Occurrence and Average Cover by Size Class*

<b>Sawtimber</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Larix laricina</i> .....	50.....	7
<i>Picea mariana</i> .....	12.....	2
<i>Pinus strobus</i> .....	12.....	1

<b>Poles</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Larix laricina</i> .....	100.....	15
<i>Picea mariana</i> .....	54.....	9
<i>Pinus strobus</i> .....	23.....	7
<i>Acer rubrum</i> .....	15.....	5

<b>Saplings</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Larix laricina</i> .....	96.....	6
<i>Acer rubrum</i> .....	73.....	2
<i>Betula papyrifera</i> .....	69.....	5
<i>Picea mariana</i> .....	58.....	6
<i>Pinus strobus</i> .....	27.....	2
<i>Fraxinus nigra</i> .....	19.....	1

<b>Large Seedlings</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Acer rubrum</i> .....	85.....	1
<i>Quercus rubra</i> .....	81.....	1
<i>Picea mariana</i> .....	58.....	1
<i>Betula papyrifera</i> .....	50.....	1
<i>Pinus strobus</i> .....	50.....	1
<i>Larix laricina</i> .....	35.....	1

<b>Small Seedlings</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Quercus rubra</i> .....	100.....	1
<i>Acer rubrum</i> .....	96.....	1
<i>Larix laricina</i> .....	62.....	1
<i>Pinus strobus</i> .....	62.....	1
<i>Betula papyrifera</i> .....	58.....	1
<i>Picea mariana</i> .....	54.....	1
<i>Abies balsamea</i> .....	27.....	1

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## **LArIx**

*Larix-Acer/Ilex*

*Larix laricina-Acer rubrum/Ilex verticillata*

Tamarack-Red Maple/Winterberry

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### **DISTRIBUTION**

Relatively infrequent type throughout Region 1.

### **LANDFORM AND SOILS**

Substrate is peat, deeper than five feet. Type is closely related to PmLNe.

### **VEGETATION**

**Common Forest Cover Types:** Stands typically are dominated by tamarack and red maple, but white pine and paper birch are common associates. Advance regeneration is represented by the same species but typically is not abundant.

**Shrub and Small Tree Layer:** This layer is not well developed. The most frequently present shrubs are Winterberry (*Ilex verticillata*), Raspberries/Blackberries (*Rubus* spp.), speckled alder (*Alnus rugosa*), Currants/Gooseberries (*Ribes* spp.), Red-osier Dogwood (*Cornus stolonifera*), Leatherleaf (*Chamaedaphne calyculata*), Blueberries (*Vaccinium* spp.), Mountain Holly (*Nemopanthus mucronata*) and Labrador Tea (*Ledum groenlandicum*). In some stands, American mountain ash (*Sorbus americana*), Beaked Hazel (*Corylus cornuta*) and Chokecherry (*Prunus virginiana*) also occur.

**Ground Flora Characteristics:** Sedges, *Sphagnum* spp. and Cinnamon Fern (*Osmunda cinnamomea*) typically dominate this layer. Other herbs with relatively high frequency of occurrence include Crested Wood Fern (*Dryopteris cristata*), Purple-stemmed Aster (*Aster puniceus*), Spinulose Shield Fern (*Dryopteris spinulosa*), Spotted Touch-me-not (*Impatiens capensis*), and Bugleweed (*Lycopus uniflorus*).

**Disturbance and Succession:** See the Introduction.

**Management Implications:** On the relative scale of wetland habitat type productivity (very poor, poor, poor to medium, medium, medium to rich) **LArIx** is classified as “poor to medium” (see the **Management Implications** section).

## REGION 1: PLANT SPECIES BY HABITAT TYPE (LARIX)

### *Understory Species in Order of Decreasing Frequency of Occurrence*

<b>Common Name (<i>Scientific Name</i>)</b>	<b>Freq. Cover</b>	
	%	%
Crested Wood Fern ( <i>Dryopteris cristata</i> ).....	100	1
Winterberry ( <i>Ilex verticillata</i> ).....	100	5
Wild Lily-of-the-valley ( <i>Maianthemum canadense</i> ).....	100	1
Raspberries/Blackberries ( <i>Rubus</i> spp.).....	100	2
Sphagnum Mosses ( <i>Sphagnum</i> spp.).....	100	13
Purple-stemmed Aster ( <i>Aster puniceus</i> ).....	83	1
Spinulose Shield Fern ( <i>Dryopteris spinulosa</i> ) ...	83	2
Spotted Touch-me-not ( <i>Impatiens capensis</i> )....	83	1
Bugleweed ( <i>Lycopus uniflorus</i> ).....	83	1
Mountain Holly ( <i>Nemopanthus mucronata</i> )....	83	1
Cinnamon Fern ( <i>Osmunda cinnamomea</i> ).....	83	19
Sedges ( <i>Sedge</i> spp.) .....	83	20
Starflower ( <i>Trientalis borealis</i> ).....	83	1
Speckled Alder ( <i>Alnus rugosa</i> ).....	67	9
Juneberries ( <i>Amelanchier</i> spp.).....	21	1
Leatherleaf ( <i>Chamaedaphne calyculata</i> ) .....	67	1
Virginia Creeper ( <i>Parthenocissus</i> spp.) .....	67	1
Arrow-leaved Tearthumb ( <i>Polygonum sagittatum</i> ).....	67	1
Currants/Gooseberries ( <i>Ribes</i> spp.) .....	83	1
Curled Dock ( <i>Rumex crispus</i> ).....	67	1
Low-sweet Blueberry ( <i>Vaccinium angustifolium</i> ).....	67	1
Asters ( <i>Aster</i> spp.).....	50	1
Water Arum ( <i>Calla palustris</i> ).....	50	14
Red-osier Dogwood ( <i>Cornus stolonifera</i> ) .....	50	1
Labrador Tea ( <i>Ledum groenlandicum</i> ) .....	50	1
Sensitive Fern ( <i>Onoclea sensibilis</i> ).....	50	1
Chokecherry ( <i>Prunus virginiana</i> ) .....	50	1
Three-leaved Solomon's Seal ( <i>Smilacina trifolia</i> ).....	50	1
Violets ( <i>Viola</i> spp.) .....	50	1
Wild Sarsaparilla ( <i>Aralia nudicaulis</i> ).....	33	1
Bog Birch ( <i>Betula pumila</i> ) .....	33	2
Swamp Thistle ( <i>Cirsium muticum</i> ) .....	33	1
Virgin's Bower ( <i>Clematis virginiana</i> ).....	33	1
American Hazelnut ( <i>Corylus americana</i> ).....	33	2



<b>Common Name (<i>Scientific Name</i>)</b>	<b>Freq. Cover</b>	
	<b>%</b>	<b>%</b>
Pink Lady's Slipper ( <i>Cypripedium acaule</i> ).....	33	1
Sweet-scented Bedstraw ( <i>Galium triflorum</i> ) ....	33	1
Royal Fern ( <i>Osmunda regalis</i> ).....	33	1
Marsh Cinquefoil ( <i>Potentilla palustris</i> ).....	33	1
Mad-dog Skullcap ( <i>Scutellaria lateriflora</i> )....	33	1
Goldenrods ( <i>Solidago</i> spp.).....	33	1
Narrow-leaved Meadowsweet ( <i>Spiraea alba</i> ).....	33	1
Large-leaved Aster ( <i>Aster macrophyllus</i> ) ....	17	1
Lady Fern ( <i>Athyrium filix-femina</i> ) .....	17	3
Marsh Marigold ( <i>Caltha palustris</i> ).....	17	1
Water Hemlock ( <i>Cicuta maculata</i> ).....	17	1
Yellow Beadlily ( <i>Clintonia borealis</i> ).....	17	1
Wild Cucumber ( <i>Echinocystis lobata</i> ) .....	17	1
Purple-leaved Willow Herb ( <i>Epilobium coloratum</i> ).....	17	1
Wood Horsetail ( <i>Equisetum sylvaticum</i> ).....	17	1
Rough Bedstraw ( <i>Galium asprellum</i> ).....	17	1
Larger Blue Flag ( <i>Iris versicolor</i> ) .....	17	1
Wild Mint ( <i>Mentha arvensis</i> ).....	17	1
Halberd-leaved Tearthumb ( <i>Polygonum arifolium</i> ).....	17	1
Pitcher Plant ( <i>Sarracenia purpurea</i> ) .....	17	1
Meadowsweets ( <i>Spiraea</i> spp.) .....	17	1
American Germander ( <i>Teucrium canadense</i> ).....	17	63
Common Cattail ( <i>Typha latifolia</i> ).....	17	1
Small Cranberry ( <i>Vaccinium oxycoccus</i> ).....	17	1



## REGION 1: TREE SPECIES BY HABITAT TYPE (LARIX)

### *Tree Species Frequency of Occurrence and Average Cover by Size Class*

<b>Sawtimber</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Larix laricina</i> .....	67	6
<i>Pinus strobus</i> .....	33	3

<b>Poles</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Larix laricina</i> .....	100	10
<i>Acer rubrum</i> .....	67	6
<i>Betula papyrifera</i> .....	50	2
<i>Pinus strobus</i> .....	50	2
<i>Betula alleghaniensis</i> .....	17	1
<i>Picea mariana</i> .....	17	1

<b>Saplings</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Betula papyrifera</i> .....	100	6
<i>Larix laricina</i> .....	100	4
<i>Acer rubrum</i> .....	83	3
<i>Pinus strobus</i> .....	50	1
<i>Ulmus spp.</i> .....	50	1
<i>Quercus rubra</i> .....	33	1
<i>Abies balsamea</i> .....	17	3

<b>Large Seedlings</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Acer rubrum</i> .....	100	1
<i>Quercus rubra</i> .....	83	1
<i>Betula papyrifera</i> .....	67	1
<i>Pinus strobus</i> .....	50	1
<i>Ulmus spp.</i> .....	33	1
<i>Abies balsamea</i> .....	17	1

<b>Small Seedlings</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Acer rubrum</i> .....	100	1
<i>Quercus rubra</i> .....	100	1
<i>Pinus strobus</i> .....	50	1
<i>Betula papyrifera</i> .....	33	1
<i>Larix laricina</i> .....	33	1
<i>Abies balsamea</i> .....	17	1
<i>Picea glauca</i> .....	17	1

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## **FnOn**

*Fraxinus/Onoclea*

*Fraxinus nigra/Onoclea sensibilis*

**Black Ash/Sensitive Fern**

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### **DISTRIBUTION**

Mostly Barron County, but also anywhere in Region 1 where finer texture soils are present.

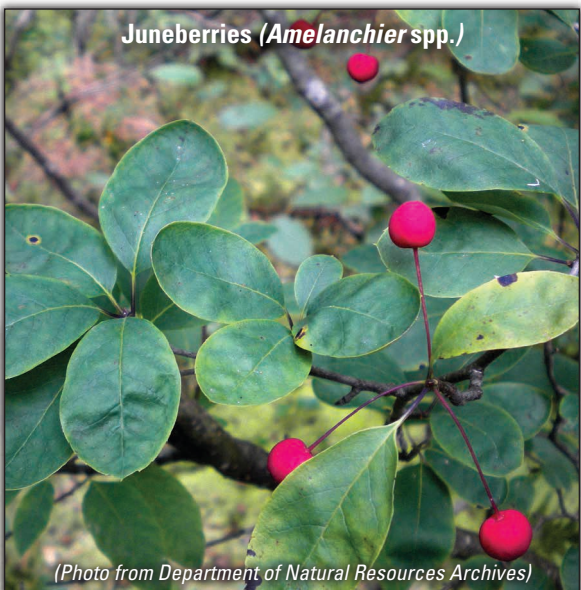
### **LANDFORM AND SOILS**

Landform, most likely is till deposits. Soil profile typically consists of a shallow organic layer (less than one foot) over finer texture mineral soil, with sandier layers often present, especially at depths below three feet. Texture varies greatly, but clay or silt components are usually conspicuous. Soil profile stratification can be complex. On some sites, well decomposed organic material occurs to a depth greater than five feet.

### **VEGETATION**

**Common Forest Cover Types:** Most stands are dominated by black ash with red maple and (formerly) American elm as most common associates. Conifers typically are absent, although balsam fir occurs sporadically. Advance reproduction in most stands is best represented by black ash.

**Shrub and Small Tree Layer:** Generally, this layer is not well developed. The most frequently present shrubs are speckled alder (*Alnus rugosa*), Winterberry (*Ilex verticillata*) and Currants/Gooseberries (*Ribes* spp.). Beaked Hazel (*Corylus cornuta*), Alder-leaved Buckthorn (*Rhamnus alnifolia*) and Raspberries/Blackberries (*Rubus* spp.) also occur **in some stands**.



**Juneberries (*Amelanchier* spp.)**

*(Photo from Department of Natural Resources Archives)*

Sensitive Fern (*Onoclea sensibilis*)



(Photo from Department of Natural Resources Archives)

**Ground Flora Characteristics:** Sedges typically dominate this layer. Common herbs include Sensitive Fern (*Onoclea sensibilis*), Spotted Touch-me-not (*Impatiens capensis*), Virginia Creeper (*Parthenocissus* spp.), Cinnamon Fern (*Osmunda cinnamomea*), and Marsh Marigold (*Caltha palustris*). In many stands Stinging Nettle (*Urtica dioica*) is also common. Other species with relatively high frequency of occurrence include Spinulose Shield Fern (*Dryopteris spinulosa*), Crested Wood Fern (*Dryopteris cristata*), Nodding Trillium (*Trillium cernuum*) and Bugleweed (*Lycopus uniflorus*).

**Disturbance and Succession:** See the Introduction.

**Management Implications:** On the relative scale of wetland habitat type productivity (very poor, poor, poor to medium, medium, medium to rich) **FnOn** is classified as “medium” (see the **Management Implications** section). It is the richest wetland habitat type in Region 1.

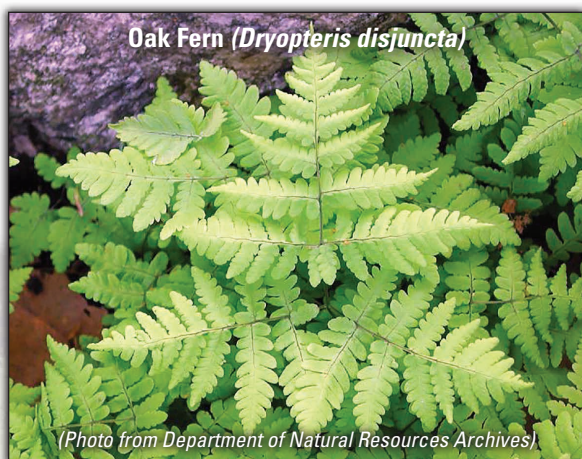
## REGION 1: PLANT SPECIES BY HABITAT TYPE (FnOn)

### *Understory Species in Order of Decreasing Frequency of Occurrence*

<b>Common Name (<i>Scientific Name</i>)</b>	<b>Freq. Cover</b>	
	%	%
Sedges ( <i>Sedge</i> spp.) .....	100	35
Asters ( <i>Aster</i> spp.).....	97	1
Sensitive Fern ( <i>Onoclea sensibilis</i> ).....	90	2
Virginia Creeper ( <i>Parthenocissus</i> spp.) .....	86	1
Currants/Gooseberries ( <i>Ribes</i> spp.) .....	83	1
Speckled Alder ( <i>Alnus rugosa</i> ).....	79	6
Crested Wood Fern ( <i>Dryopteris cristata</i> ).....	79	1
Spotted Touch-me-not ( <i>Impatiens capensis</i> )....	79	5
Cinnamon Fern ( <i>Osmunda cinnamomea</i> ).....	79	8
Nodding Trillium ( <i>Trillium cernuum</i> ).....	76	1
Marsh Marigold ( <i>Caltha palustris</i> ).....	69	1
Wild Strawberry ( <i>Fragaria virginiana</i> ).....	66	1
Bugleweed ( <i>Lycopus uniflorus</i> ).....	66	1
Wild Lily-of-the-valley ( <i>Maianthemum canadense</i> ).....	66	1
Violets ( <i>Viola</i> spp.) .....	66	1
Spinulose Shield Fern ( <i>Dryopteris spinulosa</i> ) ..	62	1
Hog Peanut ( <i>Amphicarpa bracteata</i> ) .....	59	1
Rough Bedstraw ( <i>Galium asprellum</i> ).....	59	1
Winterberry ( <i>Ilex verticillata</i> ).....	59	2
Raspberries/Blackberries ( <i>Rubus</i> spp.) .....	59	6
Lady Fern ( <i>Athyrium filix-femina</i> ) .....	55	3
Naked Miterwort ( <i>Mitella nuda</i> ).....	55	1
Stinging Nettle ( <i>Urtica dioica</i> ).....	55	6
Wild Sarsaparilla ( <i>Aralia nudicaulis</i> ).....	52	1
Purple-stemmed Aster ( <i>Aster puniceus</i> ).....	52	1
Wood Horsetail ( <i>Equisetum sylvaticum</i> ).....	52	2
White Avens ( <i>Geum canadense</i> ).....	52	1
Alder-leaved Buckthorn ( <i>Rhamnus alnifolia</i> )..	52	1
Early Meadow Rue ( <i>Thalictrum dioicum</i> ).....	52	1
Starflower ( <i>Trientalis borealis</i> ).....	52	1
American Hazelnut ( <i>Corylus americana</i> ) .....	48	3
Goldenrods ( <i>Solidago</i> spp.).....	48	2
Yellow Beadlily ( <i>Clintonia borealis</i> ).....	45	1



Common Name ( <i>Scientific Name</i> )	Freq. Cover	
	%	%
Dwarf Enchanter's Nightshade ( <i>Circaea alpina</i> ).....	41	1
Larger Blue Flag ( <i>Iris versicolor</i> ).....	38	1
Hairy Solomon's Seal ( <i>Polygonatum pubescens</i> ).....	38	1
Goldthread ( <i>Coptis groenlandica</i> ).....	34	1
Red-osier Dogwood ( <i>Cornus stolonifera</i> ).....	34	2
Large-leaved Aster ( <i>Aster macrophyllus</i> ).....	31	4
Bunchberry ( <i>Cornus canadensis</i> ).....	31	1
Dwarf Raspberry ( <i>Rubus pubescens</i> ).....	31	7
Bedstraws ( <i>Galium</i> spp.).....	28	1
Chokecherry ( <i>Prunus virginiana</i> ).....	28	1
Poison Ivy ( <i>Rhus radicans</i> ).....	28	1
Ostrich Fern ( <i>Matteuccia struthiopteris</i> ).....	24	2
Arrow-leaved Tearthumb ( <i>Polygonum sagittatum</i> ).....	24	1
Juneberries ( <i>Amelanchier</i> spp.).....	21	1
Wood Anemone ( <i>Anemone quinquefolia</i> ).....	21	1
Bush Honeysuckle ( <i>Diervilla lonicera</i> ).....	21	1
Royal Fern ( <i>Osmunda regalis</i> ).....	21	4
Heal-all ( <i>Prunella vulgaris</i> ).....	21	1
Curly Dock ( <i>Rumex crispus</i> ).....	21	1
Swamp Thistle ( <i>Cirsium muticum</i> ).....	17	1
Oak Fern ( <i>Dryopteris disjuncta</i> ).....	17	1
Purple-leaved Willow Herb ( <i>Epilobium coloratum</i> ).....	17	1
Horsetails ( <i>Equisetum</i> spp.).....	17	2
Swamp Buttercup ( <i>Ranunculus hispidus</i> ).....	17	1
Low-sweet Blueberry ( <i>Vaccinium angustifolium</i> ).....	17	1



Oak Fern (*Dryopteris disjuncta*)

(Photo from Department of Natural Resources Archives)



## REGION 1: TREE SPECIES BY HABITAT TYPE (FnOn)

### *Tree Species Frequency of Occurrence and Average Cover by Size Class*

<b>Sawtimber</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Fraxinus nigra</i> .....	66.....	13
<i>Abies balsamea</i> .....	14.....	4
<i>Acer rubrum</i> .....	14.....	2
<i>Populus tremuloides</i> .....	14.....	2

<b>Poles</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Fraxinus nigra</i> .....	83.....	21
<i>Ulmus</i> spp. ....	55.....	6
<i>Acer rubrum</i> .....	41.....	6
<i>Abies balsamea</i> .....	24.....	10
<i>Betula alleghaniensis</i> .....	24.....	16
<i>Populus tremuloides</i> .....	17.....	3
<i>Tilia americana</i> .....	14.....	9

<b>Saplings</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Fraxinus nigra</i> .....	90.....	15
<i>Ulmus</i> spp. ....	83.....	9
<i>Acer rubrum</i> .....	48.....	5
<i>Abies balsamea</i> .....	31.....	7
<i>Betula alleghaniensis</i> .....	21.....	7
<i>Betula papyrifera</i> .....	17.....	1
<i>Quercus rubra</i> .....	17.....	1
<i>Tilia americana</i> .....	17.....	1
<i>Carpinus caroliniana</i> .....	14.....	2
<i>Populus tremuloides</i> .....	14.....	2

<b>Seedlings</b>	<b>Freq. %</b>	<b>Cover %</b>
<i>Fraxinus nigra</i> .....	79.....	3
<i>Quercus rubra</i> .....	59.....	1
<i>Acer rubrum</i> .....	52.....	1
<i>Ulmus</i> spp. ....	48.....	1
<i>Abies balsamea</i> .....	28.....	1
<i>Tilia americana</i> .....	24.....	1
<i>Populus tremuloides</i> .....	21.....	1
<i>Acer saccharum</i> .....	14.....	1
<i>Betula papyrifera</i> .....	14.....	1
<i>Picea glauca</i> .....	14.....	1