



(Photo from Kemp Natural Resources Station Archives)

Region 3

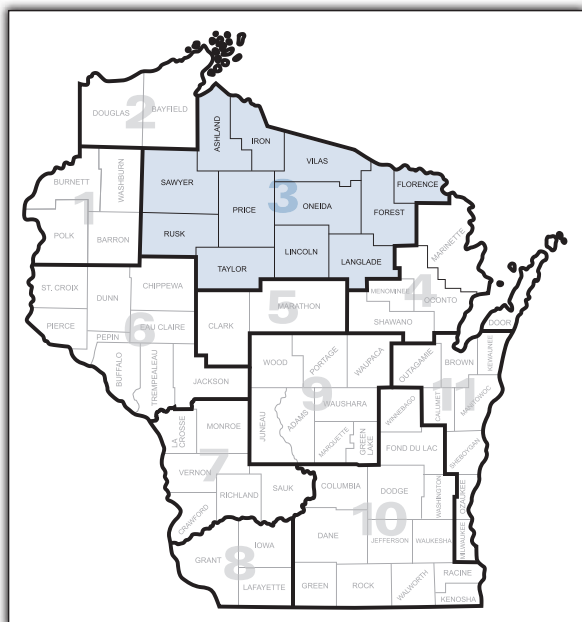
GENERAL DESCRIPTION

Region 3 encompasses 12 counties in northcentral and northeastern Wisconsin: Ashland, Florence, Forest, Iron, Langlade, Lincoln, Oneida, Price, Rusk, Sawyer, Taylor, and Vilas Counties. Glacial features include end, recessional and ground moraine, outwash and loess. Soils are a mix of sandy outwash, loams, silt and some clay.

Hydrological features are reflected in the wide variety of soils, topography and geology in the North Central and Northern Highland ecological landscape. Tamarack and black spruce forested wetlands exist on sandy outwash. Larger stands of black ash and northern white cedar forests occur as isolated forest wetlands on organic muck or mineral soils. The location of these forest types are determined by the flow of water over the landscape which are influenced by topography and soils. Acidic sites tend to be limited on groundwater and most rely on rainfall (peatlands). Other areas with slow moving groundwater have more nutrients leading to a dominance of cedar, ash and other species.



(Photo from Kemp Natural Resources Station Archives)



Region 3: Ashland, Florence, Forest, Iron, Langlade, Lincoln, Oneida, Price, Rusk, Sawyer, Taylor, and Vilas Counties

WETLAND FOREST HABITAT TYPES OF REGION 3

PmLLe

Primary Occurrence: Throughout Region 3

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

PmLNe

Primary Occurrence: Throughout Region 3

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

AbThArAsp

Primary Occurrence: Forest & Langlade Counties

- *Abies-Thuja-Acer/Acer*
- Balsam Fir-Northern White Cedar-Red Maple/Mountain Maple

AbFnThOs

Primary Occurrence: Ashland, Iron & Price Counties

- *Abies-Fraxinus-Thuja/Osmunda*
- Balsam Fir-Black Ash-Northern White Cedar/Cinnamon Fern

AbFnThlx

Primary Occurrence: Langlade, Lincoln, Oneida & Vilas Counties

- *Abies-Fraxinus-Thuja/Ilex*
- Balsam Fir-Black Ash-Northern White Cedar/Winterberry

FnAbArOn

Primary Occurrence: Ashland, Iron & Price Counties

- *Fraxinus-Abies-Acer/Onoclea*
- Black Ash-Balsam Fir-Red Maple/Sensitive Fern

FnArl

Primary Occurrence: Ashland, Iron & Price Counties

- *Fraxinus-Acer/Impatiens*
- Black Ash-Red Maple/Spotted Touch-me-not



(Photo from Department of Natural Resources Archives)



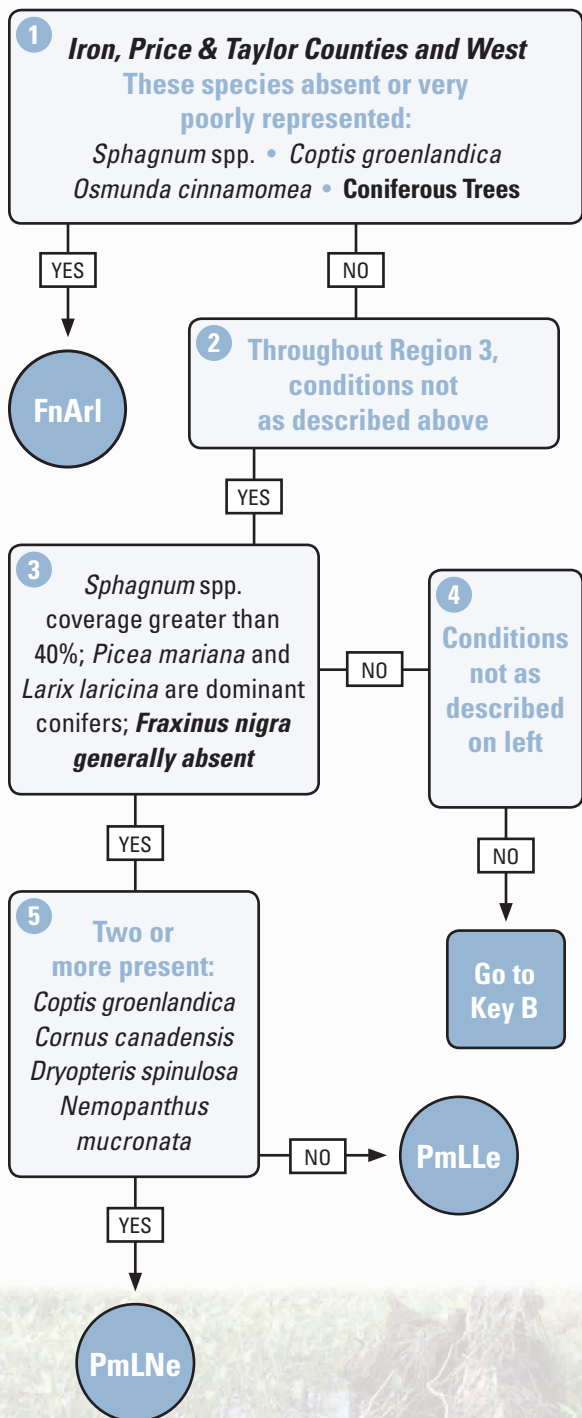
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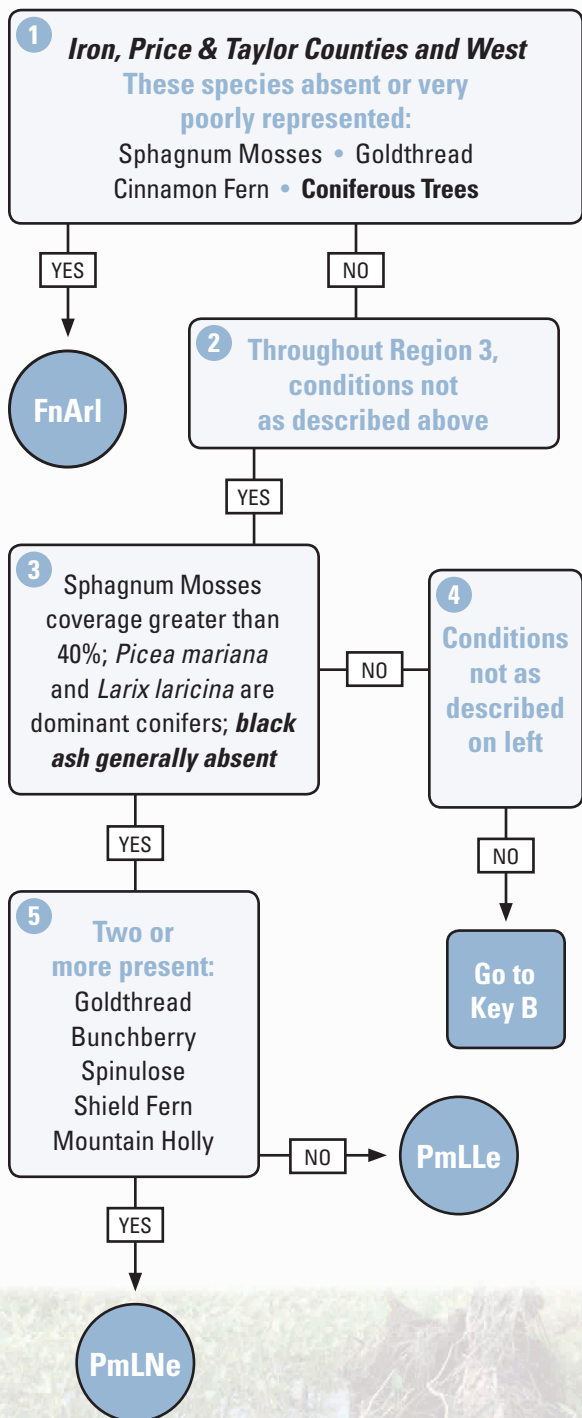
REGION 3

Key to Wetland Habitat Types Key A (Scientific Names)



REGION 3

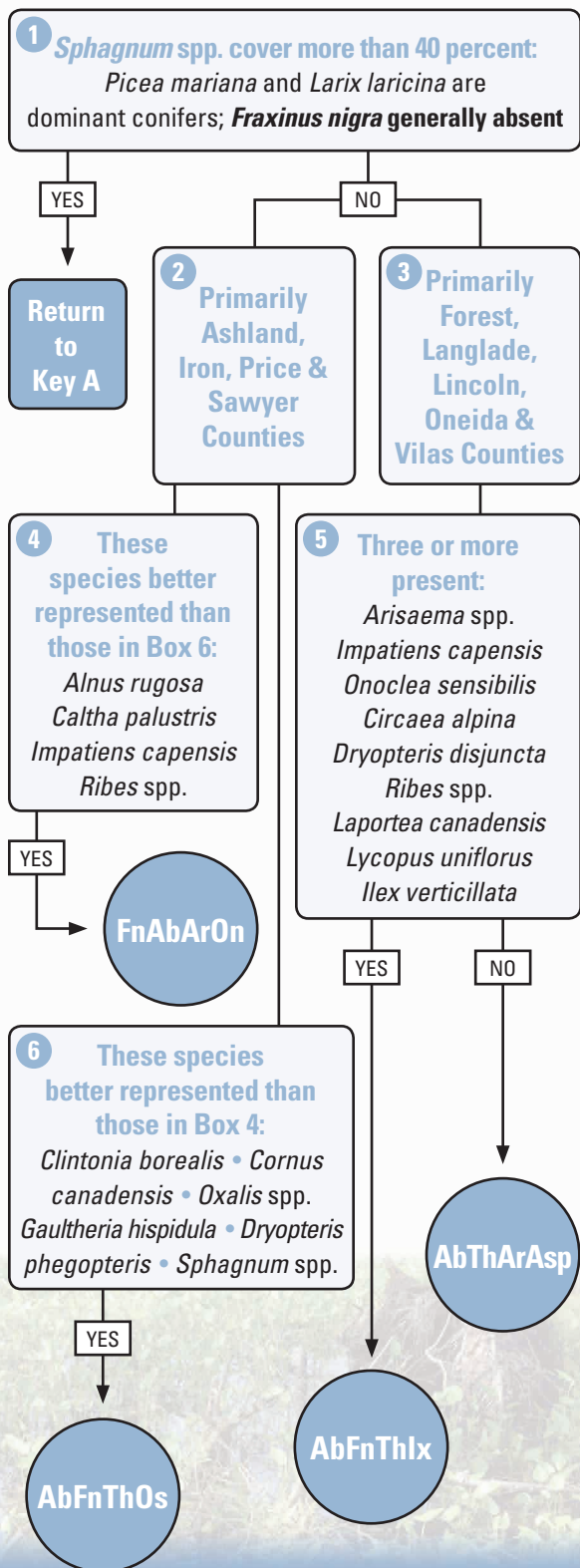
Key to Wetland Habitat Types Key A (Common Names)



REGION 3

Key to Wetland Habitat Types Key B* (Scientific Names)

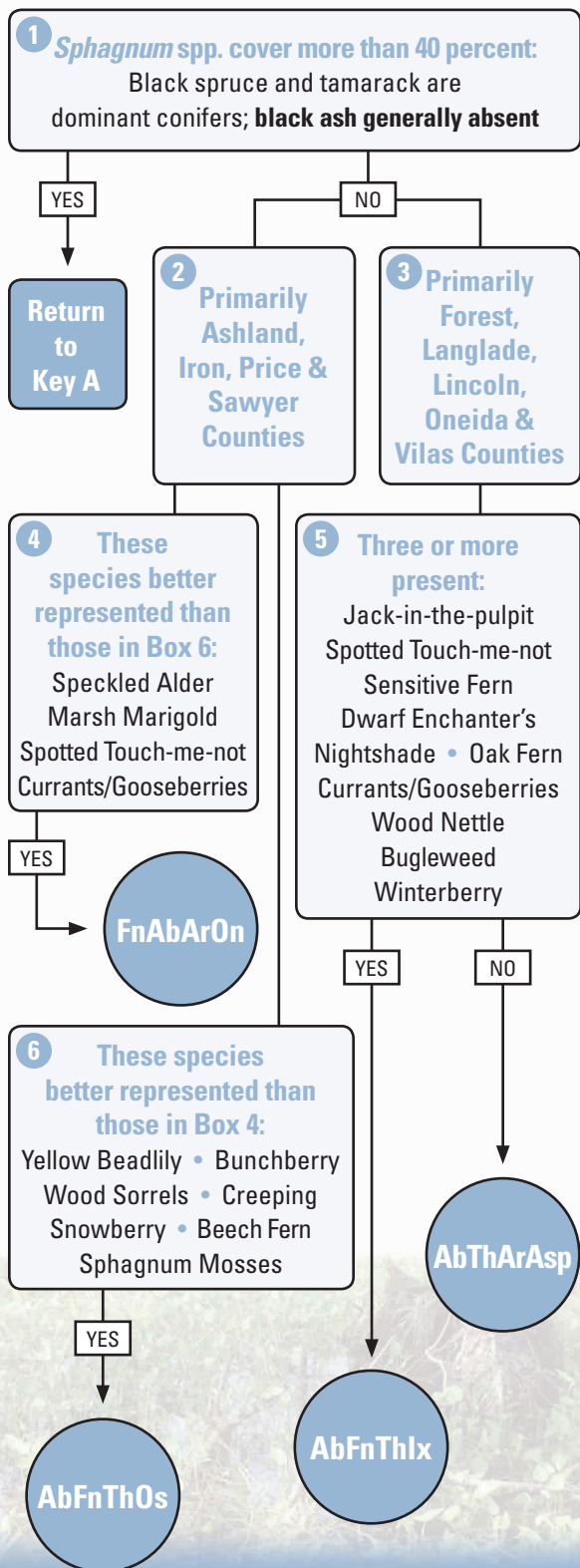
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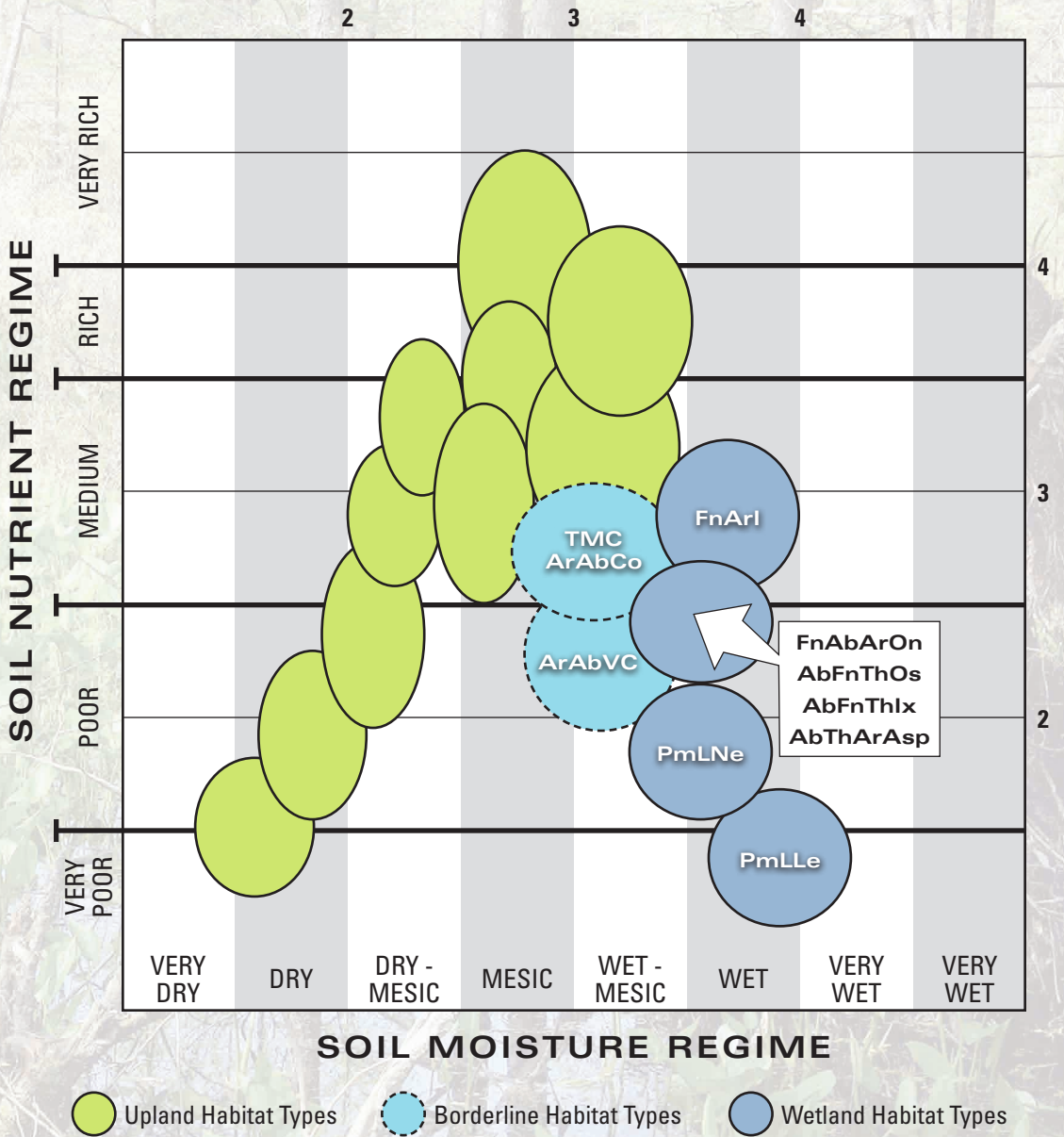
REGION 3

Key to Wetland Habitat Types Key B* (Common Names)

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RELATIONSHIP OF HABITAT TYPES TO SOIL MOISTURE AND NUTRIENT REGIMES IN REGION 3



Region 3 Habitat Type Descriptions

PmLLe

Picea-Larix/Ledum

Picea mariana-Larix laricina/Ledum groenlandicum

Black Spruce-Tamarack/Labrador Tea

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 and white pine occur as temporary associates. Advance reproduction consists almost entirely of black spruce and tamarack, but paper birch saplings are sometimes well represented. Other species that sometimes occur as saplings, but typically do not reach maturity, are red maple, balsam fir, yellow birch and eastern hemlock.

Shrub and Small Tree Layer: Tall shrubs are not well represented. The only conspicuous species with high coverage are Labrador Tea (*Ledum groenlandicum*), Mountain Holly (*Nemopanthus mucronata*) and 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. is a dominant characteristic. Herb species are poorly represented. The following occur with low frequencies: Three-leaved Solomon's Seal (*Smilacina trifolia*), Yellow Beadlily (*Clintonia borealis*), Bunchberry (*Cornus canadensis*) and various species of Lady's Slippers (*Cypripedium* spp.). More frequent and often inconspicuous are species of the Heath family (*Ericaceae*), such as Leatherleaf (*Chamaedaphne calyculata*), 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 3: PLANT SPECIES BY HABITAT TYPE (PmLLe)

Understory Species in Order of Decreasing Frequency of Occurrence

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Sphagnum Mosses (<i>Sphagnum</i> spp.).....	100	83
Leatherleaf (<i>Chamaedaphne calyculata</i>)	97	4
Labrador Tea (<i>Ledum groenlandicum</i>)	97	17
Black Spruce (<i>Picea mariana</i>).....	97	4
Creeping Snowberry (<i>Gaultheria hispidula</i>)..	94	4
Canada Blueberry (<i>Vaccinium myrtilloides</i>)...	94	6
Small Cranberry (<i>Vaccinium oxycoccus</i>).....	82	1
Pale Laurel (<i>Kalmia polifolia</i>)	73	1
Hair Mosses (<i>Polytrichum</i> spp.).....	61	1
Mountain Holly (<i>Nemopanthus mucronata</i>)....	58	3
Three-leaved Solomon's Seal (<i>Smilacina trifolia</i>).....	58	7
Feather Mosses (<i>Feather Moss</i> spp.).....	45	2
Low-sweet Blueberry (<i>Vaccinium angustifolium</i>).....	42	5
Wintergreen (<i>Gaultheria procumbens</i>).....	36	1
Speckled Alder (<i>Alnus rugosa</i>).....	30	1
Yellow Beadlily (<i>Clintonia borealis</i>).....	30	3
Bunchberry (<i>Cornus canadensis</i>)	30	2
Pink Lady's Slipper (<i>Cypripedium acaule</i>).....	30	1
Wild Lily-of-the-valley (<i>Maianthemum canadense</i>).....	30	1
Bog Rosemary (<i>Andromeda glaucophylla</i>)....	27	1
Cinnamon Fern (<i>Osmunda cinnamomea</i>).....	27	3
Starflower (<i>Trientalis borealis</i>)	27	1
Juneberries (<i>Amelanchier</i> spp.).....	24	1
Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) ...	21	1
Grasses (<i>Grass</i> spp.)	21	1
Reindeer Lichens (<i>Cladina</i> spp.).....	15	1
Large Cranberry (<i>Vaccinium macrocarpon</i>)....	15	1
Goldthread (<i>Coptis groenlandica</i>).....	12	1
Larger Blue Flag (<i>Iris versicolor</i>).....	12	5

REGION 3: TREE SPECIES BY HABITAT TYPE (PmLLe)

Tree Species Frequency of Occurrence and Average Cover by Size Class

Sawtimber	Freq. %	Cover %
<i>Larix laricina</i>	48.....	10
<i>Pinus strobus</i>	24.....	6
<i>Picea mariana</i>	15.....	4

Poles	Freq. %	Cover %
<i>Picea mariana</i>	88.....	26
<i>Larix laricina</i>	85.....	26
<i>Pinus strobus</i>	21.....	5
<i>Betula papyrifera</i>	15.....	5
<i>Tsuga canadensis</i>	9.....	7

Saplings	Freq. %	Cover %
<i>Picea mariana</i>	91.....	12
<i>Larix laricina</i>	76.....	7
<i>Abies balsamea</i>	42.....	3
<i>Betula papyrifera</i>	39.....	7
<i>Pinus strobus</i>	33.....	5
<i>Acer rubrum</i>	18.....	2
<i>Tsuga canadensis</i>	12.....	7

Seedlings	Freq. %	Cover %
<i>Picea mariana</i>	91.....	5
<i>Abies balsamea</i>	48.....	1
<i>Betula papyrifera</i>	42.....	1
<i>Acer rubrum</i>	39.....	1
<i>Pinus strobus</i>	36.....	1
<i>Larix laricina</i>	15.....	1
<i>Quercus rubra</i>	15.....	1

PmLNe

Picea-Larix/Nemopanthus

Picea mariana-Larix laricina/Nemopanthus mucronata

Black Spruce-Tamarack/Mountain Holly

DISTRIBUTION

Throughout the region.

LANDFORM AND SOILS

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

VEGETATION

Common Forest Cover Types: Most stands are dominated by black spruce and tamarack, but any of the following species can be common associates: balsam fir, northern white cedar, red maple, white spruce, paper birch and aspen. Advance reproduction typically is dominated by balsam fir and black spruce, but saplings of the following species are sometimes well represented: red maple, paper birch, tamarack and northern white cedar.

Shrub and Small Tree Layer: This layer may be sparse or moderately well developed. Best represented shrubs are Mountain Holly (*Nemopanthus mucronata*), 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. is a dominant characteristic. Herb species are few and characteristic of wet-mesic uplands, e.g., Bunchberry (*Cornus canadensis*), Starflower (*Trientalis borealis*), Spinulose Shield Fern (*Dryopteris spinulosa*), Wild Lily-of-the-valley (*Maianthemum canadense*), Goldthread (*Coptis groenlandica*), Cinnamon Fern (*Osmunda cinnamomea*), 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 3: PLANT SPECIES BY HABITAT TYPE (PmLNe)

Understory Species in Order of Decreasing Frequency of Occurrence

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Mountain Holly (<i>Nemopanthus mucronata</i>)...	96	3
Starflower (<i>Trientalis borealis</i>).....	96	1
Canada Blueberry (<i>Vaccinium myrtilloides</i>)... 96.....	96	4
Sphagnum Mosses (<i>Sphagnum</i> spp.).....	92	33
Goldthread (<i>Coptis groenlandica</i>).....	88	1
Bunchberry (<i>Cornus canadensis</i>).....	88	3
Wild Lily-of-the-valley (<i>Maianthemum canadense</i>).....	88	1
Labrador Tea (<i>Ledum groenlandicum</i>).....	80	4
Cinnamon Fern (<i>Osmunda cinnamomea</i>).....	76	13
Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) ...	72	3
Creeping Snowberry (<i>Gaultheria hispidula</i>)..	72	1
Hair Mosses (<i>Polytrichum</i> spp.).....	68	3
Juneberries (<i>Amelanchier</i> spp.).....	64	1
Low-sweet Blueberry (<i>Vaccinium angustifolium</i>).....	56	4
Feather Mosses (<i>Feather Moss</i> spp.).....	52	6
Wintergreen (<i>Gaultheria procumbens</i>).....	52	1
Yellow Beadlily (<i>Clintonia borealis</i>).....	44	1
Speckled Alder (<i>Alnus rugosa</i>).....	40	7
Winterberry (<i>Ilex verticillata</i>).....	36	2
Pink Lady's Slipper (<i>Cypripedium acaule</i>).....	32	1
Twinflower (<i>Linnaea borealis</i>).....	28	1
Leatherleaf (<i>Chamaedaphne calyculata</i>)	24	1
Horsetails (<i>Equisetum</i> spp.).....	24	1
Ground Pine (<i>Lycopodium obscurum</i>).....	24	1
Common Wood Sorrel (<i>Oxalis montana</i>).....	24	1
Raspberries/Blackberries (<i>Rubus</i> spp.).....	24	1
Three-leaved Solomon's Seal (<i>Smilacina trifolia</i>).....	24	1
Wild Sarsaparilla (<i>Aralia nudicaulis</i>).....	20	1

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Beaked Hazelnut (<i>Corylus cornuta</i>).....	20	3
Swamp Dewberry (<i>Rubus hispidus</i>)	20	1
Dwarf Raspberry (<i>Rubus pubescens</i>)	20	2
Small Cranberry (<i>Vaccinium oxycoccus</i>).....	20	1
Stiff Clubmoss (<i>Lycopodium annotinum</i>).....	16	1
Bracken Fern (<i>Pteridium aquilinum</i>).....	16	5
Reindeer Lichens (<i>Cladina</i> spp.).....	12	1
Trailing Arbutus (<i>Epigaea repens</i>).....	12	1
Fly Honeysuckles (<i>Lonicera</i> spp.).....	12	1
Bugleweed (<i>Lycopus uniflorus</i>).....	12	1
Interrupted Fern (<i>Osmunda claytoniana</i>).....	12	1
Royal Fern (<i>Osmunda regalis</i>).....	12	4



REGION 3: TREE SPECIES BY HABITAT TYPE (PmLNe)

Tree Species Frequency of Occurrence and Average Cover by Size Class

Sawtimber	Freq. %	Cover %
<i>Larix laricina</i>	49.....	13
<i>Picea mariana</i>	35.....	10
<i>Thuja occidentalis</i>	30.....	22
<i>Pinus strobus</i>	19.....	19
<i>Tsuga canadensis</i>	16.....	15

Poles	Freq. %	Cover %
<i>Picea mariana</i>	70.....	26
<i>Larix laricina</i>	54.....	13
<i>Betula papyrifera</i>	51.....	5
<i>Abies balsamea</i>	43.....	5
<i>Acer rubrum</i>	35.....	9
<i>Thuja occidentalis</i>	30.....	21
<i>Populus tremuloides</i>	19.....	3
<i>Tsuga canadensis</i>	19.....	23
<i>Pinus strobus</i>	14.....	3
<i>Picea glauca</i>	11.....	28

Saplings	Freq. %	Cover %
<i>Abies balsamea</i>	86.....	9
<i>Acer rubrum</i>	62.....	7
<i>Picea mariana</i>	57.....	11
<i>Betula papyrifera</i>	43.....	6
<i>Larix laricina</i>	30.....	2
<i>Thuja occidentalis</i>	19.....	7
<i>Betula alleghaniensis</i>	14.....	8
<i>Picea glauca</i>	11.....	2
<i>Tsuga canadensis</i>	11.....	9

Seedlings	Freq. %	Cover %
<i>Acer rubrum</i>	89.....	1
<i>Abies balsamea</i>	86.....	3
<i>Picea mariana</i>	57.....	1
<i>Betula papyrifera</i>	27.....	1
<i>Quercus rubra</i>	22.....	1
<i>Prunus serotina</i>	16.....	1
<i>Pinus strobus</i>	14.....	1
<i>Picea glauca</i>	11.....	1
<i>Sorbus americana</i>	11.....	1

AbThArAsp

Abies-Thuja-Acer/Acer* • *Abies balsamea-Thuja occidentalis-Acer rubrum/Acer spicatum
Balsam Fir-Northern White Cedar-
Red Maple/Mountain Maple

DISTRIBUTION

Mostly Forest and Oneida Counties, and occasionally eastern Vilas and northern Langlade Counties. It also occurs east in Region 4.

LANDFORM AND SOILS

Landform is primarily pitted outwash or other ice contact deposits. Soils are sandy with the depth of organic horizon varying from less than six inches to more than two feet. Saturation depth, in years and seasons of sampling, was between two and three feet.

VEGETATION

Common Forest Cover Types: Most stands are dominated, singly or in combination, by balsam fir, northern white cedar and red maple. White spruce, paper birch, yellow birch and hemlock are occasional associates. Advance reproduction is typically dominated by balsam fir. Red maple, black spruce and black ash are sometimes present. Northern white cedar is conspicuously underrepresented in this layer, presumably largely due to deer browsing.

Shrub and Small Tree Layer: This layer may be sparse or moderately well developed. Best represented shrubs are Mountain Maple (*Acer spicatum*), speckled alder (*Alnus rugosa*), Beaked Hazel (*Corylus cornuta*), Fly Honeysuckles (*Lonicera* spp.), and Canada Blueberry (*Vaccinium myrtilloides*).



(Photo from Department of Natural Resources Archives)



Ground Flora Characteristics: Herbaceous layer is moderately well developed and species rich. Species with the highest frequency of occurrence are Bunchberry (*Cornus canadensis*), Starflower (*Trientalis borealis*), Spinulose Shield Fern (*Dryopteris spinulosa*), Wild Lily-of-the-valley (*Maianthemum canadense*), Goldthread (*Coptis groenlandica*), Wild Sarsaparilla (*Aralia nudicaulis*), Dwarf Raspberry (*Rubus pubescens*), Cinnamon Fern (*Osmunda cinnamomea*), Yellow Beadlily (*Clintonia borealis*) and Oak Fern (*Dryopteris disjuncta*). *Sphagnum* spp. was present on 85 percent of study plots with average coverage of 40 percent.

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) **AbThArAsp** type is classified as “poor to medium” (see the **Management Implications** section).



REGION 3: PLANT SPECIES BY HABITAT TYPE (AbThArAsp)

Understory Species in Order of Decreasing Frequency of Occurrence

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Spinulose Shield Fern (<i>Dryopteris spinulosa</i>)	100	4
Starflower (<i>Trientalis borealis</i>)	100	1
Bunchberry (<i>Cornus canadensis</i>)	96	6
Wild Lily-of-the-valley (<i>Maianthemum canadense</i>)	96	1
Goldthread (<i>Coptis groenlandica</i>)	92	1
Sphagnum Mosses (<i>Sphagnum</i> spp.)	85	40
Wild Sarsaparilla (<i>Aralia nudicaulis</i>)	77	3
Yellow Beadlily (<i>Clintonia borealis</i>)	77	2
Oak Fern (<i>Dryopteris disjuncta</i>)	73	2
Cinnamon Fern (<i>Osmunda cinnamomea</i>)	73	4
Canada Blueberry (<i>Vaccinium myrtilloides</i>)	73	1
Mountain Maple (<i>Acer spicatum</i>)	69	11
Dwarf Raspberry (<i>Rubus pubescens</i>)	69	8
American Fly Honeysuckle (<i>Lonicera canadensis</i>)	65	3
Speckled Alder (<i>Alnus rugosa</i>)	58	15
Juneberries (<i>Amelanchier</i> spp.)	58	1
Beaked Hazelnut (<i>Corylus cornuta</i>)	58	3
Beech Fern (<i>Dryopteris phegopteris</i>)	58	3
Twinflower (<i>Linnaea borealis</i>)	54	1
Feather Mosses (<i>Feather Moss</i> spp.)	50	3
Yellow Birch (<i>Betula alleghaniensis</i>)	46	1
Creeping Snowberry (<i>Gaultheria hispidula</i>)	46	1
Grasses (<i>Grass</i> spp.)	46	3
Shinleafs (<i>Pyrola</i> spp.)	46	1
Sedges (<i>Carex</i> spp.)	42	6
Mountain Holly (<i>Nemopanthus mucronata</i>)	42	1
Hair Mosses (<i>Polytrichum</i> spp.)	42	5
Black Cherry (<i>Prunus serotina</i>)	42	1
Low-sweet Blueberry (<i>Vaccinium angustifolium</i>)	42	1
Lady Fern (<i>Athyrium filix-femina</i>)	38	11
Dwarf Enchanter's Nightshade (<i>Circaea alpina</i>)	33	1

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Bedstraws (<i>Galium</i> spp.).....	38	1
Bugleweed (<i>Lycopus uniflorus</i>).....	38	1
Raspberries/Blackberries (<i>Rubus</i> spp.).....	24	1
Shinleaves (<i>Pyrola</i> spp.).....	24	1
Marsh Marigold (<i>Caltha palustris</i>).....	22	2
Bugleweed (<i>Lycopus uniflorus</i>).....	20	1
Arrow-leaved Tearthumb (<i>Polygonum sagittatum</i>).....	20	1
Speckled Alder (<i>Alnus rugosa</i>).....	18	10
Small Jack-in-the-pulpit (<i>Arisaema triphyllum</i>).....	16	1
Hawkweeds (<i>Hieracium</i> spp.).....	16	1
Wood Anemone (<i>Anemone quinquefolia</i>).....	16	1
Interrupted Fern (<i>Osmunda claytoniana</i>).....	14	4
Partridgeberry (<i>Mitchella repens</i>).....	14	1
Naked Miterwort (<i>Mitella nuda</i>).....	38	1
Common Wood Sorrel (<i>Oxalis montana</i>).....	38	2
Yellow Wood Sorrel (<i>Oxalis stricta</i>).....	38	1
Crested Wood Fern (<i>Dryopteris cristata</i>).....	35	1
Ground Pine (<i>Lycopodium obscurum</i>).....	35	3
Currants/Gooseberries (<i>Ribes</i> spp.).....	35	2
Asters (<i>Aster</i> spp.).....	31	1
Horsetails (<i>Equisetum</i> spp.).....	31	1
Winterberry (<i>Ilex verticillata</i>).....	31	1
Spotted Touch-me-not (<i>Impatiens capensis</i>).....	31	1
Shining Clubmoss (<i>Lycopodium lucidulum</i>).....	31	2
Labrador Tea (<i>Ledum groenlandicum</i>).....	27	1
Swamp Red Currant (<i>Ribes triste</i>).....	27	1
Raspberries/Blackberries (<i>Rubus</i> spp.).....	27	1
Violets (<i>Viola</i> spp.).....	27	1
Red-osier Dogwood (<i>Cornus stolonifera</i>).....	23	5
Sweet-scented Bedstraw (<i>Galium triflorum</i>).....	23	1
Stiff Clubmoss (<i>Lycopodium annotinum</i>).....	23	1
Small Jack-in-the-pulpit (<i>Arisaema triphyllum</i>).....	19	1

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Alternate-leaved Dogwood (<i>Cornus alternifolia</i>).....	19	3
Wild Strawberry (<i>Fragaria virginiana</i>).....	19	1
Interrupted Fern (<i>Osmunda claytoniana</i>).....	19	2
Eastern White Pine (<i>Pinus strobus</i>).....	19	1
Hairy Solomon's Seal (<i>Polygonatum pubescens</i>).....	19	1
Hooked Crowfoot (<i>Ranunculus recurvatus</i>)..	19	1
Rose Twisted Stalk (<i>Streptopus lanceolatus</i>).....	19	1
Nodding Trillium (<i>Trillium cernuum</i>).....	19	1
Pink Lady's Slipper (<i>Cypripedium acaule</i>).....	15	1
Bush Honeysuckle (<i>Diervilla lonicera</i>).....	15	1
Wood Horsetail (<i>Equisetum sylvaticum</i>).....	15	1
Common Clubmoss (<i>Lycopodium clavatum</i>)..	15	1
Quaking Aspen (<i>Populus tremuloides</i>).....	15	1
Chokecherry (<i>Prunus virginiana</i>)	15	1
Bracken Fern (<i>Pteridium aquilinum</i>).....	15	3
Swamp Dewberry (<i>Rubus hispidus</i>)	15	1
Three-leaved Solomon's Seal (<i>Smilacina trifolia</i>).....	15	1



REGION 3: TREE SPECIES BY HABITAT TYPE (AbThArAsp)

Tree Species Frequency of Occurrence and Average Cover by Size Class

Sawtimber	Freq. %	Cover %
<i>Thuja occidentalis</i>	62.....	36
<i>Tsuga canadensis</i>	46.....	18
<i>Betula alleghaniensis</i>	38.....	18
<i>Acer rubrum</i>	35.....	18
<i>Larix laricina</i>	19.....	32
<i>Picea mariana</i>	19.....	13
<i>Betula papyrifera</i>	15.....	8
<i>Populus tremuloides</i>	15.....	19
<i>Abies balsamea</i>	12.....	4
<i>Pinus strobus</i>	12.....	19

Poles	Freq. %	Cover %
<i>Abies balsamea</i>	88.....	16
<i>Thuja occidentalis</i>	69.....	16
<i>Acer rubrum</i>	50.....	15
<i>Betula alleghaniensis</i>	31.....	11
<i>Betula papyrifera</i>	31.....	13
<i>Fraxinus nigra</i>	27.....	4
<i>Tsuga canadensis</i>	27.....	16
<i>Picea mariana</i>	19.....	19
<i>Populus tremuloides</i>	12.....	9

Saplings	Freq. %	Cover %
<i>Abies balsamea</i>	88.....	23
<i>Acer rubrum</i>	38.....	4
<i>Thuja occidentalis</i>	31.....	2
<i>Picea mariana</i>	23.....	9
<i>Betula alleghaniensis</i>	19.....	7

Seedlings	Freq. %	Cover %
<i>Abies balsamea</i>	77.....	2
<i>Acer rubrum</i>	42.....	1
<i>Fraxinus nigra</i>	35.....	1
<i>Acer saccharum</i>	27.....	1
<i>Betula alleghaniensis</i>	27.....	1
<i>Acer saccharinum</i>	19.....	2
<i>Picea mariana</i>	19.....	2
<i>Prunus serotina</i>	19.....	1

AbFnThOs

Abies-Fraxinus-Thuja/Osmunda • *Abies balsamea-Fraxinus nigra-Thuja occidentalis/Osmunda cinnamomea*
Balsam Fir-Black Ash-Northern White Cedar/Cinnamon Fern

DISTRIBUTION

Iron, Price and Taylor Counties and west.

LANDFORM AND SOILS

In this region the pattern of different types of glacial deposits is complex, often resulting in the occurrence of significantly different habitat types in very close proximity to each other. AbFnThOs habitat type occurs primarily where soils are of coarser textures. Surface organic layer is typically shallow, but on some plots it exceeded five feet. In the year of sampling, soil on most plots was saturated to the surface.

VEGETATION

Common Forest Cover Types: Most stands are dominated singly, or in combination, by northern white cedar, balsam fir, black ash and red maple. Advance reproduction is best represented by balsam fir, black ash and red maple. Northern white cedar is conspicuously underrepresented in this layer, presumably due largely to deer browsing.

Shrub and Small Tree Layer: This layer is not well developed. Best represented shrubs, but with relatively low coverage, are Mountain Holly (*Nemopanthus mucronata*), Mountain Maple (*Acer Spicatum*) and Beaked Hazel (*Corylus cornuta*). Less common species are Fly Honeysuckles (*Lonicera* spp.) and Red-osier Dogwood (*Cornus stolonifera*).

Ground Flora Characteristics: Herbaceous layer is not well developed. Species with highest frequency of occurrence are Starflower (*Trientalis borealis*), Bunchberry (*Cornus canadensis*), Spinulose Shield Fern (*Dryopteris spinulosa*), Wild Lily-of-the-valley (*Maianthemum canadense*), Cinnamon Fern (*Osmunda cinnamomea*), Goldthread (*Coptis groenlandica*), Dwarf Raspberry (*Rubus pubescens*), Spotted Touch-me-not (*Impatiens capensis*), and Sensitive Fern (*Onoclea sensibilis*). *Sphagnum* spp. was present on 62 percent of study plots with average coverage of 11 percent.

Disturbance and Succession: See the Introduction.

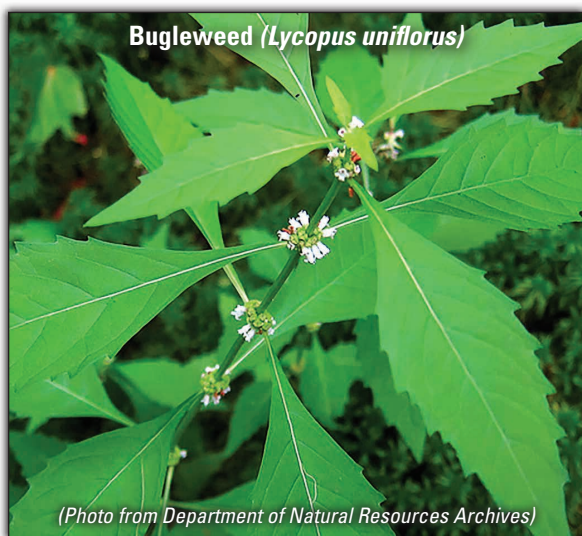
Management Implications: On the relative scale of wetland habitat type productivity (very poor, poor, poor to medium, medium, medium to rich) **AbFnThOs** type is classified as “poor to medium” (see the **Management Implications** section).

REGION 3: PLANT SPECIES BY HABITAT TYPE (AbFnThOs)

Understory Species in Order of Decreasing Frequency of Occurrence

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Starflower (<i>Trientalis borealis</i>).....	96	1
Bunchberry (<i>Cornus canadensis</i>).....	94	2
Wild Lily-of-the-valley (<i>Maianthemum canadense</i>).....	92	1
Cinnamon Fern (<i>Osmunda cinnamomea</i>).....	90	8
Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) ...	88	2
Goldthread (<i>Coptis groenlandica</i>).....	82	1
Mountain Holly (<i>Nemopanthus mucronata</i>)....	72	1
Dwarf Raspberry (<i>Rubus pubescens</i>)	70	3
Goldenrods (<i>Solidago</i> spp.).....	68	1
Beaked Hazelnut (<i>Corylus cornuta</i>).....	66	3
Fly Honeysuckles (<i>Lonicera</i> spp.).....	62	2
Sphagnum Mosses (<i>Sphagnum</i> spp.).....	62	10
Mountain Maple (<i>Acer spicatum</i>).....	52	4
Bedstraws (<i>Galium</i> spp.).....	48	1
Sensitive Fern (<i>Onoclea sensibilis</i>).....	48	1
Oak Fern (<i>Dryopteris disjuncta</i>).....	48	1
Yellow Beadlily (<i>Clintonia borealis</i>).....	46	2
Nodding Trillium (<i>Trillium cernuum</i>).....	44	1
Common Wood Sorrel (<i>Oxalis montana</i>).....	44	2
Horsetails (<i>Equisetum</i> spp.).....	42	2
Beech Fern (<i>Dryopteris phegopteris</i>).....	42	2
Hair Mosses (<i>Polytrichum</i> spp.).....	42	2
Naked Miterwort (<i>Mitella nuda</i>).....	40	2
Red-osier Dogwood (<i>Cornus stolonifera</i>)	40	1
Creeping Snowberry (<i>Gaultheria hispidula</i>)	40	2
Spotted Touch-me-not (<i>Impatiens capensis</i>)....	38	1
Wild Strawberry (<i>Fragaria virginiana</i>).....	38	1
Canada Blueberry (<i>Vaccinium myrtilloides</i>)...	38	1
Twinflower (<i>Linnaea borealis</i>).....	32	1
Currants/Gooseberries (<i>Ribes</i> spp.)	28	2
Raspberries/Blackberries (<i>Rubus</i> spp.).....	24	1
Shinleaves (<i>Pyrola</i> spp.).....	24	1
Marsh Marigold (<i>Caltha palustris</i>).....	22	2
Bugleweed (<i>Lycopus uniflorus</i>).....	20	1

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Arrow-leaved Tearthumb (<i>Polygonum sagittatum</i>).....	20	1
Speckled Alder (<i>Alnus rugosa</i>).....	18	10
Small Jack-in-the-pulpit (<i>Arisaema triphyllum</i>).....	16	1
Hawkweeds (<i>Hieracium</i> spp.).....	16	1
Wood Anemone (<i>Anemone quinquefolia</i>).....	16	1
Interrupted Fern (<i>Osmunda claytoniana</i>).....	14	4
Partridgeberry (<i>Mitchella repens</i>).....	14	1



REGION 3: TREE SPECIES BY HABITAT TYPE (AbFnThOs)

Tree Species Frequency of Occurrence and Average Cover by Size Class

Sawtimber	Freq. %	Cover %
<i>Thuja occidentalis</i>	76.....	32
<i>Betula papyrifera</i>	50.....	14
<i>Fraxinus nigra</i>	32.....	19
<i>Acer rubrum</i>	30.....	7
<i>Tsuga canadensis</i>	30.....	18
<i>Abies balsamea</i>	22.....	5
<i>Picea mariana</i>	16.....	7
<i>Populus tremuloides</i>	16.....	8

Poles	Freq. %	Cover %
<i>Thuja occidentalis</i>	64.....	23
<i>Abies balsamea</i>	62.....	10
<i>Fraxinus nigra</i>	62.....	19
<i>Acer rubrum</i>	48.....	11
<i>Betula papyrifera</i>	38.....	9
<i>Tsuga canadensis</i>	24.....	16
<i>Picea mariana</i>	18.....	8
<i>Betula alleghaniensis</i>	14.....	7

Saplings	Freq. %	Cover %
<i>Abies balsamea</i>	92.....	7
<i>Fraxinus nigra</i>	68.....	9
<i>Acer rubrum</i>	48.....	6
<i>Thuja occidentalis</i>	40.....	5
<i>Betula papyrifera</i>	28.....	8
<i>Acer saccharum</i>	18.....	5
<i>Tsuga canadensis</i>	16.....	12
<i>Ulmus thomasii</i>	16.....	2
<i>Abies balsamea</i>	90.....	2

Seedlings	Freq. %	Cover %
<i>Fraxinus nigra</i>	84.....	1
<i>Acer rubrum</i>	76.....	1
<i>Betula papyrifera</i>	48.....	1
<i>Acer saccharum</i>	34.....	1
<i>Populus tremuloides</i>	22.....	1
<i>Tsuga canadensis</i>	20.....	1
<i>Quercus rubra</i>	16.....	1
<i>Prunus serotina</i>	14.....	1
<i>Thuja occidentalis</i>	12.....	1
<i>Ulmus thomasii</i>	12.....	1

AbFnThlx

Abies-Fraxinus-Thuja/Ilex* • *Abies balsamea-Fraxinus nigra-Thuja occidentalis/Ilex verticillata

Balsam Fir-Black Ash-Northern White Cedar/Winterberry

DISTRIBUTION

Lincoln, Oneida and Vilas Counties and east.

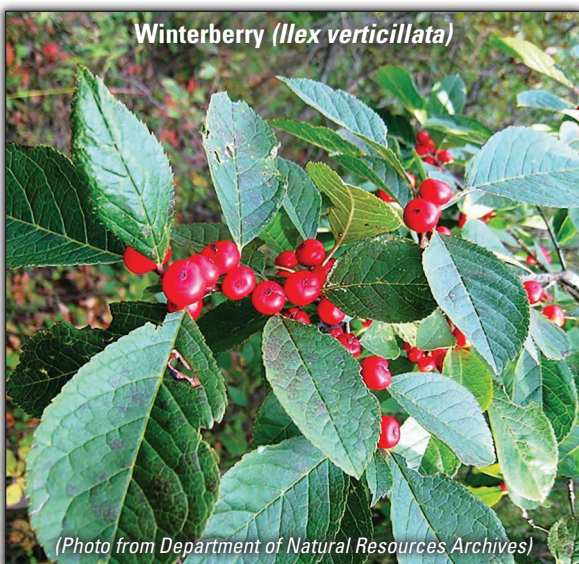
LANDFORM AND SOILS

Substrate is either organic material, typically deeper than five feet, or very thin and underlain by mineral soil with sandy texture and saturated to near surface.

VEGETATION

Common Forest Cover Types: Most stands are dominated singly, or in combination, by balsam fir, northern white cedar, black ash and red maple. White spruce, yellow birch, white birch and hemlock are occasional associates. Advance reproduction is best represented by balsam fir and black ash. Northern white cedar is underrepresented in this layer, presumably due largely to deer browsing.

Shrub and Small Tree Layer: This layer is not well developed. Best represented shrubs are Beaked Hazel (*Corylus cornuta*), Currants/Gooseberries (*Ribes* spp.), Winterberry (*Ilex verticillata*), Juneberries (*Amelanchier* spp.), Mountain Maple (*Acer spicatum*), Fly Honeysuckles (*Lonicera* spp.) and Canada Blueberry (*Vaccinium myrtilloides*).



Starflower (*Trientalis borealis*)



(Photo from Department of Natural Resources Archives)

Ground Flora Characteristics: Herbaceous layer is moderately well developed. Species with the highest frequency of occurrence are Bunchberry (*Cornus canadensis*), Starflower (*Trientalis borealis*), Spinulose Shield Fern (*Dryopteris spinulosa*), Wild Lily-of-the-valley (*Maianthemum canadense*), Goldthread (*Coptis groenlandica*), Wild Sarsaparilla (*Aralia nudicaulis*), Dwarf Raspberry (*Rubus pubescens*), Cinnamon Fern (*Osmunda cinnamomea*), and Oak Fern (*Dryopteris disjuncta*). *Sphagnum* spp. was present on 63 percent of study plots with average coverage of 15 percent.

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)

AbFnThlx type is classified as “poor to medium” (see the **Management Implications** section).



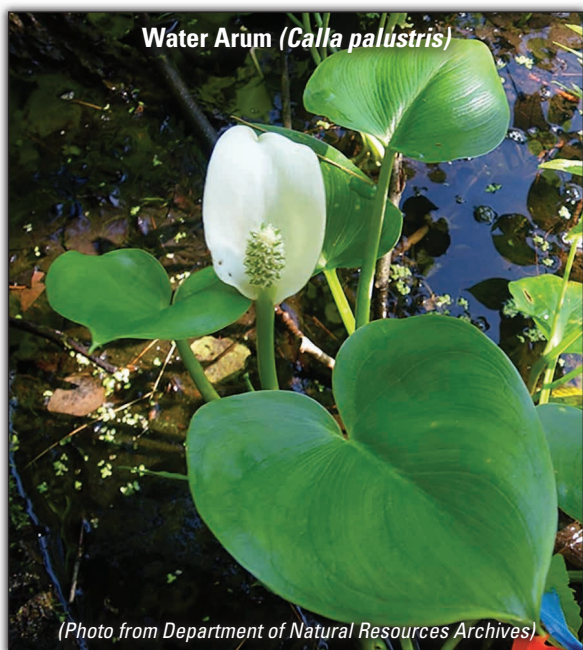
(Photo from Department of Natural Resources Archives)

REGION 3: PLANT SPECIES BY HABITAT TYPE (AbFnThlx)

Understory Species in Order of Decreasing Frequency of Occurrence

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Starflower (<i>Trientalis borealis</i>).....	100	1
Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) ...	99	2
Wild Lily-of-the-valley (<i>Maianthemum canadense</i>).....	99	1
Asters (<i>Aster</i> spp.).....	97	1
Bunchberry (<i>Cornus canadensis</i>)	92	2
Dwarf Raspberry (<i>Rubus pubescens</i>)	91	4
Goldthread (<i>Coptis groenlandica</i>).....	89	1
Cinnamon Fern (<i>Osmunda cinnamomea</i>).....	85	3
Beaked Hazelnut (<i>Corylus cornuta</i>).....	80	1
Yellow Beadlily (<i>Clintonia borealis</i>).....	76	1
Spotted Touch-me-not (<i>Impatiens capensis</i>)....	75	2
Naked Miterwort (<i>Mitella nuda</i>).....	75	1
Wild Sarsaparilla (<i>Aralia nudicaulis</i>).....	74	2
Fly Honeysuckles (<i>Lonicera</i> spp.).....	74	1
Bedstraws (<i>Galium</i> spp.).....	74	1
Wood Sorrels (<i>Oxalis</i> spp.).....	72	1
Small Jack-in-the-pulpit (<i>Arisaema triphyllum</i>).....	69	1
Mountain Maple (<i>Acer spicatum</i>).....	68	6
Sensitive Fern (<i>Onoclea sensibilis</i>).....	68	2
Canada Blueberry (<i>Vaccinium myrtilloides</i>)...	63	1
Sphagnum Mosses (<i>Sphagnum</i> spp.).....	63	15
Currants/Gooseberries (<i>Ribes</i> spp.)	62	15
Dwarf Enchanter's Nightshade (<i>Circaea alpina</i>).....	61	1
Winterberry (<i>Ilex verticillata</i>).....	61	1
Bugleweed (<i>Lycopus uniflorus</i>).....	60	1
Mad-dog Skullcap (<i>Scutellaria lateriflora</i>)....	59	1
Horsetails (<i>Equisetum</i> spp.).....	58	2
Twinflower (<i>Linnaea borealis</i>)	47	1
Juneberries (<i>Amelanchier</i> spp.).....	47	1
Violets (<i>Viola</i> spp.)	47	1
Speckled Alder (<i>Alnus rugosa</i>).....	45	3
Shinleafs (<i>Pyrola</i> spp.).....	45	1
Beech Fern (<i>Dryopteris phegopteris</i>).....	37	1
Red-osier Dogwood (<i>Cornus stolonifera</i>).....	36	1
Oak Fern (<i>Dryopteris disjuncta</i>).....	34	1

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Raspberries/Blackberries (<i>Rubus</i> spp.).....	34	1
Nodding Trillium (<i>Trillium cernuum</i>).....	34	1
Big-leaved Aster (<i>Aster macrophyllus</i>).....	33	1
Creeping Snowberry (<i>Gaultheria hispidula</i>)... ..	28	1
Black Cherry (<i>Prunus serotina</i>).....	27	1
Rough Bedstraw (<i>Galium asprellum</i>).....	26	1
Crested Wood Fern (<i>Dryopteris cristata</i>).....	24	1
Wild Strawberry (<i>Fragaria virginiana</i>).....	23	1
Alternate-leaved Dogwood (<i>Cornus alternifolia</i>).....	20	1
Interrupted Fern (<i>Osmunda claytoniana</i>).....	20	1
Stiff Clubmoss (<i>Lycopodium annotinum</i>).....	17	1
Ground Pine (<i>Lycopodium obscurum</i>).....	15	1
Water Arum (<i>Calla palustris</i>).....	15	1
Marsh Marigold (<i>Caltha palustris</i>).....	15	1



Water Arum (*Calla palustris*)

(Photo from Department of Natural Resources Archives)

REGION 3: TREE SPECIES BY HABITAT TYPE (AbFnThlx)

Tree Species Frequency of Occurrence and Average Cover by Size Class

Sawtimber	Freq. %	Cover %
<i>Thuja occidentalis</i>	70.....	15
<i>Picea glauca</i>	20.....	5
<i>Betula papyrifera</i>	35.....	7
<i>Acer rubrum</i>	20.....	10
<i>Tsuga canadensis</i>	23.....	12
<i>Larix laricina</i>	26.....	10
<i>Populus tremuloides</i>	16.....	13
<i>Fraxinus nigra</i>	30.....	16

Poles	Freq. %	Cover %
<i>Abies balsamea</i>	85.....	10
<i>Thuja occidentalis</i>	82.....	22
<i>Betula papyrifera</i>	47.....	13
<i>Acer rubrum</i>	38.....	6
<i>Fraxinus nigra</i>	68.....	18
<i>Picea glauca</i>	21.....	6
<i>Tsuga canadensis</i>	22.....	4
<i>Larix laricina</i>	10.....	13

Saplings	Freq. %	Cover %
<i>Abies balsamea</i>	94.....	8
<i>Thuja occidentalis</i>	42.....	2
<i>Fraxinus nigra</i>	55.....	7
<i>Acer rubrum</i>	40.....	3
<i>Betula papyrifera</i>	31.....	2
<i>Picea glauca</i>	41.....	1
<i>Tsuga canadensis</i>	12.....	1
<i>Populus tremuloides</i>	13.....	1

Seedlings	Freq. %	Cover %
<i>Abies balsamea</i>	94.....	1
<i>Acer rubrum</i>	70.....	1
<i>Fraxinus nigra</i>	70.....	1
<i>Picea glauca</i>	42.....	1
<i>Populus tremuloides</i>	26.....	1
<i>Prunus serotina</i>	15.....	1
<i>Thuja occidentalis</i>	24.....	2
<i>Betula papyrifera</i>	16.....	1

FnAbArOn

***Fraxinus-Abies-Acer/Onoclea* • *Fraxinus nigra-
Abies balsamea-Acer rubrum/Onoclea sensibilis*
*Black Ash-Balsam Fir-Red Maple/Sensitive Fern***

DISTRIBUTION

Iron, Price and Taylor Counties and west.

LANDFORM AND SOILS

Landform is either ground moraines or outwash with parent materials of medium texture. A surface organic layer of one to three feet thick is underlain by mineral soil of sandy loam or loamy sand texture. In the year of sampling, the soil profile was saturated to near surface. About 25 percent of study plots had well decomposed organic layer to a depth greater than five feet.

VEGETATION

Common Forest Cover Types: Black ash typically dominates stands on this habitat type. Sporadic associates include balsam fir, paper birch, red maple and, infrequently, northern white cedar. Advance reproduction is best represented by black ash.

Shrub and Small Tree Layer: This layer is well developed. Most frequently present are speckled alder (*Alnus rugosa*), Currants/Gooseberries (*Ribes* spp.), Raspberries/Blackberries (*Rubus* spp.) and Mountain Maple (*Acer spicatum*). Less frequent are Red-osier Dogwood (*Cornus stolonifera*) and Mountain Holly (*Nemopanthus mucronata*).

Ground Flora Characteristics: Species with the highest constancies include Sensitive Fern (*Onoclea sensibilis*), Spotted Touch-me-not (*Impatiens capensis*), Bedstraws (*Galium* spp.), Spinulose Shield Fern (*Dryopteris spinulosa*), Dwarf Raspberry (*Rubus pubescens*), Marsh Marigold (*Caltha palustris*), and Horsetails (*Equisetum* spp.).

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)

FnAbArOn type is classified as “poor to medium” (see the **Management Implications** section).

REGION 3: PLANT SPECIES BY HABITAT TYPE (FnAbArOn)

Understory Species in Order of Decreasing Frequency of Occurrence

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Bedstraws (<i>Galium</i> spp.).....	96	1
Dwarf Raspberry (<i>Rubus pubescens</i>)	96	4
Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) ...	92	2
Sensitive Fern (<i>Onoclea sensibilis</i>).....	92	4
Goldenrods (<i>Solidago</i> spp.).....	92	1
Spotted Touch-me-not (<i>Impatiens capensis</i>)....	83	5
Speckled Alder (<i>Alnus rugosa</i>).....	79	10
Wild Lily-of-the-valley (<i>Maianthemum canadense</i>).....	79	1
Marsh Marigold (<i>Caltha palustris</i>).....	75	2
Currants/Gooseberries (<i>Ribes</i> spp.)	75	2
Raspberries/Blackberries (<i>Rubus</i> spp.)	71	2
Cinnamon Fern (<i>Osmunda cinnamomea</i>).....	67	4
Starflower (<i>Trientalis borealis</i>).....	63	1
Nodding trillium (<i>Trillium cernuum</i>).....	63	1
Mountain Maple (<i>Acer spicatum</i>).....	58	4
Naked Miterwort (<i>Mitella nuda</i>).....	58	1
Goldthread (<i>Coptis groenlandica</i>).....	50	1
Mountain Holly (<i>Nemopanthus mucronata</i>)....	50	2
Red-osier Dogwood (<i>Cornus stolonifera</i>)	46	1
White Lettuce (<i>Prenanthes alba</i>).....	46	1
White Birch (<i>Betula papyrifera</i>).....	42	1
Wild Strawberry (<i>Fragaria virginiana</i>).....	42	1
Rough Avens (<i>Geum laciniatum</i>).....	42	2
Beaked Hazelnut (<i>Corylus cornuta</i>).....	38	2
Bugleweed (<i>Lycopus uniflorus</i>).....	38	1
Arrow-leaved Tearthumb (<i>Polygonum sagittatum</i>).....	38	1
Violets (<i>Viola</i> spp.)	38	1
Bunchberry (<i>Cornus canadensis</i>)	33	1
Black Cherry (<i>Prunus serotina</i>).....	33	1
Horsetails (<i>Equisetum</i> spp.).....	29	3
Oak Fern (<i>Dryopteris disjuncta</i>).....	29	1
Wild Lettuce (<i>Lactuca canadensis</i>).....	29	1
Fly Honeysuckles (<i>Lonicera</i> spp.).....	29	2
Small Jack-in-the-pulpit (<i>Arisaema triphyllum</i>).....	25	1
Blue Cohosh (<i>Caulophyllum thalictroides</i>).....	25	1

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Boneset (<i>Eupatorium perfoliatum</i>).....	25	1
White Avens (<i>Geum canadense</i>).....	25	1
Interrupted Fern (<i>Osmunda claytoniana</i>).....	25	2
Shinleafs (<i>Pyrola</i> spp.).....	25	1
Sphagnum Mosses (<i>Sphagnum</i> spp.).....	25	2
Beech Fern (<i>Dryopteris phegopteris</i>).....	17	2
Common Wood Sorrel (<i>Oxalis montana</i>).....	17	2
Spotted Joe-Pye Weed (<i>Eupatorium maculatum</i>)	25	1
Narrow-leaved Meadowsweet (<i>Spiraea alba</i>)	17	1
Northern White Cedar (<i>Thuja occidentalis</i>)....	17	1
Water Hemlock (<i>Cicuta maculata</i>)	13	1
Twinflower (<i>Linnaea borealis</i>).....	13	1
Stinging Nettle (<i>Urtica dioica</i>).....	13	1
Canada Blueberry (<i>Vaccinium myrtilloides</i>)...	13	1
Violets (<i>Viola</i> spp.)	13	1



REGION 3: TREE SPECIES BY HABITAT TYPE (FnAbArOn)

Tree Species Frequency of Occurrence and Average Cover by Size Class

Sawtimber	Freq. %	Cover %
<i>Fraxinus nigra</i>	92.....	25
<i>Thuja occidentalis</i>	42.....	15
<i>Betula papyrifera</i>	29.....	6
<i>Acer rubrum</i>	21.....	17
<i>Tsuga canadensis</i>	13.....	15

Poles	Freq. %	Cover %
<i>Fraxinus nigra</i>	100.....	31
<i>Abies balsamea</i>	58.....	4
<i>Betula papyrifera</i>	38.....	11
<i>Acer rubrum</i>	33.....	7
<i>Thuja occidentalis</i>	25.....	7
<i>Betula alleghaniensis</i>	13.....	5

Saplings	Freq. %	Cover %
<i>Fraxinus nigra</i>	96.....	16
<i>Abies balsamea</i>	79.....	9
<i>Acer rubrum</i>	50.....	3
<i>Betula papyrifera</i>	33.....	5
<i>Acer saccharum</i>	25.....	9
<i>Ulmus thomasii</i>	25.....	5
<i>Picea glauca</i>	17.....	4
<i>Thuja occidentalis</i>	17.....	2

Seedlings	Freq. %	Cover %
<i>Acer rubrum</i>	88.....	1
<i>Fraxinus nigra</i>	88.....	1
<i>Abies balsamea</i>	71.....	2
<i>Acer saccharum</i>	42.....	2
<i>Betula papyrifera</i>	42.....	1
<i>Prunus serotina</i>	33.....	1
<i>Ulmus thomasii</i>	29.....	1
<i>Picea glauca</i>	17.....	1
<i>Thuja occidentalis</i>	17.....	1

FnArl

Fraxinus-Acer/Impatiens

Fraxinus nigra-Acer rubrum/Impatiens capensis

Black Ash-Red Maple/Spotted Touch-me-not

DISTRIBUTION

Iron, Price and Taylor Counties and west.

LANDFORM AND SOILS

Regions dominated by ground moraines. The surface of the soil profile typically consists of a relatively shallow layer (one to two feet) of organic material in varying degrees of decomposition, from fibric to sapric. Mineral substrate near the surface is of medium to fine texture, e.g., loam, fine sand or silt loam, underlain by coarser-texture deposits. Saturated conditions were found at two to three feet. However, about 30 percent of plots had well decomposed organic material reaching depths greater than five feet.

VEGETATION

Common Forest Cover Types: Black ash is a predominant species in most stands. Common associates are red maple, paper birch and sometimes balsam fir. The same species are best represented in advance regeneration.

Shrub and Small Tree Layer: This layer is not well developed on this type. Most common are Currants/Gooseberries (*Ribes* spp.) and Raspberries/Blackberries (*Rubus* spp.). The following species occur with frequencies of less than 50 percent: Mountain Maple (*Acer spicatum*), Beaked Hazel (*Corylus cornuta*), Red-osier Dogwood (*Cornus stolonifera*) and speckled alder (*Alnus rugosa*).

Ground Flora Characteristics: Species with the highest constancies include Sensitive Fern (*Onoclea sensibilis*), Spotted Touch-me-not (*Impatiens capensis*), Bedstraws (*Galium* spp.), Spinulose Shield Fern (*Dryopteris spinulosa*), Dwarf Raspberry (*Rubus pubescens*), Marsh Marigold (*Caltha palustris*) and Horsetails (*Equisetum* spp.).

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)

FnArl type is classified as “medium” (see the **Management Implications** section). It is the richest type in Region 3.

REGION 3: PLANT SPECIES BY HABITAT TYPE (FnArI)

Understory Species in Order of Decreasing Frequency of Occurrence

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Sensitive Fern (<i>Onoclea sensibilis</i>).....	100	6
Bedstraws (<i>Galium</i> spp.).....	95	2
Raspberries/Blackberries (<i>Rubus</i> spp.).....	95	2
Goldenrods (<i>Solidago</i> spp.).....	95	3
Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) ...	90	3
Spotted Touch-me-not (<i>Impatiens capensis</i>)....	90	5
Dwarf Raspberry (<i>Rubus pubescens</i>)	86	1
Rough Avens (<i>Geum laciniatum</i>).....	67	1
Northern Bugleweed (<i>Lycopus uniflorus</i>).....	67	1
Arrow-leaved Tearthumb (<i>Polygonum sagittatum</i>).....	67	1
Marsh Marigold (<i>Caltha palustris</i>).....	57	1
Horsetails (<i>Equisetum</i> spp.).....	57	3
Currants/Gooseberries (<i>Ribes</i> spp.)	57	1
Violets (<i>Viola</i> spp.)	57	1
Mountain Maple (<i>Acer spicatum</i>).....	43	2
Wild Lettuce (<i>Lactuca canadensis</i>).....	38	1
White Lettuce (<i>Prenanthes alba</i>).....	38	1
Narrow-leaved Meadowsweet (<i>Spiraea alba</i>).....	38	1
Stinging Nettle (<i>Urtica dioica</i>).....	38	1



Small Jack-in-the-pulpit (<i>Arisaema triphyllum</i>).....	33	.....	1
White Avens (<i>Geum canadense</i>).....	33	.....	1
Nodding Trillium (<i>Trillium cernuum</i>).....	33	.....	1
Blue Cohosh (<i>Caulophyllum thalictroides</i>)	29	.....	4
Red-osier Dogwood (<i>Cornus stolonifera</i>)	29	.....	1
Spotted Joe-Pye Weed (<i>Eupatorium maculatum</i>)	29	.....	1
Naked Miterwort (<i>Mitella nuda</i>).....	29	.....	1
Wild Strawberry (<i>Fragaria virginiana</i>).....	24	.....	1
Mountain Holly (<i>Nemopanthus mucronata</i>)....	24	.....	2
Larger Blue Flag (<i>Iris versicolor</i>).....	19	.....	1
Shinleaves (<i>Pyrola</i> spp.).....	19	.....	1
Sphagnum Mosses (<i>Sphagnum</i> spp.).....	19	.....	2
Juneberries (<i>Amelanchier</i> spp.).....	14	.....	1
Asters (<i>Aster</i> spp.).....	14	.....	2
Water Hemlock (<i>Cicuta maculata</i>)	14	.....	1
American Hazelnut (<i>Corylus americana</i>).....	14	.....	2
Miterwort (<i>Mitella diphylla</i>).....	14	.....	1
Buttercups (<i>Ranunculus</i> spp.).....	14	.....	1
Violets (<i>Viola</i> spp.)	14	.....	1



REGION 3: TREE SPECIES BY HABITAT TYPE (FnArl)

Tree Species Frequency of Occurrence and Average Cover by Size Class

Sawtimber	Freq. %	Cover %
<i>Fraxinus nigra</i>	100.....	33
<i>Betula papyrifera</i>	10.....	4
Poles	Freq. %	Cover %
<i>Fraxinus nigra</i>	100.....	32
<i>Acer rubrum</i>	29.....	11
<i>Betula papyrifera</i>	29.....	12
<i>Abies balsamea</i>	14.....	3
<i>Acer saccharum</i>	10.....	3
<i>Ulmus thomasii</i>	10.....	5
Saplings	Freq. %	Cover %
<i>Fraxinus nigra</i>	95.....	8
<i>Acer rubrum</i>	62.....	3
<i>Abies balsamea</i>	43.....	3
<i>Betula papyrifera</i>	33.....	10
<i>Ulmus thomasii</i>	33.....	10
<i>Acer saccharum</i>	24.....	4
<i>Ulmus americana</i>	14.....	8
<i>Ostrya virginiana</i>	10.....	9
Seedlings	Freq. %	Cover %
<i>Fraxinus nigra</i>	81.....	1
<i>Acer rubrum</i>	57.....	1
<i>Ulmus thomasii</i>	29.....	1
<i>Populus tremuloides</i>	24.....	1
<i>Abies balsamea</i>	19.....	1
<i>Acer saccharum</i>	19.....	1
<i>Betula papyrifera</i>	19.....	1
<i>Quercus rubra</i>	10.....	1
<i>Tilia americana</i>	10.....	1
<i>Ulmus americana</i>	10.....	1