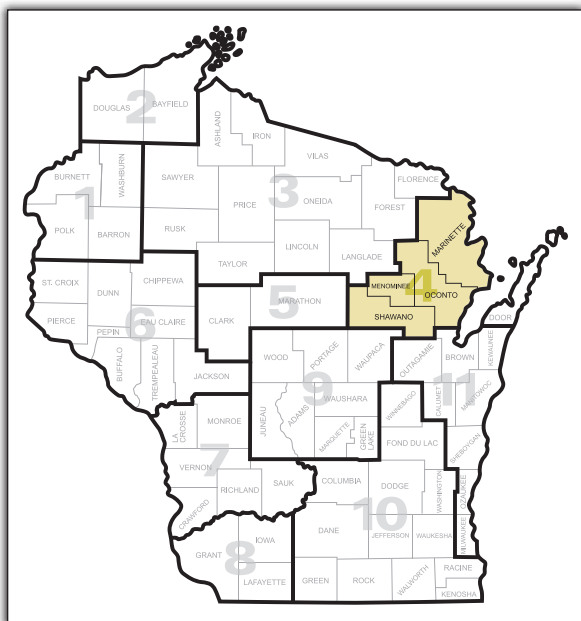


(Photo from Kemp Natural Resources Station Archives)

Region 4

GENERAL DESCRIPTION

Region 4 encompasses Door, Marinette, Menominee, Oconto, and Shawano Counties. The entire region was glaciated during the Wisconsin glacial period. It is characterized by glacial and fluvio-glacial landforms from lake plain, end moraine and outwash. Loams and silt loams are predominant soils and are developed over calcareous dolomite. Black spruce and tamarack forested wetlands exist on the sandy outwash in the northern portion of the region. Boreal conifer (white spruce and northern white cedar) and lowland black and green ash forested swamps exist on the lake plain influenced by Lake Michigan. Green ash is more predominant in the hardwood swamps of this region.



Region 4: Door, Marinette, Menominee, Oconto, and Shawano Counties



(Photo from Kemp Natural Resources Station Archives)

WETLAND FOREST HABITAT TYPES OF REGION 4

PmLLe

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

PmLNe

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

ThAbFnC

- *Thuja-Abies-Fraxinus/Coptis*
- Northern White Cedar-Balsam Fir-Black Ash/
Goldthread

AbThArAsp

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

FnThAbAt

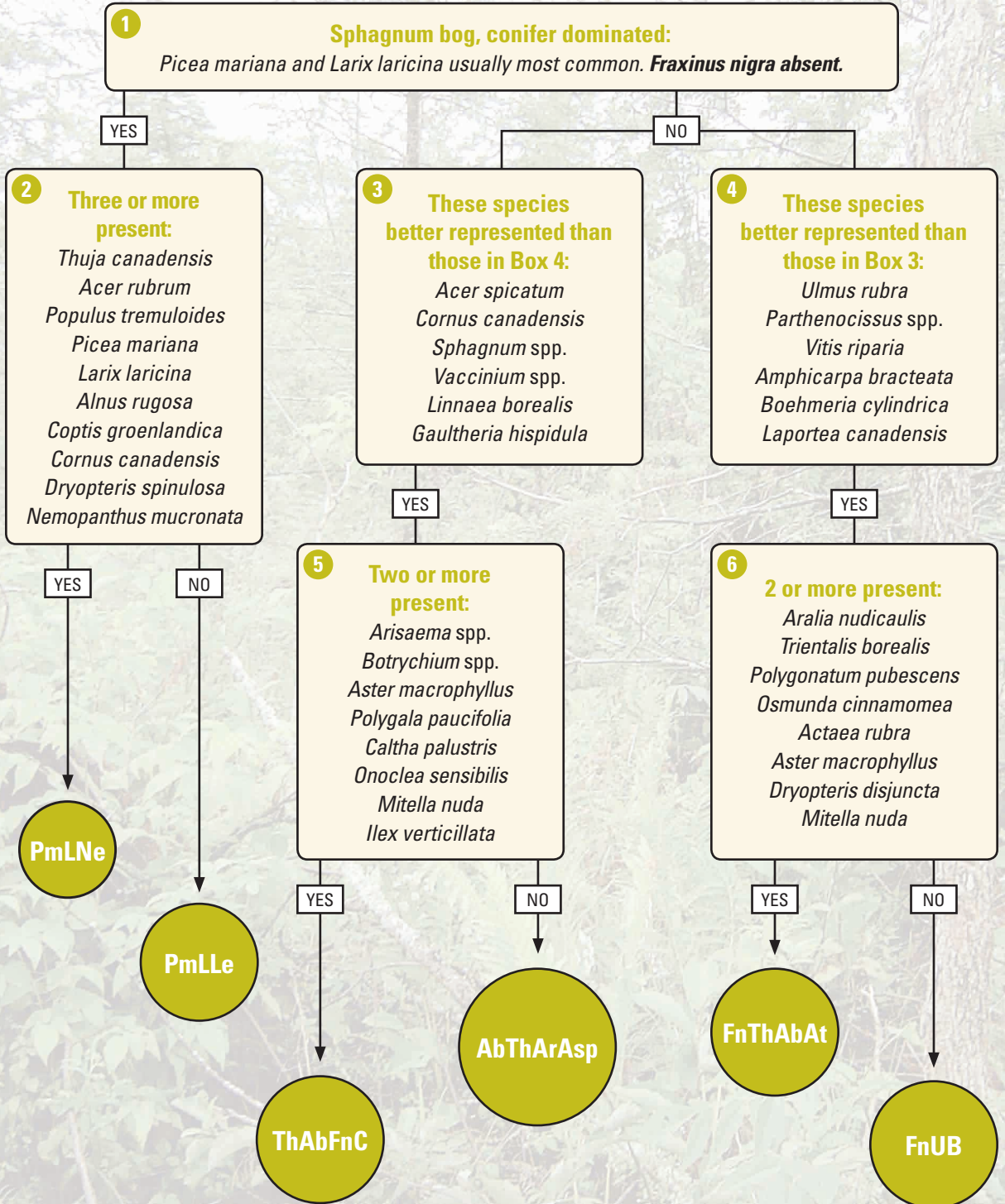
- *Fraxinus-Thuja-Abies/Athyrium*
- Black Ash-Northern White Cedar-Balsam Fir/
Lady Fern

FnUB

- *Fraxinus-Ulmus/Boehmeria*
- Black Ash-(Formerly) Red Elm/False Nettle

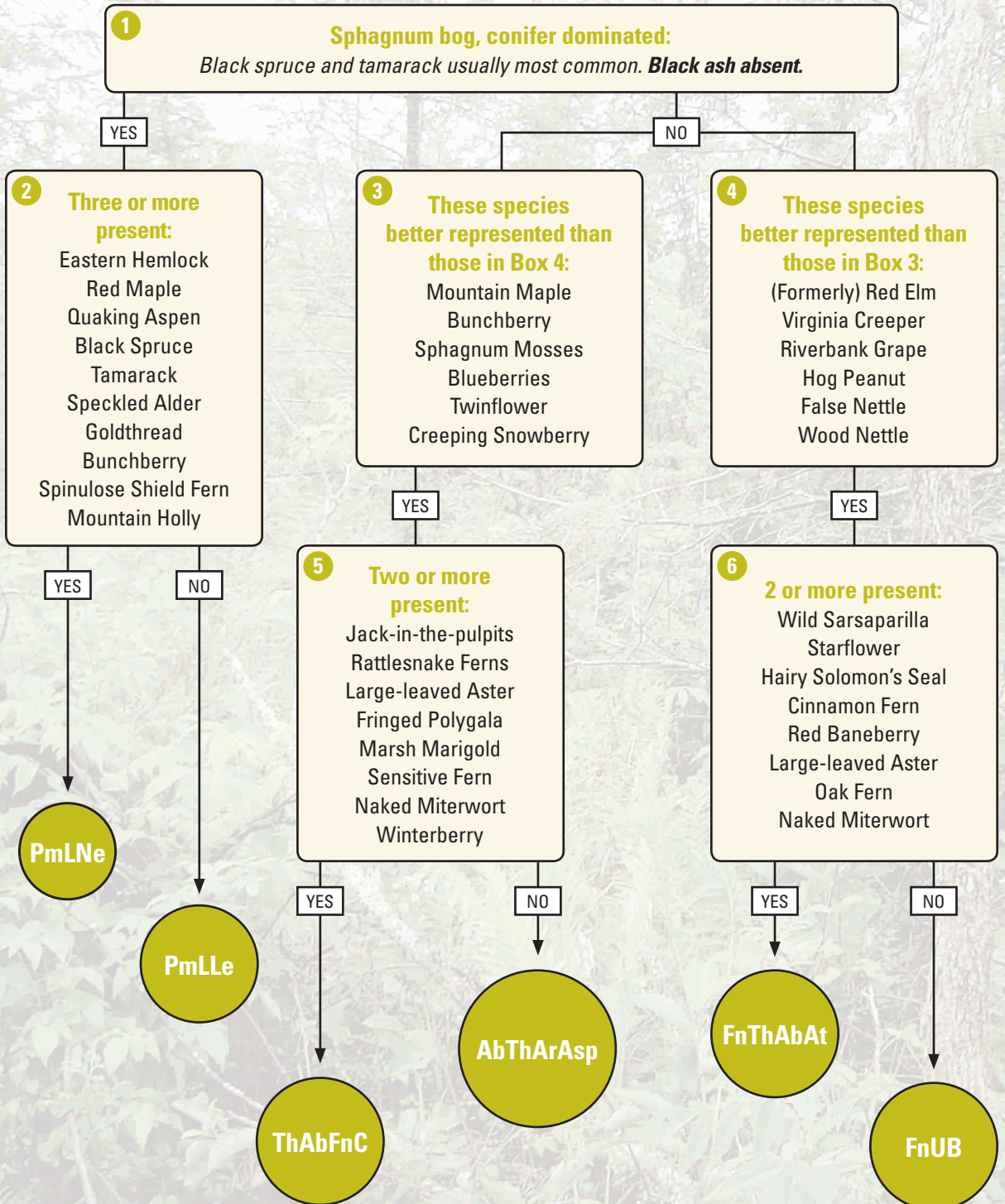
REGION 4

Key to Wetland Habitat Types (Scientific Names)

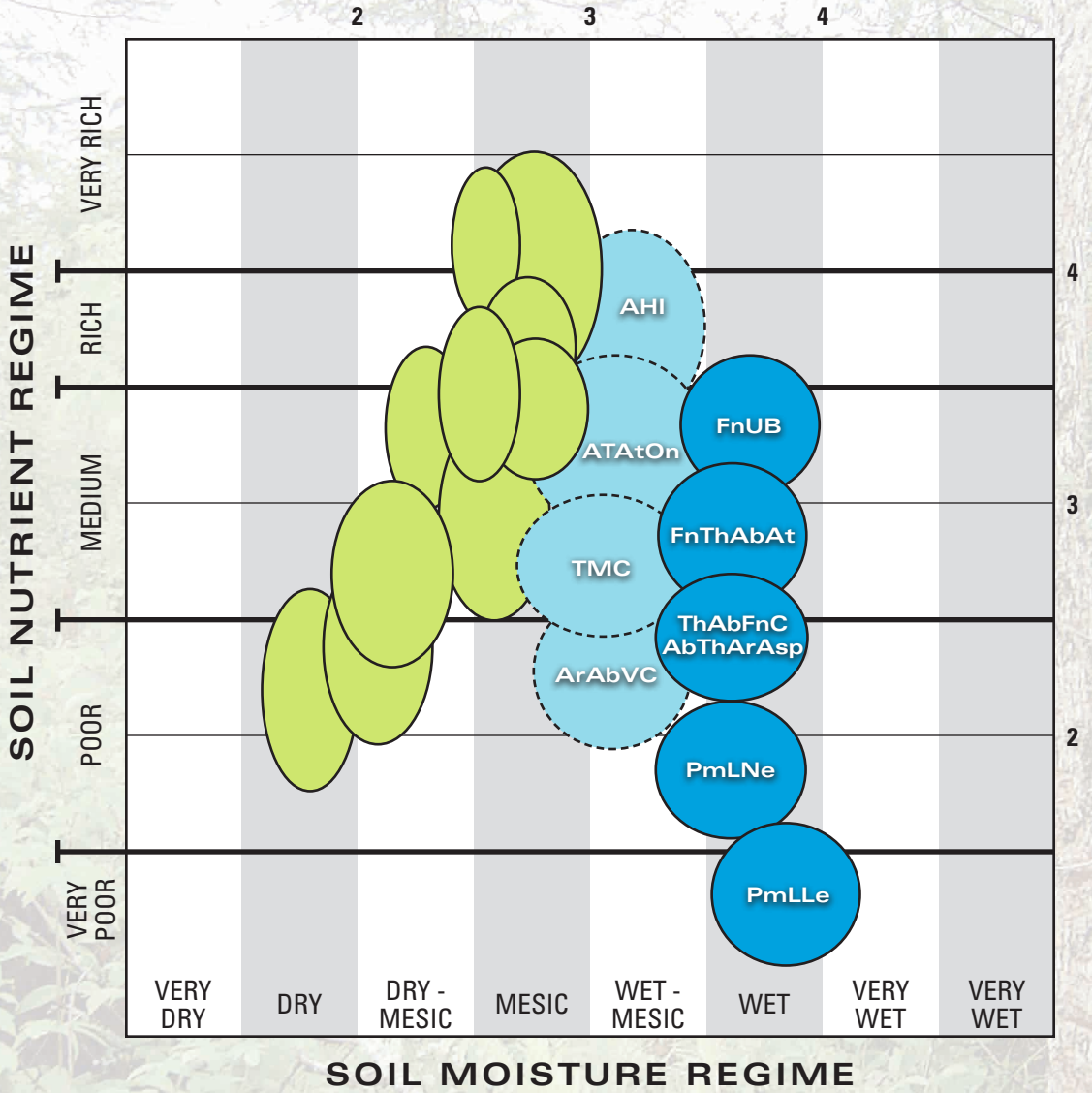


REGION 4

Key to Wetland Habitat Types (Common Names)



RELATIONSHIP OF HABITAT TYPES TO SOIL MOISTURE AND NUTRIENT REGIMES IN REGION 4



● Upland Habitat Types
 ● Borderline Habitat Types
 ● Wetland Habitat Types

Region 4 Habitat Type Descriptions

PmLLe

Picea-Larix/Ledum

Picea mariana-Larix laricina/Ledum groenlandicum

Black Spruce-Tamarack/Labrador Tea

DISTRIBUTION

Throughout the region.

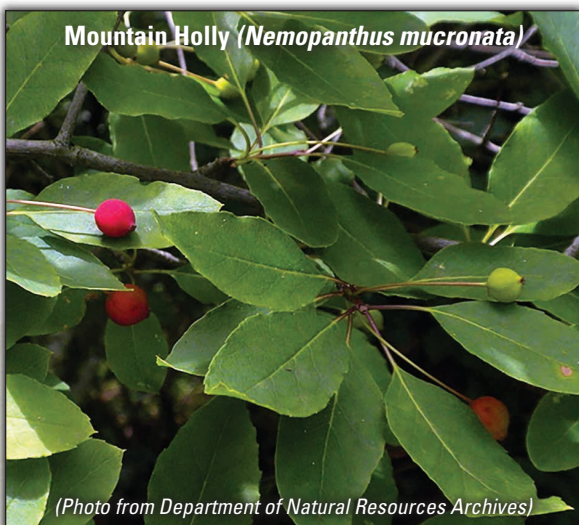
LANDFORM AND SOILS

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, although 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.



Mountain Holly (*Nemopanthus mucronata*)

(Photo from Department of Natural Resources Archives)

Pink Lady's Slipper (*Cypripedium acaule*)



(Photo from Department of Natural Resources Archives)

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, although often inconspicuous, are several 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 4: 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
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
Juneberry (<i>Amelanchier</i> spp.).....	24	1
Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) ...	21	1
Grasses (<i>Grass</i> spp.)	21	1
Reindeer Lichen (<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 4: 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 acid 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 is typically 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 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 is classified as “poor” (see the **Management Implications** section).

REGION 4: PLANT SPECIES BY HABITAT TYPE (PmLNe)

Understory Species in Order of Decreasing Frequency of Occurrence

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Sphagnum Mosses (<i>Sphagnum</i> spp.).....	100	33
Mountain Holly (<i>Nemopanthus mucronata</i>) ...	96	3
Starflower (<i>Trientalis borealis</i>).....	96	1
Canada Blueberry (<i>Vaccinium myrtilloides</i>)...	96	4
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
Juneberry (<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
Beaked Hazelnut (<i>Corylus cornuta</i>).....	20	3
Swamp Dewberry (<i>Rubus hispidus</i>)	20	1
Dwarf Raspberry (<i>Rubus pubescens</i>)	20	2

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
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 Lichen (<i>Cladina</i> spp.).....	12	1
Trailing Arbutus (<i>Epigaea repens</i>).....	12	1
Interrupted Fern (<i>Osmunda claytoniana</i>).....	12	1
Royal Fern (<i>Osmunda regalis</i>).....	12	4



REGION 4: 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

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

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

ThAbFnC

Thuja-Abies-Fraxinus/Coptis • *Thuja occidentalis-Abies balsamea-Fraxinus nigra/Coptis groenlandica*

Northern White Cedar-Balsam Fir-Black Ash/Goldthread

DISTRIBUTION

Throughout northwestern parts of Marinette and Oconto Counties, areas characterized by pitted outwash.

LANDFORM AND SOILS

Pitted outwash and other ice-contact glacial deposits (see page 8-2, “Glacial Deposits” map). Soil profile is most often characterized by one to two feet of well decomposed organic matter, underlain by sandy mineral material. Early summer saturation depth was within two feet. In some instances, the organic layer exceeds five feet.

VEGETATION

Common Forest Cover Types: Most stands are dominated, singly or in combination, by northern white cedar, balsam fir, black ash, paper birch and red maple. Black spruce, yellow birch and eastern hemlock are occasional associates. Advance reproduction is typically dominated by northern white cedar, balsam fir and black ash. Red maple and yellow birch reproduction is sometimes present.

Shrub and Small Tree Layer: This layer is often sparse. Most often present species are Winterberry (*Ilex verticillata*), Juneberries (*Amelanchier* spp.), Mountain Maple (*Acer spicatum*), Beaked Hazel (*Corylus cornuta*) and Canada Blueberry (*Vaccinium myrtilloides*).

Ground Flora Characteristics: Herbaceous layer is 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 86 percent of study plots with average coverage of 24 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) **ThAbFnC** type is classified as “poor to medium” (see the **Management Implications** section).

REGION 4: PLANT SPECIES BY HABITAT TYPE (ThAbFnC)

Understory Species in Order of Decreasing Frequency of Occurrence

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Juneberries (<i>Amelanchier</i> spp.).....	100	1
Wild Sarsaparilla (<i>Aralia nudicaulis</i>).....	100	5
Goldthread (<i>Coptis groenlandica</i>).....	100	4
Wild Lily-of-the-valley (<i>Maianthemum canadense</i>).....	100	1
Starflower (<i>Trientalis borealis</i>).....	100	1
Bunchberry (<i>Cornus canadensis</i>).....	97	1
Dwarf Raspberry (<i>Rubus pubescens</i>).....	97	8
Yellow Beadlily (<i>Clintonia borealis</i>).....	93	2
Cinnamon Fern (<i>Osmunda cinnamomea</i>).....	90	10
Bedstraws (<i>Galium</i> spp.).....	86	1
Grasses (<i>Grass</i> spp.).....	86	11
Sphagnum Moss (<i>Sphagnum</i> spp.).....	86	24
Violets (<i>Viola</i> spp.).....	86	1
Lady Fern (<i>Athyrium filix-femina</i>).....	83	2
Beaked Hazelnut (<i>Corylus cornuta</i>).....	83	1
Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) ...	83	1
Naked Miterwort (<i>Mitella nuda</i>).....	83	2
Feather Mosses (<i>Feather Moss</i> spp.).....	79	11
Currants/Gooseberries (<i>Ribes</i> spp.).....	79	1
Oak Fern (<i>Dryopteris disjuncta</i>).....	76	3
Mountain Maple (<i>Acer spicatum</i>).....	72	3
Asters (<i>Aster</i> spp.).....	72	1
Crested Wood Fern (<i>Dryopteris cristata</i>).....	72	1
Bugleweed (<i>Lycopus uniflorus</i>).....	72	1
Shinleafs (<i>Pyrola</i> spp.).....	69	1
Small Jack-in-the-pulpit (<i>Arisaema triphyllum</i>).....	66	1
Winterberry (<i>Ilex verticillata</i>).....	66	2
Twinflower (<i>Linnaea borealis</i>).....	66	1
Creeping Snowberry (<i>Gaultheria hispidula</i>) ...	62	2
Mnium Mosses (<i>Mnium</i> spp.).....	62	4
Rattlesnake Fern (<i>Botrychium virginianum</i>) ...	59	1
Sedges (<i>Carex</i> spp.).....	59	23
Shining Clubmoss (<i>Lycopodium lucidulum</i>)...	59	2
Bog Fern (<i>Thelypteris simulata</i>).....	59	3
Red-osier Dogwood (<i>Cornus stolonifera</i>).....	55	1
Fringed Polygala (<i>Polygala paucifolia</i>).....	55	1

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Claspleaf Twisted Stalk (<i>Streptopus amplexifolius</i>)	55	1
Speckled Alder (<i>Alnus rugosa</i>)	52	1
Dwarf Enchanter's Nightshade (<i>Circaea alpina</i>)	52	2
Canada Blueberry (<i>Vaccinium myrtilloides</i>)	52	2
Large-leaved Aster (<i>Aster macrophyllus</i>)	48	1
Wild Strawberry (<i>Fragaria virginiana</i>)	48	1
Wood Anemone (<i>Anemone quinquefolia</i>)	45	1
Marsh Marigold (<i>Caltha palustris</i>)	41	1
Partridgeberry (<i>Mitchella repens</i>)	41	1
Sensitive Fern (<i>Onoclea sensibilis</i>)	41	1
Alder-leaved Buckthorn (<i>Rhamnus alnifolia</i>)	41	1
Nodding Trillium (<i>Trillium cernuum</i>)	41	1
Hooked Crowfoot (<i>Ranunculus recurvatus</i>)	38	1
Goldenrods (<i>Solidago</i> spp.)	38	1
Meadow Horsetail (<i>Equisetum pratense</i>)	34	1
Wood Horsetail (<i>Equisetum sylvaticum</i>)	34	1
Early Meadow Rue (<i>Eupatorium maculatum</i>)	34	1
Interrupted Fern (<i>Osmunda claytoniana</i>)	34	2
Low-sweet Blueberry (<i>Vaccinium angustifolium</i>)	34	2
Thistles (<i>Cirsium</i> spp.)	31	1
Royal Fern (<i>Osmunda regalis</i>)	31	3
Common Skullcap (<i>Scutellaria galericulata</i>)	31	1
Alternate-leaved Dogwood (<i>Cornus alternifolia</i>)	28	1
Avens (<i>Geum</i> spp.)	28	1
Spotted Touch-me-not (<i>Impatiens capensis</i>)	28	1
White Lettuce (<i>Prenanthes alba</i>)	28	1
Beggars Ticks (<i>Bidens frondosus</i>)	24	1
Beech Fern (<i>Dryopteris phegopteris</i>)	24	3
Wintergreen (<i>Gaultheria procumbens</i>)	24	1
Heal-all (<i>Prunella vulgaris</i>)	24	2
Chokecherry (<i>Prunus virginiana</i>)	24	1
Poison Ivy (<i>Rhus radicans</i>)	24	1
Water Hemlock (<i>Cicuta maculata</i>)	21	1
Mountain Holly (<i>Nemopanthus mucronata</i>)	21	1
Hairy Solomon's Seal (<i>Polygonatum pubescens</i>)	21	1
Three-leaved Solomon's Seal <i>Smilacina trifolia</i>)	21	1
Hog Peanut (<i>Amphicarpa bracteata</i>)	17	1

REGION 4: TREE SPECIES BY HABITAT TYPE (ThAbFnC)

Tree Species Frequency of Occurrence and Average Cover by Size Class

Sawtimber	Freq. %	Cover %
<i>Thuja occidentalis</i>	90.....	30
<i>Betula papyrifera</i>	38.....	14
<i>Picea mariana</i>	28.....	4
<i>Pinus strobus</i>	28.....	11
<i>Acer rubrum</i>	24.....	18
<i>Picea glauca</i>	24.....	9
<i>Larix laricina</i>	21.....	13
<i>Tsuga canadensis</i>	21.....	35
<i>Betula alleghaniensis</i>	17.....	14
<i>Populus tremuloides</i>	14.....	8

Poles	Freq. %	Cover %
<i>Thuja occidentalis</i>	93.....	44
<i>Betula papyrifera</i>	62.....	15
<i>Abies balsamea</i>	55.....	14
<i>Fraxinus nigra</i>	52.....	21
<i>Picea mariana</i>	52.....	8
<i>Acer rubrum</i>	48.....	21
<i>Betula alleghaniensis</i>	31.....	19
<i>Tsuga canadensis</i>	28.....	25
<i>Larix laricina</i>	24.....	17
<i>Picea glauca</i>	17.....	6

Saplings	Freq. %	Cover %
<i>Thuja occidentalis</i>	86.....	12
<i>Abies balsamea</i>	69.....	12
<i>Fraxinus nigra</i>	55.....	16
<i>Acer rubrum</i>	34.....	5
<i>Betula papyrifera</i>	34.....	10
<i>Betula alleghaniensis</i>	21.....	6
<i>Tsuga canadensis</i>	17.....	8

Seedlings	Freq. %	Cover %
<i>Abies balsamea</i>	86.....	5
<i>Acer rubrum</i>	79.....	1
<i>Fraxinus nigra</i>	76.....	2
<i>Quercus rubra</i>	55.....	1
<i>Betula alleghaniensis</i>	45.....	1
<i>Betula papyrifera</i>	34.....	1
<i>Picea glauca</i>	34.....	3
<i>Ulmus rubra</i>	34.....	1
<i>Fagus grandifolia</i>	28.....	1
<i>Tsuga canadensis</i>	28.....	1
<i>Picea mariana</i>	24.....	1
<i>Pinus strobus</i>	24.....	1
<i>Populus tremuloides</i>	24.....	1
<i>Thuja occidentalis</i>	24.....	1
<i>Acer saccharum</i>	17.....	1



(Photo from Kemp Natural Resources Station Archives)

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 in adjacent Region 4.

LANDFORM AND SOILS

Landform is primarily pitted outwash or other ice contact deposits. Soils are sandy with a 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 eastern hemlock are occasional associates. Advance reproduction is typically dominated by balsam fir. Red maple, black spruce and/or black ash are sometimes present. Northern white cedar is conspicuously underrepresented in this layer, presumably 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*).

Mountain Maple (*Acer spicatum*)



(Photo from Department of Natural Resources Archives)



(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 4: 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
Juneberry (<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
Creeping Snowberry (<i>Gaultheria hispidula</i>)	46	1
Grasses (<i>Grass</i> spp.)	46	3
Shinleaves (<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
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>)	38	1
Bedstraws (<i>Galium</i> spp.)	38	1
Bugleweed (<i>Lycopus uniflorus</i>)	38	1
Naked Miterwort (<i>Mitella nuda</i>)	38	1

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Common Wood Sorrel (<i>Oxalis montana</i>).....	38	2
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
Raspberries/Blackberries (<i>Rubus</i> spp.)	27	1
Violets (<i>Viola</i> spp.)	27	1
Red-osier Dogwood (<i>Cornus stolonifera</i>)	23	5
Stiff Clubmoss (<i>Lycopodium annotinum</i>).....	23	1
Small Jack-in-the pulpit (<i>Arisaema triphyllum</i>).....	19	1
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
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



REGION 4: 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

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

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

FnThAbAt

Fraxinus-Thuja-Abies/Athyrium

Fraxinus nigra-Thuja occidentalis/Athyrium filix-femina

Black Ash-Northern White Cedar-Balsam Fir/Lady Fern

DISTRIBUTION

Mostly in parts of central Marinette and Oconto Counties characterized by ground moraine landforms.

LANDFORM AND SOILS

Landform typically is ground moraine. Soil profile consists of a surface layer of well decomposed black muck underlain by mineral soil of relatively fine texture. If sub-soil is sandy, it typically contains a clay or silty component. The saturated zone is typically within three feet of the surface. On some plots, depth of a well decomposed organic layer exceeded four feet.

VEGETATION

Common Forest Cover Types: Black ash and northern white cedar are the predominant species in most stands. Common associates are red maple and balsam fir. Yellow birch and paper birch are sometimes present. The same species are best represented in advance regeneration.

Shrub and Small Tree Layer: This layer is mostly lacking. No shrub species exceeded 40 percent constancy and, when present, the coverage was negligible. Observed species included Currants/Gooseberries (*Ribes* spp.), Raspberries/Blackberries (*Rubus* spp.), Mountain Maple (*Acer spicatum*), Beaked Hazel (*Corylus cornuta*), Red-osier Dogwood (*Cornus stolonifera*), and speckled alder (*Alnus rugosa*).

Ground Flora Characteristics: This layer is well developed and species rich. Highest coverage is represented by grasses and sedges. Species with highest constancies include Lady Fern (*Athyrium filix-femina*), Jack-in-the-pulpit (*Arisaema triphyllum*), Virginia Creeper (*Parthenocissus* spp.), Spinulose Shield Fern (*Dryopteris spinulosa*), Dwarf Raspberry (*Rubus pubescens*), Wild Sarsaparilla (*Aralia nudicaulis*), and Sensitive Fern (*Onoclea sensibilis*).

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

REGION 4: PLANT SPECIES BY HABITAT TYPE (FnThAbAt)

Understory Species in Order of Decreasing Frequency of Occurrence

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Wild Lily-of-the-valley <i>(Maianthemum canadense)</i>	100	1
Grasses (<i>Grass</i> spp.).....	97	12
Lady Fern (<i>Athyrium filix-femina</i>).....	93	6
Asters (<i>Aster</i> spp.).....	90	1
Violets (<i>Viola</i> spp.).....	90	1
Small Jack-in-the-pulpit <i>(Arisaema triphyllum)</i>	87	1
Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) ...	87	4
Starflower (<i>Trientalis borealis</i>).....	87	1
Currants/Gooseberries (<i>Ribes</i> spp.).....	83	1
Virginia Creeper (<i>Parthenocissus</i> spp.).....	80	1
Dwarf Raspberry (<i>Rubus pubescens</i>).....	80	9
Wild Sarsaparilla (<i>Aralia nudicaulis</i>).....	77	9
Bugleweed (<i>Lycopus uniflorus</i>).....	77	2
Sedges (<i>Carex</i> spp.).....	70	23
Sensitive Fern (<i>Onoclea sensibilis</i>).....	70	5
Hooked Crowfoot (<i>Ranunculus recurvatus</i>)..	70	1
Hairy Solomon's Seal <i>(Polygonatum pubescens)</i>	67	1
Spotted Touch-me-not (<i>Impatiens capensis</i>)....	63	4
White Lettuce (<i>Prenanthes alba</i>).....	63	1
Oak Fern (<i>Dryopteris disjuncta</i>).....	60	4
Bedstraws (<i>Galium</i> spp.).....	60	1
Cinnamon Fern (<i>Osmunda cinnamomea</i>).....	57	3
Red Baneberry (<i>Actaea rubra</i>).....	53	1
Large-leaved Aster (<i>Aster macrophyllus</i>).....	53	3
Bog Fern (<i>Thelypteris simulata</i>).....	50	2
Hog Peanut (<i>Amphicarpa bracteata</i>).....	47	2
Wood Anemone (<i>Anemone quinquefolia</i>).....	47	1
Wild Strawberry (<i>Fragaria virginiana</i>).....	47	1
Naked Miterwort (<i>Mitella nuda</i>).....	47	2
Goldenrods (<i>Solidago</i> spp.).....	47	1
Nodding Trillium (<i>Trillium cernuum</i>).....	47	1
Goldthread (<i>Coptis groenlandica</i>).....	43	1
Poison Ivy (<i>Rhus radicans</i>).....	43	4
Riverbank Grape (<i>Vitis riparia</i>).....	43	1
Water Hemlock (<i>Cicuta maculata</i>).....	40	2
Dwarf Enchanter's Nightshade <i>(Circaea alpina)</i>	40	1
Crested Wood Fern (<i>Dryopteris cristata</i>).....	40	1

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Avens (<i>Geum</i> spp.).....	40	1
Juneberries (<i>Amelanchier</i> spp.).....	37	1
Meadow Horsetail (<i>Equisetum pratense</i>).....	37	2
Raspberries/Blackberries (<i>Rubus</i> spp.).....	37	1
Bittersweet Nightshade (<i>Solanum dulcamara</i>).....	37	1
Rattlesnake Fern (<i>Botrychium virginianum</i>)..	33	1
Turtlehead (<i>Chelone glabra</i>).....	33	1
Virgin's Bower (<i>Clematis virginiana</i>).....	33	1
Royal Fern (<i>Osmunda regalis</i>).....	33	3
Heal-all (<i>Prunella vulgaris</i>).....	33	1
Alder-leaved Buckthorn (<i>Rhamnus alnifolia</i>)....	33	2
Beggar Ticks (<i>Bidens frondosa</i>).....	30	1
Marsh Marigold (<i>Caltha palustris</i>).....	30	1
Yellow Beadlily (<i>Clintonia borealis</i>).....	30	1
Bunchberry (<i>Cornus canadensis</i>).....	30	1
Feather Mosses (<i>Feather Moss</i> spp.).....	30	14
Miterwort (<i>Mitella diphylla</i>).....	30	1
Common Skullcap (<i>Scutellaria galericulata</i>)..	30	1
Spikenard (<i>Aralia racemosa</i>).....	27	1
Red-osier Dogwood (<i>Cornus stolonifera</i>).....	27	1
Spotted Joe-Pye Weed (<i>Eupatorium maculatum</i>).....	27	1
Winterberry (<i>Ilex verticillata</i>).....	27	4
Maidenhair Fern (<i>Adiantum pedatum</i>).....	23	2
Thistles (<i>Cirsium</i> spp.).....	23	1
Alternate-leaved Dogwood (<i>Cornus alternifolia</i>).....	23	2
Wood Horsetail (<i>Equisetum sylvaticum</i>).....	23	2
Wood Nettle (<i>Laportea canadensis</i>).....	23	11
Interrupted Fern (<i>Osmunda claytoniana</i>).....	23	1
Shinleaves (<i>Pyrola</i> spp.).....	23	1
Mad-dog Skullcap (<i>Scutellaria lateriflora</i>)....	23	1
Bristly Greenbrier (<i>Smilax tamnoides</i>).....	23	1
Speckled Alder (<i>Alnus rugosa</i>).....	20	4
Enchanter's Nightshade (<i>Circaea quadrisulcata</i>).....	20	4
Beech Fern (<i>Dryopteris phegopteris</i>).....	20	3
Wild Lettuce (<i>Lactuca canadensis</i>).....	20	1
Fringed Polygala (<i>Polygala paucifolia</i>).....	20	1
Tall Meadow Rue (<i>Thalictrum dasycarpum</i>)..	20	1
False Nettle (<i>Boehmeria cylindrica</i>).....	17	1
Beaked Hazelnut (<i>Corylus cornuta</i>).....	17	5
Larger Blue Flag (<i>Iris versicolor</i>).....	17	1
Ground Pine (<i>Lycopodium obscurum</i>).....	17	13
Rose Twisted Stalk (<i>Streptopus lanceolatus</i>)...17	17	1

REGION 4: TREE SPECIES BY HABITAT TYPE (FnThAbAt)

Tree Species Frequency of Occurrence and Average Cover by Size Class

Sawtimber	Freq. %	Cover %
<i>Thuja occidentalis</i>	63.....	28
<i>Fraxinus nigra</i>	50.....	28
<i>Acer rubrum</i>	33.....	32
<i>Betula papyrifera</i>	27.....	23
<i>Populus tremuloides</i>	20.....	17
<i>Tilia americana</i>	20.....	17
<i>Pinus strobus</i>	17.....	12
<i>Tsuga canadensis</i>	17.....	19

Poles	Freq. %	Cover %
<i>Fraxinus nigra</i>	83.....	23
<i>Thuja occidentalis</i>	63.....	31
<i>Acer rubrum</i>	50.....	22
<i>Abies balsamea</i>	47.....	13
<i>Betula alleghaniensis</i>	40.....	15
<i>Betula papyrifera</i>	27.....	12
<i>Tsuga canadensis</i>	27.....	9
<i>Tilia americana</i>	23.....	20
<i>Ulmus rubra</i>	20.....	8
<i>Acer saccharum</i>	13.....	21
<i>Picea glauca</i>	13.....	9

Saplings	Freq. %	Cover %
<i>Fraxinus nigra</i>	73.....	20
<i>Abies balsamea</i>	67.....	13
<i>Thuja occidentalis</i>	47.....	14
<i>Acer rubrum</i>	40.....	9
<i>Ulmus rubra</i>	40.....	6
<i>Tilia americana</i>	37.....	8
<i>Betula alleghaniensis</i>	23.....	5
<i>Picea glauca</i>	17.....	6
<i>Tsuga canadensis</i>	17.....	7

Seedlings	Freq. %	Cover %
<i>Fraxinus nigra</i>	80.....	5
<i>Abies balsamea</i>	67.....	5
<i>Ulmus rubra</i>	63.....	2
<i>Acer rubrum</i>	30.....	1
<i>Populus tremuloides</i>	30.....	1
<i>Tilia americana</i>	27.....	1
<i>Betula alleghaniensis</i>	23.....	2
<i>Populus balsamifera</i>	20.....	1
<i>Quercus rubra</i>	20.....	1
<i>Betula papyrifera</i>	17.....	1
<i>Fagus grandifolia</i>	17.....	1
<i>Picea glauca</i>	17.....	1
<i>Picea mariana</i>	17.....	1
<i>Prunus serotina</i>	17.....	2
<i>Tsuga canadensis</i>	17.....	1



FnUB

Fraxinus-Ulmus/Boehmeria

Fraxinus nigra-Ulmus spp./Boehmeria cylindrica

Black Ash-Elms/False Nettle

DISTRIBUTION

Best represented in eastern parts of Marinette and Oconto Counties.

LANDFORM AND SOILS

Primarily on glacio-lacustrine deposits associated with the Green Bay lobe (see page 8-2, "Glacial Deposits" map). Most often mineral soil of varying texture, but typically containing a significant proportion of clay and silt in the upper portion of the profile, and coarser materials below. Saturation zone typically within three feet of the surface. Substrate on about 30 percent of study plots consisted entirely of well decomposed organic matter (black muck) to a depth greater than five feet.

VEGETATION

Common Forest Cover Types: Black or green ash is a predominant species in most stands. Common associates are (formerly) red elm and silver maple. Conifers almost entirely lacking. The same species, except for elm, are best represented in advance regeneration.

Shrub and Small Tree Layer: This layer is not well developed. Only Currants/Gooseberries (*Ribes* spp.) occurs with high constancy (91 percent). The following species occur with frequencies less than 50 percent: Chokecherry (*Prunus virginiana*), Common Elderberry (*Sambucus canadensis*), Winterberry (*Ilex verticillata*), and Glossy Buckthorn (*Rhamnus frangula*).

Ground Flora Characteristics: The herb layer is well developed and species rich. Grasses and sedges represent the highest coverage, but the following herbs are well represented: Virginia Creeper (*Parthenocissus* spp.), Dwarf Raspberry (*Rubus pubescens*), Bugleweed (*Lycopus uniflorus*), False Nettle (*Boehmeria cylindrica*), Spotted Touch-me-not (*Impatiens capensis*), and Sensitive Fern (*Onoclea sensibilis*).

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) **FnUB** type is classified as "medium to rich" (see the **Management Implications** section). It is the richest type in Region 4.

REGION 4: PLANT SPECIES BY HABITAT TYPE (FnUB)

Understory Species in Order of Decreasing Frequency of Occurrence

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Asters (<i>Aster</i> spp.).....	100	5
Grasses (<i>Grass</i> spp.).....	100	23
Wood Anemone (<i>Anemone quinquefolia</i>).....	95	4
Currants/Gooseberries (<i>Ribes</i> spp.)	91	2
Bedstraws (<i>Galium</i> spp.).....	86	3
Bugleweed (<i>Lycopus uniflorus</i>).....	86	1
Dwarf Raspberry (<i>Rubus pubescens</i>)	86	4
Violets (<i>Viola</i> spp.)	86	1
False Nettle (<i>Boehmeria cylindrica</i>).....	82	8
Sedges (<i>Carex</i> spp.).....	82	11
Sensitive Fern (<i>Onoclea sensibilis</i>).....	77	7
Spotted Touch-me-not (<i>Impatiens capensis</i>)....	73	12
Goldenrods (<i>Solidago</i> spp.).....	73	3
Lady Fern (<i>Athyrium filix-femina</i>)	68	2
Bittersweet Nightshade (<i>Solanum dulcamara</i>).....	68	4
Hog Peanut (<i>Amphicarpa bracteata</i>)	64	3
Riverbank Grape (<i>Vitis riparia</i>).....	64	1
Water Hemlock (<i>Cicuta maculata</i>)	59	2
Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) ...	59	1
Larger Blue Flag (<i>Iris versicolor</i>).....	59	1
Wood Nettle (<i>Laportea canadensis</i>).....	59	11
Raspberries/Blackberries (<i>Rubus</i> spp.)	59	1
Small Jack in-the-pulpit (<i>Arisaema triphyllum</i>).....	55	1
Marsh Marigold (<i>Caltha palustris</i>).....	55	1
Chokecherry (<i>Prunus virginiana</i>)	55	4
Wild Strawberry (<i>Fragaria virginiana</i>).....	50	1
Common Elderberry (<i>Sambucus canadensis</i>).....	50	1
Gray Dogwood (<i>Cornus racemosa</i>)	45	1
Avens (<i>Geum</i> spp.).....	45	1
Winterberry (<i>Ilex verticillata</i>).....	45	6
Wild Lily-of-the-valley (<i>Maianthemum canadense</i>).....	45	1

Common Name (<i>Scientific Name</i>)	Freq. Cover	
	%	%
Meadow Horsetail (<i>Equisetum pratense</i>).....	41	3
Fringed Loosestrife (<i>Lysimachia ciliata</i>)	41	1
Swamp Buttercup (<i>Ranunculus hispidus</i>).....	41	4
Beggar Ticks (<i>Bidens frondosa</i>).....	36	1
Virgin's Bower (<i>Clematis virginiana</i>).....	36	1
Hooked Crowfoot (<i>Ranunculus recurvatus</i>)....	36	1
Nannyberry (<i>Viburnum lentago</i>).....	36	4
Glossy Buckthorn (<i>Rhamnus frangula</i>)	32	5
Common Skullcap (<i>Scutellaria galericulata</i>)....	32	1
Hedge Nettle (<i>Stachys hispida</i>).....	32	2
Wild Sarsaparilla (<i>Aralia nudicaulis</i>).....	27	1
Enchanter's Nightshade (<i>Circaea quadrisulcata</i>).....	27	1
Small-flowered Crowfoot (<i>Ranunculus abortivus</i>).....	27	1
Poison Ivy (<i>Rhus radicans</i>).....	27	1
Bristly Greenbriar (<i>Smilax tamnoides</i>)	27	1
Stinging Nettle (<i>Urtica dioica</i>).....	27	1
Red-osier Dogwood (<i>Cornus stolonifera</i>)	23	3
Wild Cucumber (<i>Echinocystis lobata</i>)	23	1
Northern Willow Herb (<i>Epilobium glandulosum</i>)	23	1
Clearweed (<i>Pilea pumila</i>).....	23	1
Alder-leaved Buckthorn (<i>Rhamnus alnifolia</i>)....	23	1
Mad-dog Skullcap (<i>Scutellaria lateriflora</i>)....	23	1
Tall Meadow Rue (<i>Thalictrum dasycarpum</i>)...	23	1
Horsetails (<i>Equisetum</i> spp.).....	18	1
Boneset (<i>Eupatorium perfoliatum</i>).....	18	1
Wood Lily (<i>Lilium philadelphicum</i>)	18	1
American Bugleweed (<i>Lycopus americanus</i>)...	18	1
Hairy Solomon's Seal (<i>Polygonatum pubescens</i>).....	18	1
Swamp Rose (<i>Rosa palustris</i>).....	18	1
Water Parsnip (<i>Sium suave</i>)	18	1
Starry False Solomon's Seal (<i>Maianthemum stellatum</i>)	18	1
Early Meadow Rue (<i>Thalictrum dioicum</i>)	18	1

REGION 4: TREE SPECIES BY HABITAT TYPE (FnUB)

Tree Species Frequency of Occurrence and Average Cover by Size Class

Sawtimber	Freq. %	Cover %
<i>Fraxinus nigra</i>	50.....	41
<i>Acer saccharinum</i>	36.....	34
<i>Fraxinus pennsylvanica</i>	27.....	49
<i>Acer negundo</i>	14.....	46
<i>Ulmus rubra</i>	14.....	8

Poles	Freq. %	Cover %
<i>Fraxinus nigra</i>	73.....	44
<i>Ulmus rubra</i>	55.....	14
<i>Acer saccharinum</i>	32.....	25
<i>Fraxinus pennsylvanica</i>	27.....	43
<i>Acer negundo</i>	14.....	19

Saplings	Freq. %	Cover %
<i>Fraxinus nigra</i>	73.....	30
<i>Ulmus rubra</i>	68.....	10
<i>Acer saccharinum</i>	27.....	14
<i>Fraxinus pennsylvanica</i>	27.....	24
<i>Thuja occidentalis</i>	23.....	3
<i>Quercus bicolor</i>	18.....	4
<i>Acer rubrum</i>	14.....	6

Seedlings	Freq. %	Cover %
<i>Ulmus rubra</i>	82.....	2
<i>Fraxinus nigra</i>	68.....	4
<i>Fraxinus pennsylvanica</i>	32.....	3
<i>Acer saccharinum</i>	27.....	1
<i>Quercus bicolor</i>	23.....	1

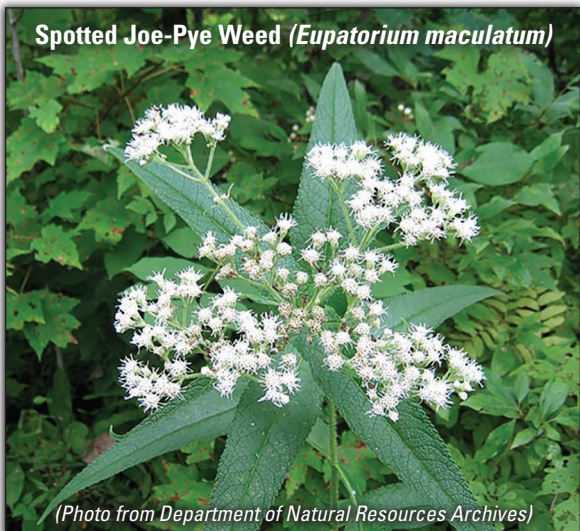


Riverbank Grape (*Vitis riparia*)



(Photo from Department of Natural Resources Archives)

Spotted Joe-Pye Weed (*Eupatorium maculatum*)



(Photo from Department of Natural Resources Archives)

Spinulose Shield Fern (*Dryopteris spinulosa*)



(Photo from Department of Natural Resources Archives)