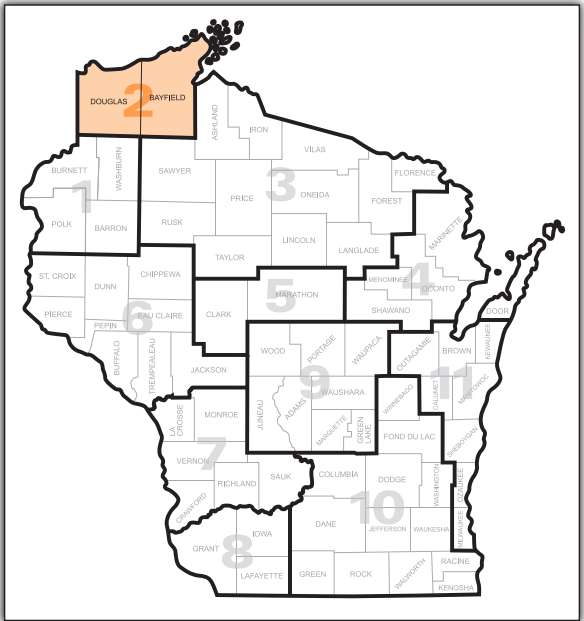


(Photo from Department of Natural Resources Archives)

Region 2

GENERAL DESCRIPTION

Region 2 encompasses Bayfield and Douglas Counties. The entire region was glaciated during the last part of the Wisconsin Glaciation. It can be characterized by four distinct ecological landscapes: the Superior Coastal (Clay Plain) bordering Lake Superior and extending to a maximum of 15 miles inland, the Northwest Sands extending across the region in a belt of outwash sands and gravel from southwest to northeast, the North Central Forest, and Northwest Lowlands.



Region 2: Bayfield and Douglas Counties



(Photo from Kemp Natural Resources Station Archives)

This region, with its variety of landscapes, has a mix of forested wetlands as a reflection of its variety in soils and landscape. Boreal swamp conifer (balsam, cedar, black spruce) exist on the clay, nutrient poor peatland of black spruce and tamarack on the sandy outwash and some black ash swamps on deep organic muck soils.

WETLAND FOREST HABITAT TYPES OF REGION 2

PmLLe

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

PmLNe

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

ThAbFnIx

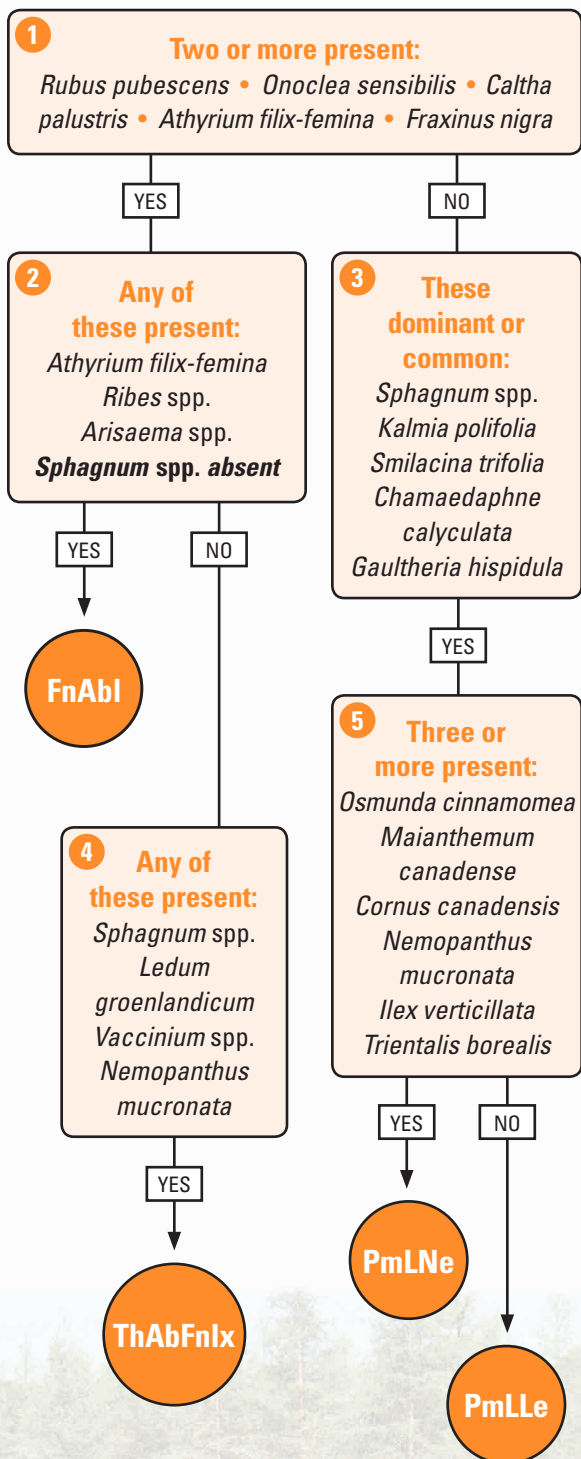
- *Thuja-Abies-Fraxinus/Ilex*
- Northern White Cedar-Balsam Fir-Black Ash/Winterberry

FnAbl

- *Fraxinus-Abies/Impatiens*
- Black Ash-Balsam Fir/Spotted Touch-me-not

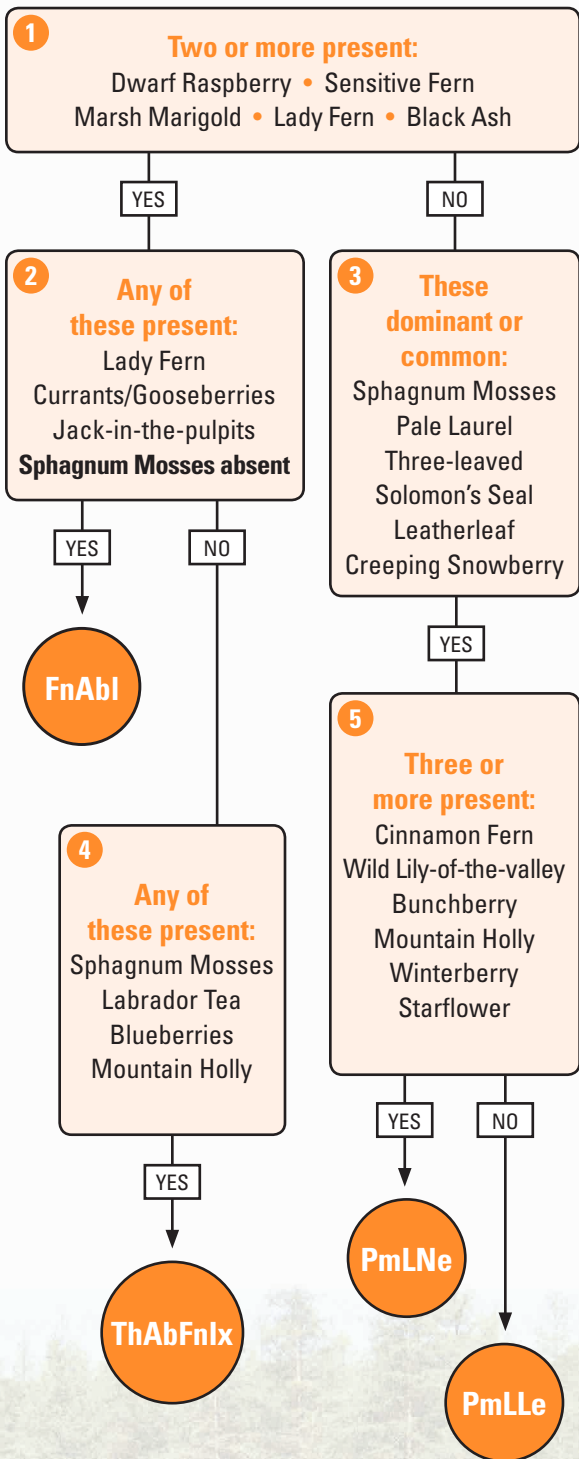
REGION 2

Key to Wetland Habitat Types (Scientific Names)

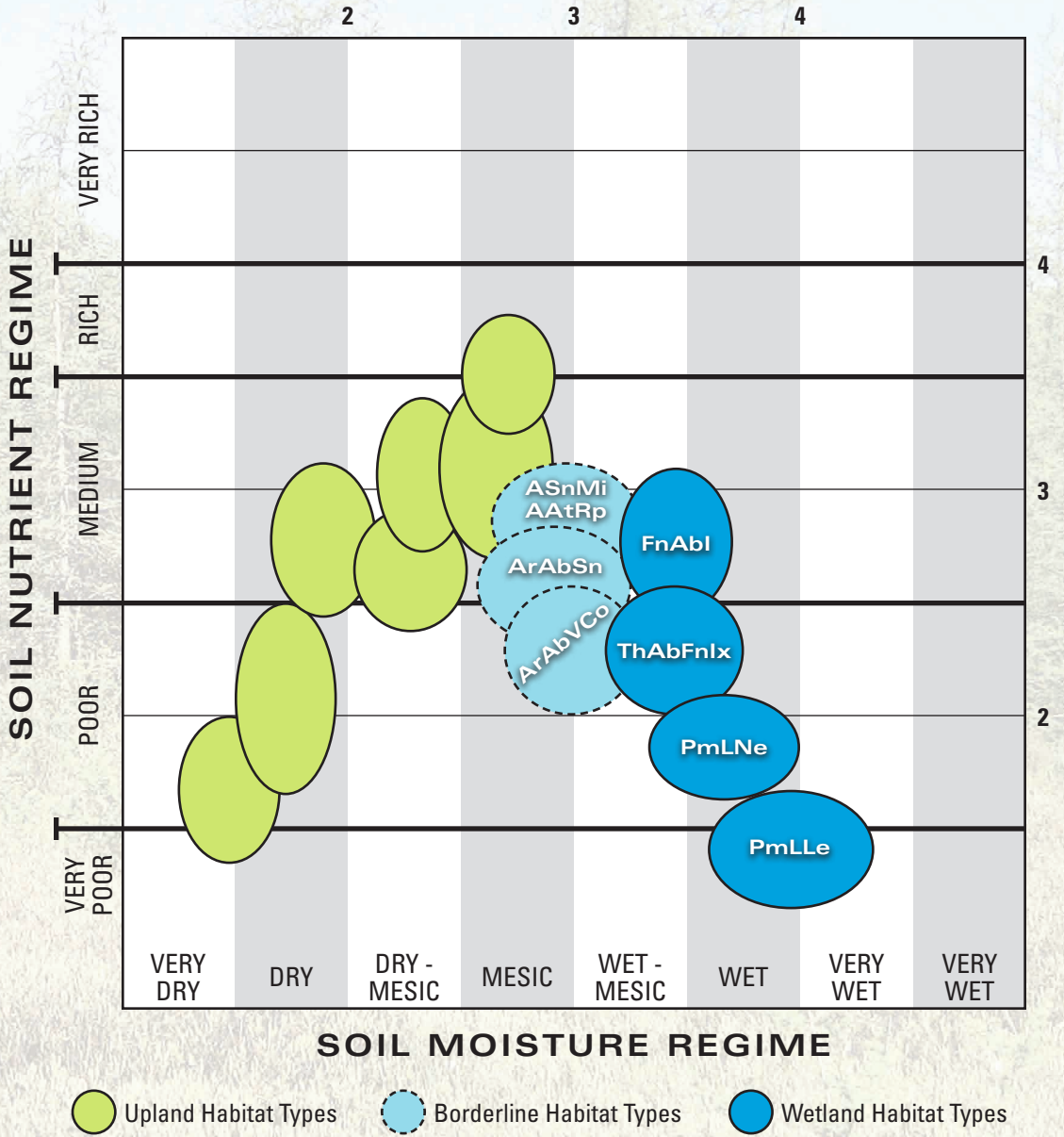


REGION 2

Key to Wetland Habitat Types (Common Names)



RELATIONSHIP OF HABITAT TYPES TO SOIL MOISTURE AND NUTRIENT REGIMES IN REGION 2



Region 2 Habitat Type Descriptions

PmLLe

Picea-Larix/Ledum

Picea mariana-Larix laricina/Ledum groenlandicum

Black Spruce-Tamarack/Labrador Tea

DISTRIBUTION

Bayfield, Douglas Counties and surrounding regions.

LANDFORM AND SOILS

Deep organics – peatlands

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 also 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 and yellow birch.

Shrub and Small Tree Layer: Tall shrubs are not well represented. In most stands the only conspicuous species with relatively high coverage is Labrador Tea (*Ledum groenlandicum*). Leatherleaf (*Chamaedaphne calyculata*) typically is the most common low shrub. Canada Blueberry (*Vaccinium myrtilloides*) and Low-sweet Blueberry (*Vaccinium angustifolium*) are also relatively common. Several other woody species characteristic of this type are inconspicuous and best described with ground flora.

Leatherleaf (*Chamaedaphne calyculata*)



(Photo from Department of Natural Resources Archives)

Three-leaved Solomon's Seal (*Smilacina trifolia*)



(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** is classified as "very poor" (see the **Management Implications** section).

Small Cranberry (*Vaccinium oxycoccus*)



(Photo from Department of Natural Resources Archives)

REGION 2: PLANT SPECIES BY HABITAT TYPE (PmLLe)

Understory Species in Order of Decreasing Frequency of Occurrence

| Common Name (<i>Scientific Name</i>) | Freq. Cover | |
|--|-------------|----|
| | % | % |
| Labrador Tea (<i>Ledum groenlandicum</i>) | 100 | 25 |
| Sphagnum Mosses (<i>Sphagnum</i> spp.) | 100 | 87 |
| Pale Laurel (<i>Kalmia polifolia</i>) | 97 | 1 |
| Three-leaved Solomon's Seal (<i>Smilacina trifolia</i>) | 97 | 9 |
| Small Cranberry (<i>Vaccinium oxycoccus</i>) | 97 | 1 |
| Leatherleaf (<i>Chamaedaphne calyculata</i>) | 94 | 7 |
| Pink Lady's Slipper (<i>Cypripedium acaule</i>) | 94 | 1 |
| Low-sweet Blueberry (<i>Vaccinium angustifolium</i>) | 94 | 4 |
| Purple-stemmed Aster (<i>Aster puniceus</i>) | 74 | 5 |
| Creeping Snowberry (<i>Gaultheria hispidula</i>) | 74 | 1 |
| Canada Blueberry (<i>Vaccinium myrtilloides</i>) | 74 | 4 |
| Indian Pipe (<i>Monotropa uniflora</i>) | 45 | 1 |
| Bog Rosemary (<i>Andromeda glaucophylla</i>) | 32 | 1 |
| Mountain Holly (<i>Nemopanthus mucronata</i>) | 29 | 1 |
| Wintergreen (<i>Gaultheria procumbens</i>) | 26 | 3 |
| Speckled Alder (<i>Alnus rugosa</i>) | 19 | 2 |
| Cotton Sedge (<i>Eriophorum angustifolium</i>) | 19 | 1 |
| Cinnamon Fern (<i>Osmunda cinnamomea</i>) | 13 | 1 |
| Bunchberry (<i>Cornus canadensis</i>) | 10 | 1 |
| American Hazelnut (<i>Corylus americana</i>) | 10 | 1 |
| Larger Blue Flag (<i>Iris versicolor</i>) | 10 | 1 |
| Clubmosses (<i>Lycopodium</i> spp.) | 10 | 5 |



REGION 2: TREE SPECIES BY HABITAT TYPE (PmLLe)

Tree Species Frequency of Occurrence and Average Cover by Size Class

| Sawtimber | Freq. % | Cover % |
|-----------------------------|----------------|----------------|
| <i>Larix laricina</i> | 32..... | 7 |
| <i>Pinus strobus</i> | 19..... | 3 |
| <i>Picea mariana</i> | 13..... | 2 |

| Poles | Freq. % | Cover % |
|-----------------------------|----------------|----------------|
| <i>Larix laricina</i> | 97..... | 18 |
| <i>Picea mariana</i> | 97..... | 24 |
| <i>Pinus strobus</i> | 32..... | 4 |

| Saplings | Freq. % | Cover % |
|------------------------------------|----------------|----------------|
| <i>Picea mariana</i> | 97..... | 14 |
| <i>Larix laricina</i> | 58..... | 11 |
| <i>Abies balsamea</i> | 32..... | 2 |
| <i>Betula papyrifera</i> | 26..... | 9 |
| <i>Acer rubrum</i> | 13..... | 1 |
| <i>Betula alleghaniensis</i> | 13..... | 2 |
| <i>Pinus strobus</i> | 13..... | 2 |

| Seedlings | Freq. % | Cover % |
|--------------------------------|----------------|----------------|
| <i>Picea mariana</i> | 97..... | 3 |
| <i>Betula papyrifera</i> | 42..... | 1 |
| <i>Abies balsamea</i> | 35..... | 1 |
| <i>Larix laricina</i> | 35..... | 1 |
| <i>Pinus strobus</i> | 35..... | 1 |
| <i>Quercus rubra</i> | 32..... | 1 |
| <i>Acer rubrum</i> | 29..... | 1 |
| <i>Picea mariana</i> | 97..... | 1 |
| <i>Acer rubrum</i> | 65..... | 1 |
| <i>Quercus rubra</i> | 61..... | 1 |
| <i>Betula papyrifera</i> | 42..... | 1 |
| <i>Larix laricina</i> | 39..... | 1 |
| <i>Pinus strobus</i> | 39..... | 1 |
| <i>Abies balsamea</i> | 26..... | 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 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. The 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 is classified as “poor” (see the **Management Implications** section).

REGION 2: 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 | 80 |
| Labrador Tea (<i>Ledum groenlandicum</i>) | 100 | 8 |
| Low-sweet Blueberry (<i>Vaccinium angustifolium</i>)..... | 100 | 5 |
| Mountain Holly (<i>Nemopanthus mucronata</i>)... | 96 | 9 |
| Pink Lady's Slipper (<i>Cypripedium acaule</i>)..... | 87 | 1 |
| Cinnamon Fern (<i>Osmunda cinnamomea</i>)..... | 87 | 4 |
| Three-leaved Solomon's Seal (<i>Smilacina trifolia</i>)..... | 87 | 2 |
| Purple-stemmed Aster (<i>Aster puniceus</i>)..... | 83 | 24 |
| Bunchberry (<i>Cornus canadensis</i>) | 83 | 3 |
| Starflower (<i>Trientalis borealis</i>)..... | 83 | 1 |
| Pale Laurel (<i>Kalmia polifolia</i>) | 78 | 1 |
| Wild Lily-of-the-valley (<i>Maianthemum canadense</i>)..... | 78 | 1 |
| Canada Blueberry (<i>Vaccinium myrtilloides</i>)... | 78 | 2 |
| Creeping Snowberry (<i>Gaultheria hispidula</i>) | 74 | 3 |
| Small Cranberry (<i>Vaccinium oxycoccus</i>)..... | 74 | 1 |
| Leatherleaf (<i>Chamaedaphne calyculata</i>) | 65 | 2 |
| Indian Pipe (<i>Monotropa uniflora</i>)..... | 65 | 1 |
| Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) ... | 57 | 1 |
| Winterberry (<i>Ilex verticillata</i>)..... | 57 | 1 |
| Juneberries (<i>Amelanchier</i> spp.)..... | 48 | 1 |
| Wintergreen (<i>Gaultheria procumbens</i>)..... | 48 | 1 |
| Speckled Alder (<i>Alnus rugosa</i>)..... | 43 | 5 |
| Crested Wood Fern (<i>Dryopteris cristata</i>)..... | 39 | 1 |
| Goldthread (<i>Coptis groenlandica</i>)..... | 35 | 1 |
| Chokecherry (<i>Prunus virginiana</i>) | 22 | 1 |
| Alder-leaved Buckthorn (<i>Rhamnus alnifolia</i>)..... | 22 | 1 |
| American Mountain Ash (<i>Sorbus americana</i>)..... | 22 | 1 |
| Trailing Christmas Green/Clubmoss (<i>Lycopodium annotinum</i>) | 17 | 11 |

| Common Name (<i>Scientific Name</i>) | Freq. Cover | |
|---|--------------------|----------|
| | % | % |
| Eastern White Pine (<i>Pinus strobus</i>)..... | 17 | 1 |
| Dwarf Raspberry (<i>Rubus pubescens</i>) | 17 | 1 |
| Willows (<i>Salix</i> spp.)..... | 17 | 2 |
| Bog Rosemary (<i>Andromeda glaucophylla</i>)..... | 13 | 1 |
| Wild Sarsaparilla (<i>Aralia nudicaulis</i>)..... | 13 | 1 |
| Yellow Beadlily (<i>Clintonia borealis</i>)..... | 23 | 1 |
| American Hazelnut (<i>Corylus americana</i>)..... | 13 | 1 |
| Wood Horsetail (<i>Equisetum sylvaticum</i>)..... | 13 | 1 |
| Larger Blue Flag (<i>Iris versicolor</i>)..... | 13 | 1 |
| Wild Red Raspberry (<i>Rubus idaeus</i>)..... | 13 | 1 |

Larger Blue Flag (*Iris versicolor*)



(Photo from Department of Natural Resources Archives)

REGION 2: TREE SPECIES BY HABITAT TYPE (PmLNe)

Tree Species Frequency of Occurrence and Average Cover by Size Class

| Sawtimber | Freq. % | Cover % |
|-----------------------------|----------------|----------------|
| <i>Larix laricina</i> | 52..... | 13 |
| <i>Picea mariana</i> | 30..... | 6 |
| <i>Pinus strobus</i> | 17..... | 7 |

| Poles | Freq. % | Cover % |
|--------------------------------|----------------|----------------|
| <i>Picea mariana</i> | 96..... | 26 |
| <i>Larix laricina</i> | 91..... | 18 |
| <i>Betula papyrifera</i> | 26..... | 4 |
| <i>Abies balsamea</i> | 22..... | 6 |
| <i>Acer rubrum</i> | 17..... | 8 |
| <i>Pinus strobus</i> | 9..... | 1 |

| Saplings | Freq. % | Cover % |
|------------------------------------|----------------|----------------|
| <i>Picea mariana</i> | 100..... | 13 |
| <i>Larix laricina</i> | 61..... | 4 |
| <i>Betula papyrifera</i> | 52..... | 2 |
| <i>Acer rubrum</i> | 43..... | 6 |
| <i>Abies balsamea</i> | 35..... | 3 |
| <i>Betula alleghaniensis</i> | 17..... | 7 |
| <i>Pinus strobus</i> | 13..... | 1 |

| Seedlings | Freq. % | Cover % |
|------------------------------------|----------------|----------------|
| <i>Acer rubrum</i> | 74..... | 2 |
| <i>Picea mariana</i> | 70..... | 4 |
| <i>Quercus rubra</i> | 52..... | 1 |
| <i>Abies balsamea</i> | 48..... | 1 |
| <i>Betula papyrifera</i> | 35..... | 1 |
| <i>Larix laricina</i> | 22..... | 1 |
| <i>Pinus strobus</i> | 17..... | 1 |
| <i>Salix</i> spp. | 17..... | 2 |
| <i>Betula alleghaniensis</i> | 13..... | 1 |

ThAbFnlx

Thuja-Abies-Fraxinus/Ilex

Thuja occidentalis-Abies balsamea-

Fraxinus nigra/Ilex verticillata

Northern White Cedar-Balsam Fir-Black Ash/Winterberry

DISTRIBUTION

Bayfield, Douglas Counties and surrounding regions.

LANDFORM AND SOILS

The substrate is typically a saturated organic layer less than one foot to several feet thick, upon mineral substrate, usually sand or gravel. In some cases finer textured material occurs before transitioning to coarser material. In some instances, highly decomposed organic matter extends from the surface to beyond five feet.

VEGETATION

Common Forest Cover Types: Most stands are dominated, singly or in combination, by northern white cedar, balsam fir and black ash. Yellow birch and tamarack are occasional associates. Advance reproduction is best represented by balsam fir and black ash. Northern white cedar is conspicuously underrepresented in this layer, apparently due to deer browsing. Red maple saplings also occur in some stands.





Shrub and Small Tree Layer: This layer is not well developed. The most common dominant shrub is speckled alder (*Alnus rugosa*). Winterberry (*Ilex verticillata*) is present with high frequency but generally low coverage. Other sporadically occurring shrubs include Labrador Tea (*Ledum groenlandicum*), Red-osier Dogwood (*Cornus stolonifera*), Mountain Holly (*Nemopanthus mucronata*) and Low-sweet Blueberry (*Vaccinium angustifolium*).

Ground Flora Characteristics: Relatively high coverage of *Sphagnum* spp. and the presence of several species typical of bogs is characteristic of most stands. However, this habitat type is distinguished from bog types by the common presence of black ash and sporadic occurrence of such species as Sensitive Fern (*Onoclea sensibilis*), Wild Sarsaparilla (*Aralia nudicaulis*), Bugleweed (*Lycopus uniflorus*), Oak Fern (*Dryopteris disjuncta*), Dwarf Raspberry (*Rubus pubescens*) and, of course, black ash.

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

REGION 2: PLANT SPECIES BY HABITAT TYPE (ThAbFnIx)

Understory Species in Order of Decreasing Frequency of Occurrence

| Common Name (<i>Scientific Name</i>) | Freq. Cover | |
|---|--------------------|----|
| | % | % |
| Sphagnum Mosses (<i>Sphagnum</i> spp.)..... | 100 | 48 |
| Purple-stemmed Aster (<i>Aster puniceus</i>)..... | 100 | 11 |
| Winterberry (<i>Ilex verticillata</i>)..... | 100 | 5 |
| Wild Lily-of-the-valley (<i>Maianthemum canadense</i>)..... | 100 | 1 |
| Speckled Alder (<i>Alnus rugosa</i>)..... | 92 | 15 |
| Goldthread (<i>Coptis groenlandica</i>)..... | 92 | 1 |
| Bunchberry (<i>Cornus canadensis</i>)..... | 92 | 2 |
| Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) ... | 92 | 1 |
| Cinnamon Fern (<i>Osmunda cinnamomea</i>)..... | 92 | 9 |
| Goldenrods (<i>Solidago</i> spp.)..... | 92 | 1 |
| Starflower (<i>Trientalis borealis</i>)..... | 92 | 1 |
| Bugleweed (<i>Lycopus uniflorus</i>)..... | 83 | 1 |
| Dwarf Raspberry (<i>Rubus pubescens</i>)..... | 83 | 4 |
| Crested Wood Fern (<i>Dryopteris cristata</i>)..... | 75 | 1 |
| Sensitive Fern (<i>Onoclea sensibilis</i>)..... | 75 | 2 |
| Wild Sarsaparilla (<i>Aralia nudicaulis</i>)..... | 67 | 2 |
| Yellow Beadlily (<i>Clintonia borealis</i>)..... | 23 | 1 |
| Oak Fern (<i>Dryopteris disjuncta</i>)..... | 67 | 1 |
| Violets (<i>Viola</i> spp.)..... | 67 | 1 |
| Red-osier Dogwood (<i>Cornus stolonifera</i>)..... | 58 | 2 |
| Labrador Tea (<i>Ledum groenlandicum</i>)..... | 58 | 2 |
| Partridgeberry (<i>Mitchella repens</i>)..... | 58 | 1 |
| Mountain Holly (<i>Nemopanthus mucronata</i>)..... | 58 | 1 |
| Three-leaved Solomon's Seal (<i>Smilacina trifolia</i>)..... | 58 | 1 |
| Low-sweet Blueberry (<i>Vaccinium angustifolium</i>)..... | 58 | 1 |
| Marsh Marigold (<i>Caltha palustris</i>)..... | 50 | 1 |
| Wild Strawberry (<i>Fragaria virginiana</i>)..... | 50 | 1 |
| Rough Bedstraw (<i>Galium asprellum</i>)..... | 50 | 1 |
| Creeping Snowberry (<i>Gaultheria hispida</i>)... .. | 50 | 1 |
| American Fly Honeysuckle (<i>Lonicera canadensis</i>)..... | 50 | 1 |
| Naked Miterwort (<i>Mitella nuda</i>)..... | 50 | 1 |
| Heal-all (<i>Prunella vulgaris</i>)..... | 50 | 1 |
| Shinleaves (<i>Pyrola</i> spp.)..... | 50 | 1 |
| Juneberries (<i>Amelanchier</i> spp.)..... | 42 | 1 |
| Wood Horsetail (<i>Equisetum sylvaticum</i>)..... | 42 | 1 |

| Common Name (<i>Scientific Name</i>) | Freq. Cover | |
|--|--------------------|----------|
| | % | % |
| Spotted Touch-me-not (<i>Impatiens capensis</i>) | 42 | 2 |
| Stiff Clubmoss (<i>Lycopodium annotinum</i>) | 42 | 5 |
| Royal Fern (<i>Osmunda regalis</i>) | 42 | 4 |
| Alder-leaved Buckthorn (<i>Rhamnus alnifolia</i>) | 42 | 1 |
| Nodding Trillium (<i>Trillium cernuum</i>) | 42 | 1 |
| Canada Blueberry (<i>Vaccinium myrtilloides</i>) | 42 | 1 |
| Mountain Maple (<i>Acer spicatum</i>) | 33 | 1 |
| Lady Fern (<i>Athyrium filix-femina</i>) | 33 | 1 |
| Dwarf Enchanter's Nightshade (<i>Circaea alpina</i>) | 33 | 1 |
| American Hazelnut (<i>Corylus americana</i>) | 33 | 1 |
| Gooseberry (<i>Ribes lacustre</i>) | 33 | 1 |
| Large-leaved Aster (<i>Aster macrophyllus</i>) | 25 | 1 |
| Asters (<i>Aster</i> spp.) | 25 | 1 |
| Common Fleabane (<i>Erigeron philadelphicus</i>) | 25 | 1 |
| Bedstraws (<i>Galium</i> spp.) | 25 | 1 |
| Swamp Red Currant (<i>Ribes triste</i>) | 25 | 1 |
| American Mountain Ash (<i>Sorbus americana</i>) | 25 | 1 |
| Small Jack-in-the-pulpit (<i>Arisaema triphyllum</i>) | 17 | 1 |
| Pink Lady's Slipper (<i>Cypripedium acaule</i>) | 17 | 1 |
| Oak Fern (<i>Dryopteris disjuncta</i>) | 17 | 2 |
| Fringed Orchids (<i>Habenaria</i> spp.) | 17 | 1 |
| Ground Pine (<i>Lycopodium obscurum</i>) | 17 | 1 |
| Common Wood Sorrel (<i>Oxalis montana</i>) | 17 | 1 |
| Virginia Creeper (<i>Parthenocissus</i> spp.) | 17 | 1 |
| White Lettuce (<i>Prenanthes alba</i>) | 17 | 1 |
| Chokecherry (<i>Prunus virginiana</i>) | 17 | 1 |
| Small Cranberry (<i>Vaccinium oxycoccus</i>) | 17 | 1 |



REGION 2: TREE SPECIES BY HABITAT TYPE (ThAbFnIx)

Tree Species Frequency of Occurrence and Average Cover by Size Class

| Sawtimber | Freq. % | Cover % |
|---------------------------------|----------------|----------------|
| <i>Thuja occidentalis</i> | 67..... | 29 |
| <i>Larix laricina</i> | 33..... | 15 |
| <i>Fraxinus nigra</i> | 17..... | 18 |

| Poles | Freq. % | Cover % |
|------------------------------------|----------------|----------------|
| <i>Abies balsamea</i> | 83..... | 5 |
| <i>Thuja occidentalis</i> | 75..... | 27 |
| <i>Fraxinus nigra</i> | 58..... | 14 |
| <i>Betula alleghaniensis</i> | 33..... | 6 |
| <i>Larix laricina</i> | 33..... | 28 |
| <i>Acer rubrum</i> | 17..... | 13 |
| <i>Tsuga canadensis</i> | 17..... | 20 |

| Saplings | Freq. % | Cover % |
|------------------------------------|----------------|----------------|
| <i>Abies balsamea</i> | 100..... | 20 |
| <i>Fraxinus nigra</i> | 92..... | 10 |
| <i>Acer rubrum</i> | 42..... | 4 |
| <i>Thuja occidentalis</i> | 33..... | 3 |
| <i>Betula papyrifera</i> | 25..... | 1 |
| <i>Betula alleghaniensis</i> | 17..... | 3 |
| <i>Larix laricina</i> | 17..... | 1 |
| <i>Picea mariana</i> | 17..... | 2 |

| Seedlings | Freq. % | Cover % |
|--------------------------------|----------------|----------------|
| <i>Abies balsamea</i> | 92..... | 2 |
| <i>Acer rubrum</i> | 92..... | 1 |
| <i>Fraxinus nigra</i> | 75..... | 1 |
| <i>Betula papyrifera</i> | 17..... | 1 |
| <i>Picea mariana</i> | 17..... | 1 |
| <i>Quercus rubra</i> | 17..... | 1 |
| <i>Ulmus americana</i> | 17..... | 1 |

FnAbI

Fraxinus-Abies/Impatiens

Fraxinus nigra-Abies balsamea/Impatiens capensis

Black Ash-Balsam Fir/Spotted Touch-me-not

DISTRIBUTION

Bayfield, Douglas Counties and surrounding regions.

LANDFORM AND SOILS

Landform is most likely 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. Texture varies greatly but clay component usually is conspicuous. Soil profile stratification can be complex.

VEGETATION

Common Forest Cover Types: Most stands are dominated singly, or in combination, by black ash and balsam fir. Some common associates include northern white cedar, red maple, aspen, white birch and (formerly) American elm. Advance reproduction is best represented by black ash and balsam fir. Northern white cedar is conspicuously underrepresented in this layer, at least in part, due to browsing by deer.

Shrub and Small Tree Layer: This layer is not well developed. The most frequently present shrubs are speckled alder (*Alnus rugosa*), Winterberry (*Ilex verticillata*) and Currants/Gooseberries (*Ribes* spp.). Mountain Maple (*Acer spicatum*), Red-osier Dogwood (*Cornus stolonifera*), Beaked Hazel (*Corylus cornuta*) and Raspberries/Blackberries (*Rubus* spp.) also occur in some stands.

Ground Flora Characteristics: In many stands, Purple-stemmed Aster (*Aster puniceus*) dominates this layer, and Dwarf Raspberry (*Rubus pubescens*) and Lady Fern (*Athyrium filix-femina*) are often well represented. Other species with relatively high frequency of occurrence include Spinulose Shield Fern (*Dryopteris spinulosa*), Spotted Touch-me-not (*Impatiens capensis*), Marsh Marigold (*Caltha palustris*), Sensitive Fern (*Onoclea sensibilis*) and Jack-in-the-pulpit (*Arisaema atrorubens*).

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) **FnAbI** is classified as “medium” (see the **Management Implications** section). It is the richest wetland habitat type in Region 2.

REGION 2: PLANT SPECIES BY HABITAT TYPE (FnAbI)

Understory Species in Order of Decreasing Frequency of Occurrence

| Common Name (<i>Scientific Name</i>) | Freq. Cover | |
|---|--------------------|----|
| | % | % |
| Spinulose Shield Fern (<i>Dryopteris spinulosa</i>) | 94 | 2 |
| Purple-stemmed Aster (<i>Aster puniceus</i>) | 87 | 38 |
| Dwarf Raspberry (<i>Rubus pubescens</i>) | 87 | 9 |
| Goldenrods (<i>Solidago</i> spp.) | 87 | 1 |
| Lady Fern (<i>Athyrium filix-femina</i>) | 81 | 5 |
| Marsh Marigold (<i>Caltha palustris</i>) | 81 | 2 |
| Wood Horsetail (<i>Equisetum sylvaticum</i>) | 81 | 5 |
| Spotted Touch-me-not (<i>Impatiens capensis</i>) | 81 | 5 |
| Rough Bedstraw (<i>Galium asprellum</i>) | 77 | 2 |
| Small Jack-in-the-pulpit (<i>Arisaema triphyllum</i>) | 74 | 1 |
| Sensitive Fern (<i>Onoclea sensibilis</i>) | 74 | 4 |
| Wild Lily-of-the-valley (<i>Maianthemum canadense</i>) | 65 | 1 |
| Speckled Alder (<i>Alnus rugosa</i>) | 61 | 19 |
| Swamp Red Currant (<i>Ribes triste</i>) | 61 | 3 |
| Starflower (<i>Trientalis borealis</i>) | 61 | 1 |
| Violets (<i>Viola</i> spp.) | 58 | 1 |
| Wild Strawberry (<i>Fragaria virginiana</i>) | 55 | 1 |
| Winterberry (<i>Ilex verticillata</i>) | 55 | 4 |
| Dwarf Enchanter's Nightshade (<i>Circaea alpina</i>) | 52 | 1 |
| Naked Miterwort (<i>Mitella nuda</i>) | 52 | 1 |
| Cinnamon Fern (<i>Osmunda cinnamomea</i>) | 52 | 4 |
| Gooseberry (<i>Ribes lacustre</i>) | 52 | 2 |
| Early Meadow Rue (<i>Thalictrum dioicum</i>) | 52 | 4 |
| Nodding Trillium (<i>Trillium cernuum</i>) | 52 | 1 |
| Asters (<i>Aster</i> spp.) | 48 | 1 |
| Crested Wood Fern (<i>Dryopteris cristata</i>) | 48 | 1 |
| Large-leaved Aster (<i>Aster macrophyllus</i>) | 45 | 3 |
| Red-osier Dogwood (<i>Cornus stolonifera</i>) | 45 | 1 |
| Chokecherry (<i>Prunus virginiana</i>) | 45 | 3 |
| Swamp Buttercup (<i>Ranunculus hispidus</i>) | 45 | 1 |
| Wild Red Raspberry (<i>Rubus idaeus</i>) | 45 | 6 |
| White Lettuce (<i>Prenanthes alba</i>) | 42 | 1 |
| Mountain Maple (<i>Acer spicatum</i>) | 39 | 11 |

| Common Name (<i>Scientific Name</i>) | Freq. Cover | |
|---|--------------------|----------|
| | % | % |
| Wood Anemone (<i>Anemone quinquefolia</i>)..... | 39 | 1 |
| Goldthread (<i>Coptis groenlandica</i>)..... | 39 | 1 |
| American Hazelnut (<i>Corylus americana</i>)..... | 39 | 5 |
| Bugleweed (<i>Lycopus uniflorus</i>)..... | 39 | 1 |
| Interrupted Fern (<i>Osmunda claytoniana</i>)..... | 39 | 4 |
| Virgin's Bower (<i>Clematis virginiana</i>)..... | 35 | 1 |
| Yellow Beadlily (<i>Clintonia borealis</i>)..... | 23 | 1 |
| Bunchberry (<i>Cornus canadensis</i>)..... | 35 | 1 |
| Oak Fern (<i>Dryopteris disjuncta</i>)..... | 35 | 1 |
| Beech Fern (<i>Dryopteris phegopteris</i>)..... | 35 | 3 |
| Wild Sarsaparilla (<i>Aralia nudicaulis</i>)..... | 32 | 4 |
| Common Fleabane (<i>Erigeron philadelphicus</i>)..... | 32 | 1 |
| Wild Lettuce (<i>Lactuca canadensis</i>)..... | 32 | 1 |
| Heal-all (<i>Prunella vulgaris</i>)..... | 32 | 1 |
| Bladder Sedge (<i>Carex intumescens</i>)..... | 29 | 1 |
| Ostrich Fern (<i>Matteuccia struthiopteris</i>)..... | 26 | 5 |
| Virginia Creeper (<i>Parthenocissus</i> spp.)..... | 26 | 1 |
| Tall Buttercup (<i>Ranunculus acris</i>)..... | 26 | 1 |
| Swamp Thistle (<i>Cirsium muticum</i>)..... | 23 | 1 |
| American Fly Honeysuckle (<i>Lonicera canadensis</i>)..... | 23 | 1 |
| Currants/Gooseberries (<i>Ribes</i> spp.)..... | 23 | 1 |
| Red Baneberry (<i>Actaea rubra</i>)..... | 19 | 1 |
| Juneberries (<i>Amelanchier</i> spp.)..... | 19 | 1 |
| Wood Nettle (<i>Laportea canadensis</i>)..... | 19 | 5 |
| Mosses (<i>Moss</i> spp.)..... | 19 | 15 |
| Shinleaves (<i>Pyrola</i> spp.)..... | 19 | 1 |
| Hooked Crowfoot (<i>Ranunculus recurvatus</i>)... 19..... | 19 | 1 |
| Sessile-leaved Bellwort (<i>Uvularia sessifolia</i>)..... | 19 | 1 |
| Bush Honeysuckle (<i>Diervilla lonicera</i>)..... | 16 | 1 |
| Hairy Solomon's Seal (<i>Polygonatum pubescens</i>)..... | 16 | 1 |
| American Mountain Ash (<i>Sorbus americana</i>)..... | 16 | 1 |
| Spotted Joe-Pye Weed (<i>Eupatorium maculatum</i>)..... | 13 | 1 |
| Larger Blue Flag (<i>Iris versicolor</i>)..... | 13 | 1 |
| Raspberries/Blackberries (<i>Rubus</i> spp.)..... | 13 | 1 |
| Sphagnum Mosses (<i>Sphagnum</i> spp.)..... | 13 | 2 |
| Nannyberry (<i>Viburnum lentago</i>)..... | 13 | 3 |
| High-bush Cranberry (<i>Viburnum trilobum</i>)..... | 13 | 1 |

REGION 2: TREE SPECIES BY HABITAT TYPE (FnAbI)

Tree Species Frequency of Occurrence and Average Cover by Size Class

| Sawtimber | Freq. % | Cover % |
|------------------------------------|----------------|----------------|
| <i>Fraxinus nigra</i> | 61..... | 16 |
| <i>Thuja occidentalis</i> | 35..... | 25 |
| <i>Abies balsamea</i> | 19..... | 5 |
| <i>Betula alleghaniensis</i> | 13..... | 10 |
| <i>Acer saccharum</i> | 10..... | 14 |
| <i>Betula papyrifera</i> | 10..... | 7 |
| <i>Populus tremuloides</i> | 10..... | 16 |

| Poles | Freq. % | Cover % |
|------------------------------------|----------------|----------------|
| <i>Fraxinus nigra</i> | 87..... | 34 |
| <i>Abies balsamea</i> | 68..... | 12 |
| <i>Ulmus americana</i> | 32..... | 7 |
| <i>Acer rubrum</i> | 26..... | 9 |
| <i>Thuja occidentalis</i> | 26..... | 17 |
| <i>Betula papyrifera</i> | 23..... | 6 |
| <i>Acer saccharum</i> | 16..... | 6 |
| <i>Betula alleghaniensis</i> | 16..... | 6 |
| <i>Populus tremuloides</i> | 13..... | 14 |

| Saplings | Freq. % | Cover % |
|------------------------------------|----------------|----------------|
| <i>Fraxinus nigra</i> | 94..... | 13 |
| <i>Abies balsamea</i> | 84..... | 5 |
| <i>Acer rubrum</i> | 48..... | 4 |
| <i>Ulmus americana</i> | 45..... | 7 |
| <i>Betula alleghaniensis</i> | 23..... | 6 |
| <i>Acer saccharum</i> | 19..... | 12 |
| <i>Populus tremuloides</i> | 13..... | 1 |
| <i>Thuja occidentalis</i> | 10..... | 2 |

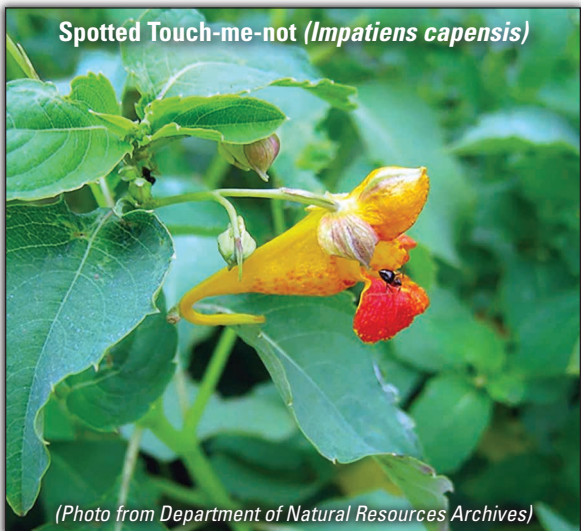
| Seedlings | Freq. % | Cover % |
|------------------------------------|----------------|----------------|
| <i>Fraxinus nigra</i> | 77..... | 2 |
| <i>Abies balsamea</i> | 52..... | 1 |
| <i>Acer rubrum</i> | 52..... | 1 |
| <i>Ulmus americana</i> | 39..... | 1 |
| <i>Acer saccharum</i> | 29..... | 4 |
| <i>Quercus rubra</i> | 29..... | 1 |
| <i>Picea glauca</i> | 16..... | 1 |
| <i>Populus tremuloides</i> | 16..... | 1 |
| <i>Betula alleghaniensis</i> | 13..... | 1 |

Crested Wood Fern (*Dryopteris cristata*)



(Photo from Department of Natural Resources Archives)

Spotted Touch-me-not (*Impatiens capensis*)



(Photo from Department of Natural Resources Archives)

Wood Horsetail (*Equisetum sylvaticum*)



(Photo from Department of Natural Resources Archives)