



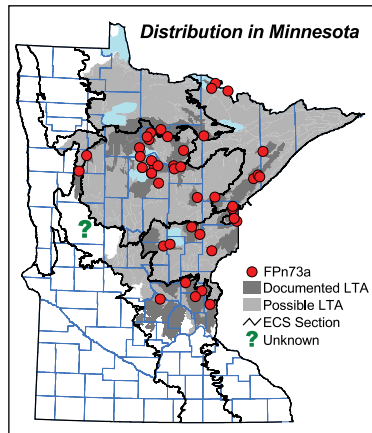
## Northern Rich Alder Swamp

Tall shrub wetlands dominated by speckled alder on mineral, muck, or peat soils. Present in wetland basins on glacial moraines and till plains, along streams and drainage ways, and in laggs along peatland and upland borders.

### Vegetation Structure & Composition

Description is based on summary of vegetation data from 44 plots (relevés).

- **Moss layer** is variable, ranging from sparse to nearly continuous cover and can be dominated by either *Sphagnum* or non-*Sphagnum* species.
- **Graminoid layer** has variable cover but is typically dominated by bluejoint (*Calamagrostis canadensis*), frequently with soft-leaved sedge (*Carex disperma*), and commonly with bristle-stalked sedge (*C. leptalea*) and lake sedge (*C. lacustris*).
- **Forb layer** is variable but commonly has between 5% and 50% cover. Dwarf raspberry (*Rubus pubescens*), crested fern (*Dryopteris cristata*), and northern bugleweed (*Lycopus uniflorus*) are usually present, with northern marsh fern (*Thelypteris palustris*), common marsh marigold (*Caltha palustris*), red-stemmed aster (*Aster puniceus*), spinulose shield fern (*Dryopteris carthusiana*), touch-me-nots (*Impatiens* spp.), and tufted loosestrife (*Lysimachia thyrsiflora*) commonly present. Shade-tolerant forest species are usually present and may include three-leaved false Solomon's seal (*Smilacina trifolia*), bunchberry (*Cornus canadensis*), starflower (*Trientalis borealis*), and Canada mayflower (*Maianthemum canadense*).
- **Low-shrub layer** is sparse, with red raspberry (*Rubus idaeus*) typical, and Labrador tea (*Ledum groenlandicum*) and blueberries (*Vaccinium angustifolium* and *V. myrtilloides*) occasionally present.
- **Tall-shrub layer** is dominated by dense cover (> 50%) of speckled alder (*Alnus incana*), with red-osier dogwood (*Cornus sericea*) common, and swamp gooseberry (*Ribes hirtellum*), skunk currant (*Ribes glandulosum*), swamp red currant (*Ribes triste*), juneberries (*Amelanchier* spp.), willows—particularly pussy willow (*Salix discolor*)—and dwarf alder (*Rhamnus alnifolia*) occasionally present but sparse.
- **Trees** over 6ft (2m) tall are commonly present but have low (< 25%) cover, with paper birch and tamarack most common. Paper birch and red maple < 6ft (2m) tall are occasionally present in the shrub layer.



### Landscape Setting & Soils

FPn73 typically occurs in wetland basins on moraines and till plains, in association with streams and drainage ways, and in laggs along peatland and upland borders. Soils range from mineral and muck soil to peat. Peat, when present, has variable depth. FPn73 is often associated with rich swamp forests such as Northern Rich Tamarack Swamp (Western Basin) (FPn82) or Northern Rich Spruce Swamp (Basin) (FPn62).

### Natural History

Although FPn73 is nonforested, with at most scattered trees over 6ft tall, it appears to be hydrologically and floristically related to communities in the Forested Rich Peatland System. FPn73 occurs in wetland areas subjected to periodic inundation from spring runoff and following heavy rains. The water table can fluctuate but remains at or near the ground surface for much of the year. This promotes accumulation of peat and limits direct access of shallowly rooted plants to nutrients in the mineral soil. Unlike Acid Peatland



communities, where accumulation of peat leads to acidic, mineral-poor conditions at the peat surface, FPn73 occurs in settings that receive mineral-rich surface or subsurface flow, which maintains surface water with nearly neutral pH. The dense, nearly continuous shrub canopy creates shaded conditions that favor shade-tolerant species in the ground layer. Fluctuations in the water table and the presence of moderately developed hummocks in the ground layer provide sufficiently aerated conditions to favor the presence of swamp forest forbs and mosses, in contrast to Wet Meadow/Carr communities, where wetter conditions promote an abundance of broad-leaved sedges. FPn73 often occurs adjacent to or as patches within forested rich swamp communities; FPn73 can originate following disturbances that cause elimination of trees in forested swamps, enabling alder to become dominant. Conversion of forested swamps to alder swamps often follows fire, logging, windthrow, or temporary changes in hydrology caused by beaver activity. Although the aerated surface conditions characteristic of alder swamps may be conducive to tree reproduction and eventual succession to rich forested swamps, periodic high water tables help maintain dominance by alder, which forms elevated root masses, giving it a competitive advantage over trees during high-water conditions. Persistent (rather than periodic) high water levels will eventually result in the conversion of FPn73 to Northern Wet Meadow/Carr (WMn82).

## Similar Native Plant Community Classes

### • WFn74 Northern Wet Alder Swamp

WFn74, like FPn73, is a shrub wetland community dominated by speckled alder. WFn74, however, tends to occur along streams and lakes or in wetlands associated with deciduous swamp forests and typically has species characteristic of mesic upland communities. FPn73 is associated with conifer swamp forests and has species characteristic of peatland communities.

FPn73 Indicator Species	(freq%)		WFn74 Indicator Species	(freq%)	
	FPn73	WFn74		FPn73	WFn74
Paper birch (U)	59	-	Wood anemone ( <i>Anemone quinquefolia</i> )	-	31
Tufted loosestrife ( <i>Lysimachia thyrsiflora</i> )	55	-	Balsam poplar (U)	-	23
Linear-leaved, Marsh, or Downy willow-herb*	39	-	Red baneberry ( <i>Actaea rubra</i> )	-	23
Marsh cinquefoil ( <i>Potentilla palustris</i> )	36	-	Cow parsnip ( <i>Heracleum lanatum</i> )	-	23
Cinnamon fern ( <i>Osmunda cinnamomea</i> )	34	-	Nodding trillium ( <i>Trillium cernuum</i> )	-	23
Tamarack (C,U)	30	-	Tall meadow-rue ( <i>Thalictrum dasycarpum</i> )	5	85
Velvet-leaved blueberry ( <i>Vaccinium myrtilloides</i> )	23	-	Chokecherry ( <i>Prunus virginiana</i> )	2	38
Soft-leaved sedge ( <i>Carex disperma</i> )	57	8	Ostrich fern ( <i>Matteuccia struthiopteris</i> )	2	38

\*Linear-leaved, Marsh, or Downy willow-herb (*Epilobium leptophyllum*, *E. palustre*, or *E. strictum*)

### • OPn81 Northern Shrub Shore Fen

OPn81 when dominated by speckled alder (see OPn81a, Bog Birch - Alder Shore Fen) may resemble FPn73. OPn81 is often present adjacent to peatland lakeshores and is more likely to have high cover of bog birch (*Betula pumila*) and leatherleaf (*Chamaedaphne calyculata*) in addition to speckled alder. FPn73 is seldom present along peatland lakeshores (although it may be present along peatland margins) and is more likely to have ground-layer species typical of forest communities, including blueberries, bunchberry, starflower, Canada mayflower, lady fern (*Athyrium filix-femina*), fowl manna grass (*Glyceria striata*), and awl-fruited sedge (*Carex stipata*).

FPn73 Indicator Species	(freq%)		OPn81 Indicator Species	(freq%)	
	FPn73	OPn81		FPn73	OPn81
Starflower ( <i>Trientalis borealis</i> )	50	-	Creeping sedge ( <i>Carex chordorrhiza</i> )	2	20
Bunchberry ( <i>Cornus canadensis</i> )	48	-	Bog rosemary ( <i>Andromeda glaucophylla</i> )	2	13
Canada mayflower ( <i>Maianthemum canadense</i> )	43	-	Leatherleaf ( <i>Chamaedaphne calyculata</i> )	16	73
Juneberries ( <i>Amelanchier</i> spp.)	32	-	Bog aster ( <i>Aster borealis</i> )	7	27
Skunk currant ( <i>Ribes glandulosum</i> )	32	-	Bog birch ( <i>Betula pumila</i> )	27	87
Woodland horsetail ( <i>Equisetum sylvaticum</i> )	23	-	Small cranberry ( <i>Vaccinium oxycoccos</i> )	9	27
Naked miterwort ( <i>Mitella nuda</i> )	20	-	Tussock sedge ( <i>Carex stricta</i> )	11	33
Touch-me-not ( <i>Impatiens</i> spp.)	55	7	Marsh cinquefoil ( <i>Potentilla palustris</i> )	36	100

### • WMn82 Northern Wet Meadow/Carr

WMn82 when dominated by speckled alder (see WMn82a, Willow - Dogwood Shrub Swamp) may resemble FPn73. WMn82a is typically associated with sedge meadows (WMn82b) and is more likely to have shade-intolerant species such as beaked sedge (*Carex utriculata*), water smartweed (*Polygonum amphibium*), and cattails (*Typha*



spp.). FPn73 is typically associated with rich swamp forests (especially Northern Rich Spruce Swamp [Basin] [FPn62], Northern Cedar Swamp [FPn63], and Northern Rich Tamarack Swamp [Western Basin] [FPn82]) and is more likely to have trees > 6ft (2m) tall, including paper birch, red maple, and balsam fir, and to have shade-tolerant swamp forest species in the ground layer, including Labrador tea, blueberries, dwarf raspberry, spinulose shield fern, Canada mayflower, starflower, bunchberry, fowl manna grass, and soft-leaved sedge (*Carex disperma*).

FPn73 Indicator Species	(freq%)		WMn82 Indicator Species	(freq%)	
	FPn73	WMn82		FPn73	WMn82
Starflower ( <i>Trientalis borealis</i> )	50	1	Common boneset ( <i>Eupatorium perfoliatum</i> )	-	11
Bunchberry ( <i>Cornus canadensis</i> )	48	1	Cut-leaved bugleweed ( <i>Lycopus americanus</i> )	2	20
Canada mayflower ( <i>Maianthemum canadense</i> )	43	1	Swamp milkweed ( <i>Asclepias incarnata</i> )	2	16
Three-fruited bog sedge ( <i>Carex trisperma</i> )	27	1	Common mint ( <i>Mentha arvensis</i> )	2	16
Lowbush or velvet-leaved blueberry*	27	1	Water smartweed ( <i>Polygonum amphibium</i> )	5	29
Labrador tea ( <i>Ledum groenlandicum</i> )	50	3	Tussock sedge ( <i>Carex stricta</i> )	11	47
White cedar (U)	23	1	Slender willow ( <i>Salix petiolaris</i> )	18	71
Balsam fir (U)	45	4	Beaked sedge ( <i>Carex utriculata</i> )	9	27

\*Lowbush or velvet-leaved blueberry (*Vaccinium angustifolium* or *V. myrtilloides*)

## Native Plant Community Types in Class

### • FPn73a Alder - (Maple - Loosetrife) Swamp

FPn73a is the only community type recognized in this class at present. Collection of additional data may result in delineation of types based on differences in relative proportions of forbs versus graminoids in the ground layer.



Morrison County, MN

photo by D.J. Penberg MN DNR



**FPn73 Northern Rich Alder Swamp – Species Frequency & Cover**

	freq% cover	freq% cover
<b>Forbs, Ferns &amp; Fern Allies</b>		
Dwarf raspberry ( <i>Rubus pubescens</i> )	89	18
Crested fern ( <i>Dryopteris cristata</i> )	86	•••
Northern bugleweed ( <i>Lycopus uniflorus</i> )	82	•••
Northern marsh fern ( <i>Thelypteris palustris</i> )	59	•••
Common marsh marigold ( <i>Caltha palustris</i> )	59	••••
Red-stemmed aster ( <i>Aster puniceus</i> )	59	••••
Spinnulose shield fern ( <i>Dryopteris carthusiana</i> )	55	••
Touch-me-not ( <i>Impatiens</i> spp.)	55	••
Tufted loosestrife ( <i>Lysimachia thyrsiflora</i> )	55	••
Three-leaved false Solomon's seal ( <i>Smilacina trifolia</i> )	52	••
Starflower ( <i>Trientalis borealis</i> )	50	••
Marsh bellflower ( <i>Campanula aparinoides</i> )	50	••
Bunchberry ( <i>Cornus canadensis</i> )	48	••
Canada mayflower ( <i>Maianthemum canadense</i> )	43	••
Northern blue flag ( <i>Iris versicolor</i> )	43	••
Great water dock ( <i>Rumex orbiculatus</i> )	41	••••
Big-leaf white violet or Northern white violet*	39	••
Linear-leaved, Marsh, or Downy willow-herb**	39	••
Marsh cinquefoil ( <i>Potentilla palustris</i> )	36	••
Cinnamon fern ( <i>Osmunda cinnamomea</i> )	34	••
Marsh skullcap ( <i>Scutellaria galericulata</i> )	34	••
Spotted Joe pye weed ( <i>Eupatorium maculatum</i> )	32	••
Arrow-leaved tearthumb ( <i>Polygonum sagittatum</i> )	30	••
Three-leaflet or Small bedstraw ( <i>Galium trifidum</i> or <i>G. tinctorium</i> )	30	••
Bog goldenrod ( <i>Solidago uliginosa</i> )	30	••
Mad dog skullcap ( <i>Scutellaria lateriflora</i> )	25	••
Long-leaved chickweed ( <i>Stellaria longifolia</i> )	25	••
Woodland horsetail ( <i>Equisetum sylvaticum</i> )	23	••
Sweet-scented bedstraw ( <i>Galium triflorum</i> )	23	••
Flat-topped aster ( <i>Aster umbellatus</i> )	23	••
Water horsetail ( <i>Equisetum fluviatile</i> )	20	••
Bulb-bearing water hemlock ( <i>Cicuta bulbifera</i> )	20	••
Naked miterwort ( <i>Mitella nuda</i> )	20	••
Goldthread ( <i>Coptis trifolia</i> )	18	••
Bluehead lily ( <i>Clintonia borealis</i> )		18
<b>Grasses &amp; Sedges</b>		
Bluejoint ( <i>Calamagrostis canadensis</i> )		80
Soft-leaved sedge ( <i>Carex disperma</i> )		57
Bristle-stalked sedge ( <i>Carex leptalea</i> )		45
Lake sedge ( <i>Carex lacustris</i> )		45
Interior sedge ( <i>Carex interior</i> )		34
Three-fruited bog sedge ( <i>Carex trisperma</i> )		27
Fowl manna grass ( <i>Glyceria striata</i> )		27
Poor sedge ( <i>Carex paupercula</i> )		20
<b>Low Shrubs</b>		
Red raspberry ( <i>Rubus idaeus</i> )		84
Labrador tea ( <i>Ledum groenlandicum</i> )		50
Lowbush blueberry ( <i>Vaccinium angustifolium</i> )		27
Velvet-leaved blueberry ( <i>Vaccinium myrtilloides</i> )		23
<b>Tall Shrubs</b>		
Speckled alder ( <i>Alnus incana</i> )		98
Red-osier dogwood ( <i>Cornus sericea</i> )		66
Swamp gooseberry ( <i>Ribes hirtellum</i> )		32
Juneberries ( <i>Amelanchier</i> spp.)		32
Pussy willow ( <i>Salix discolor</i> )		32
Skunk currant ( <i>Ribes glandulosum</i> )		32
Dwarf alder ( <i>Rhamnus alnifolia</i> )		30
Bog birch ( <i>Betula pumila</i> )		27
Mountain fly honeysuckle ( <i>Lonicera villosa</i> )		23
<b>Trees</b>		
	freq% cover	Understory freq% cover
Paper birch	30	59
Tamarack	30	30
Black spruce	20	27
Black ash	16	27
Balsam fir	14	45
White cedar	11	23
Red maple	2	55

\*Big-leaf white violet or Northern white violet (*Viola blanda* or *V. macloskeyi*) \*\*Linear-leaved, Marsh, or Downy willow-herb (*Epilobium leptophyllum*, *E. palustre*, or *E. strictum*)