



Northwestern Wet Aspen Forest

Wet hardwood and hardwood-conifer forests in depressions and on level to gently sloping lacustrine deposits in the Glacial Lake Agassiz plain.

Vegetation Structure & Composition

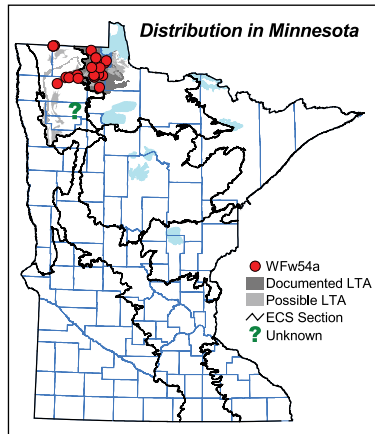
Description is based on summary of vegetation data from 27 plots (relevés).

- **Ground layer** is composed of a mixture of wet forest and upland forest species. The most common species are common strawberry (*Fragaria virginiana*), side-flowering aster (*Aster lateriflorus*), dwarf raspberry (*Rubus pubescens*), palmate sweet coltsfoot (*Petasites frigidus*), sweet-scented bedstraw (*Galium triflorum*), wild sarsaparilla (*Aralia nudicaulis*), Lindley's aster (*Aster ciliolatus*), and starry false Solomon's seal (*Smilacina stellata*).

- **Shrub layer** is patchy (25–50% cover), with abundant black ash seedlings and saplings; balsam poplar and quaking aspen seedlings and saplings are also common. The most important shrub species is red-osier dogwood (*Cornus sericea*); other common shrubs include red raspberry (*Rubus idaeus*), highbush cranberry (*Viburnum trilobum*), poison ivy (*Toxicodendron rydbergii*), dwarf alder (*Rhamnus alnifolia*), and beaked hazelnut (*Corylus cornuta*).

- **Subcanopy** is patchy (25–50% cover), with black ash, quaking aspen, balsam poplar, and American elm most common.

- **Canopy** is patchy to continuous (25–100% cover) and dominated by quaking aspen, balsam poplar, or black ash. Paper birch or white spruce may be present.



Landscape Setting & Soils

WFw54 occurs in depressions and on level to undulating sites on the Glacial Lake Agassiz plain. Parent material is loamy sand deposited in shallow water; gravel lenses are common. The parent material is calcareous, with free carbonates concentrated near the surface. Soil surface may have patches of thin muck, and the top 10in (25cm) of mineral soil are very dark because of incorporated organic matter. Gray colors below the surface horizons indicate permanently saturated conditions lower in the soil. Soils are very poorly drained, and the soil-moisture regime is very moist to moderately wet. (LAP, MOP)

Natural History

In the past, catastrophic disturbances were infrequent in WFw54. An analysis of Public Land Survey records indicates that the rotation of catastrophic fires was about 490 years, and the rotation of catastrophic windthrow was about 250 years. Events that result in partial loss of trees were much more common and were important for tree regeneration. These events—primarily light surface fires and selective windthrow—had a rotation of about 20 years. Based on the historical composition and age structure of these forests, WFw54 had three growth stages.

- **0–55 years**—Young forests recovering from fire or windthrow, strongly dominated by quaking aspen mixed with some balsam poplar, black ash, and tamarack. White spruce was a rare component.

- **55–105 years**—Mature forests consisting of mixed stands of quaking aspen, black ash, and tamarack. Black ash is most abundant in this stage. Cohorts of young aspen are typical, becoming established following surface fires.

- **> 105 years**—Old forests dominated by tamarack and aspen mixed with some black ash. Tamarack and black ash are the oldest trees, growing with aspen of all



ages. (Although tamarack can be present in modern stands, it is not as common as it apparently was in the past.)

Similar Native Plant Community Classes

• FDw44 Northwestern Wet-Mesic Aspen Woodland

FDw44 is similar to WFw54 when WFw54 is dominated by quaking aspen or balsam poplar. FDw44 is present on well-drained upland sites, while WFw54 is present on poorly drained sites.

WFw54 Indicator Species	(freq%)		FDw44 Indicator Species	(freq%)	
	WFw54	FDw44		WFw54	FDw44
Spinulose shield fern (<i>Dryopteris carthusiana</i>)	30	-	Veiny meadow-rue (<i>Thalictrum venulosum</i>)	-	67
Touch-me-not (<i>Impatiens</i> spp.)	30	-	Kalm's hawkweed (<i>Hieracium kalmii</i>)	-	32
Big-leaved avens (<i>Geum macrophyllum</i>)	26	-	Woods' rose (<i>Rosa woodsii</i>)	-	23
Lake sedge (<i>Carex lacustris</i>)	33	2	Prairie cordgrass (<i>Spartina pectinata</i>)	-	20
Lady fern (<i>Athyrium filix-femina</i>)	26	2	American hazelnut (<i>Corylus americana</i>)	4	70
Black ash (U)	74	7	Bastard toadflax (<i>Comandra umbellata</i>)	4	41
Naked miterwort (<i>Mitella nuda</i>)	63	7	Bur oak (C)	4	34
Spotted Joe pye weed (<i>Eupatorium maculatum</i>)	33	5	Golden alexanders (<i>Zizia aurea</i>)	7	57

• MHw36 Northwestern Wet-Mesic Hardwood Forest

MHw36 can be similar to WFw54, and the ranges of the two classes overlap in the LAP. Both communities tend to have abundant quaking aspen in the canopy, but MHw36 is more likely to also have bur oak and basswood in the canopy, while WFw54 is more likely to have black ash, black spruce, or tamarack. MHw36 generally occurs on alluvial river bottoms on silt or very fine sand or occasionally on fine sandy deposits on broad flats associated with shoreline features of Glacial Lake Agassiz; WFw54 occurs in wet depressions and on poorly drained, level to gently sloping lacustrine deposits on the Glacial Lake Agassiz plain.

WFw54 Indicator Species	(freq%)		MHw36 Indicator Species	(freq%)	
	WFw54	MHw36		WFw54	MHw36
Bluejoint (<i>Calamagrostis canadensis</i>)	78	-	Lopseed (<i>Phryma leptostachya</i>)	-	67
Dwarf alder (<i>Rharnus alnifolia</i>)	74	-	Virginia creeper (<i>Parthenocissus</i> spp.)	-	50
Palmate sweet coltsfoot (<i>Petasites frigidus</i>)	74	-	Veiny meadow-rue (<i>Thalictrum venulosum</i>)	-	50
Naked miterwort (<i>Mitella nuda</i>)	63	-	Basswood (C,U)	-	50
Speckled alder (<i>Alnus incana</i>)	56	-	Common false Solomon's seal (<i>Smilacina racemosa</i>)	-	33
Bebb's willow (<i>Salix bebbiana</i>)	44	-	Giant Solomon's seal (<i>Polygonatum biflorum</i>)	-	33
Swamp red currant (<i>Ribes triste</i>)	41	-	Bur oak (C)	4	83
Bunchberry (<i>Cornus canadensis</i>)	37	-	Green ash (C)	4	83

• WFn64 Northern Very Wet Ash Swamp

The ranges of WFn64 and WFw54 appear to overlap only in the western part of the MOP; the communities are similar in instances where WFw54 has significant cover of black ash in the canopy or subcanopy. In general, WFn64 is almost always strongly dominated by black ash, while quaking aspen and balsam poplar are often dominant or abundant in the canopy of WFw54 along with black ash. WFn64 is commonly present on peat over mineral soils. WFw54 is commonly present on mineral soils with occasional patches of thin muck at the surface.

WFw54 Indicator Species	(freq%)		WFn64 Indicator Species	(freq%)	
	WFw54	WFn64		WFw54	WFn64
Lindley's aster (<i>Aster ciliolatus</i>)	56	-	Big-leaf white violet or Northern white violet**	-	45
Spreading dogbane (<i>Apocynum androsaemifolium</i>)	33	-	Common oak fern (<i>Gymnocarpium dryopteris</i>)	-	40
Mountain rice grass (<i>Oryzopsis asperifolia</i>)	30	-	Bristle-stalked sedge (<i>Carex leptalea</i>)	-	40
Swamp fly honeysuckle (<i>Lonicera oblongifolia</i>)	26	-	Red maple (U)	-	38
Balsam poplar (C)	67	5	Virginia creeper (<i>Parthenocissus</i> spp.)	-	38
Prickly or Smooth wild rose*	85	7	Northern marsh fern (<i>Thelypteris palustris</i>)	-	33
Palmate sweet coltsfoot (<i>Petasites frigidus</i>)	74	7	White cedar (C,U)	-	31
Quaking aspen (C,U)	93	12	Alpine enchantier's nightshade (<i>Circaea alpina</i>)	4	64

*Prickly or Smooth wild rose (*R. acicularia* or *R. blanda*) **Big-leaf white violet or Northern white violet (*Viola blanda* or *V. macloskeyi*)

• FFn57 Northern Terrace Forest

FFn57 and WFw54 can be similar in appearance when dominated by black ash, and overlap in range in the LAP and the western part of the MOP. FFn57 occurs on silt or sandy alluvium on level, occasionally flooded sites along medium and large rivers, while WFw54 occurs in wet depressions and on poorly drained, level to gently sloping lacustrine deposits.



WFw54 Indicator Species	(freq%)	
	WFw54	FFn57
Red-osier dogwood (<i>Cornus sericea</i>)	78	-
Palmate sweet coltsfoot (<i>Petasites frigidus</i>)	74	-
Swamp gooseberry (<i>Ribes hirtellum</i>)	67	-
Red-stemmed aster (<i>Aster puniceus</i>)	52	-
Bebb's willow (<i>Salix bebbiana</i>)	44	-
Bunchberry (<i>Cornus canadensis</i>)	37	-
Arrow-leaved sweet coltsfoot (<i>Petasites sagittatus</i>)	33	-
Red raspberry (<i>Rubus idaeus</i>)	78	9

FFn57 Indicator Species	(freq%)	
	WFw54	FFn57
Wood nettle (<i>Laportea canadensis</i>)	-	64
Basswood (C,U)	-	57
Virginia creeper (<i>Parthenocissus</i> spp.)	-	45
Silver maple (C)	-	27
Green ash (C)	4	82
Ostrich fern (<i>Matteuccia struthiopteris</i>)	4	82
American hazelnut (<i>Corylus americana</i>)	4	55
Bur oak (C)	4	45

• WFn55 Northern Wet Ash Swamp

WFn55 is similar to WFw54 but is more likely to be dominated by black ash or have American elm, paper birch, or black spruce in the canopy, while WFw54 is more likely to be dominated by quaking aspen or have balsam poplar in the canopy. The ranges of WFn55 and WFw54 overlap in the TAP Province and the western MOP.

WFw54 Indicator Species	(freq%)	
	WFw54	WFn55
Spreading dogbane (<i>Apocynum androsaemifolium</i>)	33	-
American vetch (<i>Vicia americana</i>)	26	-
Pink shinleaf (<i>Pyrola asarifolia</i>)	19	-
Canada anemone (<i>Anemone canadensis</i>)	15	-
Field horsetail (<i>Equisetum arvense</i>)	59	7
Bebb's willow (<i>Salix bebbiana</i>)	44	7
Arrow-leaved sweet coltsfoot (<i>Petasites sagittatus</i>)	33	7
Palmate sweet coltsfoot (<i>Petasites frigidus</i>)	74	21

WFn55 Indicator Species	(freq%)	
	WFw54	WFn55
Common oak fern (<i>Gymnocarpium dryopteris</i>)	-	29
Large-leaved aster (<i>Aster macrophyllus</i>)	-	21
Alpine enchanter's nightshade (<i>Circaea alpina</i>)	4	71
Bladder sedge (<i>Carex intumescens</i>)	4	57
American spikenard (<i>Aralia racemosa</i>)	4	36
Rose twistedstalk (<i>Streptopus roseus</i>)	4	29
Ostrich fern (<i>Matteuccia struthiopteris</i>)	4	29
Mountain maple (<i>Acer spicatum</i>)	11	79

Native Plant Community Types in Class

• WFw54a Lowland Black Ash - Aspen - Balsam Poplar Forest

WFw54a is the only plant community type recognized in this class.



Kittson County, MN

photo by R. P. Dana, MN DNR



WFw54 Northwestern Wet Aspen Forest — Species Frequency & Cover

	freq%	cover		freq%	cover		freq%	cover
Forbs, Ferns & Fern Allies								
Side-flowering aster (<i>Aster lateriflorus</i>)	93	•	Fringed brome (<i>Bromus ciliatus</i>)	37	•			
Dwarf raspberry (<i>Rubus pubescens</i>)	85	•••	Fowl manna grass (<i>Glyceria striata</i>)	52	•			
Common strawberly (<i>Fragaria virginiana</i>)	81	•••	Dewey's sedge (<i>Carex deweyana</i>)	33	•			
Palmette sweet coltsfoot (<i>Petasites triglous</i>)	74	•	Lake sedge (<i>Carex lacustris</i>)	33	•			
Sweet-scented bedstraw (<i>Galium triflorum</i>)	70	•	Mountain rice grass (<i>Oryzopsis asperifolia</i>)	30	•			
Wild sarsaparilla (<i>Aralia nudicaulis</i>)	70	•	Woody Vines					
Naked milkwort (<i>Mithella nuda</i>)	63	••	Wild honeysuckle (<i>Lonicera dioica</i>)	30	•			
Field horsetail (<i>Equisetum arvense</i>)	59	•	Low Shrubs					
Linclay's aster (<i>Aster chilolais</i>)	56	•	Red raspberry (<i>Rubus idaeus</i>)	78	•••			
Canada mayflower (<i>Malianthemum canadense</i>)	52	•	Poison Ivy (<i>Toxicodendron rydbergii</i>)	37	••			
Rattlesnake fern (<i>Borytrichium virginianum</i>)	52	•	Tall Shrubs					
Red-stemmed aster (<i>Aster purpureus</i>)	52	•	Prickly or Smooth wild rose (<i>Rosa acicularis</i> or <i>R. blanda</i>)	85	•			
Maryland black snakeroot (<i>Sanicula marilandica</i>)	52	•	Red-osier dogwood (<i>Cornus sericea</i>)	78	•••			
Starry false Solomon's seal (<i>Smilacina stellata</i>)	48	•	Dwarf alder (<i>Rhamnus alnifolia</i>)	74	•			
Red barberry (<i>Actaea rubra</i>)	48	•	Swamp gooseberry (<i>Ribes hirtellum</i>)	67	•			
Giant goldenrod (<i>Solidago gigantea</i>)	48	••	Chokecherry (<i>Prunus virginiana</i>)	63	•			
Northern bedstraw (<i>Galium boreale</i>)	44	••	Spoekled alder (<i>Alnus incana</i>)	56	••••			
Yellow avens (<i>Gaum aleppicum</i>)	44	•	Highbush cranberry (<i>Viburnum trilobum</i>)	56	•			
Bunchberry (<i>Cornus canadensis</i>)	37	•	Juneberry (<i>Amelanchier</i> spp.)	56	•			
Spotted Joe pye weed (<i>Eupatorium maculatum</i>)	33	•	Baked hazelnut (<i>Corylus cornuta</i>)	48	•			
Canada goldenrod (<i>Solidago canadensis</i>)	33	••	Bebb's willow (<i>Salix bebbiana</i>)	44	••			
Spreading dogbane (<i>Apocynum androsaemifolium</i>)	33	•	Wild black currant (<i>Ribes americanum</i>)	44	•			
Wild ginger (<i>Asarum canadense</i>)	33	••	Swamp red currant (<i>Ribes frisia</i>)	41	•			
Arrow-leaved sweet coltsfoot (<i>Petasites sagittatus</i>)	33	•	Nannyberry (<i>Viburnum lentago</i>)	30	•			
Clayton's sweet cicely (<i>Osmorhiza claytonii</i>)	33	•	Trees					
Spirinlose shield fern (<i>Dryopteris carthusiana</i>)	30	•						
Touch-me-not (<i>Impatiens</i> spp.)	30	•						
Flat-topped aster (<i>Aster umbellatus</i>)	30	••	Quaking aspen	74	••••	67	••	59
Woodland horsetail (<i>Equisetum sylvaticum</i>)	26	••	Balsam poplar	59	•••	41	••	70
Tall meadow-rue (<i>Thalictrum dasycarpum</i>)	26	•••	Black ash	30	•••	70	•••	63
Big-leaved avens (<i>Gaum macrophyllum</i>)	26	•	White spruce	15	•••	19	•	22
Northern blue flag (<i>Iris versicolor</i>)	26	•	Paper birch	15	••	7	••	7
Grasses & Sedges								
Bluejoint (<i>Calamagrostis canadensis</i>)	78	•••	American elm	4	••	30	•••	48
			Bur oak	4	•	11	•	37
			Balsam fir	7	•••	15	••	11