



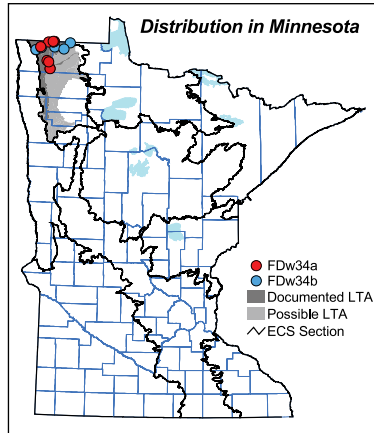
Northwestern Mesic Aspen-Oak Woodland

Mesic woodlands dominated by quaking aspen and bur oak with occasional jack pine. Present on level, sandy soils, occasionally capped with loamy sediment, on the Glacial Lake Agassiz plain. Moderate surface fires were common historically, and catastrophic fires occasional.

Vegetation Structure & Composition

Description is based on summary of vegetation data from 18 plots (relevés).

- **Ground-layer** cover is patchy (25–50%). The most important species are American vetch (*Vicia americana*), Canada mayflower (*Maianthemum canadense*), Lindley's aster (*Aster ciliolatus*), northern bedstraw (*Galium boreale*), veiny meadow-rue (*Thalictrum venulosum*), tall meadow-rue (*Thalictrum dasycarpum*), wild sarsaparilla (*Aralia nudicaulis*), mountain rice grass (*Oryzopsis asperifolia*), Pennsylvania sedge (*Carex pennsylvanica*), false melic grass (*Schizachne purpurascens*), bastard toadflax (*Comandra umbellata*), and common strawberry (*Fragaria virginiana*).
- **Shrub-layer** cover is interrupted to continuous (50–100%). Common species include bur oak, juneberrries (*Amelanchier* spp.), chokecherry (*Prunus virginiana*), American hazelnut (*Corylus americana*), gray dogwood (*Cornus racemosa*), snowberry or wolfberry (*Symphoricarpos albus* or *S. occidentalis*), Bebb's willow (*Salix bebbiana*), and poison ivy (*Toxicodendron rydbergii*).
- **Subcanopy** cover is sparse (5–25%). Bur oak and quaking aspen are usually present but not abundant.
- **Canopy** cover is patchy to interrupted (25–75%). The most abundant species are quaking aspen and bur oak. Jack pine is infrequently present but can be abundant at sites where it occurs.



Landscape Setting & Soils

- **Glacial lake plains**—Common. FDw34 occurs on flat, sandy sites on the Glacial Lake Agassiz plain. Parent material is very well-sorted, fine sand characteristic of shallow water deposits. Typically this material is > 60in (150cm) deep, stoneless, and leached of carbonates. On occasion the fine sand is capped with loamy sediment, and sometimes the fine sands are deposited over calcareous gravelly till. Soil surface is very dark in the upper 5–9in (13–23cm) due to incorporated organic matter. Soils lack clayey subsoil horizons capable of perching snowmelt or rainfall. Soil colors and bright mottles indicate that soils are saturated in the spring and dry to at least 30in (75cm), if not deeper, during the growing season. Soils are moderately well to somewhat poorly drained. Soil-moisture regime is moderately moist. (LAP)

Natural History

In the past, fires were very common throughout the range of FDw34. An analysis of Public Land Survey records indicates that the rotation of catastrophic fires was about 90 years, and the rotation of moderate surface fires about 15 years. The rotation of all fires combined is estimated to be 13 years. Windthrow was less frequent than fire but still played a significant role in stand regeneration, with the rotation for catastrophic windthrow estimated at 290 years.

The vegetation within the primary range of FDw34 was described by land surveyors as scattered timber, thickets, and groves of aspen separated by brushland and prairie,



with a few scattered bur oaks present in the landscape. Almost all of the Public Land Survey bearing-tree records within the range of the community were quaking aspen, and 95% of the bearing-tree records were of trees estimated to be less than 55 years old, indicating that most occurrences of the community were young woodlands. The few areas of mature woodland were probably areas of young aspen with some scattered older bur oaks. There were no areas of old woodland.

Similar Native Plant Community Classes

• FDw24 Northwestern Dry-Mesic Oak Woodland

FDw24 is similar to FDw34 but is almost always strongly dominated by bur oak, occasionally with some quaking aspen. By contrast, the canopy of FDw34 is more likely to be dominated by quaking aspen with lesser amounts of bur oak. The ranges of the two classes overlap in the northern part of the LAP, where FDw24 occurs mostly on dry sandy and gravelly beach ridges and FDw34 occurs mostly on moist, flat sandy soils on the Glacial Lake Agassiz plain.

FDw34 Indicator Species	(freq%)		FDw24 Indicator Species	(freq%)	
	FDw34	FDw24		FDw34	FDw24
Bluejoint (<i>Calamagrostis canadensis</i>)	50	-	Early meadow-rue (<i>Thalictrum dioicum</i>)	-	26
Virginia thimbleweed (<i>Anemone virginiana</i>)	39	-	Lopseed (<i>Phryma leptostachya</i>)	-	26
Meadowsweet (<i>Spiraea alba</i>)	33	-	Hairy Solomon's seal (<i>Polygonatum pubescens</i>)	-	16
Swamp gooseberry (<i>Ribes hirtellum</i>)	33	-	Clayton's sweet cicely (<i>Osmorhiza claytonii</i>)	-	16
Pin cherry (<i>Prunus pensylvanica</i>)	28	-	Hawthorn (<i>Crataegus</i> spp.)	6	37
Dwarf bilberry (<i>Vaccinium cespitosum</i>)	28	-	Climbing bitterweed (<i>Celastrus scandens</i>)	6	32
Bebb's willow (<i>Salix bebbiana</i>)	72	5	Columbine (<i>Aquilegia canadensis</i>)	6	26
Golden alexanders (<i>Zizia aurea</i>)	72	11	Blue giant hyssop (<i>Agastache foeniculum</i>)	11	47

• FDw44 Northwestern Wet-Mesic Aspen Woodland

FDw44 is very similar to FDw34. Both communities have abundant quaking aspen in the canopy, but FDw44 has much less bur oak. The ranges of the two classes overlap in the LAP, where both occur on flat sandy soils on the Glacial Lake Agassiz plain; FDw44, however, is present on moister sites than FDw34.

FDw34 Indicator Species	(freq%)		FDw44 Indicator Species	(freq%)	
	FDw34	FDw44		FDw34	FDw44
Pin cherry (<i>Prunus pensylvanica</i>)	28	-	Dwarf alder (<i>Rhamnus alnifolia</i>)	-	57
Hoary puccoon (<i>Lithospermum canescens</i>)	17	-	Side-flowering aster (<i>Aster lateriflorus</i>)	-	57
Wild bergamot (<i>Monarda fistulosa</i>)	17	-	Swamp thistle (<i>Cirsium muticum</i>)	-	43
Poverty grass (<i>Danthonia spicata</i>)	33	2	Marsh vetchling (<i>Lathyrus palustris</i>)	-	34
Prairie willow (<i>Salix humilis</i>)	22	2	American elm (U)	-	30
Veiny pea (<i>Lathyrus venosus</i>)	83	14	Balsam poplar (C,U)	-	20
Lowbush blueberry (<i>Vaccinium angustifolium</i>)	28	5	Prairie cordgrass (<i>Spartina pectinata</i>)	-	20
Snowberry or Wolfberry*	67	18	Bog birch (<i>Betula pumila</i>)	6	30

*Snowberry or Wolfberry (*Symphoricarpos albus* or *S. occidentalis*)

• MHw36 Northwestern Wet-Mesic Hardwood Forest

MHw36 can be similar to FDw34 when woodland species are important in the understory of FDw34 (FDw34b). Bur oak and quaking aspen are common in the canopy in both communities, but MHw36 is more likely to also have abundant American elm, green ash, and basswood, which are rare in FDw34. The ranges of the two communities overlap in the LAP, where MHw36 occurs in areas protected from fire, typically on alluvial river bottoms on silt or very fine sand and occasionally on fine sandy deposits on broad flats associated with shoreline features of Glacial Lake Agassiz. By contrast, FDw34b occurs on flat sandy soils on the Glacial Lake Agassiz plain.

FDw34 Indicator Species	(freq%)		MHw36 Indicator Species	(freq%)	
	FDw34	MHw36		FDw34	MHw36
American vetch (<i>Vicia americana</i>)	100	-	Green ash (C)	-	83
Bebb's willow (<i>Salix bebbiana</i>)	57	-	American elm (C,U)	-	83
Bastard toadflax (<i>Comandra umbellata</i>)	57	-	Nodding trillium (<i>Trillium cernuum</i>)	-	83
Pin cherry (<i>Prunus pensylvanica</i>)	43	-	Clayton's sweet cicely (<i>Osmorhiza claytonii</i>)	-	67
White rattlesnakeroot (<i>Prenanthes alba</i>)	43	-	Lopseed (<i>Phryma leptostachya</i>)	-	67
Bluejoint (<i>Calamagrostis canadensis</i>)	43	-	Balsam poplar (C,U)	-	50
Prickly, Smooth, or Woods' wild rose*	86	17	Early meadow-rue (<i>Thalictrum dioicum</i>)	-	50
American hazelnut (<i>Corylus americana</i>)	71	17	Tall coneflower (<i>Rudbeckia laciniata</i>)	-	50

*Prickly, Smooth, or Woods' wild rose (*Rosa acicularis*, *R. blanda*, or *R. woodsii*)



• FDs36 Southern Dry-Mesic Oak-Aspen Forest

FDs36 can be similar to FDw34 when FDw34 has abundant woodland species in the understory (FDw34b). Bur oak and quaking aspen are present in the canopy in both communities, but bur oak tends to be more important in FDs36, while quaking aspen tends to be more important in FDw34. FDs36 occurs on well-drained, gravelly, loamy till and sand on hummocky stagnation moraines. By contrast, FDw34 occurs on flat sandy soils on the Glacial Lake Agassiz plain.

FDw34 Indicator Species	(freq%)	
	FDw34	FDs36
American vetch (<i>Vicia americana</i>)	100	-
Veiny meadow-rue (<i>Thalictrum venulosum</i>)	86	-
Bebb's willow (<i>Salix bebbiana</i>)	57	-
Bastard toadflax (<i>Comandra umbellata</i>)	57	-
Pin cherry (<i>Prunus pensylvanica</i>)	43	-
Red-stemmed aster (<i>Aster puniceus</i>)	43	-
White rattlesnakeroot (<i>Prenanthes alba</i>)	43	-
Northern bedstraw (<i>Galium boreale</i>)	71	8

FDs36 Indicator Species	(freq%)	
	FDw34	FDs36
Large-flowered bellwort (<i>Uvularia grandiflora</i>)	-	88
Early meadow-rue (<i>Thalictrum dioicum</i>)	-	80
Clayton's sweet cicely (<i>Osmorhiza claytonii</i>)	-	76
Lopseed (<i>Phryma leptostachya</i>)	-	60
Prickly ash (<i>Zanthoxylum americanum</i>)	-	44
Basswood (C,U)	-	40
Pointed-leaved tick trefoil (<i>Desmodium glutinosum</i>)	-	40
Bloodroot (<i>Sanguinaria canadensis</i>)	-	32

• UPn13 Northern Dry Savanna

In the absence of fire, UPn13 succeeds to woodland and can become similar to occurrences of FDw34 in which prairie species are common in the ground layer (FDw34a). The tree canopy is not well developed in UPn13, and the shrub layer is not as dense as in FDw34. Shrubs more common in FDw34 include American hazelnut, gray dogwood, and lowbush blueberry (*Vaccinium angustifolium*). By contrast, leadplant (*Amorpha canescens*) is present in UPn13 but absent from FDw34. Several characteristic woodland herbs, such as Canada mayflower and mountain rice grass, are common in FDw34 but rare in UPn13. The ranges of the two classes overlap in the LAP, where UPn13 typically occurs on beach ridges of Glacial Lake Agassiz and FDw24 occurs on level sandy soils on the Glacial Lake Agassiz plain.

FDw34 Indicator Species	(freq%)	
	FDw34	UPn13
Canada mayflower (<i>Maianthemum canadense</i>)	91	-
Bebb's willow (<i>Salix bebbiana</i>)	82	-
Tall meadow-rue (<i>Thalictrum dasycarpum</i>)	64	-
Bluejoint (<i>Calamagrostis canadensis</i>)	55	-
Gray dogwood (<i>Cornus racemosa</i>)	55	-
Wild sarsaparilla (<i>Aralia nudicaulis</i>)	55	-
Downy arrowwood (<i>Viburnum rafinesquianum</i>)	55	-
Mountain rice grass (<i>Oryzopsis asperifolia</i>)	100	7

UPn13 Indicator Species	(freq%)	
	FDw34	UPn13
Porcupine grass (<i>Stipa spartea</i>)	-	93
Rough blazing star (<i>Liatris aspera</i>)	-	71
Junegrass (<i>Koeleria pyramidata</i>)	-	71
Missouri goldenrod (<i>Solidago missouriensis</i>)	-	64
Silky aster (<i>Aster sericeus</i>)	-	64
Leadplant (<i>Amorpha canescens</i>)	-	50
Purple prairie clover (<i>Dalea purpurea</i>)	-	50
Sand reed grass (<i>Calamovilfa longifolia</i>)	-	43

Native Plant Community Types in Class

• FDw34a Aspen - (Prairie Herb) Woodland

Canopy is dominated by quaking aspen with occasional bur oak and jack pine. Quaking aspen and bur oak are also common in the understory, with white spruce occasionally present. The shrub layer commonly includes bur oak, junberries, chokecherry, American hazelnut, Bebb's willow, and poison ivy. American hazelnut is often abundant. FDw34a is distinguished from FDw34b by the occasional presence of jack pine in the canopy and the presence of prairie species in the ground layer. These may include white sage (*Artemisia ludoviciana*), alumroot (*Heuchera richardsonii*), harebell (*Campanula rotundifolia*), and big bluestem (*Andropogon gerardii*). Other species more likely to occur in FDw34a include yarrow (*Achillea millefolium*), fringed loosestrife (*Lysimachia ciliata*), slender wheatgrass (*Elymus trachycaulus*), fringed brome (*Bromus ciliatus*), and Canada milk vetch (*Astragalus canadensis*). FDw34a has been documented in the northern part of the LAP. Description is based on summary of vegetation data from 11 plots.

• FDw34b Aspen - (Beaked Hazel) Woodland

Canopy is dominated by quaking aspen and bur oak with lesser amounts of paper birch, white spruce, and American elm. Quaking aspen and bur oak are also common in the understory. Common shrub-layer species include bur oak, junberries, chokecherry, downy arrowwood (*Viburnum rafinesquianum*), prickly or smooth wild rose (*Rosa acicularis* or *R. blanda*), gray dogwood, beaked hazelnut (*Corylus cornuta*), and American hazelnut. Hazelnuts are often abundant. FDw34b generally lacks the prairie



species often present in the understory of FDw34a and is more likely to have woodland species such as beaked hazelnut, highbush cranberry (*Viburnum trilobum*), wood anemone (*Anemone quinquefolia*), dwarf raspberry (*Rubus pubescens*), hog peanut (*Amphicarpaea bracteata*), and red-stemmed aster (*Aster puniceus*). FDw34b has been documented in the northern part of the LAP. Description is based on summary of vegetation data from 7 plots.



photo by R. P. Dana, MN DNR

Kittson County, MN



FDw34 Northwestern Mesic Aspen-Oak Woodland — Species Frequency & Cover

	freq % cover		freq % cover		freq % cover	
	freq %	cover	freq %	cover	freq %	cover
Forbs, Ferns & Fern Allies						
American vetch (<i>Vicia americana</i>)	100	•	•	•	•	•
Canada mayflower (<i>Maianthemum canadense</i>)	94	•••	•	•	•	•
Lindley's aster (<i>Aster ciliolatus</i>)	94	••	•	•	•	•
Northern bedstraw (<i>Galium boreale</i>)	89	•	•	•	•	•
Maryland black snakeroot (<i>Sanicula marilandica</i>)	89	••	•	•	•	•
Veiny meadow-rue (<i>Thalictrum venulosum</i>)	89	••	•	•	•	•
Common strawberry (<i>Fragaria virginiana</i>)	89	••	•	•	•	•
Veiny pea (<i>Lathyrus venosus</i>)	83	•	•	•	•	•
Golden alexanders (<i>Zizia aurea</i>)	72	•	•	•	•	•
Bastard roadlax (<i>Comandra umbellata</i>)	72	•	•	•	•	•
Spreading dogbane (<i>Apocynum androsaemifolium</i>)	72	•	•	•	•	•
Tall meadow-rue (<i>Thalictrum dasycarpum</i>)	67	•	•	•	•	•
Wild sarsaparilla (<i>Aralia nudicaulis</i>)	61	••	•	•	•	•
Pale veitchling (<i>Lathyrus ochroleucus</i>)	56	•	•	•	•	•
Canada goldenrod (<i>Solidago canadensis</i>)	56	•	•	•	•	•
Starry false Solomon's seal (<i>Smilacina stellata</i>)	56	•	•	•	•	•
Erect or Smooth carrion-flower (<i>Smilax eckinata</i> or <i>S. herbacea</i>)	50	•	•	•	•	•
Flat-topped aster (<i>Aster umbellatus</i>)	39	•	•	•	•	•
Virginia thimbleweed (<i>Anemone virginiana</i>)	39	•	•	•	•	•
White rattlesnakeroot (<i>Prenanthes alba</i>)	33	•	•	•	•	•
White sage (<i>Artemisia ludoviciana</i>)	28	•	•	•	•	•
Fringed loosestrife (<i>Lysimachia ciliata</i>)	28	•	•	•	•	•
Wood anemone (<i>Anemone quinquefolia</i>)	28	•	•	•	•	•
Yarrow (<i>Achillea millefolium</i>)	28	•	•	•	•	•
Wood betony (<i>Pedicularis canadensis</i>)	28	•	•	•	•	•
Seneca snakeroot (<i>Polygala senega</i>)	22	•	•	•	•	•
Side-flowering sandwort (<i>Arenaria lateriflora</i>)	22	•	•	•	•	•
Harebell (<i>Campanula rotundifolia</i>)	22	•	•	•	•	•
Alumroot (<i>Heuchera richardsonii</i>)	22	•	•	•	•	•
Canada milk vetch (<i>Astragalus canadensis</i>)	22	•	•	•	•	•
Grasses & Sedges						
Mountain rice grass (<i>Oryzopsis asperifolia</i>)	89	•••	•	•	•	•
Pennsylvania sedge (<i>Carex pensylvanica</i>)	83	•••	•	•	•	•
False melic grass (<i>Schizachne purpurascens</i>)	61	••	•	•	•	•
Trees						
Bluejoint (<i>Calamagrostis canadensis</i>)	50	••	•	•	•	•
Interrupted wild rye (<i>Elymus diversiglumis</i>)	39	•	•	•	•	•
Slender wheatgrass (<i>Elymus trachycaulis</i>)	33	•	•	•	•	•
Fringed brome (<i>Bromus ciliatus</i>)	33	•	•	•	•	•
Poverty grass (<i>Danthonia spicata</i>)	33	•	•	•	•	•
Woody Vines						
Wild honeysuckle (<i>Lonicera dioica</i>)	44	•	•	•	•	•
Low Shrubs						
Poison ivy (<i>Toxicodendron rydbergii</i>)	94	•••	•	•	•	•
Dwarf bilberry (<i>Vaccinium cespitosum</i>)	28	•	•	•	•	•
Lowbush blueberry (<i>Vaccinium angustifolium</i>)	28	••	•	•	•	•
Tall Shrubs						
Juneberry (<i>Amelanchier</i> spp.)	100	•••	•	•	•	•
Chokeberry (<i>Prunus virginiana</i>)	94	••	•	•	•	•
American hazelnut (<i>Corylus americana</i>)	83	•••	•	•	•	•
Bebb's willow (<i>Salix bebbiana</i>)	72	•	•	•	•	•
Downy arrowwood (<i>Viburnum raietsequianum</i>)	67	•	•	•	•	•
Snowberry or Wolfberry (<i>Symphoricarpos albus</i> or <i>S. occidentalis</i>)	67	••	•	•	•	•
Gray dogwood (<i>Cornus racemosa</i>)	61	••	•	•	•	•
Prickly or Smooth wild rose (<i>Rosa acicularis</i> or <i>R. blanda</i>)	50	••	•	•	•	•
Woods' rose (<i>Rosa woodsii</i>)	39	•	•	•	•	•
Beaked hazelnut (<i>Corylus cornuta</i>)	33	•••	•	•	•	•
Meadowsweet (<i>Spiraea alba</i>)	33	•	•	•	•	•
Swamp gooseberry (<i>Ribes hirtellum</i>)	33	•	•	•	•	•
Pin cherry (<i>Prunus pensylvanica</i>)	28	•	•	•	•	•
Prairie willow (<i>Salix humilis</i>)	22	•	•	•	•	•
Canopy						
Quaking aspen	89	••••	78	•••	44	••
Bur oak	61	•••	61	••	94	••
Jack pine	11	•••	-	-	6	•
Paper birch	6	•	-	-	-	-
White spruce	6	•••	6	•	6	•
Canada plum	6	•	6	•	17	•