



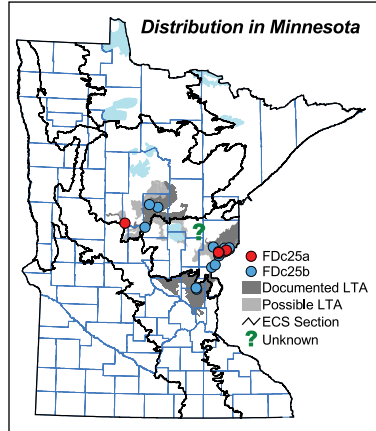
## Central Dry Oak-Aspen (Pine) Woodland

Dry-mesic hardwood or conifer-hardwood woodlands on level, sandy terrace and outwash deposits. Crown fires and mild surface fires were very common historically.

### Vegetation Structure & Composition

Description is based on summary of vegetation data from 30 plots (relevés).

- **Ground layer** is patchy (25–50% cover); composition is variable but usually includes abundant bracken (*Pteridium aquilinum*) and Pennsylvania sedge (*Carex pensylvanica*), and often has abundant large-leaved aster (*Aster macrophyllus*).
- **Shrub layer** is often dense (50–100% cover), with abundant American hazelnut (*Corylus americana*) and tall blackberries (*Rubus allegheniensis* and similar species). Lowbush blueberry (*Vaccinium angustifolium*) is common in the low-shrub layer.
- **Subcanopy** is sparse (5–25% cover), with occasional red maple, quaking aspen, bur oak, northern pin oak, or ironwood.
- **Canopy** is interrupted (50–75% cover), most often dominated by deciduous trees, especially northern pin oak or quaking aspen, with paper birch, big-toothed aspen, bur oak, northern red oak, and red maple less common. Some sites are strongly dominated by jack pine or, less commonly, by red pine.



### Landscape Setting & Soils

- **Glacial river terraces and outwash plains**—Common. Landscape is level, with most occurrences on terraces near rivers or lakes. Parent material is noncalcareous sandy and gravelly alluvium. Most often soils are deep, but occasionally they consist of shallow deposits over bedrock terraces. Soils are very permeable and do not retain snowmelt or rainfall for very long. Soils are considered to be excessively drained. Soil-moisture regime is moderately dry. (WSU and Pine Moraines & Outwash Plains in MDL)
- **Lake plains**—Occasional. Landscape is level. Parent material is well-sorted fine sand lacking gravel or large stones. The parent material was initially calcareous, but free carbonates have been leached to depths greater than 60in (150cm). Soil surface is somewhat dark in the upper 10in (25cm) because of incorporated organic matter, which indicates that these sites were formerly occupied by deciduous woodlands or prairies. Soils lack horizons capable of perching spring snowmelt and hold water poorly because of uniform texture. Soils are considered to be excessively drained. Soil-moisture regime is moderately dry. (Anoka Sand Plain in MIM, and Pine Moraines & Outwash Plains in MDL)

### Natural History

In the past, fires were extremely common within the range of FDC25. An analysis of Public Land Survey records indicates that the rotation of catastrophic fires was about 80 years, and the rotation of mild surface fires about 10 years. The rotation of all fires combined is estimated to be 9 years. This regime of extremely frequent fire is likely a result of American Indian and very early Euro-American settlement activity in the St. Croix River valley region. The Public Land Survey notes showed no evidence of windthrow in this community. Based on the historic composition and age structure of these woodlands, FDC25 had three growth stages.

- **0–55 years**—Young woodlands recovering from fire, dominated by bur oak and aspen, sometimes mixed with some northern pin oak and jack pine.



- **55–135 years**—Mature woodlands dominated by bur oak and northern pin oak.
- **> 135 years**—Old woodlands composed of a mixture of jack pine and old bur oak. (Most of the Public Land Survey records assigned to FDC25 were from areas that surveyors described as barrens, scattered timber, oak openings, or thickets. The landscape at the time probably consisted of a coarse scattering of bur oak surrounded by a matrix of prairie openings, aspen thickets, clumps of northern pin oaks, and groves of jack pine. Aspen seemed to occur with younger bur oaks, northern pin oak occurred with bur oaks of intermediate age, and jack pine occurred with older bur oaks. For whatever reason, bur oak is less prominent in samples from modern woodlands.)

## Similar Native Plant Community Classes

### • FDC24 Central Rich Dry Pine Woodland

FDC24 can be very similar to FDC25, especially when FDC25 is dominated by jack pine (FDC25a). FDC24, however, is generally present on sandy outwash deposits north and west of FDC25, in the western half of the MDL. FDC24 is more likely to have species characteristic of closed-canopy FDN communities, while FDC25 is more likely to have species characteristic of open jack pine barrens communities (including those common to the east in Wisconsin).

FDC25 Indicator Species	(freq%)	
	FDC25	FDC24
Big bluestem ( <i>Andropogon gerardii</i> )	50	-
Little bluestem ( <i>Schizachyrium scoparium</i> )	50	-
Sweet fern ( <i>Comptonia peregrina</i> )	25	-
Wild bergamot ( <i>Monarda fistulosa</i> )	63	2
Northern pin oak (C,U)	100	4
Woodland sunflower ( <i>Helianthus strumosus</i> )	63	4
Sharp-pointed rice grass ( <i>Oryzopsis pungens</i> )	50	4
Wintergreen ( <i>Gaultheria procumbens</i> )	75	24

FDC24 Indicator Species	(freq%)	
	FDC25	FDC24
Beaked hazelnut ( <i>Corylus cornuta</i> )	-	78
Early meadow-rue ( <i>Thalictrum dioicum</i> )	-	73
Blue giant hyssop ( <i>Agastache foeniculum</i> )	-	42
Twinflower ( <i>Linnæa borealis</i> )	-	31
Red pine (C)	-	29
Red raspberry ( <i>Rubus idaeus</i> )	13	69
Wild sarsaparilla ( <i>Aralia nudicaulis</i> )	13	69
Large-leaved aster ( <i>Aster macrophyllus</i> )	13	62

### • FDC23 Central Dry Pine Woodland

FDC23 is somewhat similar to jack pine–dominated stands of FDC25 (FDC25a). Although FDC23 occurs mainly in the western half of the MDL, it has also been documented in Pine County closer to the known range of FDC25.

FDC25 Indicator Species	(freq%)	
	FDC25	FDC23
Winterberry ( <i>Ilex verticillata</i> )	50	-
Little bluestem ( <i>Schizachyrium scoparium</i> )	50	-
Prickly gooseberry ( <i>Ribes cynosbati</i> )	38	-
Northern pin oak (C,U)	100	5
Woodland sunflower ( <i>Helianthus strumosus</i> )	63	5
Big-toothed aspen (C,U)	63	14
Black cherry (U)	50	11
Starflower ( <i>Trientalis borealis</i> )	75	22

FDC23 Indicator Species	(freq%)	
	FDC25	FDC23
Bearberry ( <i>Arctostaphylos uva-ursi</i> )	-	62
Smooth blue aster ( <i>Aster laevis</i> )	-	51
Oval-leaved milkweed ( <i>Asclepias ovalifolia</i> )	-	46
Hoary puccoon ( <i>Lithospermum canescens</i> )	13	78
Pipsissewa ( <i>Chimaphila umbellata</i> )	13	70
Hairy goldenrod ( <i>Solidago hispida</i> )	13	68
Harebell ( <i>Campanula rotundifolia</i> )	13	65
Red raspberry ( <i>Rubus idaeus</i> )	13	62

### • FDC34 Central Dry-Mesic Pine-Hardwood Forest

FDC34 when dominated by aspen and oak (FDC34b) can be similar to FDC25 (FDC25b), although FDC34 is present mostly to the north and west of FDC25, in the MDL. FDC34 is more likely to have species characteristic of closed-canopy forests, while FDC25 is more likely to have species with affinity for open woodlands and brushlands.

FDC25 Indicator Species	(freq%)	
	FDC25	FDC34
Northern pin oak (C,U)	64	-
Wild bergamot ( <i>Monarda fistulosa</i> )	27	-
Virginia creeper ( <i>Parthenocissus</i> spp.)	41	5
Columbine ( <i>Aquilegia canadensis</i> )	41	5
Woodland sunflower ( <i>Helianthus strumosus</i> )	36	5
Pointed-leaved tick trefoil ( <i>Desmodium glutinosum</i> )	32	5
Gray dogwood ( <i>Cornus racemosa</i> )	73	16
American hazelnut ( <i>Corylus americana</i> )	73	16

FDC34 Indicator Species	(freq%)	
	FDC25	FDC34
Bluebead lily ( <i>Clintonia borealis</i> )	-	26
Bunchberry ( <i>Cornus canadensis</i> )	-	26
Rose twistedstalk ( <i>Streptopus roseus</i> )	5	63
Round-leaved dogwood ( <i>Cornus rugosa</i> )	9	58
Large-flowered bellwort ( <i>Uvularia grandiflora</i> )	9	58
Hairy Solomon's seal ( <i>Polygonatum pubescens</i> )	5	26
Rugulose or Yellow violet*	5	21
Hairy honeysuckle ( <i>Lonicera hirsuta</i> )	9	32

\* Rugulose or Yellow violet (*Viola canadensis* or *V. pubescens*)

## Native Plant Community Types in Class

### • FDC25a Jack Pine - Oak Woodland

Canopy is dominated by jack pine, sometimes with minor amounts of northern pin



oak, quaking aspen, and big-toothed aspen. Species that help to differentiate FDC25a from FDC25b include jack pine, starflower (*Trientalis borealis*), and wood anemone (*Anemone quinquefolia*), which are more common or abundant in FDC25a. When present, pussytoes (*Antennaria* spp.), cow wheat (*Melampyrum lineare*), and upright bindweed (*Calystegia spithamea*) also help to identify FDC25a. FDC25a has been documented on sandy terrace and outwash deposits near the St. Croix River in Pine County and the Crow Wing River in Todd County. Description is based on summary of vegetation data from 8 plots.

• **FDC25b Oak - Aspen Woodland**

Canopy is most commonly dominated by northern pin oak, with quaking aspen, paper birch, big-toothed aspen, bur oak, northern red oak, and even red pine dominant or abundant on some sites. Species that help to differentiate FDC25b from FDC25a include large-leaved aster, hog peanut (*Amphicarpaea bracteata*), and wild sarsaparilla (*Aralia nudicaulis*), which are more common or abundant in FDC25b. When present, early meadow-rue (*Thalictrum dioicum*), pointed-leaved tick trefoil (*Desmodium glutinosum*), and greenbrier (*Smilax tamnoides*) also help to identify FDC25b. FDC25b has been documented on sandy terrace and outwash deposits in the southern half of Pine County and also on sandy lacustrine deposits on the Anoka Sand Plain. Description is based on summary of vegetation data from 22 plots.



St. Croix State Park, Pine County, MN



**FDC25 Central Dry Oak-Aspen (Pine) Woodland – Species Frequency & Cover**

	freq%	cover
<b>Forbs, Ferns &amp; Fern Allies</b>		
Bracken ( <i>Pteridium aquilinum</i> )	93	●●●●
Northern bedstraw ( <i>Galium boreale</i> )	83	●●●●
Common strawberry ( <i>Fragaria virginiana</i> )	70	●●
Canada mayflower ( <i>Malintherium canadense</i> )	67	●●
Large-leaved aster ( <i>Aster macrophyllus</i> )	63	●●●●
Pale bellwort ( <i>Uvularia sessilifolia</i> )	57	●●
Spreading dogbane ( <i>Apocynum androsaemifolium</i> )	53	●●
Wild sarsaparilla ( <i>Aralia nudicaulis</i> )	53	●●
Hog peanut ( <i>Amphicarpaea bracteata</i> )	50	●●
Veiny pea ( <i>Lathyrus venosus</i> )	47	●●
Woodland sunflower ( <i>Helianthus strumosus</i> )	43	●●
Yarrow ( <i>Achillea millefolium</i> )	43	●●
Lindley's aster ( <i>Aster ciliolatus</i> )	43	●●
Pale veitching ( <i>Lathyrus ochroleucus</i> )	37	●●
Wild bergamot ( <i>Monarda fistulosa</i> )	37	●●
Columbine ( <i>Aquilegia canadensis</i> )	37	●●
Common false Solomon's seal ( <i>Smilacina racemosa</i> )	33	●●
Wood anemone ( <i>Anemone quinquefolia</i> )	33	●●
Early meadow-rue ( <i>Thalictrum dioicum</i> )	33	●●
One-sided pyrola ( <i>Pyrola secunda</i> )	30	●●
Maryland black snakeroot ( <i>Sanicula marilandica</i> )	30	●●
Clayton's sweet cicely ( <i>Osmorhiza claytonii</i> )	30	●●
Startflower ( <i>Trientalis borealis</i> )	27	●●
Pointed-leaved tick trefoil ( <i>Desmodium glutinosum</i> )	23	●●
<b>Grasses &amp; Sedges</b>		
Pennsylvania sedge ( <i>Carex pennsylvanica</i> )	83	●●●●
Mountain rice grass ( <i>Oryzopsis asperifolia</i> )	47	●●
False meic grass ( <i>Schizachne purpurascens</i> )	27	●●
Fringed bromo ( <i>Bromus ciliatus</i> )	20	●●
Big bluestem ( <i>Andropogon gerardii</i> )	20	●●●●
Little bluestem ( <i>Schizachyium scoparium</i> )	17	●●
<b>Climbing Plants</b>		
Virginia creeper ( <i>Parthenocissus</i> spp.)	37	●●
Greenbrier ( <i>Smilax tamnoides</i> )	20	●●
<b>freq% cover</b>		
<b>Wild honeysuckle (<i>Lonicera dioica</i>)</b>		
<b>13 ●●●</b>		
<b>Low Shrubs</b>		
Lowbush blueberry ( <i>Vaccinium angustifolium</i> )	93	●●
Tall blackberries ( <i>Rubus allegheniensis</i> and similar <i>Rubus</i> spp.)	73	●●●●
Wintergreen ( <i>Gaultheria procumbens</i> )	47	●●
Red raspberry ( <i>Rubus idaeus</i> )	20	●●●●
Sweet fern ( <i>Comptonia peregrina</i> )	13	●●
<b>Shrubs</b>		
Bush honeysuckle ( <i>Dierilla lonicera</i> )	80	●●
American hazelnut ( <i>Corylus americana</i> )	80	●●●●
Juneberry ( <i>Amelanchier</i> spp.)	70	●●
Gray dogwood ( <i>Cornus racemosa</i> )	67	●●
Chokeberry ( <i>Prunus virginiana</i> )	57	●●
Downy arrowwood ( <i>Viburnum rafinesquianum</i> )	53	●●
Prickly or Smooth wild rose ( <i>Rosa acicularis</i> or <i>R. blanda</i> )	53	●●
Poison ivy ( <i>Toxicodendron rydbergii</i> )	50	●●
Snowberry or Wolfberry ( <i>Symphoricarpos albus</i> or <i>S. occidentalis</i> )	43	●●
Winterberry ( <i>Ilex verticillata</i> )	33	●●
Prairie willow ( <i>Salix humilis</i> )	30	●●
Beaked hazelnut ( <i>Corylus cornuta</i> )	27	●●●●
Hawthorn ( <i>Crataegus</i> spp.)	23	●●
<b>freq% cover</b>		
<b>Trees</b>		
Northern pin oak	63	●●●●
Quaking aspen	47	●●●●
Paper birch	33	●●●●
Jack pine	30	●●●●
Big-toothed aspen	27	●●●●
Bur oak	27	●●●●
Northern red oak	17	●●●●
Red maple	17	●●●●
Ironwood	-	-
Black cherry	-	-
Green ash	-	-
<b>freq% cover</b>		
<b>Subcanopy</b>		
	47	●●
<b>freq% cover</b>		
<b>Shrub Layer</b>		
	57	●●
<b>freq% cover</b>		