WFn64

Northern Very Wet Ash Swamp

Wet hardwood or hardwood-conifer forests on peaty soils in small closed depressions or around the edges of large peatlands. Typically with standing water present throughout spring and summer.

Vegetation Structure & Composition

Description is based on summary of vegetation data from 98 plots (relevés).

• Ground-layer cover is usually > 50%. Wet forest species are common, especially dwarf raspberry (*Rubus pubescens*), common marsh marigold (*Caltha palustris*), touch-me-nots (*Impatiens* spp.), northern bugleweed (*Lycopus uniflorus*), sensitive fern (*Onoclea sensibilis*), and naked miterwort (*Mitella nuda*). Graminoids, including fowl manna grass (*Glyceria striata*), bluejoint (*Calamagrostis canadensis*), and lake sedge (*Carex lacustris*), are often abundant in the ground layer. Mosses generally are sparse, except for epiphytic species on black ash boles and brown mosses on tree root mounds and fallen logs.



Shrub-layer cover ranges from sparse to

continuous (5–100%), with black ash and speckled alder (*Alnus incana*) frequent and sometimes abundant; mountain maple (*Acer spicatum*) is also occasionally abundant. • **Subcanopy** is patchy (25–50% cover); black ash is most abundant, with occasional red maple, balsam fir, yellow birch, American elm, white cedar, or paper birch.

• **Canopy** is patchy to interrupted (25–75% cover) and most often dominated by black ash, sometimes with moderate amounts of white cedar, balsam fir, yellow birch, paper birch, or red maple. Tamarack can be abundant in some stands.

Landscape Setting & Soils

WFn64 occurs on many types of landforms, most often in small closed depressions, although it can also occur around the margins of large basins with deep, actively growing peatlands at their centers. The parent material can be of almost any texture. Soils typically consist of 10–40in (25–100cm) of sapric peat over mineral soil, usually with a thin layer of muck at the soil surface. Gray colors are present in the mineral soil, indicating permanent saturation. Mucky pools and saturated logs provide the main substrates for plants. Soils are very poorly drained. Soil-moisture regime is moderately wet to very wet. (LAP, MOP, NSU, MDL, WSU, SSU, Hardwood Hills and Anoka Sand Plain in MIM)

Natural History

In the past, catastrophic disturbances were infrequent in WFn64. An analysis of Public Land Survey records indicates that the rotation of catastrophic fires was in excess of 1,000 years, and the rotation of catastrophic windthrow was about 480 years. Events that result in partial loss of trees, especially selective windthrow, were occasional, with a rotation of about 110 years. Based on the historic composition and age structure of these forests, WFn64 had three growth stages.

• 0-75 years—Young forests recovering from windthrow, strongly dominated by black ash. Paper birch, American elm, and balsam fir are minor components during this stage.

• **75–135 years**—Mature forests dominated by black ash, mixed with some white cedar, tamarack, and white spruce. Balsam fir is nearly absent.

• > 135 years—Old forests similar to mature forests but with more tamarack and white spruce.



Similar Native Plant Community Classes • WFn55 Northern Wet Ash Swamp

WFn55, like WFn64, usually is dominated by black ash. WFn55, however, is more likely to have mesic forest trees such as sugar maple, basswood, green ash, quaking aspen, and balsam poplar in the canopy or understory, and mesic forest herbs in the ground layer, while WFn64 is more likely to have conifers such as white cedar, balsam fir, or tamarack in the canopy or understory, and abundant wetland grasses and sedges in the ground layer. Pools and standing water are usually absent by late summer in WFn55 but remain common over summer in WFn64.

WEn64 Indicator Spacios		q%)	WEnEE Indicator Spacios	(freq%)	
wrn64 indicator Species	WFn64	WFn55	wrn55 indicator Species	WFn64	WFn55
Three-leaved false Solomon's seal*	19	1	Large-flowered bellwort (Uvularia grandiflora)	1	18
Clearweed (Pilea spp.)	21	3	Rugulose or Yellow violet**	2	27
Water horsetail (Equisetum fluviatile)	20	3	Clayton's sweet cicely (Osmorhiza claytonii)	6	51
Bristle-stalked sedge (Carex leptalea)	48	9	Maryland black snakeroot (Sanicula marilandica)	7	32
White turtlehead (Chelone glabra)	23	4	Rose twistedstalk (Streptopus roseus)	10	43
Northern marsh fern (Thelypteris palustris)	33	7	Red baneberry (Actaea rubra)	9	39
Tufted loosestrife (Lysimachia thyrsiflora)	31	8	Wild ginger (Asarum canadense)	13	56
Spotted Joe pye weed (Eupatorium maculatum)	40	13	Zigzag goldenrod (Solidago flexicaulis)	5	20

* Three-leaved false Solomon's seal (Smilacina trifolia) **Rugulose or Yellow violet (Viola canadensis or V. pubescens)

WFn53 Northern Wet Cedar Forest

WFn53 is similar to WFn64 mainly when WFn64 has significant cover of white cedar in the canopy (WFn64a). In general, in WFn53 white cedar has much greater cover in the canopy than black ash, while in WFn64 black ash tends to have greater cover than white cedar. WFn53 is also more likely to have ericaceous species in the understory.

WEn64 Indicator Spacios		q%)	WEn53 Indicator Species	(free	1%)
writed indicator species	WFn64	WFn53	writes indicator species	WFn64	WFn53
Giant goldenrod (Solidago gigantea)	26	1	Creeping snowberry (Gaultheria hispidula)	-	36
Fowl bluegrass (Poa palustris)	28	4	Labrador tea (Ledum groenlandicum)	-	33
Common mint (Mentha arvensis)	19	3	Twinflower (Linnaea borealis)	4	58
Spotted water hemlock (Cicuta maculata)	23	6	Velvet-leaved blueberry (Vaccinium myrtilloides)	2	23
Sensitive fern (Onoclea sensibilis)	68	18	Shining firmoss (Huperzia lucidula)	4	34
Awl-fruited sedge (Carex stipata)	49	13	Lowbush blueberry (Vaccinium angustifolium)	4	23
Mad dog skullcap (Scutellaria lateriflora)	64	20	Kidney-leaved violet (Viola renifolia)	11	39
Winterberry (llex verticillata)	28	9	Palmate sweet coltsfoot (Petasites frigidus)	13	43

WFw54 Northwestern Wet Aspen Forest

The ranges of WFw54 and WFn64 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, quaking aspen and balsam poplar are often dominant or abundant in the canopy of WFw54 along with black ash, while WFn64 is almost always strongly dominated by black ash. WFw54 is commonly present on mineral soils with occasional patches of thin muck at the surface. WFn64 is commonly present on peat over mineral soils.

WEn64 Indicator Species		q%)	WFw54 Indicator Species		(freq%)	
	WFn64	WFw54	in no malcator openee	WFn64	WFw54	
Awl-fruited sedge (Carex stipata)	57	-	Lindley's aster (Aster ciliolatus)	2	57	
Red maple (U)	55	-	Bebb's willow (Salix bebbiana)	2	43	
Virginia creeper (Parthenocissus spp.)	43	-	Balsam poplar (C,U)	5	71	
Winterberry (Ilex verticillata)	42	-	Palmate sweet coltsfoot (Petasites frigidus)	6	71	
Sensitive fern (Onoclea sensibilis)	67	4	Arrow-leaved sweet coltsfoot (Petasites sagittatus)	3	36	
Jack-in-the-pulpit (Arisaema triphyllum)	43	4	Starry false Solomon's seal (Smilacina stellata)	5	50	
Common marsh marigold (Caltha palustris)	80	11	Prickly or Smooth wild rose*	9	82	
Mad dog skullcap (Scutellaria lateriflora)	61	11	Quaking aspen (C,U)	11	86	

*Prickly or Smooth wild rose (Rosa acicularis or R. blanda)

Native Plant Community Types in Class

WFn64a Black Ash - Conifer Swamp (Northeastern)

Wet to very wet forests heavily dominated by black ash. Conifers, especially balsam fir and white cedar, are often present in the understory and may be present in the canopy. Shrub layer is well developed, with mountain maple and speckled alder abundant. Species useful in distinguishing WFn64a from WFn64b or WFn64c include balsam fir, white cedar, and common oak fern (*Gymnocarpium dryopteris*). When present, long beech fern (*Phegopteris connectilis*), goldthread (*Coptis trifolia*), bluebead lily (*Clintonia*)



borealis), nodding trillium (*Trillium cernuum*), and rose twistedstalk (*Streptopus roseus*) also help to distinguish WFn64a from other types in the community class. WFn64a occurs across northern Minnesota; it has been documented in the NSU, SSU, WSU, MDL, MOP, and in the Hardwood Hills Subsection in the MIM. Description is based on summary of vegetation data from 47 plots.

WFn64b Black Ash - Yellow Birch - Red Maple - Alder Swamp (Eastcentral)

Very wet forests dominated by black ash, often mixed with yellow birch, red maple, or paper birch. In some instances, tamarack or white cedar may also be abundant or dominant in the canopy. Subcanopy typically has black ash, red maple, and yellow birch. Speckled alder and winterberry (*llex verticillata*) are common in the shrub layer and may be abundant. Plants that help to distinguish WFn64b from other types in the class include northern red oak seedlings, clearweeds (*Pilea* spp.), royal fern (*Osmunda regalis*), and cinnamon fern (*O. cinnamomea*). When present, tamarack, mountain fly honeysuckle (*Lonicera villosa*), poison sumac (*Toxicodendron vernix*), halberd-leaved tearthumb (*Polygonum arifolium*), and autumn bentgrass (*Agrostis perennans*) also help to identify WFn64b. Although not restricted to WFn64b, red maple is usually more abundant in WFn64b chan in WFn64a or WFn64c, especially in the subcanopy or canopy. WFn64b is mainly limited to east-central Minnesota, where it has been documented in the WSU, the Anoka Sand Plain Subsection in the MIM, and the southern part of the MDL. Description is based on summary of vegetation data from 20 plots.

WFn64c Black Ash - Alder Swamp (Northern)

Very wet forests with canopy composed almost entirely of black ash. Often, the community is open below the canopy, although speckled alder is sometimes abundant in the shrub layer. Ground layer is very wet and relatively level, usually lacking the pattern of hummocks and hollows characteristic of many forested swamps. Broad-leaved grasses and sedges are abundant and often dominate the ground layer. Common species include awl-fruited sedge (*Carex stipata*), bluejoint, fowl manna grass, and lake sedge (*C. lacustris*). Dwarf raspberry, lady fern (*Athyrium filix-femina*), touch-me-nots, northern bugleweed, common marsh marigold, and red-stemmed aster (*Aster puniceus*) are also frequent in the ground layer. Although not common, when present, meadowsweet (*Spiraea alba*), pussy willow (*Salix discolor*), and Tuckerman's sedge (*Carex tuckermanii*) help to differentiate WFn64c from the other types in the class. WFn64c has been documented mainly in the MDL, WSU, SSU, MOP, and NSU; it may also occur in the eastern part of the APL and the northern part of the MIM. Description is based on summary of vegetation data from 31 plots.



WFn64
Northern
i Very
Wet
Ash
Swamp
- Species
Frequency
& Cove

	treq%	cover						treq%	cover
Forbs, Ferns & Fern Allies			Bristle-stalked sedge (Carex le	eptalea)				48	:
Dwarf raspberry (Rubus pubescens)	94	:	Graceful sedge (Carex gracilli	ma)				44	•
Lady fern (Athyrium filix-femina)	84	•	Lake sedge (Carex lacustris)					38	i
Touch-me-not (Impatiens spp.)	84	:	Fringed brome (Bromus ciliatu	IS)				35	
Common marsh marigold (Caltha palustris)	80	•	Drooping woodreed (Cinna lat	ifolia)				33	•
Northern bugleweed (Lycopus uniflorus)	76	•	Soft-leaved sedge (Carex disp	oerma)				30	•
Spinulose shield fern or Glandular wood fern*	74	•	Climbing Plants						
Sensitive fern (Onoclea sensibilis)	67	:	Virginia creeper (Parthenociss	:us spp.)				43	•
Naked miterwort (Mitella nuda)	66	•	Low Shrubs						
Common strawberry (Fragaria virginiana)	66	•	Red raspberry (Rubus idaeus,	-				69	•
Crested fern (Dryopteris cristata)	65	•	Shrubs						
Sweet-scented bedstraw (Galium triflorum)	65	•	Speckled alder (Alnus incana)					70	:
Red-stemmed aster (Aster puniceus)	64	•	Red-osier dogwood (Cornus s	ericea)				55	
Mad dog skullcap (Scutellaria lateriflora)	61	•	Mountain maple (Acer spicatu	m)				48	:
Canada mayflower (Maianthemum canadense)	59	•	Wild black currant (Ribes ame	ricanum)				48	
Alpine enchanter's nightshade (Circaea alpina)	56		Swamp gooseberry (Ribes hir	tellum)				47	
Wild sarsaparilla (Araila nudicaulis)	; <u>5</u>		Swamp red currant (Hibes tris	te)				44	
Starilower (Irientalis Dorealis)	÷ 5		winterberry (ilex veruciliata)	-				42	
Jack-in-the-pulpit (Arisaema triphyllum)	43	•	Chokecherry (Prunus virginiar	1a)				37	
Spotted Joe pye weed (Eupatorium maculatum)	40	•	Highbush cranberry (Viburnun	1 trilobum				33	
Side-flowering aster (Aster lateriflorus)	<u>ж</u>	•	Beaked hazelnut (Corylus con	nuta)				33	•
Northern blue flag (Iris versicolor)	38 8	•	Dwarf alder (Rhamnus alnifolia	(E				32	
Bur marigold and Beggarticks (Bidens spp.)	<u>з</u> 5	•	Juneberries (Amelanchier spp	·				30	•
Bunchberry (Comus canadensis)	35		Troop	'					
Giant goldenrod (Solidago gigantea)	З <u>5</u>	•	rees	Canopy		Subcanop	у	Shrub	Layer
Common oak fem (Gymnocarpium dryopteris)	34	•	tr	eq% co	ver	treq% co	iver	treq%	cover
Cinnamon fem (Osmunda cinnamomea)	34	:	Black ash	87	i	91	Í	83	:
Northern marsh fern (Thelypteris palustris)	ယ္ထ	•	Yellow birch	17	:	26	:	19	:
Rough bedstraw (Galium asprellum)	30	•	White cedar	17	i	21	:	21	
Woodland horsetail (Equisetum sylvaticum)	29	:	Paper birch	17	•	27	•	14	•
Grasses & Sedges			Balsam fir	13	•	36	•	45	•
Fowl manna grass (Glyceria striata)	69	:	Red maple	12	:	34	:	54	•
Awl-fruited sedge (Carex stipata)	57	•	Tamarack	=	i			9	•
Bluejoint (Calamagrostis canadensis)	54	:	American elm	00	:	29	:	37	•
Bladder sedge (Carex intumescens)	51	•	Red elm	6	:	14	•	22	

* Spinulose shield fem or Glandular wood fern (Dryopteris carthusiana or D. intermedia)