NORTH-CENTRAL DRY-MESIC OAK WOODLAND

Site Characteristics: Stands occur on flat, gently rolling or hilly landscapes subject to fires of low frequency and variable intensity. This type typically covers dry to dry-mesic stands, but some mesic stands could also be placed here. Stands occur on level to rolling topography on well-drained outwash plains and coarse-textured end moraines, as well as on moderately fire-protected slopes in the Driftless Area. The pH varies from 6.1-7.3. Soils are excessively to moderately well-drained (dry to dry-mesic). Texture ranges range from loams to sandy loams, and include silt loams (loess-derived) close to bedrock in the Driftless Area. This community may develop on a slope of any aspect so long as the topography encourages infrequent but occasional fire. On shallow-to-bedrock slopes, a lower fire frequency is required to maintain Oak Woodland on south-facing slopes. This is because the combination of shallow soils and high evapotranspiration slows the rate of canopy closure by slowing the rate at which trees grow to canopy size.

Vegetation Characteristics: Structure in this community ranges from large open-grown trees 10-12 m tall covering 30-80% of the canopy. The tree layer is dominated by White Oak and Bur Oak on drier soils (or even Northern Pin Oak or Black Oak) and occasionally codominated by Northern Red Oak on more mesic soils. The ground layer is codominated by shrubs and tree grubs, forbs and graminoids (includes many types of sedge). Dominant herbs include Big Bluestem, Pennsylvania Sedge, Pointed Tick-trefoil, and Wild Geranium. There are three main structural layers - tree canopy, tall-shrub and herbaceous. Tree densities for stems greater than 10 cm dbh may historically have been between 50-200 stems per hectare. The tree layer is composed predominantly of White Oak and Bur Oak, with Northern Pin Oak or Black Oak more common on dry sites, and occasional codominance by Northern Red Oak, Hickory spp., and Populus spp. Shrub cover is usually high (30-50%) with some stands forming impenetrable thickets.

Range:
Conservation Status: G3 - Vulnerable

Management Considerations: This community is maintained by a fire regime that is frequent enough to prevent full canopy closure and sapling establishment of fire-sensitive tree species, but infrequent enough to allow saplings of fire-tolerant tree species to reach fire-resistant size. Most former examples of this community have been eliminated by cultivation, grazing, or conversion to forest due to fire suppression. These brushlands are dominated by woody species capable of reaching overstory size, but nearly all woody individuals are found in a shrubby state because intense fires are frequent enough to preclude them from reaching overstory size.

This community may also include stands described as "closed savanna" or "closed woodland". These stands experience low-intensity but moderately frequent fires that preclude the establishment of fire-sensitive tree saplings of species such as Red Maple and Basswood, but allow the establishment and growth to canopy size of moderately fire-tolerant tree saplings such as Northern Red Oak and even Boxelder. Shrub cover is quite low in this subtype due to the high frequency of low-intensity fire.

Fuel loads for fires in this community are provided by several cool-season sedges and grasses such as Curly-styled wood sedge, Pennsylvania Sedge, Slender Wild Rye, and Bottlebrush Grass. Macroclimate, as expressed in relative moisture stress levels, is hypothesized to play an important role in species composition variation from east to west. Northern Red Oak is a successful gap-colonizer species, and woodlands codominated by it are more likely to be located adjacent to nearby dry-mesic and mesic forests. The catastrophic nature of many woodland fires promotes the presence of woody invaders like Quaking Aspen, Bigtooth Aspen, and White Ash. Occasional, but often intense, fire is the important natural disturbance which encourages woodland formation. Fires must be infrequent enough to allow tree species to occasionally reach tree size yet frequent enough to kill fire-tolerant tree saplings as well as prevent canopy closure.

Because fires are rather infrequent, a large buildup of woody fuels occurs between fires. Woodland understories, shaded by heavier tree and shrub canopies, do not dry out during spring and fall as quickly as prairie and savanna and so are not always dry enough to burn during these seasons. Additionally, these sites are often topographically protected from fire by streams or lakes. Yet when they do burn, woodlands often burn so intensely that many of the adult trees die, and woodland overstory canopy is temporarily reduced to that of a brushland or brushy oak savanna. With vigorous resprouting of oak grubs and an extended period before another catastrophic fire, these temporal brushlands can recover to a woodland overstory. In the years following occasional catastrophic fires, characteristic canopy dominants may exist only as oak grubs 1-2 m tall. Shrubs similarly reach peak height of 1-3 m after several years without fire, but average less than 1 m tall for the first few years following a fire.

WOODLAND, NORTH-CENTRAL DRY-MESIC OAK						
SCIENTIFIC NAME	**COMMON NAME**	**STRATA**	**FUNCTIONAL GROUP**	**IA CofC**	**SEEDS/LB**	**STATE STATUS**
Andropogon gerardii	Big bluestem	Herbaceous Layer	P-GRASS, WARM SEASON	4	160000	
Carex pensylvanica	Pennsylvania oak sedge	Herbaceous Layer	P-SEDGE, COOL SEASON	6	480000	
Carex rosea	Curly-styled wood sedge	Herbaceous Layer	P-SEDGE, COOL SEASON	7	848000	
Carya spp.	Hickories	Canopy, Co-dominant	TREE			
Ceanothus herbaceus	Redroot	Shrub Layer	SUB-SHRUB	8	160000	
Cornus foemina	Gray dogwood	Shrub Layer	SHRUB	1	17718	
Corylus americana	Hazelnut	Shrub Layer	SHRUB	3	480	
Desmodium glutinosum	Pointed tick-trefoil	Herbaceous Layer	P-FORB, LEGUME	5	13440	
Elymus hystrix	Bottlebrush grass	Herbaceous Layer	P-GRASS, COOL	5	121600	

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			SEASON			
Elymus villosus	Slender wild rye	Herbaceous Layer	P-GRASS, COOL SEASON	5	88000	
Elymus virginicus	Virginia wild rye	Herbaceous Layer	P-GRASS, COOL SEASON	3	67200	
Euonymus atropurpureus	Wahoo, burning bush	Shrub Layer	SHRUB	7	12122	
Geranium maculatum	Wild geranium	Herbaceous Layer	P-FORB	6	80000	
Laportea canadensis	Wood nettle	Herbaceous Layer	P-FORB	3	185899	
Populus spp.	Poplar	Canopy, Co-dominant	TREE			
Prunus spp.	Plum	Shrub Layer				
Quercus alba	White oak	Canopy, Dominant	TREE	6	128	
Quercus bicolor	Swamp white oak	Canopy, Co-dominant	TREE	8	112	
Quercus ellipsoidalis	Hill's oak, Northern pin oak	Canopy, Co-dominant	TREE	4	245	
Quercus macrocarpa	Bur oak	Canopy, Dominant	TREE	4	64	
Quercus muehlenbergii	Chinquapin oak	Canopy, Associate	TREE	7	400	
Quercus rubra	Northern red oak	Canopy, Co-dominant	TREE	6	125	
Quercus velutina	Black oak	Canopy, Co-dominant	TREE	4	245	
SASSAFRAS ALBIDUM	Sassafras	Canopy, Associate	TREE	*	5000	SC
Sorghastrum nutans	Indian grass	Herbaceous Layer	P-GRASS, WARM SEASON	4	192000	