

RESTORATION OF BEDROCK DRY PRAIRIE AND NORTHERN BUR OAK SAVANNA REMNANTS, GARVIN HEIGHTS PARK, SOUTHEASTERN MINNESOTA

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Abstract: Photographs from 1918-1957 show extensive savannas and prairies at Garvin Heights Park in Winona, MN. Herbarium specimens dated 1949-1982 include 122 prairie species. By 1999 bedrock dry prairie, bur oak savanna and xeric woodland were overrun by the common buckthorn (*Rhamnus cathartica*) and bush honeysuckle (*Lonicera spp.*). Shrubs covered 35% of a 1.4 hectare steep prairie remnant selected for restoration. This remnant supported at least 82 native plant species. Brush was cut late fall 2002 and treated with glyphosate. Early spring burns in 2003, 2004 and 2007 were accompanied by inter-seeding 89 species in autumns 2002–2007. Volunteers collected seeds on-site and nearby. Nursery-grown regional genotypes provided seed from extirpated species. During 2004-2008 restoration proceeded in an adjacent severely degraded 1.6 hectare bur oak (*Quercus macrocarpa*) savanna. Buckthorn seedlings comprised solid ground cover. The midstory was dense buckthorn and honeysuckle thicket. Three age classes (440, 250 and 52 years) of bur oak provided about 30% canopy cover. Invasive trees and shrubs were removed, leaving scattered bur oaks and a few black oaks (*Q. velutina*) and white oaks (*Q. alba*). Fresh stumps were treated with triclopyr or glyphosate. Spot burns occurred in early spring 2007-2008. Volunteers broadcast seed from 31 savanna and at least 45 prairie species. In 2008 the savanna has spotty cover of grasses and forbs, including species that were not planted. The prairie supports robust vegetation. Buckthorn and honeysuckle are re-sprouting. Almost no litter or organic soil layer remains in the savanna, probably because of earthworm activity.