

INTRODUCTION

The 250 acre Asylum Lake property is located on the far western edge of the City of Kalamazoo, MI, in section 30 of Township 2 South, Range 11 West. Western Michigan University (WMU) assumed ownership of the property in 1975. Since that time, a number of uses have been proposed for the use of the property, including a golf course and nature education center. With the signing of the Declaration of Conservation Restrictions in 2004, the Asylum Lake Policy and Management Council (hereafter, "the Council") was assembled and the Asylum Lake Preserve (hereafter, "the Preserve") truly became a "Preserve". The Preserve is poised to become one of the better-managed land preserves in southwest Michigan. With many years of contentious debate with regard to the fate of the property in the past, the stewardship of the natural features of the property is now in the hands of the Council. The Council has drafted a Management Plan, outlining the general principles upon which management should be based and identifying important natural features to be preserved and significant threats to their preservation.

The present document is intended in part to be a companion to the Council's Management Plan, supplying the necessary data to make informed decisions pursuant to the goals laid out in the that Plan. The goals outlined in the Plan include "improving human use of this property for passive recreation, education and research" (ALPMC 2008). The Plan adopts an adaptive management approach, emphasizing the restoration and/or reconstruction of native Michigan ecosystems, as well as the integration of educational and research activities with these efforts. This report focuses on the former, although the potential for education and research is apparent in all recommendations.

The current project was undertaken in order to assess the ecological health of the Preserve through identifying important natural features and developing a protocol for the prudent management of those features, with a special emphasis on the management of invasive plant species. The project was divided into three focal areas: 1) a qualitative assessment of the natural features in the terrestrial habitats at the Preserve, including the compilation of historical records, 2) the establishment of long term vegetation monitoring plots and transects and initial data collection, and 3) a GIS-based assessment of invasive plant species at the Preserve.

NATURAL HISTORY

Physical Description-Geology

According to Regional Landscape Ecosystems of Michigan classification (Albert 1995), the Preserve is found within the Battle Creek Outwash Plain Subsection of the Kalamazoo Interlobate Section of southern Michigan, an area between three glacial lobes that were formed over Mississippian shale between 13,000 and 16,000 y.b.p. (Albert 1995). The prominent land forms are outwash deposits of sand and gravel placed by the receding glacier and the landscape is relatively flat or slightly rolling, as is typical of outwash deposits. This homogenous topography is broken by ice-contact ridges and kettle/kame features, the latter of which are prevalent at the Preserve (Dorr and Eschman 1970). Both lakes within the Preserve were formed in glacial kettles.

Physical Description-Soils

The soils in the uplands south of Asylum Lake and west of Little Asylum Lake are mapped as Kalamazoo loams (0-2%, 2-6%, and 6-12% slopes), and include Dowagiac loam (0-3% slopes) in the southwest corner of the property (USDA-NRCS 2009). Soils on the slopes directly south of Asylum Lake and west of Little Asylum Lake are mapped as Oshtemo sandy loams (12-18 % and 18-35% slopes), while north of Little Asylum Lake and slopes along the north shore of Asylum Lake are in the Urban Land-Oshtemo complex (12-25% slopes). Wetland soils are all Houghton-Sebewa mucks.

Physical Description-Watershed

Asylum Lake and Little Asylum Lake are both spring-fed lakes in the watershed of the West Fork of the Portage Creek. They drain south and then west toward the Portage Creek, which flows north until it empties into the Kalamazoo River in downtown Kalamazoo.

Historical Land Cover

The Preserve sits on the western edge of what was formerly a large oak savanna. The urban areas of Kalamazoo and Portage occur mostly within the area the savanna once covered (Hodler et al. 1981, Comer et al. 1995; Map 1). Genesee Prairie sat directly to the west (across US-131), Grand Prairie to the north, and Dry Prairie to the south (Hodler et al 1981, Map 1). Plants known to occur in Genesee Prairie (Brewer 1984, McKenna 2004) are compared to plants documented from the Preserve, the adjacent Parkview Hills P.U.D., and from small patches of prairie along the former Fruit Belt Railroad adjacent to Stadium Drive between Drake Road and Howard Street (Table 1).

Current Land Cover

Land cover within the Preserve includes about 85 acres of disturbed oak woodland, about 25 acres of old-fields, almost 70 acres of reconstructed prairie and savanna, over 20 acres of wetlands, and 50 acres of open water (Map 2, Table 5).

The Preserve occurs on the western edge of the city limits of Kalamazoo (Map 1). It is bordered by medium-density residential to the east; WMU's Business, Technology, and Research Park to the south; commercial and high-density residential to the north; and US-131 a major north-south freeway to the west.

ANTHROPOGENIC HISTORY

European settlers first arrived on nearby Genesee Prairie in 1829 (Brewer 1984). This small prairie presented the ideal location as settlers often used the prairie for cultivation, and the adjacent oak savanna and forest as a source of timber (Chapman and Brewer 2008). Land including most of what is now the Asylum Lake Preserve was first deeded by the Territory of Michigan in 1831 to Phineus Hunt (ALPMC 2008). Rodolphus Loring was deeded 158.76 acres including Asylum Lake and lands to the north (including the present-day site of K-Mart) in 1835 (Hoffman 2008a). From that time forth at least some part of the land was under cultivation until 2000 when the last farm field was replaced by the prairie and savanna reconstruction. The Michigan State Hospital system began acquiring properties around Asylum Lake in 1887 and WMU acquired the property in 1975. See ALPMC (2008) or Hoffman (2008b) for a more detailed history of land transactions.

Uses of the Property

The land now encompassed by the Preserve has been used primarily for agriculture since settlement by Europeans. This continued throughout the period of occupancy by the Kalamazoo State Hospital Colony Farm (1887-1975), and much of the land continued to be leased to farmers by WMU until 2000. In addition to livestock grazing, row crops, and vegetable production, the Colony Farm established an apple orchard on the ridge east of Asylum Lake and a cherry orchard along the entrance road from Colony Farm Road (now Drake Road). Cultivated apple and cherry trees persist to this day throughout the property (see Appendix I), and although the cherry trees have been removed, the entrance road that now divides Prairie from Savanna I (Map 2) is still referred to as Cherry Lane.

The oak woodland on the property, which earned the Colony Farm the nickname “Fair Oaks” in its time as a State Hospital property, provided a suitable location for a number of cottages to house patients. A network of trails has connected the cottages since that time, and although the cottages have been demolished, the impact of their presence is still evident today. Numerous patches of ornamental groundcover such as lily-of-the-valley (*Convallaria majalis*) and periwinkle (*Vinca minor*) outline former cottage yards and ornamental shrubs persist as scattered individuals and impenetrable thickets.

The Importance of the Fruit Belt Railroad

A rail bed and associated right-of-way (ROW) runs along the northern boundary of the Preserve. Originally established by Michigan Central Railroad as a freight line in 1847, Kalamazoo celery magnate Samuel J. Dunkley’s Kalamazoo, Lake Shore, and Chicago Railway operated passenger and freight trains from Kalamazoo to South Haven from 1906-1914 (Meints 2005). The railroad earned the nickname “The Fruit Belt” due to the quantity of fruit it carried from the orchards of Van Buren County. The tracks were eventually taken up between 1923 and 1929 and the ROW sold to American Telephone and Telegraph which established overhead lines (Brewer 1984, Meints 2005) which were buried in the late 1970s (Brewer 1984).

The rail bed was established before much of Southwest Michigan’s landscape was converted to agriculture and other uses, and remnants of the once wide-ranging prairies and savannas were preserved along its route (Brewer 1984, Table 1). The steep, sandy slope between the ROW and Asylum Lake still contains remnant populations of savanna species including some potentially extirpated savanna species which have been collected within the ROW as recently as 1976 (e.g., *Lithospermum canescens*) (see Table 1). Although the construction of Stadium Drive Apartments in the late 1970s obliterated much of the remaining ROW, small patches of savanna plants still persist both east and west of the apartment complex, especially along Stadium Drive (Business I-94) (pers. obs., McKenna 2004).



Savanna species: rough blazing star (*Liatris aspera*) and prairie ragwort (*Senecio plattensis*) downslope from Fruit Belt railbed.