

The Extent and Floristic Composition of the Rice Lake Plains Based on Remnants

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A study of the floristic composition and extent of the Rice Lake Plains in central southern Ontario was undertaken to provide a basis for protection and management and to contribute to a better understanding of pre-settlement vegetation. During field reconnaissance 42 remnant sites were discovered. Complete species lists were generated for 24 of these sites and a total of 260 native species was recorded of which 61 were present at more than half of the sites. Less than 10% of the native flora of dry, open ground is believed to be extirpated. The most frequent species and those dominating many of the remnants included *Andropogon gerardii*, *Carex siccata*, *Ceanothus americanus*, *Pteridium aquilinum*, *Sorghastrum nutans*, and *Toxicodendron rydbergii*, all of which are characteristic dominants of tallgrass prairie and related habitats in the midwest. It is believed that both composition and frequency are much the same, but not exactly the same, as existed in pre-settlement times. A principal coordinate analysis based on Jaccard's coefficient derived from a matrix of presence/absence data for 84 regionally rare species in 24 sites revealed three major groupings: (1) open sand and characteristic sand barren flora, including *Dichanthelium sabulorum*, *Carex merritt-feraldii*, *Cyperus lupulinus*, *Polygonum douglasii*, *Selaginella rupestris*, and *Sporobolus cryptandrus*; (2) prairie sites with *Desmodium canadense*, *Monarda fistulosa*, *Penstemon hirsutus*, *Ranunculus rhomboideus*, and *Schizachyrium scoparium*; (3) high-diversity sites with savannah vegetation, including species characteristic of both prairie and open woodland, including *Asclepias exaltata*, *Desmodium glutinosum*, *Erigeron pulchellus*, *Solidago arguta*, and *Taenidia integerrima*. Correspondance analysis suggested a succession from sand barren to woodland and ordered species along a successional axis. In addition to three major associations, there was some regional variation with closer sites sharing species such as *Lupinus perennis*, *Liatris cylindracea* and *Dichanthelium oligosanthes*. The probable extent of plains vegetation revealed by remnants was determined by overlaying remnant sites on the soil landscapes and soil types to determine the extent of the associated soil or landscape thus providing a clue to the extent of the plains vegetation. Results of both the soil landscape and soil data analyses were subjected to restrictions based on exposure, elevation and historical information so as to develop a concept of minimum area. The minimum area of plains vegetation including prairie, sand barren and savannah was estimated to be 263 km² on the basis of distribution of appropriate soils and 590 km² on the basis of soil landscapes. Thus the Rice Lake Plains included an area of prairie, savannah and sand barrens approximately 600 km² in extent and extending as an essentially continuous band 123 km long and up to 25 km wide along the top and north slope of the Oak Ridges Moraine from the Ganaraska Highland west of Rice Lake eastward to the Murray Hills and the Trent River and was one of the largest areas of plains vegetation in the eastern Great Lakes region.

Key Words: Prairie, tallgrass prairie, sand barrens, savannah, vegetation, phytogeography, protection, invasive aliens, Rice Lake, Great Lakes region, Ontario.