

Natural History of Donald Park

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Throughout the four seasons, the slow geologic processes of erosion and weathering silently sculpt the rolling hills and valleys of the Mt. Vernon countryside, as they have without interruption for the past 450 million years. Unlike much of the remainder of Dane County and Wisconsin, whose landscapes and soils were profoundly altered by continental ice sheets (glaciers) that periodically advanced south from the Hudson Bay region over the past 2.5 million years, Donald Park has been shaped by largely non glacial processes. Donald Park lies near the edge of the "Driftless Area," which is a ~10,000 square mile island in southern Wisconsin that has by chance never been overrun by glaciers. As a result, the Donald Park area lacks the deep deposits of glacially-transported sediments and glacial landforms so characteristic of other areas in the state. The geologic evolution of the Donald Park must instead be studied in a non-glacial context, one whose origins date back to the Cambrian period approximately 500 million years ago. To see a map of glaciated Wisconsin go to this site: <http://www.uwex.edu/wgnhs/iceage.htm>.

Between 550 and 450 million years ago, shallow continental seas advanced and retreated five times across much of the central United States, including southern Wisconsin. After each regression of the sea, flat lying marine sediments such as sandstones and dolomites were left behind. When seas retreated for the final time, over 100 feet of sandstones, dolomites, and shales (mud-based rock) had been deposited in the park. The final retreat of the seas left behind a largely flat continental landscape that gradually took shape through the everyday processes of water and wind erosion. Stream valleys and ridges in southern Wisconsin began evolving into their present state, and soils formed through the mechanical and chemical weathering of the rock surfaces. Deer Creek, Fryes Feeder, and Mt. Vernon creek all eroded down through the upper, younger rock layers, the Platteville and Galena dolomites into the older St. Peters Sandstone beneath. Donald Rock, near the intersection of Town Hall Road and Highway 92, is an erosion resistant block of St. Peters Sandstone that became isolated as more erodable surrounding sandstone was carried away by water action over many millions of years.

Since 2.5 million years ago, when the edges of large continental glaciers approached the Mt. Vernon area, the two most profound influences on the landscape of the Mt. Vernon area have been humans and glaciers, in that order. Before ~13,500 years ago, the local environment was nearly identical to that in northern Alaska today. The ground was permanently frozen several feet down. The upper soil layer thawed only for a few weeks each year and tended to slide down slopes rapidly due to its muddy character. The local ice sheet dammed the outlets of nearby streams, leading to small glacial lakes that backed up into the valley of Mt. Vernon creek and its tributaries. In some instances a several inch thick layer of light-grey clay was deposited at the bottoms of these lakes and can still be found several feet beneath the valley floors. Plant pollen samples recovered from lake sediments in Dane County indicate that plant life consisted mainly of a treeless tundra with low shrubs and grasses. Since ~13,500 years ago, the local vegetation evolved to a spruce forest as the ice sheet retreated. The bones of woolly mammoths, mastodons, giant beavers, and other large mammals indicate that the local environment supported a rich wildlife population.

After man arrived in central North America some 11,500 years ago, large mammals became extinct, presumably due to overly efficient hunting techniques. The local vegetation evolved to a mixture of prairie and oak woodlands by 10,000 years ago, at which point the continental ice sheet had retreated to the southern edge of Lake Superior. The Donald Park landscape had almost certainly assumed its present form by this time.