

## GLBRC Marginal Land Experiment (MLE) Site Histories

### Michigan South—Lux Arbor Reserve

**Early 1800's** (pre-European settlement): oak-hickory forest

**1938–present:** Aerial photos from 1938, 1950, 1955, or 1961 and 1967 and 1997 were found. Based on these airphotos, the GLBRC MLE Site has been farmed with hay or row crops since at least 1938. At some point between the 1967 and 1997 photos, (probably the decade of the 1970's) surrounding fields were planted to pine trees which likely diminished the intensity of cropping activity on the MLE field. According to the previous Lux Arbor Reserve manager, Steve Norris, the MLE field has not been cropped, other than non-harvested deer food plots, since ownership of the property was assumed by MSU in the early 1990's (deed signed 1991).

**Soils:** Alfisol (Typic Hapludalf)

### Michigan Central—Lake City

**Early 1800's** (pre-European settlement): hemlock-white pine forest

**Recent history:** This site is considered unimproved pasture. According to farm manager Doug Carmichael, the site had remained in a brome grass mix and had been grazed intermittently over the 30 years prior to site establishment in 2013.

**Airphoto interpretation:** The earliest available airphotos are from 1938 and show cleared land with scattered bushes or short trees. In 1952, the scattered trees were taller and in 1963 the scattered trees are even taller. In 1963 there were approximately 20 trees in the area that is now the Marginal Land Experiment. In 1973, 1981, 1998 and 2004 (or 2005?) the area was clear of trees and appeared to be grazed (as mentioned above by Doug Carmichael).

**Soils:** Spodosol (Oxyaquic Haplorthod)

### Michigan North—Escanaba

**Early 1800's** (pre-European settlement): beech-sugar maple-hemlock forest

**1939 and 1954:** Aerial photos show that the land has been cleared, possibly for pasture.

**Recent history:** This site is also considered unimproved pasture. According to the farm manager, Brad Bender, a local farmer took an annual single cutting of hay (alfalfa & grass mix) from the site the previous ten years or so before the marginal site was established. As per Kurt Thelen, the amount of alfalfa present in the mix in 2012 prior to Marginal site establishment, suggests that alfalfa was likely planted there within ten years though Brad Bender had no recollection of it.

**Soils:** Alfisol (Inceptic Hapludalf)

### **Wisconsin South—Oregon**

**1834:** Undeveloped with stands of burr oak, hickory and unspecified oak

**1873:** Embedded in 290 acres owned by a Mrs. Vincent; the 1870 Agriculture Schedule revealed no farms under Vincent.

**1880:** Farm is listed under Robert Vincent; 80 tilled acres, 80 otherwise improved acres (maybe grazing land), and 130 wooded acres. It is not known if the current MLE site was part of the farmed or undeveloped land at this time.

**Recent history:** Site was a dairy farm prior to around 1980, probably with a mix of pasture, alfalfa and corn. Between the 1980's and 2000 the site was most likely rented for cash grain production (corn and soy). The land was taken out of farming in 2000 and abandoned until site establishment in spring 2013.

**Soils:** Alfisol (Typic Hapludalf)

### **Wisconsin Central—Hancock**

**1851:** Undeveloped with black oak, burr oak, white oak, and undergrowth oak bushes. At this time Hancock consisted of one settlement - Sylvester's farm and tavern. Subsequent Agriculture Schedules reveal an exponential increase in farm establishment. Site was likely first tilled shortly after 1851.

**Recent history:** From Oct 1991-Nov1992 site was tilled and planted into corn. A mix of oats, red clover and timothy was planted and harvested in 1993. A hay crop was harvested once a year in June between 1994-1997. Fertilizer was applied every year between 1991-1997. After 1997 hay was clipped once per year during the summer. No tillage or fertilization occurred from 1997 up to current site establishment in 2013.

**Soils:** Entisol (Typic Udipsamment)

### **Wisconsin North—Rhineland**

**1863:** Undeveloped with yellow pine, white pine, aspen, birch and tamarack

**1915-1924:** Large parcels were owned by L. Stark Co.--very likely undeveloped.

**1938:** Aerial photos reveal cropland.

**1957:** Land (114 acres) owned by Stark Farms Inc. and neighboring acreage owned by individuals.

**Recent history:** Field E1(R1 and R2) - Established to alfalfa and grass some time before 1996. Due to a lack of irrigation, production prior to 1996 was likely very limited to minimal dry land work. Field E32 (R3 and R4) - Irrigated alfalfa trials in 1998 and 2000, cover crops/fallow in 2002, and irrigated corn and soybeans 2003-2005. Fallow in 1996-1997, 1999, 2001 and 2006-2012 with abandoned clover cover crop from 2005. MLE experiment established on non-irrigation portion of irrigated field (center pivot corners).

**Soils:** Spodosol (Entic Haplorthod)

## Data sources

### Michigan:

- The early 1800's pre-settlement vegetation is from the "Land use circa 1800" data which is a statewide database for Michigan based on original surveyors tree data and descriptions of the vegetation and land between 1816 and 1856.  
<http://www.mcgi.state.mi.us/mgdl/?rel=thext&action=thmname&cid=5&cat=Land+Cover+Circa+1800> The land cover given here includes the Marginal Land Experiment plot areas only.
- Aerial photos are from the MSU Michigan Aerial Photo Archive,  
[http://www.rsgis.msu.edu/aerial\\_archive/](http://www.rsgis.msu.edu/aerial_archive/) spanning 1938-1981.

### Wisconsin:

- Original field notes and plat maps compiled in 1832--1866 from the WI public land survey conducted by the Federal General Land Office organized by township, range and section. Each current MLE site is embedded in a one square mile section ~640 acres.
- Aerial photos from the Wisconsin Historic Aerial Image Finder, spanning 1937-1941
- Miscellaneous plat maps from the late 1800's and early 1900's as found at the Wisconsin State Historical Society
- Agricultural Schedules from the federal censuses of 1850-1880
- Hancock and Rhinelander Ag. Research Station Records.

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