# PLANTS of Powderhorn and the Vegetation of the Calumet Region

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#### Map with Powderhorn location



#### Land and Life from the Air

The crossroads of the Calumet region is on full display in this 2003 Landsat satellite image.

A PINHOOK BOG fills a depression left by a giant block of ice when glaciers piled up the range of hills, now forested and known as the Valparaiso Moraine, more than 14,000 years ago.

B SAND RIDGE NATURE CENTER is clearly visible as a bead on the INLAND STEEL came to Lake Michigan in 1902, where it would string of trees along Michigan City Road. It sits atop one of the three sand ridges left by receding Lake Michigan.

GARY-CHICAGO AIRPORT Just north of the airport, ancient sandy ridges alternate in a still visible washboard "dune-and-swale" pattern. K BETHLEHEM STEEL came to Burns Harbor in 1967. D THE LITTLE CALUMET AND GRAND CALUMET RIVERS, trapped between the sand ridges, meander through pancake flatness in search of Lake Michigan. They meet just south of O'Brien Lock and Dam. E O'BRIEN LOCK & DAM now serves as a continental divide. Water flows south and west to the Cal-Sag Channel or north through the Calumet River main stem, headed to the Great Lakes and Atlantic. F CALUMET-SAG CHANNEL The Calumet region is connected to the Illinois Waterway and Mississippi River by this canal.

Q U.S. STEEL'S SOUTH WORKS began in 1880 at a site that is today cleared and awaiting redevelopment

H LAKE CALUMET George Pullman built his factory and company town just west of here in 1882. Other manufacturers followed, attracting workers and their families from around the world. eventually reshape the shoreline into a nearly two-mile-long peninsula. J U.S. STEEL built a new plant and the city of Gary in 1906 atop the former route of the Grand Calumet River.

L WEST BEACH Visitors can see the traces of past sand mining here. The struggle to protect the dunes from further encroachment led to the creation of the State Park in 1926 (M) and the Indiana Dunes National Lakeshore in 1966.

N MT. BALDY is visible just west of Michigan City. A migrating sand dune, it moves about four feet to the southeast each year. O DUNES LEARNING CENTER From its forest clearing, this center opens the rich landscape to the next generation of Calumet leaders.

#### Cross-Section of the Region

Bedrock layers of Silurian dolomite, millions of years in the making, appear at Thornton Quarry and the aptly named Stony Island on Chicago's South Side. Above the bedrock, the landscape testifies to the more recent activity of glaciation, as shown in this generalized profile. The mile-high glacier piled unsorted rubble, sand, and clay into long hills called moraines, which mark the glacier's last advance Melting ice formed an ancestral Lake Michigan, whose shoreline receded in several distinct stages. The three most prominent are marked by three sandy beach ridges that rise gently above the other wise flat, clay bottom of the ancestral lake.

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# Calumet Region

Beyond the Highway

FEW PLACES IN THE UNITED STATES WEAVE LIFE AND LANDSCAPE together as distinctively as the Calumet region does. What at first appears to be a one-dimensional industrial empire is, upon closer inspection, a remarkably textured world of ecological, economic,

The region is a crossroads. Northern forest, eastern hardwood, and Midwestern prairie join in a landscape of subtle variation. Native Americans, pioneer settlers, railroaders, and highway builders restrict Americans, ponetre recuest, tautomers, and inginize unders-built paths that both picked their way through the region's wellands and soared above on commanding bridges. Millions gathered from around the globe to work and build community.

People walk or ride into the Calumet region through a number of different doors. Birders, hikers, canoeists. Clean air advocates and labor organisers. Entrepreneurs and historians. People in transit. People who have come to stay. People who want a look-beyond the highway.

For more information on visiting these and other sites, visit chicagowildernessmag.org/calume

#### Calumet at time of Land Survey

- Only natural lakes in Cook Co IL
  - Lake Calumet & Wolf Lake
- Surveyed in May 1834
  - Timber or Prairie on ridges separated by marshy swales
  - Ridges running NW to SE broken in places by meandering Calumet river
  - Burr, White and Black oaks were the witness trees
  - Briars and thorns infrequently undergrowth

## Bur oak grove in wet prairie



#### Abandoned channel of Calumet in Winter



#### Calumet of Pepoon (1927)

- Pepoon (Flora of the Chicago Region, 1927) had an affection for the Clark & Pine section of Gary IN (as well as dunes east of Miller).
- Pepoon describes the Lake Calumet and Wolf Lake areas as already significantly altered, and it seems likely he spent little time east of Gary.
- *Thismia americana* was collected only in Calumet in 1912.

#### Changing notions of PLACE

- People want to know where to find useful plants
  - Place names and narratives of where the plants are within that place.
- The natural world does not generally have boundaries and is comfortable with talking about a region without specifying boundaries.
- The human world, including science, is very concerned with boundary lines.
- Now, with GPS, place can be specified very precisely.

#### A list of plants at a place, FLORA

- What can one do with a FLORA?
  - Decide where to go for a plant you want
  - Compare areas: which place has more species
  - Measure dynamics of local extinction and colonization
  - Use as the basis of an ecological restoration
- Floral list makes equivalent species with a single individual to others which are uncommon, common or abundant. This is a problem for each of above uses.

#### **Evolving Documentation**

- Naming types of plants began with descriptions of the features of the species, replaced by scientific names by Linnaeus.
- Storage of pressed specimens preserved shape (morphological) features for future comparison.
- Today taxonomy is being revised to conform closer to phylogeny with DNA sequence studies.
- Capacity to store and transmit huge amounts of information make pictures the way to document vegetation.

#### SAAD, a species plus list

- SA = specific areas, within the legal boundaries of the preserve subunits are mapped to make location information more specific.
- A = Abundances of species are noted, with a minimum of 3 classes –common, uncommon and rare and a narrative of what each term means.
- D = Dates of the inventory are necessary because plants vary seasonally and year to year.

Powder



### Temporal Aspects of Study

- While I had been to Powderhorn many times, this study included:
- 14 visits in 2007 between 1 April and 3 October.
- 12 visits in 2008 between 20 April and 27 Sept.
- 12 visits in 2009 between 25 April and 24 Sept.

#### PWH at Solstice



# PWH at the equinox



#### Blitz compared to SAAD

- 195 plant species on both lists
- 222 species on the BioBlitz list not seen by me (+9 aquatic species which I did not inventory).
- 126 species seen by me not on the BioBlitz list, including:
  - Oenothera pilosella, seen only in 2009
  - Habenaria lacera, very rare blink
  - Gentiana crinita, out of season

# Prairie Sundrops



Ragged
Fringed
Orchid



# Fringed Gentian



#### CONCLUSIONS

- The most literal interpretation is that 222 terrestrial plants species have gone extinct at PWH between the Blitz and my inventory.
- Without information on the abundance of the species and how widely dispersed it is on the site, it is impossible to separate the diverse types of changes/mistakes that could have occurred.
- SAAD inventories emerge from stewardship, a continuous presence and growing knowledge over a period of time.