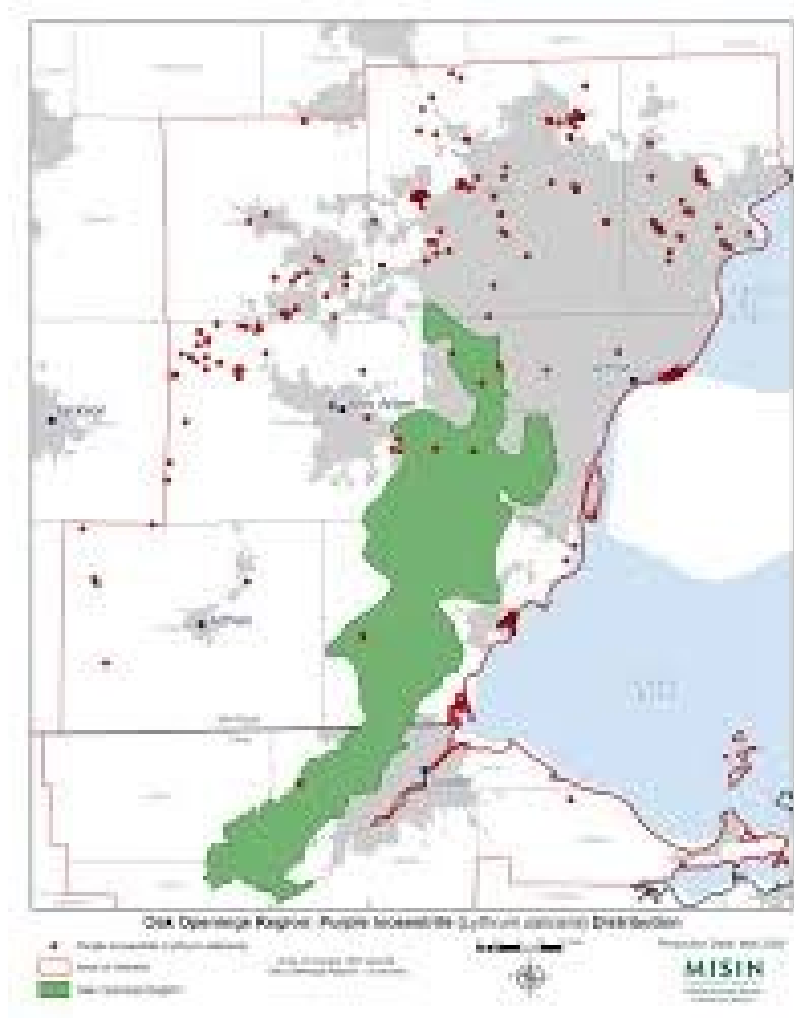


Expanding The Burn Window

Growing Season Burns at Metroparks Toledo



Lakeplain Oak Openings Region of Southeast Michigan and Northwest Ohio



Oak Openings Region: Home to FIVE Globally Imperiled Habitats. All are Fire Dependent



Midwest Sand Barren



Twigrush Prairie



Pin Oak/Swamp White
Oak Sand Flatwoods



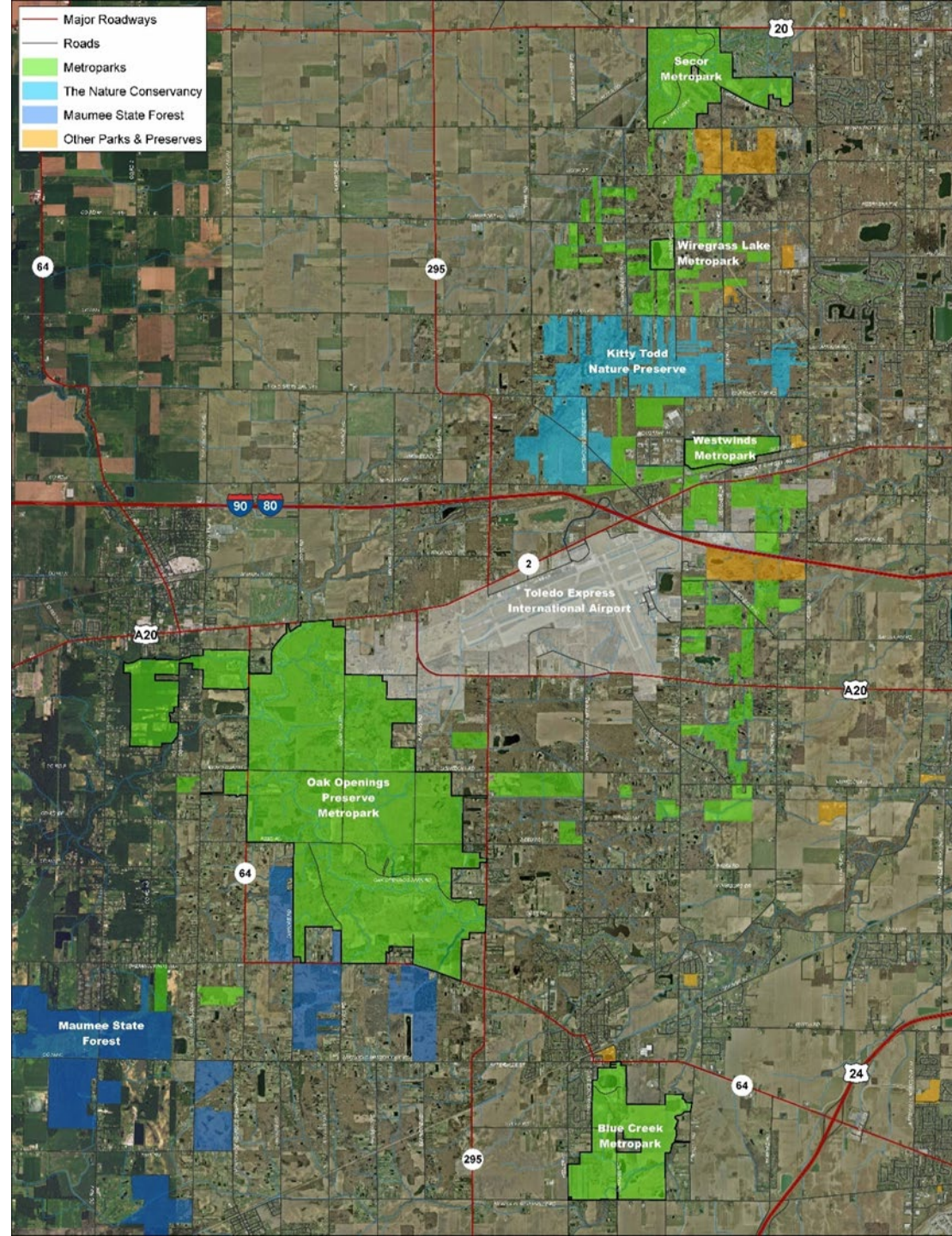
Black Oak/Lupine Barren



Mesic Sand Tallgrass Prairie

The Need For An Expanded Window

- Highly fragmented conservation area
- Weather conditions in spring and fall less predictable
- Frequency of fire required to keep up
- Selecting for same species
- Woody encroachment and climax species densities



Challenges

- Changing mindset
- Not knowing what weather to look for
- Conflicting priorities
- Changing our outreach story
- Being ready
- Training and qualifications
- Research to be sure there are gains
- Wildlife impacts



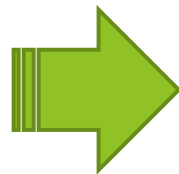
Site Selection: Mary's Savanna

Site History

- 1st burn in 1988
- Tree removal began in 1999 for oak savanna restoration
- Tornado 2010



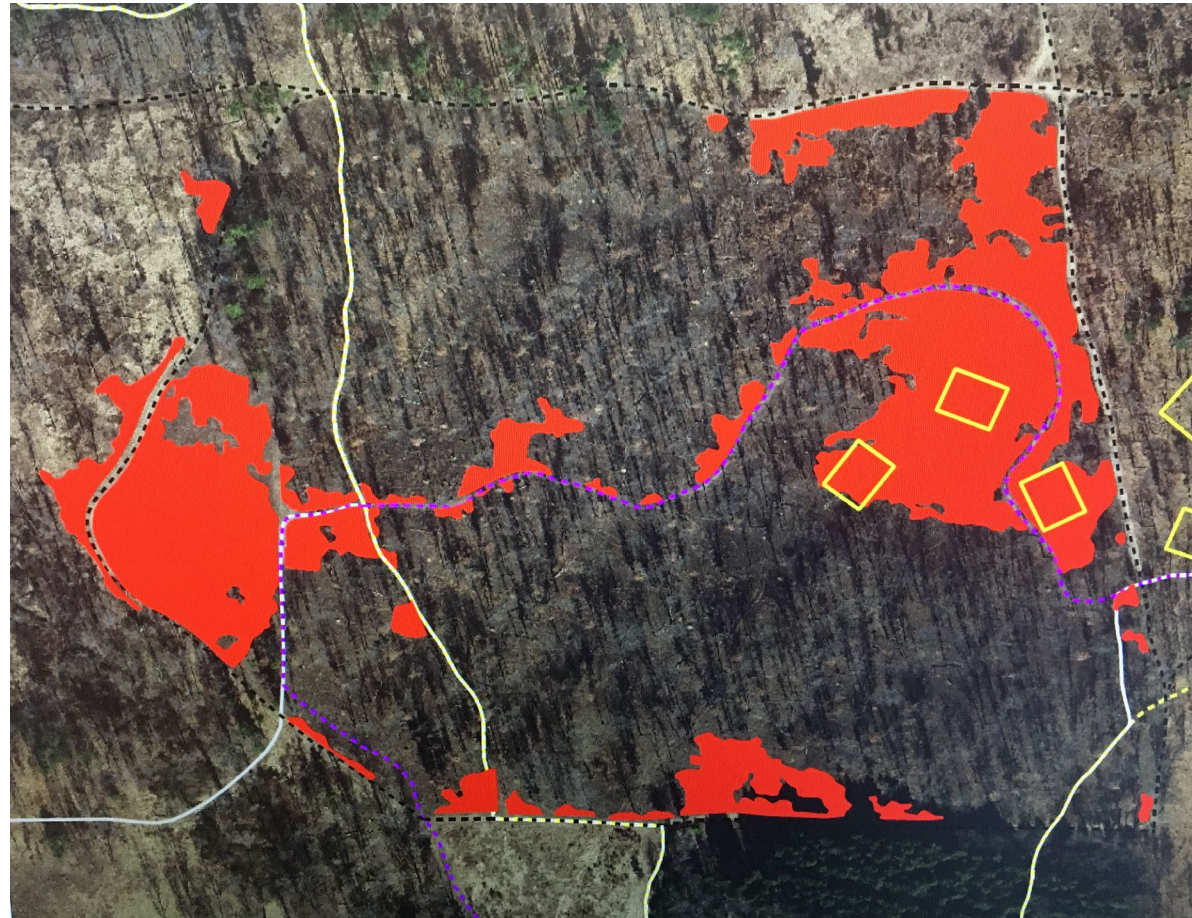
2006



2012

Mary's Savanna Recent Burn History

- 4/1/15 Entire Unit
- 11/14/16 Entire unit
- 10/9/19 Entire Unit (Map Below)
- 8/20/20 North Half
- 4/6/21 Entire Unit













Woody Resprouts 9/21/20

(one month after burn)



Long Term Monitoring Plots: Changes in Tree Layer

(trees defined as ≥ 1 cm DBH)

Quercus velutina 1-2 cm DBH were reduced by 7x from 280 stems/ha to 40 stems/ha. Burn did not result in short-term (from 2020 to 2021) mortality of any of the three large oak stems (21-54 cm DBH) on the plot.

Prunus serotina small stems (all of which were 2 cm DBH) were eliminated, going from 60 to 0 stems/ha from 2020 to 2021

Sassafras albidum stems, which were all 2-4 cm DBH in 2020, were reduced 7-fold from 140 to 20 stems/ha

Via expected resprouting, the reduction in small stems ≥ 1 cm DBH did result in increases in understory layer (< 1 cm DBH) cover of the tree species.

Change in Understory Layer on MS2

	2020	2021
Cover	84%	118% (increase in trees from conversion from above DBH to sprouts)
Richness	39	44 species/0.05 ha plot
<i>Gaylussacia baccata</i>	15%	3% More fire-susceptible generally than <i>Vaccinium</i>
<i>Vaccinium pallidum</i>	15%	15%
<i>Baptisia tinctoria</i>	3%	4%
<i>Aureolaria pedicularia</i>	2%	6%
<i>Tephrosia virginiana</i>	0.5%	0.5%
<i>Lupinus perennis</i>	7%	7%
<i>Ohio listed spp.</i>	12.7%	17.4%
Fern	3%	2%
Forb	15.6%	20.1%
Graminoid	10.5%	9.9%
Shrub	38.0%	22.3%(reduction largely from gaybac decline)
Tree < 1 cm DBH	17.1%	64.0%



Increase or Maintenance of Conservation Priority Species

Species such as *Baptisia*, *Tephrosia*, and *Lupinus* maintained or increased their cover, suggesting that growing-season burns will not harm them or that at least these species would be resilient to grow burns. This maintenance or increase occurred despite the surge in understory sprout/seedling cover by tree spp. from their conversion from DBH stems to being less than 1 cm DBH.





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Photo Credits: LaRae Sprow and Scott R. Abella