Phenology and Floral Inventory of Flat Iron Lake Preserve

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Introduction

Flat Iron Lake Preserve is in the middle of a multi-year phenology project started in 2010. Our goal is to investigate how wildflowers are affected by year-to-year weather and general climate change.

The Preserve

Located just southwest of Greenville, MI, the 68-acre preserve was donated by Fritz and Carol Rottman. Within the preserve are five different habitats (Figure 1).

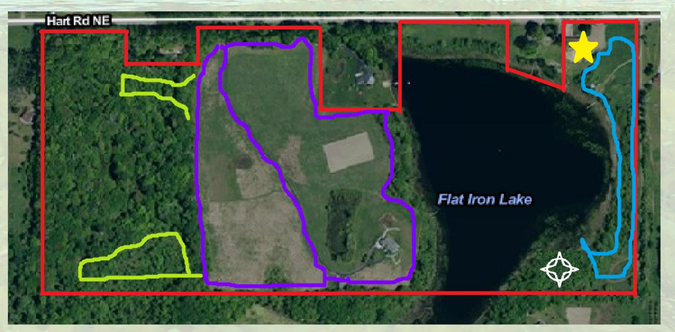


Figure 1. The entire preserve outlined in Red. The five habitats include woods (far left), swamps (yellow), prairie (purple), the lake (labeled), and successional field (blue). The star represents the research house on the property.

The restored prairie boasts the most wildflowers, while the woods, swamps, kettle lake, and successional field each offer many species as well. Over 250 flowering herbaceous species have been identified on the preserve thus far.

Method

While doing this 10-week project I made weekly rounds to each habitat. I sketched, photo-documented, and recorded newly identified species using *Newcomb's Wildflower Guide* (Figure 2) . I kept track of in-bloom species until they were no longer flowering and noted their start and end date.

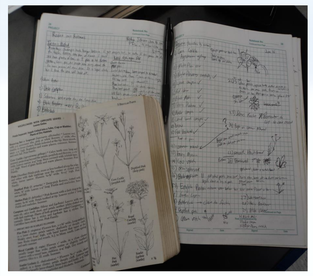


Figure 2. *Newcomb's Wildflower Guide* and Research Notebook

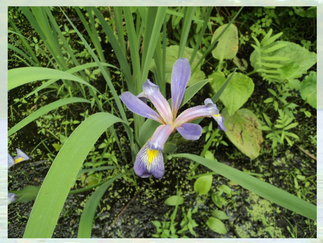
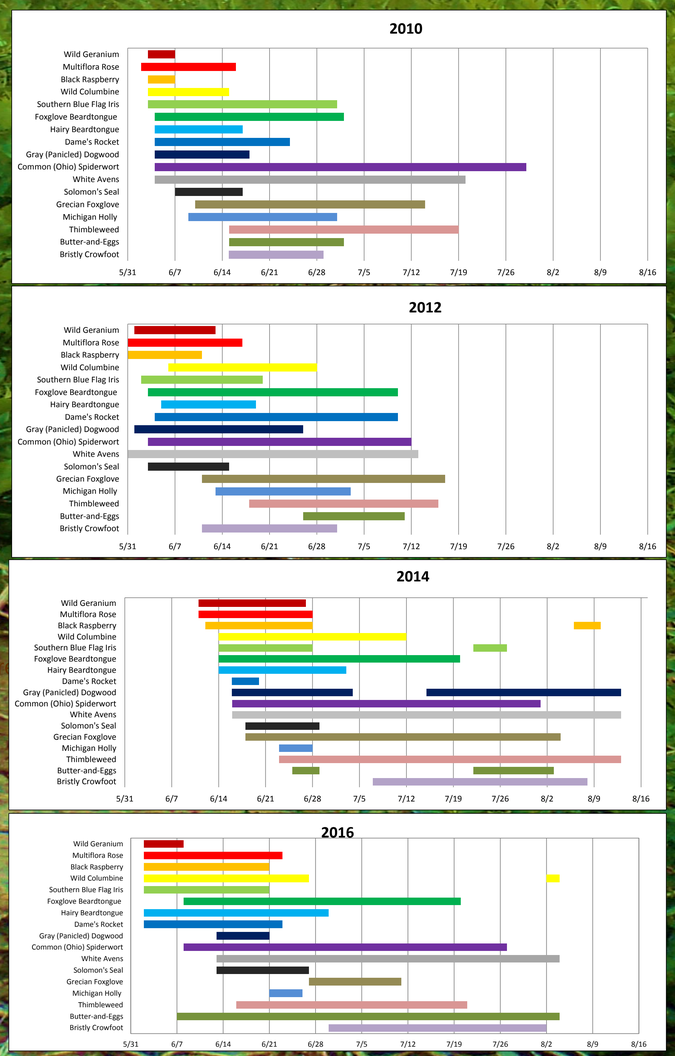


Figure 4. *Iris virginica* Southern Blue Flag Iris

Figure 3. *Linaria vulgaris* Butter-and-eggs

Figure 5. *Geum canadense* White Avens



Results

The phenology study is still too young to make any observations about climate change; however, some interesting trends appear to be emerging:

1. Hotter summers lead to generally earlier and shorter bloom time for certain species, whereas cooler summers lead to a later and longer bloom time. Notable examples include Foxglove Beardtongue, White Avens, and Bristly Crowfoot.
2. Wetter summers extend the blooming season. Southern Blue Flag Iris's behavior stands out as a good example.
3. Some species exhibit a disjunct flower period. Notable species include Wild Columbine, Gray Dogwood, Black Raspberry, and Southern Blue Flag Iris.

Notes on Weather

Weather plays a major variable in this project, and we gathered monthly and seasonal data from the National Weather Service. In general, the summers behaved as following:

2010: Hot and wet
2012: Hot and dry
2014: Slightly cooler than average, and wet
2016: Slightly warmer than average, and average rainfall

Acknowledgements

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