

# An Inventory of Woody Plants in Ashburnham Memorial Park

## Introduction

- Ashburnham Memorial Park (AMP)
  - East City, Peterborough
  - Includes:
    - Kaawaate East City Public School
    - Peterborough Museum & Archives
    - Various recreational areas
- Ashburnham Memorial Stewardship Group (AMSG)
  - Founded in 2021
  - Mission: Increase stewardship, decrease harmful activities such as dumping and reckless driving
- Past projects
  - 2008 Field Naturalists Survey; done on plants and breeding birds
  - An iNaturalist page was created for AMP in 2022
- Research Goals:
  - Create an updated inventory of woody plants in AMP
  - Provide AMSG with plot locations that can be revisited for future surveys

## Woody Plant Species Found at AMP

### Shrubs/Vines:

Alternate-leaf Dogwood (ALDO)  
 Black Raspberry (BLRA)\*  
 Common Buckthorn (COBU)  
 Red Osier Dogwood (RODO)\*  
 Riverbank Grape (RIGR)  
 Staghorn Sumac (STSU)  
 Virginia Creeper (VICR)\*

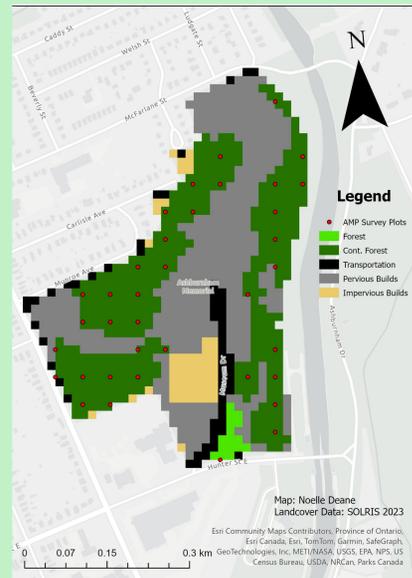
Eastern Red Cedar (ERCE)  
 Eastern White Cedar (EWCE)  
 Green Ash (GRAS)  
 Ironwood (IRON)  
 Paper Birch (PABI)\*  
 Red Pine (REPI)  
 Scots Pine (SCPI)  
 Sugar Maple (SUMA)  
 Tamarack (TAMA)  
 White Ash (WHAS)  
 White Pine (WHPI)  
 White Spruce (WHSP)

### Trees:

American Elm (AMEL)  
 Bitternut Hickory (BIHI)  
 Black Walnut (BLWA)

\*only at one plot (singleton)

## Methods



Landcover data of AMP from SOLRIS (2023) and plot locations.

- Plot locations for field work were created using a grid system in ArcGIS Pro
  - Rows: 1-14
  - Columns: A-J
- Only plots in forested areas were kept
- 37 total plots
  - 4 plots were inaccessible and not surveyed



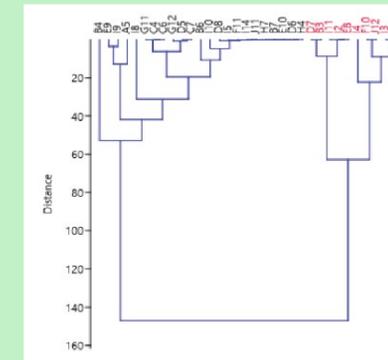
The northern area of Ashburnham Memorial Park.



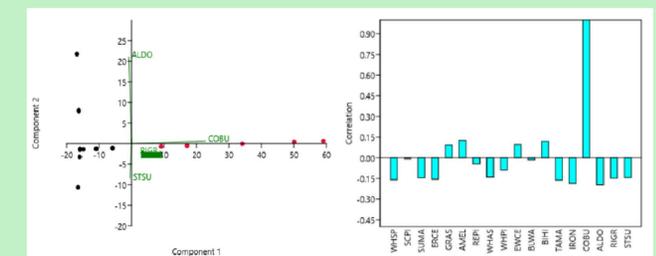
A rope with markings at 1m and 3m was used to ensure shrubs and trees were within their respective survey areas.

- Field work: Sept 2023 to Jan 2024
- Trees/shrubs were counted when:
  - Trees were within a 3m radius of the plot
  - Shrubs were within a 1m radius of the plot
- Species of plant was recorded
  - Density was recorded for trees
  - Percent cover was recorded for shrubs

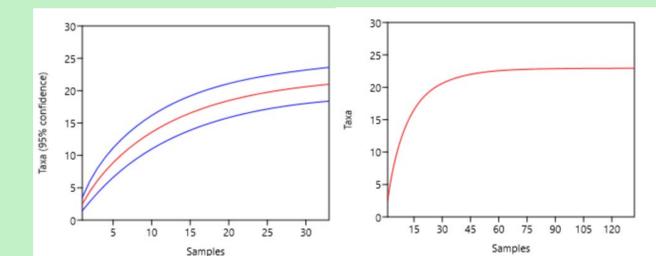
## Results



A dendrogram was created for the purpose of grouping plots with similar species makeups. Distance is unitless, and the different communities are coloured black and red.



A Principal-Component Analysis (PCA) finds the typical species makeups of the plot communities found by the dendrogram. Singletons were not included, since they are less significant in a species makeup. Left: A scatter graph of plot locations based on species makeup, coloured by dendrogram community. Components 1 & 2 are unitless. The trend of some species are included via biplots. Right: A bar graph showing how much each species has an impact on the rest the species in a plot. The further from 0, the greater the impact.



A sample rarefaction analysis estimates the number of species observed as plots surveyed increases. The left curve goes up to the number of plots visited in the study (33). The right curve extrapolates this trend over many plots. The right curve estimates there are ~23.6 species in AMP, not far from the 22 that were observed during field work.

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