FLORA OF TAMARACK NATURE PRESERVE

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INTRODUCTION

- The understanding of plant morphology, phenology, and distribution helps push the field of conservation forward.
- Floristic inventories allow scientists to understand the biodiversity of a region noting relevant native and invasive species.
- Collecting plant specimens and analyzing data like coefficients of conservatism (C-value) allows for comparisons across historic and future studies, underscoring the importance of ecological stewardship and conservation efforts on plant communities.
- Herbarium records provide a long-term reference for potential future studies.

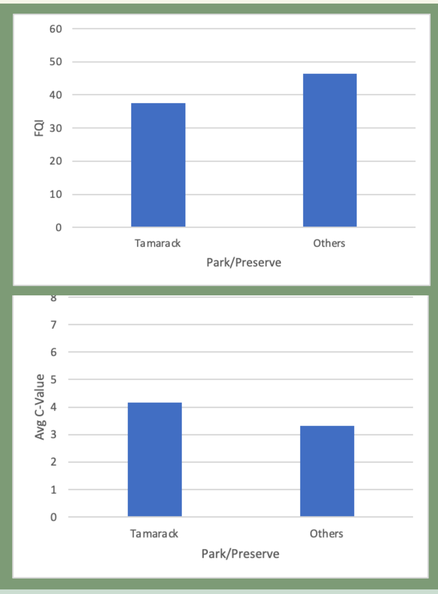

FIGURE 2

Bar charts show average FQI top) and avg C-value (bottom) for Tamarack Preserve (FQI = 37.53, C-value = 4.17) compared to historical and recent accounts from Indiana parks (FQI = 46.45, C-value = 3.32).

METHODS

- Tamarack Nature Preserve is a 17 acre private community preserve in Marion County, IN certified by the DNR.
- Collections were done weekly from March-August 2024.
- Collections were made noting important data such as date, time, coordinates, habitat and weather.
- Specimens were dried, frozen and mounted on herbarium sheets.
- Specimens were labeled with all associated data, barcoded, imaged and entered into the Consortium of Midwest Herbaria database in Friesner Herbarium.
- A map showing the distribution of collected specimens was made using ArcGIS (Fig 1).

RESULTS

- Plants with highest C-values were Pale Gentian (*Gentiana alba*), Kentucky Yellowwood (*Cladrastis kentukea*), and Nodding Trillium (*Trillium flexipes*).
- Invasive species include Annual Honesty (*Lunaria annua*), Autumn Olive (*Elaeagnus umbellata*), Red-Dead Nettle (*Lamium purpureum*), and Garlic Mustard (*Alliaria petiolata*, prevalent but not collected),
- Map distributions attribute proportionally higher species collected from the prairie habitat compared to forested trail regions.
- Other studies from Juan Solomon, Hanging Rock and Fern Station state parks show similarly stable FQI and C-values (Figure 2)

DISCUSSION

- C-values measure a plants quality in the environment telling us about its sensitivity to environmental disturbances.
- 0-3 least fidelity to its habitat (non-native).
- 4-6 associated with most preserve habitats
- 7-8 high quality communities enduring some disturbance.
- 9-10 species in thier most native habitat.
- FQI is a measure of general floristic quality and level of disturbance in a natural area.

ACKNOWLEDGEMENTS

Thanks to the Tamarack community for supporting this project. Special thanks to Greg Harker, Betty Yan, Bernie Pierce, and board members for their help with specimen collections and continued preserve maintenance.

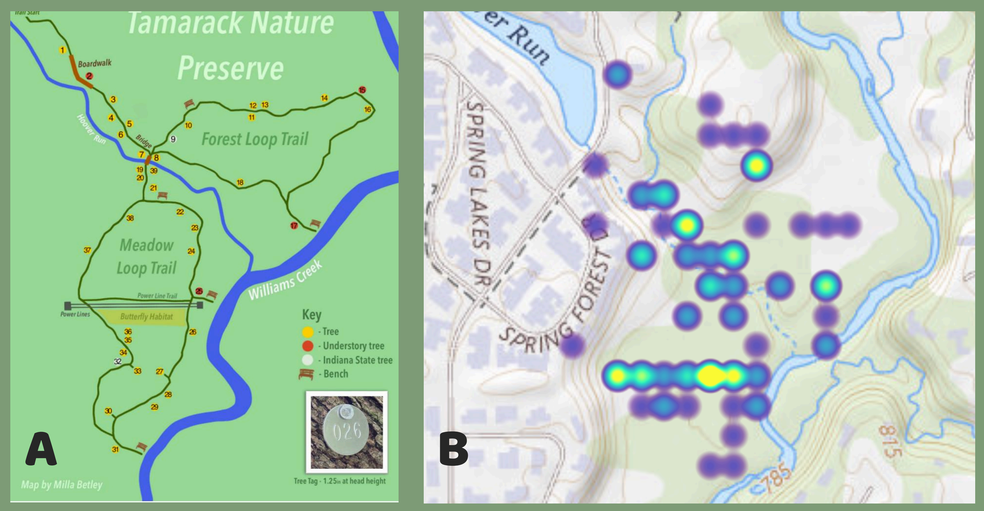

FIGURE 1

(A) Community map displaying the trails and waterways within the preserve.
(B) Species distribution map illustrating the locations of all 101 collected specimens as a heatmap, where warmer colors indicate higher specimen density. Notable hotspots are observed along the power line trail prairie habitat and in the central wooded area along Hoover Run.

FIGURE 3

Examples of completed herbarium specimens of Yellow Trout Lily (Erythronium americanum) displaying two distinct morphologies with different pollen coloration: rusty red (A) and yellow (B). Specimens were collected from the same general area but formed distinct population groupings based on pollen color. This variation may reflect genetic or environmental influences, warranting further research and analysis.