

The Vascular Flora and Community Structure of Little Calumet Headwaters Nature Preserve, Laporte County, Indiana

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Introduction

Little Calumet Headwaters Nature Preserve (LCHNP) is a 108-acre tract of woodland and wetland areas that comprise the headwaters of the Little Calumet River in northwestern Indiana. The Indiana Heritage Trust purchased the property in 1999 because microhabitats formed by topographical variations were thought to support a high diversity of plant species (Stonehouse et. al. 2003). These microhabitats include groundwater seeps, forested ridges and valleys, open meadows, and fen wetlands (Figure 1).

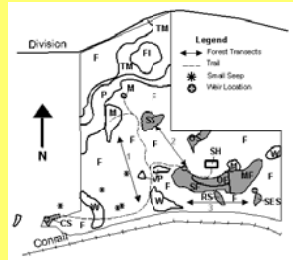


Figure 8. Map of Little Calumet Headwaters Nature Preserve, LaPorte County, Indiana (CS = craft seep; F = forested areas; FI = forested island; M = open meadow; MF = marsh fen; OF = open fen; OS = outlet seep; P = pond; RS = railroad seep; SES = SE seep; SF = shrub-carr fen; SH = shelter house; SS = *Saxifrage* seep; TM = *Typha* spp. floating mat; W = wetland; VP = vernal pool). Sites studied in detail are highlighted in gray.

Study

Floristic inventories, along with supplemental information (e.g. site delineation, community structure and descriptions, etc.), are valuable because they document at a point in time the diversity of an ecosystem (Palmer & Wade 1995). The objectives of this study are to:

- 1) Document all vascular species present in the preserve.
- 2) Determine the natural quality of the area using Floristic Quality Assessment (FQA).
- 3) Note any species of concern or interest.
- 4) Suggest management suggestions for the future preservation of the preserve.

Results

Floristic Inventory

The floristic inventory of LCHNP resulted in 290 species of vascular plants representing 80 families and 181 genera. The three families with the greatest number of species are the Cyperaceae (39), Asteraceae (29), and Poaceae (17).

Floristic Quality Index

$$FQI = \text{Mean } C\sqrt{n}$$

C = pre-assigned floristic values
n = total # of species

Floristic Quality Assessment resulted in a FQI of 69.5 and a mean coefficient of conservatism of 4.1. The high FQI value (if > 65 then the area is a high quality natural area with minimal disturbance) is due to the diversity of species because of the number of varying habitats at the site. Past disturbance of the site is known, so these values suggest that the preserve is a remnant community with natural area potential (Swink & Wilhelm 1994).

Adventive Species

9% of the species found in LCHNP are considered adventive to Indiana flora. All of these species are very low in abundance and the majority are restricted to open meadows and wetland areas (41% and 26% respectively) (Figure 3).

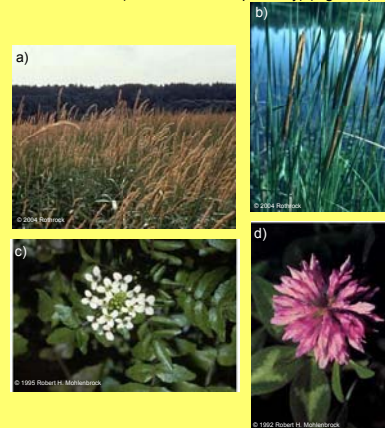


Figure 3a – d. A few selected adventive species and their associated habitat (OM = open meadow and W = wetland areas. 3a) *Phalaris arundinacea* – Reed Canary Grass (OM); 3b) *Typha angustifolia* – Narrow-Leaved Cattail (W); 3c) *Rorippa nasturtium-aquaticum* – Watercress (W); 3d) *Trifolium pratense* – Red Clover.

Species of Interest



Figure 2a – g. State listed species located in Little Calumet Headwaters Nature Preserve. Symbols in parentheses after nomenclature can be interpreted as: E = state endangered; T = state threatened; R = state rare. All species found were globally widespread and secure. 2a) *Carex scabrata* – Rough Sedge (E); 2b) *Habenaria hyperbora* – Northern Bog Orchid (T); 2c) *Chrysosplenium americanum* – Golden Saxifrage (T); 2d) *Salix eriocephala* – Heart-Leaved Willow (T); 2e) *Diervilla lonicera* – Dwarf Honeysuckle (R); 2f) *Pinus strobus* – White Pine (R); 2g) *Eriophorum angustifolium* – Narrow-Leaved Cotton Grass (R).

Conclusion

LCHNP is a diverse community with natural area potential due to the presence of state listed species and the wetland habitats within the preserve. In order to protect and enhance the quality of the area, management schemes must be developed and implemented. Removal of adventive species is one aspect of management that should be completed proactively because introduced species are not yet invasive and are restricted to only a few community types.

Example Page From a Taxonomic Listing

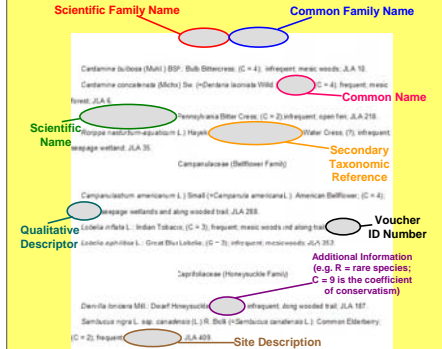


Figure 3. A typical page from a taxonomic listing. Additional information circled in purple and meanings of qualitative descriptors are usually interpreted at the beginning of the listing (Yatskievych 2004; Swink & Wilhelm 1994).

Literature cited

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For Further Information

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