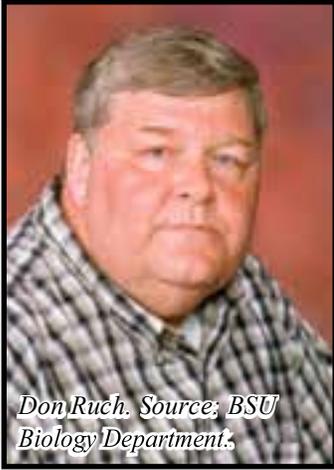


“Of Paramount Importance”

The Plants of the Morgan-Monroe Back County Area Ecoblitz, Year One

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Don Ruch. Source: BSU Biology Department.

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Swink & Wilhelm (1994) state, “Plant species, through millennia, have become adapted to the specific combinations of biotic and abiotic factors, processes, and floral and faunal interactions uniquely characterizing the site they inhabit. An area with a long history of biome-level stability, such as characterized most of the presettlement landscape in the Midwest, will almost always support a diverse assemblage of conservative species in self-replicating, interactive arrays.” Analysis of the plant taxa observed during the first year of the Morgan Monroe Back County Area Ecoblitz (MMBCAE) can provide important insight of the overall quality of the forest within the study site. One tool used to reveal floristic quality of a site is to determine the “Floristic Quality Index” (FQI), a program developed by the Conservation Design Forum in conjunction with Paul Rothrock (2004). This program also calculates the mean Coefficient of Conservatism (mean C). In addition, it presents a detailed physiognomic analysis of the flora, both native and exotic. For a detailed description of how the FQI is determined and an explanation of C-values, see Swink & Wilhelm (1994), Rothrock (2004), and Rothrock & Homoya (2005). Briefly, C-values (Coefficient of Conservatism), which range from zero to ten, are an index of the fidelity of an individual species to undisturbed plant communities characteristic of the region prior to European settlement. The higher the C-value the more conserved the species is to an undisturbed habitat. All non-natives are given a C value of 0. The FQI is determined by multiplying the mean C for all species present by the square root of the total number of species. [For native FQI and mean C, only the native species are used.] A FQI greater than 35 suggests that a site possesses sufficient conservatism and richness to be of profound importance from a regional perspective. Areas registering in the 50’s and higher are extremely rare and of paramount importance (Rothrock & Homoya 2005, Swink &

Wilhelm 1994).

The vascular flora observed at MMBCAE consists of 314 taxa, 297 (94.5%) native species and 17 (5.5%) non-native species. This is a very low percentage of non-natives; typically the percent of non-natives ranges between 20-35% in quality sites. The FQI for the native species is 80.9 and the native mean C is 4.7. (For all species, native and non-native, the FQI is 78.7 and the mean C is 4.4.) These matrices clearly reveal that the Ecoblitz site is “of paramount importance.” Table 1 compares MMBCAE with respect to FQI, mean C, and species number, to other quality sites around Indiana.

An examination of the C-values of the plants reported at MMBCAE reveals 39 species with a $C \geq 8$, a high number of such species for any site. Thirty-one species have $C = 8$; four have $C = 9$, including Carey’s wood sedge, beaked tussock sedge, glade fern, and Goldie’s fern; and four have $C = 10$, including plantain-leaved wood sedge, broad-leaved wood sedge, dwarf chestnut oak, and the hispid swamp buttercup. On the other hand, only 104 species have $C \leq 3$, a low number due in part to the reduced number of non-native species.

Lastly, a comparison between the matrices for the native species versus all plant species indicates that the mean C did not drop in excess of 0.7 units [only 0.3 units] and the FQI did not drop in excess of 10 units [only 2.2 units]. These numbers indicate that the non-native species are not having a negative impact on the native species (Rothrock & Homoya 2005).

In summary the Ecoblitz site appears to be an area with a history of biome-level stability as indicated by the high number of taxa with a Coefficient of Conservatism ≥ 8 , thus resulting in the high mean C and FQI. These matrices indicate that the Morgan Monroe Back County Area possesses sufficient conservatism and species richness to be of paramount importance from a regional perspective. ♦

CITATIONS:

- Rothrock, P. L. 2004. Floristic quality assessment in Indiana: The concept, use, and development of Coefficients of Conservatism. Final Report for ARN A305-4-53 Floristic Quality Assessment Grant CD975586-01, Environmental Protection Agency Wetland Program Development Grant.
- Rothrock, P.E. & M.A. Homoya. 2005. An evaluation of Indiana’s Floristic Quality Assessment. Proceedings of the Indiana Academy of Science 114:9-18.
- Swink, F. & G. Wilhelm. 1994. Plants of the Chicago Region. 4th edition. Indiana Academy of Science, Indianapolis, Indiana. 921 pp.



Site	# of Native Species	Native FQI	Mean C	County
Barker Woods NP ^{&}	146/159	60.7	5.0	LaPorte
Morgan-Monroe BCA ^{&}	297/314	80.9	4.7	Monroe
Bendix Woods NP ^{&}	112/118	49.3	4.7	St. Joseph
Yellow Birch Ravine NP	385/420	90.4	4.6	Crawford
Mounds State Park	478/584	96.2	4.4	Madison
Cabin Creek Raised Bog	400/478	85.6	4.3	Randolph
Fogwell Forest NP	210/240	59.3	4.1	Allen
Lick Creek Summit NP	304/387	68.9	4.0	Wayne
Botany Glen	295/357	68.5	4.0	Grant
Flint Barrens	276/289	67.2	4.0	Harrison
Hemlock Bluff NP	259/299	64.9	4.0	Jackson
Ginn Woods	364/441	74.1	3.9	Delaware

Table 1.—Comparison of the native Floristic Quality Index and mean Coefficient of Conservatism for various site in Indiana. Sites are arranged by descending Mean C values for native species. Mean C = native mean Coefficient of Conservations, FQI = Floristic Quality Index, & = an incomplete inventory, NP = Nature Preserve, BCA = back country area.