

Concerns about the Plant Stewardship Index and the Floristic Quality Assessment methodology and applications in general.

1. This methodology is not quantitative, results cannot be analyzed statistically.
2. The FQI methodology is not discussed in recent books on methods for measuring plant diversity such as:

Gotelli, Nicholas J. and Aaron M. Ellison. 2004. *A Primer of Ecological Statistics*. Sinauer Associates, Inc. Sunderland, MA. 510 pp.

Elzinga, Caryl L., Daniel W. Salzer, and John W. Willoughby. 2005. *Measuring and Monitoring Plant Populations*, Reference 1730-1. Bureau of Land Management, Denver, CO. 477 pp.

Stohlgren, Thomas J. 2007. *Measuring Plant Diversity, Lessons from the Field*. Oxford University Press, New York. 390 pp.

3. Several important variables can influence the results and make comparisons across sites or of the same site at different times questionable.

Skill level of the observer – if identifications are not accurate, or if species (such as grasses, sedges or other hard to identify taxa) are lumped, results will be skewed (Rooney and Rogers 2002).

Season in which observations are made – not all species present are identifiable at a given date (Francis et al. 2000; Mathews 2003).

Size of the tract surveyed – increased size of tract correlates with increased FQI scores because larger tracts have more species. This contradicts the statement of Swink and Wilhelm that the index is independent of the size of the area being surveyed (Mathews et al 2005; Francis et al. 2000).

Increased distance between isolated sites – increased separation of patches of similar habitat correlates with decreasing FQI scores (Mathews 2003; Mathews et al. 2005).

Different community types, which vary naturally in species richness, will give different values for reasons not related to their “naturalness” (Mathews 2003).

Nichols et al. (2006) found discrepancies between results of FQI assessments of hardwood flats wetland communities in Virginia depending on which layers of vegetation (herbs, trees, shrubs) were analyzed. They found a negative

correlation between herbaceous layer FQI and land disturbance in the wetland buffer and the landscape scale surrounding area. However that relationship did not hold up for the shrub layer. The canopy layer FQI showed a positive relationship to landscape scale disturbance. Aggregated data showed no significant correlation between buffer- or landscape-scale disturbances.

4. Presence of a rare species can skew results, especially in successional areas. Some rare species are actually disturbance dependent.

5. Coefficients of Conservation must be based on the **fidelity of a species to pristine (undisturbed) habitat**; description of the Plant Stewardship Index does not make it clear that that rule was followed. There is inevitably an element of subjectivity in the assignment of coefficients of conservation. There may also be regional differences (Mushet et al. 2002; Andreas et al. 2004).

6. The FQA methodology was not meant as a stand-alone method. It should only be used in conjunction with other measures of habitat quality (Taft et al. 1997; Herman et al. 1997).

Sources:

Andreas, Barbara K., John J. Mack, and James S. McCormack. 2004. Floristic quality assessment index (FQAI) for vascular plants and mosses for the state of Ohio. OhioEPA, Kent State University.

Francis, Charles M., Madeline J.W. Austen, Jane M. Bowles, and William B. Draper. 2000. Assessing floristic quality in southern Ontario woodlands. *Natural Areas Journal* 20: 66-77.

Herman, Kim D., Linda A. Masters, Michael R. Penskar, Anton A. Reznicek, Gerould S. Wilhelm, William W. Broddowicz. 1997. Floristic quality assessment: development and application in the state of Michigan (USA). *Natural Areas Journal* 17(3): 265-279.

Mathews, Jeffrey. 2003. Assessment of the floristic quality index for use in Illinois, USA, wetlands. *Natural Areas Journal* 23: 53-60.

Mathews, Jeffrey W., Paul A. Tessene, Scott M. Wisebrook, and Bradley W. Zercher. 2005. Effect of area and isolation on species richness and indices of floristic quality in Illinois, USA wetlands. *Wetlands* 25(3): 607-615.

Mushet, David M., Ned H. Euliss, Jr., and Terry L. Shaffer. 2002. Floristic quality assessment of one natural and three restored wetland complexes in North Dakota, USA. *Wetlands* 22(1): 126-138.

Nichols, J.D., J.E. Perry, and D.A. DeBerry. 2006. Using a floristic quality assessment technique to evaluate plant community integrity of forested wetlands in southeastern Virginia. *Natural Areas Journal* 26(4): 360-369.

Rooney, Thomas P. and David A. Rogers. 2002. The modified floristic quality index. *Natural Areas Journal* 22(4): 340-344.

Taft, John B., Gerould S. Wilhelm, Douglas M. Ladd, and Linda A. Masters. 1997. Floristic quality assessment for vegetation in Illinois, a method for assessing vegetation integrity. *Erigenia* 15: 3-95.

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