

Stewardship Network Notes

8 May 07

Bruegger's Bagels

The Stewardship Network meets the second Tuesday of the month at Bruegger's Bagels on North University, UM--Ann Arbor Campus, from 7:30 to 8:30 AM. The same topic is repeated on the third Thursday of the month at The Nonprofit Enterprise at Work (NEW) Center, 1100 N. Main, Ann Arbor, from 12:00 to 1:00 PM.

Topic: Floristic Quality Assessment (FQA)

History and description

The floristic quality assessment was developed in the late 70s in DuPage County by the Illinois DNR for assessing the quality of natural areas. It was revised by the Wisconsin DNR for use in wetlands, and in 1996 by Michigan DNR for state-wide use. Ann Arbor's Natural Areas Preservation group helped to test and report on the concept in Michigan.

Plants are assigned a coefficient of conservatism value from 0 to 10. Non-natives and some widespread natives (like Box Elder) are assigned a 0. Plants assigned a 10 are those with the highest likelihood of being found in a relatively intact native ecosystem, having pre-settlement characteristics. Each species is counted only once; individual plants are not counted. For the site under assessment, the average coefficient of conservatism of species present is then multiplied by the square root of the number of species present. The resulting number is the floristic quality index (FQI), and generally reflects the botanical quality of the natural area. In practice, a site with an FQI above 35 is considered to be floristically important enough for protection.

Strengths, weaknesses and qualifications

The FQA provides a simple (ha!) quantitative tool for evaluating the quality of a natural area. It can be used to prioritize areas for burning or restoration. Early restoration efforts are typically concentrated on areas with higher FQI scores, moving as time and resources allow to areas with lower scores. The score likewise can assist planners in determining land use: which areas should have small walking paths with no dogs allowed, and which properties to acquire as natural areas, and at the other extreme, which areas should be dedicated to ball fields or development.

Weaknesses of FQA from a biological point of view include:

It does not consider animals at all;

Size and habitat diversity (meadows, wetlands, forests and a river all on one site) inflate the score by providing more species simply because the landscape is larger and more varied but not necessarily because of greater ecological quality;

A greater amount of survey effort on one site versus another can also inflate the score, without reflecting greater ecological quality;

The abundance of non-native invasive species, and therefore the restorability of the site, is not evaluated;

A small biologically diverse area within a larger site can inflate the FQI;

Additionally, plants disappear and reappear from year to year of their own accord due to natural cycles, so a single assessment can not be expected to be definitive. And finally (in this current mini-discussion) the index is less sensitive at higher levels of intactness because each additional species (ref: the square root thereof) changes the score less than at lower levels.

Ultimately, social and zoological criteria may be effectively as important as the botanical FQI in determining land use in city planning, because the public may care about aesthetics and wildlife as much as or more than they do about plants.

FQI is useful for comparisons between similar sites of similar size and plant community type. Because of this, it may not be useful to small landowners who only have one site to evaluate. Because it requires careful identification of plants to the correct species, it may be difficult for amateur botanists to use.

Only slightly peripheral to the topic

The value of prescribed burning in restoration in the prairie states:

- it is efficient, treating a much larger area than could be done by hand treatment,
- it is necessary to the dehiscence/germination of some native seeds which have evolved in this fire-adapted ecology (like jack pine),
- it clears leaf cover, on which many seeds will not germinate, and puts them in contact with the soil, where they will.

References

- Assessment of the Floristic Quality Index for Use in Illinois, USA, Wetlands.
JW Matthews, Natural Areas Journal Vol. 23, no. 1, pp. 53-60. Jan 2003.
Floristic Quality Assessment with Wetland Categories and Examples of
Computer Applications for the State of Michigan, 2nd Edition, October
2001, Michigan DNR in partnership...etc.