

Chicago Park District  
Rapid Floristic Quality Assessment  
Protocol Summary



*July blooms at South Shore Nature Sanctuary. By: R. Goad*

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## Rapid Assessment Protocol

### INTRODUCTION

This protocol document outlines important components of the Rapid FQA under development by Plants of Concern (POC) at the Chicago Botanic Garden (CBG) for Chicago Park District (CPD). The protocol was modeled after the Minnesota Pollution Control Board's Rapid Floristic Quality Assessment (FQA), which was developed for wetland habitats (Minnesota Pollution Control Board 2012 & 2014). Rapid FQA relies on meander-based sampling and a checklist of common and relatively easy to identify species. Italicized statements in the protocol below are focuses of continuing development.

**Goal:** To develop a protocol, usable by non-professional botanists, that allows rapid assessment of the floristic quality of CPD Natural Areas and results in a quantitative metric of relative habitat quality and change over time.

### SAMPLING PROTOCOL

#### The Datasheet

The datasheet includes all species targeted for the rapid assessment, separated into woody, herbaceous, graminoid, and fern categories, with common names included; assessors will focus their attention on these species only. The datasheet can be found in Appendix 6. Site name, the names of all assessors, and date of sampling should be written on every page of the datasheet. Relevant notes should be included at the top of the first page. Start and end time should also be recorded, and the number of species seen in the last ten minutes of the assessment can be tallied at the top of the datasheet (see Timing for details). The plant communities that define each assessment area should be listed under 'Plant Community Type', and these correspond to the three community spaces in front of each species (see Sampling for details).

#### The Species List

The rapid list contains 186 species found across all habitat types, and before sampling for the first time, monitors should ensure they can identify all species on the list. A Rapid Color Guide has been developed to provide a quick reference on this list of species for assessors.

Nomenclature follows Flora of the Chicago Region (Wilhelm and Rericha, 2017). The updated rapid species list was developed by integrating CPD planting lists with field observations over three years. Species were qualitatively evaluated for their distinctness, commonness, and dominance, and species observations were quantitatively evaluated for their effect on overall community floristic quality metrics. These combined data were used to determine a shortened list of relatively easily identifiable species that allow approximation of site floristic quality.

### Assessment Areas

CPD has 64 natural areas that may be assessed, and seven plant community types are targeted for assessment at these sites: woodlands, prairies, savannas, wetlands, shrublands, dunes/swales/pannes, and riparian shoreline/wet prairie. Lagoon margins were initially included, but were removed after 2016 due to their distinctness from other habitats assessed. Assessment areas are comprised of one or more of these community types. For volunteers, interns, or staff collecting data, targeted assessment areas will be determined ahead of time, with the larger goal of visiting each site every other year. Maps delineating these areas will be available to the assessment team for reference.

In some cases, identifying community delineations on the ground may be challenging. Site-specific recommendations provided to assessors will give clear instructions for how assessors should sample each site.

Another challenge is how to sample large sites. For large sites held by CPD (Hegewisch Marsh, Van Vlissingen Prairie, and Indian Ridge Marsh), sampling occurs at the level of management units. CPD staff need to determine whether all management units at these large sites, or select representative units, should be included for assessment.

### Sampling

The assessment team meanders through the pre-defined assessment area, identifying and recording plant species on the rapid species list. The meander should (broadly) reach all parts of each targeted assessment area. Data for three distinct community types can be collected on a single data sheet when multiple types occur at the same site and are sampled over the course of a single meander. When a species is found, one of the three spaces next to the species name corresponding to the relevant community type is circled. Upon completion of the timed meander, a cover class value ranging from one to seven is assigned to each species in order to estimate total cover of the species across each community where it is noted (Table 1).

Table 1. Percent cover and descriptors for each Daubenmire cover class.

<b>Class</b>	<b>Cover %</b>	<b>Descriptor</b>
7	>95-100	Dominant
6	>75-95%	Very common
5	>50-75%	Common
4	>25-50%	Regular
3	>5-25%	Occasional
2	>1-5%	Rare
1	0-1%	Very rare

Initial analysis of seasonal timing differences indicates that prairies and savannas should preferentially be sampled in the late summer or early fall, while other sites should be sampled at a consistent time that is convenient.

Timing

An important component of the rapid assessment is its constrained timing. An assessor visits a site and has a pre-defined base time dependent on the number of assessment areas to be included in the meander (Table 2). Start time is recorded on the datasheet, and the number of new species seen during the last ten minutes of the base time are tallied; if more than three new species are recorded in that time, an additional 10 minutes are added. Additional 10 minute intervals can occur up to three times. This method allows assessors to detect the leveling-off of a species area curve and provides flexibility to assess sites with differing richness levels. Once the meander is finished, the ending time is recorded on the datasheet.

Table 2. Base meander time is determined by the number of assessment areas (AA's). Base time is 30 minutes plus 20 minutes for each additional assessment area.

Number of AA's	1	2	3	4	5
Base Time (minutes)	30	50	70	90	110
If < 3 new species are encountered during the last 10 minutes of the base time, stop the meander at the end of the base time.					
If ≥ 3 new species are encountered during the last 10 minutes of the base meander time, continue the meander for an additional 10 minutes.					
Continue adding 10 minute periods to the meander until < 3 new species are encountered in a time period. Once this occurs, the meander can be stopped.					

**METRICS**

Once assessments are completed, quantitative metrics can be calculated and compared between habitats and across time for a single site. These metrics are based on the C-values (coefficients of conservatism) of species observed in each assessment area (Wilhelm and Rericha, 2017).

We recommend two metrics – weighted C and richness – be used to assess and track changes in floristic quality. Weighted C is more sensitive to changes in species occurrence and abundance than is mean C, and richness provides additional context for understanding community composition. For instance, a site with high wC and low richness may be interpreted to have a few dominant high C-value species, and this may be less desirable than a more diverse site with an intermediate wC value. These metrics may be used to compare across habitats of the same type. The Floristic Quality Index (FQI) is very sensitive to sampling effort, and may not be appropriate to use with this meander-based method.

## REFERENCES

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