

INTEGRATED WETLAND ASSESSMENT PROGRAM
Part 9: Field Manual for the Vegetation Index of
Biotic Integrity for Wetlands v. 1.5



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INTEGRATED WETLAND ASSESSMENT PROGRAM.
PART 9: FIELD MANUAL FOR THE VEGETATION INDEX OF BIOTIC INTEGRITY
FOR WETLANDS v. 1.5.

John J. Mack and Brian D. Gara

ABSTRACT

A field manual has been developed documenting sampling, laboratory, and data analysis procedures necessary to calculate the Vegetation Index of Biotic Integrity for wetlands (Mack et al. 2000, Mack 2001b, Mack 2004a, Mack 2004b, Mack 2007b). It is intended to be used to standardize vegetation sampling techniques for the development and use of wetland biological assessments using vascular plants as an indicator species. The methods outlined here can also be used in other situations including monitoring mitigation wetlands or for more general plant community characterization. This manual documents methods used in the Ohio Environmental Protection Agency's wetland program. The vegetation sampling procedures were adapted from methods developed for the North Carolina Vegetation Survey as described in Peet et al. (1998). Their method has been used at over 3000 sites for over ten years by the North Carolina Vegetation Survey. Ohio EPA has sampled nearly 525 plots between 1999-2015, including reference wetlands, mitigation banks, and individual mitigation wetlands. The most typical application of the method employs a set of 10 modules in a 20m x 50m layout. Within the site to be surveyed, the 20m x 50m grid is located such that the long axis of the plot is oriented to minimize the environmental heterogeneity within the plot. Plot location rules were developed for consistent location of plots. Finally, steps for reducing and analyzing the data collected are outlined.

INTRODUCTION

Background

This field manual documents sampling, laboratory, and data analysis procedures necessary to calculate the Vegetation Index of Biotic Integrity for wetlands (Mack 2004b, Mack 2007 b , Mack and Micacchion 2006). It is intended to be used to standardize and document vegetation sampling techniques for the development and use of wetland biological assessments using vascular plants as an indicator species. The methods outlined here can also be used in other situations including monitoring mitigation wetlands or for more general plant community characterization in wetland and upland plant communities. This manual documents methods used in the Ohio Environmental Protection Agency's wetland program.

The Ohio EPA began evaluating vegetation sampling methods in 1996. Major concerns in selecting a sampling method were ease of use, cost, and reproducibility of results. Ohio EPA sampled disturbed and undisturbed wetlands in western and central Ohio in 1996-1998. Initially, Ohio EPA evaluated a fixed transect method with 1m² and 10m² circular nested quadrats, spaced evenly along the transect. A minimum of 30 quadrats were sampled along 3 transects (30m² area sampled herbaceous vegetation and 300m² woody vegetation), with at least one transect oriented perpendicular to the other two. In addition, plants located outside the quadrats but within a 5m wide "belt" along the transect were identified but no density or dominance information was recorded for these plants (hereafter transect-belt method). Within the quadrats, percent cover and stem counts (woody only) were recorded for each species (Fennessy et

al. 1998).

By 1999, it became apparent that many of the more successful attributes were associated with measures of dominance or abundance, e.g. percent cover, density (stems/ha), etc. However, using the transect-belt method, 30% to 60% of the plants observed had only presence/absence data associated with them (Mack et al. 2000). There were also other problems. First, the area sampled to characterize forested communities appeared to be too small. The forestry literature recommends 400-1000m² as minimum area to adequately characterize eastern forest communities (Peet et al. 1998). Second, the transect method often passed through several different plant communities, homogenizing the vegetation data for wetlands with multiple plant communities. Finally, the transect method appeared to overemphasize wetland "edge" species. Because of this, Ohio EPA reevaluated its sampling method and adopted a method used by the North Carolina Vegetation Survey as described in Peet et al. (1998). This is a multipurpose sampling method that is appropriate for most types of vegetation, flexible in intensity and time commitment, compatible with other data types from other methods, and that provides information on species composition across spatial scales. This revised method has been extensively used by Ohio EPA since 1999.

Vegetation Index of Biotic Integrity

Although the data collected using this method can be used for many purposes, the most common application will be to collect vegetation data that will enable the calculation of the Vegetation IBI for wetlands. The background and development of the VIBI can be found in Mack et al. (2000), Mack (2001b), Mack (2004a,b), and Mack and Micacchion (2006).

The Vegetation IBI is a multimetric index comprised of 10 metrics with a maximum score of 100 and a minimum score of 0. The VIBI is calculated by summing the 10 metric scores. Metrics can receive a score of 0, 3, 7, or 10 based on the value of the metric (Table 2). The VIBI is actually four IBIs: the VIBI-EMERGENT (VIBI-E, including substitute metrics for Lake Erie coastal marshes), the VIBI-FOREST (VIBI-F), VIBI-SHRUB (VIBI-SH), and VIBI-Floristic Quality (VIBI-FQ). Each VIBI is designed to be used for wetlands dominated by emergent, forest, or shrub vegetation, respectively. There are 20 metrics in all (Table 3) and each VIBI has its own set of 10 metrics, with the exception of VIBI-FQ (Gara 2013) which only has two (Table 4). Detailed data collection, reduction, and analysis procedures for calculating the VIBI are discussed below.

Releve method for vegetation sampling - background

Even if only three main classes are identified (forested, shrub, and emergent), a single wetland can have several co-dominant vegetation classes, or a single dominant class and several minor subclasses. Thus, a sampling method should be flexible enough to account for horizontal and vertical variation in vegetation. The method described by Peet et al. (1998) can be used to sample such diverse communities as grass and forb dominated savannahs, dense shrub thickets, forest, and sparsely vegetated rock outcrops. This method incorporates use of reléves similar to that described in the Braun-Blanquet methodology (Mueller-Dombois and Ellenberg 1974) in as much as the length, width, and orientation of the plot is qualitatively determined by the investigator based on site characteristics; however, within the plot, standard quantitative floristic and forestry information is recorded, e.g.

frequency, density, basal area, cover, etc. This method has been used at over 3000 sites for over ten years by the North Carolina Vegetation Survey (Peet et al. 1998) and at over 400 sites by Ohio EPA between 1999-2006, including reference wetlands, mitigation banks, and individual mitigation wetlands. In addition to the advantages mentioned above, this method also addresses the problem that processes affecting vegetation composition differ as spatial scales increase or decrease and that vegetation typically exhibits strong autocorrelation (Peet et al. 1998). According to Peet et al. (1998, p. 264), "Our solution to the problems of scale and spatial autocorrelation is to adopt a modular approach to plot layout, wherein all measurements are made in plots comprised of one or more 10m x 10m quadrats or "modules" ($100 \text{ m}^2 = 1 \text{ are} = 0.01 \text{ hectare}$). The module size and shape were chosen to provide a convenient building block for larger plots, and because a body of data already exists for plots of some multiple of this size. The square shape is efficient to lay out, ensures the observation is typical for species interactions at that scale of observation, and avoids biases built into methods with distributed quadrats or high perimeter-to-area ratios."

METHODS - FOCUSED (FIXED) PLOT SAMPLING DESIGN

The most typical application of the method employs a set of 10 modules in a 20 m x 50 m layout although alternate arrays can also be used depending on site size and the community of interest (Figure 1). The fixed plot sampling design is the basic method to be used in virtually every study of natural or mitigation wetlands in which a Vegetation IBI score is to be calculated. Within the site to be surveyed, the 20 m x 50 m grid is located such that the long axis of the plot is

oriented to minimize the environmental heterogeneity within the plot. At least four 10 m x 10 m modules are intensively sampled with a series of nested quadrats. Within these "intensive" modules, species cover class values are estimated for the 0.01 ha (100 m²) area of the each intensive module. Species located outside of the intensive modules (the "residual" modules) are also recorded and percent cover is estimated over the residual area (typically 0.06 ha or 600 m²) of the non-intensive (residual) modules. Woody species are typically measured (diameter at breast height or dbh) and counted separately within each module of the plot.

Subsamples and supersamples

According to Peet et al. (1998), the standard plot can be adapted for unusually high stem densities of woody vegetation (e.g. a dense buttonbush swamp) or unusually low stem densities (e.g. an oak savannah), by sub-sampling or super-sampling the "problem" vegetation. This is accomplished by adjusting the width of the module, as measured from the centerline of the plot by the appropriate percentage. Thus, after laying out a plot in a buttonbush swamp, the shrub stratum is measured in a 5 m x 10 m module by reducing the width of the module by 5 m or 50% (a 50% subsample). The decision to perform a sub- or super-sample is typically made in the field.

Plot orientation

Plots should be placed to minimize within-plot environmental heterogeneity, which implies that the long axis of the plot encounter the least possible variation in these characteristics, unless the heterogeneity in question, would not affect the goal of characterizing the vegetation. In this situation, the particular heterogeneity can be ignored and the long-axis of the plot can be

established without regard to that gradient. This situation occurs most frequently with mixed emergent marshes (see discussion below).

Selecting plot locations - General considerations

Prior to selecting the location of the plots, the investigator should be familiar with the site and its major characteristics and plant communities. This is most easily accomplished by one or several prior site visits where the investigator explores the site, walks the site perimeter, obtains a reasonably accurate measurement of the site, and understands the major hydrogeomorphic and landscape level ecological features surrounding the site.

Depending on the size and complexity of the site and the reasons for studying it, one to several plots may be needed. Smaller or differently scaled plots may be necessary. However, given resource limitations (time, personnel, money), it is also a goal to have the fewest number of plots sufficient to characterize the vegetation at a wetland. Ultimately, the decision of the size, shape, orientation, location, and number of the plots is made by the principal investigator; this information and reasons for the investigator's decision should be documented in the field notes for the site.

As opposed to fixed transect, random plot, and plotless methods of vegetation sampling, this method requires the investigator to qualitatively locate a plot or plots in locations which most representative of the plant community or communities of interest at a wetland. For the purposes of wetland IBI development or wetland condition assessment, the goal is to correlate a wetland's aggregate vegetation characteristics (quality) to measures of wetland disturbance and quality. Since the goal is not just plant community classification but also biological assessment, deciding where to place a survey plot

should be based on both of these goals. Where the purpose is assessment of a wetland to determine its antidegradation category under Ohio Administrative Code (OAC) Rule 3745-1-54, the goal in locating a plot (or plots) is to best characterize the regulatory category of the wetland. A plot or plots should be located within areas of the wetland that are most representative of the communities present. Where the purpose is to assess the success (or failure) of a wetland mitigation site, the goal is again to locate a plot or plots in areas that are representative and typical of the mitigation site. For example, if the mitigation wetland has a small vegetated fringe of say 5% of the site and the rest of the site is unvegetated open water, the plot should be located such that focus of the plot is on the failed "pond" area.

At most sites, a "standard" plot will be established consisting of a 2 x 5 array of 10 m x 10 m modules, i.e. 20 m wide by 50 m long (equals 1000 m² = 1 are = 0.1 ha), within the jurisdictional boundary of the wetland and within each vegetation community of interest.¹ In some instances, heterogeneity of vegetation or environment, researcher time, or significance of site will make a standard 0.1 ha plot inappropriate or impractical. Where the standard plot will not fit or will be inadequate or heterogeneous, the size or shape of the plot should be modified to obtain a representative sample of the community of interest. According to Peet et al. (1998), numerous plot configurations are possible. Where a standard 2 x 5 plot of 1000 m² will not fit, a 2 x

2 plot of 400 m² can be a good substitute. Strips of two, three, four, or five modules can also be used where homogeneity considerations limit the number of modules (Figure 1). Peet et al. in one extreme case "stretched" a module to a 2 m x 50 m shape to accommodate a narrow rockface on a steep slope, or they sampled a ridge line using 1 x 5 array. They also state that where site conditions warrant it is even possible to change the shape of the module to ensure homogeneity although this should normally be avoided for reasons related to spatial autocorrelation. For very small wetlands, e.g. <0.1 ha), the entire wetland can be censused rather than sampled, i.e. all species in the wetland are counted and measured.

Selecting plot locations - Specific guidelines

The following are specific plot location rules for locating plots to sample Ohio wetland communities:

1. Emergent communities. In mixed emergent marshes water depth generally decreases towards the upland boundary and the vegetation is zoned in narrow to broad bands. Typically, a narrow shrub zone gives way to a broad emergent zone which grades into a floating-leaved marsh to open water zone. In this situation, a sampling plot should be located such that the intensive modules are located within the emergent zone but the "tails" (ends) of the plot include portions of the shrub and aquatic bed zones. It is important to include the presence and percent cover of the species in the shrub and floating-leaved zones, but the main focus should be on the emergent zone. Since the majority of mitigation wetlands are emergent communities, care should be taken to locate sample plots in areas that are typical of the vegetation (or lack thereof) at the mitigation site being sampled.

¹ Peet et al. (1998) recommend 1000 m² area for forest inventory of rich mesic forests and numerous North American forest studies have employed a 1000 m² plots. This size plot is similar to the area recommended by Mueller-Dombois and Ellenberg (1974), i.e. 200-500 m².

In sedge-grass dominated emergent communities (fens, wet prairies, sand prairies), the overall vegetation is often more uniform and does not exhibit the strong zonation of many mixed emergent marshes. Plots can be located in areas where the sedge-grass community is representative even if this is well away from the wetland edge, although shrubby areas or areas of deeper water like small prairie pothole marshes within a wet prairie can be included.

2. Shrub communities. Large, homogenous shrub swamps can be sampled in a manner similar to forest communities and sedge-grass emergent communities. However, many shrub swamps are relatively small and are surrounded by areas of upland forest and have a narrow forested fringe with an open canopy above the shrub swamp. In this situation, it is important to include the more shallowly inundated forested fringe within the plot, since a lot of the species diversity is around the shallow margins of the pool. It is easy to locate the side of a plot such that it includes this shaded margin, with the main body of the plot located in the unshaded areas of the shrub swamp. In addition, it is often easier to lay out a plot in a shrub swamp by first laying out this shaded 50 m side line and then placing the shorter 20 m perpendicular to this line. This minimizes the distance you need to travel through the dense shrub zone where sight lines are often very restricted and movement difficult.

3. Forest communities. Locating plots within wetlands with a closed canopy of trees (vernal pools, wet woods, densely vegetated forest pools) is generally very straight forward since the issue of zonation that occurs in many marshes is not present. If the forest is mature, the plots should be located to ensure the mature canopy is properly

characterized. Microtopographic features (hummocks, coarse woody debris) should be included in the plot since much of the plant diversity in the herb layer will be located there. In some instances it may be necessary to locate part of plot along the upland edge of the pool to adequately characterize a forested wetland; in others, the plot can be located well within the upland edge. Small forested wetlands often make it difficult to locate a standard plot and alternate configurations (e.g. 1 x 5, 2 x 2) may be necessary.

4. Wetlands with multiple dominant plant communities. Codominant communities within a single wetland should be sampled with completely separate plots and data from each should be analyzed as if it were the only community present. Thus, forested wetland data sets should only be graphed and analyzed with other forested wetland data sets.² Wetlands with a single dominant community with small amounts of other communities, e.g. the buttonbush swamp with a narrow forested margin, the emergent marsh with a narrow shrub margin or small pool with floating aquatic plants, should be sampled using the plot location rules outlined above which require that the marginal community be included in the plot but not be the focus of the intensive modules.

5. Wetlands with multiple HGM classes. It is a relatively frequent occurrence to have a single

² However, from a bioassessment, use attainment, or antidegradation categorization perspective, a single wetland with two co-dominant communities should be assessed or categorized by looking at the result that gives you the best answer, e.g. the forested community has a Category 3 VIBI score while the buttonbush community has a Category 2 VIBI score: the wetland is categorized as a Category 3 wetland.

large “wetland” comprised of multiple hydrogeomorphic (HGM) types. For example, a slope wetland (usually a forest seep or fen) may be contiguous with a riverine mainstem wetland (often a floodplain swamp forest). In this situation, separate plots should be established in each HGM type. The wetland classification system for Ohio wetlands (Mack 2004a) should be used to define HGM classes. The scoring boundary rules developed for ORAM v. 5.0 regulatory categorization purposes (Mack 2001a) can also be used to define “assessment units.” In order to use the ORAM, a “scoring boundary” needs to be established in order to determine what is being assessed and what is not. The main rule is that where strong changes in hydrology occur, wetland areas can be scored separately even if they are contiguous to each other. Thus, where a wetland can be split into separate scorable areas, separate sample plots should be established in each scoring area and the data evaluated, analyzed and used as if they were two geographically separated wetlands. For example, Watercress Marsh is a large wetland complex at the headwaters of the Mahoning River in Columbiana County. A large, sloped, tall shrub fen is present on one side of the complex; the rest of the marsh is primarily a cattail or floating leaved marsh with shrubby margins. The hydrology of the fen is driven by calcareous ground water expressing along the slope. The marsh areas receive this ground water but are also fed by run off from the watershed. The marsh is also very disturbed by nutrient enrichment from nearby farms and former road construction; the fen appears to be largely intact and very floristically diverse. Because of the hydrologic discontinuity at the base of the slope fen to the flat marsh, separate scoring boundaries can be established around these two hydrogeomorphically (and floristically) distinct

communities.

6. Assessing localized versus global disturbances.

It is a not uncommon situation, that a wetland has localized areas of disturbance (filling, cutting, invasive plants) that are relatively minor elements of the wetland’s overall plant community(ies). In this situation, a plot should be located such that this minor area of degradation is not included. Alternatively, large portions of a wetland can be disturbed or show signs of expanding disturbance (invasive plants, nutrient or toxic “plumes”, etc.), while other areas appear intact or relatively intact. In this situation, a decision should be made as to whether to sample the disturbed area in the same plot, in another plot, or not at all. This answer will vary depending on the purpose for sampling (regulatory categorization, IBI development, assessing degree of disturbance and causes, etc.)

7. Minor upland intrusions into a plot. In some instances, areas of upland impinge on the plot. If this occurs the plot location can be adjusted or plants growing in these areas can be ignored during data collection and a notation made on the field data sheets. This is different from “upland” microtopographic features like hummocks in the margins or centers of wetlands. These should be included in the plot.

8. Applying the data. Once the data from a plot has been collected and analyzed the results need to be used. Depending on the purpose for sampling, the following rules apply: (a) when the purpose is regulatory categorization under the wetland antidegradation provisions of OAC Rule 3745-1-54, the “best” answer is used. Thus, if multiple plots are used to assess a single wetland with co-dominant plant communities, the plot with the highest VIBI score is used to define the regulatory

category of the wetland; (b) When the purpose is to collect reference wetland data, the "answer" from all plots can be used. Thus, the data from each plot can be used as part of the appropriate data set: dominant plant community (forest, emergent, shrub); HGM class (depression, riverine, slope, etc.); condition (reference standard, etc.).

Laying out a plot

Once the general location, orientation, and size of the plot is determined, the plot must be measured, laid out, and marked on the ground. For the standard 2 x 5 plot, Peet et al. (1998) recommend laying out the center line and placing permanent markers every 10m along this line. Then 20 m tapes are laid perpendicular to the center at the 0 m, 10 m, 20 m, 30 m, 40 m, and 50 m points to mark the outside points of the plot. For most emergent communities, only the corners of the intensive modules need to be marked and the outer corners of the plot visually identified; but in forested wetlands and shrub swamps it is very helpful to mark every corner to obtain an accurate stem count. If the center line and the sides are marked from the base, a frequent problem is having the sides of the plot converge due to small deviations in compass bearings. The latitude and longitude of the permanent stake as well as the bearing of the center line should be determined and recorded. For dense shrub swamps, it is often easier to lay out the side of the plot (50m) along the edge of the wetland first and then run 20m lines into the shrub thicket.

The modules in the plot are numbered *counterclockwise*, starting with the first module on the baseline to the right of the centerline and proceeding down to the end of the centerline and then back to the baseline (Figure 1). Conversely, the corners of the modules are numbered

clockwise, starting at the centerline and moving up or down the centerline to avoid having nested quadrats being placed side by side (Figure 1).

Selecting the intensive modules and locating the nested quadrats

In a standard 2 x 5 plot, intensive modules are generally be located in the center of the plot to ensure that the contents are as representative as possible and to reduce subjective bias associated with starting the tape in close proximity to these modules. For the standard plot, Peet et al. (1998) recommend modules 2, 3, 8, and 9 as the intensive modules (Figure 1). For other plot configurations, e.g. 2 x 2 or 1 x 4, all of the modules should be treated as "intensive" modules and the nested quadrats be located in the same positions as modules 2, 3, 8, and 9 of the standard 2 x 5 plot. For longer plots like 1x10 plots, every other module can be selected as intensive (e.g. 2, 4, 6, 8). Sometimes after sampling of a plot has commenced it is determined small portion of a module is located outside of the wetland edge. In this situation, the problem area or corner can be omitted. Peet et al. (1998, p. 269-270) state, "In the typical 0.1ha configuration [2 x 5 plot], two series of nested subquadrats are recorded for each of the four intensive modules, each series being located in a standard fashion that associates its common corner with a fixed stake. Use of the recommended corners distributes the nests and prevents nests from being adjacent. If disturbance or other unusual conditions suggest that a specific corner would be inappropriate, it is possible to switch corners, omit corners, or omit portions of a module."

Background information and plant community and HGM class

A critical prerequisite to calculating a

VIBI score is to properly classify the wetland type and its plant community or communities. This will ensure that the correct VIBI (Table 4), VIBI metrics (Table 3), and metric scoring ranges (Table 2) are used for the data collected in the necessary plot or plots. The Wetland Classification System for Ohio wetlands was discussed and evaluated in detail in *An Ordination and Classification of Wetlands in the Till and Lake Plains and Allegheny Plateau Regions* (Mack 2004a) (Tables 8A and 8B) and is summarized on the reverse side of the Field Data Sheets (Appendix A). The header information on Field Data Sheets 1 and 2 require the investigator to classify the dominant plant community and HGM class within the area sampled in addition to other background information. General information on the wetland being sampled should be summarized on the Background Information Form (Appendix A). In addition, the Narrative and Quantitative Ratings for the Ohio Rapid Assessment Method for Wetlands (ORAM) should also be completed (Mack 2001a).

Sampling period

The basic sampling period for use of this method to calculate a Vegetation IBI score is June 15 to September 15. However, certain wetland types with a high predominance of spring and early summer blooming species should be sampled in the beginning of the sample window. A spring or early summer site visit to collect and identify early blooming and fruiting sedges at sites with a high proportion of these species (e.g. fens, wet prairies, and Lake Plains sand prairies) is helpful when the site will not be sampled until later in the summer. In some instances, the wetland may need to be visited the following year if expected species are not observed or cannot be reliably identified or their abundance estimated during sampling late in

the sample period, e.g. skunk cabbage seeps late in the season when the leaves are dying back.

Collecting quantitative vegetation data

The minimum field crew for this sample method is 2 and the recommended crew is 3. *It is necessary that one person be proficient in identifying Ohio's wetland flora in fruit, flower, and vegetatively including difficult groups like the Cyperaceae and Poaceae.* Users who are not so proficient, should collect and preserve for later confirmation by an experienced botanist specimens most or all plants encountered in a plot.³ Peet et al. (1998) recommend that the investigator most experienced with the local flora complete Data Sheet 1 (Appendix A) and the other persons do all of the other data collection (Data Sheet 2 and 3, clip plots, soil and water sampling, etc.). This has also worked out to be the most efficient field crew arrangement for Ohio EPA.

All vascular plant species within the modules must be identified to the lowest taxonomic level possible using vegetative, floral, and/or fruiting characteristics. In most instances this will be species or genus, except for the varieties and subspecies listed in Appendix C (Andreas et al. 2004). Immature plants or plants missing structures (e.g. fruiting bodies, etc.) that cannot be identified to species should be identified to genus. Otherwise, record the plant as unknown and make a notation as to its type (graminoid, monocot, dicot, forb, etc.). If several unknowns of the same type are present but are obviously different species, they should be distinguished by assigning a number, e.g., unknown graminoid #1, #2, etc. Time and conditions in the field will make keying plants in the field difficult. If a

³ Essential botanical texts are listed at the end of this manual.

positive sight identification cannot be made in the field, the plant *must be* collected for later identification (See discussion below regarding voucher specimens).

Presence data is recorded in the form of a couplet with the first column used for the "depth" (see definitions) at which a species is first recorded as present and the second number of the couplet is for the cover class assigned to that species. The column in which this couplet is recorded has a heading comprised of the module and corner number (e.g. 2-2, 2-3, etc.), except for (where applicable) an aggregate pair headed R-R (for "releve" level) that contains species first recorded in an aggregate of modules that are supplemental to those sampled intensively (residual modules) (See Field Data Sheet 1, Appendix A). According to Peet et al. (1998, p. 270-273),

“Within a typical intensive module, presence data are recorded for two corners. The normal eight corners for nests are 2-2, 2-4, 3-2, 3-4, 8-2, 8-4, 9-2, 9-4. Starting in the first corner (corner 2) of module 2 (2-2 in the standard 2x5 plot), all species rooted in (having a stem or stems emerging in) a 0.31.6m x 0.31.6m (0.1m²) subquadrat are listed and assigned a value of 4 in the left column (labeled “depth) of the pair of data columns for module 2 corner 2.⁴ A 1.0 x 1.0 m (1.0 m²) subquadrat is then surveyed and new species encountered are assigned a value of 3, followed by a 3.16 x 3.16 m (10m²) subquadrat with new species assigned values of 2.....The presence survey is then repeated in the second corner of the module (typically corner 4 in module 2). The

presence values are again recorded in the left column of the pair for this corner at levels 4, 3, and 2, with new species names added as needed....The presence survey is completed by listing all species within the module that were not encountered in a set of nested subquadrats and assigning each of them a value of 1, which is recorded in the first column surveyed (i.e., they occurred at level (depth) 1, which is the full 100m², an area shared by all nests within the module). Cover data for the module are recorded next. When more than one column is available for recording cover in a module (which will be the case whenever more than one nest is recorded), only the first available column is used, and the others are left blank. Cover is recorded after all nests in a module have been completed, thereby assuring a complete species list and maximizing time for familiarization with vegetation in the module.”

In summary, all species with stems covering any portion of the focal module should be listed and each of these species has a depth value of 4 (0.1 m²), 3 (1 m²), 2 (10 m²), or 1 (100 m²). Cover values are assigned using the cover classes in Table 1 for every species. This includes both herbaceous and woody (trees, shrubs, and vines) species, regardless of height. The midpoint of the cover class is then used in all subsequent analyses.

⁵ The updated version of field data sheet 1 included in this manual only contains a single column for cover class data per module.

⁴ Peet et al. (1998) state that a 0.1 x 0.1 m (0.01m²) nested subquadrat can be sampled and marked depth 5. This level of resolution is not necessary for the purposes of this study and the smallest subquadrat recorded will be 0.1m². This is the size of the clip plot used for peak standing biomass estimation.

Measuring woody vegetation

For woody vegetation, stem counts should be made and basal area measured for all trees, shrubs and woody vines, including standing dead trees and shrubs, greater than 1 meter tall, with the exception of multi-stemmed shrubs, e.g. buttonbush. Shrubs with multiple stems from the same root (genets) can be counted once as a "shrub clump" and analyzed with the 0-1cm size class. The diameter classes and midpoints in Table 1 should be used, with stems greater than 40 cm measured to the nearest tenth centimeter and counted and analyzed individually. The midpoints of the class should be used to calculate basal area by class. All woody stems located within the plot should be counted and measured including stems in the residual modules. Data should be recorded for each module separately. For example, in a typical 2 x 5 plot, woody stems are counted, measured, and recorded for module 1. Then the investigators move to module 2 and count, measure, and record all woody species in module 2, and so on (see Field Data Sheet 2, Appendix A).

Measuring standing biomass

Standing biomass (emergent wetlands only) should be estimated by harvesting to ground level all plants rooted in 0.1 m² (1000 cm²) square quadrats (31.6 cm x 31.6 cm) located in the nested corners (corners 2 and 4) of the intensive modules.

Alternatively, the corners opposite the nest corners (corners 1 and 3) can be used if harvesting clip plots will interfere with species identification in the nested quadrats. Clip plots are usually collected on the same day vegetation sampling of the plot is done unless it is apparent that the plot is not at or approaching peak biomass, in which case the clip plots should be collected later. All plants within a quadrat should be cut at the soil surface and placed into paper sample bags (grocery bags

work well).⁶ It is helpful to air dry the paper bags by placing them loose in a ventilated truck cap and allowing air to circulate around them when driving back from a sample site. If this is not possible bags be placed loosely in open baskets or boxes where they can air dry thoroughly if they are not immediately placed into an oven. The bags should be oven dried at 105 °C for at least 24 hours. Once the bag is dried, the bag (with the sample inside) should be weighed on scale accurate to one tenth of a gram (total weight). The bag is then emptied and the reweighed (bag weight). The bag weight is subtracted from the total weight to give standing biomass per 0.1 m². Samples from all eight bags are then averaged and converted to grams per meter squared.

Optional: Measuring physical attributes of the site

In addition to the quantitative vegetation data collected, various physical attributes of the wetland being sampled may also recorded (Field Data Sheet 3). These include depth of standing water, depth to saturated soils, litter depth, number of tussocks and hummocks, number of standing dead trees (snags), amount of coarse woody debris, microhabitat interspersions, physical characteristics of soils (color, texture, redox features, etc.), and where necessary pH and temperature of standing water.

Grab samples of soil and water may also be collected at the time other data in the plot is collected. Soil samples are collected from the center of the plot unless conditions at the wetland (depth of water, substrate characteristics, etc.) make this infeasible, in which case an alternative

⁶ Only rooted emersed and floating aquatic plants are harvested in the clip plots, Floating aquatic plants are not harvested, e.g. *Ceratophyllum* sp., *Utricularia* sp., *Elodea* sp., *Lemna* sp., *Spirodela polyrhiza*, *Wolffia* sp., etc.

representative sampling location is identified. Soil samples are taken from the top 12 cm of soil. Samples can be collected with a soil probe or with a bucket auger. Samples should be oven dried at 105 °C for 24 hours, ground and passed through a 2mm sieve and then analyzed for the following parameters using the methods specified in *Recommended Chemical Soil Test Procedures for the North Central Region*, North Central Research Publication No. 221 (Revised January 1998) or equivalent methods: total organic matter, available phosphorus (Bray P1 extraction), exchangeable potassium, magnesium, calcium, hydrogen, bulk density, and pH. Total carbon and total nitrogen should be measured using a LECO 2000 Analyzer, U.S. EPA Method 415.1 (Organic Carbon, Total, Combustion or Oxidation), SM 5310B (Total Organic Carbon (TOC): Combustion-Infrared Method), or other equivalent methods for measuring %carbon and %nitrogen.

A grab sample of water, if present, should be collected within or near the vegetation sampling location. Grab samples for water are collected by directly filling one quart cubitainers with water from the wetland. Samples should be packed in ice. The samples should be analyzed for pH, temperature, ammonia-N, nitrate-nitrite, total phosphorus, total organic carbon, specific conductivity, turbidity, total solids, total suspended solids, and chloride.

Preserving voucher specimens and assigning voucher numbers

Voucher specimens should be regularly collected, especially the more taxonomically difficult genera and families. Proper calculation of the Vegetation IBI requires that all plant species, including very difficult genera and families like *Carex*, the Cyperaceae, and the Poaceae, that are capable of identification

vegetatively, in flower, and/or in fruit, be identified to the lowest taxonomic level possible. Experienced botanists can identify many plants to species or at least genus in vegetative condition and this type of proficiency is expected for accurate calculation of a VIBI.

Although resources often make collecting vouchers of every vascular plant infeasible, a general goal is the collection of a voucher specimen for at least 10% of the vascular plant species observed at any given site. An excellent procedure for new users of this method is to collect every 5th, 10th, or 20th plant such that 10% of the species observed at a site are collected for later confirmation by an experienced botanist. At floristically diverse sites, the number of necessary voucher specimens will be higher; at very depauperate sites with very common wetland species, no vouchers may be needed. However, in every instance in which the identity of any species cannot be confirmed in the field, or where field personnel disagree as to the identity of a species, a voucher specimen should be collected for identification in the office. In particular, species in difficult genera and families, e.g., Cyperaceae and Poaceae, should almost always be collected until frequently encountered wetlands species are able to be reliably and consistently identified in the field.

Ohio EPA uses the following procedure for collecting and maintaining plant vouchers. In the field a large plastic bag is used as a vasculum.⁷ Individual specimens are placed in gallon sized ziplock bags. Often 1 gallon bag per intensive

⁷ A "vasculum" is container for collecting plants in the field for later pressing. Traditionally, a vasculum is a metal container with a sealable opening and a carrying strap. Heavy duty ice bags or garbage bags can make portable vasculums.

module can be used. These individual plastic bags are then placed in the vasculum. The specimen is given a unique voucher number in the field. This is recorded on the Field Data Sheet and can also be written on the plastic bags. This double-bagging procedure has the advantage of keeping specimens fresher in hot weather and also keeping fragile specimens and plant parts retrievable, e.g. sedges that are well past fruiting. After sampling a plot, plant specimens are placed in a larger cooler half full of ice to keep the specimens fresh and arrest decomposition in hot weather.

After returning to the office, specimens are immediately pressed in plant press⁸ or, if this is not possible, placed in a refrigerator (Figure 2). Woody and graminoid specimens can often be maintained for 1 to 2 weeks this way. More fragile flowering plants or ferns *may* maintain their condition for a few days. All voucher specimens at Ohio EPA are placed in a plant press, although specimens can also be identified and confirmed fresh if time permits. Confirmation by an outside botanist will almost always require pressing voucher specimens. Ohio EPA presses specimens between sheets of newspaper. On the inside of the paper, the voucher number, plant name, date collected, county collected, and site collected are written directly on the newspaper in indelible ink.

After the press is filled up, it is placed on its side on a plant press drier for several days. This is a simple wood frame with three 100 watt light bulbs in the bottom that allows warm, dry air

⁸ A plant press is made of 2 wood frames (riveted oak slats or ply wood), multiple corrugated card board ventilators and felt blotters and newspaper with compression straps. They can be purchased from an herbarium supply company (about \$70) or homemade. The voucher specimen is placed between sheets of newspaper, felt blotters, and cardboard.

to circulate through the press desiccating the specimen and killing many insects and insect eggs (Figure 2). Quick drying also improves the color and quality of the specimen. After drying, specimens are removed in their newspaper, and placed in a subzero freezer for at least a two weeks to kill any remaining insect eggs.

Vouchers are removed from the freezer and stored in air-tight herbarium cabinets until they are identified. Ohio EPA then mounts and retains the specimen in a reference collection or sends the specimen to a local or regional herbaria. Half or full size museum quality herbarium cabinets are available at a reasonable cost (\$500 to \$1000) (Figure 3). Using this procedure, vouchers can be stored indefinitely for later confirmation. Alternatively, specimens can be stored in non air-tight containers or cabinets with moth balls. Ten or 20 gallon storage bins that are large enough to hold specimens can be purchased from local department stores. With moth balls inside, specimens can be maintained in reasonably good condition for long periods if the moth balls are replaced regularly.

Since this may be the only time that a professional biologist ever visits or collects at that particular wetland, it is strongly recommended and encouraged, from a purely scientific perspective, that plant vouchers be collected and retained and then sent on to regional herbaria for permanent preservation. More pragmatically, developing a reference collection, and keeping pressed specimens for later identification and confirmation also is the best, and perhaps only way, to become proficient in identifying Ohio's flora, and in a year or two, will result in noticeable improvements in positive field identification, and a reduction in the number of "unknown" plants that "need" to be collected.

METHODS - DATA REDUCTION, ANALYSIS AND METRIC CALCULATION

The following is a narrative outline of the steps required to reduce and analyze quantitative vegetation data to calculate the Vegetation IBI. Example data and calculations are provided in Appendix B. To calculate the Vegetation IBI requires successive steps of data reduction, calculation, and coding. Once data has been collected, vouchers checked, a final species list with species codes completed, the VIBI can be calculated by hand with a calculator. The procedure outlined here is suggested if more than a few sites are being evaluated at once. As discussed below, Excel™ is the initial data entry and manipulation software. Ohio EPA has developed a dynamic Excel spreadsheet which, after data entry, will reduce, code, and calculate Vegetation IBI metrics and scores for up to 5 individual sites or for one site over 5 monitoring events. It is highly recommended that *Automated Spreadsheets for Calculating and Reporting the Vegetation Index of Biotic Integrity (VIBI) Metrics and Scores* (http://epa.ohio.gov/Portals/35/401/VIBI_DAT_A_TEMPLATE_v2015-04-15.zip; Schmucker and Gara, 2015) be used to calculate VIBI scores. A manual approach to data reduction is discussed below.

STEP 1 - 1st data reduction (Field Data Sheet 1)

Immediately after leaving the site, the lead investigator should review the field data sheets for missing data points especially missing cover class values. If the investigator can recall the cover class of species with missing data, the estimated class should be recorded, otherwise record "md" (missing data) in the cover class column. Emendations should be noted with reviewer's

initials.

After the data sheets have been reviewed, raw data from field data sheets should be entered into a spreadsheet or database. Using a spreadsheet, an electronic version of the field data sheet is created (Appendix B) with site name, date, species, voucher number, notes, module, corner, and cover class. Background information (investigators present, lat-long, etc.) can be entered in a separate tab of the spreadsheet. Any vouchers collected should be identified or confirmed and the species list in the 1st data reduction amended to reflect changes in species names. After the initial data entry, the spreadsheet should be printed and the entered values compared to the field data sheet for errors. Standardize the file name convention for the spreadsheet (or database) which houses raw data, e.g. 1st reduction plant data 2004.xls.

STEP 2 - Second data reduction (Field Data Sheet 1)

Using the 1st reduction spreadsheet, save it as a new file that can be called, e.g. 2nd reduction_plant_data_2004.xls. Strip off (delete) the level information from the spreadsheet leaving only site name, date, species name, module number and cover classes (Note: on field data sheet 1, the level is the first number of the couplet; the second number is the cover class for that species in that module). Any species which could not be identified to at least genus should be deleted from the data set here. Any plant that could only be identified to genus is retained as separate "species" in the data set, if it can be confirmed that, even though the particular plant is not identifiable to species level, it is definitely different from other member(s) of that genus observed at the site. For example, *Carex lupulina* and *Carex grayi* are both collected at a buttonbush swamp along with one other *Carex* spp. that is

vegetatively distinct from *C. lupulina* and *C. grayi*. The unidentified *Carex* is retained as a separate species as *Carex* #1. For this buttonbush swamp, the *Carex* metric value is 3 and the *Carex* metric score is 3 (Table 2). If it is not clear that the unidentified *Carex* is different from the two known species, the unidentified *Carex* data should be deleted from the spreadsheet at this step. If multiple plants are observed but can only be identified as belong to the same genus, their cover values should be merged and analyzed as a single “species.” For example, what appear to be several different immature specimens of sedges in the Ovales group are collected at a site and recorded as *Carex* #1, *Carex* #2, and *Carex* #3, but they cannot be definitely identified or confirmed as different. Cover values for all three are merged and the plant is recorded and analyzed as *Carex* sp. The *Carex* metric value for this site is 1 if these were the only carices identified and the metric score is 0 (Table 2).

Next, the cover class numbers (0 to 10) should be recoded to the midpoint of that cover class (Table 1). For example, a plant was assigned cover class "5" (5-10% cover). The number "5" should be recoded to 0.075 (7.5%), which is the midpoint of the 5-10% cover class. Where data from a single site is being analyzed, this can be done manually or by using FIND/REPLACE command in Excel. If multiple sites are being recoded, it is recommended that a statistical program like Minitab or SPSS be used that can perform large data recoding operations with no errors. The data can be temporarily imported into the statistical program, recoded, and then copied back into Excel. Alternatively, a database can be developed which automates this operation.

Once the cover classes have been recoded to cover midpoints, the relative cover of each plant

species at the site must be calculated. This is a critical value for several VIBI metrics. Relative cover is calculated by summing the cover midpoints for each species ($\sum A_i$). Next, the total cover per species is summed to yield the total cover of all species at the site ($\sum A_{i,j}$). Then the total cover for each species is divided by the total cover for all species to obtain relative cover for each plant species, or

$$RC = \sum A_i / \sum A_{i,j}$$

where A_i = the percent cover midpoints recorded for a species (total cover for each species), and $A_{i,j}$ = total cover of all species A_i, A_j , etc. Relative cover should be calculated including the cover of bryophyte species in the total cover of all species at a site.

STEP 3 - 3rd data reduction (Field Data Sheet 1)

The final data reduction step is to proof and edit the 2nd reduction spreadsheet for calculation errors, misspellings of plant names, and other data entry errors. Once this is done, the various species, genus, family, and FQAI codes necessary to calculate VIBI metrics should be added as columns in the spreadsheet. Most codes necessary to calculate VIBI metrics are in Appendix C. The following coding columns should be added to the spreadsheet for the 3rd reduction: lifeform (tree, shrub, forb, etc.), group (dicot, monocot, etc.), habit (annual, perennial, etc.)⁹, indicator status (FACW, FAC, etc.)¹⁰, shade tolerance (shade, partial shade (facultative shade), tree, adventive), and Coefficient of Conservatism (0, 1, 2, etc.).

⁹ Note that woody species are coded as "woody" not as "perennials."

¹⁰ Note that the + and - (e.g. FACW+, FAC-) can be ignored and just the main indicator categories used

(UPL, FACU, FAC, FACW, OBL).

In addition, for larger data sets a coding column with the following will be helpful: *Carex*, Cyperaceae, *Cephalanthus*, *Typha*, *Phragmites*, and *Phalaris* with all other species coded as "other."

With these codes, the VIBI metrics can be easily calculated using basic descriptive statistics commands and data manipulations in statistical programs. For example, using Minitab v. 12.0, the "store descriptive statistics" command can be used to calculate number of species by wetland indicator status by site. The output from this operation can be "unstacked" into a site x indicator status table and then the FACW and OBL columns added together to obtain the hydrophyte richness metric for the VIBI-E and VIBI-SH. This type of operation can then be repeated until all metrics are calculated. Again, these data operations can be programmed into a database so that the necessary calculations are performed automatically after the data is entered.

STEP 4 - Woody stem data reduction (Field Data Sheet 2)

As discussed above, woody stem counts and dbh measurements are recorded separately for each module of the plot. The main data reduction task is to merge the counts from each module into a site x species x stem count table with stem counts summed by size class or in the case of trees >40cm dbh, individually recorded (Appendix B). The goal of the woody stem data analysis is to calculate the relative density of trees in the 10-25 cm size classes and importance values of all species at a site. Importance value is the average of relative frequency, relative density, and relative dominance.

Frequency is typically defined as the number of quadrats a species occurs in and relative frequency is the number quadrats a species occurs in divided by the total number of quadrats. For the VIBI metrics, frequency is defined as the number of dbh size classes a species has stems in, and relative frequency is the number of dbh classes with stems of that species divided by all dbh size classes (12).

Density is the number of stems of a species in the plot and is usually recorded as number of stems per hectare. Relative density is the number of stems of a species divided by the total number of stems of all species. Density and relative density should also be calculate separately for each size class (Appendix C). To calculate size class density, the number of stems in that size class, e.g. 10-15 cm dbh class, are counted and converted to stems per hectare; relative size class density is the number of stems in that size class divided by all stems. To calculate the pole timber (small tree) metric for the VIBI-F, the relative size class density of 10-15 cm, 15-20 cm and 20-25 cm trees must be calculated and then the three relative density values are summed to get the pole timber metric value (Table 3).

The subcanopy IV and canopy IV metrics require the calculation of the average of the average importance value of shade tolerant subcanopy species (small tree and shrub), shade facultative subcanopy species (small tree and shrub), and canopy tree species, respectively. Canopy species are coded as "tree" in the life form column in Appendix C; subcanopy species are coded as "small tree" or "shrub" in the life form column of Appendix C. Shade tolerant species are coded as "shade" in Appendix C and shade facultative species are code as "partial" in Appendix C.

Relative frequency and relative density are calculated as described above. Relative dominance (basal area) is the basal area (m²) per

hectare of each species at a site. Relative dominance is calculated by multiplying the number of stems per hectare in each size class (density) by the midpoint of the size class (Table 1). Each of these basal area values is then added together to obtain the dominance value for that species. Relative dominance is calculated by dividing the basal area of a tree or shrub species by the basal area of all species at a site. The subcanopy IV metric is calculated by summing the importance value of small tree species plus the importance value of shrub species subcanopy species; the canopy IV is calculated by average the IVs of all canopy species.¹¹ Finally, stems of standing dead woody vegetation are included in all forest metric calculations.

STEP 5 - Metric and VIBI Score Calculation

Once the appropriate metric values have been calculated for the VIBI-E, VIBI-E_{COASTAL}, VIBI-SH, or VIBI-F, the metric values are recoded to a metric score of 0, 3, 7, or 10 using the scoring ranges in Table 2. This operation can be automated using a database or easily performed using the recoding features of statistical programs like Minitab or SPSS. Once the metric values have been recoded to the appropriate metric score, the 10 scores are summed and the VIBI score is obtained. This score can then be compared to the wetland aquatic life use and antidegradation category in Table 7 to determine the wetland's regulatory status.

Other attributes

Of course, many other community characteristics can be calculated from the information recorded in a standard plot other than the metrics needed to calculate a VIBI score. Some of this information may be required as part of mitigation performance standards or of interest for other reasons, e.g. ordination of wetland plant

community data.

Wetland Aquatic Life Use and Antidegradation Category

A main wetland program goal in developing wetland specific IBIs is to be able to specify numeric biological criteria for wetlands that correspond to various wetland designated uses. Aquatic life use for wetlands have been proposed (Mack 2004b) with differing biological expectations based on landscape positions, plant communities, and ecoregions in Ohio: limited quality wetland habitat (LQWLH), restorable wetland habitat (RWLH), wetland habitat, and superior wetland habitat (SWLH) (Table 7).

Using Tables 5 to 7, a wetland TALU and antidegradation category (OAC 3745-1-54) can be assigned as described in the following example: the wetland being evaluated is a pumpkin ash (*Fraxinus profunda*) swamp in Fowler Woods State Nature Preserve. This is a swamp forest in a depressional landscape position. After a detailed vegetation survey, a Vegetation IBI score of 76 is calculated. Referring to Tables 1A and 1B in Mack (2004a), this wetland is classified as "surface water depression/swamp forest" and receives the use code "IA1a" (back side of Data Sheets 1 and 2). Referring to Tables 5 and 7, a Vegetation IBI score of 76 is in the SWLH (Superior Wetland Habitat) use range. Finally, Table 6 is consulted and it is determined that the wetland has educational uses as a state nature preserve that is open to the public. The Wetland Aquatic Life use designation can then summarized

as, "SWLH-IA1a_B", where SWLH = means Superior Wetland Habitat, IA1a = surface water depression swamp forest, and the subscript _B = a special use of "educational."

¹¹ Note that a "canopy" species includes immature individuals of that species that are presently located in the subcanopy, with canopy referring to the

ultimate growth habit of the tree species.

The wetland TALUSs correspond to the three antidegradation categories (Category 1, 2, 3) listed in Ohio Administrative Code (OAC Rule 3745-1-54). However, there may be some instances where a wetland shows moderate to substantial impairment, but it is still categorized as a Category 2 or 3 wetland under the antidegradation rule because it exhibits one or more residual functions or values at moderate to superior levels, e.g. water quality improvement or flood retention. Where a "special use" is assigned to a moderately or severely degraded wetland under the wetland TALUSs proposed here, it can serve as an "alert" for antidegradation review purposes that the wetland has a residual function or value that should be protected. In addition, the Narrative Rating in the Ohio Rapid Assessment Method (Mack 2001a) provides for "automatic" categorization of certain types of wetlands regardless of their ecological quality.

DATA REPORTING AND SUBMISSION

Data collected using this method will typically be reported to state or federal agencies. The following information should, at a minimum, be submitted:

- Cover page
 - Narrative (Introduction, Methods, Results, Discussion)
 - VIBI Background Page (Appendix)
 - Copies of all field data sheets (Appendix)
 - List of vouchers and voucher numbers collected
- If manual reduction done
- submit: 1st data
 - reduction tables 2nd data
 - reduction tables 3rd data

reduction tables

Woody stem data reduction tables

Table with metric values, scores, and VIBI score

If the automated spreadsheets are used
submit spreadsheet on CD and attached summary tables to report

HOW TO CALCULATE VIBI METRICS

The various VIBI metrics and metric scoring ranges are summarized in Tables 2 and 3. Below is a detailed narrative description of how to calculate these metrics.

Carex metric. The *Carex* metric is calculated by counting the number of species in the genus *Carex*. The *Carex* metric is used in the VIBI-E (except for Lake Erie coastal marshes) and the VIBI-SH

Cyperaceae metric. The Cyperaceae metric is calculated by counting the number of species in the sedge family (Cyperaceae) including species in the following genera: *Bolboschoenus*, *Carex*, *Cyperus*, *Eleocharis*, *Schoenoplectus*, *Scirpus* (the major wetland genera in the Cyperaceae although other Cyperaceae genera should be counted if they are encountered). The Cyperaceae metric is used in the VIBI-E_{COASTAL} as a substitute for the *Carex* metric when the VIBI-E is calculated for Lake Erie coastal marshes.

Dicot metric. The dicot metric is calculated by counting the number of native, dicotyledon (dicot) species using the nativity and group codes in Appendix C. All of the codes needed to calculate the various Vegetation IBI metrics are included in Appendix C of this manual, the species lookup table of the automated VIBI spreadsheets, and can also be found in Appendix A of the Floristic

Quality Assessment Index for Vascular Plants and Mosses for the State of Ohio (Andreas et al. 2004). A spreadsheet version is downloadable from

http://epa.ohio.gov/Portals/35/401/LU_Veg_Species.html

Only dicotyledon species are counted; monocot (monocotyledon), gymnosperm, or seedless vascular plant (fern, fern allies) are excluded. The dicot metric is used in the VIBI-E and the VIBI-SH.

Shrub metric. The shrub metric is calculated by counting the number of native, wetland (FACW, OBL) woody species that have a "shrub" lifeform using the codes for nativity, wetland status, and lifeform in Appendix C. The shrub metric is used in the VIBI-E and the VIBI-SH.

Hydrophyte metric. The hydrophyte metric is calculated by counting the number of native species that have a FACW or OBL wetland indicator status using the wetland and nativity codes in Appendix C. The hydrophyte metric is used in the VIBI-E and the VIBI-SH.

Shade metric. The shade metric is calculated by counting the number of native species that have shade or facultative shade (partial) tolerance status using the shade and nativity codes in Appendix C. Tree (canopy species) and adventives are excluded. Small trees (subcanopy species) and shrubs are included (Codes for these are provided in the "shade" column of Appendix C). The shade metric is used in the VIBI-F.

Seedless Vascular Plant (SVP) metric. The SVP metric is calculated by counting the

number of seedless vascular plants (ferns and fern allies) using the group code in Appendix C. The SVP metric is used in the VIBI-F and VIBI-SH.

Annual/Perennial metric. The annual/perennial (A/P) metric is calculated by dividing the number of annual species by the number of perennial species using the codes for reproductive habit (annual, perennial, biennial, woody) in Appendix C. The A/P metric is used in all versions of the VIBI-E.

FQAI metric. The FQAI (Floristic Quality Assessment Index) metric is calculated by using Equation 7 in Andreas et al. (2004):

$$I = 3 (CC_i) / 4(N_{\text{all species}})$$

where I = the FQAI score, CC_i = the coefficient of conservatism of plant species i , and $N_{\text{all species}}$ = the total number of species both native and non-native (Fennessy et al. 1998a, 1998b; Lopez and Fennessy 2002). The FQAI metric is used in all variations of the VIBI.

%bryophyte metric. The %bryophyte metric is calculated by summing the relative cover values for all bryophyte species (all moss species plus the aquatic liverworts *Riccia* and *Ricciocarpos*). When completing Field Data Sheet 1, the cover of mosses and aquatic liverworts, individually or in the aggregate, should be recorded. Mosses do not need to be identified to any level beyond moss ("true" mosses or Musci of Division Bryophyta), or can be recorded as Moss #1, Moss #2, etc. All cover values assigned to mosses or aquatic liverworts are summed into an aggregate bryophyte "species" and the relative cover of bryophytes calculated as described above.

%hydrophyte metric. The %hydrophyte metric is

calculated by summing the relative cover value (as calculated above) for native, shade and partial shade hydrophytic plant species using the nativity and indicator status codes (FACW, OBL) in Appendix C. The %hydrophyte metric is used in the VIBI-F.

%tolerant metric. The %tolerant metric is calculated by summing the relative cover values of all species, including adventive species, with Coefficients of Conservatism of 0, 1, and 2 using the coefficients in Andreas et al. (2004) (Appendix C). The %tolerant metric is used in all variations of the VIBI.

%sensitive metric. The %sensitive metric is calculated by summing the relative cover values of all species with Coefficients of Conservatism of 6, 7, 8, 9 and 10 using the coefficients in Andreas et al. (2004) (Appendix C). This is the calculation for the VIBI-E and VIBI-F. For the VIBI-SH, the relative cover of buttonbush (Cephalanthus occidentalis) is deducted from the sum of relative cover values of species with C of C's of 6 to 10.

%invasive graminoid metric. The %invasive graminoid metric is calculated by summing the relative cover values of reed canary grass (*Phalaris arundinacea*), cattails (*Typha angustifolia*, *T. latifolia*, *T. x glauca*), and giant reed (*Phragmites australis*). The invasive graminoid metric is used in the VIBI-E.

Pole timber (small tree) density metric. The pole timber metric is calculated by summing the relative density of tree species in the 10-15 cm, 15-20 cm and 20-25 cm size classes. Relative density of a tree species is calculated by dividing the number of stems counted for that species on Field Data Sheet 2 (woody

stem) by the total number of stems of all species counted (see above). The pole timber metric is used in the VIBI-F.

Subcanopy IV metric. The subcanopy importance value (IV) metric is calculated by summing the average importance value of native shade tolerant subcanopy species (shrubs and small trees) plus the average importance value of native facultative shade subcanopy (shrubs and small trees) species using the nativity, lifeform, and shade tolerance codes in Appendix C. Subcanopy trees are coded as “small trees” in Appendix C and are tree species which at maturity do not reach the canopy of the forest, e.g. *Carpinus caroliniana*. The subcanopy metric is used in the VIBI-SH and VIBI-F, except that for leatherleaf bogs (shrub community with shrubs <1m tall), substitute the % invasive graminoid metric.

Canopy IV metric. The canopy importance value (IV) metric is calculated by averaging the importance values of native canopy (tree) species using the nativity and lifeform codes in Appendix C. Canopy tree species are species which at maturity will grow in the canopy of the forest, even though at the time of the sampling immature individuals are growing in the subcanopy. The canopy IV metric is used in the VIBI-F.

Biomass metric. The biomass metric is calculated by averaging the the grams per square meter of standing biomass samples (usually 8) collected in a standard 2x5 plot. Standing biomass is typically sampled by collecting eight 0.1m² clip plots of standing biomass (vegetation) in the corners of the intensive modules of a standard plot. The biomass metric is used in the VIBI-E.

%unvegetated metric. The %unvegetated metric is calculated in two steps. First, the percent unvegetated open water and bare ground (top lines

on Field Data Sheet 1) are summed. Note that these are true estimates of the percent of a module that does not have vegetation and not the relative cover of unvegetated areas. Next, the relative cover annual species is calculated using the growth habit codes in Appendix C. The percent unvegetated area and the relative cover of annual species are summed to obtain the %unvegetated metric value. This metric is used a substitute for the biomass metric when the VIBI-E is used for emergent mitigation wetlands, although the biomass metric value should also be calculated and reported.

Cover-weighted CofC. The relative cover for each vascular plant species recorded within the plot is multiplied with the C of C assignment for that species. This value is then summed for all species present in the VIBI plot. The cover-weighted CofC metric is only used for the VIBI-FQ.

EQUIPMENT AND SUPPLIES

In order to sample a plot using the methods outlined in this manual, the following equipment will be needed:

100m measuring tape
clip boards (3)
Data Forms (Appendix B) on waterproof paper
Waterproof field notebook
Waterproof pens
Compass
GPS unit
0.1m² and 1 m² quadrat
frames¹³ dbh measuring tape
(cm) Regular measuring tape
(cm)
1m stake flags (18 per plot) (flourescent pink

recommended)

Flagging tape (flourescent pink recommended)
1m permanent stake (rebar or oak survey stake)
Plant press(es)
Vasculum or large garbage size bags and 1
gallon freezer bags for individual specimens)
10x hand lens
Munsell soil color chart
Soil probe, soil auger, and soil sampling
containers
Water sampling containers and preservatives
Ice chest
Chest waders and hip boots
Water bottles
Emergency medical kit Camera
Shovel (shooter spade)
Pruning shears
Grass shears
Paper bags (grocery bag size), permanent marker,
and stapler for clip plots

¹³ A hinged quadrat frame is the easiest to use in the field. A simple design is to cut a piece 1x2" hardwood (poplar, oak) into the appropriate lengths (31.6cm and 1m) and attach a simple strap hinge. The frame folds flat for easy storage and carrying and is very easy to slide into dense vegetation.

BASIC OHIO BOTANICAL TEXTS

Essential texts

Persons already proficient in Ohio field botany will be familiar with most of these texts. Persons needing to gain the botanical proficiency necessary to use the methods described in this manual should acquire or have access to the following botanical texts and field guides:

Manual of Vascular Plants of Northeastern United States and Adjacent Canada, 2nd Edition (Gleason and Cronquist 1991). This is the best and most complete all around key for the flora of Ohio. It can be usefully supplemented by referring to published volumes of the Flora of North America for new species and nomenclatural changes as well as by referring to Andreas et al. (2004).

The Illustrated Companion to Gleason and Cronquist's Manual (Holmgren et al. 1998). The essential companion volume with excellent line drawings of all species in the manual.

The Monocotyledonae of Ohio (Braun 1967). A little out of date but still an excellent reference for the Ohio species of the Poaceae and Cyperaceae as well as other monocots.

The Woody Plants of Ohio (Braun 1961). An essential text for identifying woody species in twig and leaf. Other texts generally require fruiting and/or flowering material which is usually lacking during wetland vegetation surveys.

Newcomb's Wildflower Guide (Newcomb 1977). An excellent "genus" key for unknown flowers, shrubs and vines. The best beginners guide to "showy" flowering plants available. Unfortunately, there is presently no published equivalent of *Newcomb's Wildflower Guide* for grasses,

sedges, and rushes. Most or all published non-technical guides to grasses, sedges, and rushes are of relatively limited utility because of their incomplete coverage of species and lack of keys.

How to Identify Grasses and Grasslike Plants (Harrington 1977). An indispensable picture glossary of technical characters for grasses, sedges, and rushes. Excellent for persons attempting to become proficient in these difficult groups.

Floristic Quality Assessment Index (FQAI) for Vascular Plants and Mosses for the State of Ohio (Andreas et al. 2004). While not intended to be a flora and not containing taxonomic keys, this is complete summary of native and naturalized vascular plants with nomenclature updated from the *Flora of North America* volumes published as of May 2004, and can be used to supplement and update Gleason and Cronquist (1991).

Additional texts

The Dicotyledonae of Ohio. Part 2. Linaceae through Campanulaceae (Cooperrider 1995). A useful supplement to Gleason and Cronquist (1991) with a focus on Ohio material only.

The Dicotyledonae of Ohio. Part 3. Asteraceae (Fisher 1988). A useful supplement to Gleason and Cronquist (1991) with a focus on Ohio material only.

Vascular Plants of Ohio (Braun 1971). Somewhat out of date nomenclaturally and missing many new members of Ohio's flora discovered since it was last revised, but still the most compact and affordable single volume manual to Ohio's flora available.

Field Manual of Michigan Flora (Voss and

Reznicek, 2012). This is an excellent and affordable volume that is very useful in northern Ohio. It contains excellent *Carex* keys and descriptions especially for the notoriously difficult Ovals section.

The Illustrated Flora of Illinois, Sedges: Carex (Mohlenbrock 1999). This volume includes most Ohio species of *Carex* and uses a somewhat different key based on more easily observable gross characteristics than most other keys. It also has an excellent overview and discussion of the ecology and evolution of this fascinating genus.

The Vascular Flora of the Glaciated Allegheny Plateau Region of Ohio (Andreas 1985). Not a key but an excellent reference for the vascular plants which can be encountered in the glaciated Allegheny Plateau (northeast Ohio), their habitats, and known counties.

The Vascular Plants of Unglaciated Ohio (Cusick and Silberhorn 1977). Not a key but an excellent reference for the vascular plants which can be encountered in the unglaciated Ohio (southeast Ohio), their habitats, and known counties.

Fruit and Twig Key to Trees and Shrubs (Harlow 1959). A useful and inexpensive key to twigs and fruits of northeastern U.S. woody species.

Aquatic and Wetland Plants of Northeast North America (Crow and Hellquist 2002). A purported new edition to Fassett's *Manual of Aquatic and Wetland Plants*, but really an expanded desktop edition that provides many additional line sketches of the included plants.

Flora of North America series. As of this writing, seven volumes of the *Flora of North*

America have been published. These are expensive but useful additions to a botanical library. Several volumes a year should be published.

GLOSSARY OF TERMS

Are - one-hundredth of a hectare (0.01ha) or 100m². A single module is 1 are.

Cover - the percentage of ground surface obscured by the vertical projection of all above ground parts of a given species onto that surface. No single species may exceed 100% cover, though the sum of cover estimates across all species often (usually) exceeds 100%. A plant need not be rooted in the module or plot to have cover in the module or plot. Cover can be estimated separately for each module of a plot or for each intensive module and any residual (nonintensive) modules depending on the study design. Percent cover is recorded for all species less than 6m tall.

Density - the number of stems of a tree or shrub >1m tall in plot. Density should be reported in units of stems per hectare.

Depth (of occurrence) - the size of the subquadrat in which the presence of a species is first noted. In this manual, depth can range from 1 to 3. For example, if the presence of species is first observed in the 1m² subquadrat, the depth of occurrence is 3.

Dominance - the sum of the surface area (basal area) measured at breast height of a tree or shrub >1m tall in a plot. Basal area of woody plant species should be reported in units of square meters per hectare.

FQAI - the FQAI is a variation of the weighted

averaging technique (Gauch 1982) that can be conceptualized as a weighted richness metric which assigns Coefficients of Conservatism (C of C's) from 0 to 10 to every species in the flora with these coefficients representing the narrowness or breadth of a species' habitat preferences (Andreas et al. 2004). Coefficients of Conservatism from Andreas et al. (2004) are included in Appendix C.

Frequency - the number diameter classes (Table 1) a woody species has occurrences of at least one stem (size class frequency). In other applications, frequency is the number of quadrats in which a species occurs in.

Hectare - 10,000m² or 100 ares. A typical 2 x 5 plot is made up of 10 modules and is 0.1 hectares.

Importance value (IV) - the average of the relative frequency, relative density, and relative basal area of a woody plant species.

Level (of occurrence) - a synonym for "depth."

Module - the basic unit of sampling under this method and consists of a 10 x 10m (100m²) quadrat. A plot is made up of one or more (typically 10) modules.

Presence - the occurrence of a species (based on the emergence or aerial cover of stem or stems) within a quadrat, module, or plot.

Plot - an area where vegetation is being sampled at a particular site. A plot is made up of one or more modules. Plots can also be called "relevés."

Releve - a synonym for "plot" or if a plot is comprised of only 1 module, then a synonym

for "module." When cover is estimated for nonintensive (residual) modules, it is said to be estimated at the "releve" level.

Relative cover - the sum of the cover values recorded for a plant species in a plot divided by the sum of cover values for all plant species in the plot.

Relative density - the sum of the number of stems of a woody plant species in a plot divided by the sum of all stems of all woody plants in the plot.

Relative dominance - the sum of the surface area (basal area) of all individuals of a woody plant species measured at breast height divided by the sum of the surface areas of all woody plant species in a plot.

Relative frequency - the number of diameter size classes a woody species occurs in divided by the total number of diameter classes (11). In other applications, relative frequency is defined as the number of quadrats a species occurs in divided by the total number of quadrats.

Quadrat - quadrat refers to the one or more nested quadrats of increasing area (0.1m², 1m², 10m²) that are located in corners of an intensive module (usually corners 2 and 4). Technically, the module itself is a 100m² "quadrat" but in this manual the term quadrat is generally used to describe the smaller nested quadrats located in the corners of the intensive modules.

Richness - the number of taxa in a particular taxa group, e.g. the number of species in a particular genus, the number of shrub species (in a shrub lifeform class), the number of plant species that are "hydrophytes," etc.

Richness ratio. The number of taxa in particular taxa category or group divided by the total number taxa (usually species).

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Table 1. Cover and dbh classes and midpoints. The midpoints of the cover classes are used in the calculation of relative cover. The midpoints of the dbh classes are used in the calculation of basal area (dominance) and relative dominance.

cover class	% cover	midpoint	dbh class	dbh (cm)	mid point (cm)	basal area (cm ²)
1	solitary or few	0.0001	1	0-1	0.5	0.196
2	0-1%	0.005	2	1-2.5	1.75	2.41
3	1-2%	0.015	3	2.5-5	3.75	11.0
4	2-5%	0.035	4	5-10	7.5	44.2
5	5-10%	0.075	5	10-15	12.5	122.7
6	10-25%	0.175	6	15-20	17.5	240.5
7	25-50%	0.375	7	20-25	22.5	397.6
8	50-75%	0.625	8	25-30	27.5	594.0
9	75-95%	0.85	9	30-35	32.5	829.6
10	95-99%	0.97	10	35-40	37.5	1104.5
---	---	---	11	>40 cm	individually	individually

Table 2. Scoring ranges for assigning metric scores for all Vegetation IBIs. Descriptions of metrics are found in Table 3. E = Emergent, SH = Shrub, F = Forest, E_{COASTAL} = Lake Erie Coastal Marshes, FQ = Floristic Quality.

metric	community	score 0	score 3	score 7	score 10
Carex	E, SH	0 - 1	2 - 3	4	5
Cyperaceae	E _{COASTAL}	0 - 1	2 - 3	4 - 6	7
dicot	E	0 - 10	11 - 17	18 - 24	25
	SH	0 - 9	10 - 14	15 - 23	24
shade	F	0 - 7	8 - 13	14 - 20	21
shrub	E, SH	0-1	2	3 - 4	5
hydrophyte	E	0-10	11 - 20	21 - 30	31
	SH	0-9	10 - 14	15 - 20	21
A/P ratio*	E	>0.48	0.32 - 0.48	0.20 - 0.32	0.0 - 0.20
SVP	F, SH	0	1	2	3
FQAI	E, SH	0 - 9.9	10.0 - 14.3	14.4 - 21.4	21.5
	F	0 - 14.0	14.1 - 19.0	19.1 - 24.0	24.1
	VIBI-FQ	< 10	10 – 30: proportional (scores range from 0 to 50)		30+ = 50 pts
%bryophyte*	F, SH	0 - 0.01	0.01 - 0.03	0.031 - 0.06	0.06
%hydrophyte*	F	0 - 0.1	0.1 - 0.15	0.151 - 0.28	0.281
%sensitive*	E	0 - 0.025	0.025 - 0.10	0.10 - 0.15	0.15 - 1.0
	F	0 - 0.035	0.035 - 0.12	0.12 - 0.30	0.31 - 1.0
	SH	0 - 0.02	0.021 - 0.06	0.061 - 0.13	0.131 - 1.0
%tolerant*	E	0.60 - 1.0	0.40 - 0.60	0.20 - 0.40	0 - 0.20
	F	0.45 - 1.0	0.30 - 0.45	0.15 - 0.30	0 - 0.15
	SH	0.15 - 1.0	0.10 - 0.15	0.05 - 0.10	0 - 0.05
%invasive* graminoids	E	0.31 - 1.0	0.15 - 0.3	0.03 - 0.15	0 - 0.03
small tree**	F	0.32 - 1.0	0.22 - 0.32	0.11 - 0.22	0 - 0.11
subcanopy IV**	F	0 - 0.02	0.02 - 0.072	0.072 - 0.13	0.131
	SH	0 - 0.02	0.02 - 0.05	0.05 - 0.10	0.11
canopy IV***	F	0.21 - 1.0	0.17 - 0.21	0.14 - 0.17	0 - 0.14
%unvegetated****	E	0.46	0.31 - 0.46	0.15 - 0.31	0 - 0.15
biomass	E	801 or <100	451 - 800	201 - 450	100 - 200
cover-weighted CofC	VIBI-FQ	= 0	0 – 6: proportional (scores range from 0 to 50)		6+ = 50 pts

* If total cover (sum of cover values for all species observed in sample plot) is <10%, abundance metrics are scored as 0.

** If no or only a few woody stems >1m tall in sample plot or if stems per ha <10, score metric as 0.

*** If no canopy trees or only a few individuals of canopy species present in sample plot, score metric as 0.

**** This metric should be calculated for wetland mitigation sites where perennial hydrophyte vegetation is not well established or where g/m² of biomass is less than 100. It can also be used as a biomass metric substitute for mitigation wetlands or other emergent sites where biomass cannot be collected.

Table 3. Description of metrics used in VIBI-E, VIBI-F, VIBI-SH, and VIBI-FQ. “E” = emergent, “E_{coastal}” = Lake Erie Coastal Marsh, “F” = forested”, “SH” = shrub, “FQ” = floristic quality.

metric	E, F, SH	code	type	metric increase or decrease w/ disturbance	description
<i>Carex</i> spp.	E, SH	carex	richness	decrease	Number of species in the genus <i>Carex</i>
cyperaceae spp.	E _{coastal}	cyperaceae	richness	decrease	Number of species in the Cyperaceae family
native dicot spp.	E, SH	dicot	richness	decrease	Number of native dicot (dicotyledon) species
native shade spp.	F	shade	richness	decrease	Number of native shade ¹⁴ tolerant or shade facultative species
native, wetland shrub spp.	E, SH	shrub	richness	decrease	Number of shrub species that are native and wetland (FACW, OBL) species
hydrophyte spp.	E, SH	hydrophyte	richness	decrease	Number of vascular plant species with a Facultative Wet (FACW) or Obligate (OBL) wetland indicator status (Reed 1988; 1997; Andreas et al. 2004).
ratio of annual to perennial spp.	E	A/P	richness ratio	decrease	Ratio of number of nonwoody species with annual life cycles to number of nonwoody species with perennial life cycles. Biennial species excluded from calculation
seedless vascular plant (SVP) spp.	F, SH	SVP	richness	decrease	Number of seedless vascular plant (ferns, fern allies) species
FQAI score	E, F, SH, FQ	FQAI	weighted richness index	decrease	The Floristic Quality Assessment Index score calculated using Eqn. 7 and the coefficients in Andreas et al. (2004)
relative cover of bryophytes	F, SH	%bryophyte	dominance ratio	decrease	Sum of the relative cover of all bryophyte species. Bryophytes include all mosses (Musci) and aquatic lichens <i>Riccia</i> and <i>Ricciocarpos</i>
relative cover of shade tolerant hydrophyte spp.	F	%hydrophyte	dominance ratio	decrease	Sum of the relative cover of shade or partial shade tolerant FACW and OBL plants in the herb and shrub stratum
relative cover of sensitive plant spp.	E, F, SH	%sensitive	dominance ratio	decrease	Sum of the relative cover of plants in herb and shrub stratum with a Coefficient of Conservatism (C of C) of 6,7,8,9 and 10 (Andreas et al. 2004)
relative cover tolerant plant spp.	E, F, SH	%tolerant	dominance ratio	increase	Sum of the relative cover of plants in herb and shrub stratum with a C of C of 0, 1, and 2 (Andreas et al. 2004)

1 Shade tolerance and other codes to calculate VIBI metrics are available in Mack (2004c).

Table 3. Description of metrics used in VIBI-E, VIBI-F, VIBI-SH, and VIBI-FQ. “E” = emergent, “E_{coastal}” = Lake Erie Coastal Marsh, “F” = forested”, “SH” = shrub, “FQ” = floristic quality.

metric	E, F, SH	code	type	metric increase or decrease w/ disturbance	description
relative cover of invasive graminoid spp.	E	%invgram	dominance ratio	increase	Sum of the relative cover of <i>Typha</i> spp., <i>Phalaris arundinacea</i> , and <i>Phragmites australis</i>
relative density of small trees (pole timber)	F	pole timber	density ratio	increase	The density (stems/ha) of a tree species in size classes between 10 and 25 cm dbh divided by the density of all trees
importance of native shade subcanopy spp.	F, SH	subcanopy IV	importance value	decrease	Sum of the mean importance value of shade tolerant subcanopy (shrub, subcanopy tree) species plus the mean importance value of facultative shade subcanopy (shrub, small tree) species. Importance value is the average of relative size class frequency ² , density, and relative basal area. Subcanopy trees are tree species which only grow in the subcanopy, e.g. <i>Carpinus caroliniana</i>
importance canopy spp.	F	canopy IV	importance value	decrease	The mean of the importance values of trees in the canopy of the forest where importance value is calculated by averaging relative size class frequency, relative density, and relative basal area. Canopy tree species are species which at maturity will inhabit the upper canopy of the forest even if at the time of sampling they are growing in the subcanopy
unvegetated and annual cover	E ³	%unvegetated	dominance ratio	increase	The sum of the relative cover of annual plant species (percent annual spp. divided by total spp. cover) and the percent cover of unvegetated areas
standing biomass	E	biomass	primary production	increase	The average grams per square meter of clip plot samples collected at each emergent wetland
Cover-weighted CofC	FQ	CW CofC	dominance	decrease	Sum of relative cover multiplied with C of C values for all species present within the sample plot.

² Size class frequency is the number of size classes in which there is at least one stem for that woody species. There are 11 size classes 0-1, 1-2.5, 2.5-5, 5-10, 10-15, 15-20, 20-25, 25-30, 30-35, 35-40, and >40 cm.

³ The %unvegetated metric may be used as a biomass metric substitute for mitigation wetlands or other emergent sites where biomass cannot be collected.

Table 4. Summary of metrics for Vegetation IBIs. See Table 3 for definitions.

VIBI-E	VIBI-E _{COASTAL}	VIBI-SH	VIBI-F	VIBI-FQ
---	Cyperaceae	---	---	
<i>Carex</i>	---	<i>Carex</i>	---	
Dicot, native	Dicot, native	Dicot, native	---	
Shrub, native, wetland	Shrub, native, wetland	Shrub, native, wetland	---	
Hydrophyte, native	Hydrophyte, native	Hydrophyte, native	---	
A/P ratio	A/P ratio	---	---	
FQAI score	FQAI score	FQAI score	FQAI score	FQAI score
%tolerant	%tolerant	%tolerant	%tolerant	
%sensitive	%sensitive	%sensitive	%sensitive	
%invasive graminoids	%invasive graminoids	---	---	
Biomass**	Biomass**	---	---	
---	---	---	---	
---	---	---	Shade	
---	---	SVP	SVP	
---	---	---	%hydrophyte	
---	---	%bryophyte	%bryophyte	
---	---	---	pole timber density	
---	---	subcanopy IV*	subcanopy IV	
---	---	---	canopy IV	
---	---	---	---	Cover-weighted CofC

* Substitute %invasive graminoids for this metric for leatherleaf bogs where shrub height is <1 m tall

** the %unvegetated metric should also be calculated, and may be used as a biomass metric substitute for mitigation wetlands or other emergent sites where biomass cannot be collected.

Table 5. General Wetland Aquatic Life Use Designations.

code	designation	definition
SWLH	Superior Wetland Habitat	Wetlands that are capable of supporting and maintaining a high quality community with species composition, diversity, and functional organization comparable to the vegetation IBI score of <u>at least 83% (five-sixths)</u> of the 95 th percentile for the appropriate wetland type and region as specified in Table 7.
WLH	Wetland Habitat	Wetlands that are capable of supporting and maintaining a balanced, integrated, adaptive community having a species composition, diversity, and functional organization comparable to the vegetation IBI score of <u>at least 66% (two-thirds)</u> of the 95 th percentile for the appropriate wetland type and region as specified in Table 7.
RWLH	Restorable Wetland Habitat	Wetlands which are degraded but have a reasonable potential for regaining the capability of supporting and maintaining a balanced, integrated, adaptive community of vascular plants having a species composition, diversity, and functional organization comparable to the vegetation IBI score of <u>at least 33% (one-third)</u> of the 95 th percentile distribution for the appropriate wetland type and region as specified in Table 7.
LQWLH	Limited Quality Wetland Habitat	Wetlands which are seriously degraded and which do not have a reasonable potential for regaining the capability of supporting and maintaining a balanced, integrated, adaptive community having a species composition, diversity, and functional organization comparable to the vegetation IBI score of <u>less 33% (one-third)</u> of the 95 th percentile for the appropriate wetland type and region as specified in Table 7.

Table 6. Special wetland use designations.

subscript	special uses	description
A	recreation	wetlands with known recreational uses including hunting, fishing, birdwatching, etc. that are publicly available
B	education	wetlands with known educational uses, e.g. nature centers, schools, etc.
C	fish reproduction habitat	wetlands that provide important reproductive habitat for fish
D	bird habitat	wetlands that provide important breeding and nonbreeding habitat for birds
E	T or E habitat	wetlands that provide habitat for federal or state endangered or threatened species
F	flood storage	wetlands located in landscape positions such that they have flood retention functions
G	water quality improvement	wetlands located in landscape positions such that they can perform water quality improvement functions for streams, lakes, or other wetlands

Table 7. Wetland Tiered Aquatic Life Uses (WTALUs) for specific plant communities and landscape positions. tbd = to be developed. LQWLH = limited quality wetland habitat, RWLH = restorable wetland habitat, WLH = wetland habitat, SWLH = superior wetland habitat. Equivalent antidegradation categories as specified in Ohio Administrative Code Rule 3745-1-54 are indicated in parentheses below the TALU category.

HGM class	HGM subclass	plant community	ecoregions	LQWLH (Category 1)	RWLH (modified Category 2)	WLH (Category 2)	SWLH (Category 3)
Depression	all	Swamp forest, Marsh, Shrub swamp	EOLP	0 - 30	31 - 60	61 - 75	76 - 100
			all other regions	0 - 24	25 - 50	51 - 62	63 - 100
Impoundment	all	Wet Meadow (incl. prairies and sedge/grass dominated communities that are not slopes)	all regions	0 - 29	30 - 59	60 - 75	76 - 100
			EOLP	0 - 26	27 - 52	53 - 66	67 - 100
	all other regions	Wet Meadow (incl. prairies and sedge/grass dominated communities that are not slopes)	0 - 24	25 - 47	48 - 63	64 - 100	
			all regions	0 - 29	30 - 59	60 - 75	76 - 100
Riverine	Headwater	Swamp forest, Marsh, Shrub swamp	EOLP	0 - 27	28 - 56	57 - 69	70 - 100
			all other regions	0 - 23	24 - 47	48 - 59	60 - 100
	Mainstem	Swamp forest, Marsh, Shrub swamp	EOLP	0 - 29	30 - 56	57 - 73	74 - 100
			all other regions	0 - 20	21 - 41	42 - 52	53 - 100
Headwater or Mainstem	Wet Meadow (incl. prairies and sedge/grass dominated communities that are not slopes)	all regions	0 - 29	30 - 59	60 - 75	76 - 100	
Slope	all	Wet meadow (fen), tall shrub fen, forest seep	all regions	0 - 29	30 - 59	60 - 75	76 - 100
Fringing ¹	Natural Lakes (excluding lacustrine fens) and reservoirs	tbd	tbd	tbd	tbd	tbd	tbd
Coastal ²	closed embayment, barrier-protected, river mouth	Swamp forest, Marsh, Shrub swamp	all regions	0 - 24	25 - 49	50 - 61	62 - 100
	open embayment, diked (managed/unmanaged failed)	tbd	tbd	tbd	tbd	tbd	tbd
Bog	weakly ombrotrophic	Tamarack-hardwood bog, Tall shrub bog	all regions	0 - 32	33 - 65	66 - 82	83 - 100
	moderately to strongly ombrotrophic	Tamarack forest, Leatherleaf bog Sphagnum bog	all regions	0 - 23	24 - 47	48 - 59	60 - 100
VIBI-FQ ³							
All HGM classes	all	all	all regions	0.0 – 19.9	20.0 – 39.9	40.0 – 59.9	60.0 - 100

1. Depending on the circumstances, scoring breaks for depression, impoundment, or riverine may be used.

2. Scoring breaks for coastal embayment, barrier-protected, and river mouth may be usable.

3. VIBI-FQ scoring ranges should be considered preliminary but may be used to establish performance goals for mitigation and other wetland restoration and creation projects.

Table 8A. Hydrogeomorphic classes for wetland classification system for Ohio wetlands adapted from Brinson (1993), Mack (2001b, Tables 6, 7, and 42), Mack (2000a, Table 1) Smith et al. (1995); Cole et al. (1997); Anderson (1982), Cowardin et al. (1978), Chow-Fraser and Albert 1998; Minc and Albert 1998.

	class	class modifiers
I	Depression (incl. areas that could be considered flats, e.g. "wet woods")	(A) Surface water (sheet flow, precipitation) (B) Ground water (seasonal to permanent input)
II	Impoundment	(A) Beaver (B) Human
III	Riverine	(A) Headwater depression (1 st or 2 nd) (B) Mainstem depression (3 rd order or >) (C) Channel
IV	Slope (incl. hillside fens, mound fens, and lacustrine fens)	(A) Riverine (B) Isolated (C) Fringing
V	Fringing (does not include lacustrine fens)	(A) Reservoir (B) Natural lake
VI	Coastal	(A) Open embayment (B) Closed embayment (C) Barrier-protected (D) River mouth (barred and open) (E) Diked - managed (F) Diked - unmanaged (G) Diked - failed (H) Beach swale
VII	Bog	(A) Strongly ombrotrophic (B) Moderately ombrotrophic (C) Weakly ombrotrophic
VIII	Upland habitats	(A) Hydric soils (drained or farmed wetlands) (B) Non-hydric soils (uplands)
add code	Mitigation	Add appropriate pre-code to HGM class: mr - mitigation, restoration mc - mitigation, creation e.g. "mrll" = mitigation, restoration, impoundment

Table 8B. Plant community modifiers for wetland classification system for Ohio wetlands adapted from after Brinson (1993), Mack (2001b, Tables 6, 7, and 42), Mack (2000a, Table 1) Smith et al. (1995); Cole et al. (1997); Anderson (1982), Cowardin et al. (1978).

(1) Forest	(2) Emergent	(3) Shrub	(4) Non Wetland habitats
(a) Swamp forest (incl. wet woods and vernal pools)	(a) Marsh	(a) Shrub Swamp	(a) Non-woody communities
(l) oak-maple	(l) submergent marsh	(l) buttonbush swamp	(i) Old field
(ii) oak-maple-ash	(ii) floating-leaved marsh	(ii) alder swamp	(ii) Farm field
(iii) maple-ash	(iii) mixed emergent marsh	(iii) mixed shrub swamp	(iii) PC farm field
(iv) pin oak	(iv) cattail marsh	(iv) other (specify)	(iv) Prairie
(v) pumpkin ash			(v) Pasture
(vi) mixed forest			(vi) Other herbaceous (specify dominants)
(vii) red maple			
(viii) white pine			
(ix) cottonwood			
(x) river birch			
(xi) other (specify dominants)			
(b) Bog Forest	(b) Wet meadow	(b) Bog shrub swamp	(b) Woody communities
(l) tamarack bog	(l) wet prairie (incl. bluejoint/cordgrass meadows)	(l) tall shrub bog	(i) Shrub Thicket
(ii) tamarack-hardwood bog	(ii) oak openings sand prairie	(ii) leatherleaf bog	(ii) Young 2 nd growth
	(iii) prairie sedge meadow		(iii) Upland Forest
	(iv) fen meadow		(iv) Savannah
	(v) reed canary grass meadow		
	(vi) other (specify dominants)		
	(vii) sedge meadow (various Cyperaceae spp. as dominants)		
(c) Forest seep	(c) Sphagnum bog (incl. open kettle bogs with scattered shrubs, classic ringed bogs with open water centers and perimeters of shrubs and tamarack)	(c) Tall shrub fen	(c) Aquatic communities
(l) skunk cabbage seep			(i) Pond, unvegetated open water <2 m deep
(ii) sedge seep			(ii) Lake, open water >2 m deep
(iii) skunk cabbage-sedge seep			
(iv) other (specify)			

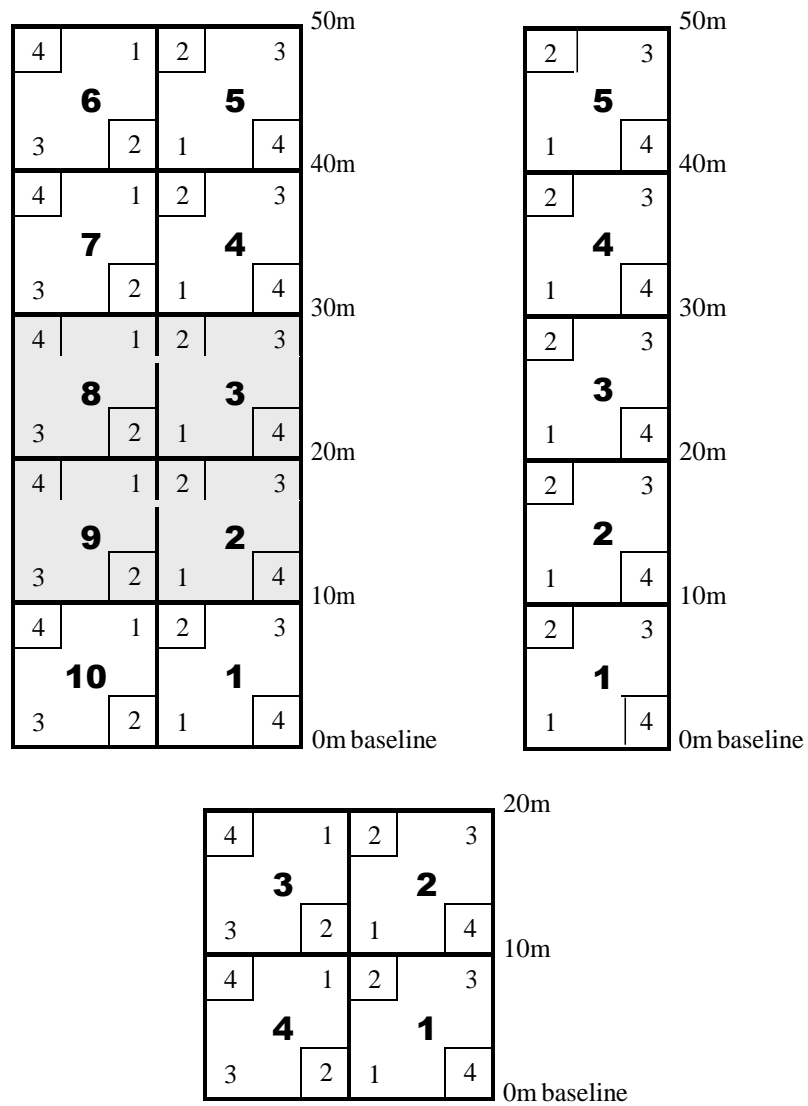


Figure 1. Standard (focused) 20m x 50m (2 x 5) vegetation sample plot and alternate plot configurations frequently used depending on site size and the community of interest. In the 2 x 5 plot, standard intensive modules (2, 3, 8, 9) are shaded. Standard corners for nested quadrats (2, 4) are indicated by small squares. Modules are numbered in the direction of movement (down 1-5, back 6-10) along the center line; module corners are numbered clockwise in direction of movement down the centerline.



Figure 2. Plant presses and homemade plant press dryer.



Figure 3. Professional herbarium cabinet.

APPENDICES

APPENDIX A - FIELD DATA SHEETS

APPENDIX B - EXAMPLE CALCULATIONS

APPENDIX C - SPECIES CODES FOR VIBI METRIC CALCULATION

BACKGROUND INFORMATION FORM FOR VIBI SUBMISSIONS

Site name and county:

Investigator(s):

Sampling date(s):

Affiliation:

Address:

Phone number:

e-mail address:

Plant communit(ies) (describe):

HGM Class(es) (describe):

YES NO Is the wetland an automatic category 3 using the ORAM v. 5.0 Narrative Rating? If yes, describe.

YES NO Is the wetland degraded but still exhibits at least one function or value at medium to high levels? If yes, describe.

Antidegradation category in accordance with OAC Rule 3745-1-54 (Circle One):

Category 1 Category 2 Category 3

Wetland Tiered Aquatic Life Use. Using Tables 5-7 in the Field Manual, describe the wetland's Tiered Aquatic Life Use:

YES NO Map attached of wetland location. If no, include sketch of general location of wetland include north arrow, landmarks, roads, etc.

Information sources consulted (check all that apply):

USGS Topo Map National Wetland Inventory Ohio Wetland Inventory Soil Survey

Delineation report Other (list)

BACKGROUND INFORMATION FORM FOR VIBI SUBMISSIONS

Site name and county:

Site sketch and plot location(s) (or attach map)

Rationale for location of plot(s). Describe the reasons for establishing the vegetation sampling plot or plots in the configuration, direction, and locations used to sample the site.

I hereby certify that I am sufficiently proficient in the identification of the vascular flora of Ohio vegetatively, in fruit, and in flower to enable the collection of vegetation data for the accurate calculation of a Vegetation Index of Biotic Integrity score, or that I have collected voucher specimens for identification and confirmation by an experienced botanist, and that the location of the plot or plots and the quantitative vegetation data collected therein, is representative of the plant community(ies) and quality of the wetland being sampled.

Signature

Date

Name (print)

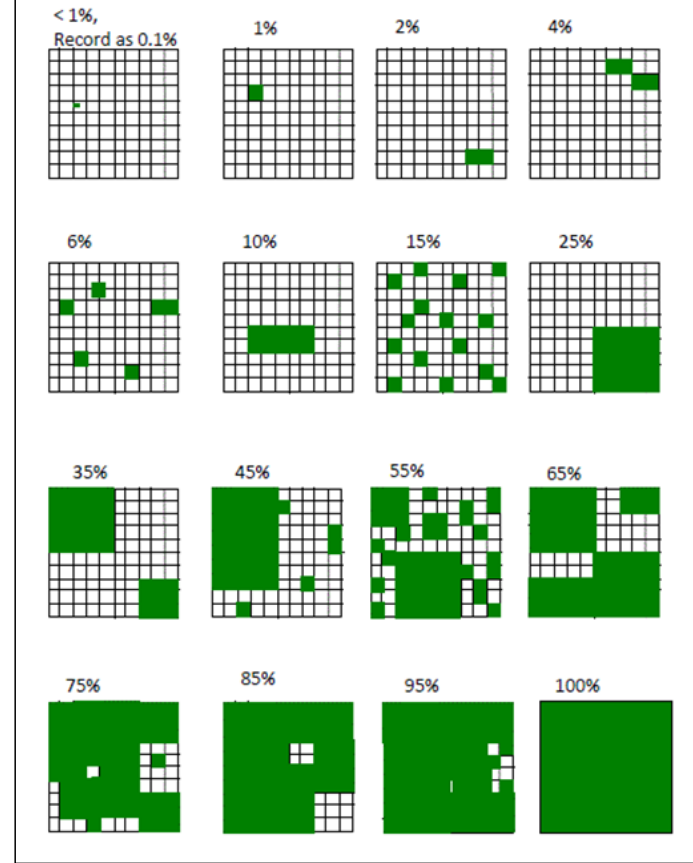
Part 1 Hydrogeomorphic Classification

class		class modifiers
I	Depression (incl. areas that could be considered flats, e.g. "wet woods")	(A) Surface water (sheet flow, precipitation) (B) Ground water (seasonal to permanent input)
II	Impoundment	(A) Beaver, (B) Human
III	Riverine	(A) Headwater depression (1 st or 2 nd), (B) Mainstem depression (3 rd order or >), (C) Channel
IV	Slope (incl. hillside fens, mound fens, and lacustrine fens)	(A) Riverine, (B) Isolated, (C) Fringing
V	Fringing (does not include lacustrine fens)	(A) Reservoir, (B) Natural lake
VI	Coastal	(A) Open embayment, (B) Closed embayment, (C) Barrier-protected, (D) River mouth (barred and open), (E) Diked - managed, (F) Diked - unmanaged, (G) Diked - failed, (H) Beach swale
VII	Bog	(A) Strongly ombrotrophic, (B) Moderately ombrotrophic, (C) Weakly ombrotrophic
VIII	Upland habitats	(A) Hydric soils (drained or farmed wetlands) (B) Non-hydric soils (uplands)

Cover Classes

class	% cover
1	solitary/few
2	0-1%
3	1-2%
4	2-5%
5	5-10%
6	10-25%
7	25-50%
8	50-75%
9	75-95%
10	95-99%

Estimating Plant Cover



Part 2 Vegetation Modifiers

(1) Forest

- (a) Swamp forest (incl. wet woods and vernal pools)
 (i) oak-maple
 (ii) oak-maple-ash
 (iii) maple-ash
 (iv) pin oak
 (v) pumpkin ash
 (vi) mixed forest
 (vii) red maple
 (viii) white pine
 (ix) cottonwood
 (x) river birch
 (xi) other (specify dominants)

- (b) Bog Forest
 (i) tamarack bog
 (ii) tamarack-hardwood bog

- (c) Forest seep
 (i) skunk cabbage seep
 (ii) sedge seep
 (iii) skunk cabbage-sedge seep
 (iv) other (specify)

(2) Emergent

- (a) Marsh
 (i) submergent marsh
 (ii) floating-leaved marsh
 (iii) mixed emergent marsh
 (iv) cattail marsh

- (b) Wet meadow
 (i) wet prairie (incl. bluejoint/cordgrass meadows)
 (ii) oak openings sand prairie
 (iii) prairie sedge meadow
 (iv) fen meadow
 (v) reed canary grass meadow
 (vi) other (specify dominants)
 (vii) sedge meadow (misc. Cyperaceae dominants)

- (c) Sphagnum bog (incl. open kettle bogs with scattered shrubs, classic ringed bogs with open water centers and perimeters of shrub, tamarack)

(3) Shrub

- (a) Shrub Swamp
 (i) buttonbush swamp
 (ii) alder swamp
 (iii) mixed shrub swamp
 (iv) other (specify)

- (b) Bog shrub swamp
 (i) tall shrub bog
 (ii) leatherleaf bog

- (c) Tall shrub fen

(4) Non Wetland habitats

- (a) Non-woody communities
 (i) Old field
 (ii) Farmfield
 (iii) PC farmfield
 (iv) Prairie
 (v) Pasture
 (vi) Other herbaceous (specify dominants)

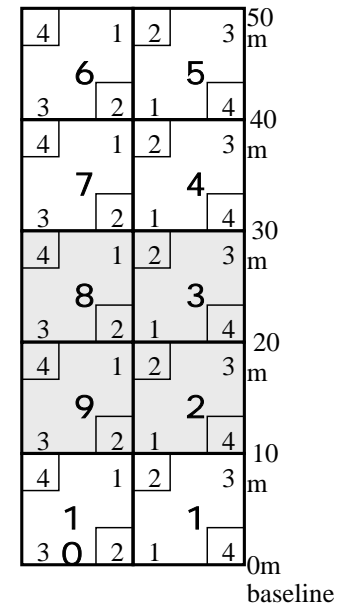
- (b) Woody communities
 (i) Shrub Thicket
 (ii) Young 2nd growth
 (iii) Upland Forest
 (iv) Savannah

- (c) Aquatic communities
 (i) Pond, unvegetated open water deep
 (ii) Lake, open water >2m deep

Depth (level) Code		
quadrat size	quadrat area	code
10x10m	1000m ²	1 (releve)
3.16x3.16m	10m ²	2
1x1m	1m ²	3
0.32x0.32m	0.1m ²	4

Vertical Strata Codes		
stratum	height	code
herb layer	0-2m	1
shrub/sapling	2-5m	2
pole timber	5-15m	3
tree	15-35m	4
canopy tree	>35	5

Standard plot	
nest corners	
2-2	2-4
3-2	3-4
8-2	8-4
9-2	9-4



Part 1 Hydrogeomorphic Classification

class	class modifiers
I Depression (incl. areas that could be considered flats, e.g. "wet woods")	(A) Surface water (sheet flow, precipitation) (B) Ground water (seasonal to permanent input)
II Impoundment	(A) Beaver, (B) Human
III Riverine	(A) Headwater depression (1 st or 2 nd), (B) Mainstem depression (3 rd order or >), (C) Channel
IV Slope (incl. hillside fens, mound fens, and lacustrine fens)	(A) Riverine, (B) Isolated, (C) Fringing
V Fringing (does not include lacustrine fens)	(A) Reservoir, (B) Natural lake
VI Coastal	(A) Open embayment, (B) Closed embayment, (C) Barrier-protected, (D) River mouth (barred and open), (E) Diked - managed, (F) Diked - unmanaged, (G) Diked - failed, (H) Beach swale
VII Bog	(A) Strongly ombrotrophic, (B) Moderately ombrotrophic, (C) Weakly ombrotrophic
VIII Upland habitats	(A) Hydric soils (drained or farmed wetlands) (B) Non-hydric soils (uplands)

Cover Classes

class	% cover
1	solitary/few
2	0-1%
3	1-2%
4	2-5%
5	5-10%
6	10-25%
7	25-50%
8	50-75%
9	75-95%
10	95-99%

Vertical Strata Codes

stratum	height	code
herb layer	0-2m	1
shrub/sapling	2-5m	2
pole timber	5-15m	3
tree	15-35m	4
canopy tree	>35	5

Standard plot

nest corners
2-2 2-4
3-2 3-4
8-2 8-4
9-2 9-4

Depth (level) Code

quadrat size	quadrat area	code
10x10m	1000m ²	1 (releve)
3.16x3.16m	10m ²	2
1x1m	1m ²	3
0.32x0.32m	0.1m ²	4

Part 2 Vegetation Modifiers

(1) Forest

- (a) Swamp forest (incl. wet woods and vernal pools)
- (i) oak-maple
- (ii) oak-maple-ash
- (iii) maple-ash
- (iv) pin oak
- (v) pumpkin ash
- (vi) mixed forest
- (vii) red maple
- (viii) white pine
- (ix) cottonwood
- (x) river birch
- (xi) other (specify dominants)

(b) Bog Forest

- (i) tamarack bog
- (ii) tamarack-hardwood bog

(c) Forest seep

- (i) skunk cabbage seep
- (ii) sedge seep
- (iii) skunk cabbage-sedge seep
- (iv) other (specify)

(2) Emergent

- (a) Marsh
- (i) submergent marsh
- (ii) floating-leaved marsh
- (iii) mixed emergent marsh
- (iv) cattail marsh

(b) Wet meadow

- (i) wet prairie (incl. bluejoint/cordgrass meadows)
- (ii) oak openings sand prairie
- (iii) prairie sedge meadow
- (iv) fen meadow
- (v) reed canary grass meadow
- (vi) other (specify dominants)
- (vii) sedge meadow (misc. Cyperaceae dominants)

(c) Sphagnum bog (incl. open kettle bogs with scattered shrubs, classic ringed bogs with open water centers and perimeters of shrub, tamarack)

(3) Shrub

- (a) Shrub Swamp
- (i) buttonbush swamp
- (ii) alder swamp
- (iii) mixed shrub swamp
- (iv) other (specify)

(b) Bog shrub swamp

- (i) tall shrub bog
- (ii) leatherleaf bog

(c) Tall shrub fen

(4) Non Wetland habitats

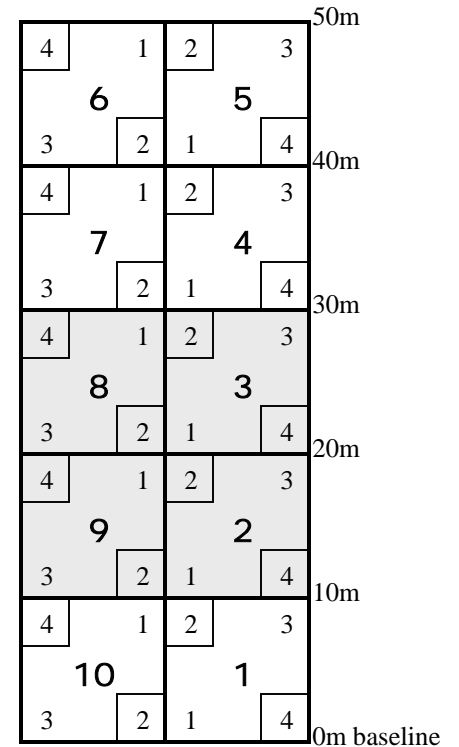
- (a) Non-woody communities
- (i) Old field
- (ii) Farmfield
- (iii) PC farmfield
- (iv) Prairie
- (v) Pasture
- (vi) Other herbaceous (specify dominants)

(b) Woody communities

- (i) Shrub Thicket
- (ii) Young 2nd growth
- (iii) Upland Forest
- (iv) Savannah

(c) Aquatic communities

- (i) Pond, unvegetated open water deep
- (ii) Lake, open water >2m deep



Investigator(s)
Site Name
County
Date

Total Modules
Intensive Modules
Plot configuration
Total area (ha)

visual estimate of % open water over entire site
visual estimate of % unvegetated open over entire site
visual estimate of % invasive species over entire site

module	corner	water depth center of intensive mods (cm)	litter depth center of intensive mods (cm)	depth to saturated soil center of intensive mods (cm)	number of tussucks level 3 1x1m (count)	number of hummocks level 2 3.16x3.16m (count)	number of macro. depre.* level 1 10x10m (count)	coarse woody debris 0-12cm level 1 10x10m (count)	coarse woody debris 12-40cm level 1 10x10m (count)	coarse woody debris >40cm level 1 10x10m (count)	microhabitat interspersions (scale on back) level 1 (rank)

* keep separate count of with or without outlets to streams

SOIL CHARACTERISTICS

CENTER OF PLOT	matrix color	mottle color	%mottle	oxid. roots	texture*	redox. feat.	hydr. cond.**
5cm				Y N		Y N	
20cm				Y N		Y N	

* LM=loam SAL=sandy loam SIL=silty loam CL=clay loam SACL=sandy clay loam SICL=silty clay loam C=clay SAC=sandy clay SIC=silty clay
 P=peat M=muck SP - sandy peat or muck (Oak Openings) ** I=indundated S=saturated M=moist D=dry

Parameter	Soil Sample	Water Sample	clip plots	pH	Temp
Collected?	Y N	Y N	Y N	Y N	Y N
Time Collected?					
If No, reason?					
List Mod/Corner, Location					
Reading					
Calibrated Prior to Reading?				Y N	Y N

pc=previously collected, nw=no water, ns=substrate not able to be sampled, na=not applicable

Part 1 Hydrogeomorphic Classification

class	class modifiers
I Depression (incl. areas that could be considered flats, e.g. "wet woods")	(A) Surface water (sheet flow, precipitation) (B) Groundwater (seasonal to permanent input)
II Impoundment	(A) Beaver, (B) Human
III Riverine	(A) Headwater depression (1 st or 2 nd), (B) Mainstem depression (3 rd order or >), (C) Channel
IV Slope (incl. hillside fens, mound fens, and lacustrine fens)	(A) Riverine, (B) Isolated, (C) Fringing
V Fringing (does not include lacustrine fens)	(A) Reservoir, (B) Natural lake
VI Coastal	(A) Open embayment, (B) Closed embayment, (C) Barrier-protected, (D) River mouth (barred and open), (E) Diked - managed, (F) Diked - unmanaged, (G) Diked - failed, (H) Beach swale
VII Bog	(A) Strongly ombrotrophic, (B) Moderately ombrotrophic, (C) Weakly ombrotrophic
VIII Upland habitats	(A) Hydric soils (drained or farmed wetlands) (B) Non-hydric soils (uplands)

Standard plot

nest
corners 2-2
2-4
3-2 3-4
8.2 8.4

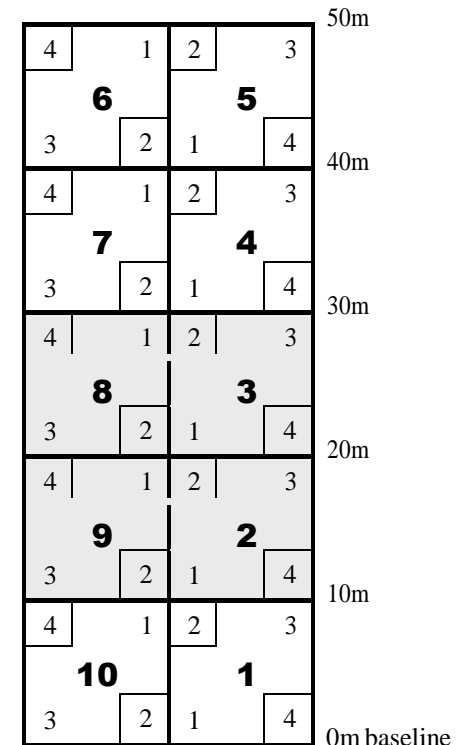
Cover scale for microtopographic habitat features. Select one or select two and average.

microtopographic habitat quality	narrative description
0	feature is absent or functionally absent from the wetland
3	feature is present in the wetland in very small amounts or if more common, of low quality
7	feature is present in moderate amounts, but not of highest quality, or in small amounts of highest quality
10	present in moderate or greater amounts and of highest quality

quadrant size	quadrant area	code
10x10m	100m ²	1 (releve)
3.16x3.16m	10m ²	2
1x1m	1m ²	3
0.32x0.32m	0.1m ²	4

Part 2 Vegetation Modifiers

(1) Forest	(2) Emergent	(3) Shrub	(4) Non Wetland habitats
(a) Swamp forest (incl. wet woods and vernal pools) (i) oak-maple (ii) oak-maple-ash (iii) maple-ash (iv) pinoak (v) pumpkinash (vi) mixed forest (vii) red maple (viii) white pine (ix) cottonwood (x) river birch (xi) other (specify dominants)	(a) Marsh (i) submergent marsh (ii) floating-leaved marsh (iii) mixed emergent marsh (iv) cattail marsh	(a) Shrub Swamp (i) buttonbush swamp (ii) alder swamp (iii) mixed shrub swamp (iv) other (specify)	(a) Non-woody communities (i) Oldfield (ii) Farmfield (iii) PC farmfield (iv) Prairie (v) Pasture (vi) Other herbaceous (specify dominants)
(b) Bog Forest (i) tamarack bog (ii) tamarack-hardwood bog	(b) Wet meadow (i) wet prairie (incl. bluejoint/cordgrass meadows) (ii) oak openings sand prairie (iii) prairie sedge meadow (iv) fen meadow (v) reed canary grass meadow (vi) other (specify dominants) (vii) sedge meadow (misc. Cyperaceae dominants)	(b) Bog shrub swamp (i) tall shrub bog (ii) leatherleaf bog	(b) Woody communities (i) Shrub Thicket (ii) Young 2 nd growth (iii) Upland Forest (iv) Savannah
(c) Forest seep (i) skunk cabbage seep (ii) sedge seep (iii) skunk cabbage-sedge seep (iv) other (specify)	(c) Sphagnum bog (incl. open kettle bogs with scattered shrubs, classic ringed bogs with open water centers and perimeters of shrub, tamarack)	(c) Tall shrub fen	(c) Aquatic communities (i) Pond, unvegetated open water deep (ii) Lake, open water > 2m d



APPENDIX B
EXAMPLE HAND CALCULATIONS

Falling Tree Vinton Co. 23 July 2002
Buttonbush swamp; beaver Impoundment
Western Allegheny Plateau

Plot 20 x 40 meters, 4 intensive modules,
Plot area: 0.08 ha

1ST DATA REDUCTION PRESENCE - FIELD DATA SHEET 1

		mod#	corner#	mod#	corner#	mod#	corner#	mod#	corner#	mod#	corner#	mod#	corner#	mod#	corner#	mod#	corner#	mod#	corner#
	voucher #	2	2	2	4	3	2	3	4	8	2	8	4	9	2	9	4	R	R
		depth	cover	depth	cover	depth	cover	depth	cover	depth	cover	depth	cover	depth	cover	depth	cover	depth	cover
Alnus serrulata	2182			1	5			1	5										
Ilex verticillata				2	6			2	4										
Cephalanthus occidentalis				2	5			2	7	4		4	9	4		4	8		
Bidens sp.	prob. discoidea			1	3	4	3			2		3	4	4		3	3		
unknown grass sp.				1	4	2	3												
Moss sp. #1	2184 on buttonbush			1	3			2	2										
Lemna minor	2180			3	2	3	2			2		3	3			1	3		
Utricularia gibba	2181	4	8			4		2	8			1	5	4		3	6		
Betula nigra	2183			3	4	4		2	6										
Galium tinctorium		3	3							3		2	3			2	3		
Polygonum sp.				1	2														
Rosa palustris				1	3														
Osmunda regalis				1	4			4	5										
Sparganium americanum				1	2														
Carex sp.	no fruits			1	1														
Triadenum sp.	see # 2176			1	1														
Moss sp. #2	2185 on buttonbush									3		3	3	2	3				
Moss sp. #3	2186 on buttonbush									3		2	3	2	2				
Juncus effusus								2	2										
Acer rubrum																			
Spiraea tomentosa																		R	2
Scirpus cyperinus																		R	2
Carex crinita	crinita																	R	1
Boehmeria cylindrica																		R	1
Smilax sp.																		R	1
Thelypteris noveboracensis																		R	2

APPENDIX B
EXAMPLE HAND CALCULATIONS

Falling Tree Vinton Co. 23 July 2002
Buttonbush swamp; beaver Impoundment
Western Allegheny Plateau

Plot 20 x 40 meters, 4 intensive modules,
Plot area: 0.08 ha

2ND DATA REDUCTION - FIELD DATA SHEET 1

species	authority	cover1	cover2	cover3	cover4	cover5	cover6	cover7	cover8	cover9	cover10	total cover	relative cover
Acer rubrum	L.	*	*	*	*	*	*	*	*	*	*	*	*
Alnus serrulata	(Aiton) Willd.	*	0.075	*	0.075	*	*	*	*	*	*	0.15	3.4204%
Betula nigra	L.	*	0.035	*	0.175	*	*	*	*	*	*	0.21	4.7885%
Bidens sp.	ND	*	0.015	0.015	*	*	0.035	*	0.015	*	*	0.08	1.8242%
Boehmeria cylindrica	(L.) Sw.	*	*	*	*	*	*	*	*	0.0001	*	0.0001	0.0023%
Bryophyte	ND	*	0.015	*	0.005	*	0.015	0.015	*	0.015	0.005	0.07	1.5962%
Carex crinita	Lam.	*	*	*	*	*	*	*	*	0.0001	*	0.0001	0.0023%
Carex sp.	ND	*	0.0001	*	*	*	*	*	*	*	*	0.0001	0.0023%
Cephalanthus occidentalis	L.	*	0.075	*	0.375	*	0.85	*	0.625	*	*	1.925	43.8947%
Galium tinctorium	(L.) Scop.	0.015	*	*	*	*	0.015	*	0.015	*	*	0.045	1.0261%
Ilex verticillata	(L.) A. Gray	*	0.175	*	0.035	*	*	*	*	*	*	0.21	4.7885%
Juncus effusus	L.	*	*	*	0.005	*	*	*	*	*	*	0.005	0.1140%
Lemna minor	L.	*	0.005	0.005	*	*	0.015	*	0.015	*	*	0.04	0.9121%
Osmunda regalis	L.	*	0.035	*	0.075	*	*	*	*	*	*	0.11	2.5083%
Polygonum sp.	ND	*	0.005	*	*	*	*	*	*	*	*	0.005	0.1140%
Rosa palustris	Marshall	*	0.015	*	*	*	*	*	*	*	*	0.015	0.3420%
Scirpus cyperinus	(L.) Kunth	*	*	*	*	*	*	*	*	0.005	*	0.005	0.1140%
Smilax sp.	ND	*	*	*	*	*	*	*	*	0.0001	*	0.0001	0.0023%
Sparganium americanum	Nutt.	*	0.005	*	*	*	*	*	*	*	*	0.005	0.1140%
Spiraea tomentosa	L.	*	*	*	*	*	*	*	*	0.005	*	0.005	0.1140%
Thelypteris noveboracensis	(L.) Nieuwl.	*	*	*	*	*	*	*	*	0.005	*	0.005	0.1140%
Triadenum sp.	ND	*	0.0001	*	*	*	*	*	*	*	*	0.0001	0.0023%
Utricularia gibba	L.	0.625	*	*	0.625	*	0.075	*	0.175	*	*	1.5	34.2036%
												4.3855	

APPENDIX B
EXAMPLE HAND CALCULATIONS

Falling Tree Vinton Co. 23 July 2002
Buttonbush swamp; beaver Impoundment
Western Allegheny Plateau

Plot 20 x 40 meters, 4 intensive modules,
Plot area: 0.08 ha

3RD DATA REDUCTION - FIELD DATA SHEET 1

species	citation	genus code	family	family code	C of C	lifeform	shade tolerance	habit	native	group	4 indicator	total cover	relative cover
Acer rubrum	L.	other	Aceraceae	other	2	tree	tree	WOODY	native	dicot	FAC	*	*
Alnus serrulata	(Aiton) Willd.	other	Betulaceae	other	6	shrub	full	WOODY	native	dicot	OBL	0.1500	0.03420
Betula nigra	L.	other	Betulaceae	other	9	tree	tree	WOODY	native	dicot	FACW	0.2100	0.04789
Bidens sp.	ND	other	Asteraceae	other	*	forb	full	AN	ND	dicot	ND	0.0800	0.01824
Boehmeria cylindrica	(L.) Sw.	other	Urticaceae	other	4	forb	shade	PE	native	dicot	FACW	0.0001	0.00002
Bryophyte	ND	other	ND	moss	*	moss	bryophyte	ND	ND	bryophyte	ND	0.0700	0.01596
Carex crinita var. crinita	Lam.	carex	Cyperaceae	cyper	3	sedge	shade	PE	native	monocot	OBL	0.0001	0.00002
Carex sp.	ND	carex	Cyperaceae	cyper	*	sedge	ND	PE	native	monocot	ND	0.0001	0.00002
Cephalanthus occidentalis	L.	cephalanthus	Rubiaceae	other	6	shrub	full	WOODY	native	dicot	OBL	1.9250	0.43895
Galium tinctorium	(L.) Scop.	other	Rubiaceae	other	4	forb	full	PE	native	dicot	OBL	0.0450	0.01026
Ilex verticillata	(L.) A. Gray	other	Aquifoliaceae	other	6	shrub	shade	WOODY	native	dicot	FACW	0.2100	0.04789
Juncus effusus	L.	other	Juncaceae	other	1	forb	full	PE	native	monocot	FACW	0.0050	0.00114
Lemna minor	L.	other	Lemnaceae	other	3	forb	full	AN	native	monocot	OBL	0.0400	0.00912
Osmunda regalis	L.	other	Osmundaceae	other	7	fern	partial	PE	native	svp	OBL	0.1100	0.02508
Polygonum sp.	ND	other	Polygonaceae	other	*	forb	ND	ND	ND	dicot	ND	0.0050	0.00114
Rosa palustris	Marshall	other	Rosaceae	other	5	shrub	full	WOODY	native	dicot	OBL	0.0150	0.00342
Scirpus cyperinus	(L.) Kunth	other	Cyperaceae	cyper	1	sedge	full	PE	native	monocot	FACW	0.0050	0.00114
Smilax sp.	ND	other	Smilacaceae	other	*	ND	ND	PE	native	monocot	ND	0.0001	0.00002
Sparganium americanum	Nutt.	other	Sparganiaceae	other	6	forb	full	PE	native	monocot	OBL	0.0050	0.00114
Spiraea tomentosa	L.	other	Rosaceae	other	4	shrub	full	WOODY	native	dicot	FACW	0.0050	0.00114
Thelypteris noveboracensis	(L.) Nieuwl.	other	Thelypteridaceae	other	4	fern	shade	PE	native	svp	FAC	0.0050	0.00114
Triadenum sp.	ND	other	Clusiaceae	other	*	forb	ND	PE	native	dicot	OBL	0.0001	0.00002
Utricularia gibba	L.	other	Lentibulariaceae	other	8	forb	full	PE	native	dicot	OBL	1.5000	0.34204
					sum CofC =	79						TOTAL COVER ALL SPECIES AT SITE	4.3855
					FQAI N =	17							
					FQAI score =	19.2							

APPENDIX B
EXAMPLE HAND CALCULATIONS

Falling Tree Vinton Co. 23 July 2002
Buttonbush swamp; beaver Impoundment
Western Allegheny Plateau

Plot 20 x 40 meters, 4 intensive modules,
Plot area: 0.08 ha

1ST REDUCTION WOODY STEM - FIELD DATA SHEET 2

mod #	species	vouch #	area (ha)	%subsample	size class (cm) woody stems >1m												
					shrub clump	0-<1	1-<2.5	2.5-<5	5-<10	10-<15	15-<20	20-<25	25-<30	30-<35	35-<40	>40 (record each tree)	
2	Ilex verticillata		0.1	0.50	7												
2	Betula nigra		0.1	0.50		4											
2	Alnus serrulata		0.1	0.50		1	2	1									
2	Cephalanthus occidentalis		0.1	0.50	2												
2	Standing dead		0.1	0.50							2	1					
1	Alnus serrulata		0.1	0.50	7												
1	Standing dead		0.1	0.50						1							
1	Acer rubrum		0.1	0.50						2	3						
1	Cephalanthus occidentalis		0.1	0.50	2												
3	Acer rubrum		0.1	0.50												1	42.5
3	Ilex verticillata		0.1	0.50	3												
3	Standing dead		0.1	0.50							1						
3	Betula nigra		0.1	0.50		6											
3	Alnus serrulata		0.1	0.50	1												
3	Cephalanthus occidentalis		0.1	0.50	5												
4	Cephalanthus occidentalis		0.1	0.50	7												
4	Alnus serrulata		0.1	0.50	6												
4	Betula nigra		0.1	0.50		3											
4	Standing dead		0.1	0.50										1			
4	Acer rubrum		0.1	0.50			3	1	2								
5	Acer rubrum		0.1	0.50		3			4		1			1			
5	Alnus serrulata		0.1	0.50	4			1									
5	Ilex verticillata		0.1	0.50	4												
5	Standing dead		0.1	0.50													51
5	Cephalanthus occidentalis		0.1	0.50	3												
5	Betula nigra		0.1	0.50		11		1									

APPENDIX B
EXAMPLE HAND CALCULATIONS

Falling Tree Vinton Co. 23 July 2002
Buttonbush swamp; beaver Impoundment
Western Allegheny Plateau

Plot 20 x 40 meters, 4 intensive modules,
Plot area: 0.08 ha

2nd REDUCTION WOODY STEM - FIELD DATA SHEET 2

species	shade spp	lifeform	indicator	area (ha)	%subsample	clumps	0-<1	1-<2.5	2.5-<5	5-<10	10-<15	15-<20	20-<25	25-<30	30-<35	35-<40	>40 all	>40-1
						c0	c1	c2	c3	c4	c5	c6	c7	c8	c9	c10		
Acer rubrum	tree	tree	FAC	0.08	0.50	0	3	3	1	6	2	4	0	1	0	1	1	42.5
Alnus serrulata	full sun	shrub	OBL	0.08	0.50	18	1	2	2	0	0	0	0	0	0	0	0	0
Betula nigra	tree	tree	FACW	0.08	0.50	24	0	0	1	0	0	0	0	0	0	0	0	0
Cephalanthus occidentalis	full sun	shrub	OBL	0.08	0.50	19	0	0	0	0	0	0	0	0	0	0	0	0
Ilex verticillata	shade	shrub	FACW	0.08	0.50	14	0	0	0	0	0	0	0	0	0	0	0	0
Standing dead	dead	ND	ND	0.08	0.50	0	0	0	0	0	1	3	1	1	0	0	1	51

APPENDIX B
EXAMPLE HAND CALCULATIONS

Falling Tree Vinton Co. 23 July 2002
Buttonbush swamp; beaver Impoundment
Western Allegheny Plateau

Plot 20 x 40 meters, 4 intensive modules,
Plot area: 0.08 ha

3rd REDUCTION WOODY STEM - FIELD DATA SHEET 2

species	class frequency	relative class freq	c5 density stems/ha	c6 density stems/ha	c7 density stems/ha	c5 relative density	c6 relative density	c7 relative density	relative density	dominance m2/ha	relative dominance	importance value
Acer rubrum	9	0.750	50	100	0	0.01818	0.03636	0.00000	0.20000	0.4608	0.53961	0.497
Alnus serrulata	4	0.333	0	0	0	0.00000	0.00000	0.00000	0.20909	0.0031	0.00359	0.182
Betula nigra	2	0.167	0	0	0	0.00000	0.00000	0.00000	0.22727	0.0016	0.00184	0.132
Cephalanthus occidentalis	1	0.083	0	0	0	0.00000	0.00000	0.00000	0.17273	0.0004	0.00044	0.085
Ilex verticillata	1	0.083	0	0	0	0.00000	0.00000	0.00000	0.12727	0.0003	0.00032	0.070
Standing dead	5	0.417	25	75	25	0.00909	0.02727	0.00909	0.06364	0.3879	0.45420	0.312

	metric value
Relative density of C5-C7 stems(pole timber metric) =	0.099
subcanopy IV metric	0.0703
canopy IV metric =	0.314

VIBI SUMMARY TABLE

	value	score
Carex metric =	2	3
Dicot metric =	11	3
Shrub metric =	5	10
Hydrophyte metric =	16	7
SVP metric =	2	7
FQAI score metric =	19.2	7
%bryophyte metric	0.016	3
%tolerant metric =	0.002	10
%sensitive metric =	0.464	10
subcanopy IV metric =	0.070	7
VIBI score =		67

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Abutilon theophrasti</i>	Medik.	adventive	Malvaceae	UPL	UPL	FACU	FACU	forb	AN	DI	advent
0	<i>Acalypha deamii</i>	(Weath.) Ahles.	native	Euphorbiaceae	(FAC)				forb	AN	DI	partial
0	<i>Acalypha ostryifolia</i>	Riddell	adventive	Euphorbiaceae	(FACU-)				forb	AN	DI	advent
0	<i>Acalypha rhomboidea</i>	Raf.	native	Euphorbiaceae	FACU-	FACU	FACU	FACU	forb	AN	DI	partial
*	<i>Acalypha</i> sp.	L.	ND	Euphorbiaceae	ND				forb	AN	DI	ND
0	<i>Acalypha virginica</i>	L.	native	Euphorbiaceae	FACU-	FACU	FACU	FACU	forb	AN	DI	partial
3	<i>Acer negundo</i>	L.	native	Aceraceae	FAC+	FAC	FAC	FAC	tree	W	DI	tree
0	<i>Acer palmatum</i>	Thunb.	adventive	Aceraceae	(FACU)				tree	W	DI	advent
10	<i>Acer pensylvanicum</i>	L.	native	Aceraceae	FACU	FACU	FACU	FACU	tree	W	DI	tree
0	<i>Acer platanoides</i>	L.	adventive	Aceraceae	UPL	UPL	UPL	UPL	tree	W	DI	advent
2	<i>Acer rubrum</i>	L.	native	Aceraceae	FAC	FAC	FAC	FAC	tree	W	DI	tree
3	<i>Acer saccharinum</i>	L.	native	Aceraceae	FACW	FACW	FACW	FACW	tree	W	DI	tree
5	<i>Acer saccharum</i>	Marshall	native	Aceraceae	FACU-	FACU	FACU	FACU	tree	W	DI	tree
*	<i>Acer</i> sp.	L.	ND	Aceraceae	ND				tree	W	DI	tree
8	<i>Acer spicatum</i>	Lam.	native	Aceraceae	FACU-	FACU	FACU	FACU	tree	W	DI	tree
0	<i>Acer tataricum</i>	L.	adventive	Aceraceae	(FACU)				tree	W	DI	advent
3	<i>Acer x freemanii</i>	E.Murray	native	Aceraceae	FACW	FACW	FACW	FACW	tree	W	DI	tree
1	<i>Achillea millefolium</i>	DC.	native	Asteraceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
10	<i>Aconitum noveboracense</i>	A. Gray	native	Ranunculaceae	(UPL)				forb	PE	DI	shade
10	<i>Aconitum</i> sp.	L.	ND	Ranunculaceae	ND				forb	PE	DI	shade
10	<i>Aconitum uncinatum</i>	L.	native	Ranunculaceae	(FAC+)	FAC			forb	PE	DI	shade
6	<i>Acorus americanus</i>	(Raf.) Raf.	native	Acoraceae	(OBL)	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Acorus calamus</i>	L.	adventive	Acoraceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
7	<i>Actaea alba</i>	(L.) Mill.	native	Ranunculaceae	UPL	UPL	FACU	UPL	forb	PE	DI	shade
7	<i>Actaea rubra</i>	(Aiton) Willd.	native	Ranunculaceae	UPL	UPL	FACU	FACU	forb	PE	DI	shade
*	<i>Actaea</i> sp.	L.	ND	Ranunculaceae	UPL				forb	PE	DI	shade
0	<i>Actinidia arguta</i>	(Siebold & Zucc.) Planch. ex Miq.	adventive	Actinidiaceae	(UPL)				vine	PE	DI	advent
6	<i>Adiantum pedatum</i>	L.	native	Pteridaceae	FAC-	FAC	FACU	FACU	fern	PE	SVP	shade
8	<i>Adlumia fungosa</i>	(Aiton) Greene ex B.S.P.	native	Fumariaceae	(UPL)				forb	BI	DI	shade
0	<i>Aegilops cylindrica</i>	Host	adventive	Poaceae	(UPL)				grass	AN	MO	advent
0	<i>Aegopodium podagraria</i>	L.	adventive	Apiaceae	FACU	FACU	FAC	FAC	forb	PE	DI	advent
7	<i>Aesculus flava</i>	Aiton	native	Hippocastanaceae	(UPL)	FACU	FACU	FACU	tree	W	DI	tree
6	<i>Aesculus glabra</i>	Willd.	native	Hippocastanaceae	FACU+	FACU	FAC	FAC	tree	W	DI	tree
0	<i>Aesculus hippocastanum</i>	L.	adventive	Hippocastanaceae	(UPL)				tree	W	DI	advent
*	<i>Aesculus</i> sp.	L.	ND	Hippocastanaceae	ND				tree	W	DI	tree
0	<i>Aethusa cynapium</i>	L.	adventive	Apiaceae	(FACU)				forb	AN	DI	advent
8	<i>Agalinis auriculata</i>	(Michx.) S.F. Blake	native	Scrophulariaceae	(UPL)				forb	AN	DI	full
8	<i>Agalinis gattingeri</i>	(Small) Small ex Britton	native	Scrophulariaceae	(FACW)				forb	AN	DI	full
10	<i>Agalinis purpurea</i> (L.) Pennell var. <i>parviflora</i>	(Benth.) B. Boivin	native	Scrophulariaceae	FACW+				forb	AN	DI	full
6	<i>Agalinis purpurea</i> var. <i>purpurea</i>	(L.) Pennell	native	Scrophulariaceae	FACW-				forb	AN	DI	full
10	<i>Agalinis skinneriana</i>	(A.W. Wood) Britton	native	Scrophulariaceae	(FACW)			FACU	forb	AN	DI	full
*	<i>Agalinis</i> sp.	Raf.	ND	Scrophulariaceae	ND				forb	AN	DI	full
4	<i>Agalinis tenuifolia</i>	(M. Vahl) Raf.	native	Scrophulariaceae	FAC	FAC	FACW	FACW	forb	AN	DI	full
4	<i>Agastache nepetoides</i>	(L.) Kuntze	native	Lamiaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
4	<i>Agastache scrophulariifolia</i>	(Willd.) Kuntze	native	Lamiaceae	(UPL)				forb	PE	DI	shade

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
*	Agastache sp.	Clayton ex Gronov.	ND	Lamiaceae	ND				forb	PE	DI	shade
3	Agrimonia gryposepala	Wallr.	native	Rosaceae	FACU	FACU	FACU	FACU	forb	PE	DI	partial
2	Agrimonia parviflora	Aiton	native	Rosaceae	FAC	FACW	FACW	FAC	forb	PE	DI	shade
5	Agrimonia pubescens	Wallr.	native	Rosaceae	(UPL)				forb	PE	DI	shade
5	Agrimonia rostellata	Wallr.	native	Rosaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
*	Agrimonia sp.	L.	ND	Rosaceae	ND				forb	PE	DI	partial
7	Agrimonia striata	Michx.	native	Rosaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	shade
0	Agropyron desertorum	(Fisch. ex Link) Schult.	adventive	Poaceae	(UPL)				grass	PE	MO	advent
0	Agrostemma githago	L.	adventive	Caryophyllaceae	(FACU)				forb	BI	DI	advent
0	Agrostis capillaris	L.	adventive	Poaceae	(UPL)	FAC	FAC	FAC	grass	PE	MO	advent
5	Agrostis elliottiana	Schult.	native	Poaceae	(UPL)	FACU	FACU	FACU	grass	AN	MO	full
0	Agrostis gigantea	Roth	adventive	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	advent
3	Agrostis hyemalis	(Walter) B.S.P.	native	Poaceae	FAC	FAC	FAC	FAC	grass	PE	MO	shade
4	Agrostis perennans	(Walter) Tuck.	native	Poaceae	FACU	FACU	FAC	FACU	grass	PE	MO	partial
*	Agrostis sp.	L.	ND	Poaceae	ND				grass	ND	MO	ND
0	Agrostis stolonifera	L.	adventive	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	advent
0	Agrostis tenuis	Sibth.	adventive	Poaceae	(FACU-)				grass	PE	MO	advent
0	Ailanthus altissima	(Mill.) Swingle	adventive	Simaroubaceae	FACU-	FACU	FACU	UPL	tree	W	DI	advent
0	Aira caryophyllea	L.	adventive	Poaceae	(FACU)	FAC	FACU	UPL	grass	AN	MO	advent
0	Ajuga genevensis	L.	adventive	Lamiaceae	(FACU)				forb	PE	DI	advent
0	Ajuga reptans	L.	adventive	Lamiaceae	(UPL)				forb	PE	DI	advent
0	Akebia quinata	(Houtt.) Decne.	adventive	Lardizabalaceae	(UPL)				vine	W	DI	advent
0	Albizia julibrissin	Durazz.	adventive	Mimosaceae	(UPL)				tree	W	DI	advent
8	Aletris farinosa	L.	native	Liliaceae	FAC	FAC	FAC	FAC	forb	PE	MO	full
*	Alisma sp.	L.	ND	Alismataceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
2	Alisma subcordatum	Raf.	native	Alismataceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
6	Alisma triviale	Pursh	native	Alismataceae	(OBL)	OBL	OBL	OBL	forb	PE	MO	full
0	Alliaria petiolata	(M. Bieb.) Cavara & Grande	adventive	Brassicaceae	FACU-	FACU	FAC	FACU	forb	BI	DI	advent
2	Allium canadense	L.	native	Liliaceae	FACU	FACU	FACU	FACU	forb	PE	MO	full
5	Allium cernuum	Roth	native	Liliaceae	(FACU)	FACU	FACU	FACU	forb	PE	MO	full
0	Allium sativum	L.	adventive	Liliaceae	(UPL)				forb	PE	MO	advent
0	Allium schoenoprasum	L.	adventive	Liliaceae	(FAC)	FACU	FAC	FACU	forb	PE	MO	advent
*	Allium sp.	L.	ND	Liliaceae	ND				forb	PE	MO	ND
5	Allium tricoccum	Aiton	native	Liliaceae	FACU+	FACU	FACU	FACU	forb	PE	MO	shade
0	Allium vineale	L.	adventive	Liliaceae	FACU-	FACU	FACU	FACU	forb	PE	MO	advent
0	Alnus glutinosa	(L.) Gaertn.	adventive	Betulaceae	FACW-	FACW	FACW	FACW	shrub	W	DI	advent
6	Alnus incana	(L.) Moench	native	Betulaceae	FACW+	FACU	FACW	FACW	shrub	W	DI	full
6	Alnus serrulata	(Aiton) Willd.	native	Betulaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
*	Alnus sp.	Mill.	ND	Betulaceae	ND				shrub	W	DI	ND
3	Alopecurus aequalis	Sobol.	native	Poaceae	OBL	OBL	OBL	OBL	grass	PE	MO	partial
1	Alopecurus carolinianus	Walter	native	Poaceae	FACW	FACW	FACW	FACW	grass	AN	MO	partial
0	Alopecurus myosuroides	Huds.	adventive	Poaceae	FACW	FACW	FACW	FACW	grass	AN	MO	advent
0	Alopecurus pratensis	L.	adventive	Poaceae	FACW	FACW	FACW	FAC	grass	PE	MO	advent
0	Alopecurus sp.	L.	ND	Poaceae	ND				grass	ND	MO	partial
0	Althaea officinalis	L.	adventive	Malvaceae	FACW+	FACW	FACW	FAC	forb	PE	DI	advent

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Althaea rosea</i>	(L.) Cav.	adventive	Malvaceae	(UPL)				forb	BI	DI	advent
0	<i>Alyssum alyssoides</i>	(L.) L.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	<i>Alyssum saxatile</i>	L.	adventive	Brassicaceae	(FACU)				forb	PE	DI	advent
0	<i>Amaranthus albus</i>	L.	native	Amaranthaceae	FACU	FACU	FACU	FACU	forb	AN	DI	full
0	<i>Amaranthus blitoides</i>	S. Watson	adventive	Amaranthaceae	(UPL)	FAC	FACU	FACU	forb	AN	DI	advent
0	<i>Amaranthus blitum</i>	L.	adventive	Amaranthaceae	(FAC)	FACU	FAC	FACU	forb	AN	DI	advent
0	<i>Amaranthus cruentus</i>	L.	adventive	Amaranthaceae	(FACU-)				forb	AN	DI	advent
0	<i>Amaranthus hybridus</i>	L.	adventive	Amaranthaceae	(UPL)				forb	AN	DI	advent
0	<i>Amaranthus palmeri</i>	S. Wats.	adventive	Amaranthaceae	FACU	FACU	FACU	FACU	forb	AN	DI	advent
0	<i>Amaranthus powellii</i>	S. Wats.	adventive	Amaranthaceae	(FACU)				forb	AN	DI	advent
0	<i>Amaranthus retroflexus</i>	L.	adventive	Amaranthaceae	FACU	FACU	FACU	FACU	forb	AN	DI	advent
0	<i>Amaranthus rudis</i>	Sauer	adventive	Amaranthaceae	FACW-	FACW	OBL	OBL	forb	AN	DI	advent
*	<i>Amaranthus sp.</i>	L.	ND	Amaranthaceae	ND				forb	AN	DI	ND
0	<i>Amaranthus spinosus</i>	L.	adventive	Amaranthaceae	FACU	FACU	FACU	FACU	forb	AN	DI	advent
1	<i>Amaranthus tuberculatus</i>	(Moq.) J.D. Sauer	native	Amaranthaceae	FACW	FACW	OBL	OBL	forb	AN	DI	full
0	<i>Ambrosia artemisiifolia</i>	L.	native	Asteraceae	FACU	FACU	FACU	FACU	forb	AN	DI	full
1	<i>Ambrosia bidentata</i>	Michx.	native	Asteraceae	(UPL)				forb	AN	DI	full
0	<i>Ambrosia psilostachya</i>	DC.	adventive	Asteraceae	FACU-	FAC	FACU	FAC	forb	PE	DI	advent
*	<i>Ambrosia sp.</i>	L.	ND	Asteraceae	ND				forb	ND	DI	ND
0	<i>Ambrosia trifida</i>	L.	native	Asteraceae	FAC	FAC	FAC	FAC	forb	AN	DI	full
5	<i>Amelanchier arborea</i>	(F. Michx.) Fernald	native	Rosaceae	FAC-	FAC	FACU	FACU	sm tree	W	DI	shade
4	<i>Amelanchier interior</i>	Nielsen	native	Rosaceae	(FACU)				sm tree	W	DI	shade
5	<i>Amelanchier laevis</i>	Wiegand	native	Rosaceae	(FAC)				sm tree	W	DI	shade
7	<i>Amelanchier sanguinea</i>	(Pursh) DC.	native	Rosaceae	(UPL)				sm tree	W	DI	shade
*	<i>Amelanchier sp.</i>	Medik.	ND	Rosaceae	ND				sm tree	W	DI	shade
7	<i>Amelanchier spicata</i>	(Lam.) K. Koch	native	Rosaceae	(FACU)	FACU	FACU	FACU	sm tree	W	DI	shade
7	<i>Ammannia coccinea</i>	Rottb.	native	Lythraceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
7	<i>Ammannia robusta</i>	Heer & Regel	native	Lythraceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
7	<i>Ammannia sp.</i>	L.	ND	Lythraceae	OBL				forb	AN	DI	full
10	<i>Ammophila breviligulata</i>	Fernald	native	Poaceae	FACU-	FACU	UPL	UPL	grass	PE	DI	full
3	<i>Amorpha fruticosa</i>	L.	native	Fabaceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
1	<i>Ampelamus albidus</i>	(Nutt.) Britton	native	Asclepiadaceae	FAC				vine	PE	DI	full
0	<i>Ampelopsis brevipedunculata</i>	(Maxim.) Trautv.	adventive	Vitaceae	(UPL)				vine	W	DI	advent
7	<i>Ampelopsis cordata</i>	Michx.	native	Vitaceae	FAC+	FAC	FAC	FAC	vine	W	DI	shade
*	<i>Ampelopsis sp.</i>	Michx.	ND	Vitaceae	ND				vine	W	DI	ND
0	<i>Amphiachyris dracunculoides</i>	(DC.) Nutt.	adventive	Asteraceae	(UPL)				forb	AN	DI	advent
4	<i>Amphicarpaea bracteata</i>	(L.) Fernald	native	Fabaceae	FAC	FAC	FAC	FAC	forb	PE	DI	shade
0	<i>Amsinckia lycopsoidea</i>	Lehm.	adventive	Boraginaceae	(UPL)				forb	AN	DI	advent
0	<i>Amsonia tabernaemontana</i>	Walter	adventive	Apocynaceae	(FACU)	FAC	FACW	FACW	forb	PE	DI	advent
0	<i>Anagallis arvensis</i>	L.	adventive	Primulaceae	(FACU)				forb	AN	DI	advent
5	<i>Anaphalis margaritacea</i>	(L.) Benth. & Hook.	native	Asteraceae	(UPL)				forb	PE	DI	full
0	<i>Anchusa arvensis</i>	(L.) Bieb	adventive	Boraginaceae	(FACU)				forb	AN	DI	advent
0	<i>Anchusa azurea</i>	Mill.	adventive	Boraginaceae	(FACU)				forb	PE	DI	advent
0	<i>Anchusa officinalis</i>	L.	adventive	Boraginaceae	(UPL)				forb	BI	DI	advent
10	<i>Andromeda glaucophylla</i>	Link.	native	Ericaceae	OBL				shrub	W	DI	full

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5	<i>Andropogon gerardii</i>	Vitman	native	Poaceae	FAC	FAC	FAC	FACU	grass	PE	MO	full
6	<i>Andropogon glomeratus</i>	(Walter) B.S.P.	native	Poaceae	FACW+	FACW	FACW	FACW	grass	PE	MO	full
3	<i>Andropogon gyrans</i>	Ashe	native	Poaceae	(UPL)	OBL	UPL		grass	PE	MO	full
*	<i>Andropogon</i> sp.	L.	ND	Poaceae	ND				grass	PE	MO	full
3	<i>Andropogon virginicus</i>	L.	native	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	full
10	<i>Androsace occidentalis</i>	Pursh	native	Primulaceae	(FACU)	FACU	FACU	UPL	forb	AN	DI	full
5	<i>Anemone canadensis</i>	L.	native	Ranunculaceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
8	<i>Anemone cylindrica</i>	A. Gray	native	Ranunculaceae	(UPL)				forb	PE	DI	full
5	<i>Anemone quinquefolia</i>	L.	native	Ranunculaceae	FACU	FACU	FAC	FACU	forb	PE	DI	shade
*	<i>Anemone</i> sp.	L.	ND	Ranunculaceae	ND				forb	PE	DI	ND
3	<i>Anemone virginiana</i>	L.	native	Ranunculaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
6	<i>Anemonella thalictroides</i>	(L.) Spach.	native	Ranunculaceae	(UPL)				forb	PE	DI	shade
0	<i>Anethum graveolens</i>	L.	adventive	Apiaceae	(FACU)				forb	AN	DI	advent
6	<i>Angelica atropurpurea</i>	L.	native	Apiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
6	<i>Angelica</i> sp.	L.	ND	Apiaceae	ND				forb	PE	DI	ND
6	<i>Angelica venenosa</i>	(Greenway) Fernald	native	Apiaceae	(FACU)				forb	PE	DI	full
0	<i>Anoda cristata</i>	(L.) Schlechtend.	adventive	Malvaceae	UPL	UPL	FAC	FAC	forb	AN	DI	advent
1	<i>Antennaria neglecta</i>	Greene	native	Asteraceae	FACU-	UPL	UPL	UPL	forb	PE	DI	full
1	<i>Antennaria plantaginifolia</i>	(L.) Richardson	native	Asteraceae	(UPL)				forb	PE	DI	full
3	<i>Antennaria solitaria</i>	Rydb.	native	Asteraceae	(UPL)				forb	PE	DI	full
*	<i>Antennaria</i> sp.	Gaertn.	ND	Asteraceae	ND				forb	PE	DI	full
9	<i>Antennaria virginica</i>	Stebbins	native	Asteraceae	(UPL)				forb	PE	DI	full
0	<i>Anthemis arvensis</i>	L.	adventive	Asteraceae	(UPL)				forb	AN	DI	advent
0	<i>Anthemis cotula</i>	L.	adventive	Asteraceae	FACU-	FACU	FACU	FACU	forb	AN	DI	advent
0	<i>Anthemis nobilis</i>	L.	adventive	Asteraceae	(FACU)				forb	PE	DI	advent
*	<i>Anthemis</i> sp.	L.	ND	Asteraceae	ND				forb	ND	DI	advent
0	<i>Anthemis tinctoria</i>	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Anthoxanthum aristatum</i>	Boiss.	adventive	Poaceae	(FACU)				grass	AN	MO	advent
0	<i>Anthoxanthum odoratum</i>	L.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	advent
0	<i>Anthriscus caucalis</i>	M. Bieb.	adventive	Apiaceae	(UPL)				forb	AN	DI	advent
0	<i>Anthriscus sylvestris</i>	(L.) Hoffm.	adventive	Apiaceae	(UPL)				forb	AN	DI	advent
0	<i>Anthyllis vulneraria</i>	L.	adventive	Fabaceae	(UPL)				forb	PE	DI	advent
0	<i>Antirrhinum majus</i>	L.	adventive	Scrophulariaceae	(FACU)				forb	AN	DI	advent
0	<i>Antirrhinum orontium</i>	L.	adventive	Scrophulariaceae	(FACU)				forb	AN	DI	advent
0	<i>Apera spica-venti</i>	(L.) P. Beauv.	adventive	Poaceae	(UPL)				grass	AN	MO	advent
3	<i>Apios americana</i>	Medik.	native	Fabaceae	FACW	FACW	FACW	FACW	forb	PE	DI	partial
0	<i>Apium graveolens</i>	L.	adventive	Apiaceae	FAC				forb	PE	DI	advent
7	<i>Aplectrum hyemale</i>	(Muhl. ex Willd.) Torr.	native	Orchidaceae	FAC	FAC	FAC	FAC	forb	PE	MO	shade
6	<i>Apocynum androsaemifolium</i>	L.	native	Apocynaceae	FACU-	FACU	UPL	UPL	forb	PE	DI	full
1	<i>Apocynum cannabinum</i>	L.	native	Apocynaceae	FACU	FACU	FAC	FAC	forb	PE	DI	full
*	<i>Apocynum</i> sp.	L.	ND	Apocynaceae	ND				forb	PE	DI	full
6	<i>Aquilegia canadensis</i>	L.	native	Ranunculaceae	FAC	FAC	FACU	FACU	forb	PE	DI	shade
0	<i>Aquilegia vulgaris</i>	L.	adventive	Ranunculaceae	(FACU)				forb	PE	DI	advent
6	<i>Arabidopsis lyrata</i>	(L.) O'Kane & Al-Shehbaz	native	Brassicaceae	FACU	FACU	FACU	FACU	forb	BI	DI	full
0	<i>Arabidopsis thaliana</i>	(L.) Heynh.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent

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5	<i>Arabis canadensis</i>	L.	native	Brassicaceae	(UPL)				forb	BI	DI	shade
3	<i>Arabis glabra</i>	(L.) Bernh.	native	Brassicaceae	(UPL)				forb	BI	DI	full
4	<i>Arabis laevigata</i>	(Muhl. ex Willd.) Poir.	native	Brassicaceae	(UPL)				forb	BI	DI	shade
10	<i>Arabis patens</i>	Sull.	native	Brassicaceae	(UPL)				forb	BI	DI	shade
4	<i>Arabis pycnocarpa</i> M. Hopkins. var. <i>adpressipilis</i>	M. Hopkins	native	Brassicaceae	FACU				forb	BI	DI	shade
6	<i>Arabis pycnocarpa</i> M. Hopkins. var. <i>pycnocarpa</i>	M. Hopkins	native	Brassicaceae	FACU				forb	BI	DI	partial
7	<i>Arabis shortii</i>	(Fernald) Gleason	native	Brassicaceae	(UPL)				forb	PE	DI	shade
*	<i>Arabis</i> sp.	L.	ND	Brassicaceae	ND				forb	BI	DI	ND
7	<i>Aralia hispida</i>	Vent.	native	Araliaceae	(UPL)				forb	PE	DI	shade
5	<i>Aralia nudicaulis</i>	L.	native	Araliaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
5	<i>Aralia racemosa</i>	L.	native	Araliaceae	(UPL)	FACU	FACU	FACU	forb	PE	DI	shade
*	<i>Aralia</i> sp.	L.	ND	Araliaceae	ND				forb	PE	DI	shade
5	<i>Aralia spinosa</i>	L.	native	Araliaceae	FAC	FAC	FACW	FAC	shrub	W	DI	shade
0	<i>Arctium lappa</i>	L.	adventive	Asteraceae	(FACU+)				forb	BI	DI	advent
0	<i>Arctium minus</i>	Berhn.	adventive	Asteraceae	FACU-	FACU	FACU	FACU	forb	BI	DI	advent
10	<i>Arctostaphylos uva-ursi</i>	(L.) Spreng.	native	Ericaceae	(UPL)	UPL	UPL	UPL	shrub	W	DI	full
7	<i>Arenaria lateriflora</i>	L.	native	Caryophyllaceae	(FACU-)				forb	PE	DI	full
9	<i>Arenaria patula</i>	Michx.	native	Caryophyllaceae	(UPL)				forb	AN	DI	full
0	<i>Arenaria serpyllifolia</i>	L.	adventive	Caryophyllaceae	FAC	FAC	FAC	FAC	forb	AN	DI	advent
*	<i>Arenaria</i> sp.	L.	ND	Caryophyllaceae	ND				forb	ND	DI	ND
10	<i>Arenaria stricta</i>	Michx.	native	Caryophyllaceae	(UPL)				forb	PE	DI	full
10	<i>Arethusa bulbosa</i>	L.	native	Orchidaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
0	<i>Argemone albiflora</i>	Hornem.	adventive	Papaveraceae	(UPL)				forb	AN	DI	advent
0	<i>Argemone mexicana</i>	L.	adventive	Papaveraceae	(UPL)				forb	AN	DI	advent
5	<i>Arisaema dracontium</i>	(L.) Schott	native	Araceae	FACW	FACW	FACW	FACW	forb	PE	MO	shade
*	<i>Arisaema</i> sp.	Mart.	ND	Araceae	ND				forb	PE	MO	shade
7	<i>Arisaema triphyllum</i> (L.) Schott subsp. <i>stewardsonii</i>	(Britton) Huttleston	native	Araceae	(FACW-)	FACW	FACW	FAC	forb	PE	MO	shade
3	<i>Arisaema triphyllum</i> subsp. <i>triphyllum</i>	(L.) Schott	native	Araceae	(FACU-)	FACW	FACW	FAC	forb	PE	MO	shade
1	<i>Aristida dichotoma</i>	Michx.	native	Poaceae	UPL	UPL	FACU	FACU	grass	AN	MO	full
8	<i>Aristida longespica</i> Poir. var. <i>geniculata</i>	(Raf.) Fernald	native	Poaceae	(UPL)	UPL	FACU	FACU	grass	AN	MO	full
4	<i>Aristida longespica</i> var. <i>longespica</i>	Poir.	native	Poaceae	UPL	UPL	FACU	FACU	grass	AN	MO	full
1	<i>Aristida oligantha</i>	Michx.	native	Poaceae	(UPL)				grass	AN	MO	full
7	<i>Aristida purpurascens</i>	Poir.	native	Poaceae	(UPL)	FAC	FACU	UPL	grass	PE	MO	full
*	<i>Aristida</i> sp.	L.	ND	Poaceae	UPL				grass	ND	MO	full
0	<i>Aristolochia clematitis</i>	L.	adventive	Aristolochiaceae	(UPL)				forb	PE	DI	advent
7	<i>Aristolochia serpentaria</i>	L.	native	Aristolochiaceae	(UPL)	UPL	UPL	UPL	forb	PE	DI	shade
0	<i>Aristolochia tomentosa</i>	Sims	adventive	Aristolochiaceae	FAC	FAC	FAC	FAC	vine	W	DI	advent
0	<i>Armoracia rusticana</i>	P. Gaertn.% B. Mey. & Scherb.	adventive	Brassicaceae	(FAC)				forb	PE	DI	advent
0	<i>Arnoseris minima</i>	(L.) Schweigg. & Korte	adventive	Asteraceae	(UPL)				forb	AN	DI	advent
9	<i>Aronia arbutifolia</i>	(L.) Pers.	native	Rosaceae	FACW	FACW	FACW	FACW	shrub	W	DI	partial
5	<i>Aronia melanocarpa</i>	(Michx.) Elliott	native	Rosaceae	FAC	FAC	FACW	FAC	shrub	W	DI	partial
*	<i>Aronia</i> sp.	L.	ND	Rosaceae	ND				shrub	W	DI	partial
0	<i>Arrhenatherum elatius</i>	P. Beauv.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	advent

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Artemisia absinthium</i>	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Artemisia annua</i>	L.	adventive	Asteraceae	FACU	FACU	FACU	FACU	forb	AN	DI	advent
0	<i>Artemisia biennis</i>	Willd.	adventive	Asteraceae	FACU-	FACU	FACW	FACW	forb	BI	DI	advent
10	<i>Artemisia campestris</i> L. var. <i>caudata</i>	(Michx.) E.J. Palm. & Steyerem.	native	Asteraceae	(FAC+)				forb	PE	DI	full
0	<i>Artemisia ludoviciana</i>	Nutt.	adventive	Asteraceae	(UPL)	UPL	UPL	UPL	forb	PE	DI	advent
0	<i>Artemisia pontica</i>	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
*	<i>Artemisia</i> sp.	L.	ND	Asteraceae	ND				forb	ND	DI	ND
0	<i>Artemisia vulgaris</i>	L.	adventive	Asteraceae	FACU-	UPL	UPL	UPL	forb	PE	DI	advent
0	<i>Arthraxon hispidus</i>	(Thunb.) Makino	adventive	Poaceae	FAC	FAC	FACW	FACW	grass	AN	MO	advent
6	<i>Aruncus dioicus</i>	(Walter) Fernald	native	Rosaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
7	<i>Arundinaria gigantea</i>	(Walter) Muhl.	native	Poaceae	FACW	FACW	FACW		grass	PE	MO	full
6	<i>Asarum canadense</i>	L.	native	Aristolochiaceae	FACU-	FACU	FACU	UPL	forb	PE	DI	shade
7	<i>Asclepias amplexicaulis</i>	Sm.	native	Asclepiadaceae	(UPL)				forb	PE	DI	full
8	<i>Asclepias exaltata</i>	L.	native	Asclepiadaceae	FACU	FACU	UPL	UPL	forb	PE	DI	full
8	<i>Asclepias hirtella</i>	(Pennell) Woodson	native	Asclepiadaceae	(UPL)				forb	PE	DI	full
4	<i>Asclepias incarnata</i>	L.	native	Asclepiadaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
7	<i>Asclepias purpurascens</i>	L.	native	Asclepiadaceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
6	<i>Asclepias quadrifolia</i>	Jacq.	native	Asclepiadaceae	(UPL)				forb	PE	DI	full
*	<i>Asclepias</i> sp.	L.	ND	Asclepiadaceae	ND				forb	PE	DI	full
8	<i>Asclepias sullivantii</i>	Engelm. ex A. Gray	native	Asclepiadaceae	(UPL)				forb	PE	DI	full
1	<i>Asclepias syriaca</i>	L.	native	Asclepiadaceae	FACU-	FACU	FACU	UPL	forb	PE	DI	full
4	<i>Asclepias tuberosa</i>	L.	native	Asclepiadaceae	(UPL)				forb	PE	DI	full
7	<i>Asclepias variegata</i>	L.	native	Asclepiadaceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
4	<i>Asclepias verticillata</i>	L.	native	Asclepiadaceae	(UPL)	FACU	FACU	UPL	forb	PE	DI	full
5	<i>Asclepias viridiflora</i>	Raf.	native	Asclepiadaceae	(UPL)				forb	PE	DI	full
7	<i>Asclepias viridis</i>	Walter	native	Asclepiadaceae	(UPL)				forb	PE	DI	full
6	<i>Asimina triloba</i>	(L.) Dunal	native	Annonaceae	FACU+	FAC	FAC	FAC	sm tree	W	DI	shade
0	<i>Asparagus officinalis</i>	L.	adventive	Liliaceae	FACU	FACU	FACU	FACU	forb	PE	MO	advent
0	<i>Asperugo procumbens</i>	L.	adventive	Boraginaceae	(FAC)	UPL	UPL	FACU	forb	AN	DI	advent
8	<i>Asplenium bradleyi</i>	DC. Eaton	native	Aspleniaceae	(UPL)				fern	PE	SVP	shade
7	<i>Asplenium montanum</i>	Willd.	native	Aspleniaceae	(UPL)				fern	PE	SVP	shade
8	<i>Asplenium pinnatifidum</i>	Nutt.	native	Aspleniaceae	(UPL)				fern	PE	SVP	shade
3	<i>Asplenium platyneuron</i>	(L.) B.S.P.	native	Aspleniaceae	FACU	FACU	FACU	FACU	fern	PE	SVP	shade
7	<i>Asplenium resiliens</i>	Kunze	native	Aspleniaceae	(UPL)				fern	PE	SVP	shade
7	<i>Asplenium rhizophyllum</i>	L.	native	Aspleniaceae	(UPL)				fern	PE	SVP	shade
10	<i>Asplenium ruta-muraria</i>	L.	native	Aspleniaceae	(UPL)				fern	PE	SVP	shade
*	<i>Asplenium</i> sp.	L.	ND	Aspleniaceae	ND				fern	PE	SVP	shade
7	<i>Asplenium trichomanes</i>	L.	native	Aspleniaceae	(UPL)	FAC	UPL	UPL	fern	PE	SVP	shade
8	<i>Aster acuminatus</i>	Michx.	native	Asteraceae	FACU+	FACU		FACU	forb	PE	DI	full
9	<i>Aster borealis</i>	(Torr. & A. Gray) Prov.	native	Asteraceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Aster brachyactis</i>	S.F. Blake	adventive	Asteraceae	(FAC)	FAC	FAC	FAC	forb	AN	DI	advent
4	<i>Aster cordifolius</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
5	<i>Aster divaricatus</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
6	<i>Aster drummondii</i>	Lindl.	native	Asteraceae	(UPL)				forb	PE	DI	shade
9	<i>Aster dumosus</i>	L.	native	Asteraceae	FAC	FAC	FAC	FAC	forb	PE	DI	full

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
2	<i>Aster ericoides</i>	L.	native	Asteraceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
7	<i>Aster firmus</i>	Nees	native	Asteraceae	(OBL)	OBL	OBL	OBL	forb	PE	DI	full
8	<i>Aster infirmus</i>	Michx.	native	Asteraceae	(UPL)				forb	PE	DI	shade
6	<i>Aster laevis</i>	L.	native	Asteraceae	UPL	FACU	FACU	FACU	forb	PE	DI	full
3	<i>Aster lanceolatus</i>	Willd.	native	Asteraceae	(FACW)	FACW	FAC	FACW	forb	PE	DI	full
2	<i>Aster lateriflorus</i>	(L.) Britton	native	Asteraceae	FACW-	FACW	FACW	FAC	forb	PE	DI	shade
8	<i>Aster linariifolius</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
6	<i>Aster lowrieanus</i>	T.C. Porter	native	Asteraceae	(UPL)				forb	PE	DI	shade
5	<i>Aster macrophyllus</i>	L.	native	Asteraceae	UPL	UPL	FACU	UPL	forb	PE	DI	shade
2	<i>Aster novae-angliae</i>	L.	native	Asteraceae	FACW-	FACW	FACW	FACW	forb	PE	DI	full
7	<i>Aster oblongifolius</i>	Nutt.	native	Asteraceae	(UPL)				forb	PE	DI	full
7	<i>Aster ontarionis</i>	Wiegand	native	Asteraceae	FAC				forb	PE	DI	shade
7	<i>Aster oolentangiensis</i>	Riddell	native	Asteraceae	(UPL)				forb	PE	DI	full
6	<i>Aster patens</i>	Aiton	native	Asteraceae	(UPL)				forb	PE	DI	partial
4	<i>Aster paternus</i>	Cronquist	native	Asteraceae	(UPL)				forb	PE	DI	shade
1	<i>Aster pilosus</i>	Willd.	native	Asteraceae	UPL	FAC	FACU	FACU	forb	PE	DI	full
6	<i>Aster praealtus</i>	Poir.	native	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
4	<i>Aster prenanthoides</i>	Muhl. ex Willd.	native	Asteraceae	FAC	FAC	FAC	FAC	forb	PE	DI	partial
7	<i>Aster puniceus</i>	L.	native	Asteraceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
2	<i>Aster racemosus</i>	Elliott	native	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
3	<i>Aster sagittifolius</i>	Wedem. ex Willd.	native	Asteraceae	(UPL)				forb	PE	DI	shade
5	<i>Aster schreberi</i>	Nees	native	Asteraceae	(FACU+)				forb	PE	DI	shade
4	<i>Aster shortii</i>	Lindl.	native	Asteraceae	(UPL)				forb	PE	DI	shade
8	<i>Aster solidagineus</i>	Michx.	native	Asteraceae	(UPL)				forb	PE	DI	partial
*	<i>Aster</i> sp.	L.	ND	Asteraceae	ND				forb	PE	DI	ND
0	<i>Aster subulatus</i>	Michx.	adventive	Asteraceae	OBL	OBL	OBL	FACW	forb	AN	DI	advent
9	<i>Aster surculosus</i>	Michx.	native	Asteraceae	(UPL)				forb	PE	DI	full
3	<i>Aster umbellatus</i>	Mill.	native	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	partial
3	<i>Aster undulatus</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	full
3	<i>Astragalus canadensis</i>	L.	native	Fabaceae	FAC	FAC	FAC	FAC	forb	PE	DI	full
10	<i>Astragalus neglectus</i>	(Torr. & A. Gray) E. Sheld.	native	Fabaceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
5	<i>Athyrium filix-femina</i>	(L.) Roth ex Mert.	native	Dryopteridaceae	FAC	FAC	FAC	FAC	fern	PE	SVP	shade
8	<i>Athyrium pycnocarpon</i>	(Spreng.) Tidestr.	native	Dryopteridaceae	FAC	FAC	FACU	FAC	fern	PE	SVP	shade
*	<i>Athyrium</i> sp.	Roth	ND	Dryopteridaceae	FAC				fern	PE	SVP	shade
6	<i>Athyrium thelypteroides</i>	(Michx.) Desv.	native	Dryopteridaceae	FAC				fern	PE	SVP	shade
0	<i>Atriplex patula</i>	L.	adventive	Chenopodiaceae	FACW	FACW	FACW	FACW	forb	AN	DI	advent
0	<i>Atriplex rosea</i>	L.	adventive	Chenopodiaceae	(UPL)	FACU	FACU	FACU	forb	AN	DI	advent
7	<i>Aureolaria flava</i>	(L.) Farw.	native	Scrophulariaceae	(UPL)				forb	PE	DI	full
8	<i>Aureolaria laevigata</i>	(Raf.) Raf.	native	Scrophulariaceae	(UPL)				forb	PE	DI	full
10	<i>Aureolaria pedicularia</i> (L.) Raf. var. <i>ambigens</i>	(Fernald) Farw.	native	Scrophulariaceae	(UPL)				forb	AN	DI	full
8	<i>Aureolaria pedicularia</i> var. <i>pedicularia</i>	(L.) Raf.	native	Scrophulariaceae	(UPL)				forb	AN	DI	shade
*	<i>Aureolaria</i> sp.	Raf.	ND	Scrophulariaceae	UPL				forb	PE	DI	full
8	<i>Aureolaria virginica</i>	(L.) Pennell	native	Scrophulariaceae	(UPL)				forb	PE	DI	full
0	<i>Avena fatua</i>	L.	adventive	Poaceae	(UPL)				grass	AN	MO	advent

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Avena sativa</i>	L.	adventive	Poaceae	(UPL)	UPL	UPL	UPL	grass	AN	MO	advent
0	<i>Azolla caroliniana</i>	Willd.	adventive	Salviniaceae	OBL				fern	PE	SVP	advent
0	<i>Ballota nigra</i>	L.	adventive	Lamiaceae	(FACU)				forb	PE	DI	advent
6	<i>Baptisia australis</i>	(L.) R. Br.	native	Fabaceae	(FACU-)	FACU			forb	PE	DI	full
8	<i>Baptisia lactea</i>	(Raf.) Thieret	native	Fabaceae	FACU				forb	PE	DI	full
*	<i>Baptisia</i> sp.	Vent.	ND	Fabaceae	ND				forb	PE	DI	full
6	<i>Baptisia tinctoria</i>	(L.) R. Br.	native	Fabaceae	(UPL)				forb	PE	DI	full
*	<i>Barbarea</i> sp.	W.T. Aiton	ND	Brassicaceae	ND				forb	BI	DI	advent
0	<i>Barbarea verna</i>	(Mill.) Asch.	adventive	Brassicaceae	(UPL)				forb	BI	DI	advent
0	<i>Barbarea vulgaris</i>	R. Br.	adventive	Brassicaceae	FACU	FACU	FAC	FAC	forb	BI	DI	advent
10	<i>Bartonia paniculata</i>	(Michx.) Muhl.	native	Gentianaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
*	<i>Bartonia</i> sp.	Muhl. ex Willd.	ND	Gentianaceae	ND				forb	AN	DI	full
6	<i>Bartonia virginica</i>	(L.) B.S.P.	native	Gentianaceae	FACW	FACW	FACW	FACW	forb	AN	DI	full
0	<i>Beckmannia syzigachne</i>	(Steud.) Fernald	adventive	Poaceae	OBL	OBL	OBL	OBL	grass	AN	MO	advent
0	<i>Belamcanda chinensis</i>	(L.) DC.	adventive	Iridaceae	(UPL)				forb	PE	MO	advent
0	<i>Bellis perennis</i>	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Berberis</i> sp.	L.	ND	Berberidaceae	FACU				shrub	W	DI	advent
0	<i>Berberis thunbergii</i>	DC.	adventive	Berberidaceae	FACU	FACU	FACU	FACU	shrub	W	DI	advent
0	<i>Berberis vulgaris</i>	L.	adventive	Berberidaceae	FACU	FACU	FACU	FACU	shrub	W	DI	advent
0	<i>Berteroa incana</i>	(L.) DC.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
9	<i>Besseyia bullii</i>	(Eaton) Rydb.	native	Scrophulariaceae	(UPL)				forb	PE	DI	full
0	<i>Betula alba</i>	L.	adventive	Betulaceae	FAC+	FAC	FACU	FACW	tree	W	DI	advent
7	<i>Betula alleghaniensis</i>	Britton	native	Betulaceae	FAC	FAC	FAC	FAC	tree	W	DI	tree
7	<i>Betula lenta</i>	L.	native	Betulaceae	FACU	FACU	FACU	FACU	tree	W	DI	tree
9	<i>Betula nigra</i>	L.	native	Betulaceae	FACW	FACW	FACW	FACW	tree	W	DI	tree
0	<i>Betula papyrifera</i>	Marshall	adventive	Betulaceae	FACU	FACU	FACU	FACU	tree	W	DI	advent
0	<i>Betula pendula</i>	Roth	adventive	Betulaceae	(FACW)			FACU	tree	W	DI	advent
5	<i>Betula populifolia</i>	Marshall	native	Betulaceae	FAC	FAC	FAC	FAC	tree	W	DI	tree
10	<i>Betula pumila</i>	L.	native	Betulaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
*	<i>Betula</i> sp.	L.	ND	Betulaceae	ND				tree	W	DI	tree
4	<i>Bidens aristosa</i>	(Michx.) Britton	native	Asteraceae	FACW-	FACW	FACW	FACW	forb	AN	DI	full
10	<i>Bidens beckii</i>	Torr. ex Spreng.	native	Asteraceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
2	<i>Bidens bipinnata</i>	L.	native	Asteraceae	(FACU)	FACU	FAC	FACU	forb	AN	DI	full
3	<i>Bidens cernua</i>	L.	native	Asteraceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
3	<i>Bidens comosa</i>	(A. Gray) Wiegand	native	Asteraceae	FACW	FACW	OBL	FACW	forb	AN	DI	full
3	<i>Bidens connata</i>	Muhl. ex Willd.	native	Asteraceae	FACW+				forb	AN	DI	full
3	<i>Bidens coronata</i>	(L.) Britton	native	Asteraceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
7	<i>Bidens discoidea</i>	(Torr. & A. Gray) Britton	native	Asteraceae	FACW	FACW	FACW	FACW	forb	AN	DI	partial
2	<i>Bidens frondosa</i>	L.	native	Asteraceae	FACW	FACW	FACW	FACW	forb	AN	DI	full
0	<i>Bidens polylepis</i>	S.F. Blake	adventive	Asteraceae	FACW				forb	AN	DI	advent
*	<i>Bidens</i> sp.	L.	ND	Asteraceae	ND				forb	AN	DI	ND
2	<i>Bidens vulgata</i>	Greene	native	Asteraceae	(FACW)	FAC	FACW	FAC	forb	AN	DI	full
7	<i>Bignonia capreolata</i>	L.	native	Bignoniaceae	FAC+	FAC	FACW		vine	W	DI	
4	<i>Blephilia ciliata</i>	(L.) Benth.	native	Lamiaceae	(UPL)				forb	PE	DI	shade
4	<i>Blephilia hirsuta</i>	(Pursh) Benth.	native	Lamiaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	shade

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*	Blephilia sp.	L.	ND	Lamiaceae	ND				forb	PE	DI	shade
9	Boechera grahamii	(Lehmann) Windham & Al-Shehbaz	native	Brassicaceae	FACU		FACU	FACU	forb	BI	DI	full
9	Boechera missouriensis	(Greene) Al-Shehbaz	native	Brassicaceae	(UPL)				forb	BI	DI	shade
9	Boechera stricta	(Graham) Al-Shehbaz	native	Brassicaceae	FACU	FACU	FACU	FACU	forb	BI	DI	partial
4	Boehmeria cylindrica	(L.) Sw.	native	Urticaceae	FACW+	FACW	OBL	OBL	forb	PE	DI	shade
5	Bolboschoenus fluviatilis	(Torr.) Sojak	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
7	Boltonia asteroides	(L.) L'Her	native	Asteraceae	FACW	FACW	OBL	FACW	forb	PE	DI	full
0	Borago officinalis	L.	adventive	Boraginaceae	(UPL)				forb	AN	DI	advent
0	Bothriochloa bladhii	(Retz.) S.T. Blake	adventive	Poaceae	FAC	FACU	FACU		grass	PE	MO	advent
0	Bothriochloa ischaemum	(L.) Keng	adventive	Poaceae	(FACU)				grass	PE	MO	advent
4	Botrychium biternatum	(Savigny) Underw.	native	Ophioglossaceae	FAC	FAC	FAC		fern	PE	SVP	shade
3	Botrychium dissectum	Spreng.	native	Ophioglossaceae	FAC				fern	PE	SVP	shade
8	Botrychium lanceolatum	(S.G. Gmelin) Angstr.	native	Ophioglossaceae	FACW	FACW	FACW	FACW	fern	PE	SVP	shade
5	Botrychium matricariifolium	(Doll) A. Braun ex W. D. J. Koch	native	Ophioglossaceae	FACU	FACU	FACU	FACU	fern	PE	SVP	shade
4	Botrychium multifidum	(S.G. Gmelin) Rupr.	native	Ophioglossaceae	FACU				fern	PE	SVP	shade
4	Botrychium oneidense	(Gilbert) House	native	Ophioglossaceae	(UPL)				fern	PE	SVP	shade
7	Botrychium simplex	E. Hitchc.	native	Ophioglossaceae	FACU	FACU	FAC	FAC	fern	PE	SVP	shade
*	Botrychium sp.	Sw.	ND	Ophioglossaceae	ND				fern	PE	SVP	shade
4	Botrychium virginianum	(L.) Sw.	native	Ophioglossaceae	FACU				fern	PE	SVP	shade
8	Bouteloua curtipendula	(Michx.) Torr.	native	Poaceae	(UPL)				grass	PE	MO	full
0	Bouteloua gracilis	(Willd. ex Kunth) Lag. ex Griffiths	adventive	Poaceae	(UPL)				grass	PE	MO	advent
0	Bouteloua hirsuta	Lag.	adventive	Poaceae	(UPL)				grass	PE	MO	advent
7	Brachyelytrum aristosum	(Michx.) Trel.	native	Poaceae	(FAC)				grass	PE	MO	shade
5	Brachyelytrum erectum	(Schreb.ex Spreng.) P. Beauv.	native	Poaceae	(UPL)	FACU			grass	PE	MO	shade
*	Brachyelytrum sp.	Michx.	ND	Poaceae	ND				grass	PE	MO	shade
7	Brasenia schreberi	J.F. Gmel.	native	Cabombaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	Brassica alba	(L.) Rabenh.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	Brassica juncea	(L.) Czern.	adventive	Brassicaceae	(UPL)	UPL	UPL	UPL	forb	AN	DI	advent
0	Brassica napus	L.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	Brassica nigra	(L.) K. Koch	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	Brassica oleracea	L.	adventive	Brassicaceae	(FACU)				forb	PE	DI	advent
0	Brassica rapa	L.	adventive	Brassicaceae	(UPL)	UPL	UPL	UPL	forb	AN	DI	advent
*	Brassica sp.	L.	ND	Brassicaceae	UPL				forb	AN	DI	advent
0	Bromus arvensis	L.	adventive	Poaceae	(FACU)	FACU	FACU	FACU	grass	AN	MO	advent
0	Bromus brizaeformis	Fisch. & C.A. Mey.	adventive	Poaceae	(FACU)	FACU	UPL	UPL	grass	AN	MO	advent
7	Bromus ciliatus	L.	native	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	full
0	Bromus commutatus	Schrad.	adventive	Poaceae	(UPL)				grass	AN	MO	advent
0	Bromus hordeaceus	L.	adventive	Poaceae	(UPL)	UPL	UPL	UPL	grass	AN	MO	advent
0	Bromus inermis	Leyss.	adventive	Poaceae	UPL	UPL	FACU	UPL	grass	PE	MO	advent
0	Bromus japonicus	Thunb. ex Murray	adventive	Poaceae	FACU-				grass	AN	MO	advent
8	Bromus kalmii	A. Gray	native	Poaceae	FAC-	FACU	FAC	FAC	grass	PE	MO	full
6	Bromus latiglumis	(Scribn. ex Shear) Hitchc.	native	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	shade
7	Bromus nottowayanus	Fernald	native	Poaceae	(FACU+)				grass	PE	MO	shade
4	Bromus pubescens	Muhl. ex Willd.	native	Poaceae	(FACU)	FACU	FACU	FACU	grass	PE	MO	shade

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Bromus secalinus</i>	L.	adventive	Poaceae	(UPL)				grass	AN	MO	advent
*	<i>Bromus</i> sp.	L.	ND	Poaceae	ND				grass	ND	MO	ND
0	<i>Bromus tectorum</i>	L.	adventive	Poaceae	(UPL)				grass	AN	MO	advent
0	<i>Broussonetia papyrifera</i>	(L.) Vent	adventive	Moraceae	(UPL)	UPL	FACU	UPL	tree	W	DI	advent
0	<i>Browallia americana</i>	L.	adventive	Solanaceae	(FACU)	FACU	FACU	FACU	forb	AN	DI	advent
8	<i>Buchnera americana</i>	L.	native	Scrophulariaceae	FACU	FACU	FAC	FAC	forb	PE	DI	full
0	<i>Buddleja davidii</i>	Franch.	adventive	Buddlejaceae	(UPL)	FACU	FACU	FACU	shrub	W	DI	advent
3	<i>Bulbostylis capillaris</i>	(L.) Kunth ex C.B. Clarke	native	Cyperaceae	FACU	FACU	FACU	FACU	sedge	AN	MO	full
0	<i>Bunias orientalis</i>	L.	adventive	Brassicaceae	(UPL)				forb	PE	DI	advent
0	<i>Bupleurum lancifolium</i>	Hornem.	adventive	Apiaceae	(UPL)				forb	AN	DI	advent
0	<i>Bupleurum rotundifolium</i>	L.	adventive	Apiaceae	(UPL)				forb	AN	DI	advent
0	<i>Butomus umbellatus</i>	L.	adventive	Butomaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
0	<i>Buxus sempervirens</i>	L.	adventive	Buxaceae	(UPL)				shrub	W	DI	advent
0	<i>Cabomba caroliniana</i>	A. Gray	adventive	Cabombaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
6	<i>Cacalia atriplicifolia</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	full
6	<i>Cacalia muhlenbergii</i>	(Schultz-Bip.) Fernald	native	Asteraceae	(UPL)				forb	PE	DI	full
10	<i>Cacalia plantaginea</i>	(Raf.) Shinnars	native	Asteraceae	FACW				forb	PE	DI	full
*	<i>Cacalia</i> sp.	L.	ND	Asteraceae	ND				forb	PE	DI	full
7	<i>Cacalia suaveolens</i>	L.	native	Asteraceae	FAC-	FACW	FACW	FACW	forb	PE	DI	full
10	<i>Cakile edentula</i>	(Bigelow) Hook.	native	Brassicaceae	FACU	FACU	FACU	FACU	forb	AN	DI	full
4	<i>Calamagrostis canadensis</i>	(Michx.) P. Beauv.	native	Poaceae	FACW+	FACW	OBL	OBL	grass	PE	MO	full
0	<i>Calamagrostis cinnoides</i>	(Muhl.) Barton	adventive	Poaceae	OBL				grass	PE	MO	advent
8	<i>Calamagrostis insperata</i>	Swallen	native	Poaceae	(UPL)				grass	PE	MO	shade
*	<i>Calamagrostis</i> sp.	Adans.	ND	Poaceae	ND				grass	PE	MO	ND
7	<i>Calamagrostis stricta</i>	(Timm) Koeler	native	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	full
8	<i>Calamintha arkansana</i>	(Nutt.) Shinnars	native	Lamiaceae	FACU	FACU	FACW	FACW	forb	PE	DI	full
10	<i>Calla palustris</i>	L.	native	Araceae	OBL	OBL	OBL	OBL	forb	PE	MO	partial
4	<i>Callitriche heterophylla</i>	Pursh	native	Callitricheaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
9	<i>Callitriche palustris</i>	L.	native	Callitricheaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
*	<i>Callitriche</i> sp.	L.	ND	Callitricheaceae	OBL				forb	AN	DI	full
6	<i>Callitriche terrestris</i>	Raf.	native	Callitricheaceae	FACW+	FACW	FACW	FACW	forb	AN	DI	full
9	<i>Calopogon tuberosus</i>	(L.) B.S.P.	native	Orchidaceae	FACW+	FACW	OBL	OBL	forb	PE	MO	full
6	<i>Caltha palustris</i>	L.	native	Ranunculaceae	OBL	OBL	OBL	OBL	forb	PE	DI	shade
6	<i>Calycanthus floridus</i> L. var. <i>glaucus</i>	(Willd.) Torr. & A. Gray	native	Calycanthaceae	(FACU)	FACU	FACU	FACU	shrub	W	DI	shade
0	<i>Calystegia hederacea</i>	Wall.	adventive	Convolvulaceae	(UPL)				forb	PE	DI	advent
1	<i>Calystegia sepium</i>	(L.) R. Br.	native	Convolvulaceae	FAC-	FAC	FAC	FAC	forb	PE	DI	full
*	<i>Calystegia</i> sp.	R. Br.	ND	Convolvulaceae	ND				forb	PE	DI	ND
4	<i>Calystegia spithamea</i>	(L.) Pursh	native	Convolvulaceae	(UPL)				forb	PE	DI	full
6	<i>Camassia scilloides</i>	(Raf.) Cory	native	Liliaceae	FAC	FAC	FAC	FAC	forb	PE	MO	partial
0	<i>Camelina microcarpa</i>	Andrz. ex DC.	adventive	Brassicaceae	(UPL)	FACU	FACU	UPL	forb	AN	DI	advent
0	<i>Camelina sativa</i>	(L.) Crantz	adventive	Brassicaceae	UPL	UPL	FACU	FACU	forb	AN	DI	advent
*	<i>Camelina</i> sp.	Crantz	ND	Brassicaceae	UPL				forb	AN	DI	advent
4	<i>Campanula americana</i>	L.	native	Campanulaceae	FAC	FACU	FAC	FAC	forb	BI	DI	shade
7	<i>Campanula aparinoides</i>	Pursh	native	Campanulaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Campanula rapunculoides</i>	L.	adventive	Campanulaceae	(UPL)				forb	PE	DI	advent

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
10	<i>Campanula rotundifolia</i>	L.	native	Campanulaceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
*	<i>Campanula</i> sp.	L.	ND	Campanulaceae	ND				forb	ND	DI	ND
0	<i>Campanula trachelium</i>	L.	adventive	Campanulaceae	(UPL)				forb	PE	DI	advent
1	<i>Campsis radicans</i>	(L.) See. ex Bureau	native	Bignoniaceae	FAC	FAC	FACU	FAC	vine	W	DI	full
0	<i>Cannabis sativa</i>	L.	adventive	Cannabaceae	FACU	FACU	FACU	FACU	forb	AN	DI	advent
0	<i>Capsella bursa-pastoris</i>	(L.) Medik.	adventive	Brassicaceae	FACU	FACU	FACU	FACU	forb	AN	DI	advent
7	<i>Cardamine angustata</i>	O.E. Schulz	native	Brassicaceae	FACU	FACU	FAC	FACU	forb	PE	DI	shade
3	<i>Cardamine concatenata</i>	(Michx.) O. Schwarz	native	Brassicaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
4	<i>Cardamine diphylla</i>	(Michx.) A.W. Wood	native	Brassicaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
7	<i>Cardamine dissecta</i>	(Leavenw.) Al-Sheh.	native	Brassicaceae	(FACU+)				forb	PE	DI	shade
5	<i>Cardamine douglassii</i>	Britton	native	Brassicaceae	FACW+	FACW	FACW	FACW	forb	PE	DI	shade
0	<i>Cardamine flexuosa</i>	With.	adventive	Brassicaceae	OBL	OBL	FACU	FAC	forb	PE	DI	advent
0	<i>Cardamine hirsuta</i>	L.	adventive	Brassicaceae	FACU	FACU	FACU	FACU	forb	AN	DI	advent
0	<i>Cardamine impatiens</i>	L.	adventive	Brassicaceae	(UPL)	FAC			forb	AN	DI	advent
2	<i>Cardamine parviflora</i>	L.	native	Brassicaceae	FACU	FACU	FAC	FAC	forb	AN	DI	full
3	<i>Cardamine pennsylvanica</i>	Muhl. ex Willd.	native	Brassicaceae	OBL	OBL	FACW	FACW	forb	AN	DI	partial
9	<i>Cardamine pratensis</i>	L.	native	Brassicaceae	OBL		FAC		forb	PE	DI	partial
5	<i>Cardamine rhomboidea</i>	(Pers.) DC.	native	Brassicaceae	OBL				forb	PE	DI	shade
9	<i>Cardamine rotundifolia</i>	Michx.	native	Brassicaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
*	<i>Cardamine</i> sp.	L.	ND	Brassicaceae	ND				forb	ND	DI	ND
0	<i>Cardaria draba</i>	(L.) Desv.	adventive	Brassicaceae	(UPL)				forb	PE	DI	advent
0	<i>Cardiospermum halicacabum</i>	L.	adventive	Sapindaceae	FACU	FACU	FAC	FAC	vine	BI	DI	advent
0	<i>Carduus acanthoides</i>	L.	adventive	Asteraceae	(UPL)				forb	BI	DI	advent
0	<i>Carduus nutans</i>	L.	adventive	Asteraceae	(UPL)	UPL	FACU	FACU	forb	BI	DI	advent
*	<i>Carduus</i> sp.	L.	ND	Asteraceae	UPL				forb	BI	DI	advent
2	<i>Carex aggregata</i>	Mack.	native	Cyperaceae	(UPL)				sedge	PE	MO	full
7	<i>Carex alata</i>	Torr.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
4	<i>Carex albicans</i> var. <i>albicans</i>	Willd. ex Spreng.	native	Cyperaceae	(UPL)	UPL	UPL	UPL	sedge	PE	MO	shade
8	<i>Carex albicans</i> Willd. ex Spreng. var. <i>emmonsii</i>	(Dewey ex Torr.) Rettig	native	Cyperaceae	(UPL)	UPL	UPL	UPL	sedge	PE	MO	shade
7	<i>Carex albolutescens</i>	Schwein.	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	shade
6	<i>Carex albursina</i>	E. Sheld.	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
5	<i>Carex alopecoidea</i>	Tuck.	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	full
5	<i>Carex amphibola</i>	Steud.	native	Cyperaceae	FAC	FAC	FAC	FAC	sedge	PE	MO	shade
3	<i>Carex annectens</i>	(E.P. Bicknell) E.P. Bicknell	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	full
8	<i>Carex appalachica</i>	J.M. Webber & P.W. Ball	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
9	<i>Carex aquatilis</i>	Wahlenb.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
10	<i>Carex arctata</i>	W. Boott ex Hook.	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
10	<i>Carex argyrantha</i>	Tuck.	native	Cyperaceae	(FACU)				sedge	PE	MO	full
7	<i>Carex atherodes</i>	Spreng.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
9	<i>Carex atlantica</i> L.H. Bailey subsp. <i>capillacea</i>	(L.H. Bailey) Reznicek	native	Cyperaceae	OBL	FACW	FACW	FACW	sedge	PE	MO	full
8	<i>Carex atlantica</i> subsp. <i>atlantica</i>	L.H. Bailey	native	Cyperaceae	FACW+	FACW	FACW	FACW	sedge	PE	MO	full
7	<i>Carex aurea</i>	Nutt.	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	full
0	<i>Carex austrina</i>	(Small) Mack.	adventive	Cyperaceae	(UPL)	FACU	FACU		sedge	PE	MO	advent
7	<i>Carex bebbii</i>	Olney ex Fernald	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
9	<i>Carex bicknellii</i>	Britton	native	Cyperaceae	FACU	FAC	FACU	FAC	sedge	PE	MO	full
1	<i>Carex blanda</i>	Dewey	native	Cyperaceae	FAC	FAC	FAC	FAC	sedge	PE	MO	shade
8	<i>Carex brevior</i>	(Dewey) Mack. ex Lunell	native	Cyperaceae	UPL	UPL	FAC	FAC	sedge	PE	MO	full
7	<i>Carex bromoides</i>	Schkuhr ex Willd.	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	shade
9	<i>Carex brunnescens</i>	(Pers.) Poir.	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	partial
8	<i>Carex bushii</i>	Mack.	native	Cyperaceae	FACW	FACW	FAC	FAC	sedge	PE	MO	shade
8	<i>Carex buxbaumii</i>	Wahlenb.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
7	<i>Carex canescens</i>	L.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	shade
7	<i>Carex careyana</i>	Torr. ex Dewey	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
4	<i>Carex caroliniana</i>	Schwein.	native	Cyperaceae	FACU	FACU	FACW	FAC	sedge	PE	MO	full
7	<i>Carex cephaloidea</i>	(Dewey) Dewey	native	Cyperaceae	FAC+	FAC	FACU	FACU	sedge	PE	MO	shade
5	<i>Carex cephalophora</i>	Muhl. ex Willd.	native	Cyperaceae	FACU	FACU	FACU	FACU	sedge	PE	MO	shade
0	<i>Carex cherokeensis</i>	Schwein.	adventive	Cyperaceae	(FACU)	FACW	FACW		sedge	PE	MO	advent
4	<i>Carex communis</i>	L.H. Bailey	native	Cyperaceae	(UPL)				sedge	PE	MO	partial
2	<i>Carex comosa</i>	Boott	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
5	<i>Carex complanata</i>	Torr. & Hook.	native	Cyperaceae	(FACU)	FACU	FACU	FACU	sedge	PE	MO	partial
5	<i>Carex conjuncta</i>	Boott	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	full
8	<i>Carex conoidea</i>	Schkuhr ex Willd.	native	Cyperaceae	FACU	FACU	FACW	FACW	sedge	PE	MO	full
8	<i>Carex crawei</i>	Dewey	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	full
3	<i>Carex crinita</i> Lam. var. <i>brevicrinis</i>	Fernald	native	Cyperaceae	(OBL)	OBL	OBL	OBL	sedge	PE	MO	shade
3	<i>Carex crinita</i> var. <i>crinita</i>	Lam.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	shade
3	<i>Carex cristatella</i>	Britton	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	full
8	<i>Carex crus-corvi</i>	Shuttlew. ex Kunze	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	shade
9	<i>Carex cryptolepis</i>	Mack.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
6	<i>Carex cumberlandensis</i>	Naczi% Cral & Bryson	native	Cyperaceae	(FAC)				sedge	PE	MO	shade
5	<i>Carex davisii</i>	Schwein & Torr.	native	Cyperaceae	FAC-	FAC	FAC	FAC	sedge	PE	MO	shade
8	<i>Carex debilis</i> Michx. var. <i>rudgei</i>	L.H. Bailey	native	Cyperaceae	(FAC)	FAC	FACW	FACW	sedge	PE	MO	shade
7	<i>Carex debilis</i> var. <i>debilis</i>	Michx.	native	Cyperaceae	FAC	FAC	FACW	FACW	sedge	PE	MO	shade
10	<i>Carex decomposita</i>	Muhl.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	partial
10	<i>Carex deweyana</i>	Schwein.	native	Cyperaceae	FACU	FACU	FACU	FACU	sedge	PE	MO	shade
9	<i>Carex diandra</i>	Schrank	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
4	<i>Carex digitalis</i>	Willd.	native	Cyperaceae	(UPL)	UPL	UPL	UPL	sedge	PE	MO	shade
10	<i>Carex disperma</i>	Dewey	native	Cyperaceae	FACW+	FACW	OBL	OBL	sedge	PE	MO	partial
8	<i>Carex eburnea</i>	Boott	native	Cyperaceae	FACU	FACU	FACU	FACU	sedge	PE	MO	shade
10	<i>Carex echinata</i>	Murray	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
8	<i>Carex emoryi</i>	Dewey	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	partial
7	<i>Carex festucacea</i>	Schkuhr ex Willd.	native	Cyperaceae	FAC	FAC	FACW	FAC	sedge	PE	MO	partial
8	<i>Carex flava</i>	L.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
7	<i>Carex folliculata</i>	L.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	partial
10	<i>Carex formosa</i>	Dewey	native	Cyperaceae	FAC	FAC	FAC	FAC	sedge	PE	MO	shade
2	<i>Carex frankii</i>	Kunth	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
9	<i>Carex garberi</i>	Fernald	native	Cyperaceae	FACW		FACW	FACW	sedge	PE	MO	partial
9	<i>Carex gigantea</i>	Rudge	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	shade
5	<i>Carex glaucoidea</i>	Tuck. ex Olney	native	Cyperaceae	FAC	FAC	FAC	FAC	sedge	PE	MO	shade
3	<i>Carex gracilescens</i>	Steud.	native	Cyperaceae	(UPL)				sedge	PE	MO	shade

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4	Carex gracillima	Schwein.	native	Cyperaceae	FACU	FACU	FACU	FACU	sedge	PE	MO	shade
3	Carex granularis	Muhl. ex Willd.	native	Cyperaceae	FACW+	FACW	FACW	FACW	sedge	PE	MO	full
5	Carex grayi	J. Carey	native	Cyperaceae	FACW+	FACW	FACW	FACW	sedge	PE	MO	shade
4	Carex grisea	Wahlenb.	native	Cyperaceae	(FAC)	FACU	FAC	FAC	sedge	PE	MO	shade
6	Carex gynandra	Schwein.	native	Cyperaceae	OBL	OBL	FACW	OBL	sedge	PE	MO	shade
7	Carex haydenii	Dewey	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	partial
2	Carex hirsutella	Mack.	native	Cyperaceae	FACU				sedge	PE	MO	partial
3	Carex hirtifolia	Mack.	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
7	Carex hitchcockiana	Dewey	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
5	Carex hyalinolepis	Steud.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	partial
5	Carex hystericina	Muhl. ex Willd.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
8	Carex interior	L.H. Bailey	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
5	Carex intumescens	Rudge	native	Cyperaceae	FACW+	FACW	FACW	FACW	sedge	PE	MO	shade
6	Carex jamesii	Schwein.	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
10	Carex juniperorum	Catling% Reznicek% & Crins	native	Cyperaceae	(UPL)				sedge	PE	MO	partial
4	Carex kraliana	Naczi & Bryson	native	Cyperaceae	(FACU)				sedge	PE	MO	shade
5	Carex lacustris	Willd.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	partial
6	Carex laevivaginata	(Kuk.) Mack.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	shade
8	Carex lasiocarpa	Ehrh.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
3	Carex laxiculmis	Schwein.	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
3	Carex laxiflora	Lam.	native	Cyperaceae	FACU	FACU	UPL	UPL	sedge	PE	MO	shade
3	Carex leavenworthii	Dewey	native	Cyperaceae	(UPL)				sedge	PE	MO	partial
7	Carex leptalea	Wahlenb.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
4	Carex leptonevria	(Fernald) Fernald	native	Cyperaceae	FACW	FACW	FAC	FAC	sedge	PE	MO	shade
10	Carex limosa	L.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
10	Carex longii	Mack.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
10	Carex louisianica	L.H. Bailey	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	shade
9	Carex lucorum	Willd. ex Link	native	Cyperaceae	(UPL)				sedge	PE	MO	full
9	Carex lupuliformis	Sartwell ex Dewey	native	Cyperaceae	FACW+	FACW	OBL	OBL	sedge	PE	MO	partial
3	Carex lupulina	Muhl. ex Willd.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
3	Carex lurida	Wahlenb.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
7	Carex meadii	Dewey	native	Cyperaceae	FAC	FAC	FAC	FAC	sedge	PE	MO	full
10	Carex merritt-fernaldii	Mack.	native	Cyperaceae	(UPL)				sedge	PE	MO	full
6	Carex mesochorea	Mack.	native	Cyperaceae	(UPL)				sedge	PE	MO	full
6	Carex mitchelliana	M.A. Curtis	native	Cyperaceae	(FACW)	OBL		OBL	sedge	PE	MO	shade
3	Carex molesta	Mack. ex Bright	native	Cyperaceae	(FACU)	FAC	FAC	FAC	sedge	PE	MO	full
0	Carex molestiformis	Reznicek & P.E. Rothrock	adventive	Cyperaceae	(UPL)				sedge	PE	MO	full
7	Carex muehlenbergii	Schkuhr ex Willd.	native	Cyperaceae	(UPL)				sedge	PE	MO	full
7	Carex muskingumensis	Schwein.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	shade
8	Carex nigromarginata	Schwein.	native	Cyperaceae	(UPL)	UPL	UPL	UPL	sedge	PE	MO	partial
4	Carex normalis	Mack.	native	Cyperaceae	FACU	FACU	FACW	FACW	sedge	PE	MO	shade
6	Carex oligocarpa	Schkuhr ex Willd.	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
10	Carex oligosperma	Michx.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	shade
5	Carex pallescens	L.	native	Cyperaceae	(FACU)	FACW	FACW	FAC	sedge	PE	MO	full
10	Carex peckii	Howe	native	Cyperaceae	(UPL)				sedge	PE	MO	shade

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
7	Carex pedunculata	Muhl. ex Willd.	native	Cyperaceae	(UPL)	OBL	OBL	FACU	sedge	PE	MO	shade
6	Carex pellita	Muhl.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
3	Carex pensylvanica	Lam.	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
6	Carex planispicata	Naczi	native	Cyperaceae	(FACU)				sedge	PE	MO	shade
8	Carex plantaginea	Lam.	native	Cyperaceae	(FACU-)				sedge	PE	MO	shade
6	Carex platyphylla	J. Carey	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
0	Carex praegracilis	Boott	adventive	Cyperaceae	UPL	UPL	FACW	FACW	sedge	PE	MO	advent
9	Carex prairea	Dewey ex A.W. Wood	native	Cyperaceae	FACW	FACW	OBL	FACW	sedge	PE	MO	full
8	Carex prasina	Wahlenb.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	shade
8	Carex projecta	Mack.	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	partial
6	Carex pseudocyperus	L.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
9	Carex purpurifera	Mack.	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
6	Carex radiata	(Wahlenb.) Small	native	Cyperaceae	(FAC)	FAC		FAC	sedge	PE	MO	shade
4	Carex retroflexa	Muhl. ex Willd.	native	Cyperaceae	(UPL)	FACU			sedge	PE	MO	full
9	Carex retrorsa	Schwein.	native	Cyperaceae	FACW+	FACW	OBL	OBL	sedge	PE	MO	full
7	Carex reznicekii	Werier	native	Cyperaceae	(UPL)				sedge	PE	MO	partial
10	Carex richardsonii	R. Br.	native	Cyperaceae	(UPL)	UPL	UPL	UPL	sedge	PE	MO	shade
3	Carex rosea	Schkuhr ex Willd.	native	Cyperaceae	(UPL)	FACU			sedge	PE	MO	shade
8	Carex sartwellii	Dewey	native	Cyperaceae	OBL	OBL	FACW	OBL	sedge	PE	MO	full
6	Carex scabrata	Schwein.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	partial
3	Carex scoparia	Schkuhr ex Willd.	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	full
7	Carex seorsa	Howe	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	shade
2	Carex shortiana	Dewey	native	Cyperaceae	FAC	FAC	FACW	FACW	sedge	PE	MO	full
8	Carex siccata	Dewey	native	Cyperaceae	(UPL)	FACU	UPL	UPL	sedge	PE	MO	full
*	Carex sp.	L.	ND	Cyperaceae	ND				sedge	PE	MO	ND
3	Carex sparganioides	Muhl. ex Willd.	native	Cyperaceae	FACU	FACU	FAC	FACU	sedge	PE	MO	shade
0	Carex spicata	Huds.	adventive	Cyperaceae	(UPL)	FAC	FACU	FACU	sedge	PE	MO	advent
8	Carex sprengelii	Dewey ex Spreng.	native	Cyperaceae	FACU	FACU	FAC	FAC	sedge	PE	MO	shade
4	Carex squarrosa	L.	native	Cyperaceae	FACW	FACW	OBL	OBL	sedge	PE	MO	shade
8	Carex sterilis	Willd.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
2	Carex stipata	Muhl. ex Willd.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	partial
4	Carex straminea	Willd. ex Schkuhr	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
5	Carex striatula	Michx.	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
5	Carex stricta	Lam.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
8	Carex styloflexa	Buckley	native	Cyperaceae	FACW-	FACW	FAC	FAC	sedge	PE	MO	shade
8	Carex suberecta	(Olney) Britton	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
4	Carex swanii	(Fernald) Mack.	native	Cyperaceae	FACU	FACU	FACU	FACU	sedge	PE	MO	shade
6	Carex tenera Dewey var. echinodes	(Fernald) Wiegand	native	Cyperaceae	(FAC)	FAC	FACW	FAC	sedge	PE	MO	shade
8	Carex tenera var. tenera	Dewey	native	Cyperaceae	(FAC)	FAC	FACW	FAC	sedge	PE	MO	shade
10	Carex tenuiflora	Wahlenb.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
7	Carex tetanica	Schkuhr	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	full
0	Carex texensis	(Torr. ex L.H. Bailey) L.H. Bailey	adventive	Cyperaceae	(UPL)				sedge	PE	MO	advent
5	Carex timida	Naczi & B.A. Ford	native	Cyperaceae	(UPL)				sedge	PE	MO	shade
8	Carex tonsa	(Fernald) E.P. Bicknell	native	Cyperaceae	(UPL)				sedge	PE	MO	full
8	Carex torta	Boott ex Tuck.	native	Cyperaceae	FACW	FACW	OBL	OBL	sedge	PE	MO	full

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
4	Carex tribuloides	Wahlenb.	native	Cyperaceae	FACW+	FACW	OBL	FACW	sedge	PE	MO	partial
8	Carex trichocarpa	Willd.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
8	Carex trisperma	Dewey	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	shade
8	Carex tuckermanii	Dewey	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	shade
5	Carex typhina	Michx.	native	Cyperaceae	FACW+	FACW	OBL	OBL	sedge	PE	MO	shade
4	Carex umbellata	Schkuhr ex Willd.	native	Cyperaceae	(UPL)				sedge	PE	MO	full
7	Carex utriculata	Boott	native	Cyperaceae	(OBL)	OBL	OBL	OBL	sedge	PE	MO	full
7	Carex vesicaria	L.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	partial
6	Carex virescens	Muhl. ex Willd.	native	Cyperaceae	(FACU)				sedge	PE	MO	shade
8	Carex viridula	Michx.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
1	Carex vulpinoidea	Michx.	native	Cyperaceae	OBL	OBL	FACW	OBL	sedge	PE	MO	full
6	Carex willdenowii	Schkuhr ex Willd.	native	Cyperaceae	UPL	UPL	FACU	UPL	sedge	PE	MO	shade
7	Carex woodii	Dewey	native	Cyperaceae	UPL	UPL	FAC	FACU	sedge	PE	MO	shade
5	Carex X subimpressa	Clokey	native	Cyperaceae	(OBL)		OBL	OBL	sedge	PE	MO	partial
5	Carpinus caroliniana	Walter	native	Betulaceae	FAC	FAC	FAC	FAC	sm tree	W	DI	shade
0	Carum carvi	L.	adventive	Apiaceae	(UPL)	UPL	FACU	UPL	forb	BI	DI	advent
5	Carya cordiformis	(Wangenh.) K. Koch	native	Juglandaceae	FACU+	FACU	FACU	FAC	tree	W	DI	tree
5	Carya glabra	(Mill.) Sweet	native	Juglandaceae	FACU-	FACU	FACU	FACU	tree	W	DI	tree
0	Carya illinoensis	(Wangenh.) K. Koch	adventive	Juglandaceae	FACU	FACU	FACW	FACW	tree	W	DI	advent
7	Carya laciniosa	(F. Michx.) Loudon	native	Juglandaceae	FAC	FAC	FACW	FACW	tree	W	DI	tree
5	Carya ovalis	(Wangenh.) Sarg.	native	Juglandaceae	(UPL)	FACU	FACU	FACU	tree	W	DI	tree
6	Carya ovata	(Miller) K. Koch	native	Juglandaceae	FACU-	FACU	FACU	FACU	tree	W	DI	tree
*	Carya sp.	Nutt.	ND	Juglandaceae	ND				tree	W	DI	tree
6	Carya tomentosa	(Poir.) Nutt.	native	Juglandaceae	(UPL)				tree	W	DI	tree
6	Castanea dentata	(Marshall) Borkh.	native	Fagaceae	(UPL)				tree	W	DI	tree
0	Castanea pumila	(L.) Miller	adventive	Fagaceae	(UPL)				tree	W	DI	advent
6	Castilleja coccinea	(L.) Spreng.	native	Scrophulariaceae	FAC	FAC	FAC	FAC	forb	AN	DI	full
0	Catalpa bignonioides	Walter	adventive	Bignoniaceae	UPL				tree	W	DI	advent
0	Catalpa ovata	G. Don	adventive	Bignoniaceae	(UPL)				tree	W	DI	advent
*	Catalpa sp.	Scop.	ND	Bignoniaceae	ND				tree	W	DI	advent
0	Catalpa speciosa	(Warder) Warder ex Engelm.	adventive	Bignoniaceae	FAC	FAC	FACU	FACU	tree	W	DI	advent
7	Caulophyllum thalictroides	(L.) Michx.	native	Berberidaceae	(UPL)				forb	PE	DI	shade
5	Ceanothus americanus	L.	native	Rhamnaceae	(UPL)				shrub	W	DI	full
9	Ceanothus herbaceus	Raf.	native	Rhamnaceae	(UPL)				shrub	W	DI	full
0	Celastrus orbiculatus	Thunb.	adventive	Celastraceae	FACU	FACU	UPL	UPL	vine	W	DI	advent
2	Celastrus scandens	L.	native	Celastraceae	FACU-	FACU	FACU	FACU	vine	W	DI	shade
0	Celosia argentea	L.	adventive	Amaranthaceae	(UPL)	FACU	UPL	UPL	forb	AN	DI	advent
5	Celtis laevigata	Willd.	native	Ulmaceae	FACW	FACW	FACW		tree	W	DI	tree
4	Celtis occidentalis	L.	native	Ulmaceae	FACU	FACU	FAC	FAC	tree	W	DI	tree
*	Celtis sp.	L.	ND	Ulmaceae	ND				tree	W	DI	tree
8	Celtis tenuifolia	Nutt.	native	Ulmaceae	(UPL)				tree	W	DI	tree
3	Cenchrus longispinus	(Hack.) Fernald	native	Poaceae	(UPL)	UPL	UPL	UPL	grass	AN	MO	full
0	Centaurea cyanus	L.	adventive	Asteraceae	(UPL)	FACU	FACU	UPL	forb	AN	DI	advent
0	Centaurea dubia	Suter	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	Centaurea jacea	L.	adventive	Asteraceae	(UPL)			FACU	forb	PE	DI	advent

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Centaurea maculosa</i>	Lam.	adventive	Asteraceae	(UPL)				forb	BI	DI	advent
0	<i>Centaurea nigra</i>	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Centaurea repens</i>	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Centaurea scabiosa</i>	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Centaurea solstitialis</i>	L.	adventive	Asteraceae	(UPL)				forb	AN	DI	advent
*	<i>Centaurea</i> sp.	L.	ND	Asteraceae	UPL				forb	ND	DI	advent
0	<i>Centaurium erythraea</i>	Raf.	adventive	Asteraceae	(UPL)	FAC	FACU	FAC	forb	BI	DI	advent
0	<i>Centaurium pulchellum</i>	(Sw.) Druce	adventive	Gentianaceae	FAC	FAC	FACU	FAC	forb	AN	DI	advent
8	<i>Centunculus minimus</i>	L.	native	Primulaceae	FACW	FACW	FACW	FACU	forb	AN	DI	full
6	<i>Cephalanthus occidentalis</i>	L.	native	Rubiaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
2	<i>Cerastium arvense</i>	L.	native	Caryophyllaceae	UPL	UPL	FACU	FACU	forb	PE	DI	full
0	<i>Cerastium brachypetalum</i>	Pers.	adventive	Caryophyllaceae	(UPL)				forb	AN	DI	advent
3	<i>Cerastium nutans</i>	Raf.	native	Caryophyllaceae	FAC	FAC	FACU	FACU	forb	AN	DI	full
0	<i>Cerastium pumilum</i>	Curtis	adventive	Caryophyllaceae	(UPL)				forb	AN	DI	advent
0	<i>Cerastium semidecandrum</i>	L.	adventive	Caryophyllaceae	(UPL)				forb	AN	DI	advent
*	<i>Cerastium</i> sp.	L.	ND	Caryophyllaceae	ND				forb	ND	DI	ND
0	<i>Cerastium tomentosum</i>	L.	adventive	Caryophyllaceae	(FACU)				forb	AN	DI	advent
0	<i>Cerastium viscosum</i>	L.	adventive	Caryophyllaceae	(UPL)	UPL	FACU	FACU	forb	AN	DI	advent
0	<i>Cerastium vulgatum</i>	L.	adventive	Caryophyllaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	advent
2	<i>Ceratophyllum demersum</i>	L.	native	Ceratophyllaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
8	<i>Ceratophyllum echinatum</i>	A. Gray	native	Ceratophyllaceae	(OBL)	OBL	OBL	OBL	forb	PE	DI	full
*	<i>Ceratophyllum</i> sp.	L.	adventive	Ceratophyllaceae	OBL				forb	PE	DI	full
3	<i>Cercis canadensis</i>	L.	native	Caesalpiniaceae	FACU-	FACU	FACU	FACU	sm tree	W	DI	shade
0	<i>Chaenomeles lagenaria</i>	(Loisel.) Koidz.	adventive	Rosaceae	(UPL)				shrub	W	DI	advent
0	<i>Chaenorrhinum minus</i>	(L.) Lange	adventive	Scrophulariaceae	(UPL)				forb	AN	DI	advent
4	<i>Chaerophyllum procumbens</i>	(L.) Crantz	native	Apiaceae	FACW	FACW	FACW	FAC	forb	AN	DI	shade
3	<i>Chamaecrista fasciculata</i>	(Michx.) Greene	native	Fabaceae	FACU	FACU	FACU	FACU	forb	AN	DI	full
4	<i>Chamaecrista nictitans</i>	(L.) Moench	native	Fabaceae	FACU-	FACU	FACU	FACU	forb	AN	DI	full
*	<i>Chamaecrista</i> sp.	Moench	ND	Fabaceae	ND				forb	AN	DI	full
9	<i>Chamaedaphne calyculata</i>	(L.) Moench	native	Ericaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
7	<i>Chamaelirium luteum</i>	(L.) A. Gray	native	Liliaceae	FAC	FAC	FACU	FACU	forb	PE	MO	shade
7	<i>Chasmanthium latifolium</i>	(Michx.) H.O. Yates	native	Poaceae	FACU	FACU	FACW	FACW	grass	PE	MO	partial
0	<i>Chelidonium majus</i>	L.	adventive	Papaveraceae	UPL	UPL	UPL	UPL	forb	BI	DI	advent
6	<i>Chelone glabra</i>	L.	native	Scrophulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
0	<i>Chenopodium album</i>	L.	adventive	Chenopodiaceae	FACU+	FACU	FACU	FACU	forb	AN	DI	advent
0	<i>Chenopodium ambrosioides</i>	L.	adventive	Chenopodiaceae	FACU	FACU	FAC	FACU	forb	AN	DI	advent
1	<i>Chenopodium berlandieri</i>	Moq.	native	Chenopodiaceae	(UPL)				forb	AN	DI	full
0	<i>Chenopodium botrys</i>	L.	adventive	Chenopodiaceae	UPL	UPL	FACU	FACU	forb	AN	DI	advent
2	<i>Chenopodium capitatum</i>	(L.) Asch.	native	Chenopodiaceae	(UPL)				forb	AN	DI	full
0	<i>Chenopodium glaucum</i>	L.	adventive	Chenopodiaceae	FACW-	FACW	FACW	FACW	forb	AN	DI	advent
0	<i>Chenopodium incanum</i>	(S. Watson) A. Heller	adventive	Chenopodiaceae	(UPL)				forb	AN	DI	advent
2	<i>Chenopodium leptophyllum</i>	(Moq.) Nutt. ex S. Watson	native	Chenopodiaceae	FAC		FACU	FACU	forb	AN	DI	full
0	<i>Chenopodium murale</i>	L.	adventive	Chenopodiaceae	(UPL)	FACU	FACU	FACU	forb	AN	DI	advent
0	<i>Chenopodium polyspermum</i>	L.	adventive	Chenopodiaceae	(UPL)				forb	AN	DI	advent
1	<i>Chenopodium pratericola</i>	Rydb.	native	Chenopodiaceae	(UPL)				forb	AN	DI	full

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0	Chenopodium pumilio	R. Br.	adventive	Chenopodiaceae	(UPL)				forb	AN	DI	advent
1	Chenopodium simplex	(Torr.) Raf.	native	Chenopodiaceae	(UPL)				forb	AN	DI	full
*	Chenopodium sp.	L.	ND	Chenopodiaceae	ND				forb	AN	DI	ND
4	Chenopodium standleyanum	Aellen	native	Chenopodiaceae	(UPL)				forb	AN	DI	full
0	Chenopodium urticum	L.	adventive	Chenopodiaceae	(UPL)				forb	AN	DI	advent
0	Chenopodium vulvaria	L.	adventive	Chenopodiaceae	(UPL)				forb	AN	DI	advent
7	Chimaphila maculata	(L.) Pursh	native	Pyrolaceae	(UPL)				forb	PE	DI	shade
*	Chimaphila sp.	Pursh.	ND	Pyrolaceae	UPL				forb	PE	DI	shade
8	Chimaphila umbellata	(L.) W.P.C. Barton	native	Pyrolaceae	(UPL)				forb	PE	DI	shade
6	Chionanthus virginicus	L.	native	Oleaceae	FAC+	FAC	FAC	FAC	sm tree	W	DI	partial
0	Chloris virgata	SW.	adventive	Poaceae	(FACU)	FACU	FACU	FACU	grass	AN	MO	advent
0	Chorisporea tenella	(Pallas) DC	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	Chrysanthemum balsamita	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	Chrysanthemum leucanthemum	L.	adventive	Asteraceae	(UPL)	UPL	UPL	UPL	forb	PE	DI	advent
0	Chrysanthemum maximum	Ramond	adventive	Asteraceae	(FACU-)				forb	AN	DI	advent
0	Chrysanthemum parthenium	(L.) Bernh.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
*	Chrysanthemum sp.	L.	ND	Asteraceae	UPL				forb	PE	DI	advent
6	Chrysogonum virginianum	L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
0	Chrysopsis camporum	Greene	adventive	Asteraceae	(FACU)				forb	PE	DI	advent
9	Chrysopsis graminifolia	(Michx.) Elliott	native	Asteraceae	(UPL)	UPL	UPL		forb	PE	DI	full
6	Chrysopsis mariana	(L.) Elliott	native	Asteraceae	UPL	UPL	UPL	UPL	forb	PE	DI	full
*	Chrysopsis sp.	(Nutt.) Elliott	ND	Asteraceae	UPL				forb	PE	DI	full
8	Chrysosplenium americanum	Schwein. ex Hook.	native	Saxifragaceae	OBL	OBL	OBL	OBL	forb	PE	DI	shade
0	Cichorium intybus	L.	adventive	Asteraceae	(UPL)	FACU	FACU	FACU	forb	PE	DI	advent
3	Cicuta bulbifera	L.	native	Apiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
3	Cicuta maculata	L.	native	Apiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
3	Cicuta sp.	L.	ND	Apiaceae	OBL				forb	PE	DI	full
7	Cimicifuga racemosa	(L.) Nutt.	native	Ranunculaceae	(FACU)				forb	PE	DI	shade
4	Cinna arundinacea	L.	native	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	shade
8	Cinna latifolia	(Trevir. ex R. Geopp.) Griseb.	native	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	shade
*	Cinna sp.	L.	ND	Poaceae	FACW				grass	PE	MO	shade
9	Circaea alpina	L.	native	Onagraceae	FACW	FACW	FACW	FACW	forb	PE	DI	shade
3	Circaea lutetiana	L.	native	Onagraceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
*	Circaea sp.	L.	ND	Onagraceae	ND				forb	PE	DI	shade
4	Cirsium altissimum	(L.) Hill	native	Asteraceae	(UPL)				forb	PE	DI	full
0	Cirsium arvense	(L.) Scop.	adventive	Asteraceae	FACU	FACU	FACU	FACU	forb	PE	DI	advent
7	Cirsium carolinianum	(Walt.) Fernald & B.G. Schub.	native	Asteraceae	(UPL)				forb	BI	DI	full
4	Cirsium discolor	(Muhl. ex Willd.) Spreng.	native	Asteraceae	UPL	UPL	FACU	UPL	forb	PE	DI	full
8	Cirsium muticum	Michx.	native	Asteraceae	OBL	OBL	OBL	OBL	forb	BI	DI	full
0	Cirsium plattense	(Rydb.) Cockerell ex Daniels	adventive	Asteraceae	(FACU)				forb	BI	DI	advent
4	Cirsium pumilum	(Nutt.) Spreng.	native	Asteraceae	(UPL)				forb	BI	DI	full
*	Cirsium sp.	Mill.	ND	Asteraceae	ND				forb	ND	DI	ND
0	Cirsium vulgare	(Savi) Ten.	adventive	Asteraceae	FACU-	FACU	FACU	FACU	forb	BI	DI	advent
0	Citrullus lanatus	(Thunb.) Matsum. & Nakai	adventive	Cucurbitaceae	(UPL)	UPL	FACU	UPL	forb	AN	DI	advent
9	Cladium mariscoides	(Muhl.) Torr.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Cladrastis lutea</i>	(Michx.) K. Koch	adventive	Fabaceae	(UPL)				tree	W	DI	advent
0	<i>Clarkia pulchella</i>	Pursh.	adventive	Onagraceae	(FACU)				forb	AN	DI	advent
6	<i>Claytonia caroliniana</i>	Michx.	native	Portulacaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
*	<i>Claytonia</i> sp.	L.	ND	Portulacaceae	FACU				forb	PE	DI	shade
2	<i>Claytonia virginica</i>	L.	native	Portulacaceae	FACU	FAC	FACU	FACU	forb	PE	DI	shade
9	<i>Clematis occidentalis</i>	(Hornem.) DC.	native	Ranunculaceae	(UPL)				forb	PE	DI	partial
*	<i>Clematis</i> sp.	L.	ND	Ranunculaceae	ND				forb	PE	DI	partial
0	<i>Clematis terniflora</i>	DC	adventive	Ranunculaceae	(FACU)	FACU	UPL	UPL	vine	PE	DI	advent
6	<i>Clematis viorna</i>	L.	native	Ranunculaceae	(FAC-)				forb	PE	DI	partial
3	<i>Clematis virginiana</i>	L.	native	Ranunculaceae	FAC	FAC	FAC	FAC	forb	PE	DI	partial
0	<i>Cleome hassleriana</i>	Chodat	adventive	Capparaceae	(FACU-)	FACU	FACU		forb	AN	DI	advent
0	<i>Cleome serrulata</i>	Pursh.	adventive	Capparaceae	(FACU-)	FACU	FACU	FACU	forb	AN	DI	advent
2	<i>Clinopodium vulgare</i>	L.	native	Lamiaceae	(UPL)				forb	PE	DI	shade
10	<i>Clintonia borealis</i>	(Aiton) Raf.	native	Liliaceae	FAC	FAC	FAC	FAC	forb	PE	MO	shade
8	<i>Clintonia</i> sp.	Raf.	ND	Liliaceae	ND				forb	PE	MO	shade
8	<i>Clintonia umbellulata</i>	(Michx.) Morong	native	Liliaceae	(UPL)				forb	PE	MO	shade
6	<i>Clitoria mariana</i>	L.	native	Fabaceae	(UPL)	FACU	FACU	FACU	forb	PE	DI	partial
8	<i>Coeloglossum viride</i> (L.) Hartman var. <i>virescens</i>	(Muhl. ex Willd.) Luer	native	Orchidaceae	(FACU)				forb	PE	MO	shade
9	<i>Coleataenia longifolia</i>	(Torr.) Soreng	native	Poaceae	OBL				grass	PE	MO	full
8	<i>Collinsia verna</i>	Nutt.	native	Scrophulariaceae	FAC-	FAC	FACU	FACU	forb	AN	DI	shade
5	<i>Collinsonia canadensis</i>	L.	native	Lamiaceae	FAC+	FAC	FAC	FAC	forb	PE	DI	shade
9	<i>Collinsonia verticillata</i>	Baldwin	native	Lamiaceae	(UPL)				forb	PE	DI	shade
0	<i>Collomia linearis</i>	Nutt.	adventive	Polemoniaceae	FACU	UPL	FACU	FACU	forb	AN	DI	advent
5	<i>Comandra umbellata</i>	(L.) Nutt.	native	Santalaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	full
0	<i>Commelina communis</i>	L.	adventive	Commelinaceae	FAC-	FAC	FACU	FAC	forb	AN	DI	advent
0	<i>Commelina diffusa</i>	Burm. f.	adventive	Commelinaceae	FACW	FACW	FACW	FACW	forb	AN	DI	advent
*	<i>Commelina</i> sp.	L.	ND	Commelinaceae	ND				forb	ND	DI	ND
6	<i>Commelina virginica</i>	L.	native	Commelinaceae	FACW	FACW	FACW	FACW	forb	PE	DI	shade
8	<i>Comptonia peregrina</i>	(L.) J. M. Coulter	native	Myricaceae	(UPL)				shrub	W	DI	full
8	<i>Conioselinum chinense</i>	(L.) B.S.P.	native	Apiaceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
0	<i>Conium maculatum</i>	L.	adventive	Apiaceae	FACW	FACW	FACW	FACW	forb	BI	DI	advent
7	<i>Conopholis americana</i>	(L.) Wallr.	native	Orobanchaceae	(UPL)				forb	AN	DI	shade
0	<i>Conringia orientalis</i>	(L.) Andrz.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	<i>Convallaria majalis</i>	L.	adventive	Liliaceae	(UPL)				forb	PE	DI	advent
0	<i>Convolvulus arvensis</i>	L.	adventive	Convolvulaceae	(UPL)				forb	PE	DI	advent
0	<i>Conyza canadensis</i>	(L.) Cronquist	native	Asteraceae	UPL				forb	AN	DI	full
9	<i>Conyza ramosissima</i>	Cronquist	native	Asteraceae	(UPL)				forb	AN	DI	full
*	<i>Conyza</i> sp.	Less.	ND	Asteraceae	UPL				forb	AN	DI	full
7	<i>Coptis trifolia</i>	(L.) Salisb.	native	Ranunculaceae	FACW	FACW	FACW	FACW	forb	PE	DI	shade
5	<i>Corallorrhiza maculata</i>	(Raf.) Raf.	native	Orchidaceae	FACU	FACU	FACU	FACU	forb	PE	MO	shade
4	<i>Corallorrhiza odontorhiza</i>	(Willd.) Poir.	native	Orchidaceae	(UPL)				forb	PE	MO	shade
*	<i>Corallorrhiza</i> sp.	Gagnebin% orth. cons.	ND	Orchidaceae	ND				forb	PE	MO	shade
9	<i>Corallorrhiza trifida</i>	Chatel.	native	Orchidaceae	FACW	FACW	FACW	FACW	forb	PE	MO	shade
6	<i>Corallorrhiza wisteriana</i>	Conrad	native	Orchidaceae	FAC	FAC	FACU	FACU	forb	PE	MO	shade

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0	<i>Coreopsis grandiflora</i>	R. Hogg. ex Sweet	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Coreopsis lanceolata</i>	L.	adventive	Asteraceae	FACU	FACU	FACU	FACU	forb	PE	DI	advent
7	<i>Coreopsis major</i>	Walter	native	Asteraceae	(UPL)				forb	PE	DI	shade
*	<i>Coreopsis</i> sp.	L.	ND	Asteraceae	ND				forb	ND	DI	ND
0	<i>Coreopsis tinctoria</i>	Nutt.	adventive	Asteraceae	FAC-	FAC	FACU	FACU	forb	AN	DI	advent
5	<i>Coreopsis tripteris</i>	L.	native	Asteraceae	FAC	FAC	FAC	FAC	forb	PE	DI	partial
0	<i>Coriandrum sativum</i>	L.	adventive	Apiaceae	(FACU)				forb	AN	DI	advent
0	<i>Corispermum hyssopifolium</i>	L.	adventive	Chenopodiaceae	FACU				forb	AN	DI	advent
0	<i>Corispermum nitidum</i>	Kit. ex Schult.	adventive	Chenopodiaceae	(FACU)				forb	AN	DI	advent
*	<i>Corispermum</i> sp.	L.	ND	Chenopodiaceae	FACU				forb	AN	DI	advent
5	<i>Cornus alternifolia</i>	L.f.	native	Cornaceae	(UPL)	FAC	FAC	FACU	shrub	W	DI	shade
2	<i>Cornus amomum</i>	Mill.	native	Cornaceae	FACW	FACW	FACW	FACW	shrub	W	DI	full
8	<i>Cornus canadensis</i>	L.	native	Cornaceae	FAC-	FAC	FAC	FAC	shrub	W	DI	shade
3	<i>Cornus drummondii</i>	C.A. Mey.	native	Cornaceae	FAC	FAC	FAC	FAC	shrub	W	DI	partial
5	<i>Cornus florida</i>	L.	native	Cornaceae	FACU-	FACU	FACU	FACU	sm tree	W	DI	shade
1	<i>Cornus racemosa</i>	Lam.	native	Cornaceae	FAC-	FAC	FAC	FAC	shrub	W	DI	full
8	<i>Cornus rugosa</i>	Lam.	native	Cornaceae	(UPL)				shrub	W	DI	full
3	<i>Cornus sericea</i>	L.	native	Cornaceae	FACW+				shrub	W	DI	full
*	<i>Cornus</i> sp.	L.	ND	Cornaceae	ND				ND	W	DI	ND
0	<i>Coronilla varia</i>	L.	adventive	Fabaceae	(UPL)				forb	PE	DI	advent
0	<i>Coronopus didymus</i>	(L.) Sm.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	<i>Corydalis aurea</i>	Willd.	adventive	Fumariaceae	(UPL)				forb	BI	DI	advent
4	<i>Corydalis flavula</i>	(Raf.) DC.	native	Fumariaceae	FACU	FACU	FACU	FACU	forb	AN	DI	partial
9	<i>Corydalis sempervirens</i>	(L.) Pers.	native	Fumariaceae	(UPL)				forb	BI	DI	shade
*	<i>Corydalis</i> sp.	DC.	ND	Fumariaceae	ND				forb	ND	DI	partial
4	<i>Corylus americana</i>	Walter	native	Betulaceae	FACU-	FACU	FACU	FACU	shrub	W	DI	full
7	<i>Corylus cornuta</i>	Marshall	native	Betulaceae	FACU-	FACU	UPL	FACU	shrub	W	DI	full
*	<i>Corylus</i> sp.	L.	ND	Betulaceae	ND				shrub	W	DI	full
0	<i>Cosmos bipinnatus</i>	Cav.	adventive	Asteraceae	(UPL)	FACU	FAC	FAC	forb	AN	DI	advent
0	<i>Cotinus coggygria</i>	Scop.	adventive	Anacardiaceae	(UPL)				sm tree	W	DI	advent
0	<i>Cotoneaster pyracantha</i>	(L.) Spach	adventive	Rosaceae	(FACU)				sm tree	PE	DI	advent
6	<i>Crataegus brainerdii</i>	Sarg.	native	Rosaceae	(UPL)				sm tree	W	DI	full
4	<i>Crataegus calpodendron</i>	(Ehrh.) Medik.	native	Rosaceae	(UPL)				sm tree	W	DI	full
6	<i>Crataegus chrysoarpa</i>	Ashe	native	Rosaceae	(UPL)				sm tree	W	DI	full
3	<i>Crataegus coccinea</i>	L.	native	Rosaceae	(UPL)				sm tree	W	DI	full
3	<i>Crataegus crus-galli</i>	L.	native	Rosaceae	FACU	FACU	FAC	FAC	sm tree	W	DI	full
3	<i>Crataegus flabellata</i>	(Spach) G. Kirchn.	native	Rosaceae	(UPL)				sm tree	W	DI	full
4	<i>Crataegus intricata</i>	Lange	native	Rosaceae	(UPL)				sm tree	W	DI	full
3	<i>Crataegus mollis</i>	Scheele	native	Rosaceae	FACU	FACU	FAC	FAC	sm tree	W	DI	full
0	<i>Crataegus monogyna</i>	Jacq.	adventive	Rosaceae	(UPL)	FACU	FACU	FACU	sm tree	W	DI	advent
0	<i>Crataegus phaenopyrum</i>	(L.f.) Medik.	adventive	Rosaceae	FAC	FAC	FAC	FAC	sm tree	W	DI	advent
2	<i>Crataegus pruinosa</i>	(H.L. Wendl.) K. Koch	native	Rosaceae	(UPL)				sm tree	W	DI	full
3	<i>Crataegus punctata</i>	Jacq.	native	Rosaceae	(UPL)				sm tree	W	DI	full
*	<i>Crataegus</i> sp.	L.	ND	Rosaceae	ND				sm tree	W	DI	ND
4	<i>Crataegus succulenta</i>	Schrad. ex Link	native	Rosaceae	(UPL)				sm tree	W	DI	full

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
8	<i>Crataegus uniflora</i>	Muenchh.	native	Rosaceae	(UPL)				sm tree	W	DI	full
0	<i>Crepis capillaris</i>	(L.) Wallr.	adventive	Asteraceae	(UPL)	UPL	FACU	UPL	forb	AN	DI	advent
0	<i>Crepis pulchra</i>	L.	adventive	Asteraceae	(UPL)				forb	AN	DI	advent
*	<i>Crepis sp.</i>	L.	ND	Asteraceae	UPL				forb	AN	DI	advent
0	<i>Crepis tectorum</i>	L.	adventive	Asteraceae	(FACU)				forb	AN	DI	advent
0	<i>Crotalaria sagittalis</i>	L.	adventive	Fabaceae	(UPL)				forb	AN	DI	advent
0	<i>Croton capitatus</i>	Michx.	adventive	Euphorbiaceae	(UPL)				forb	AN	DI	advent
0	<i>Croton glandulosus</i>	L.	native	Euphorbiaceae	(UPL)				forb	AN	DI	full
0	<i>Croton monanthogynus</i>	Michx.	adventive	Euphorbiaceae	(UPL)				forb	AN	DI	advent
*	<i>Croton sp.</i>	L.	ND	Euphorbiaceae	UPL				forb	AN	DI	ND
8	<i>Croton willdenowii</i>	G.L. Webster	native	Euphorbiaceae	UPL				forb	AN	DI	full
0	<i>Crypsis schoenoides</i>	(L.) Lam.	adventive	Poaceae	(FACW)	FACU	FACU	OBL	grass	AN	MO	advent
3	<i>Cryptotaenia canadensis</i>	(L.) DC.	native	Apiaceae	FAC	FAC	FAC	FAC	forb	PE	DI	shade
0	<i>Cucumis melo</i>	L.	adventive	Cucurbitaceae	(FACU)				vine	AN	DI	advent
0	<i>Cucurbita foetidissima</i>	Kunth	adventive	Cucurbitaceae	(UPL)				vine	PE	DI	advent
0	<i>Cucurbita maxima</i>	Duchesne	adventive	Cucurbitaceae	(FACU)				vine	AN	DI	advent
0	<i>Cucurbita pepo</i>	L.	adventive	Cucurbitaceae	(FACU)				forb	AN	DI	advent
6	<i>Cunila origanoides</i>	(L.) Britton	native	Lamiaceae	(UPL)				forb	PE	DI	shade
3	<i>Cuphea viscosissima</i>	Jacq.	native	Lythraceae	FAC-	FAC	FACU	FACU	forb	AN	DI	full
6	<i>Cuscuta cephalanthi</i>	Engelm.	native	Cuscutaceae	(UPL)				forb	AN	DI	full
8	<i>Cuscuta compacta</i>	Juss ex Choisy	native	Cuscutaceae	(UPL)				forb	AN	DI	full
5	<i>Cuscuta coryli</i>	Engelm.	native	Cuscutaceae	(UPL)				forb	AN	DI	full
8	<i>Cuscuta cuspidata</i>	Engelm.	native	Cuscutaceae	(FACW)				forb	AN	DI	full
0	<i>Cuscuta epilinum</i>	Weihe	adventive	Cuscutaceae	(FACU)				forb	PE	DI	advent
0	<i>Cuscuta epithymum</i>	L.	adventive	Cuscutaceae	(UPL)				forb	AN	DI	advent
9	<i>Cuscuta glomerata</i>	Choisy	native	Cuscutaceae	(FAC)				forb	AN	DI	full
3	<i>Cuscuta gronovii</i>	Willd. ex Schulte	native	Cuscutaceae	(FACW+)				forb	AN	DI	full
8	<i>Cuscuta indecora</i>	Choisy	native	Cuscutaceae	(FAC)				forb	AN	DI	full
3	<i>Cuscuta pentagona</i>	Engelm.	native	Cuscutaceae	(UPL)				forb	AN	DI	full
5	<i>Cuscuta polygonorum</i>	Engelm.	native	Cuscutaceae	(UPL)				forb	AN	DI	full
*	<i>Cuscuta sp.</i>	L.	ND	Cuscutaceae	ND				forb	AN	DI	ND
0	<i>Cuscuta suaveolens</i>	Ser.	adventive	Cuscutaceae	(FACU)				forb	PE	DI	advent
0	<i>Cycloloma atriplicifolium</i>	(Spreng.) J.M. Coult.	adventive	Chenopodiaceae	FACU-	FACU	FACU	FACU	forb	AN	DI	advent
0	<i>Cymbalaria muralis</i>	P. Gaertn.% B. Mey. & Scherb.	adventive	Scrophulariaceae	(FACU)				forb	PE	DI	advent
0	<i>Cynodon dactylon</i>	(L.) Pers.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	PE	DI	advent
0	<i>Cynoglossum officinale</i>	L.	adventive	Boraginaceae	(UPL)	UPL	FACU	UPL	forb	BI	MO	advent
*	<i>Cynoglossum sp.</i>	L.	ND	Boraginaceae	UPL				forb	ND	MO	ND
5	<i>Cynoglossum virginianum L. var. boreale</i>	(Fernald) Cooperrider	native	Boraginaceae	(UPL)				forb	PE	MO	shade
5	<i>Cynoglossum virginianum var. virginianum</i>	L.	native	Boraginaceae	(UPL)				forb	PE	MO	shade
0	<i>Cynosurus cristatus</i>	L.	adventive	Poaceae	UPL	UPL	FAC	FAC	grass	PE	DI	advent
0	<i>Cynosurus echinatus</i>	L.	adventive	Poaceae	(FACU)				grass	AN	MO	advent
8	<i>Cyperus acuminatus</i>	Torr. & Hook. ex Torr.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	AN	MO	full
3	<i>Cyperus bipartitus</i>	Torr.	native	Cyperaceae	FACW+	FACW	OBL	FACW	sedge	AN	MO	full
7	<i>Cyperus diandrus</i>	Torr.	native	Cyperaceae	FACW	FACW	FACW	OBL	sedge	AN	MO	full
4	<i>Cyperus erythrorhizos</i>	Muhl.	native	Cyperaceae	FACW+	FACW	OBL	OBL	sedge	AN	MO	full

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0	<i>Cyperus esculentus</i>	L.	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	full
3	<i>Cyperus flavescens</i>	L.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	AN	MO	full
4	<i>Cyperus lancastricensis</i>	Porter ex A. Gray	native	Cyperaceae	FACU	FAC	FAC	FAC	sedge	PE	MO	full
4	<i>Cyperus lupulinus</i>	(Spreng.) Marcks	native	Cyperaceae	(UPL)	UPL	FACU	FACU	sedge	PE	MO	full
4	<i>Cyperus odoratus</i>	L.	native	Cyperaceae	FACW	FACW	FACW	OBL	sedge	AN	MO	full
6	<i>Cyperus refractus</i>	Engelm. ex Boeck	native	Cyperaceae	FACU+	FACU	FACU		sedge	PE	MO	full
4	<i>Cyperus retrofractus</i>	(L.) Torr.	native	Cyperaceae	(UPL)	UPL		UPL	sedge	PE	MO	full
10	<i>Cyperus schweinitzii</i>	Torr.	native	Cyperaceae	FACU	FACU	FACU	FACU	sedge	PE	MO	full
*	<i>Cyperus</i> sp.	L.	ND	Cyperaceae	ND				sedge	ND	MO	full
3	<i>Cyperus squarrosus</i>	L.	native	Cyperaceae	FACW+	FACW	OBL	OBL	sedge	AN	MO	full
1	<i>Cyperus strigosus</i>	L.	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	PE	MO	full
8	<i>Cypripedium acaule</i>	Aiton	native	Orchidaceae	FACU	FACU	FACW	FACW	forb	PE	MO	partial
9	<i>Cypripedium candidum</i>	Muhl. ex Willd.	native	Orchidaceae	OBL	OBL	OBL	OBL	forb	PE	MO	partial
7	<i>Cypripedium parviflorum</i> Salisb. var. <i>pubescens</i>	(Willd.) O.W. Knight	native	Orchidaceae	FAC+				forb	PE	MO	partial
10	<i>Cypripedium parviflorum</i> var. <i>parviflorum</i>	Salisb.	native	Orchidaceae	FACW-	FACW	FACW	FAC	forb	PE	MO	partial
10	<i>Cypripedium reginae</i>	Walter	native	Orchidaceae	FACW	FACW	FACW	FACW	forb	PE	MO	partial
*	<i>Cypripedium</i> sp.	L.	ND	Orchidaceae	ND				forb	PE	MO	partial
7	<i>Cystopteris bulbifera</i>	(L.) Bernh.	native	Dryopteridaceae	FAC	FAC	FACW	FACW	fern	PE	SVP	shade
7	<i>Cystopteris fragilis</i>	(L.) Bernh.	native	Dryopteridaceae	FACU	FACU	FACU	FACU	fern	PE	SVP	shade
5	<i>Cystopteris protrusa</i>	(Weath.) Blasdell	native	Dryopteridaceae	(UPL)	FAC	FACW	FACU	fern	PE	SVP	shade
*	<i>Cystopteris</i> sp.	Bernh.	ND	Dryopteridaceae	ND				fern	PE	SVP	shade
6	<i>Cystopteris tennesseensis</i>	Shaver	native	Dryopteridaceae	(UPL)				fern	PE	SVP	shade
5	<i>Cystopteris tenuis</i>	(Michx.) Desv.	native	Dryopteridaceae	(UPL)	FACU	FACU	FACU	fern	PE	SVP	shade
0	<i>Dactylis glomerata</i>	L.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	advent
0	<i>Dalea leporina</i>	(Aiton) Bullock	adventive	Fabaceae	(FACU)	UPL	FACU	UPL	forb	AN	DI	advent
9	<i>Dalea purpurea</i>	Vent.	native	Fabaceae	(UPL)				forb	PE	MO	full
8	<i>Dalibarda repens</i>	L.	native	Rosaceae	FAC	FAC		FAC	forb	PE	DI	shade
4	<i>Danthonia compressa</i>	Austin ex Peck	native	Poaceae	FACU-	FACU	FACU	FACU	grass	PE	MO	shade
4	<i>Danthonia</i> sp.	DC.	ND	Poaceae	ND				grass	PE	MO	shade
4	<i>Danthonia spicata</i>	(L.) P. Beauv. ex Roem. & Schult.	native	Poaceae	(UPL)				grass	PE	MO	shade
0	<i>Daphne mezereum</i>	L.	adventive	Thymelaceae	(FAC)			FACU	shrub	PE	DI	advent
5	<i>Dasistoma macrophylla</i>	(Nutt.) Raf.	native	Scrophulariaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
0	<i>Datura stramonium</i>	L.	adventive	Solanaceae	(UPL)				forb	AN	DI	advent
0	<i>Datura wrightii</i>	Regel	adventive	Solanaceae	(FACU-)	FACU	FACU	FACU	forb	PE	DI	advent
0	<i>Daucus carota</i>	L.	adventive	Apiaceae	(UPL)	UPL	UPL	UPL	forb	BI	DI	advent
6	<i>Decodon verticillatus</i>	(L.) Elliott	native	Lythraceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Delphinium ambiguum</i>	L.	adventive	Ranunculaceae	(UPL)				forb	AN	DI	advent
7	<i>Delphinium exaltatum</i>	Aiton	native	Ranunculaceae	(FACU)				forb	PE	DI	shade
*	<i>Delphinium</i> sp.	L.	ND	Ranunculaceae	ND				forb	ND	DI	ND
4	<i>Delphinium tricorne</i>	Michx.	native	Ranunculaceae	(UPL)				forb	PE	DI	shade
6	<i>Dennstaedtia punctilobula</i>	(Michx.) T. Moore	native	Dennstaedtiaceae	UPL	FACU	UPL	UPL	fern	PE	SVP	shade
10	<i>Deschampsia cespitosa</i>	(L.) P. Beauv.	native	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	full
8	<i>Deschampsia flexuosa</i>	(L.) Trin.	native	Poaceae	(UPL)	FACU			grass	PE	MO	full
*	<i>Deschampsia</i> sp.	P. Beauv.	ND	Poaceae	ND				grass	PE	MO	full

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8	<i>Descurainia pinnata</i> (Walt.) Britt. var. <i>brachycarpa</i>	(Richardson) Fernald	native	Brassicaceae	(UPL)				forb	AN	DI	full
0	<i>Descurainia pinnata</i> var. <i>pinnata</i>	(Walt.) Britt.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	<i>Descurainia sophia</i>	(L.) Webb ex Prantl	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
*	<i>Descurainia</i> sp.	Webb & Bethel	ND	Brassicaceae	UPL				forb	AN	DI	ND
3	<i>Desmanthus illinoensis</i>	(Michx.) MacMill.	native	Mimosaceae	FAC	FAC	FACU	FACU	forb	PE	DI	full
4	<i>Desmodium canadense</i>	(L.) DC.	native	Fabaceae	FAC	FAC	FACU	FAC	forb	PE	DI	full
4	<i>Desmodium canescens</i>	(L.) DC.	native	Fabaceae	(UPL)				forb	PE	DI	full
6	<i>Desmodium ciliare</i>	(Muhl.) DC.	native	Fabaceae	(UPL)				forb	PE	DI	full
4	<i>Desmodium cuspidatum</i>	(Muhl. ex Willd.) DC. ex Loudon	native	Fabaceae	(UPL)				forb	PE	DI	partial
6	<i>Desmodium glabellum</i>	(Michx.) DC.	native	Fabaceae	(UPL)				forb	PE	DI	shade
5	<i>Desmodium glutinosum</i>	(Muhl. ex Willd.) A.W. Wood	native	Fabaceae	(UPL)				forb	PE	DI	shade
9	<i>Desmodium illinoense</i>	A. Gray	native	Fabaceae	(UPL)				forb	PE	DI	full
5	<i>Desmodium laevigatum</i>	(Nutt.) DC.	native	Fabaceae	(UPL)				forb	PE	DI	shade
5	<i>Desmodium marilandicum</i>	(L.) DC.	native	Fabaceae	(UPL)				forb	PE	DI	partial
5	<i>Desmodium nudiflorum</i>	(L.) DC.	native	Fabaceae	(UPL)				forb	PE	DI	shade
7	<i>Desmodium obtusum</i>	(Muhl. ex Willd.) DC.	native	Fabaceae	(FACU)				forb	PE	DI	full
3	<i>Desmodium paniculatum</i>	(L.) DC.	native	Fabaceae	UPL	FACU	FACU	FACU	forb	PE	DI	shade
6	<i>Desmodium pauciflorum</i>	(Nutt.) DC.	native	Fabaceae	(FACU)				forb	PE	DI	shade
6	<i>Desmodium rotundifolium</i>	DC.	native	Fabaceae	(UPL)				forb	PE	DI	shade
8	<i>Desmodium sessilifolium</i>	(Torr.) Torr. & A. Gray	native	Fabaceae	(UPL)				forb	PE	DI	full
*	<i>Desmodium</i> sp.	Desv.	ND	Fabaceae	ND				forb	PE	DI	ND
5	<i>Desmodium viridiflorum</i>	(L.) DC.	native	Fabaceae	(UPL)				forb	PE	DI	shade
0	<i>Dianthus armeria</i>	L.	adventive	Caryophyllaceae	UPL	UPL	UPL	UPL	forb	AN	DI	advent
0	<i>Dianthus barbatus</i>	L.	adventive	Caryophyllaceae	(UPL)				forb	PE	DI	advent
0	<i>Dianthus caryophyllus</i>	L.	adventive	Caryophyllaceae	(FACU)				forb	PE	DI	advent
0	<i>Dianthus deltoides</i>	L.	adventive	Caryophyllaceae	(UPL)	UPL	FACU	UPL	forb	PE	DI	advent
*	<i>Dianthus</i> sp.	L.	ND	Caryophyllaceae	UPL				forb	ND	DI	advent
7	<i>Diarrhena americana</i>	P. Beauv. (sensu stricto)	native	Poaceae	(FAC+)			FACU	grass	PE	MO	shade
7	<i>Diarrhena obovata</i>	(Gleason) Brandenburg	native	Poaceae	(FAC+)			FACU	grass	PE	MO	shade
7	<i>Diarrhena</i> sp.	P. Beauv.	ND	Poaceae	FAC+				grass	PE	MO	shade
6	<i>Dicentra canadensis</i>	(Goldie) Walp.	native	Fumariaceae	(UPL)				forb	PE	DI	shade
6	<i>Dicentra cucullaria</i>	(L.) Bernh.	native	Fumariaceae	(UPL)				forb	PE	DI	shade
0	<i>Dicentra eximia</i>	(Ker Gawl.) Torr.	adventive	Fumariaceae	(FACU)				forb	PE	DI	advent
6	<i>Dicentra</i> sp.	L.	ND	Fumariaceae	UPL				forb	PE	DI	shade
6	<i>Dichantheium boreale</i>	(Nash) Freckmann	native	Poaceae	FACU	FACU	FAC	FAC	grass	PE	MO	full
6	<i>Dichantheium boscii</i>	(Poir.) Gould & Clark	native	Poaceae	(UPL)				grass	PE	MO	shade
2	<i>Dichantheium clandestinum</i>	(L.) Gould	native	Poaceae	FAC+	FAC	FACW	FACW	grass	PE	MO	shade
6	<i>Dichantheium columbianum</i>	(Scribn.) Freckmann	native	Poaceae	FACU				grass	PE	MO	full
5	<i>Dichantheium commutatum</i>	(Schult.) Gould	native	Poaceae	FACU+	FACU	FAC	FAC	grass	PE	MO	shade
8	<i>Dichantheium depauperatum</i>	(Muhl.) Gould	native	Poaceae	(UPL)				grass	PE	MO	shade
4	<i>Dichantheium dichotomum</i>	(L.) Gould	native	Poaceae	FAC	FAC	FAC	FAC	grass	PE	MO	partial
9	<i>Dichantheium implicatum</i>	(Scribn.) Kerguelen	native	Poaceae	(FACW)				grass	PE	MO	full
3	<i>Dichantheium lanuginosum</i>	(Elliott) Gould	native	Poaceae	FAC	FAC	FAC	FAC	grass	PE	MO	full
4	<i>Dichantheium latifolium</i>	(L) Harvill	native	Poaceae	FACU-	FACU	FACU	FACU	grass	PE	MO	shade

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7	<i>Dichanthelium laxiflorum</i>	(Lam.) Gould	native	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	shade
8	<i>Dichanthelium leibergii</i>	(Vasey) Freckmann	native	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	full
9	<i>Dichanthelium lindheimeri</i>	(Nash) Gould	native	Poaceae	(OBL)	FAC	FAC	FAC	grass	PE	MO	full
4	<i>Dichanthelium linearifolium</i>	(Scribn.) Gould	native	Poaceae	(UPL)				grass	PE	MO	full
9	<i>Dichanthelium meridionale</i>	(Ashe) Freckmann	native	Poaceae	(UPL)				grass	PE	MO	full
5	<i>Dichanthelium microcarpon</i>	(Muhl. ex Elliott) Mohlenbr.	native	Poaceae	(FACU)	FAC	FAC	FAC	grass	PE	MO	full
6	<i>Dichanthelium oligosanthes</i>	(Schult.) Gould	native	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	partial
9	<i>Dichanthelium perlongum</i>	(Nash) Freckmann	native	Poaceae	(UPL)				grass	PE	MO	full
3	<i>Dichanthelium polyanthes</i>	(Schult.) Mohlen.	native	Poaceae	(FACU)	FACU	FACU	FACU	grass	PE	MO	shade
9	<i>Dichanthelium praecocius</i>	(Hitchc. & Chase) Mohlenbr.	native	Poaceae	(UPL)				grass	PE	MO	full
6	<i>Dichanthelium scoparium</i>	(Lam.) Gould	native	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	full
*	<i>Dichanthelium sp.</i>	(Hitchc. & Chase) Gould	ND	Poaceae	ND				grass	ND	MO	ND
4	<i>Dichanthelium sphaerocarpon</i>	(Elliott) Gould	native	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	shade
9	<i>Dichanthelium spretum</i>	(Schult.) Freckmann	native	Poaceae	(FAC)	FAC	FAC	FAC	grass	PE	MO	full
6	<i>Dichanthelium villosissimum</i>	(Nash) Freckmann	native	Poaceae	(UPL)	FACU	FACU	FACU	grass	PE	MO	partial
7	<i>Dichanthelium yadkinense</i>	(Ashe) Mohlenbr.	native	Poaceae	(FAC)	FAC	FAC	FAC	grass	PE	MO	shade
7	<i>Diervilla lonicera</i>	Mill.	native	Caprifoliaceae	(UPL)				shrub	W	DI	full
0	<i>Digitalis grandiflora</i>	Mill.	adventive	Scrophulariaceae	(FACU)				forb	PE	DI	advent
0	<i>Digitalis lanata</i>	Ehrh.	adventive	Scrophulariaceae	(FACU)				forb	PE	DI	advent
0	<i>Digitalis lutea</i>	L.	adventive	Scrophulariaceae	(FACU)				forb	PE	DI	advent
0	<i>Digitalis purpurea</i>	L.	adventive	Scrophulariaceae	(FAC-)	UPL		FACU	forb	BI	DI	advent
*	<i>Digitalis sp.</i>	L.	ND	Scrophulariaceae	ND				forb	BI	DI	advent
4	<i>Digitaria filiformis</i>	(L.) Koeler	native	Poaceae	(UPL)				grass	AN	MO	full
0	<i>Digitaria ischaemum</i>	(Schreb.) Muhl.	adventive	Poaceae	UPL	UPL	FACU	FACU	grass	AN	MO	advent
0	<i>Digitaria sanguinalis</i>	(L.) Scop.	adventive	Poaceae	FACU-	FACU	FACU	FACU	grass	AN	MO	advent
*	<i>Digitaria sp.</i>	Haller	ND	Poaceae	ND				grass	AN	MO	ND
*	<i>Diodia sp.</i>	L.	ND	Rubiaceae	ND				forb	AN	DI	full
3	<i>Diodia teres</i>	Walter	native	Rubiaceae	(UPL)	UPL	FACU	FACU	forb	AN	DI	full
8	<i>Diodia virginiana</i>	L.	native	Rubiaceae	FACW	FACW	FACW	FACW	forb	AN	DI	full
0	<i>Dioscorea batatas</i>	Decne.	adventive	Dioscoreaceae	(FACU)				vine	PE	DI	advent
5	<i>Dioscorea quaternata</i>	J.F. Gmel.	native	Dioscoreaceae	FACU	FAC	FAC	FAC	vine	PE	DI	partial
*	<i>Dioscorea sp.</i>	L.	ND	Dioscoreaceae	ND				vine	PE	DI	ND
4	<i>Dioscorea villosa</i>	L.	native	Dioscoreaceae	FAC+	FAC	FAC	FAC	vine	PE	DI	partial
4	<i>Diospyros virginiana</i>	L.	native	Ebenaceae	FAC-	FAC	FAC	FAC	sm tree	W	DI	shade
1	<i>Diphasiastrum digitatum</i>	(Dill. ex A. Braun) Holub	native	Lycopodiaceae	FACU-				fern	PE	SVP	shade
*	<i>Diphasiastrum sp.</i>	Holub	ND	Lycopodiaceae	ND				fern	PE	SVP	shade
3	<i>Diphasiastrum tristachyum</i>	(Pursh) Holub	native	Lycopodiaceae	(UPL)				fern	PE	SVP	shade
0	<i>Diplotaxis muralis</i>	(L.) DC.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
*	<i>Diplotaxis sp.</i>	DC.	ND	Brassicaceae	UPL				forb	ND	DI	advent
0	<i>Diplotaxis tenuifolia</i>	(L.) DC.	adventive	Brassicaceae	(UPL)				forb	PE	DI	advent
0	<i>Dipsacus fullonum</i>	L.	adventive	Dipsacaceae	FACU-	FACU	FACU	FACU	forb	BI	DI	advent
0	<i>Dipsacus laciniatus</i>	L.	adventive	Dipsacaceae	(UPL)		UPL	FACU	forb	BI	DI	advent
0	<i>Dipsacus sativus</i>	(L.) Honck.	adventive	Dipsacaceae	(UPL)				forb	BI	DI	advent
*	<i>Dipsacus sp.</i>	L.	ND	Dipsacaceae	ND				forb	BI	DI	advent
7	<i>Dirca palustris</i>	L.	native	Thymelaeaceae	FAC	FAC	FAC	FAC	sm tree	W	DI	shade

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7	Dodecatheon meadia	L.	native	Primulaceae	FACU	FACU	FACU	FACU	forb	PE	DI	partial
8	Doellingeria infirma	(Michx.) Greene	native	Asteraceae	(UPL)				forb	PE	DI	shade
*	Doellingeria sp.	Nees	ND	Asteraceae	ND				forb	PE	DI	ND
3	Doellingeria umbellata	(Mill.) Nees	native	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	partial
0	Dolichos lablab	L.	adventive	Fabaceae	(FACU)				vine	PE	DI	advent
9	Draba brachycarpa	Nutt. ex Torr. & A. Gray	native	Brassicaceae	(UPL)				forb	AN	DI	full
9	Draba cuneifolia	Nutt. ex Torr. & A. Gray	native	Brassicaceae	(UPL)				forb	AN	DI	full
7	Draba reptans	(Lam.) Fernald	native	Brassicaceae	(UPL)				forb	AN	DI	full
*	Draba sp.	L.	ND	Brassicaceae	UPL				forb	AN	DI	full
0	Dracocephalum parviflorum	Nutt.	adventive	Lamiaceae	(UPL)	FACU	FACU	FACU	forb	PE	DI	advent
9	Drosera intermedia	Hayne	native	Droseraceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
7	Drosera rotundifolia	L.	native	Droseraceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
*	Drosera sp.	L.	ND	Droseraceae	OBL				forb	PE	DI	full
5	Dryopteris carthusiana	(Vill.) H.P. Fuchs	native	Dryopteridaceae	FAC+	FAC	FACW	FACW	fern	PE	SVP	shade
8	Dryopteris celsa	(W. Palmer) Small	native	Dryopteridaceae	OBL	OBL	OBL	OBL	fern	PE	SVP	shade
8	Dryopteris clintoniana	(DC. Eaton) Dowell	native	Dryopteridaceae	FACW+	FACW	FACW	FACW	fern	PE	SVP	shade
8	Dryopteris cristata	(L.) A. Gray	native	Dryopteridaceae	FACW+	FACW	OBL	OBL	fern	PE	SVP	shade
8	Dryopteris filix-mas	L.	native	Dryopteridaceae	(UPL)				fern	PE	SVP	shade
7	Dryopteris goldiana	(Hook. ex Goldie) A. Gray	native	Dryopteridaceae	FAC+	FAC	FAC	FAC	fern	PE	SVP	shade
6	Dryopteris intermedia	(Muhl. ex Willd.) A. Gray	native	Dryopteridaceae	FACU	FACU	FAC	FAC	fern	PE	SVP	shade
5	Dryopteris marginalis	(L.) A. Gray	native	Dryopteridaceae	FACU-	FACU	FACU	FACU	fern	PE	SVP	shade
*	Dryopteris sp.	Adans.	ND	Dryopteridaceae	ND				fern	PE	SVP	shade
0	Duchesnea indica	(Andrews) Focke	adventive	Rosaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	advent
6	Dulichium arundinaceum	(L.) Britton	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
0	Dyssodia papposa	(Vent.) Hitchc.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
6	Echinacea purpurea	(L.) Moench	native	Asteraceae	(UPL)				forb	PE	DI	full
0	Echinochloa crus-galli	(L.) P. Beauv.	adventive	Poaceae	FACU	FAC	FACW	FAC	grass	AN	MO	advent
3	Echinochloa muricata	(P. Beauv.) Fernald	native	Poaceae	FACW+	FACW	OBL	OBL	grass	AN	MO	full
*	Echinochloa sp.	P. Beauv.	ND	Poaceae	ND				grass	AN	MO	ND
6	Echinochloa walteri	(Pursh) A. Heller	native	Poaceae	FACW+	FACW	OBL	OBL	grass	AN	MO	full
2	Echinocystis lobata	(Michx.) Torr. & A. Gray	native	Cucurbitaceae	FAC	FAC	FACW	FACW	vine	AN	DI	shade
9	Echinodorus berteroi	(Spreng.) Fassett	native	Alismataceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
0	Echium vulgare	L.	adventive	Boraginaceae	(UPL)				forb	BI	DI	advent
3	Eclipta prostrata	(L.) L.	native	Asteraceae	FAC	FAC	FACW	FACW	forb	AN	DI	full
0	Elaeagnus angustifolia	L.	adventive	Elaeagnaceae	FACU	FACU	FACU	FACU	sm tree	W	DI	advent
0	Elaeagnus multiflora	Thunb.	adventive	Elaeagnaceae	(UPL)				sm tree	W	DI	advent
*	Elaeagnus sp.	L.	ND	Elaeagnaceae	FACU				sm tree	W	DI	advent
0	Elaeagnus umbellata	Thun.	adventive	Elaeagnaceae	(FACU)				sm tree	W	DI	advent
10	Elatine triandra	Schkuhr	native	Elatinaceae	OBL			OBL	forb	AN	DI	full
5	Eleocharis acicularis	(L.) Roem. & Schult.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
7	Eleocharis compressa	Sull.	native	Cyperaceae	FACW+	OBL	FACW	FACW	sedge	PE	MO	full
7	Eleocharis elliptica	Kunth	native	Cyperaceae	(FACW+)	FACW	OBL	OBL	sedge	PE	MO	full
9	Eleocharis engelmannii	Steud.	native	Cyperaceae	FACW+	FACW	FACW	FACW	sedge	AN	MO	full
4	Eleocharis erythropoda	Steud.	native	Cyperaceae	OBL				sedge	PE	MO	full

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
8	<i>Eleocharis flavescens</i> (Poir.) Urban var. <i>olivacea</i>	(Torr.) Gleason	native	Cyperaceae	OBL	OBL		OBL	sedge	PE	MO	full
9	<i>Eleocharis geniculata</i>	(L.) Roem. & Schult.	native	Cyperaceae	FACW		FACW	OBL	sedge	AN	MO	full
7	<i>Eleocharis intermedia</i>	Schult.	native	Cyperaceae	FACW+	FACW	OBL	OBL	sedge	AN	MO	full
1	<i>Eleocharis obtusa</i>	(Willd.) Schult.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	AN	MO	full
9	<i>Eleocharis ovata</i>	(Roth) Roem. & Schult.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	AN	MO	full
5	<i>Eleocharis palustris</i>	Britton	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
9	<i>Eleocharis parvula</i>	(Roem. & Schult.) Link	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
4	<i>Eleocharis quadrangulata</i>	(Michx.) Roem. & Schult.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
10	<i>Eleocharis quinqueflora</i>	(Hartmann) O. Scharz	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
10	<i>Eleocharis robbinsii</i>	Oakes	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
10	<i>Eleocharis rostellata</i>	(Torr.) Torr.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
*	<i>Eleocharis</i> sp.	R. Br.	ND	Cyperaceae	ND				sedge	ND	MO	full
7	<i>Eleocharis tenuis</i> (Willd.) Schult. var. <i>verrucosa</i>	(Svenson) Svenson	native	Cyperaceae	(FACW+)	FACW	FACW	FACW	sedge	PE	MO	full
9	<i>Eleocharis tenuis</i> var. <i>tenuis</i>	(Willd.) Schult.	native	Cyperaceae	FACW+	FACW	FACW	FACW	sedge	PE	MO	full
9	<i>Eleocharis wolffii</i>	(A. Gray) A. Gray ex Britton	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
4	<i>Elephantopus carolinianus</i>	Raeusch.	native	Asteraceae	FACU	FACU	FAC		forb	PE	DI	shade
0	<i>Eleusine indica</i>	(L.) Gaertn.	adventive	Poaceae	FACU-	FACU	FACU	FACU	grass	AN	MO	advent
0	<i>Ellisia nyctelea</i>	(L.) L.	adventive	Hydrophyllaceae	FACU	FACU	FAC	FAC	forb	AN	DI	advent
3	<i>Elodea canadensis</i>	Michx.	native	Hydrocharitaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
5	<i>Elodea nuttallii</i>	(Planch.) St. John	native	Hydrocharitaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
*	<i>Elodea</i> sp.	Michx.	ND	Hydrocharitaceae	OBL				forb	PE	MO	full
6	<i>Elymus canadensis</i>	L.	native	Poaceae	FACU+	FACU	FACU	FACU	grass	PE	MO	full
4	<i>Elymus hystrix</i>	L.	native	Poaceae	UPL	UPL	FACU	FACU	grass	PE	MO	shade
6	<i>Elymus macgregorii</i>	R. Brooks & J.J.N. Campb.	native	Poaceae	(FACW)				grass	PE	MO	shade
5	<i>Elymus riparius</i>	Wiegand	native	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	partial
*	<i>Elymus</i> sp.	L.	ND	Poaceae	ND				grass	PE	MO	ND
7	<i>Elymus trachycaulus</i>	(Link) Gould ex Shinners	native	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	partial
4	<i>Elymus villosus</i>	Muhl. ex Willd.	native	Poaceae	FACU-	FACU	FACU	FACU	grass	PE	MO	partial
3	<i>Elymus virginicus</i>	L.	native	Poaceae	FACW-	FACW	FACW	FACW	grass	PE	MO	partial
0	<i>Elytrigia repens</i>	(L.) Desv. ex B.D. Jacks	adventive	Poaceae	FACU-	FACU	FACU	FACU	grass	PE	MO	advent
0	<i>Elytrigia smithii</i>	(Rydb.) Nevski	adventive	Poaceae	(UPL)	UPL	FACU	FACU	grass	PE	MO	advent
*	<i>Elytrigia</i> sp.	Desv.	ND	Poaceae	ND				grass	PE	MO	advent
10	<i>Epifagus virginiana</i>	(L.) Barton	native	Orobanchaceae	(UPL)				forb	AN	DI	shade
8	<i>Epigaea repens</i>	L.	native	Ericaceae	(UPL)				shrub	W	DI	shade
7	<i>Epilobium angustifolium</i>	L.	native	Onagraceae	FAC				forb	PE	DI	full
4	<i>Epilobium ciliatum</i>	Raf.	native	Onagraceae	FAC-	FAC	FACW	FACW	forb	PE	DI	full
1	<i>Epilobium coloratum</i>	Biehler	native	Onagraceae	OBL	FACW	OBL	OBL	forb	PE	DI	full
0	<i>Epilobium hirsutum</i>	L.	adventive	Onagraceae	FACW	FACW	FACW	FACW	forb	PE	DI	advent
7	<i>Epilobium leptophyllum</i>	Raf.	native	Onagraceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Epilobium parviflorum</i>	Schreb.	adventive	Onagraceae	(FACW)	OBL			forb	PE	DI	advent
*	<i>Epilobium</i> sp.	L.	ND	Onagraceae	ND				forb	PE	DI	ND
9	<i>Epilobium strictum</i>	Muhl. ex Spreng.	native	Onagraceae	OBL	OBL	OBL	OBL	forb	PE	DI	shade
0	<i>Epipactis helleborine</i>	(L.) Crantz	adventive	Equisetaceae	(UPL)	UPL	FACU	UPL	forb	PE	DI	advent

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	Equisetum arvense	L.	native	Equisetaceae	FAC	FAC	FAC	FAC	fern	PE	SVP	full
7	Equisetum fluviatile	L.	native	Equisetaceae	OBL	OBL	OBL	OBL	fern	PE	SVP	full
2	Equisetum hyemale	L.	native	Equisetaceae	FACW	FACW	FACW	FAC	fern	PE	SVP	full
6	Equisetum laevigatum	A. Braun	native	Equisetaceae	FACW	FACW	FACW	FACW	fern	PE	SVP	full
*	Equisetum sp.	L.	ND	Equisetaceae	ND				fern	PE	SVP	ND
7	Equisetum sylvaticum	L.	native	Equisetaceae	FACW	FACW	FACW	FACW	fern	PE	SVP	partial
8	Equisetum variegatum	Schleich. ex F. Weber & D. Mohr	native	Equisetaceae	FACW	FACW	FACW	FACW	fern	PE	SVP	full
3	Eragrostis capillaris	(L.) Nees	native	Poaceae	(UPL)				grass	AN	MO	partial
0	Eragrostis cilianensis	(All.) Vignolo ex Janch.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	AN	MO	advent
0	Eragrostis curvula	(Schrad.) Nees	adventive	Poaceae	(FACU)				grass	PE	MO	advent
3	Eragrostis frankii	C.A. Mey. ex Steud.	native	Poaceae	FACW	FACW	FACW	FACW	grass	AN	MO	full
4	Eragrostis hypnoides	(Lam.) B.S.P.	native	Poaceae	OBL	OBL	OBL	OBL	grass	AN	MO	full
0	Eragrostis minor	Host	adventive	Poaceae	(UPL)				grass	AN	MO	advent
1	Eragrostis pectinacea	(Michx.) Nees ex Steud.	native	Poaceae	FAC	FAC	FAC	FAC	grass	AN	MO	full
0	Eragrostis pilosa	(L.) P. Beauv.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	advent
*	Eragrostis sp.	von Wolf	ND	Poaceae	ND				grass	ND	MO	ND
2	Eragrostis spectabilis	(Pursh) Steud.	native	Poaceae	(UPL)	UPL	UPL	UPL	grass	PE	MO	partial
0	Eranthis hyemalis	(L.) Salisb.	adventive	Ranunculaceae	(FACU)				forb	PE	DI	advent
2	Erechtites hieracifolia	(L.) Raf. ex DC.	native	Asteraceae	FACU				forb	AN	DI	full
0	Erica tetralix	L.	adventive	Ericaceae	(OBL)	FACU		FACU	shrub	W	DI	advent
6	Erigenia bulbosa	(Michx.) Nutt.	native	Apiaceae	(UPL)				forb	PE	DI	shade
0	Erigeron annuus	(L.) Pers.	native	Asteraceae	FACU	FACU	FACU	FACU	forb	AN	DI	full
2	Erigeron philadelphicus	L.	native	Asteraceae	FACU	FACU	FACW	FAC	forb	BI	DI	full
5	Erigeron pulchellus	Michx.	native	Asteraceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
*	Erigeron sp.	L.	ND	Asteraceae	ND				forb	ND	DI	full
1	Erigeron strigosus	Muhl. ex Willd.	native	Asteraceae	FACU+	FACU	FACU	FACU	forb	AN	DI	full
10	Eriocaulon aquaticum	(Hill) Druce	native	Eriocaulaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
10	Eriophorum gracile	W.D.J. Koch	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
10	Eriophorum sp.	L.	ND	Cyperaceae	OBL				sedge	PE	MO	full
10	Eriophorum virginicum	L.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
10	Eriophorum viridicarinatum	(Englem.) Fernald	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
0	Erodium cicutarium	(L.) L'Her ex Aiton	adventive	Geraniaceae	(UPL)				forb	AN	DI	advent
0	Erophila verna	(L.) Besser	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	Erucastrum gallicum	(Willd.) O.E. Schulz	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
7	Eryngium yuccifolium	Michx.	native	Apiaceae	FAC	FAC	FAC	FAC	forb	PE	DI	full
10	Erysimum capitatum	(Douglas ex Hooker) Greene	native	Brassicaceae	(UPL)				forb	BI	DI	full
0	Erysimum cheiranthoides	L.	adventive	Brassicaceae	FAC	FAC	FACU	FACU	forb	AN	DI	advent
0	Erysimum inconspicuum	(S. Watson) MacMill.	adventive	Brassicaceae	(UPL)				forb	PE	DI	advent
0	Erysimum repandum	L.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
*	Erysimum sp.	L.	ND	Brassicaceae	ND				forb	ND	DI	ND
5	Erythronium albidum	Nutt.	native	Liliaceae	FACU	FACU	FACU	FACU	forb	PE	MO	shade
4	Erythronium americanum	Ker Gawl.	native	Liliaceae	(UPL)				forb	PE	MO	shade
9	Erythronium rostratum	W. Wolf	native	Liliaceae	UPL	UPL	FACU		forb	PE	MO	shade
*	Erythronium sp.	L.	ND	Liliaceae	ND				forb	PE	MO	shade
0	Eschscholzia californica	Cham.	adventive	Papaveraceae	(UPL)				forb	PE	DI	advent

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Euonymus alatus</i>	(Thunb.) Siebold	adventive	Celastraceae	(UPL)				shrub	W	DI	advent
6	<i>Euonymus americanus</i>	L.	native	Celastraceae	FAC	FAC	FAC	FAC	shrub	W	DI	partial
3	<i>Euonymus atropurpureus</i>	Jacq.	native	Celastraceae	FACU	FACU	FAC	FACU	shrub	W	DI	partial
0	<i>Euonymus europaeus</i>	L.	adventive	Celastraceae	(UPL)				shrub	W	DI	advent
0	<i>Euonymus fortunei</i>	(Turcz.) Hand.-Mazz.	adventive	Celastraceae	(UPL)				vine	W	DI	advent
5	<i>Euonymus obovatus</i>	Nutt.	native	Celastraceae	(FAC)	FAC	FAC	FACU	shrub	W	DI	full
*	<i>Euonymus</i> sp.	L.	ND	Celastraceae	ND				shrub	W	DI	ND
8	<i>Eupatorium album</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
0	<i>Eupatorium altissimum</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	partial
6	<i>Eupatorium aromaticum</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
3	<i>Eupatorium coelestinum</i>	L.	native	Asteraceae	FAC	FAC	FACW	FAC	forb	PE	DI	partial
6	<i>Eupatorium fistulosum</i>	Barratt	native	Asteraceae	FACW	FACW	OBL	FACW	forb	PE	DI	partial
8	<i>Eupatorium godfreyanum</i>	Cronquist	native	Asteraceae	(UPL)				forb	PE	DI	partial
4	<i>Eupatorium hyssopifolium</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	full
4	<i>Eupatorium incarnatum</i>	Walter	native	Asteraceae	FAC				forb	PE	DI	shade
6	<i>Eupatorium maculatum</i>	L.	native	Asteraceae	FACW	FACW	OBL	OBL	forb	PE	DI	full
3	<i>Eupatorium perfoliatum</i>	L.	native	Asteraceae	FACW+	FACW	OBL	FACW	forb	PE	DI	full
5	<i>Eupatorium purpureum</i>	L.	native	Asteraceae	FAC	FAC	FAC	FAC	forb	PE	DI	partial
6	<i>Eupatorium rotundifolium</i>	L.	native	Asteraceae	FAC-	FAC	FAC	FAC	forb	PE	DI	shade
3	<i>Eupatorium rugosum</i>	Houtt.	native	Asteraceae	(FACU)	FACU	FACU	FACU	forb	PE	DI	shade
2	<i>Eupatorium serotinum</i>	Michx.	native	Asteraceae	FAC-	FAC	FAC	FAC	forb	PE	DI	shade
4	<i>Eupatorium sessilifolium</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
*	<i>Eupatorium</i> sp.	L.	ND	Asteraceae	ND				forb	PE	DI	ND
5	<i>Euphorbia commutata</i>	Engelm.	native	Euphorbiaceae	FACU	FACU	UPL	UPL	forb	PE	DI	shade
4	<i>Euphorbia corollata</i>	L.	native	Euphorbiaceae	(UPL)				forb	PE	DI	full
0	<i>Euphorbia cyathophora</i>	Murray	adventive	Euphorbiaceae	(FACU)	UPL	FACU	FACU	forb	PE	DI	advent
0	<i>Euphorbia cyparissias</i>	L.	adventive	Euphorbiaceae	(UPL)				forb	PE	DI	advent
0	<i>Euphorbia dentata</i>	Michx.	adventive	Euphorbiaceae	(UPL)				forb	AN	DI	advent
0	<i>Euphorbia esula</i>	L.	adventive	Euphorbiaceae	(UPL)				forb	PE	DI	advent
0	<i>Euphorbia falcata</i>	L.	adventive	Euphorbiaceae	(UPL)				forb	AN	DI	advent
0	<i>Euphorbia helioscopia</i>	L.	adventive	Euphorbiaceae	(UPL)				forb	AN	DI	advent
3	<i>Euphorbia humistrata</i>	Engelm.	native	Euphorbiaceae	FACU	FAC	FACW	FACW	forb	AN	DI	partial
0	<i>Euphorbia maculata</i>	L.	native	Euphorbiaceae	FACU-	FACU	FACU	FACU	forb	AN	DI	full
0	<i>Euphorbia marginata</i>	Pursh	adventive	Euphorbiaceae	UPL	UPL	FACU	FACU	forb	AN	DI	advent
0	<i>Euphorbia nutans</i>	Lagasca	native	Euphorbiaceae	FACU-	FACU	FACU	FACU	forb	AN	DI	full
4	<i>Euphorbia obtusata</i>	Pursh	native	Euphorbiaceae	FACU-	FACU	FACU	FACU	forb	AN	DI	shade
0	<i>Euphorbia peplus</i>	L.	adventive	Euphorbiaceae	(UPL)				forb	AN	DI	advent
0	<i>Euphorbia platyphyllos</i>	L.	adventive	Euphorbiaceae	(UPL)				forb	AN	DI	advent
10	<i>Euphorbia polygonifolia</i>	L.	native	Euphorbiaceae	FACU	FACU	UPL	UPL	forb	AN	DI	full
0	<i>Euphorbia prostrata</i>	Aiton	adventive	Euphorbiaceae	(UPL)	FACU	FACU	FACU	forb	AN	DI	advent
9	<i>Euphorbia purpurea</i>	(Raf.) Fernald	native	Euphorbiaceae	FAC	FAC	FAC	FAC	forb	PE	DI	shade
8	<i>Euphorbia serpens</i>	Kunth	native	Euphorbiaceae	(FACW)	FACW	FACW	FACW	forb	AN	DI	full
*	<i>Euphorbia</i> sp.	L.	ND	Euphorbiaceae	ND				forb	ND	DI	ND
0	<i>Euphorbia vermiculata</i>	Raf.	native	Euphorbiaceae	(UPL)				forb	AN	DI	full
5	<i>Eurybia divaricata</i>	(L.) G.L. Nesom	native	Asteraceae	(UPL)				forb	PE	DI	shade

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5	<i>Eurybia macrophylla</i>	(L.) Cass	native	Asteraceae	UPL	UPL	FACU	UPL	forb	PE	DI	shade
5	<i>Eurybia schreberi</i>	(Nees) Nees	native	Asteraceae	(FACU+)				forb	PE	DI	shade
*	<i>Eurybia</i> sp.	(Cass.) Cass.	ND	Asteraceae	ND				forb	PE	DI	ND
9	<i>Eurybia surculosa</i>	(Michx.) G.L. Nesom	native	Asteraceae	(UPL)				forb	PE	DI	full
2	<i>Euthamia graminifolia</i>	(L.) Nutt.	native	Asteraceae	FAC	FAC	FACW	FAC	forb	PE	DI	full
9	<i>Euthamia remota</i>	Greene	native	Asteraceae	FAC	FAC	FACW	FAC	forb	PE	DI	full
*	<i>Euthamia</i> sp.	Nutt. ex Cass.	ND	Asteraceae	FAC				forb	PE	DI	full
0	<i>Fagopyrum esculentum</i>	Moench	adventive	Polygonaceae	(UPL)				forb	AN	DI	advent
7	<i>Fagus grandifolia</i>	Ehrh.	native	Fagaceae	FACU	FACU	FACU	FACU	tree	W	DI	tree
8	<i>Fallopia cilioidis</i>	(Michx.) Holub	native	Polygonaceae	(UPL)				vine	PE	DI	shade
0	<i>Fallopia convolvulus</i>	(L.) A. Love	adventive	Polygonaceae	FACU	FACU	FACU	FACU	vine	AN	DI	advent
0	<i>Fallopia japonica</i>	(Houttuyn) Ronse Decraene	adventive	Polygonaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	advent
0	<i>Fallopia sachalinensis</i>	(F. Schmidt) Ronse Decraene	adventive	Polygonaceae	(UPL)	UPL	UPL	UPL	forb	PE	DI	advent
2	<i>Fallopia scandens</i>	(L.) Holub	native	Polygonaceae	FAC	FAC	FAC	FAC	vine	PE	DI	partial
*	<i>Fallopia</i> sp.	ND	ND	Polygonaceae	ND				forb	ND	DI	
0	<i>Festuca elatior</i>	L.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	advent
0	<i>Festuca ovina</i>	L.	adventive	Poaceae	(UPL)	UPL	FACU	UPL	grass	PE	MO	advent
0	<i>Festuca pratensis</i>	Huds.	adventive	Poaceae	FACU-	FACU	FACU	FACU	grass	PE	MO	advent
0	<i>Festuca rubra</i>	L.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	advent
*	<i>Festuca</i> sp.	L.	ND	Poaceae	ND				grass	PE	MO	advent
5	<i>Festuca subverticillata</i>	(Pers.) E. Alexeev	native	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	shade
0	<i>Filago germanica</i>	(L.) Huds.	adventive	Asteraceae	(UPL)				forb	AN	DI	advent
8	<i>Filipendula rubra</i>	(Hill) B.L. Rob.	native	Rosaceae	FACW	FACW	OBL	FACW	forb	PE	DI	full
*	<i>Filipendula</i> sp.	Mill.	ND	Rosaceae	ND				forb	PE	DI	ND
0	<i>Filipendula ulmaria</i>	(L.) Maxim.	adventive	Rosaceae	(UPL)		FACW		forb	PE	DI	advent
5	<i>Fimbristylis autumnalis</i>	(L.) Roem. & Schult.	native	Cyperaceae	FACW+	FACW	OBL	FACW	sedge	AN	MO	full
5	<i>Floerkea proserpinacoides</i>	Willd.	native	Limnanthaceae	FAC	FAC	FACW	FAC	forb	AN	DI	shade
0	<i>Foeniculum vulgare</i>	Mill.	adventive	Apiaceae	UPL				forb	BI	DI	advent
0	<i>Forsythia x intermedia</i>	Zabel	adventive	Oleaceae	(UPL)				shrub	W	DI	advent
0	<i>Fragaria chiloensis</i>	(L.) Mill.	adventive	Rosaceae	(FACU)				forb	PE	DI	advent
*	<i>Fragaria</i> sp.	L.	ND	Rosaceae	ND				forb	PE	DI	ND
3	<i>Fragaria vesca</i> L. var. <i>americana</i>	Porter	native	Rosaceae	(UPL)	FACU	UPL	UPL	forb	PE	DI	full
0	<i>Fragaria vesca</i> var. <i>vesca</i>	L.	adventive	Rosaceae	(UPL)	FACU	UPL	UPL	forb	PE	DI	advent
1	<i>Fragaria virginiana</i>	Duchesne	native	Rosaceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
7	<i>Frasera caroliniensis</i>	Walter	native	Gentianaceae	(UPL)				forb	PE	DI	shade
6	<i>Fraxinus americana</i>	L.	native	Oleaceae	FACU	FACU	FACU	FACU	tree	W	DI	tree
7	<i>Fraxinus nigra</i>	Marshall	native	Oleaceae	FACW	FACW	FACW	FACW	tree	W	DI	tree
3	<i>Fraxinus pennsylvanica</i>	Marshall	native	Oleaceae	FACW	FACW	FACW	FACW	tree	W	DI	tree
7	<i>Fraxinus profunda</i>	(Bush) Bush	native	Oleaceae	OBL	OBL	OBL	OBL	tree	W	DI	tree
7	<i>Fraxinus quadrangulata</i>	Michx.	native	Oleaceae	(UPL)				tree	W	DI	tree
*	<i>Fraxinus</i> sp.	L.	ND	Oleaceae	ND				tree	W	DI	tree
2	<i>Froelichia floridana</i>	(Nutt.) Moq.	native	Amaranthaceae	(UPL)				forb	AN	DI	full
0	<i>Froelichia gracilis</i>	(Hook.) Moq.	adventive	Amaranthaceae	(UPL)				forb	AN	DI	advent
*	<i>Froelichia</i> sp.	Moench	ND	Amaranthaceae	UPL				forb	AN	DI	ND
0	<i>Fumaria officinalis</i>	L.	adventive	Fumariaceae	(UPL)				forb	AN	DI	advent

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	Gaillardia pulchella	Foug.	adventive	Asteraceae	(UPL)	UPL	FACU	UPL	forb	BI	DI	advent
9	Galactia volubilis	(L.) Britton	native	Fabaceae	FAC+	FACU	FAC	FAC	forb	PE	DI	full
0	Galanthus nivalis	L.	adventive	Liliaceae	(FAC+)				forb	PE	MO	advent
0	Galax urceolata	(Poir.) Brummitt	adventive	Diapensiaceae	(FACU-)	FACU		FACU	forb	PE	DI	advent
0	Galeopsis ladanum	L.	adventive	Lamiaceae	(UPL)				forb	AN	DI	advent
*	Galeopsis sp.	L.	ND	Lamiaceae	UPL				forb	AN	DI	advent
0	Galeopsis tetrahit	L.	adventive	Lamiaceae	(UPL)	FACU	FACU	FACU	forb	AN	DI	advent
0	Galinsoga parviflora	Cav.	adventive	Asteraceae	(UPL)	UPL	FACU	UPL	forb	AN	DI	advent
0	Galinsoga quadriradiata	Ruiz & Pav.	adventive	Asteraceae	(UPL)	FACU	FACU	FACU	forb	AN	DI	advent
*	Galinsoga sp.	Ruiz & Pav.	ND	Asteraceae	UPL				forb	AN	DI	advent
0	Galium aparine	L.	native	Rubiaceae	FACU	FACU	FACU	FACU	forb	AN	DI	partial
4	Galium asprellum	Michx.	native	Rubiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
8	Galium boreale	L.	native	Rubiaceae	FACU	FACU	FAC	FAC	forb	PE	DI	partial
4	Galium circaezans	Michx.	native	Rubiaceae	(UPL)	UPL	FACU	FACU	forb	PE	DI	shade
5	Galium concinnum	Torr. & A. Gray	native	Rubiaceae	UPL	UPL	FACU	FACU	forb	PE	DI	shade
10	Galium labradoricum	(Wiegand) Wiegand	native	Rubiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
5	Galium lanceolatum	Torr.	native	Rubiaceae	(UPL)	UPL	FACU	FACU	forb	PE	DI	shade
0	Galium mollugo	L.	adventive	Rubiaceae	(UPL)	FACU			forb	PE	DI	advent
5	Galium obtusum	Bigelow	native	Rubiaceae	FACW+	FACW	FACW	FACW	forb	PE	DI	full
0	Galium odoratum	(L.) Scop.	adventive	Rubiaceae	(UPL)				forb	PE	DI	advent
9	Galium palustre	L.	native	Rubiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	Galium pedemontanum	(Bellardi) All.	adventive	Rubiaceae	(UPL)				forb	AN	DI	advent
4	Galium pilosum	Aiton	native	Rubiaceae	(UPL)				forb	PE	DI	shade
*	Galium sp.	L.	ND	Rubiaceae	ND				forb	ND	DI	ND
4	Galium tinctorium	(L.) Scop.	native	Rubiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
7	Galium trifidum	L.	native	Rubiaceae	FACW+	FACW	FACW	FACW	forb	PE	DI	partial
4	Galium triflorum	Michx.	native	Rubiaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
0	Galium verum	L.	adventive	Rubiaceae	(UPL)				forb	PE	DI	advent
10	Gaultheria hispidula	(L.) Muhl. ex Bigelow	native	Ericaceae	FACW	FACW	FACW	FACW	shrub	W	DI	shade
5	Gaultheria procumbens	L.	native	Ericaceae	FACU	FACU	FACU	FACU	shrub	W	DI	shade
*	Gaultheria sp.	L.	ND	Ericaceae	ND				shrub	W	DI	shade
1	Gaura biennis	L.	native	Onagraceae	FACU	FACU	FACU	FACU	forb	BI	DI	full
0	Gaura longiflora	Spach	adventive	Onagraceae	(FACU)				forb	PE	DI	advent
0	Gaura parviflora	Douglas ex Lehm.	adventive	Onagraceae	(FACU)	UPL	UPL	FACU	forb	AN	DI	advent
6	Gaylussacia baccata	(Wangenh.) K. Koch	native	Ericaceae	FACU	FACU	FACU	FACU	shrub	W	DI	partial
0	Genista tinctoria	L.	adventive	Fabaceae	(FAC)				shrub	PE	DI	advent
5	Gentiana andrewsii	Griseb.	native	Gentianaceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
6	Gentiana clausa	Raf.	native	Gentianaceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
8	Gentiana flavida	A. Gray	native	Gentianaceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
10	Gentiana puberulenta	J.S. Pringle	native	Gentianaceae	(FACU+)				forb	PE	DI	full
10	Gentiana saponaria	L.	native	Gentianaceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
*	Gentiana sp.	L.	ND	Gentianaceae	ND				forb	PE	DI	full
7	Gentiana villosa	L.	native	Gentianaceae	(UPL)				forb	PE	DI	full
8	Gentianella quinquefolia	(L.) Small	native	Gentianaceae	FAC	FAC	FAC	FAC	forb	BI	DI	full
7	Gentianopsis crinita	(Froelich) Ma	native	Gentianaceae	OBL	OBL	OBL	FACW	forb	AN	DI	full

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7	<i>Gentianopsis procera</i>	(T. Holm) Ma	native	Gentianaceae	FACW+	FACW	OBL	OBL	forb	AN	DI	full
7	<i>Gentianopsis</i> sp.	Ma	ND	Gentianaceae	ND				forb	AN	DI	full
7	<i>Geranium bicknellii</i>	Britton	native	Geraniaceae	(UPL)				forb	AN	DI	full
3	<i>Geranium carolinianum</i>	L.	native	Geraniaceae	(UPL)				forb	AN	DI	full
0	<i>Geranium columbinum</i>	L.	adventive	Geraniaceae	(UPL)				forb	AN	DI	advent
0	<i>Geranium dissectum</i>	L.	adventive	Geraniaceae	(UPL)				forb	AN	DI	advent
4	<i>Geranium maculatum</i>	L.	native	Geraniaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
0	<i>Geranium molle</i>	L.	adventive	Geraniaceae	(UPL)				forb	AN	DI	advent
0	<i>Geranium pusillum</i>	L.	adventive	Geraniaceae	(UPL)				forb	AN	DI	advent
4	<i>Geranium robertianum</i>	L.	native	Geraniaceae	(UPL)				forb	AN	DI	shade
0	<i>Geranium sanguineum</i>	L.	adventive	Geraniaceae	(FACU)				forb	PE	DI	advent
*	<i>Geranium</i> sp.	L.	ND	Geraniaceae	ND				forb	ND	DI	ND
3	<i>Geum aleppicum</i>	Jacq.	native	Rosaceae	FAC	FAC	FACW	FAC	forb	PE	DI	shade
2	<i>Geum canadense</i>	Jacq.	native	Rosaceae	FACU	FACU	FAC	FAC	forb	PE	DI	shade
2	<i>Geum laciniatum</i>	Murray	native	Rosaceae	FAC+	FAC	FACW	FACW	forb	PE	DI	shade
9	<i>Geum rivale</i>	L.	native	Rosaceae	OBL	OBL	OBL	OBL	forb	PE	DI	shade
*	<i>Geum</i> sp.	L.	ND	Rosaceae	ND				forb	PE	DI	shade
2	<i>Geum vernum</i>	(Raf.) Torr. & A. Gray	native	Rosaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
3	<i>Geum virginianum</i>	L.	native	Rosaceae	FAC-	FAC	FACU	FACU	forb	PE	DI	shade
0	<i>Gilia capitata</i>	Sims	adventive	Polemoniaceae	(UPL)				forb	PE	DI	advent
0	<i>Gilia rubra</i>	(L.) Wherry	adventive	Polemoniaceae	(UPL)				forb	BI	DI	advent
0	<i>Glechoma hederacea</i>	L.	adventive	Lamiaceae	FACU	FACU	FACU	FACU	forb	PE	DI	advent
4	<i>Gleditsia triacanthos</i>	L.	native	Caesalpiniaceae	FAC-	FAC	FACU	FAC	tree	W	DI	tree
9	<i>Glyceria acutiflora</i>	Torr.	native	Poaceae	OBL	OBL	OBL	OBL	grass	PE	MO	partial
9	<i>Glyceria borealis</i>	(Nash) Batch.	native	Poaceae	OBL	OBL	OBL	OBL	grass	PE	MO	full
7	<i>Glyceria canadensis</i>	(Michx.) Trin.	native	Poaceae	OBL	OBL	OBL	OBL	grass	PE	MO	full
7	<i>Glyceria grandis</i>	S. Watson	native	Poaceae	OBL	OBL	OBL	OBL	grass	PE	MO	full
7	<i>Glyceria melicaria</i>	(Michx.) F.T. Hubb.	native	Poaceae	OBL	OBL	OBL	OBL	grass	PE	MO	full
6	<i>Glyceria septentrionalis</i>	Hitchc.	native	Poaceae	OBL	OBL	OBL	OBL	grass	PE	MO	shade
*	<i>Glyceria</i> sp.	R. Br.	ND	Poaceae	OBL				grass	PE	MO	ND
2	<i>Glyceria striata</i>	(Lam.) Hitchc.	native	Poaceae	OBL	OBL	OBL	OBL	grass	PE	MO	shade
0	<i>Glycine max</i>	(L.) Merr.	adventive	Fabaceae	(FACU-)				forb	AN	DI	advent
3	<i>Gnaphalium macounii</i>	Greene	native	Asteraceae	(UPL)				forb	AN	DI	full
2	<i>Gnaphalium obtusifolium</i>	L.	native	Asteraceae	(UPL)				forb	AN	DI	full
3	<i>Gnaphalium purpureum</i>	L.	native	Asteraceae	(FACU)	UPL	FACU	FACU	forb	AN	DI	full
*	<i>Gnaphalium</i> sp.	L.	ND	Asteraceae	ND				forb	AN	DI	ND
0	<i>Gnaphalium uliginosum</i>	L.	adventive	Asteraceae	FAC	FAC	FAC	FAC	forb	AN	DI	advent
0	<i>Gomphrena globosa</i>	L.	adventive	Amaranthaceae	(FACU)	UPL	UPL	UPL	forb	AN	DI	advent
6	<i>Goodyera pubescens</i>	(Willd.) R. Br. ex W.T. Aiton	native	Orchidaceae	FACU-	FACU	FAC	FACU	forb	PE	MO	shade
*	<i>Goodyera</i> sp.	R. Br.	ND	Orchidaceae	FACU-				forb	PE	MO	shade
10	<i>Goodyera tessellata</i>	Lodd.	native	Orchidaceae	FACU-	FACU	FACU	FACU	forb	PE	MO	shade
3	<i>Gratiola neglecta</i>	Torr.	native	Scrophulariaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
*	<i>Gratiola</i> sp.	L.	ND	Scrophulariaceae	OBL				forb	ND	DI	full
5	<i>Gratiola virginiana</i>	L.	native	Scrophulariaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
6	<i>Gratiola viscidula</i>	Pennell	native	Scrophulariaceae	OBL	OBL	OBL		forb	PE	DI	full

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Grindelia lanceolata</i>	Nutt.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
*	<i>Grindelia</i> sp.	Willd.	ND	Asteraceae	ND				forb	ND	DI	advent
0	<i>Grindelia squarrosa</i>	(Pursh) Dunal	adventive	Asteraceae	FACU	FACU	FACU	FACU	forb	BI	DI	advent
9	<i>Gymnocarpium appalachianum</i>	Pryer & Haufler	native	Dryopteridaceae	(UPL)				fern	PE	SVP	shade
7	<i>Gymnocarpium dryopteris</i>	(L.) Newman	native	Dryopteridaceae	UPL	UPL	FAC	FACU	fern	PE	SVP	shade
*	<i>Gymnocarpium</i> sp.	Newman	ND	Dryopteridaceae	UPL				fern	PE	SVP	shade
3	<i>Gymnocladus dioicus</i>	(L.) K. Koch	native	Fabaceae	(UPL)				tree	W	DI	tree
8	<i>Gymnopogon ambiguus</i>	(Michx.) B.S.P.	native	Poaceae	(UPL)				grass	PE	MO	full
0	<i>Gypsophila muralis</i>	L.	adventive	Caryophyllaceae	(FACU)				forb	AN	DI	advent
0	<i>Gypsophila paniculata</i>	L.	adventive	Caryophyllaceae	(UPL)				forb	PE	DI	advent
0	<i>Gypsophila scorzonrifolia</i>	Ser.	adventive	Caryophyllaceae	(UPL)				forb	PE	DI	advent
6	<i>Hackelia deflexa</i>	(Wahlenb.) Opiz.	native	Boraginaceae	(UPL)				forb	BI	DI	shade
*	<i>Hackelia</i> sp.	Opiz.	ND	Boraginaceae	ND				forb	BI	DI	shade
2	<i>Hackelia virginiana</i>	(L.) I. M. Johnston.	native	Boraginaceae	FACU	FACU	FACU	FACU	forb	BI	DI	shade
5	<i>Halesia carolina</i>	L.	native	Styracaceae	FACU	FAC			sm tree	W	DI	shade
5	<i>Hamamelis virginiana</i>	L.	native	Hamamelidaceae	FAC-	FACU	FACU	FACU	sm tree	W	DI	shade
7	<i>Hedeoma hispida</i>	Pursh	native	Lamiaceae	(UPL)				forb	AN	DI	full
2	<i>Hedeoma pulegioides</i>	(L.) Pers.	native	Lamiaceae	(UPL)				forb	AN	DI	shade
*	<i>Hedeoma</i> sp.	Pers.	ND	Lamiaceae	UPL				forb	AN	DI	ND
0	<i>Hedera helix</i>	L.	adventive	Araliaceae	(UPL)				vine	W	DI	advent
3	<i>Hedyotis caerulea</i>	(L.) Hook.	native	Rubiaceae	FACU	FACU	FAC	FACU	forb	PE	DI	full
6	<i>Hedyotis canadensis</i>	(Willd. ex Roem. & Schult.) Fosberg	native	Rubiaceae	(UPL)				forb	PE	DI	partial
5	<i>Hedyotis longifolia</i>	(Gaertn.) Hook.	native	Rubiaceae	(UPL)				forb	PE	DI	full
8	<i>Hedyotis nigricans</i>	(Lam.) Fosb.	native	Rubiaceae	(UPL)				forb	PE	DI	full
5	<i>Hedyotis purpurea</i>	(L.) Torr. & A. Gray	native	Rubiaceae	(UPL)				forb	PE	DI	partial
*	<i>Hedyotis</i> sp.	L.	ND	Rubiaceae	ND				forb	PE	DI	ND
0	<i>Helenium amarum</i>	(Raf.) H. Rock	adventive	Asteraceae	FACU-	FACU	FACU	FACU	forb	PE	DI	advent
4	<i>Helenium autumnale</i>	L.	native	Asteraceae	FACW+	FACW	FACW	FACW	forb	PE	DI	full
0	<i>Helenium flexuosum</i>	Raf.	adventive	Asteraceae	FAC-	FAC	FAC	FAC	forb	PE	DI	advent
*	<i>Helenium</i> sp.	L.	ND	Asteraceae	ND				forb	PE	DI	ND
9	<i>Helianthemum bicknellii</i>	Fernald	native	Cistaceae	(UPL)				forb	PE	DI	full
9	<i>Helianthemum canadense</i>	(L.) Michx.	native	Cistaceae	(UPL)				forb	PE	DI	full
9	<i>Helianthemum</i> sp.	Mill.	ND	Cistaceae	UPL				forb	PE	DI	full
0	<i>Helianthus angustifolius</i>	L.	adventive	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	advent
0	<i>Helianthus annuus</i>	L.	adventive	Asteraceae	FAC-	FAC	FACU	FACU	forb	AN	DI	advent
4	<i>Helianthus decapetalus</i>	L.	native	Asteraceae	FACU	FACU	UPL	FACU	forb	PE	DI	shade
4	<i>Helianthus divaricatus</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
6	<i>Helianthus giganteus</i>	L.	native	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
4	<i>Helianthus grosseserratus</i>	M. Martens	native	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
4	<i>Helianthus hirsutus</i>	Raf.	native	Asteraceae	(UPL)				forb	PE	DI	full
0	<i>Helianthus maximiliani</i>	Schrad.	adventive	Asteraceae	UPL	UPL	UPL	UPL	forb	PE	DI	advent
5	<i>Helianthus microcephalus</i>	Torr. & A. Gray	native	Asteraceae	(UPL)	UPL	FACU	FACU	forb	PE	DI	shade
7	<i>Helianthus mollis</i>	Lam.	native	Asteraceae	(UPL)				forb	PE	DI	full
7	<i>Helianthus occidentalis</i>	Riddell	native	Asteraceae	UPL	UPL	FACU	FACU	forb	PE	DI	full

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0	<i>Helianthus petiolaris</i>	Nutt.	adventive	Asteraceae	(UPL)				forb	AN	DI	advent
*	<i>Helianthus</i> sp.	L.	ND	Asteraceae	ND				forb	AN	DI	ND
4	<i>Helianthus strumosus</i>	L.	native	Asteraceae	(UPL)	FACU			forb	PE	DI	full
3	<i>Helianthus tuberosus</i>	L.	native	Asteraceae	FAC	FACU	FACU	FACU	forb	PE	DI	full
5	<i>Heliopsis helianthoides</i>	(L.) Sweet	native	Asteraceae	(UPL)	FACU	FACU	FACU	forb	PE	DI	full
0	<i>Heliotropium europaeum</i>	L.	adventive	Boraginaceae	(FACU)				forb	PE	DI	advent
0	<i>Heliotropium indicum</i>	L.	adventive	Boraginaceae	(FACW)	FAC	FACW	FACW	forb	AN	DI	advent
0	<i>Helleborus viridis</i>	L.	adventive	Ranunculaceae	(FACU-)				forb	PE	DI	advent
0	<i>Hemerocallis fulva</i>	(L.) L.	adventive	Liliaceae	(UPL)	FACU	UPL	UPL	forb	PE	MO	advent
0	<i>Hemerocallis lilioasphodelus</i>	L.	adventive	Liliaceae	(FAC+)				forb	PE	MO	advent
5	<i>Hepatica acutiloba</i>	DC.	native	Ranunculacea	(UPL)				forb	PE	DI	shade
5	<i>Hepatica americana</i>	(DC.) Ker Gawl.	native	Ranunculacea	(UPL)				forb	PE	DI	shade
5	<i>Hepatica</i> sp.	Mill.	ND	Ranunculacea	UPL				forb	PE	DI	shade
4	<i>Heracleum lanatum</i>	Michx.	native	Apiaceae	FACU-	FAC	FACW	FACW	forb	PE	DI	full
0	<i>Heracleum mantegazzianum</i>	Sommier & Levier	adventive	Asteraceae	(FAC)		FAC	FAC	forb	PE	DI	advent
0	<i>Hesperis matronalis</i>	L.	adventive	Brassicaceae	FACU-	FACU	FACU	FACU	forb	BI	DI	advent
10	<i>Heteranthera reniformis</i>	Ruiz & Pav.	native	Pontederiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
4	<i>Heuchera americana</i>	L.	native	Saxifragaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	shade
8	<i>Heuchera longiflora</i>	Rydb.	native	Saxifragaceae	(UPL)				forb	PE	DI	shade
10	<i>Heuchera parviflora</i>	Bartl.	native	Saxifragaceae	(UPL)				forb	PE	DI	shade
*	<i>Heuchera</i> sp.	L.	ND	Saxifragaceae	ND				forb	PE	DI	shade
10	<i>Heuchera villosa</i>	Michx.	native	Saxifragaceae	(UPL)				forb	PE	DI	shade
9	<i>Hexaletris spicata</i>	(Walter) Barnhart	native	Orchidaceae	UPL	UPL	UPL		forb	PE	MO	shade
7	<i>Hibiscus laevis</i>	All.	native	Malvaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
4	<i>Hibiscus moscheutos</i>	L.	native	Malvaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
*	<i>Hibiscus</i> sp.	L.	ND	Malvaceae	OBL				forb	PE	DI	full
0	<i>Hibiscus syriacus</i>	L.	adventive	Malvaceae	(UPL)				shrub	W	DI	advent
0	<i>Hibiscus trionum</i>	L.	adventive	Malvaceae	(UPL)				forb	AN	DI	advent
0	<i>Hieracium aurantiacum</i>	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Hieracium caespitosum</i>	Dumort	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Hieracium floribundum</i>	Wimm. & Grab.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
5	<i>Hieracium gronovii</i>	L.	native	Asteraceae	(UPL)	UPL	UPL	UPL	forb	PE	DI	partial
9	<i>Hieracium longipilum</i>	Torr.	native	Asteraceae	(UPL)				forb	PE	DI	full
6	<i>Hieracium paniculatum</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
0	<i>Hieracium pilosella</i>	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Hieracium piloselloides</i>	Vill.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
5	<i>Hieracium scabrum</i>	Michx.	native	Asteraceae	(UPL)				forb	PE	DI	full
*	<i>Hieracium</i> sp.	L.	ND	Asteraceae	UPL				forb	PE	DI	ND
6	<i>Hieracium umbellatum</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	full
6	<i>Hieracium venosum</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
8	<i>Hierochloa odorata</i>	(L.) P. Beauv.	native	Poaceae	FACW				grass	PE	MO	full
0	<i>Holcus lanatus</i>	L.	adventive	Poaceae	FACU	FAC	FACU	FACU	grass	PE	MO	advent
0	<i>Holosteum umbellatum</i>	L.	adventive	Caryophyllaceae	(UPL)				forb	AN	DI	advent
0	<i>Hordeum jubatum</i>	L.	adventive	Poaceae	FAC	FAC	FAC	FAC	grass	PE	MO	advent
0	<i>Hordeum pusillum</i>	L.	adventive	Poaceae	FAC	FAC	FAC	FAC	grass	AN	MO	advent

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Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
*	Hordeum sp.	L.	ND	Poaceae	FAC				grass	ND	MO	advent
0	Hordeum vulgare	L.	adventive	Poaceae	(FACU)				grass	AN	MO	advent
0	Hosta lancifolia	(Thunb.) Engl.	adventive	Liliaceae	(FACU-)				forb	PE	MO	advent
0	Hosta ventricosa	(Salisb.) Stearn	adventive	Liliaceae	(FAC)				forb	PE	MO	advent
8	Hottonia inflata	Elliott	native	Primulaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
0	Hudsonia tomentosa	Nutt.	adventive	Cistaceae	(UPL)				forb	PE	DI	advent
0	Humulus japonicus	Siebold & Zucc.	adventive	Cannabaceae	FACU	FACU	FACU	FACU	vine	AN	DI	advent
2	Humulus lupulus	L.	native	Cannabaceae	FACU	FACU	FACU	FACU	vine	PE	DI	shade
*	Humulus sp.	L.	ND	Cannabaceae	FACU				vine	ND	DI	ND
8	Huperzia appalachiana	Beitel & Mickel	native	Lycopodiaceae	(UPL)				fern	PE	SVP	shade
5	Huperzia lucidula	(Michx.) Trevis	native	Lycopodiaceae	FACW-	FACW	FACW	FAC	fern	PE	SVP	shade
9	Huperzia porophila	(F. E. Lloyd & Underw.) Holub	native	Lycopodiaceae	FACU-	FACU	FACU	FACU	fern	PE	SVP	shade
*	Huperzia sp.	Bernh.	ND	Lycopodiaceae	ND				fern	PE	SVP	shade
7	Hybanthus concolor	(T. Forst.) Spreng.	native	Violaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	shade
7	Hydrangea arborescens	L.	native	Hydrangeaceae	FACU	FACU	FACU	FACU	shrub	W	DI	shade
7	Hydrastis canadensis	L.	native	Ranunculaceae	(UPL)				forb	PE	DI	shade
0	Hydrocharis morsus-ranae	L.	adventive	Hydrocharitaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
7	Hydrocotyle americana	L.	native	Apiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	shade
0	Hydrocotyle ranunculoides	L. f.	adventive	Apiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
0	Hydrocotyle sibthorpioides	Lam.	adventive	Apiaceae	(FAC)	FACW	FAC	FACW	forb	PE	DI	advent
*	Hydrocotyle sp.	L.	ND	Apiaceae	OBL				forb	PE	DI	ND
8	Hydrocotyle umbellata	L.	native	Apiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	shade
5	Hydrophyllum appendiculatum	Michx.	native	Hydrophyllaceae	(UPL)				forb	BI	DI	shade
5	Hydrophyllum canadense	L.	native	Hydrophyllaceae	FACU	FACU	FACW	FAC	forb	PE	DI	shade
6	Hydrophyllum macrophyllum	Nutt.	native	Hydrophyllaceae	(FACU)				forb	PE	DI	shade
*	Hydrophyllum sp.	L.	ND	Hydrophyllaceae	ND				forb	ND	DI	shade
4	Hydrophyllum virginianum	L.	native	Hydrophyllaceae	FAC	FAC	FAC	FAC	forb	PE	DI	shade
10	Hymenoxys herbacea	(Greene) Cusick	native	Asteraceae	(UPL)				forb	PE	DI	full
9	Hypericum boreale	(Britton) E.P. Bicknell	native	Clusiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
7	Hypericum canadense	L.	native	Clusiaceae	FACW	FACW	FACW	FACW	forb	AN	DI	full
7	Hypericum denticulatum	Walter	native	Clusiaceae	FACW-	FACW		FACW	forb	PE	DI	partial
4	Hypericum drummondii	(Grev. & Hook.) Torr. & A. Gray	native	Clusiaceae	(UPL)	UPL	FACU	FACU	forb	AN	DI	full
8	Hypericum ellipticum	Hook.	native	Clusiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
3	Hypericum gentianoides	(L.) B.S.P.	native	Clusiaceae	UPL	UPL	FACU	FACU	forb	AN	DI	full
9	Hypericum gymnanthum	Engelm. & A. Gray	native	Clusiaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
6	Hypericum hypericoides	(L.) Crantz	native	Clusiaceae	(UPL)	FACU	FACU	FACU	shrub	W	DI	full
8	Hypericum kalmianum	L.	native	Clusiaceae	FAC		FACW	FACW	shrub	W	DI	full
6	Hypericum majus	(A. Gray) Britton	native	Clusiaceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
3	Hypericum mutilum	L.	native	Clusiaceae	FACW	FACW	FACW	FACW	forb	AN	DI	full
0	Hypericum perforatum	L.	adventive	Clusiaceae	(UPL)	FAC	FACU	UPL	forb	PE	DI	advent
3	Hypericum prolificum	L.	native	Clusiaceae	FACU	FACU	FACU	FACU	shrub	W	DI	full
2	Hypericum punctatum	Lam.	native	Clusiaceae	FAC-	FAC	FAC	FAC	forb	PE	DI	full
7	Hypericum pyramidatum	Aiton	native	Clusiaceae	FAC	FAC	FAC	FAC	forb	BI	DI	full
*	Hypericum sp.	L.	ND	Clusiaceae	ND				ND	ND	DI	ND
6	Hypericum sphaerocarpum	Michx.	native	Clusiaceae	FACU	FAC	FACU	FACU	forb	PE	DI	partial

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0	<i>Hypochaeris radicata</i>	L.	adventive	Asteraceae	(UPL)	UPL	FACU	FACU	forb	PE	DI	advent
6	<i>Hypoxis hirsuta</i>	(L.) Coville	native	Liliaceae	FAC	FAC	FAC	FAC	forb	PE	MO	partial
0	<i>Iberis umbellata</i>	L.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	<i>Ilex opaca</i>	Aiton	adventive	Aquifoliaceae	FACU+	FACU	FACU	FACU	sm tree	W	DI	advent
6	<i>Ilex verticillata</i>	(L.) A. Gray	native	Aquifoliaceae	FACW+	FACW	FACW	FACW	shrub	W	DI	shade
0	<i>Impatiens balsamina</i>	L.	adventive	Balsaminaceae	(FACU-)	UPL	FACU	UPL	forb	AN	DI	advent
2	<i>Impatiens capensis</i>	Meerb.	native	Balsaminaceae	FACW	FACW	FACW	FACW	forb	AN	DI	partial
3	<i>Impatiens pallida</i>	Nutt.	native	Balsaminaceae	FACW	FACW	FACW	FACW	forb	AN	DI	shade
*	<i>Impatiens sp.</i>	L.	ND	Balsaminaceae	FACW				forb	AN	DI	partial
0	<i>Inula helenium</i>	L.	adventive	Asteraceae	FACU	FACU	FACU	FACU	forb	AN	DI	advent
7	<i>Iodanthus pinnatifidus</i>	(Michx.) Steud.	native	Brassicaceae	FACW	FACW	FACW	FACW	forb	AN	DI	shade
8	<i>Ionactis linariifolius</i>	(L.) Greene	native	Asteraceae	(UPL)				forb	PE	DI	shade
*	<i>Ionactis sp.</i>	Greene	ND	Asteraceae	ND				forb	PE	DI	ND
0	<i>Ipomoea coccinea</i>	L.	adventive	Convolvulaceae	FACU	FACU	FAC	FAC	forb	AN	DI	advent
0	<i>Ipomoea hederacea</i>	Jacq.	adventive	Convolvulaceae	FACU	FACU	FAC	FAC	forb	AN	DI	advent
4	<i>Ipomoea lacunosa</i>	L.	native	Convolvulaceae	FACW	FACW	FACW	FACW	forb	AN	DI	full
2	<i>Ipomoea pandurata</i>	(L.) G. Mey.	native	Convolvulaceae	FACU	FACU	FACU	FACU	forb	AN	DI	full
0	<i>Ipomoea purpurea</i>	(L.) Roth	adventive	Convolvulaceae	UPL	UPL	FACU	FACU	forb	AN	DI	advent
*	<i>Ipomoea sp.</i>	L.	ND	Convolvulaceae	ND				forb	AN	DI	ND
7	<i>Iris brevicaulis</i>	Raf.	native	Iridaceae	OBL	OBL	OBL	OBL	forb	PE	MO	partial
5	<i>Iris cristata</i>	Aiton	native	Iridaceae	(UPL)				forb	PE	MO	partial
0	<i>Iris germanica</i>	L.	adventive	Iridaceae	(FACW)				forb	PE	MO	advent
0	<i>Iris pseudacorus</i>	L.	adventive	Iridaceae	OBL	OBL	OBL	OBL	forb	PE	MO	advent
*	<i>Iris sp.</i>	L.	ND	Iridaceae	ND				forb	PE	MO	ND
9	<i>Iris verna</i>	L.	native	Iridaceae	(UPL)				forb	PE	MO	partial
6	<i>Iris versicolor</i>	L.	native	Iridaceae	OBL	OBL	OBL	OBL	forb	PE	MO	partial
6	<i>Iris virginica</i>	L.	native	Iridaceae	OBL	OBL	OBL	OBL	forb	PE	MO	partial
3	<i>Isanthus brachiatus</i>	(L.) B.S.P.	native	Lamiaceae	(UPL)				forb	AN	DI	full
10	<i>Isoetes echinospora</i>	Durieu	native	Isoetaceae	OBL	OBL	OBL	OBL	fern	PE	SVP	full
6	<i>Isoetes engelmannii</i>	A. Braun	native	Isoetaceae	OBL	OBL	OBL	OBL	fern	PE	SVP	full
*	<i>Isoetes sp.</i>	L.	ND	Isoetaceae	OBL				fern	PE	SVP	full
7	<i>Isopyrum biternatum</i>	(Raf.) (Torr. & A. Gray)	native	Ranunculaceae	(FAC)	FACU	FAC	FAC	forb	PE	DI	shade
7	<i>Isotria medeoloides</i>	(Pursh) Raf.	native	Orchidaceae	FACU	FACU	FACU	FACU	forb	PE	MO	shade
7	<i>Isotria sp.</i>	Raf.	ND	Orchidaceae	FACU				forb	PE	MO	shade
7	<i>Isotria verticillata</i>	Raf.	native	Orchidaceae	FACU	FACU	FAC	FAC	forb	PE	MO	shade
0	<i>Iva annua</i>	L.	adventive	Asteraceae	FAC	FAC	FAC	FAC	forb	AN	DI	advent
0	<i>Iva xanthifolia</i>	Nutt.	adventive	Asteraceae	FAC	FAC	FAC	FAC	forb	AN	DI	advent
0	<i>Jacquemontia tamnifolia</i>	(L.) Choisy	adventive	Convolvulaceae	FAC	FACU	UPL	UPL	vine	AN	DI	advent
6	<i>Jeffersonia diphylla</i>	(L.) Pers.	native	Berberidaceae	(UPL)				forb	PE	DI	shade
7	<i>Juglans cinerea</i>	L.	native	Juglandaceae	FACU+	FACU	FACU	FACU	tree	W	DI	tree
5	<i>Juglans nigra</i>	L.	native	Juglandaceae	FACU	FACU	FACU	FACU	tree	W	DI	tree
*	<i>Juglans sp.</i>	L.	ND	Juglandaceae	ND				tree	W	DI	tree
4	<i>Juncus acuminatus</i>	Michx.	native	Juncaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
8	<i>Juncus alpinus</i>	Vill.	native	Juncaceae	(OBL)				forb	PE	MO	full
4	<i>Juncus antheratus</i>	(Wigand) R.E. Brooks	native	Juncaceae	(FAC-)		FACW	FACW	forb	PE	MO	full

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
3	<i>Juncus articulatus</i>	L.	native	Juncaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
6	<i>Juncus balticus</i>	Willd.	native	Juncaceae	FACW+	OBL	OBL	OBL	forb	PE	MO	full
5	<i>Juncus brachycarpus</i>	Englem.	native	Juncaceae	FACW	FACW	FACW	FACW	forb	PE	MO	full
8	<i>Juncus brachycephalus</i>	(Engelm.) Buchenau	native	Juncaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
2	<i>Juncus bufonius</i>	L.	native	Juncaceae	FACW	FACW	FACW	FACW	forb	AN	MO	full
4	<i>Juncus canadensis</i>	J. Gay ex Laharpe	native	Juncaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
5	<i>Juncus dichotomous</i>	Elliott	native	Juncaceae	FACW-				forb	PE	MO	full
6	<i>Juncus diffusissimus</i>	Buckley	native	Juncaceae	FACW	FACW	FACW	FACW	forb	PE	MO	full
3	<i>Juncus dudleyi</i>	Wiegand	native	Juncaceae	(FACW-)	FACW	FACW	FACW	forb	PE	MO	full
1	<i>Juncus effusus</i>	L.	native	Juncaceae	FACW+	FACW	OBL	OBL	forb	PE	MO	full
0	<i>Juncus gerardii</i>	Loisel.	adventive	Juncaceae	FACW+	FACW	OBL	OBL	forb	PE	MO	advent
7	<i>Juncus greenei</i>	Oakes & Tuck.	native	Juncaceae	FAC	FAC	FAC	FAC	forb	PE	MO	full
4	<i>Juncus interior</i>	Wiegand	native	Juncaceae	FACU	FACU	FAC	FAC	forb	PE	MO	full
4	<i>Juncus marginatus</i>	Rostk.	native	Juncaceae	FACW	FACW	FACW	FACW	forb	PE	MO	full
5	<i>Juncus nodosus</i>	L.	native	Juncaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
5	<i>Juncus secundus</i>	P. Beauv. ex Poir.	native	Juncaceae	FACU	FACU	FAC	FACU	forb	PE	MO	full
*	<i>Juncus</i> sp.	L.	ND	Juncaceae	ND				forb	PE	MO	full
6	<i>Juncus subcaudatus</i>	(Engelm.) Coville & S.F. Blake	native	Juncaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
1	<i>Juncus tenuis</i>	Willd.	native	Juncaceae	FAC-	FAC	FAC	FAC	forb	PE	MO	partial
3	<i>Juncus torreyi</i>	Coville	native	Juncaceae	FACW	FACW	FACW	FACW	forb	PE	MO	full
0	<i>Juncus validus</i>	Coville	adventive	Juncaceae	FACW	FACW	FACW		forb	PE	MO	advent
8	<i>Juniperus communis</i>	L.	native	Cupressaceae	(FACU-)	FACU	UPL	FACU	shrub	W	GYMN	tree
*	<i>Juniperus</i> sp.	L.	ND	Cupressaceae	ND				ND	W	GYMN	ND
3	<i>Juniperus virginiana</i>	L.	native	Cupressaceae	FACU	FACU	FACU	FACU	tree	W	GYMN	tree
9	<i>Justicia americana</i>	(L.) M. Vahl.	native	Acanthaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
7	<i>Kalmia latifolia</i>	L.	native	Ericaceae	FACU	FACU	FACU	FACU	shrub	W	DI	shade
0	<i>Kerria japonica</i>	(L.) DC	adventive	Rosaceae	(FACU)				shrub	W	DI	advent
0	<i>Kickxia elatine</i>	(L.) Dumort	adventive	Scrophulariaceae	FAC	FAC	FAC	FAC	forb	AN	DI	advent
0	<i>Kickxia spuria</i>	(L.) Dumort	adventive	Scrophulariaceae	(UPL)				forb	AN	DI	advent
0	<i>Kochia scoparia</i>	(L.) Roth ex Schrad.	adventive	Chenopodiaceae	(UPL)	UPL	FACU	FACU	forb	AN	DI	advent
10	<i>Koeleria pyramidata</i>	(Lam.) P. Beauv.	native	Poaceae	(UPL)				grass	PE	MO	full
0	<i>Koelreuteria paniculata</i>	Laxm.	adventive	Sapindaceae	(FACU)				tree	W	DI	advent
5	<i>Krigia biflora</i>	(Walter) S.F. Blake	native	Asteraceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
6	<i>Krigia dandelion</i>	(L.) Nutt.	native	Asteraceae	FAC	FAC	FACU		forb	PE	DI	full
*	<i>Krigia</i> sp.	Schreb.	ND	Asteraceae	ND				forb	PE	DI	full
8	<i>Krigia virginica</i>	(L.) Willd.	native	Asteraceae	UPL	UPL	UPL	UPL	forb	AN	DI	full
7	<i>Kuhnia eupatorioides</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	full
0	<i>Kyllinga gracillima</i>	Miq.	adventive	Cyperaceae	FACU	FACU	FACW	FACW	sedge	AN	MO	full
4	<i>Kyllinga pumila</i>	Michx.	native	Cyperaceae	FACW	FACW	FACW	FACW	sedge	AN	MO	full
*	<i>Kyllinga</i> sp.	Rottb.	ND	Cyperaceae	ND				sedge	AN	MO	full
1	<i>Lactuca biennis</i>	(Moench) Fernald	native	Asteraceae	FACU	FACU	FAC	FAC	forb	BI	DI	partial
1	<i>Lactuca canadensis</i>	L.	native	Asteraceae	FACU-	FACU	FACU	FACU	forb	BI	DI	partial
3	<i>Lactuca floridana</i>	(L.) Gaertn.	native	Asteraceae	FACU-	FACU	FACU	FACU	forb	BI	DI	partial
7	<i>Lactuca hirsuta</i>	Muhl. ex Nutt.	native	Asteraceae	(UPL)				forb	BI	DI	partial
0	<i>Lactuca pulchella</i>	(Pursh) DC.	adventive	Asteraceae	FAC	FAC	FAC	FAC	forb	PE	DI	advent

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0	<i>Lactuca saligna</i>	L.	adventive	Asteraceae	(FACU)	UPL	FACU	FACU	forb	BI	DI	advent
0	<i>Lactuca serriola</i>	L.	adventive	Asteraceae	FAC-	FAC	FACU	FACU	forb	BI	DI	advent
*	<i>Lactuca</i> sp.	L.	ND	Asteraceae	ND				forb	ND	DI	ND
0	<i>Lamium amplexicaule</i>	L.	adventive	Lamiaceae	(UPL)				forb	AN	DI	advent
0	<i>Lamium maculatum</i>	L.	adventive	Lamiaceae	(UPL)				forb	PE	DI	advent
0	<i>Lamium purpureum</i>	L.	adventive	Lamiaceae	(UPL)				forb	AN	DI	advent
*	<i>Lamium</i> sp.	L.	ND	Lamiaceae	UPL				forb	ND	DI	advent
5	<i>Laportea canadensis</i>	(L.) Wedd.	native	Urticaceae	FACW	FAC	FACW	FACW	forb	PE	DI	shade
0	<i>Lappula squarrosa</i>	(Retz.) Dumort.	adventive	Boraginaceae	(UPL)				forb	AN	DI	advent
0	<i>Lapsana communis</i>	L.	adventive	Asteraceae	(UPL)	FACU	FACU	FACU	forb	AN	DI	advent
9	<i>Larix laricina</i>	(Du Roi) K. Koch	native	Pinaceae	FACW	FACW	FACW	FACW	tree	W	GYMN	tree
0	<i>Lathyrus latifolius</i>	L.	adventive	Fabaceae	(UPL)				forb	PE	DI	advent
10	<i>Lathyrus maritimus</i>	(L.) Bigelow	native	Fabaceae	(FACU-)	FACU	FACU	FACU	forb	PE	DI	full
9	<i>Lathyrus ochroleucus</i>	Hook.	native	Fabaceae	(UPL)				forb	PE	DI	full
0	<i>Lathyrus odoratus</i>	L.	adventive	Fabaceae	(UPL)				forb	AN	DI	advent
5	<i>Lathyrus palustris</i>	L.	native	Fabaceae	FACW+	FACW	FACW	FACW	forb	PE	DI	full
0	<i>Lathyrus pratensis</i>	L.	adventive	Fabaceae	FACU	FACU	FACU	FACU	vine	AN	DI	advent
*	<i>Lathyrus</i> sp.	L.	ND	Fabaceae	ND				forb	ND	DI	ND
0	<i>Lathyrus tuberosus</i>	L.	adventive	Fabaceae	(UPL)				forb	PE	DI	advent
8	<i>Lathyrus venosus</i>	Muhl. ex Willd.	native	Fabaceae	FACW	FACW	FAC	FAC	forb	PE	DI	full
9	<i>Leavenworthia uniflora</i>	(Michx.) Britton	native	Brassicaceae	FAC	FAC	FACU		forb	AN	DI	full
7	<i>Lechea intermedia</i>	Legg. ex Britton	native	Cistaceae	(UPL)				forb	PE	DI	full
8	<i>Lechea minor</i>	L.	native	Cistaceae	(UPL)				forb	PE	DI	full
7	<i>Lechea mucronata</i>	Raf.	native	Cistaceae	(UPL)				forb	PE	DI	full
7	<i>Lechea pulchella</i>	Raf.	native	Cistaceae	(UPL)				forb	PE	DI	full
5	<i>Lechea racemulosa</i>	Michx.	native	Cistaceae	(UPL)				forb	PE	DI	full
*	<i>Lechea</i> sp.	L.	ND	Cistaceae	UPL				forb	PE	DI	full
8	<i>Lechea tenuifolia</i>	Michx.	native	Cistaceae	(UPL)				forb	PE	DI	full
10	<i>Ledum groenlandicum</i>	Oeder	native	Ericaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
9	<i>Leersia lenticularis</i>	Michx.	native	Poaceae	OBL	OBL	OBL	OBL	grass	PE	MO	partial
1	<i>Leersia oryzoides</i>	(L.) Sw.	native	Poaceae	OBL	OBL	OBL	OBL	grass	PE	MO	full
*	<i>Leersia</i> sp.	Sw.	ND	Poaceae	ND				grass	PE	MO	ND
4	<i>Leersia virginica</i>	Willd.	native	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	shade
3	<i>Lemna minor</i>	L.	native	Lemnaceae	OBL	OBL	OBL	OBL	forb	AN	MO	full
*	<i>Lemna</i> sp.	L.	ND	Lemnaceae	OBL				forb	AN	MO	full
6	<i>Lemna trisulca</i>	L.	native	Lemnaceae	OBL	OBL	OBL	OBL	forb	AN	MO	full
8	<i>Lemna valdiviana</i>	Phil.	native	Lemnaceae	OBL	OBL	OBL	OBL	forb	AN	MO	full
0	<i>Leontodon autumnalis</i>	L.	adventive	Asteraceae	(UPL)	FAC	FACU	FACU	forb	PE	DI	advent
0	<i>Leontodon hispidus</i>	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
*	<i>Leontodon</i> sp.	L.	ND	Asteraceae	UPL				forb	PE	DI	advent
0	<i>Leontodon taraxacoides</i>	(Villars) Merat	adventive	Asteraceae	FACU	FACU	UPL	UPL	forb	PE	DI	advent
0	<i>Leonurus cardiaca</i>	L.	adventive	Lamiaceae	(UPL)				forb	PE	DI	advent
0	<i>Leonurus marrubiastrum</i>	L.	adventive	Lamiaceae	(UPL)				forb	BI	DI	advent
*	<i>Leonurus</i> sp.	L.	ND	Lamiaceae	UPL				forb	ND	DI	advent
0	<i>Lepidium campestre</i>	(L.) R. Br.	adventive	Lamiaceae	(UPL)				forb	AN	DI	advent

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Lepidium densiflorum</i>	Schrad.	adventive	Brassicaceae	FAC	FAC	FAC	FACU	forb	AN	DI	advent
0	<i>Lepidium perfoliatum</i>	L.	adventive	Brassicaceae	UPL	UPL	FAC	FACU	forb	AN	DI	advent
0	<i>Lepidium ruderales</i>	L.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	<i>Lepidium sativum</i>	L.	adventive	Brassicaceae	(FACU)				forb	AN	DI	advent
*	<i>Lepidium sp.</i>	L.	ND	Lamiaceae	ND				forb	AN	DI	ND
1	<i>Lepidium virginicum</i>	L.	native	Brassicaceae	FACU-	FACU	FACU	FACU	forb	AN	DI	full
0	<i>Leptochloa fascicularis</i>	(Lam.) A. Gray	adventive	Poaceae	FACW				grass	AN	MO	advent
0	<i>Leptochloa filliformis</i>	(Lam.) P. Beauv.	adventive	Poaceae	FACW				grass	AN	MO	advent
4	<i>Leptoloma cognatum</i>	(Schultes) Chase	native	Poaceae	(UPL)				grass	PE	MO	full
0	<i>Lespedeza bicolor</i>	Turcz.	adventive	Fabaceae	(FACU)				shrub	PE	DI	advent
5	<i>Lespedeza capitata</i>	Michx.	native	Fabaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	full
0	<i>Lespedeza cuneata</i>	(Dumont) G. Don	adventive	Fabaceae	FACU-	FACU	UPL	UPL	forb	PE	DI	advent
0	<i>Lespedeza formosa</i>	(Vogel) Koehne	adventive	Fabaceae	(UPL)				forb	PE	DI	advent
5	<i>Lespedeza hirta</i>	(L.) Hornem.	native	Fabaceae	(UPL)				forb	PE	DI	full
3	<i>Lespedeza intermedia</i>	(S. Watson) Britton	native	Fabaceae	(UPL)				forb	PE	DI	full
5	<i>Lespedeza procumbens</i>	Michx.	native	Fabaceae	(UPL)				forb	PE	DI	full
6	<i>Lespedeza repens</i>	(L.) Barton	native	Fabaceae	(UPL)				forb	PE	DI	full
*	<i>Lespedeza sp.</i>	Michx.	ND	Fabaceae	ND				forb	PE	DI	ND
0	<i>Lespedeza stipulacea</i>	Maxim.	adventive	Fabaceae	(FACU)	FACU	FACU	FACU	forb	PE	DI	advent
0	<i>Lespedeza striata</i>	(Thunb.) Hook. & Arn.	adventive	Fabaceae	(FACU)	FACU	FACU	FACU	forb	PE	DI	advent
0	<i>Lespedeza thunbergii</i>	(DC.) Nakai	adventive	Fabaceae	(FACW)				forb	PE	DI	advent
4	<i>Lespedeza violacea</i>	(L.) Pers.	native	Fabaceae	(UPL)				forb	PE	DI	full
3	<i>Lespedeza virginica</i>	(L.) Britton	native	Fabaceae	(UPL)				forb	PE	DI	full
0	<i>Leucojum aestivum</i>	L.	adventive	Liliaceae	(FACW)				forb	PE	MO	advent
5	<i>Leucospora multifida</i>	(Michx.) Nutt.	native	Scrophulariaceae	OBL	OBL	FACW	FACW	forb	AN	DI	full
0	<i>Levisticum officinale</i>	W.D.J. Koch	adventive	Apiaceae	(FAC)				forb	PE	DI	advent
6	<i>Liatris aspera</i>	Michx.	native	Asteraceae	(UPL)				forb	PE	DI	full
8	<i>Liatris cylindracea</i>	Michx.	native	Asteraceae	(UPL)				forb	PE	DI	full
0	<i>Liatris punctata</i>	Hook.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Liatris pycnostachya</i>	(L.) Willd.	adventive	Asteraceae	FACU	FACU	FAC	FAC	forb	PE	DI	advent
6	<i>Liatris scariosa</i>	(L.) Willd.	native	Asteraceae	(UPL)	FACU	UPL	UPL	forb	PE	DI	full
*	<i>Liatris sp.</i>	Gaertn. ex Shrib.	ND	Asteraceae	ND				forb	PE	DI	full
7	<i>Liatris spicata</i>	(L.) Willd.	native	Asteraceae	FAC+	FAC	FAC	FAC	forb	PE	DI	full
8	<i>Liatris squarrosa</i>	(L.) Michx.	native	Asteraceae	(UPL)				forb	PE	DI	full
6	<i>Ligusticum canadense</i>	(L.) Britton	native	Apiaceae	FAC	FAC	FAC		forb	PE	DI	shade
0	<i>Ligustrum obtusifolium</i>	Sieb. & Zucc.	adventive	Oleaceae	(UPL)				shrub	W	DI	advent
0	<i>Ligustrum ovalifolium</i>	Hassk.	adventive	Oleaceae	(UPL)				shrub	W	DI	advent
*	<i>Ligustrum sp.</i>	L.	ND	Oleaceae	ND				shrub	W	DI	advent
0	<i>Ligustrum vulgare</i>	L.	adventive	Oleaceae	FACU	FACU	FACU	FACU	shrub	W	DI	advent
5	<i>Lilium canadense</i>	L.	native	Liliaceae	FAC+	FAC	FAC	FAC	forb	PE	MO	partial
6	<i>Lilium michiganense</i>	Farw.	native	Liliaceae	(FAC+)	FACW	FACW	FACW	forb	PE	MO	shade
7	<i>Lilium philadelphicum</i>	L.	native	Liliaceae	FACU+	FACU	FAC	FAC	forb	PE	MO	shade
*	<i>Lilium sp.</i>	L.	ND	Liliaceae	ND				forb	PE	MO	partial
8	<i>Lilium superbum</i>	L.	native	Liliaceae	FACW+	FACW	FACW	FACW	forb	PE	MO	partial
4	<i>Linaria canadensis</i>	(L.) Chaz.	native	Scrophulariaceae	(UPL)				forb	AN	DI	full

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Linaria dalmatica</i>	(L.) Mill.	adventive	Scrophulariaceae	(UPL)				forb	PE	DI	advent
0	<i>Linaria genistifolia</i>	(L.) Mill.	adventive	Scrophulariaceae	(UPL)				forb	PE	DI	advent
*	<i>Linaria sp.</i>	Mill.	ND	Scrophulariaceae	UPL				forb	ND	DI	ND
0	<i>Linaria vulgaris</i>	Mill.	adventive	Scrophulariaceae	(UPL)				forb	PE	DI	advent
5	<i>Lindera benzoin</i>	(L.) Blume	native	Lauraceae	FACW-	FAC	FACW	FACW	shrub	W	DI	shade
2	<i>Lindernia dubia</i>	(L.) Pennell	native	Scrophulariaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
10	<i>Linnaea borealis</i>	L.	native	Caprifoliaceae	FAC	FAC	FAC	FAC	forb	PE	DI	full
0	<i>Linum grandiflorum</i>	Desf.	adventive	Linaceae	(FACU)				forb	AN	DI	advent
5	<i>Linum medium</i>	(Planch.) Britton	native	Linaceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
0	<i>Linum perenne</i>	L.	adventive	Linaceae	(UPL)				forb	PE	DI	advent
*	<i>Linum sp.</i>	L.	ND	Linaceae	ND				forb	ND	DI	ND
5	<i>Linum striatum</i>	Walter	native	Linaceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
7	<i>Linum sulcatum</i>	Riddell	native	Linaceae	(UPL)				forb	AN	DI	full
0	<i>Linum usitatissimum</i>	L.	adventive	Linaceae	(UPL)				forb	AN	DI	advent
4	<i>Linum virginianum</i>	L.	native	Linaceae	FACU	FACU	FAC	FAC	forb	PE	DI	full
5	<i>Liparis lilifolia</i>	(L.) Rich.	native	Orchidaceae	FACU-				forb	PE	MO	full
7	<i>Liparis loeselii</i>	(L.) Rich.	native	Orchidaceae	FACW	FACW	FACW	FACW	forb	PE	MO	full
*	<i>Liparis sp.</i>	Rich.	ND	Orchidaceae	ND				forb	PE	MO	full
10	<i>Lipocarpa drummondii</i>	(Nees) G.C. Tucker	native	Cyperaceae	OBL	OBL	FACW	FACW	sedge	AN	MO	full
8	<i>Lipocarpa micrantha</i>	(Vahl) G.C. Tucker	native	Cyperaceae	FACW+	FACW	OBL	OBL	sedge	AN	MO	full
*	<i>Lipocarpa sp.</i>	R. Br.	ND	Cyperaceae	ND				sedge	AN	MO	full
6	<i>Liquidambar styraciflua</i>	L.	native	Hamamelidaceae	FAC	FAC	FACW	FAC	tree	W	DI	tree
6	<i>Liriodendron tulipifera</i>	L.	native	Magnoliaceae	FACU	FACU	FACU	FACU	tree	W	DI	tree
10	<i>Listera cordata</i>	(L.) R. Br.	native	Orchidaceae	FACW+	FACW	FACW	FACW	forb	PE	MO	full
0	<i>Lithospermum arvense</i>	L.	adventive	Boraginaceae	(UPL)				forb	AN	DI	full
6	<i>Lithospermum canescens</i>	(Michx.) Lehm.	native	Boraginaceae	(UPL)				forb	PE	DI	full
9	<i>Lithospermum carolinense</i>	(Walter ex J.F. Gmel.) MacMill.	native	Boraginaceae	(UPL)				forb	PE	DI	full
7	<i>Lithospermum latifolium</i>	Michx.	native	Boraginaceae	(UPL)				forb	PE	DI	full
0	<i>Lithospermum officinale</i>	L.	adventive	Boraginaceae	(FACU)				forb	PE	DI	advent
*	<i>Lithospermum sp.</i>	L.	ND	Boraginaceae	UPL				forb	ND	DI	ND
5	<i>Lobelia cardinalis</i>	L.	native	Campanulaceae	FACW+	FACW	OBL	OBL	forb	PE	DI	partial
1	<i>Lobelia inflata</i>	L.	native	Campanulaceae	FACU	FACU	FACU	FACU	forb	AN	DI	full
9	<i>Lobelia kalmii</i>	L.	native	Campanulaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
5	<i>Lobelia puberula</i>	Michx.	native	Campanulaceae	FACW-	FACW	FACW	FACW	forb	PE	DI	shade
3	<i>Lobelia siphilitica</i>	L.	native	Campanulaceae	FACW+	FACW	OBL	FACW	forb	PE	DI	shade
*	<i>Lobelia sp.</i>	L.	ND	Campanulaceae	ND				forb	ND	DI	ND
5	<i>Lobelia spicata</i>	Lam.	native	Campanulaceae	FAC-	FAC	FAC	FAC	forb	PE	DI	full
0	<i>Lobularia maritima</i>	(L.) Desv.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	<i>Lolium multiflorum</i>	Lam.	adventive	Poaceae	FACU-	FACU	FACU	FACU	grass	PE	MO	advent
0	<i>Lolium perenne</i>	L.	adventive	Poaceae	FACU-	FACU	FACU	FACU	grass	PE	MO	advent
0	<i>Lolium temulentum</i>	(L.) Darnel	adventive	Poaceae	(UPL)				grass	AN	MO	advent
8	<i>Lonicera canadensis</i>	Barton ex Marshall	native	Caprifoliaceae	FACU	FACU	FACU	FACU	shrub	W	DI	shade
5	<i>Lonicera dioica</i>	L.	native	Caprifoliaceae	FACU	FACU	FACU	FACU	vine	W	DI	shade
8	<i>Lonicera flava</i>	Sims	native	Caprifoliaceae	(UPL)				vine	W	DI	shade
0	<i>Lonicera fragrantissima</i>	Lindl. & Paxt.	adventive	Caprifoliaceae	(UPL)				shrub	W	DI	advent

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0	<i>Lonicera japonica</i>	Thunb.	adventive	Caprifoliaceae	FAC-	FAC	FACU	FACU	vine	W	DI	advent
0	<i>Lonicera maackii</i>	(Rupr.) Maxim.	adventive	Caprifoliaceae	(UPL)				shrub	W	DI	advent
0	<i>Lonicera morrowii</i>	A. Gray	adventive	Caprifoliaceae	FACU	FACU	FACU	FACU	shrub	W	DI	advent
9	<i>Lonicera oblongifolia</i>	(Goldie) Hook.	native	Caprifoliaceae	OBL	OBL	OBL	OBL	shrub	W	DI	partial
7	<i>Lonicera reticulata</i>	Raf.	native	Caprifoliaceae	(UPL)				vine	W	DI	shade
8	<i>Lonicera sempervirens</i>	L.	native	Caprifoliaceae	FACU	FACU	FACU	FACU	vine	W	DI	partial
*	<i>Lonicera sp.</i>	L.	ND	Caprifoliaceae	ND				ND	W	DI	ND
0	<i>Lonicera tatarica</i>	L.	adventive	Caprifoliaceae	FACU	FACU	FACU	FACU	shrub	W	DI	advent
9	<i>Lonicera villosa</i>	(Michx.) Schult.	native	Caprifoliaceae	(FACW+)	FACW	FACW	FACW	shrub	W	DI	shade
0	<i>Lonicera xylosteum</i>	L.	adventive	Caprifoliaceae	(UPL)				shrub	W	DI	advent
0	<i>Lotus corniculatus</i>	L.	adventive	Fabaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	advent
3	<i>Ludwigia alternifolia</i>	L.	native	Onagraceae	FACW+	FACW	OBL	OBL	forb	PE	DI	full
0	<i>Ludwigia decurrens</i>	Walter	adventive	Onagraceae	OBL	OBL	OBL	OBL	forb	AN	DI	advent
0	<i>Ludwigia leptocarpa</i>	(Nutt.) Hara	adventive	Onagraceae	OBL	OBL	OBL		forb	AN	DI	advent
3	<i>Ludwigia palustris</i>	(L.) Elliott	native	Onagraceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
0	<i>Ludwigia peploides</i>	(Kunth) P.H. Raven	adventive	Onagraceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
5	<i>Ludwigia polycarpa</i>	Short & R. Peter	native	Onagraceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
*	<i>Ludwigia sp.</i>	L.	ND	Onagraceae	ND				forb	ND	DI	ND
0	<i>Lunaria annua</i>	L.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	<i>Lunaria rediviva</i>	L.	adventive	Brassicaceae	(UPL)				forb	PE	DI	advent
7	<i>Lupinus perennis</i>	L.	native	Fabaceae	(UPL)				forb	PE	DI	full
6	<i>Luzula acuminata</i>	Raf.	native	Juncaceae	FAC	FAC	FACU	FACU	forb	PE	MO	shade
5	<i>Luzula bulbosa</i>	(A.W. Wood) Rydb.	native	Juncaceae	FACU	FACU	FACU	FACU	forb	PE	MO	shade
4	<i>Luzula echinata</i>	(Small) F.J. Herm.	native	Juncaceae	FACU	FACU	FACU	FACU	forb	PE	MO	shade
3	<i>Luzula multiflora</i>	(Retz.) Lej.	native	Juncaceae	FACU	FACU	FACU	FACU	forb	PE	MO	shade
*	<i>Luzula sp.</i>	DC.	ND	Juncaceae	ND				forb	PE	MO	shade
0	<i>Lychnis coronaria</i>	(L.) Desr.	adventive	Caryophyllaceae	(UPL)				forb	PE	DI	advent
0	<i>Lychnis flos-cuculi</i>	L.	adventive	Caryophyllaceae	FACU	FACU	FACU	FACU	forb	PE	DI	advent
0	<i>Lychnis viscaria</i>	L.	adventive	Caryophyllaceae	(UPL)				forb	PE	DI	advent
0	<i>Lycium barbarum</i>	L.	adventive	Solanaceae	(UPL)				shrub	W	DI	advent
0	<i>Lycopersicon esculentum</i>	Mill.	adventive	Solanaceae	(UPL)				forb	AN	DI	advent
10	<i>Lycopodiella appressa</i>	(Chapm.) Cranfill	native	Lycopodiaceae	OBL	FACW	FACW	FACW	fern	PE	SVP	partial
7	<i>Lycopodiella inundata</i>	(L.) Holub	native	Lycopodiaceae	OBL	OBL	OBL	OBL	fern	PE	SVP	shade
*	<i>Lycopodiella sp.</i>	Holub	ND	Lycopodiaceae	ND				fern	PE	SVP	shade
9	<i>Lycopodiella subappressa</i>	J.G. Bruce% W.H. Wagner & Beitel	native	Lycopodiaceae	(FACW)			FACW	fern	PE	SVP	shade
3	<i>Lycopodium clavatum</i>	L.	native	Lycopodiaceae	FAC	FAC	FAC	FAC	fern	PE	SVP	shade
5	<i>Lycopodium dendroideum</i>	Michx.	native	Lycopodiaceae	FACU	FACU	FACU	FACU	fern	PE	SVP	shade
5	<i>Lycopodium hickeyi</i>	W.H. Wagner% Beitel & DC. Moran	native	Lycopodiaceae	(FACU)				fern	PE	SVP	shade
3	<i>Lycopodium lagopus</i>	(Laest. ex Hartm.) G. Zinserl. ex Kuzen	native	Lycopodiaceae	(UPL)	FACU	FAC	FACU	fern	PE	SVP	shade
5	<i>Lycopodium obscurum</i>	L.	native	Lycopodiaceae	FACU	FACU	FACU	FACU	fern	PE	SVP	shade
*	<i>Lycopodium sp.</i>	L.	ND	Lycopodiaceae	ND				fern	PE	SVP	shade
3	<i>Lycopus americanus</i>	Muhl. ex W.P.C. Barton	native	Lamiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Lycopus asper</i>	Greene	adventive	Lamiaceae	OBL		OBL	OBL	forb	PE	DI	advent

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Lycopus europaeus</i>	L.	adventive	Lamiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
4	<i>Lycopus rubellus</i>	Moench	native	Lamiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
*	<i>Lycopus</i> sp.	L.	ND	Lamiaceae	OBL				forb	PE	DI	ND
3	<i>Lycopus uniflorus</i>	Michx.	native	Lamiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
3	<i>Lycopus virginicus</i>	L.	native	Lamiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Lycoris squamigera</i>	Maxim	adventive	Liliaceae	(FACU)				forb	PE	MO	advent
5	<i>Lygodium palmatum</i>	(Bernh.) Sw.	native	Schizaeaceae	FACW	FACW	FACW	FACW	fern	PE	DI	full
8	<i>Lyonia ligustrina</i>	(L.) DC.	native	Ericaceae	FACW	FACW	FACW	FACW	shrub	W	DI	partial
4	<i>Lysimachia ciliata</i>	L.	native	Primulaceae	FACW	FACW	FACW	FACW	forb	PE	DI	shade
6	<i>Lysimachia lanceolata</i>	Walter	native	Primulaceae	FAC	FAC	FAC	FAC	forb	PE	DI	full
0	<i>Lysimachia nummularia</i>	L.	adventive	Primulaceae	OBL	FACW	FACW	FACW	forb	PE	DI	advent
0	<i>Lysimachia punctata</i>	L.	adventive	Primulaceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
7	<i>Lysimachia quadriflora</i>	Sims	native	Primulaceae	FACW+	FACW	OBL	OBL	forb	PE	DI	partial
5	<i>Lysimachia quadrifolia</i>	L.	native	Primulaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	partial
*	<i>Lysimachia</i> sp.	L.	ND	Primulaceae	ND				forb	PE	DI	ND
6	<i>Lysimachia terrestris</i>	(L.) B.S.P.	native	Primulaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
6	<i>Lysimachia thyrsoflora</i>	L.	native	Primulaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Lysimachia vulgaris</i>	L.	adventive	Primulaceae	FAC+	FAC	FACW	FACW	forb	PE	DI	advent
6	<i>Lythrum alatum</i>	Pursh	native	Lythraceae	FACW+	FACW	OBL	OBL	forb	PE	DI	full
0	<i>Lythrum hyssopifolium</i>	L.	adventive	Lythraceae	OBL	OBL	OBL	OBL	forb	BI	DI	advent
0	<i>Lythrum salicaria</i>	L.	adventive	Lythraceae	FACW+	FACW	OBL	OBL	forb	PE	DI	advent
*	<i>Lythrum</i> sp.	L.	ND	Lythraceae	ND				forb	ND	DI	ND
0	<i>Macleaya cordata</i>	(Willd.) R. Br.	adventive	Papaveraceae	(FACU)				forb	PE	DI	advent
0	<i>Maclura pomifera</i>	(Raf.) C.K. Schneid.	adventive	Moraceae	UPL	UPL	FACU	FACU	tree	W	DI	advent
7	<i>Magnolia acuminata</i>	(L.) L.	native	Magnoliaceae	(UPL)	FACU			tree	W	DI	tree
8	<i>Magnolia macrophylla</i>	Michx.	native	Magnoliaceae	(UPL)				tree	W	DI	tree
*	<i>Magnolia</i> sp.	L.	ND	Magnoliaceae	ND				tree	W	DI	tree
8	<i>Magnolia tripetala</i>	(L.) L.	native	Magnoliaceae	FACU	FACU	FACU	FACU	tree	W	DI	tree
6	<i>Maianthemum canadense</i>	Desf.	native	Liliaceae	FAC-	FAC	FAC	FACU	forb	PE	MO	shade
4	<i>Maianthemum racemosum</i>	(L.) Link	native	Liliaceae	FACU-	FACU	FACU	FACU	forb	PE	MO	shade
*	<i>Maianthemum</i> sp.	F.H. Wigg	ND	Liliaceae	ND				forb	PE	MO	shade
7	<i>Maianthemum stellatum</i>	(L.) Link	native	Liliaceae	FACW	FACW	FAC	FAC	forb	PE	MO	shade
10	<i>Maianthemum trifolium</i>	(L.) Sloboda	native	Liliaceae	OBL	OBL	OBL	OBL	forb	PE	MO	shade
6	<i>Malaxis bayardii</i>	Fern.	native	Orchidaceae	(UPL)				forb	PE	MO	shade
6	<i>Malaxis</i> sp.	Sol. ex Sw.	ND	Orchidaceae	ND				forb	PE	MO	shade
6	<i>Malaxis unifolia</i>	Michx.	native	Orchidaceae	FAC	FAC	FAC	FAC	forb	PE	MO	shade
0	<i>Malva alcea</i>	L.	adventive	Malvaceae	(UPL)				forb	PE	DI	advent
0	<i>Malva moschata</i>	L.	adventive	Malvaceae	UPL				forb	PE	DI	advent
0	<i>Malva neglecta</i>	Wallr.	adventive	Malvaceae	(UPL)				forb	AN	DI	advent
0	<i>Malva rotundifolia</i>	L.	adventive	Malvaceae	(UPL)				forb	AN	DI	advent
*	<i>Malva</i> sp.	L.	ND	Malvaceae	UPL				forb	ND	DI	advent
0	<i>Malva sylvestris</i>	L.	adventive	Malvaceae	(UPL)				forb	BI	DI	advent
0	<i>Malva verticillata</i>	L.	adventive	Malvaceae	(UPL)				forb	AN	DI	advent
9	<i>Manfreda virginica</i>	(L.) Salisb. ex Rose	native	Agavaceae	(UPL)				forb	PE	MO	full
0	<i>Marrubium vulgare</i>	L.	adventive	Lamiaceae	UPL	UPL	FAC	FACU	forb	PE	DI	advent

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	Marsilea quadrifolia	L.	adventive	Marsiliaceae	OBL	OBL	OBL	OBL	fern	PE	SVP	advent
4	Matelea obliqua	(Jacq.) Woodson	native	Asclepiadaceae	(UPL)				vine	PE	DI	partial
0	Matricaria maritima	L.	adventive	Asteraceae	(UPL)	UPL	FAC	FAC	forb	AN	DI	advent
0	Matricaria matricarioides	(Less.) Porter	adventive	Asteraceae	FACU	FACU	FACU	FACU	forb	AN	DI	advent
0	Matricaria recutita	L.	adventive	Asteraceae	(UPL)				forb	AN	DI	advent
*	Matricaria sp.	L.	ND	Asteraceae	ND				forb	AN	DI	advent
6	Matteuccia struthiopteris	(L.) Tod.	native	Dryopteridaceae	FACW	FACW	FACW	FAC	fern	PE	DI	shade
0	Mazus pumilus	(Burm. f.) Steenis	adventive	Scrophulariaceae	FACU-	FACU	UPL	UPL	forb	PE	DI	advent
6	Medeola virginiana	L.	native	Liliaceae	(UPL)		FACU		forb	PE	MO	shade
0	Medicago lupulina	L.	adventive	Fabaceae	UPL	FACU	FACU	FACU	forb	AN	DI	advent
0	Medicago sativa	L.	adventive	Fabaceae	(UPL)	UPL	FACU	UPL	forb	PE	DI	advent
*	Medicago sp.	L.	ND	Fabaceae	UPL				forb	ND	DI	advent
7	Meehania cordata	(Nutt.) Britton	native	Lamiaceae	(FACU+)	FACU			forb	PE	DI	shade
8	Melampyrum lineare	Desr.	native	Scrophulariaceae	FACU	FACU	FAC	FACU	forb	AN	DI	shade
9	Melanthium virginicum	L.	native	Liliaceae	FACW+	FACW	FACW	FACW	forb	PE	MO	full
10	Melanthium woodii	(J.W. Robbins ex A.W. Wood) Baker	native	Liliaceae	(UPL)				forb	PE	MO	shade
8	Melica nitens	(Scribn.) Nutt. ex Piper	native	Poaceae	(UPL)				grass	PE	MO	shade
0	Melilotus alba	Medik.	adventive	Fabaceae	FACU-	FACU	FACU	FACU	forb	BI	DI	advent
0	Melilotus altissima	Thuill.	adventive	Fabaceae	(UPL)				forb	PE	DI	advent
0	Melilotus officinalis	(L.) Pall.	adventive	Fabaceae	FACU-	FACU	FACU	FACU	forb	BI	DI	advent
*	Melilotus sp.	L.	ND	Fabaceae	FACU-				forb	BI	DI	advent
0	Melissa officinalis	L.	adventive	Lamiaceae	(UPL)	UPL	UPL	UPL	forb	PE	DI	advent
5	Menispermum canadense	L.	native	Menispermaceae	FACU	FACU	FAC	FAC	vine	PE	DI	shade
2	Mentha arvensis	L.	native	Lamiaceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
0	Mentha longifolia	(L.) L.	adventive	Lamiaceae	FACU	FACW	FACW	FACW	forb	PE	DI	advent
*	Mentha sp.	L.	ND	Lamiaceae	ND				forb	PE	DI	ND
0	Mentha spicata	L.	adventive	Lamiaceae	FACW+	FACW	FACW	FACW	forb	PE	DI	advent
0	Mentha x piperata	L.	adventive	Lamiaceae	FACW+	FACW	OBL	OBL	forb	PE	DI	advent
9	Menyanthes trifoliata	L.	native	Menyanthaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	Mercurialis annua	L.	adventive	Euphorbiaceae	(UPL)				forb	AN	DI	advent
6	Mertensia virginica	(L.) Pers. ex Link	native	Boraginaceae	FACW	FACW	FACW	FAC	forb	PE	DI	shade
0	Metasequoia glyptostroboides	Hu & W.C. Cheng	adventive	Cupressaceae	(FACU)				tree	W	GYMN	full
0	Microstegium vimineum	(Trin.) A. Camus	adventive	Poaceae	FAC	FAC	FAC	FAC	grass	AN	MO	advent
0	Mikania scandens	(L.) Willd.	adventive	Asteraceae	FACW+	FACW	OBL	OBL	shrub	W	DI	advent
7	Milium effusum	L.	native	Poaceae	(UPL)	FACU	FACU		grass	PE	MO	shade
6	Mimulus alatus	Aiton	native	Scrophulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
4	Mimulus ringens	L.	native	Scrophulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
*	Mimulus sp.	L.	ND	Scrophulariaceae	OBL				forb	PE	DI	full
0	Mirabilis albida	(Walter) Heimerl	adventive	Nyctaginaceae	(UPL)				forb	PE	DI	advent
0	Mirabilis hirsuta	(Pursh) MacMill.	adventive	Nyctaginaceae	(UPL)				forb	PE	DI	advent
0	Mirabilis jalapa	L.	adventive	Nyctaginaceae	(UPL)	UPL	UPL	UPL	forb	PE	DI	advent
0	Mirabilis nyctaginea	(Michx.) MacMill.	adventive	Nyctaginaceae	FACU-	FACU	UPL	UPL	forb	PE	DI	advent
*	Mirabilis sp.	L.	ND	Nyctaginaceae	ND				forb	PE	DI	advent
0	Miscanthus sinensis	Andersson	adventive	Poaceae	FACU	FACU	UPL	UPL	grass	PE	MO	advent

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5	<i>Mitchella repens</i>	L.	native	Rubiaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
6	<i>Mitella diphylla</i>	L.	native	Saxifragaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
0	<i>Moehringia trinervia</i>	(L.) Clairv.	adventive	Caryophyllaceae	(FACU-)				forb	PE	DI	advent
0	<i>Mollugo verticillata</i>	L.	adventive	Molluginaceae	FAC	FAC	FAC	FAC	forb	AN	DI	advent
4	<i>Monarda clinopodia</i>	L.	native	Lamiaceae	(FAC+)	FACU	FACU		forb	PE	DI	partial
6	<i>Monarda didyma</i>	L.	native	Lamiaceae	FAC+	FAC	UPL	FACU	forb	PE	DI	partial
3	<i>Monarda fistulosa</i>	L.	native	Lamiaceae	UPL	UPL	FACU	FACU	forb	PE	DI	full
7	<i>Monarda punctata</i>	L.	native	Lamiaceae	UPL	UPL	UPL	UPL	forb	PE	DI	full
*	<i>Monarda sp.</i>	L.	ND	Lamiaceae	ND				forb	PE	DI	ND
8	<i>Moneses uniflora</i>	(L.) A. Gray	native	Pyrolaceae	(FACU)		FAC	FAC	forb	PE	DI	shade
0	<i>Monolepis nuttalliana</i>	(Schult.) Greene	adventive	Chenopodiaceae	(UPL)	UPL	UPL	UPL	forb	AN	DI	advent
6	<i>Monotropa hypopithys</i>	L.	native	Monotropaceae	(UPL)				forb	PE	DI	shade
*	<i>Monotropa sp.</i>	L.	ND	Monotropaceae	ND				forb	PE	DI	shade
5	<i>Monotropa uniflora</i>	L.	native	Monotropaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	shade
0	<i>Morus alba</i>	L.	adventive	Moraceae	UPL	UPL	FAC	FACU	tree	W	DI	advent
7	<i>Morus rubra</i>	L.	native	Moraceae	FACU	FACU	FACU	FACU	tree	W	DI	tree
*	<i>Moss sp.</i>	ND	adventive	Musci	ND				bryo	BR	BR	bryo
0	<i>Muhlenbergia asperifolia</i>	(Nees & Meyen ex Trin.) Parodi	adventive	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	advent
8	<i>Muhlenbergia capillaris</i>	(Lam.) Trin.	native	Poaceae	FACU-	FACU	FACU	FACU	grass	PE	MO	full
9	<i>Muhlenbergia cuspidata</i>	(Torr. ex Hook.) Rydb.	native	Poaceae	(UPL)				grass	PE	MO	full
3	<i>Muhlenbergia frondosa</i>	(Poir.) Fernald	native	Poaceae	FAC	FAC	FACW	FACW	grass	PE	MO	full
5	<i>Muhlenbergia glabrifloris</i>	Scribn.	native	Poaceae	(FACW)		FACU		grass	PE	MO	shade
9	<i>Muhlenbergia glomerata</i>	(Willd.) Trin.	native	Poaceae	FACW	FACW	FACW	OBL	grass	PE	MO	full
4	<i>Muhlenbergia mexicana</i>	(L.) Trin.	native	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	full
0	<i>Muhlenbergia schreberi</i>	J.F. Gmel.	native	Poaceae	FAC	FAC	FAC	FAC	grass	PE	MO	full
8	<i>Muhlenbergia sobolifera</i>	(Muhl. ex Willd.) Trin.	native	Poaceae	(UPL)				grass	PE	MO	shade
*	<i>Muhlenbergia sp.</i>	Schreb.	ND	Poaceae	ND				grass	PE	MO	ND
6	<i>Muhlenbergia sylvatica</i>	(Torr.) Torr. ex A. Gray	native	Poaceae	FAC+	FAC	FACW	FACW	grass	PE	MO	shade
6	<i>Muhlenbergia tenuiflora</i>	(Willd.) B.S.P.	native	Poaceae	(UPL)	FACU			grass	PE	MO	shade
0	<i>Muscari botryoides</i>	(L.) Mill.	adventive	Liliaceae	(UPL)				forb	PE	MO	advent
0	<i>Myosotis arvensis</i>	(L.) Hill	adventive	Boraginaceae	UPL	UPL	FAC	FACU	forb	AN	DI	advent
0	<i>Myosotis discolor</i>	Pers.	adventive	Boraginaceae	UPL	UPL	UPL	UPL	forb	AN	DI	advent
7	<i>Myosotis laxa</i>	Lehm.	native	Boraginaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
4	<i>Myosotis macrosperma</i>	Engelm.	native	Boraginaceae	FAC	FAC	FAC	FAC	forb	AN	DI	shade
0	<i>Myosotis micrantha</i>	Pall. ex Lehm.	adventive	Boraginaceae	(UPL)				forb	AN	DI	advent
0	<i>Myosotis scorpioides</i>	L.	adventive	Boraginaceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
*	<i>Myosotis sp.</i>	L.	ND	Boraginaceae	ND				forb	ND	DI	ND
0	<i>Myosotis sylvatica</i>	Ehrh. ex Hoffm.	adventive	Boraginaceae	UPL	UPL	UPL	UPL	forb	PE	DI	advent
4	<i>Myosotis verna</i>	Nutt.	native	Boraginaceae	FAC-	FAC	FACU	FACU	forb	AN	DI	partial
0	<i>Myosurus minimus</i>	L.	adventive	Ranunculaceae	FACW+	FACW	FACW	FAC	forb	AN	DI	advent
10	<i>Myrica pensylvanica</i>	Loesel	native	Myricaceae	FAC	FAC	FAC	FAC	shrub	W	DI	
0	<i>Myriophyllum aquaticum</i>	(Vell.) Verdc.	adventive	Haloragaceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
10	<i>Myriophyllum heterophyllum</i>	Michx.	native	Haloragaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Myriophyllum humile</i>	(Raf.) Morong	adventive	Haloragaceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
0	<i>Myriophyllum pinnatum</i>	(Walter) Britton	adventive	Haloragaceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent

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9	<i>Myriophyllum sibiricum</i>	Kom.	native	Haloragaceae	(OBL)	OBL	OBL	OBL	forb	PE	DI	full
*	<i>Myriophyllum</i> sp.	L.	ND	Haloragaceae	OBL				forb	PE	DI	ND
0	<i>Myriophyllum spicatum</i>	L.	adventive	Haloragaceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
10	<i>Myriophyllum verticillatum</i>	L.	native	Haloragaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
5	<i>Najas flexilis</i>	(Willd.) Rostk. & W.L.E Schmidt	native	Najadaceae	OBL	OBL	OBL	OBL	forb	AN	MO	full
10	<i>Najas gracillima</i>	(A. Braun ex Engelm.) Magnus	native	Najadaceae	OBL	OBL	OBL	OBL	forb	AN	MO	full
6	<i>Najas guadalupensis</i>	(Spreng.) Magnus	native	Najadaceae	OBL	OBL	OBL	OBL	forb	AN	MO	full
0	<i>Najas marina</i>	L.	adventive	Najadaceae	OBL	OBL	OBL	OBL	forb	AN	MO	advent
0	<i>Najas marina</i>	L.	native	Najadaceae	OBL	OBL	OBL	OBL	forb	AN	MO	advent
0	<i>Najas minor</i>	All.	adventive	Najadaceae	OBL	OBL	OBL	OBL	forb	AN	MO	advent
*	<i>Najas</i> sp.	L.	ND	Najadaceae	OBL				forb	AN	MO	full
4	<i>Napaea dioica</i>	L.	native	Malvaceae	FACW	FACW	FACW	FACW	forb	PE	DI	shade
0	<i>Narcissus poeticus</i>	L.	adventive	Liliaceae	(UPL)				forb	PE	MO	advent
0	<i>Narcissus pseudonarcissus</i>	L.	adventive	Liliaceae	(UPL)				forb	PE	MO	advent
*	<i>Narcissus</i> sp.	L.	ND	Liliaceae	(UPL)				forb	PE	MO	advent
0	<i>Navarretia intertexta</i>	(Benth.) Hook.	adventive	Polemoniaceae	(FACW)	FACW	FACW	FACW	forb	AN	DI	advent
7	<i>Nelumbo lutea</i>	Willd.	native	Nelumbonaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Nelumbo nucifera</i>	Gaertn.	adventive	Nelumbonaceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
10	<i>Nemopanthus mucronatus</i>	(L.) Loes.	native	Aquifoliaceae	OBL	OBL	OBL	OBL	shrub	W	DI	partial
0	<i>Nepeta cataria</i>	L.	adventive	Lamiaceae	FACU	FACU	FACU	FACU	forb	PE	DI	advent
0	<i>Neslia paniculata</i>	(L.) Desv.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	<i>Nicandra physalodes</i>	(L.) Gaertn.	adventive	Solanaceae	(UPL)				forb	AN	DI	advent
0	<i>Nicotiana alata</i>	Link & Otto	adventive	Solanaceae	(FACU)				forb	PE	DI	advent
0	<i>Nicotiana tabacum</i>	L.	adventive	Solanaceae	(UPL)	UPL	FACU	UPL	forb	PE	DI	advent
0	<i>Nigella damascena</i>	L.	adventive	Ranunculaceae	(UPL)				forb	AN	DI	advent
7	<i>Nothoscordum bivalve</i>	(L.) Britton	native	Liliaceae	FACU	FACU	FACU		forb	PE	MO	partial
4	<i>Nuphar advena</i>	(Aiton) W.T. Aiton	native	Nymphaeaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
*	<i>Nuphar</i> sp.	Sm.	ND	Nymphaeaceae	OBL				forb	PE	DI	full
10	<i>Nuphar variegata</i>	Durand	native	Nymphaeaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
6	<i>Nymphaea odorata</i>	Aiton	native	Nymphaeaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Nymphoides peltata</i>	(S.G. Gmel.) Kuntze	adventive	Menyanthaceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
7	<i>Nyssa sylvatica</i>	Marshall	native	Cornaceae	FAC	FAC	FAC	FAC	tree	W	DI	tree
7	<i>Obolaria virginica</i>	L.	native	Gentianaceae	(UPL)				forb	PE	DI	shade
8	<i>Oclemena acuminata</i>	(Michx.) Greene	native	Asteraceae	FACU+	FACU		FACU	forb	PE	DI	full
*	<i>Oclemena</i> sp.	Greene	ND	Asteraceae	ND				forb	PE	DI	ND
0	<i>Oenanthe aquatica</i>	(L.) Poir.	adventive	Apiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
1	<i>Oenothera biennis</i>	L.	native	Onagraceae	FACU-	FACU	FACU	FACU	forb	BI	DI	full
8	<i>Oenothera clelandii</i>	W. Dietr. P.H. Raven% & W.L. Wagner	native	Onagraceae	(UPL)				forb	BI	DI	full
4	<i>Oenothera fruticosa</i>	L.	native	Onagraceae	FAC	FAC	FACU	FACU	forb	BI	DI	full
4	<i>Oenothera laciniata</i>	Hill	native	Onagraceae	FACU-	FACU	FACU	FACU	forb	AN	DI	full
10	<i>Oenothera oakesiana</i>	(A. Gray) J. W. Robbins	native	Onagraceae	(FACU-)				forb	AN	DI	full
7	<i>Oenothera parviflora</i>	L.	native	Onagraceae	FACU-	FACU	FACU	FACU	forb	BI	DI	full
3	<i>Oenothera perennis</i>	L.	native	Onagraceae	FAC-	FAC	FAC	FAC	forb	PE	DI	partial
3	<i>Oenothera pilosella</i>	Raf.	native	Onagraceae	FAC	FAC	FAC	FAC	forb	PE	DI	partial

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
*	Oenothera sp.	L.	ND	Onagraceae	ND				forb	ND	DI	ND
0	Oenothera speciosa	Nutt.	adventive	Onagraceae	(UPL)				forb	PE	DI	advent
4	Oenothera tetragona	Roth	native	Onagraceae	(FAC)	FAC	FACU	FACU	forb	PE	DI	partial
9	Oenothera triloba	Nutt.	native	Onagraceae	(UPL)				forb	PE	DI	partial
2	Onoclea sensibilis	L.	native	Dryopteridaceae	FACW	FACW	FACW	FACW	fern	PE	SVP	full
0	Onopordium acanthium	L.	adventive	Asteraceae	(UPL)				forb	BI	DI	advent
7	Onosmodium molle	Michx.	native	Boraginaceae	(FACU)				forb	PE	DI	full
9	Ophioglossum engelmannii	Prantl.	native	Ophioglossaceae	FACU	FACU	FACU	FACU	fern	PE	SVP	shade
6	Ophioglossum pusillum	Raf.	native	Ophioglossaceae	(FACW)	FACW	FACW	FACW	fern	PE	SVP	shade
*	Ophioglossum sp.	L.	ND	Ophioglossaceae	ND				fern	PE	SVP	shade
6	Ophioglossum vulgatum	L.	native	Ophioglossaceae	FACW	FACW	FACW	FACW	fern	PE	SVP	shade
8	Opuntia humifusa	(Raf.) Raf.	native	Cactaceae	(UPL)				shrub	W	DI	full
0	Opuntia macrorhiza	Engelm.	adventive	Cactaceae	(UPL)				forb	PE	DI	advent
5	Orbexilum onobrychis	(Nutt.) Rydb.	native	Fabaceae	(UPL)				forb	PE	DI	full
7	Orbexilum pedunculatum	(Miller) Rydb.	native	Fabaceae	(UPL)	FACU	FACU	FACU	forb	PE	DI	full
*	Orbexilum sp.	Raf.	ND	Fabaceae	UPL				forb	PE	DI	full
7	Orchis spectabilis	L.	native	Orchidaceae	(UPL)				forb	PE	MO	shade
0	Origanum vulgare	L.	adventive	Lamiaceae	(UPL)				forb	PE	DI	advent
0	Ornithogalum umbellatum	L.	adventive	Liliaceae	FACU	FACU	FACU	FACU	forb	PE	MO	advent
2	Orobanche riparia	L.T. Collins	native	Orobanchaceae	(UPL)				forb	PE	DI	full
*	Orobanche sp.	L.	ND	Orobanchaceae	ND				forb	PE	DI	full
6	Orobanche uniflora	L.	native	Orobanchaceae	FACU	FACU	UPL	UPL	forb	PE	DI	full
10	Oryzopsis asperifolia	Michx.	native	Poaceae	(UPL)				grass	PE	MO	shade
10	Oryzopsis racemosa	(Sm.) Ricker ex Hitchc.	native	Poaceae	(UPL)				grass	PE	MO	shade
10	Oryzopsis sp.	Michx.	native	Poaceae	UPL				grass	PE	MO	shade
4	Osmorhiza claytonii	(Michx.) C.B. Clarke	native	Apiaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	shade
4	Osmorhiza longistylis	(Torr.) DC.	native	Apiaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
4	Osmorhiza sp.	Raf.	ND	Apiaceae	ND				forb	PE	DI	shade
6	Osmunda cinnamomea	L.	native	Osmundaceae	FACW	FACW	FACW	FACW	fern	PE	SVP	partial
6	Osmunda claytoniana	L.	native	Osmundaceae	FAC	FAC	FAC	FAC	fern	PE	SVP	shade
7	Osmunda regalis	L.	native	Osmundaceae	OBL				fern	PE	SVP	shade
5	Ostrya virginiana	(Miller) K. Koch	native	Betulaceae	FACU-	FACU	FACU	FACU	tree	W	DI	tree
9	Oxalis acetosella	L.	native	Oxalidaceae	(FAC-)	FAC	FACU	FACU	forb	PE	DI	shade
0	Oxalis corniculata	L.	adventive	Oxalidaceae	FACU	FACU	FACU	FACU	forb	PE	DI	advent
0	Oxalis dillenii	Jacq.	native	Oxalidaceae	(FACU)	FACU	FACU	FACU	forb	PE	DI	full
7	Oxalis grandis	Small	native	Oxalidaceae	(UPL)				forb	PE	DI	shade
*	Oxalis sp.	L.	ND	Oxalidaceae	ND				forb	PE	DI	ND
0	Oxalis stricta	L.	native	Oxalidaceae	UPL	FACU	FACU	FACU	forb	PE	DI	full
6	Oxalis violacea	L.	native	Oxalidaceae	(UPL)				forb	PE	DI	shade
7	Oxydendrum arboreum	(L.) DC.	native	Ericaceae	UPL	UPL	FACU	FACU	tree	W	DI	tree
7	Oxypolis rigidior	(L.) Raf.	native	Apiaceae	OBL				forb	PE	DI	full
0	Pachysandra terminalis	Siebold & Zucc.	adventive	Buxaceae	(FACU)				vine	PE	DI	advent
6	Panax quinquefolius	L.	native	Araliaceae	(UPL)				forb	PE	DI	shade
6	Panax sp.	L.	ND	Araliaceae	ND				forb	PE	DI	shade
6	Panax trifolius	L.	native	Araliaceae	(FACU)				forb	PE	DI	shade

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
2	<i>Panicum acuminatum</i>	Sw.	native	Poaceae	FAC	FAC	FAC	FAC	grass	PE	MO	full
3	<i>Panicum anceps</i>	Michx.	native	Poaceae	FAC	FAC	FACW	FACW	grass	PE	MO	full
6	<i>Panicum boreale</i>	Nash	native	Poaceae	FACU	FACU	FAC	FAC	grass	PE	MO	full
6	<i>Panicum boscii</i>	Poir.	native	Poaceae	(UPL)				grass	PE	MO	shade
1	<i>Panicum capillare</i>	L.	native	Poaceae	FAC-	FAC	FAC	FAC	grass	AN	MO	full
2	<i>Panicum clandestinum</i>	L.	native	Poaceae	FAC+	FAC	FACW	FACW	grass	PE	MO	shade
6	<i>Panicum columbianum</i>	Scribn.	native	Poaceae	FACU	FAC	FAC	FAC	grass	PE	MO	full
9	<i>Panicum commonsianum</i>	Ashe	native	Poaceae	FACU				grass	PE	MO	full
5	<i>Panicum commutatum</i>	Schult.	native	Poaceae	FACU+	FACU	FAC	FAC	grass	PE	MO	shade
8	<i>Panicum depauperatum</i>	Muhl.	native	Poaceae	(UPL)				grass	PE	MO	shade
0	<i>Panicum dichotomiflorum</i>	Michx.	native	Poaceae	FACW-	FACW	FACW	FACW	grass	AN	MO	full
4	<i>Panicum dichotomum</i>	L.	native	Poaceae	FAC	FAC	FAC	FAC	grass	PE	MO	partial
5	<i>Panicum flexile</i>	(Gatt.) Scribn.	native	Poaceae	FACU	FACU	FACW	FACW	grass	AN	MO	partial
4	<i>Panicum gattingeri</i>	Nash	native	Poaceae	FAC	FAC	FAC	FAC	grass	AN	MO	full
9	<i>Panicum implicatum</i>	Scribn.	native	Poaceae	(FACW)	FAC	FAC	FAC	grass	PE	MO	full
3	<i>Panicum lanuginosum</i>	Elliott	native	Poaceae	FAC	FAC	FAC	FAC	grass	PE	MO	full
4	<i>Panicum latifolium</i>	L.	native	Poaceae	FACU-	FACU	FACU	FACU	grass	PE	MO	shade
7	<i>Panicum laxiflorum</i>	Lam.	native	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	shade
8	<i>Panicum leibergii</i>	(Vasey) Scribn.	native	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	full
9	<i>Panicum lindheimeri</i>	Nash	native	Poaceae	(OBL)	FAC	FAC	FAC	grass	PE	MO	full
4	<i>Panicum linearifolium</i>	Scribn.	native	Poaceae	(UPL)				grass	PE	MO	full
9	<i>Panicum longifolium</i>	Torr.	native	Poaceae	OBL				grass	PE	MO	full
9	<i>Panicum meridionale</i>	Ashe	native	Poaceae	(UPL)				grass	PE	MO	full
5	<i>Panicum microcarpon</i>	Muhl. ex Elliott	native	Poaceae	(FACU)	FAC	FAC	FAC	grass	PE	MO	full
0	<i>Panicum miliaceum</i>	L.	adventive	Poaceae	(UPL)				grass	AN	MO	advent
6	<i>Panicum oligosanthos</i>	Schult.	native	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	partial
9	<i>Panicum perlongum</i>	Nash	native	Poaceae	(UPL)				grass	PE	MO	full
4	<i>Panicum philadelphicum</i>	Bernh. ex Trin.	native	Poaceae	FAC-	FAC	FACW	FAC	grass	AN	MO	full
3	<i>Panicum polyanthes</i>	Schult.	native	Poaceae	(FACU)	FACU	FACU	FACU	grass	PE	MO	shade
9	<i>Panicum praecocius</i>	Hitchc. & Chase	native	Poaceae	(UPL)				grass	PE	MO	full
5	<i>Panicum rigidulum</i>	Bosc ex Nees	native	Poaceae	FACW+	FACW	FACW	FACW	grass	PE	MO	full
6	<i>Panicum scoparium</i>	Lam.	native	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	full
*	<i>Panicum sp.</i>	L.	ND	Poaceae	ND				grass	ND	MO	ND
4	<i>Panicum sphaerocarpon</i>	Elliott	native	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	shade
9	<i>Panicum spretum</i>	Schult.	native	Poaceae	(FAC)	FAC	FAC	FAC	grass	PE	MO	full
4	<i>Panicum tuckermanii</i>	Fernald	native	Poaceae	(FACW)	FAC	FACW	FAC	grass	PE	MO	full
7	<i>Panicum verrucosum</i>	Muhl.	native	Poaceae	FACW	FACW	FACW	FACW	grass	AN	MO	shade
6	<i>Panicum villosissimum</i>	Nash	native	Poaceae	(UPL)	FACU	FACU	FACU	grass	PE	MO	partial
4	<i>Panicum virgatum</i>	L.	native	Poaceae	FAC	FAC	FAC	FAC	grass	PE	MO	full
7	<i>Panicum yadkinense</i>	Ashe	native	Poaceae	(FAC)	FAC	FAC	FAC	grass	PE	MO	shade
0	<i>Papaver argemone</i>	L.	adventive	Papaveraceae	(UPL)				forb	AN	DI	advent
0	<i>Papaver dubium</i>	L.	adventive	Papaveraceae	(UPL)				forb	AN	DI	advent
0	<i>Papaver rhoeas</i>	L.	adventive	Papaveraceae	(UPL)				forb	AN	DI	advent
0	<i>Papaver somniferum</i>	L.	adventive	Papaveraceae	(UPL)				forb	AN	DI	advent
*	<i>Papaver sp.</i>	L.	ND	Papaveraceae	UPL				forb	AN	DI	advent

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4	<i>Parietaria pensylvanica</i>	Muhl. ex Willd.	native	Urticaceae	FACU-	FACU	FACU	FACU	FACU	forb	AN	DI	shade
10	<i>Parnassia glauca</i>	Raf.	native	Saxifragaceae	OBL	OBL	OBL	OBL	OBL	forb	PE	DI	full
5	<i>Paronychia canadensis</i>	(L.) A.W. Wood	native	Caryophyllaceae	(UPL)					forb	AN	DI	full
5	<i>Paronychia fastigiata</i>	(Raf.) Fernald	native	Caryophyllaceae	(UPL)					forb	AN	DI	partial
5	<i>Paronychia</i> sp.	Mill.	ND	Caryophyllaceae	UPL					forb	AN	DI	ND
0	<i>Parthenium hysterophorus</i>	L.	adventive	Asteraceae	(UPL)	FAC	FAC	UPL		forb	AN	DI	advent
0	<i>Parthenium integrifolium</i>	L.	adventive	Asteraceae	(UPL)					forb	PE	DI	advent
2	<i>Parthenocissus quinquefolia</i>	(L.) Planch.	native	Vitaceae	FACU	FACU	FACU	FACU		vine	W	DI	shade
*	<i>Parthenocissus</i> sp.	Planch.	ND	Vitaceae	FACU					vine	W	DI	shade
1	<i>Parthenocissus vitacea</i>	(Knerr) Hitchc.	native	Vitaceae	FACU	FACU	FACU	FACU		vine	W	DI	shade
0	<i>Paspalum floridanum</i>	Michx.	adventive	Poaceae	FACW	FACW	FACW			grass	PE	MO	advent
2	<i>Paspalum laeve</i>	Michx.	native	Poaceae	FAC+	FAC	FACW	FAC		grass	PE	MO	full
3	<i>Paspalum pubiflorum</i>	Rupr. ex Fourn.	native	Poaceae	FAC	FAC	FACW			grass	PE	MO	full
9	<i>Paspalum repens</i>	Berg.	native	Poaceae	OBL	OBL	OBL	OBL		grass	PE	MO	full
2	<i>Paspalum setaceum</i>	Michx.	native	Poaceae	FACU+	FACU	FACU	FACU		grass	PE	MO	partial
*	<i>Paspalum</i> sp.	L.	ND	Poaceae	ND					grass	PE	MO	ND
6	<i>Passiflora incarnata</i>	L.	native	Passifloraceae	(UPL)					vine	PE	DI	full
4	<i>Passiflora lutea</i>	L.	native	Passifloraceae	(UPL)					vine	PE	DI	partial
*	<i>Passiflora</i> sp.	L.	ND	Passifloraceae	UPL					vine	PE	DI	ND
0	<i>Pastinaca sativa</i>	L.	adventive	Apiaceae	(UPL)					forb	BI	DI	advent
0	<i>Paulownia tomentosa</i>	(Thunb.) Siebold & Zucc. ex Steud.	adventive	Bignoniaceae	UPL	UPL	UPL	UPL		tree	W	DI	advent
10	<i>Paxistima canbyi</i>	A. Gray	native	Celastraceae	(UPL)					shrub	W	DI	shade
6	<i>Pedicularis canadensis</i>	L.	native	Scrophulariaceae	FACU	FACU	FACU	FACU		forb	PE	DI	full
8	<i>Pedicularis lanceolata</i>	Michx.	native	Scrophulariaceae	FACW	FACW	OBL	FACW		forb	PE	DI	full
*	<i>Pedicularis</i> sp.	L.	ND	Scrophulariaceae	ND					forb	PE	DI	full
10	<i>Pellaea atropurpurea</i>	(L.) Link	native	Pteridaceae	(UPL)					fern	PE	SVP	shade
10	<i>Pellaea glabella</i>	Mett. ex Kuhn	native	Pteridaceae	(UPL)					fern	PE	SVP	shade
*	<i>Pellaea</i> sp.	Link	ND	Pteridaceae	UPL					fern	PE	SVP	shade
5	<i>Peltandra virginica</i>	(L.) Schott	native	Araceae	OBL	OBL	OBL	OBL		forb	PE	MO	full
0	<i>Pennisetum alopecuroides</i>	(L.) Spreng	adventive	Poaceae	(UPL)					grass	PE	MO	full
6	<i>Penstemon canescens</i>	(Britton) Britton	native	Scrophulariaceae	(UPL)					forb	PE	DI	full
0	<i>Penstemon cobaea</i>	Nutt.	adventive	Scrophulariaceae	(UPL)					forb	PE	DI	advent
2	<i>Penstemon digitalis</i>	Nutt. ex Sims	native	Scrophulariaceae	FAC	FAC	FAC	FAC		forb	PE	DI	full
0	<i>Penstemon grandiflorus</i>	Nutt.	adventive	Scrophulariaceae	(UPL)					forb	PE	DI	advent
3	<i>Penstemon hirsutus</i>	(L.) Willd.	native	Scrophulariaceae	(UPL)					forb	PE	DI	full
3	<i>Penstemon laevigatus</i>	Aiton	native	Scrophulariaceae	FACU	FACU	FACU	FACU		forb	PE	DI	full
5	<i>Penstemon pallidus</i>	Small	native	Scrophulariaceae	FACU	FACU	UPL	UPL		forb	PE	DI	full
*	<i>Penstemon</i> sp.	Schmidel	ND	Scrophulariaceae	ND					forb	PE	DI	full
5	<i>Penstemon tubaeiflorus</i>	Nutt.	native	Scrophulariaceae	(UPL)					forb	PE	DI	full
2	<i>Penthorum sedoides</i>	L.	native	Saxifragaceae	OBL	OBL	OBL	OBL		forb	PE	DI	full
8	<i>Perideridia americana</i>	(Nutt.ex DC.) Rchb.	native	Apiaceae	(UPL)					forb	PE	DI	full
0	<i>Perilla frutescens</i>	(L.) Britton	adventive	Lamiaceae	FACU+		FAC			forb	AN	DI	advent
4	<i>Persicaria amphibia</i>	(L.) Gray	native	Polygonaceae	OBL	OBL	OBL	OBL		forb	PE	DI	full
4	<i>Persicaria arifolia</i>	(L.) Haroldson	native	Polygonaceae	OBL	OBL	OBL	OBL		forb	AN	DI	full
9	<i>Persicaria careyi</i>	(Olney) Greene	native	Polygonaceae	FACW	FACW	FACW	FACW		forb	AN	DI	full

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
1	<i>Persicaria hydropiper</i>	(L.) Spach	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
6	<i>Persicaria hydropiperoides</i>	(Michx.) Small	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
1	<i>Persicaria lapathifolium</i>	L.	native	Polygonaceae	FACW+	FACW	FACW	FACW	forb	AN	DI	full
0	<i>Persicaria longisetum</i>	(Bruijn) Kitagawa	adventive	Polygonaceae	FACU-		FAC	FAC	forb	AN	DI	advent
0	<i>Persicaria maculosa</i>	Gray	adventive	Polygonaceae	FACW	FACW	FACW	FAC	forb	AN	DI	advent
0	<i>Persicaria orientalis</i>	(L.) Spach	adventive	Polygonaceae	FACU-	FACU	UPL	UPL	forb	AN	DI	advent
0	<i>Persicaria pensylvanica</i>	(L.) Gomez	native	Polygonaceae	FACW	FACW	FACW	FACW	forb	AN	DI	full
6	<i>Persicaria punctata</i>	(Elliott) Small	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
5	<i>Persicaria robustior</i>	(Small) E.P. Bicknell	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
2	<i>Persicaria sagittata</i>	(L.) Gross.	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
6	<i>Persicaria setacea</i>	(Baldwin) Small	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
*	<i>Persicaria sp.</i>	ND	ND	Polygonaceae	ND				forb	ND	DI	
3	<i>Persicaria virginiana</i>	(L.) Gaertn.	native	Polygonaceae	FAC	FAC	FAC	FAC	forb	PE	DI	shade
0	<i>Petasites hybridus</i>	(L.) P. Gaertn.% B. Mey. & Scherb.	adventive	Asteraceae	OBL	UPL	FACW	FAC	forb	PE	DI	advent
0	<i>Petrorhagia prolifera</i>	(L.) Link	adventive	Caryophyllaceae	(UPL)				forb	AN	DI	advent
0	<i>Petrorhagia saxifraga</i>	(L.) Link	adventive	Caryophyllaceae	(UPL)				forb	PE	DI	advent
0	<i>Petroselinum crispum</i>	(Mill.) Nyman ex A.W. Hill	adventive	Apiaceae	(UPL)				forb	BI	DI	advent
0	<i>Petunia x hybrida</i>	Vilm.	adventive	Solanaceae	(UPL)				forb	AN	DI	advent
4	<i>Phacelia bipinnatifida</i>	Michx.	native	Hydrophyllaceae	(FACW-)				forb	BI	DI	shade
8	<i>Phacelia covillei</i>	S. Watson	native	Hydrophyllaceae	FACW	FACW			forb	AN	DI	shade
10	<i>Phacelia dubia</i>	(L.) Trel.	native	Hydrophyllaceae	(UPL)				forb	AN	DI	shade
4	<i>Phacelia purshii</i>	Buckley	native	Hydrophyllaceae	(UPL)				forb	AN	DI	shade
*	<i>Phacelia sp.</i>	Juss.	ND	Hydrophyllaceae	ND				forb	ND	DI	shade
0	<i>Phalaris arundinacea</i>	L.	native	Poaceae	FACW+	FACW	FACW	FACW	grass	PE	MO	full
0	<i>Phalaris canariensis</i>	L.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	AN	MO	advent
0	<i>Phaseolus coccineus</i>	L.	adventive	Fabaceae	(FACU)				vine	AN	DI	advent
3	<i>Phaseolus polystachios</i>	(L.) B.S.P.	native	Fabaceae	(UPL)				forb	PE	DI	shade
0	<i>Phaseolus vulgaris</i>	L.	adventive	Fabaceae	(FACU)				forb	AN	DI	advent
0	<i>Philadelphus coronarius</i>	L.	adventive	Hydrangeaceae	(UPL)				shrub	W	DI	advent
0	<i>Philadelphus inodorus</i>	L.	adventive	Hydrangeaceae	(FACU)				shrub	W	DI	advent
0	<i>Philadelphus pubescens</i>	Loisel	adventive	Hydrangeaceae	(FACU)				shrub	W	DI	advent
0	<i>Phleum pratense</i>	L.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	advent
4	<i>Phlox divaricata</i>	L.	native	Polemoniaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
5	<i>Phlox glaberrima</i>	L.	native	Polemoniaceae	FAC	FAC	FACW	FACW	forb	PE	DI	partial
7	<i>Phlox maculata</i>	L.	native	Polemoniaceae	FACW	FACW	FACW	FACW	forb	PE	DI	partial
9	<i>Phlox ovata</i>	L.	native	Polemoniaceae	(UPL)				forb	PE	DI	shade
2	<i>Phlox paniculata</i>	L.	native	Polemoniaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
6	<i>Phlox pilosa</i>	L.	native	Polemoniaceae	FACU	FACU	FACU	FACU	forb	PE	DI	partial
*	<i>Phlox sp.</i>	L.	ND	Polemoniaceae	ND				forb	PE	DI	partial
9	<i>Phlox stolonifera</i>	Sims	native	Polemoniaceae	(UPL)				forb	PE	DI	shade
0	<i>Phlox subulata</i>	L.	adventive	Polemoniaceae	(UPL)				forb	PE	DI	advent
0	<i>Phlox subulata</i>	L.	native	Polemoniaceae	(UPL)				forb	PE	DI	advent
9	<i>Phoradendron serotinum</i>	(Raf.) M.C. Johnst.	native	Viscaceae	(UPL)				shrub	W	DI	full
7	<i>Phragmites australis ssp. americanus</i>	Saltonstall% P.M. Peterson & Soreng	native	Poaceae	(OBL)				grass	PE	MO	full

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Phragmites australis</i> ssp. <i>australis</i>	(Cav.) Trin.	adventive	Poaceae	FACW				grass	PE	MO	full
5	<i>Phryma leptostachya</i>	L.	native	Verbenaceae	FACU-	FACU	UPL	FACU	forb	PE	DI	shade
3	<i>Phylla lanceolata</i>	(Michx.) Greene	native	Verbenaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
6	<i>Phyllanthus carolinienis</i>	Walter	native	Euphorbiaceae	FAC+	FAC	FAC		forb	AN	DI	full
0	<i>Physalis alkekengi</i>	L.	adventive	Solanaceae	(UPL)				forb	PE	DI	advent
1	<i>Physalis heterophylla</i>	Nees	native	Solanaceae	(UPL)				forb	PE	DI	partial
0	<i>Physalis hispida</i>	(Waterfall) Cronq.	adventive	Solanaceae	(UPL)				forb	PE	DI	advent
1	<i>Physalis longifolia</i>	Nutt.	native	Solanaceae	(UPL)				forb	PE	DI	partial
0	<i>Physalis philadelphica</i>	Lam.	adventive	Solanaceae	UPL	UPL	UPL	UPL	forb	AN	DI	advent
1	<i>Physalis pubescens</i>	L.	native	Solanaceae	FACU-	FACU	UPL	UPL	forb	AN	DI	full
*	<i>Physalis</i> sp.	L.	ND	Solanaceae	ND				forb	ND	DI	ND
7	<i>Physalis virginiana</i>	Mill.	native	Solanaceae	(UPL)				forb	PE	DI	partial
4	<i>Physocarpus opulifolius</i>	(L.) Maxim.	native	Rosaceae	FACW-	FACW	FACW	FACW	shrub	W	DI	full
5	<i>Physostegia virginiana</i>	(L.) Benth.	native	Lamiaceae	FAC+	FAC	FACW	FACW	forb	PE	DI	full
1	<i>Phytolacca americana</i>	L.	native	Phytolaccaceae	FACU+	FACU	FACU	FACU	forb	PE	DI	full
0	<i>Picea abies</i>	(L.) Karst	adventive	Pinaceae	(FACU)				tree	W	GYMN	advent
0	<i>Picris echioides</i>	L.	adventive	Asteraceae	UPL	UPL	UPL	UPL	forb	AN	DI	advent
0	<i>Picris hieracioides</i>	L.	adventive	Asteraceae	(UPL)				forb	AN	DI	advent
4	<i>Pilea fontana</i>	(Lunnell) Rydb.	native	Urticaceae	FACW+	FACW	FACW	FACW	forb	AN	DI	partial
2	<i>Pilea pumila</i>	(L.) A. Gray	native	Urticaceae	FACW	FACW	FACW	FACW	forb	AN	DI	partial
*	<i>Pilea</i> sp.	Lindl.	ND	Urticaceae	ND				forb	AN	DI	partial
0	<i>Pinus banksiana</i>	Lambert	adventive	Pinaceae	FACU	FACU	FACU	FACU	tree	W	GYMN	advent
8	<i>Pinus echinata</i>	Mill.	native	Pinaceae	(UPL)				tree	W	GYMN	tree
0	<i>Pinus nigra</i>	Arn.	adventive	Pinaceae	(UPL)				tree	W	GYMN	tree
0	<i>Pinus pungens</i>	Lambert	adventive	Pinaceae	(UPL)				tree	W	GYMN	advent
0	<i>Pinus resinosa</i>	Aiton	adventive	Pinaceae	FACU	FACU	FACU	FACU	tree	W	GYMN	tree
7	<i>Pinus rigida</i>	Mill.	native	Pinaceae	FACU	FACU	FACU	FACU	tree	W	GYMN	tree
*	<i>Pinus</i> sp.	L.	ND	Pinaceae	ND				tree	W	GYMN	tree
0	<i>Pinus strobus</i>	L.	adventive	Pinaceae	FACU	FACU	FACU	FACU	tree	W	GYMN	tree
0	<i>Pinus strobus</i>	L.	native	Pinaceae	FACU	FACU	FACU	FACU	tree	W	GYMN	tree
0	<i>Pinus sylvestris</i>	L.	adventive	Pinaceae	(UPL)				tree	W	GYMN	tree
3	<i>Pinus virginiana</i>	Mill.	native	Pinaceae	(UPL)				tree	W	GYMN	tree
8	<i>Piptochaetium avenaceum</i>	(L.) Parodi	native	Poaceae	(UPL)	UPL	FACU	FACU	grass	PE	MO	shade
0	<i>Plantago aristata</i>	Michx.	adventive	Plantaginaceae	(UPL)				forb	AN	DI	advent
9	<i>Plantago cordata</i>	Lam.	native	Plantaginaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Plantago lanceolata</i>	L.	adventive	Plantaginaceae	UPL	UPL	FACU	FACU	forb	PE	DI	advent
0	<i>Plantago major</i>	L.	adventive	Plantaginaceae	FACU	FACU	FAC	FACU	forb	PE	DI	advent
7	<i>Plantago patagonica</i>	Jacq.	native	Plantaginaceae	UPL				forb	AN	DI	full
0	<i>Plantago psyllium</i>	L.	adventive	Plantaginaceae	(UPL)	FACU	FACU	FACU	forb	AN	DI	advent
0	<i>Plantago rugelii</i>	Decne.	native	Plantaginaceae	FACU	FACU	FAC	FAC	forb	PE	DI	full
*	<i>Plantago</i> sp.	L.	ND	Plantaginaceae	ND				forb	ND	DI	ND
1	<i>Plantago virginica</i>	L.	native	Plantaginaceae	(UPL)	UPL	FACU	FACU	forb	AN	DI	full
8	<i>Platanthera aquilonis</i>	Sheviak	native	Orchidaceae	FACW				forb	PE	MO	partial
10	<i>Platanthera blephariglottis</i>	(Willd.) Lindl.	native	Orchidaceae	OBL	OBL	OBL	OBL	forb	PE	MO	partial
8	<i>Platanthera ciliaris</i>	(L.) Lindl.	native	Orchidaceae	FACW	FACW	FACW	FACW	forb	PE	MO	partial

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
6	<i>Platanthera clavellata</i>	(Michx.) Luer	native	Orchidaceae	(FACW+)	FACW	OBL	FACW	forb	PE	MO	shade
6	<i>Platanthera flava</i>	(L.) Lindl.	native	Orchidaceae	FACW	FACW	FACW	FACW	forb	PE	MO	partial
10	<i>Platanthera grandiflora</i>	(Bigelow) Lindl.	native	Orchidaceae	FACW	FACW		FACW	forb	PE	MO	partial
8	<i>Platanthera hookeri</i>	(Torr. ex A. Gray) Lindl.	native	Orchidaceae	FAC	FAC	FAC	FAC	forb	PE	MO	shade
3	<i>Platanthera lacera</i>	(Michx.) G. Don	native	Orchidaceae	FACW	FACW	FACW	FACW	forb	PE	MO	full
8	<i>Platanthera leucophaea</i>	(Nutt.) Lindl.	native	Orchidaceae	FACW+	FACW	FACW	FACW	forb	PE	MO	full
7	<i>Platanthera orbiculata</i>	(Pursh) Lindl.	native	Orchidaceae	FAC	FAC	FAC	FAC	forb	PE	MO	shade
6	<i>Platanthera peramoena</i>	(A. Gray) A. Gray	native	Orchidaceae	FACW	FACW	FACW	FACW	forb	PE	MO	partial
8	<i>Platanthera psycodes</i>	(L.) Lindl.	native	Orchidaceae	FACW	FACW	FACW	FACW	forb	PE	MO	partial
*	<i>Platanthera</i> sp.	Rich	ND	Orchidaceae	ND				forb	PE	MO	ND
7	<i>Platanus occidentalis</i>	L.	native	Platanaceae	FACW-	FACW	FACW	FACW	tree	W	DI	tree
8	<i>Pleopeltis polypodioides</i>	(L.) E.G. Andrews & Windham	native	Polypodiaceae	(UPL)	FACU	FACU		fern	PE	SVP	shade
6	<i>Pluchea camphorata</i>	(L.) DC.	native	Asteraceae	FACW	FACW	FACW	FACW	forb	AN	DI	partial
0	<i>Pluchea odorata</i>	(L.) Cass.	adventive	Asteraceae	OBL	FACW	FACW	OBL	forb	AN	DI	advent
*	<i>Pluchea</i> sp.	ND	ND	Asteraceae	ND				forb	AN	DI	ND
5	<i>Poa alsodes</i>	A. Gray	native	Poaceae	FACW-	FACW	FACW	FAC	grass	PE	DI	shade
0	<i>Poa annua</i>	L.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	AN	MO	advent
0	<i>Poa bulbosa</i>	L.	adventive	Poaceae	(FAC)				grass	PE	MO	advent
0	<i>Poa chapmaniana</i>	Scribn.	adventive	Poaceae	UPL	UPL	FACU	FACU	grass	AN	MO	advent
0	<i>Poa compressa</i>	L.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	PE	MO	advent
7	<i>Poa cuspidata</i>	Nutt.	native	Poaceae	(UPL)				grass	PE	MO	shade
6	<i>Poa languida</i>	Hitchc.	native	Poaceae	(UPL)				grass	PE	MO	shade
0	<i>Poa nemoralis</i>	L.	adventive	Poaceae	FAC	FAC	FACU	FACU	grass	PE	MO	advent
9	<i>Poa paludigena</i>	Fernald & Wiegand	native	Poaceae	FACW+	FACW	OBL	OBL	grass	PE	MO	partial
5	<i>Poa palustris</i>	L.	native	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	full
0	<i>Poa pratensis</i>	L.	adventive	Poaceae	FACU	FACU	FAC	FACU	grass	PE	MO	advent
8	<i>Poa saltuensis</i>	Fernald & Wiegand	native	Poaceae	(UPL)				grass	PE	MO	partial
*	<i>Poa</i> sp.	L.	ND	Poaceae	ND				grass	ND	MO	ND
5	<i>Poa sylvestris</i>	A. Gray	native	Poaceae	FACW	FACW	FAC	FAC	grass	PE	MO	shade
0	<i>Poa trivialis</i>	L.	adventive	Poaceae	FACW	FACW	FACW	FACW	grass	PE	MO	advent
7	<i>Poa wolfii</i>	Scribn.	native	Poaceae	(UPL)				grass	PE	MO	shade
4	<i>Podophyllum peltatum</i>	L.	native	Berberidaceae	FACU	FACU	FACU	FACU	forb	PE	MO	shade
10	<i>Podostemum ceratophyllum</i>	Michx.	native	Podostemaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
9	<i>Pogonia ophioglossoides</i>	(L.) Ker Gawl.	native	Orchidaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
3	<i>Polanisia dodecandra</i>	(L.) DC.	native	Capparaceae	FACU	FACU	UPL	UPL	forb	AN	DI	full
0	<i>Polanisia jamesii</i>	(T. & G.) Iltis	adventive	Capparaceae	(UPL)				forb	AN	DI	advent
0	<i>Polemonium caeruleum</i>	L.	adventive	Polemoniaceae	(FAC)	FACW		FACW	forb	PE	DI	advent
5	<i>Polemonium reptans</i>	L.	native	Polemoniaceae	FACU	FACU	FAC	FAC	forb	PE	DI	shade
10	<i>Polygala cruciata</i>	L.	native	Polygalaceae	FACW+	FACW	FACW	FACW	forb	AN	DI	full
8	<i>Polygala curtissii</i>	A. Gray	native	Polygalaceae	(UPL)				forb	AN	DI	full
6	<i>Polygala incarnata</i>	L.	native	Polygalaceae	UPL	FACU	FACU	FACU	forb	AN	DI	full
8	<i>Polygala paucifolia</i>	Willd.	native	Polygalaceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
10	<i>Polygala polygama</i>	Walter	native	Polygalaceae	UPL	UPL	FACU	FACU	forb	PE	DI	full
2	<i>Polygala sanguinea</i>	L.	native	Polygalaceae	FACU	FAC	FACU	FACU	forb	AN	DI	full
7	<i>Polygala senega</i>	L.	native	Polygalaceae	FACU	FACU	FACU	FACU	forb	PE	DI	full

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
*	<i>Polygala</i> sp.	L.	ND	Polygalaceae	ND				forb	ND	DI	full
2	<i>Polygala verticillata</i>	L.	native	Polygalaceae	UPL	UPL	UPL	UPL	forb	AN	DI	full
4	<i>Polygonatum biflorum</i>	(Walter) Elliott	native	Liliaceae	FACU	FACU	FACU	FACU	forb	PE	MO	shade
5	<i>Polygonatum pubescens</i>	(Willd.) Pursh	native	Liliaceae	(UPL)	FACU			forb	PE	MO	shade
*	<i>Polygonatum</i> sp.	Mill.	ND	Liliaceae	ND				forb	PE	MO	shade
0	<i>Polygonum achoreum</i>	S.F. Blake	adventive	Polygonaceae	FACU	FACU	FAC	FACU	forb	AN	DI	advent
4	<i>Polygonum amphibium</i>	L.	native	Polygonaceae	OBL				forb	PE	DI	full
0	<i>Polygonum arenastrum</i>	Jord. Ex Boreau	adventive	Polygonaceae	(UPL)	FACU	FACU	FACU	forb	PE	DI	advent
4	<i>Polygonum arifolium</i>	L.	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
0	<i>Polygonum aviculare</i>	L.	adventive	Polygonaceae	FACU	FACU	FAC	FACU	forb	AN	DI	advent
9	<i>Polygonum careyi</i>	Olney	native	Polygonaceae	FACW	FACW	FACW	FACW	forb	AN	DI	full
0	<i>Polygonum cespitosum</i>	Blume	adventive	Polygonaceae	FACU-	FACU		UPL	forb	AN	DI	advent
8	<i>Polygonum cilinode</i>	Michx.	native	Polygonaceae	(UPL)				vine	PE	DI	shade
0	<i>Polygonum convolvulus</i>	L.	adventive	Polygonaceae	FACU				vine	AN	DI	advent
0	<i>Polygonum cuspidatum</i>	Siebold & Zucc.	adventive	Polygonaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	advent
1	<i>Polygonum erectum</i>	L.	native	Polygonaceae	FACU	FACU	FACU	FACU	forb	AN	DI	full
1	<i>Polygonum hydropiper</i>	L.	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
6	<i>Polygonum hydropiperoides</i>	Michx.	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
1	<i>Polygonum lapathifolium</i>	L.	native	Polygonaceae	FACW+	FACW	FACW	FACW	forb	AN	DI	full
0	<i>Polygonum orientale</i>	L.	adventive	Polygonaceae	FACU-	FACU	UPL	UPL	forb	AN	DI	advent
0	<i>Polygonum pensylvanicum</i>	L.	native	Polygonaceae	FACW	FACW	FACW	FACW	forb	AN	DI	full
0	<i>Polygonum persicaria</i>	L.	adventive	Polygonaceae	FACW	FACW	FACW	FAC	forb	AN	DI	advent
6	<i>Polygonum punctatum</i>	Elliott	native	Polygonaceae	OBL				forb	PE	DI	full
1	<i>Polygonum ramosissimum</i>	Michx.	native	Polygonaceae	FAC	FAC	FACU	FAC	forb	AN	DI	full
5	<i>Polygonum robustius</i>	(Small) Fernald	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Polygonum sachalinense</i>	F. W. Schmidt ex Maxim.	adventive	Polygonaceae	(UPL)	UPL	UPL	UPL	forb	PE	DI	advent
2	<i>Polygonum sagittatum</i>	L.	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
2	<i>Polygonum scandens</i>	L.	native	Polygonaceae	FAC				vine	PE	DI	partial
6	<i>Polygonum setaceum</i>	Baldwin	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
*	<i>Polygonum</i> sp.	L.	ND	Polygonaceae	ND				ND	ND	DI	ND
4	<i>Polygonum tenue</i>	Michx.	native	Polygonaceae	(UPL)				forb	AN	DI	full
3	<i>Polygonum virginianum</i>	L.	native	Polygonaceae	FAC	FAC	FAC	FAC	forb	PE	DI	shade
5	<i>Polymnia canadensis</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
*	<i>Polymnia</i> sp.	ND	ND	Asteraceae	UPL				forb	PE	DI	shade
7	<i>Polymnia uvedalia</i>	(L.) L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
8	<i>Polypodium appalachianum</i>	Haufler & Windham	native	Polypodiaceae	(UPL)				fern	PE	SVP	shade
*	<i>Polypodium</i> sp.	ND	ND	Polypodiaceae	UPL				fern	PE	SVP	shade
8	<i>Polypodium virginianum</i>	L.	native	Polypodiaceae	(UPL)				fern	PE	SVP	shade
3	<i>Polystichum acrostichoides</i>	(Michx.) Schott	native	Dryopteridaceae	FACU-	FACU	UPL	FACU	fern	PE	SVP	shade
6	<i>Pontederia cordata</i>	L.	native	Pontederiaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
0	<i>Populus alba</i>	L.	adventive	Salicaceae	(UPL)				tree	W	DI	advent
3	<i>Populus balsamifera</i>	L.	native	Salicaceae	FACW	FACW	FACW	FACW	tree	W	DI	tree
3	<i>Populus deltoides</i>	W. Bartram ex Marshall	native	Salicaceae	FAC	FAC	FAC	FAC	tree	W	DI	tree
2	<i>Populus grandidentata</i>	Michx.	native	Salicaceae	FACU-	FACU	FACU	FACU	tree	W	DI	tree
9	<i>Populus heterophylla</i>	L.	native	Salicaceae	FACW+	OBL	OBL	OBL	tree	W	DI	tree

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0	<i>Populus nigra</i> L. var. <i>italica</i>	Du Roi	adventive	Salicaceae	(UPL)				tree	W	DI	advent
*	<i>Populus</i> sp.	ND	ND	Salicaceae	ND				tree	W	DI	ND
2	<i>Populus tremuloides</i>	Michx.	native	Salicaceae	(FACU)	FAC	FAC	FACU	tree	W	DI	tree
6	<i>Porteranthus</i> sp.	ND	native	Rosaceae	UPL				forb	PE	DI	shade
6	<i>Porteranthus stipulatus</i>	(Muhl. ex Willd.) Britton	native	Rosaceae	(UPL)				forb	PE	DI	shade
6	<i>Porteranthus trifolius</i>	(L.) Britton	native	Rosaceae	(UPL)				forb	PE	DI	shade
0	<i>Portulaca grandiflora</i>	Hook.	adventive	Portulacaceae	(UPL)	UPL	FACU	UPL	forb	AN	DI	advent
0	<i>Portulaca oleracea</i>	L.	adventive	Portulacaceae	FAC	FAC	FACU	FACU	forb	AN	DI	advent
8	<i>Potamogeton amplifolius</i>	Tuck.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
0	<i>Potamogeton crispus</i>	L.	adventive	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	advent
5	<i>Potamogeton diversifolius</i>	Raf.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
6	<i>Potamogeton epiphydrus</i>	Raf.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
2	<i>Potamogeton foliosus</i>	Raf.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
10	<i>Potamogeton friesii</i>	Rupr.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
10	<i>Potamogeton gramineus</i>	L.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
9	<i>Potamogeton hillii</i>	Morong	native	Potamogetonaceae	OBL	OBL		OBL	forb	PE	MO	full
8	<i>Potamogeton illinoensis</i>	Morong	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
8	<i>Potamogeton natans</i>	L.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
3	<i>Potamogeton nodosus</i>	Poir.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
10	<i>Potamogeton perfoliatus</i>	L.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
10	<i>Potamogeton praelongus</i>	Wulfen	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
8	<i>Potamogeton pulcher</i>	Tuck.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
4	<i>Potamogeton pusillus</i>	L.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
10	<i>Potamogeton richardsonii</i>	(A. Benn.) Rydb.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
10	<i>Potamogeton robbinsii</i>	Oakes	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
*	<i>Potamogeton</i> sp.	ND	ND	Potamogetonaceae	OBL				forb	PE	MO	full
10	<i>Potamogeton spirillus</i>	Tuck.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
10	<i>Potamogeton strictifolius</i>	A. Benn.	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
9	<i>Potamogeton tennesseensis</i>	Fernald	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
10	<i>Potamogeton vaseyi</i>	J.W. Robbins	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
8	<i>Potamogeton zosteriformis</i>	Fernald	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
5	<i>Potentilla anserina</i>	L.	native	Rosaceae	OBL	OBL	FACW	FACW	forb	PE	DI	full
0	<i>Potentilla argentea</i>	L.	adventive	Rosaceae	UPL	UPL	FACU	FACU	forb	PE	DI	advent
5	<i>Potentilla arguta</i>	Pursh	native	Rosaceae	UPL				forb	PE	DI	full
3	<i>Potentilla canadensis</i>	L.	native	Rosaceae	(UPL)				forb	PE	DI	full
10	<i>Potentilla fruticosa</i>	L.	native	Rosaceae	FACW	FACW	FACW	FACW	shrub	W	DI	full
0	<i>Potentilla inclinata</i>	Villars	adventive	Rosaceae	(UPL)				forb	PE	DI	advent
0	<i>Potentilla intermedia</i>	L.	adventive	Rosaceae	(UPL)				forb	PE	DI	advent
1	<i>Potentilla norvegica</i>	L.	native	Rosaceae	FACU	FACU	FAC	FAC	forb	AN	DI	full
8	<i>Potentilla palustris</i>	(L.) Scop.	native	Rosaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
9	<i>Potentilla paradoxa</i>	Nutt.	native	Rosaceae	OBL	OBL	FACW	FACW	forb	AN	DI	full
0	<i>Potentilla recta</i>	L.	adventive	Rosaceae	(UPL)				forb	PE	DI	advent
0	<i>Potentilla reptans</i>	L.	adventive	Rosaceae	(UPL)				forb	PE	DI	advent
1	<i>Potentilla simplex</i>	Michx.	native	Rosaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	full
*	<i>Potentilla</i> sp.	ND	ND	Rosaceae	ND				ND	ND	DI	ND

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
5	<i>Prenanthes alba</i>	L.	native	Asteraceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
4	<i>Prenanthes altissima</i>	L.	native	Asteraceae	FACU-	FACU	FACU	FACU	forb	PE	DI	shade
9	<i>Prenanthes aspera</i>	Michx.	native	Asteraceae	(UPL)				forb	PE	DI	shade
8	<i>Prenanthes crepidinea</i>	Michx.	native	Asteraceae	FACU	FACU	FAC	FAC	forb	PE	DI	shade
8	<i>Prenanthes racemosa</i>	Michx.	native	Asteraceae	FACW-				forb	PE	DI	full
5	<i>Prenanthes serpentaria</i>	Pursh	native	Asteraceae	(UPL)				forb	PE	DI	shade
*	<i>Prenanthes sp.</i>	ND	ND	Asteraceae	ND				forb	PE	DI	ND
10	<i>Prenanthes trifoliolata</i>	(Cass.) Fernald	native	Asteraceae	(UPL)				forb	PE	DI	shade
0	<i>Proboscidea louisianica</i>	(Mill.) Thell.	adventive	Pedaliaceae	FACU	FACU	FAC	FAC	forb	AN	DI	advent
7	<i>Prosartes lanuginosa</i>	(Michx.) D. Don	native	Liliaceae	(UPL)				forb	PE	DI	shade
9	<i>Prosartes maculata</i>	(Buckley) A. Gray	native	Liliaceae	(UPL)				forb	PE	DI	shade
*	<i>Prosartes sp.</i>	ND	ND	Liliaceae	UPL				forb	PE	DI	shade
7	<i>Proserpinaca palustris</i>	L.	native	Haloragaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Prunella vulgaris</i>	L.	native	Lamiaceae	FACU+	FACU	FAC	FAC	forb	PE	DI	partial
3	<i>Prunus americana</i>	Marshall	native	Rosaceae	FACU-				sm tree	W	DI	partial
0	<i>Prunus armeniaca</i>	L.	adventive	Rosaceae	(UPL)	FACU	UPL	UPL	sm tree	W	DI	full
0	<i>Prunus avium</i>	L.	adventive	Rosaceae	(UPL)				sm tree	W	DI	advent
0	<i>Prunus cerasus</i>	L.	adventive	Rosaceae	(UPL)				sm tree	W	DI	advent
3	<i>Prunus hortulana</i>	L.H. Bailey	native	Rosaceae	(UPL)				sm tree	W	DI	full
0	<i>Prunus mahaleb</i>	L.	adventive	Rosaceae	(UPL)				sm tree	W	DI	advent
8	<i>Prunus mexicana</i>	S. Watson	native	Rosaceae	(UPL)				sm tree	W	DI	full
3	<i>Prunus munsoniana</i>	W. Wight & Hedrick	native	Rosaceae	(UPL)				sm tree	W	DI	full
4	<i>Prunus nigra</i>	Aiton	native	Rosaceae	UPL	UPL	FACU	FACU	sm tree	W	DI	full
4	<i>Prunus pennsylvanica</i>	L.f.	native	Rosaceae	FACU-	FACU	FACU	FACU	sm tree	W	DI	partial
0	<i>Prunus persica</i>	(L.) Batsch	adventive	Rosaceae	(UPL)				sm tree	W	DI	full
10	<i>Prunus pumila</i>	L.	native	Rosaceae	(UPL)				sm tree	W	DI	full
3	<i>Prunus serotina</i>	Ehrh.	native	Rosaceae	FACU	FACU	FACU	FACU	tree	W	DI	tree
*	<i>Prunus sp.</i>	ND	ND	Rosaceae	ND				ND	W	DI	ND
0	<i>Prunus tomentosa</i>	Thunb.	adventive	Rosaceae	(FACU)				shrub	W	DI	advent
2	<i>Prunus virginiana</i>	L.	native	Rosaceae	FACU	FACU	FACU	FACU	sm tree	W	DI	shade
5	<i>Ptelea trifoliata</i>	L.	native	Rutaceae	FAC	FAC	FACU	FACU	sm tree	W	DI	shade
1	<i>Pteridium aquilinum</i>	(L.) Kuhn	native	Dennstaedtiaceae	FACU	FACU	FACU	FACU	fern	PE	SVP	partial
0	<i>Puccinellia distans</i>	(L.) Parl.	adventive	Poaceae	OBL	OBL	OBL	FACW	grass	PE	MO	advent
7	<i>Puccinellia pallida</i>	(Torr.) R.T. Clausen	native	Poaceae	OBL	OBL	OBL	OBL	grass	PE	MO	partial
*	<i>Puccinellia sp.</i>	ND	ND	Poaceae	OBL				grass	PE	MO	advent
0	<i>Pueraria lobata</i>	(Willd.) Ohwi	adventive	Fabaceae	(UPL)				vine	W	DI	advent
6	<i>Pycnanthemum incanum</i>	(L.) Michx.	native	Lamiaceae	(UPL)				forb	PE	DI	shade
6	<i>Pycnanthemum muticum</i>	(Michx.) Pers.	native	Lamiaceae	FACW	FACW	FAC	FAC	forb	PE	DI	partial
6	<i>Pycnanthemum pycnanthemoides</i>	(Leavenw.) Fernald	native	Lamiaceae	(UPL)				forb	PE	DI	shade
*	<i>Pycnanthemum sp.</i>	ND	ND	Lamiaceae	ND				forb	PE	DI	ND
4	<i>Pycnanthemum tenuifolium</i>	Schrad.	native	Lamiaceae	FACW	FACW	FAC	FAC	forb	PE	DI	full
5	<i>Pycnanthemum verticillatum</i> var. <i>pilosum</i>	(Nutt.) Cooperrider	native	Lamiaceae	(FAC)	FAC	UPL	FACU	forb	PE	DI	partial
4	<i>Pycnanthemum verticillatum</i> var. <i>verticillatum</i>	(Michx.) Pers.	native	Lamiaceae	(FAC)	FAC	UPL	FACU	forb	PE	DI	partial
4	<i>Pycnanthemum virginianum</i>	(L.) Durand & B.D. Jackson	native	Lamiaceae	FAC	FAC	FACW	FACW	forb	PE	DI	full

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8	<i>Pyrola chlorantha</i>	Sw.	native	Pyrolaceae	(FACU)	UPL	FACU	FACU	forb	PE	DI	shade
7	<i>Pyrola elliptica</i>	Nutt.	native	Pyrolaceae	(UPL)	UPL	FACU	FACU	forb	PE	DI	shade
7	<i>Pyrola rotundifolia</i> var. <i>americana</i>	(Sweet) Fernald	native	Pyrolaceae	FAC	FAC	FACU	FAC	forb	PE	DI	shade
8	<i>Pyrola secunda</i>	L.	native	Pyrolaceae	FAC	FAC	FAC	FAC	forb	PE	DI	shade
*	<i>Pyrola</i> sp.	ND	ND	Pyrolaceae	ND				forb	PE	DI	shade
5	<i>Pyrus angustifolia</i>	Aiton	native	Rosaceae	(UPL)				sm tree	W	DI	full
0	<i>Pyrus calleryana</i>	Decn.	adventive	Rosaceae	(UPL)				sm tree	W	DI	full
0	<i>Pyrus communis</i>	L.	adventive	Rosaceae	(UPL)				sm tree	W	DI	full
3	<i>Pyrus coronaria</i>	L.	native	Rosaceae	(UPL)				sm tree	W	DI	full
0	<i>Pyrus ioensis</i>	(A.W. Wood) L.H Bailey	adventive	Rosaceae	(UPL)				sm tree	W	DI	full
0	<i>Pyrus malus</i>	L.	adventive	Rosaceae	(UPL)				sm tree	W	DI	full
*	<i>Pyrus</i> sp.	ND	ND	Rosaceae	UPL				sm tree	W	DI	ND
6	<i>Quercus alba</i>	L.	native	Fagaceae	FACU-	FACU	FACU	FACU	tree	W	DI	tree
7	<i>Quercus bicolor</i>	Willd.	native	Fagaceae	FACW+	FACW	FACW	FACW	tree	W	DI	tree
6	<i>Quercus coccinea</i>	Muenchh.	native	Fagaceae	(UPL)				tree	W	DI	tree
7	<i>Quercus falcata</i>	Michx.	native	Fagaceae	FACU-	FACU	FACU	FACU	tree	W	DI	tree
5	<i>Quercus imbricaria</i>	Michx.	native	Fagaceae	FAC	FAC	FACU	FACU	tree	W	DI	tree
6	<i>Quercus macrocarpa</i>	Michx.	native	Fagaceae	FAC-	FAC	FAC	FACU	tree	W	DI	tree
8	<i>Quercus marilandica</i>	Munchh.	native	Fagaceae	(UPL)				tree	W	DI	tree
7	<i>Quercus muehlenbergii</i>	Engelm.	native	Fagaceae	UPL	UPL	FACU	FACU	tree	W	DI	tree
5	<i>Quercus palustris</i>	Muenchh.	native	Fagaceae	FACW	FACW	FACW	FACW	tree	W	DI	tree
7	<i>Quercus prinus</i>	L.	native	Fagaceae	(UPL)	UPL	FACU	UPL	tree	W	DI	tree
6	<i>Quercus rubra</i>	L.	native	Fagaceae	FACU-	FACU	FACU	FACU	tree	W	DI	tree
7	<i>Quercus shumardii</i>	Buckley	native	Fagaceae	FAC+	FAC	FACW	FACW	tree	W	DI	tree
*	<i>Quercus</i> sp.	ND	ND	Fagaceae	ND				tree	W	DI	tree
7	<i>Quercus stellata</i>	Wangenh.	native	Fagaceae	(UPL)	UPL	FACU	FACU	tree	W	DI	tree
7	<i>Quercus velutina</i>	Lam.	native	Fagaceae	(UPL)				tree	W	DI	tree
1	<i>Ranunculus abortivus</i>	L.	native	Ranunculaceae	FACW-	FACW	FACW	FAC	forb	PE	DI	shade
0	<i>Ranunculus acris</i>	L.	adventive	Ranunculaceae	FAC+	FAC	FAC	FAC	forb	PE	DI	advent
5	<i>Ranunculus allegheniensis</i>	Britton	native	Ranunculaceae	FAC	FAC	FAC	FAC	forb	PE	DI	shade
8	<i>Ranunculus ambigens</i>	S. Watson	native	Ranunculaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
0	<i>Ranunculus bulbosus</i>	L.	adventive	Ranunculaceae	UPL	UPL	FAC	FACW	forb	PE	DI	advent
6	<i>Ranunculus fascicularis</i>	Muhl. ex Bigelow	native	Ranunculaceae	FACU	FACU	FACU	FACU	forb	PE	DI	partial
0	<i>Ranunculus ficaria</i>	L.	adventive	Ranunculaceae	FAC	FAC	FAC	FACW	forb	PE	DI	advent
8	<i>Ranunculus flabellaris</i>	Raf.	native	Ranunculaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
4	<i>Ranunculus hispidus</i>	Michx.	native	Ranunculaceae	FAC	FAC	FAC	FAC	forb	PE	DI	shade
5	<i>Ranunculus longirostris</i>	Nutt.	native	Ranunculaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
5	<i>Ranunculus micranthus</i>	Nutt.	native	Ranunculaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
4	<i>Ranunculus pensylvanicus</i>	L.f.	native	Ranunculaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
8	<i>Ranunculus pusillus</i>	Poir.	native	Ranunculaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
3	<i>Ranunculus recurvatus</i>	Poir.	native	Ranunculaceae	FAC+	FAC	FACW	FACW	forb	PE	DI	shade
0	<i>Ranunculus repens</i>	L.	adventive	Ranunculaceae	FAC	FAC	FAC	FAC	forb	PE	DI	advent
1	<i>Ranunculus sceleratus</i>	L.	native	Ranunculaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
*	<i>Ranunculus</i> sp.	ND	ND	Ranunculaceae	ND				forb	ND	DI	ND
0	<i>Ranunculus testiculatus</i>	Crantz	adventive	Ranunculaceae	(UPL)				forb	AN	DI	advent

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0	Raphanus raphanistrum	L.	adventive	Brassicaceae	(FACU)				forb	BI	DI	advent
0	Raphanus sativus	L.	adventive	Brassicaceae	(FACU)				forb	BI	DI	advent
*	Raphanus sp.	ND	ND	Brassicaceae	(FACU)				forb	BI	DI	advent
5	Ratibida pinnata	(Vent.) Barnhart	native	Asteraceae	(UPL)				forb	PE	DI	full
0	Reseda alba	L.	adventive	Resedaceae	(UPL)				forb	AN	DI	advent
0	Reseda luteola	L.	adventive	Resedaceae	(UPL)				forb	AN	DI	advent
*	Reseda sp.	ND	ND	Resedaceae	(UPL)				forb	AN	DI	advent
8	Rhamnus alnifolia	L'Her	native	Rhamnaceae	OBL	OBL	OBL	OBL	shrub	W	DI	partial
4	Rhamnus caroliniana	Walter	native	Rhamnaceae	FAC	FAC	FAC	FAC	shrub	W	DI	partial
0	Rhamnus cathartica	L.	adventive	Rhamnaceae	FACU+	FACU	FAC	FAC	sm tree	W	DI	advent
0	Rhamnus frangula	L.	adventive	Rhamnaceae	FAC	FAC	FACW	FAC	shrub	W	DI	advent
4	Rhamnus lanceolata	Pursh	native	Rhamnaceae	(FACU-)	FAC	FACW	FACW	shrub	W	DI	partial
*	Rhamnus sp.	ND	ND	Rhamnaceae	ND				ND	W	DI	ND
0	Rheum rhabarbarum	L.	adventive	Polygonaceae	(FACU-)				forb	PE	DI	advent
7	Rhexia virginica	L.	native	Melastomataceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
8	Rhododendron calendulaceum	(Michx.) Torr.	native	Ericaceae	(UPL)				shrub	W	DI	shade
8	Rhododendron maximum	L.	native	Ericaceae	FAC	FAC	FAC	FAC	shrub	W	DI	shade
7	Rhododendron periclymenoides	(Michx.) Shinners	native	Ericaceae	FAC	FAC	FAC	FAC	shrub	W	DI	shade
7	Rhododendron prinophyllum	(Small) Millais	native	Ericaceae	FAC	FAC	FAC	FAC	shrub	W	DI	shade
*	Rhododendron sp.	ND	adventive	Ericaceae	ND				shrub	W	DI	shade
10	Rhus aromatica Aiton var. arenaria	(Greene) Fernald	native	Anacardiaceae	(UPL)	UPL	UPL	UPL	shrub	W	DI	full
3	Rhus aromatica var. aromatica	Aiton	native	Anacardiaceae	(UPL)	UPL	UPL	UPL	shrub	W	DI	full
4	Rhus copallinum	L.	native	Anacardiaceae	FACU-	FACU	UPL	UPL	shrub	W	DI	full
2	Rhus glabra	L.	native	Anacardiaceae	(UPL)				shrub	W	DI	full
*	Rhus sp.	ND	ND	Anacardiaceae	ND				shrub	W	DI	full
2	Rhus typhina	L.	native	Anacardiaceae	(UPL)				shrub	W	DI	full
10	Rhynchospora alba	(L.) Vahl	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
9	Rhynchospora capillacea	Torr.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
7	Rhynchospora capitellata	(Michx.) Vahl	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
10	Rhynchospora recognita	(Gale) Kral	native	Cyperaceae	(FACW)	FACW			sedge	PE	MO	full
*	Rhynchospora sp.	ND	ND	Cyperaceae	ND				sedge	PE	MO	full
4	Ribes americanum	Mill.	native	Grossulariaceae	FACW	FACW	FACW	FACW	shrub	W	DI	partial
3	Ribes cynosbati	L.	native	Grossulariaceae	(UPL)	FACU	FAC	FACU	shrub	W	DI	partial
10	Ribes glandulosum	Grauer	native	Grossulariaceae	FACW	FACW	FACW	FACW	shrub	W	DI	partial
7	Ribes hirtellum	Michx.	native	Grossulariaceae	FAC	FAC	FACW	FACW	shrub	W	DI	partial
8	Ribes missouriense	Nutt.	native	Grossulariaceae	(UPL)				shrub	W	DI	partial
0	Ribes odoratum	H. Wendl.	adventive	Grossulariaceae	FACU	FACW	FAC	FACU	shrub	W	DI	advent
0	Ribes rotundifolium	Michx.	adventive	Grossulariaceae	(UPL)				shrub	W	DI	advent
0	Ribes sativum	Syme	adventive	Grossulariaceae	(UPL)				shrub	W	DI	advent
*	Ribes sp.	ND	ND	Grossulariaceae	ND				shrub	W	DI	ND
8	Ribes triste	Pall.	native	Grossulariaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
0	Ribes uva-crispa	L.	adventive	Grossulariaceae	(FACU-)				shrub	W	DI	advent
0	Riccia fluitans	L.	adventive	Ricciaceae	ND				bryo	BR	BR	bryo
0	Ricciocarpos natans	(L.) Corda	adventive	Ricciaceae	ND				bryo	BR	BR	bryo
0	Ricinus communis	L.	adventive	Euphorbiaceae	(UPL)	UPL	FACU	FACU	forb	AN	DI	advent

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Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Robinia hispida</i>	L.	adventive	Fabaceae	(UPL)				shrub	W	DI	advent
0	<i>Robinia pseudoacacia</i>	L.	native	Fabaceae	FACU-	FACU	FACU	FACU	tree	W	DI	tree
0	<i>Robinia viscosa</i>	Vent.	adventive	Fabaceae	UPL				shrub	W	DI	advent
10	<i>Rorippa aquatica</i>	(Eaton) E.J. Palmer and Steyermark	native	Brassicaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Rorippa nasturtium-aquaticum</i>	(L.) Hayek	adventive	Brassicaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
2	<i>Rorippa palustris</i>	(L.) Besser	native	Brassicaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
6	<i>Rorippa sessiliflora</i>	(Nutt.) Hitch.	native	Brassicaceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
*	<i>Rorippa</i> sp.	ND	ND	Brassicaceae	ND				forb	ND	DI	ND
0	<i>Rorippa sylvestris</i>	(L.) Besser	adventive	Brassicaceae	FACW	FACW	OBL	OBL	forb	PE	DI	full
4	<i>Rosa arkansana</i>	Porter	native	Rosaceae	(UPL)	FACU	FACU	FACU	shrub	W	DI	full
4	<i>Rosa blanda</i>	Aiton	native	Rosaceae	FACU	FACU	FACU	FACU	shrub	W	DI	full
0	<i>Rosa canina</i>	L.	adventive	Rosaceae	UPL				shrub	W	DI	advent
4	<i>Rosa carolina</i>	L.	native	Rosaceae	(UPL)	FACU	FACU	FACU	shrub	W	DI	full
0	<i>Rosa eglanteria</i>	L.	adventive	Rosaceae	UPL	UPL	UPL	FACU	shrub	W	DI	advent
0	<i>Rosa gallica</i>	L.	adventive	Rosaceae	(UPL)				shrub	W	DI	advent
0	<i>Rosa majalis</i>	Herrm.	adventive	Rosaceae	(UPL)				shrub	W	DI	advent
0	<i>Rosa micrantha</i>	J. E. Smith	adventive	Rosaceae	FACU	FACU	FACU	FACU	shrub	W	DI	advent
0	<i>Rosa multiflora</i>	Thunb. ex Murray	adventive	Rosaceae	FACU	FACU	FACU	FACU	shrub	W	DI	advent
0	<i>Rosa nitida</i>	Willd.	adventive	Rosaceae	(UPL)	FACW		FACW	shrub	W	DI	advent
5	<i>Rosa palustris</i>	Marshall	native	Rosaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
0	<i>Rosa rugosa</i>	Thunb.	adventive	Rosaceae	FACU-	FACU	FACU	FACU	shrub	W	DI	advent
4	<i>Rosa setigera</i>	Michx.	native	Rosaceae	FACU	FACU	FACU	FACU	shrub	W	DI	full
*	<i>Rosa</i> sp.	ND	ND	Rosaceae	ND				shrub	W	DI	ND
0	<i>Rosa wichuraiana</i>	Crep.	adventive	Rosaceae	UPL				shrub	W	DI	advent
6	<i>Rotala ramosior</i>	(L.) Koehne	native	Lythraceae	OBL	OBL	OBL	OBL	forb	AN	DI	full
1	<i>Rubus allegheniensis</i>	Porter	native	Rosaceae	FACU-	FACU	FACU	FACU	shrub	W	DI	full
0	<i>Rubus caesius</i>	L.	adventive	Rosaceae	(FACU)			FACU	shrub	W	DI	advent
0	<i>Rubus discolor</i>	Weihe & Nees	adventive	Rosaceae	(UPL)	UPL	UPL	UPL	shrub	W	DI	advent
0	<i>Rubus flagellaris</i>	Willd.	adventive	Rosaceae	FACU	FACU	FACU	FACU	shrub	W	DI	partial
5	<i>Rubus hispidus</i>	L.	native	Rosaceae	FACW	FACW	FACW	FACW	forb	PE	DI	partial
6	<i>Rubus idaeus</i> L. var. <i>strigosus</i>	(Michx.) Maxim.	native	Rosaceae	(FAC-)	FAC	FACU	FACU	shrub	W	DI	full
0	<i>Rubus idaeus</i> L. var. <i>idaeus</i>	L.	adventive	Rosaceae	(FAC-)	FAC	FACU	FACU	shrub	W	DI	full
0	<i>Rubus laciniatus</i>	Willd.	adventive	Rosaceae	(UPL)	UPL	UPL	UPL	shrub	W	DI	advent
1	<i>Rubus occidentalis</i>	L.	native	Rosaceae	(UPL)				shrub	W	DI	full
5	<i>Rubus odoratus</i>	L.	native	Rosaceae	(UPL)				shrub	W	DI	full
0	<i>Rubus parviflorus</i>	L.	adventive	Rosaceae	(UPL)		FACU	FACU	shrub	W	DI	advent
1	<i>Rubus pensilvanicus</i>	Poir.	native	Rosaceae	FACU			FACU	shrub	W	DI	full
0	<i>Rubus phoenicolasius</i>	Maxim.	adventive	Rosaceae	(UPL)			FACU	shrub	W	DI	advent
1	<i>Rubus pubescens</i>	Raf.	native	Rosaceae	FACW	FACW	FACW	FACW	forb	PE	DI	partial
*	<i>Rubus</i> sp.	ND	ND	Rosaceae	ND				ND	ND	DI	ND
3	<i>Rubus trivialis</i>	Michx.	native	Rosaceae	FACU	FACU	FACU	FACU	shrub	W	DI	partial
6	<i>Rudbeckia fulgida</i>	Aiton	native	Asteraceae	FAC	FAC	OBL	OBL	forb	PE	DI	full
1	<i>Rudbeckia hirta</i>	L.	native	Asteraceae	FACU-	FACU	FACU	FACU	forb	PE	DI	full
6	<i>Rudbeckia laciniata</i>	l.	native	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	partial

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
*	Rudbeckia sp.	ND	ND	Asteraceae	ND				forb	ND	DI	ND
5	Rudbeckia triloba	L.	native	Asteraceae	FACU	FACU	FACU	FACU	forb	BI	DI	full
4	Ruellia caroliniensis	(J.F. Gmel.) Steud.	native	Acanthaceae	(UPL)	FACU	FAC	FACU	forb	PE	DI	full
6	Ruellia humilis	Nutt.	native	Acanthaceae	UPL	FACU	FACU	FACU	forb	PE	DI	full
*	Ruellia sp.	ND	ND	Acanthaceae	ND				forb	PE	DI	full
5	Ruellia strepens	L.	native	Acanthaceae	FAC	FAC	FAC	FAC	forb	PE	DI	full
0	Rumex acetosella	L.	adventive	Polygonaceae	UPL	UPL	FACU	FACU	forb	PE	DI	advent
2	Rumex altissimus	A.W. Wood	native	Polygonaceae	FACW-	FACW	FACW	FACW	forb	PE	DI	full
0	Rumex conglomeratus	Murray	adventive	Polygonaceae	FAC	FAC	FACW	FACW	forb	PE	DI	advent
0	Rumex crispus	L.	adventive	Polygonaceae	FACU	FAC	FAC	FAC	forb	PE	DI	advent
0	Rumex maritimus	L.	adventive	Polygonaceae	FACW	OBL	FACW	FACW	forb	AN	DI	advent
0	Rumex obtusifolius	L.	adventive	Polygonaceae	FACU-	FACU	FACW	FAC	forb	PE	DI	advent
5	Rumex orbiculatus	A. Gray	native	Polygonaceae	OBL				forb	PE	DI	full
0	Rumex patientia	L.	adventive	Polygonaceae	(UPL)				forb	PE	DI	advent
*	Rumex sp.	ND	ND	Polygonaceae	ND				forb	ND	DI	ND
6	Rumex verticillatus	L.	native	Polygonaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
3	Ruppia cirrhosa	(Petagna) Grande	native	Ruppiaceae	(OBL)	OBL	OBL	OBL	forb	PE	MO	full
4	Sabatia angularis	(L.) Pursh	native	Gentianaceae	FAC+	FAC	FAC	FAC	forb	BI	DI	full
6	Saccharum alopecuroides	(L.) Nutt.	native	Poaceae	FAC	FAC	FACU	FACU	grass	PE	MO	full
0	Saccharum ravennae	(L.) L.	adventive	Poaceae	FAC	UPL	FACW	UPL	grass	PE	MO	full
0	Sagina decumbens	(Ell.) Torr. & A. Gray	native	Caryophyllaceae	FAC	FAC	FAC	FAC	forb	AN	DI	full
0	Sagina procumbens	L.	adventive	Caryophyllaceae	FACW-	FACW	FACW	FAC	forb	PE	DI	advent
*	Sagina sp.	ND	ND	Caryophyllaceae	ND				forb	ND	DI	ND
3	Sagittaria australis	(J.G. Sm.) Small	native	Alismataceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
6	Sagittaria brevisrostra	Mack. & Bush	native	Alismataceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
8	Sagittaria cuneata	E. Sheld.	native	Alismataceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
9	Sagittaria graminea	Michx.	native	Alismataceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
1	Sagittaria latifolia	Willd.	native	Alismataceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
8	Sagittaria montevidensis	Cham. & Schlect.	native	Alismataceae	OBL	OBL		OBL	forb	AN	MO	full
6	Sagittaria platyphylla	(Engelm.) J.G. Sm.	native	Alismataceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
8	Sagittaria rigida	Pursh	native	Alismataceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
*	Sagittaria sp.	ND	ND	Alismataceae	OBL				forb	PE	MO	full
0	Salicornia europaea	L.	adventive	Chenopodiaceae	OBL	OBL	OBL	OBL	forb	AN	DI	advent
0	Salix alba	L.	adventive	Salicaceae	FACW	FACW	FACW	FACW	tree	W	DI	tree
3	Salix amygdaloides	Andersson	native	Salicaceae	FACW	FACW	FACW	FACW	tree	W	DI	full
0	Salix babylonica	L.	adventive	Salicaceae	FACW-	FACW	FAC		tree	W	DI	tree
5	Salix bebbiana	Sarg.	native	Salicaceae	FACW	FACW	FACW	FACW	shrub	W	DI	full
10	Salix candida	Flugge ex Willd.	native	Salicaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
0	Salix caprea	L.	adventive	Salicaceae	(UPL)	OBL	FACW	FAC	shrub	W	DI	advent
10	Salix caroliniana	Michx.	native	Salicaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
0	Salix cinerea	L.	adventive	Salicaceae	(FACW)	FACW	FACW	FACW	tree	W	DI	advent
3	Salix discolor	Muhl.	native	Salicaceae	FACW	FACW	FACW	FACW	shrub	W	DI	full
2	Salix eriocephala	Michx.	native	Salicaceae	FACW	FACW	FACW	FACW	shrub	W	DI	full
1	Salix exigua	Nutt.	native	Salicaceae	OBL	FACW	FACW	FACW	shrub	W	DI	full
0	Salix fragilis	L.	adventive	Salicaceae	FAC+	FAC	FAC	FAC	tree	W	DI	tree

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
4	<i>Salix humilis</i>	Marshall	native	Salicaceae	FACU	FACU	FACU	FACU	shrub	W	DI	full
4	<i>Salix lucida</i>	Muhl.	native	Salicaceae	FACW	FACW	FACW	FACW	shrub	W	DI	full
10	<i>Salix myricoides</i>	(Muhl.) J. Carey	native	Salicaceae	FAC	FACW	FACW	FACW	shrub	W	DI	full
2	<i>Salix nigra</i>	Marshall	native	Salicaceae	FACW+	OBL	OBL	OBL	tree	W	DI	tree
5	<i>Salix occidentalis</i>	Walter	native	Salicaceae	(UPL)				shrub	W	DI	full
9	<i>Salix pedicellaris</i>	Pursh	native	Salicaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
0	<i>Salix pentandra</i>	L.	adventive	Salicaceae	(UPL)				tree	W	DI	advent
8	<i>Salix petiolaris</i>	Sm.	native	Salicaceae	OBL	FACW	OBL	FACW	shrub	W	DI	full
0	<i>Salix purpurea</i>	L.	adventive	Salicaceae	(FACW)	FACW	FACW	FACW	shrub	W	DI	advent
4	<i>Salix sericea</i>	Marshall	native	Salicaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
10	<i>Salix serissima</i>	(L.H. Bailey) Fernald	native	Salicaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
*	<i>Salix sp.</i>	ND	ND	Salicaceae	ND				ND	W	DI	ND
0	<i>Salsola kali</i>	L.	adventive	Chenopodiaceae	FACU	FACU		FACU	forb	AN	DI	advent
0	<i>Salvia azurea</i>	Michx. ex Lam.	adventive	Lamiaceae	(UPL)				forb	PE	DI	advent
0	<i>Salvia coccinea</i>	Buc'hoz ex Etl.	adventive	Lamiaceae	(UPL)				forb	PE	DI	advent
3	<i>Salvia lyrata</i>	L.	native	Lamiaceae	(UPL)	FACU	FACW	FACW	forb	PE	DI	full
0	<i>Salvia officinalis</i>	L.	adventive	Lamiaceae	(UPL)				forb	PE	DI	advent
0	<i>Salvia pratensis</i>	L.	adventive	Lamiaceae	(UPL)				forb	PE	DI	advent
0	<i>Salvia reflexa</i>	Hornem.	adventive	Lamiaceae	UPL				forb	AN	DI	advent
*	<i>Salvia sp.</i>	ND	ND	Lamiaceae	UPL				forb	ND	DI	ND
0	<i>Salvia splendens</i>	Sellow ex Roem. & Schult.	adventive	Lamiaceae	(UPL)				forb	PE	DI	advent
0	<i>Salvia x superba</i>	Stapf	adventive	Lamiaceae	(UPL)				forb	PE	DI	advent
3	<i>Sambucus canadensis</i>	L.	native	Caprifoliaceae	FACW-	FAC	FACW	FACW	shrub	W	DI	full
7	<i>Sambucus pubens</i>	(Michx.) House	native	Caprifoliaceae	FACU	FACU	FACU	FACU	shrub	W	DI	full
*	<i>Sambucus sp.</i>	ND	ND	Caprifoliaceae	ND				shrub	W	DI	full
4	<i>Samolus floribundus</i>	Kunth	native	Primulaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
5	<i>Sanguinaria canadensis</i>	L.	native	Papaveraceae	UPL	UPL	FACU	FACU	forb	PE	DI	shade
8	<i>Sanguisorba canadensis</i>	L.	native	Rosaceae	FACW+	FACW	FACW	FACW	forb	PE	DI	full
3	<i>Sanicula canadensis</i>	L.	native	Apiaceae	UPL	UPL	FACU	FACU	forb	PE	DI	shade
3	<i>Sanicula gregaria</i>	E.P. Bicknell	native	Apiaceae	FACU	FACU	FAC	FAC	forb	PE	DI	shade
3	<i>Sanicula marilandica</i>	L.	native	Apiaceae	UPL	FACU	FACU	FACU	forb	PE	DI	shade
3	<i>Sanicula sp.</i>	ND	ND	Apiaceae	ND				forb	PE	DI	shade
3	<i>Sanicula trifoliata</i>	E.P. Bicknell	native	Apiaceae	(UPL)				forb	PE	DI	shade
0	<i>Saponaria officinalis</i>	L.	adventive	Caryophyllaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	advent
9	<i>Sarracenia purpurea</i>	L.	native	Sarraceniaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
3	<i>Sassafras albidum</i>	(Nutt.) Nees	native	Lauraceae	FACU-	FACU	FACU	FACU	tree	W	DI	tree
0	<i>Satureja hortensis</i>	L.	adventive	Lamiaceae	(UPL)				forb	PE	DI	advent
8	<i>Saururus cernuus</i>	L.	native	Saururaceae	OBL	OBL	OBL	OBL	forb	PE	MO	shade
7	<i>Saxifraga pensylvanica</i>	L.	native	Saxifragaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
*	<i>Saxifraga sp.</i>	ND	ND	Saxifragaceae	ND				forb	PE	DI	partial
5	<i>Saxifraga virginensis</i>	Michx.	native	Saxifragaceae	FAC-	FAC	FACU	FACU	forb	PE	DI	shade
0	<i>Scabiosa columbaria</i>	L.	adventive	Dipsacaceae	(UPL)				forb	PE	DI	advent
0	<i>Scandix pecten-veneris</i>	L.	adventive	Apiaceae	(UPL)				forb	AN	DI	advent
10	<i>Scheuchzeria palustris</i>	L.	native	Scheuchzeriaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
10	<i>Schizachne purpurascens</i>	(Torr.) Swallen	native	Poaceae	FACU-	FACU	FACU	FACU	grass	PE	MO	shade

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10	Schizachyrium littorale	(Nash) E.P. Bicknell	native	Poaceae	(UPL)	FACW	FACW	FACW	grass	PE	MO	full
5	Schizachyrium scoparium	(Michx.) Nash	native	Poaceae	FACU-	FACU	FACU	FACU	grass	PE	MO	full
*	Schizachyrium sp.	ND	ND	Poaceae	ND				grass	PE	MO	full
7	Schoenoplectus acutus	(Muhl. ex Bigelow) A. Love & D. Love	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
9	Schoenoplectus americanus	(Pers.) Volk. ex Schinz & R. Keller	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
0	Schoenoplectus mucronatus	(L.) Palla	adventive	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	advent
5	Schoenoplectus pungens	(Vahl) Palla	native	Cyperaceae	FACW+	OBL	OBL	OBL	sedge	PE	MO	full
6	Schoenoplectus purshianus	(Fernald) M.T. Strong	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	AN	MO	full
7	Schoenoplectus saximontanus	(Fernald) J. Raynal	native	Cyperaceae	OBL	OBL	OBL		sedge	AN	MO	full
9	Schoenoplectus smithii	(A. Gray) Sojak	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	AN	MO	full
*	Schoenoplectus sp.	ND	ND	Cyperaceae	ND				sedge	ND	MO	full
10	Schoenoplectus subterminalis	(Torr.) Sojak	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
2	Schoenoplectus tabernaemontani	(C.C. Gmel.) Palla	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
10	Schoenoplectus torreyi	(Olney) Palla	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
0	Scilla non-scripta	(L.) Hoffmanns. & Link	adventive	Liliaceae	(UPL)				forb	PE	MO	advent
1	Scirpus atrovirens	Willd.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
1	Scirpus cyperinus	(L.) Kunth.	native	Cyperaceae	FACW+	FACW	OBL	OBL	sedge	PE	MO	full
9	Scirpus expansus	Fernald	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	partial
2	Scirpus georgianus	R.M. Harper	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
1	Scirpus hattorianus	Makino	native	Cyperaceae	(OBL)	OBL	OBL	OBL	sedge	PE	MO	full
3	Scirpus pedicellatus	Fernald	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
2	Scirpus pendulus	Muhl.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
6	Scirpus polyphyllus	Vahl	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	PE	MO	full
*	Scirpus sp.	ND	ND	Cyperaceae	ND				sedge	PE	MO	ND
0	Scleranthus annuus	L.	adventive	Caryophyllaceae	FACU-	FACU	FACU	FACU	forb	AN	DI	advent
9	Scleria oligantha	Michx.	native	Cyperaceae	FACU+	FACU	FACU		sedge	PE	MO	full
9	Scleria pauciflora	Muhl. ex Willd.	native	Cyperaceae	FACU+	FACU	FACU	FACU	sedge	PE	MO	full
*	Scleria sp.	ND	ND	Cyperaceae	ND				sedge	PE	MO	full
7	Scleria triglomerata	Michx.	native	Cyperaceae	FAC	FAC	FAC	FAC	sedge	PE	MO	full
9	Scleria verticillata	Muhl. ex Willd.	native	Cyperaceae	OBL	OBL	OBL	OBL	sedge	AN	MO	full
4	Scrophularia lanceolata	Pursh	native	Scrophulariaceae	FACU+	FACU	FACU	FACU	forb	PE	DI	partial
4	Scrophularia marilandica	L.	native	Scrophulariaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	shade
*	Scrophularia sp.	ND	ND	Scrophulariaceae	ND				forb	PE	DI	partial
5	Scutellaria elliptica	Muhl. ex Spreng	native	Lamiaceae	(UPL)				forb	PE	DI	partial
6	Scutellaria galericulata	L.	native	Lamiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
4	Scutellaria incana	Biehler	native	Lamiaceae	(UPL)				forb	PE	DI	shade
6	Scutellaria integrifolia	L.	native	Lamiaceae	FACW	FACW	FACW	FACW	forb	PE	DI	partial
3	Scutellaria lateriflora	L.	native	Lamiaceae	FACW+	FACW	OBL	OBL	forb	PE	DI	partial
6	Scutellaria nervosa	Pursh	native	Lamiaceae	FAC	FAC	FAC	FAC	forb	PE	DI	shade
5	Scutellaria ovata	Hill	native	Lamiaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
6	Scutellaria parvula	Michx.	native	Lamiaceae	UPL	UPL	FACU	FACU	forb	PE	DI	full
8	Scutellaria saxatilis	Riddell	native	Lamiaceae	(UPL)				forb	PE	DI	partial
7	Scutellaria serrata	Andrews	native	Lamiaceae	(UPL)				forb	PE	DI	shade
*	Scutellaria sp.	ND	ND	Lamiaceae	ND				forb	PE	DI	ND

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Secale cereale</i>	L.	adventive	Poaceae	(UPL)				grass	AN	MO	advent
0	<i>Sedum acre</i>	L.	adventive	Crassulaceae	(UPL)				forb	PE	DI	advent
0	<i>Sedum album</i>	L.	adventive	Crassulaceae	(UPL)				forb	PE	DI	advent
0	<i>Sedum purpureum</i>	(L.) J.A. Schultes	adventive	Crassulaceae	(UPL)				forb	PE	DI	advent
0	<i>Sedum sarmentosum</i>	Bunge	adventive	Crassulaceae	(UPL)				forb	PE	DI	advent
0	<i>Sedum sexangulare</i>	L.	adventive	Crassulaceae	(UPL)				forb	PE	DI	advent
*	<i>Sedum sp.</i>	ND	ND	Crassulaceae	UPL				forb	PE	DI	ND
0	<i>Sedum telephioides</i>	Michx.	adventive	Crassulaceae	(UPL)				forb	PE	DI	advent
5	<i>Sedum ternatum</i>	Michx.	native	Crassulaceae	(UPL)	FACU			forb	PE	DI	full
7	<i>Selaginella apoda</i>	(L.) Spring	native	Selaginellaceae	FACW	FACW	FACW	FACW	fern	PE	SVP	partial
9	<i>Selaginella eclipses</i>	W.R. Buck	native	Selaginellaceae	(FACW+)			FACW	fern	PE	SVP	partial
10	<i>Selaginella rupestris</i>	(L.) Spring	native	Selaginellaceae	(UPL)				fern	PE	SVP	full
*	<i>Selaginella sp.</i>	ND	ND	Selaginellaceae	ND				fern	PE	SVP	partial
2	<i>Senecio anonymous</i>	A.W. Wood	native	Asteraceae	(UPL)	UPL	UPL	UPL	forb	PE	DI	full
4	<i>Senecio aureus</i>	L.	native	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	shade
0	<i>Senecio glabellus</i>	Poir.	adventive	Asteraceae	OBL	OBL	FACW	FACW	forb	AN	DI	advent
4	<i>Senecio obovatus</i>	Muhl. ex Willd.	native	Asteraceae	FACU-	FACU	FACU	FACU	forb	PE	DI	shade
9	<i>Senecio pauperculus</i>	Michx.	native	Asteraceae	FAC	FAC	FAC	FAC	forb	PE	DI	full
5	<i>Senecio plattensis</i>	Nutt.	native	Asteraceae	UPL	FACU	FACU	FACU	forb	B	DI	full
*	<i>Senecio sp.</i>	ND	ND	Asteraceae	ND				forb	ND	DI	ND
0	<i>Senecio sylvaticus</i>	L.	adventive	Asteraceae	(UPL)	UPL		UPL	forb	AN	DI	advent
0	<i>Senecio vulgaris</i>	L.	adventive	Asteraceae	FACU	FACU	UPL	FACU	forb	AN	DI	advent
4	<i>Senna hebecarpa</i>	(Fernald) Irwin & Barneby	native	Fabaceae	FAC	FAC	FACW	FACW	forb	PE	DI	full
4	<i>Senna marilandica</i>	(L.) Link	native	Fabaceae	FAC+	FAC	FACW	FACW	forb	PE	DI	full
4	<i>Senna sp.</i>	ND	ND	Fabaceae	ND				forb	PE	DI	full
4	<i>Sericocarpus asteroides</i>	(Cronquist) BSP	native	Asteraceae	(UPL)				forb	PE	DI	shade
8	<i>Sericocarpus linifolius</i>	(L.) BSP	native	Asteraceae	(UPL)				forb	PE	DI	partial
*	<i>Sericocarpus sp.</i>	Greene	ND	Asteraceae	ND				forb	PE	DI	ND
0	<i>Setaria faberi</i>	R.A.W. Herrm.	adventive	Poaceae	UPL	UPL	FACU	FACU	grass	AN	MO	advent
0	<i>Setaria geniculata</i>	(Lam.) P. Beauv.	adventive	Poaceae	FAC	FAC	FAC	FAC	grass	PE	MO	advent
0	<i>Setaria glauca</i>	(L.) P. Beauv.	adventive	Poaceae	FAC				grass	AN	MO	advent
0	<i>Setaria italica</i>	(L.) P. Beauv.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	AN	MO	advent
4	<i>Setaria parviflora</i>	(Poir.) Kerguelen	native	Poaceae	FAC	FAC	FAC	FAC	grass	PE	MO	full
*	<i>Setaria sp.</i>	ND	ND	Poaceae	ND				grass	ND	MO	ND
0	<i>Setaria verticillata</i>	(L.) P. Beauv.	adventive	Poaceae	FAC	FAC	FAC	FACU	grass	AN	MO	advent
0	<i>Setaria viridis</i>	(L.) P. Beauv.	adventive	Poaceae	(UPL)				grass	AN	MO	advent
9	<i>Shepherdia canadensis</i>	(L.) Nutt.	native	Elaeagnaceae	UPL	UPL	UPL	UPL	forb	PE	DI	full
0	<i>Sherardia arvensis</i>	L.	adventive	Rubiaceae	(UPL)				forb	AN	DI	advent
0	<i>Sibara virginica</i>	(L.) Rollins	adventive	Brassicaceae	UPL	UPL	FACU	FACU	forb	AN	DI	advent
3	<i>Sicyos angulatus</i>	L.	native	Cucurbitaceae	FACU	FACU	FACW	FACW	vine	AN	DI	partial
6	<i>Sida hermaphrodita</i>	(L.) Rusby	native	Malvaceae	FAC	FAC	FACU	FACU	forb	PE	DI	full
*	<i>Sida sp.</i>	ND	ND	Malvaceae	ND				forb	ND	DI	ND
0	<i>Sida spinosa</i>	L.	adventive	Malvaceae	UPL	UPL	FACU	FACU	forb	AN	DI	advent
1	<i>Silene antirrhina</i>	L.	native	Caryophyllaceae	(UPL)				forb	AN	DI	full
0	<i>Silene armeria</i>	L.	adventive	Caryophyllaceae	(UPL)				forb	AN	DI	advent

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
8	<i>Silene caroliniana</i> Walter subsp. pennsylvanica	(Michx.) Fernald	native	Caryophyllaceae	(UPL)				forb	PE	DI	full
9	<i>Silene caroliniana</i> Walter subsp. wherryi	(Small) Fernald	native	Caryophyllaceae	(UPL)				forb	PE	DI	full
0	<i>Silene conica</i>	L.	adventive	Caryophyllaceae	(UPL)				forb	AN	DI	advent
0	<i>Silene csereii</i>	Baumg.	adventive	Caryophyllaceae	(UPL)				forb	BI	DI	advent
0	<i>Silene dichotoma</i>	Ehrh.	adventive	Caryophyllaceae	(UPL)				forb	AN	DI	advent
0	<i>Silene dioica</i>	(L.) Clairv.	adventive	Caryophyllaceae	(UPL)				forb	PE	DI	advent
0	<i>Silene latifolia</i>	Poir.	adventive	Caryophyllaceae	(UPL)				forb	BI	DI	advent
8	<i>Silene nivea</i>	(Nutt.) Muhl. ex Otth.	native	Caryophyllaceae	FAC	FAC	FACW	FACW	forb	PE	DI	shade
0	<i>Silene noctiflora</i>	L.	adventive	Caryophyllaceae	(UPL)				forb	AN	DI	advent
8	<i>Silene regia</i>	Sims	native	Caryophyllaceae	(UPL)				forb	PE	DI	full
10	<i>Silene rotundifolia</i>	Nutt.	native	Caryophyllaceae	(UPL)				forb	PE	DI	full
*	<i>Silene</i> sp.	ND	ND	Caryophyllaceae	ND				forb	ND	DI	ND
6	<i>Silene stellata</i>	(L.) W.T. Aiton	native	Caryophyllaceae	(UPL)				forb	PE	DI	shade
5	<i>Silene virginica</i>	L.	native	Caryophyllaceae	(UPL)				forb	PE	DI	full
0	<i>Silene vulgaris</i>	(Moench) Garcke	adventive	Caryophyllaceae	(UPL)				forb	PE	DI	advent
8	<i>Silphium laciniatum</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	full
6	<i>Silphium perfoliatum</i>	L.	native	Asteraceae	FACU	FAC	FACW	FACW	forb	PE	DI	full
*	<i>Silphium</i> sp.	ND	ND	Asteraceae	ND				forb	PE	DI	full
8	<i>Silphium terebinthinaceum</i>	Jacq.	native	Asteraceae	UPL	FACU	FAC	FAC	forb	PE	DI	full
5	<i>Silphium trifoliatum</i>	L.	native	Asteraceae	(FAC)				forb	PE	DI	full
0	<i>Silybum marianum</i>	(L.) Gaertn.	adventive	Asteraceae	(UPL)				forb	BI	DI	advent
0	<i>Sinapsis alba</i>	L.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	<i>Sinapsis arvensis</i>	L.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
*	<i>Sinapsis</i> sp.	ND	ND	Brassicaceae	UPL				forb	AN	DI	advent
0	<i>Sisymbrium altissimum</i>	L.	adventive	Brassicaceae	FACU-	FACU	FACU	FACU	forb	AN	DI	advent
0	<i>Sisymbrium loeselii</i>	L.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
0	<i>Sisymbrium officinale</i>	(L.) Scop.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
*	<i>Sisymbrium</i> sp.	ND	ND	Brassicaceae	ND				forb	AN	DI	advent
6	<i>Sisyrinchium albidum</i>	Raf.	native	Iridaceae	FAC	FAC	FACU	FACU	forb	PE	MO	full
2	<i>Sisyrinchium angustifolium</i>	Mill.	native	Iridaceae	FACW-	FACW	FAC	FAC	forb	PE	MO	full
10	<i>Sisyrinchium atlanticum</i>	E.P. Bicknell	native	Iridaceae	FACW	FACW	FACW	FACW	forb	PE	MO	full
7	<i>Sisyrinchium montanum</i>	Greene	native	Iridaceae	FAC	FAC	FAC	FAC	forb	PE	MO	full
8	<i>Sisyrinchium mucronatum</i>	Michx.	native	Iridaceae	FAC+	FAC	FACW	FAC	forb	PE	MO	full
*	<i>Sisyrinchium</i> sp.	ND	ND	Iridaceae	ND				forb	PE	MO	full
6	<i>Sium suave</i>	Walter	native	Apiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
5	<i>Smilax ecirrhata</i>	(Engelm.) S. Watson	native	Smilacaceae	(UPL)				forb	PE	MO	shade
5	<i>Smilax glauca</i>	Walter	native	Smilacaceae	FACU	FACU	FACU	FACU	vine	W	MO	shade
4	<i>Smilax herbacea</i>	L.	native	Smilacaceae	FAC	FAC	FAC	FAC	forb	PE	MO	partial
3	<i>Smilax hispida</i>	Muhl.	native	Smilacaceae	(FAC)	FAC	FAC	FAC	vine	W	MO	shade
6	<i>Smilax illinoensis</i>	Mangalay	native	Smilacaceae	(UPL)				vine	W	MO	shade
6	<i>Smilax lasioneura</i>	Hook.	native	Smilacaceae	(FAC)	FAC			forb	PE	MO	shade
6	<i>Smilax pulverulenta</i>	Michx.	native	Smilacaceae	FACU	FACU	FACU	FACU	forb	PE	MO	shade
4	<i>Smilax rotundifolia</i>	L.	native	Smilacaceae	FAC	FAC	FAC	FAC	vine	W	MO	shade
*	<i>Smilax</i> sp.	ND	ND	Smilacaceae	ND				ND	ND	MO	partial

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Solanum carolinense</i>	L.	adventive	Solanaceae	UPL	FACU	FACU	FACU	forb	PE	DI	advent
0	<i>Solanum dulcamara</i>	L.	adventive	Solanaceae	FAC-	FAC	FAC	FAC	vine	PE	DI	advent
0	<i>Solanum lycopersicum</i>	L.	adventive	Solanaceae	(FAC)				forb	AN	DI	advent
1	<i>Solanum nigrum</i>	L.	native	Solanaceae	FACU-	FACU			forb	AN	DI	partial
0	<i>Solanum physalifolium</i>	Rusby	adventive	Solanaceae	(FAC)				forb	AN	DI	advent
0	<i>Solanum rostratum</i>	Dunal	adventive	Solanaceae	(UPL)				forb	AN	DI	advent
*	<i>Solanum</i> sp.	ND	ND	Solanaceae	ND				ND	ND	DI	ND
0	<i>Solanum triflorum</i>	Nutt.	adventive	Solanaceae	(UPL)				forb	PE	DI	advent
0	<i>Solanum tuberosum</i>	L.	adventive	Solanaceae	(FACU-)				forb	PE	DI	advent
6	<i>Solidago arguta</i>	Aiton	native	Asteraceae	(UPL)	UPL	UPL	FACU	forb	PE	DI	partial
5	<i>Solidago bicolor</i>	L.	native	Asteraceae	(UPL)				forb	PE	DI	shade
5	<i>Solidago caesia</i>	L.	native	Asteraceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
1	<i>Solidago canadensis</i>	L.	native	Asteraceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
6	<i>Solidago erecta</i>	Pursh	native	Asteraceae	(UPL)				forb	PE	DI	shade
5	<i>Solidago flexicaulis</i>	L.	native	Asteraceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
3	<i>Solidago gigantea</i>	Aiton	native	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
4	<i>Solidago hispida</i>	Muhl. ex Willd.	native	Asteraceae	(UPL)				forb	PE	DI	full
2	<i>Solidago juncea</i>	Aiton	native	Asteraceae	(UPL)				forb	PE	DI	partial
2	<i>Solidago nemoralis</i>	Aiton	native	Asteraceae	(UPL)				forb	PE	DI	full
8	<i>Solidago odora</i>	Aiton	native	Asteraceae	(UPL)				forb	PE	DI	shade
9	<i>Solidago ohioensis</i>	Riddell	native	Asteraceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
8	<i>Solidago patula</i>	Muhl. ex Willd.	native	Asteraceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
10	<i>Solidago ptarmicoides</i>	(Nees) B. Boivin	native	Asteraceae	(UPL)				forb	PE	DI	full
5	<i>Solidago puberula</i>	Nutt.	native	Asteraceae	FACU-	FACU		FACU	forb	PE	DI	full
8	<i>Solidago riddellii</i>	Frank ex Riddell	native	Asteraceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
8	<i>Solidago rigida</i>	L.	native	Asteraceae	UPL				forb	PE	DI	full
2	<i>Solidago rugosa</i>	Mill.	native	Asteraceae	FAC	FAC	FAC	FAC	forb	PE	DI	full
0	<i>Solidago sempervirens</i>	L.	adventive	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	advent
*	<i>Solidago</i> sp.	ND	ND	Asteraceae	ND				forb	PE	DI	ND
8	<i>Solidago speciosa</i> Nutt. var. <i>rigidiuscula</i>	T. & G.	native	Asteraceae	(UPL)				forb	PE	DI	full
5	<i>Solidago speciosa</i> var. <i>speciosa</i>	Nutt.	native	Asteraceae	(UPL)				forb	PE	DI	full
7	<i>Solidago sphacelata</i>	Raf.	native	Asteraceae	(UPL)				forb	PE	DI	shade
7	<i>Solidago squarrosa</i>	Muhl.	native	Asteraceae	(UPL)				forb	PE	DI	shade
9	<i>Solidago uliginosa</i>	Nutt.	native	Asteraceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
5	<i>Solidago ulmifolia</i>	Muhl. ex Willd.	native	Asteraceae	(UPL)				forb	PE	DI	shade
0	<i>Sonchus arvensis</i>	L.	adventive	Asteraceae	UPL	FACU	FACU	FACU	forb	PE	DI	advent
0	<i>Sonchus asper</i>	(L.) Hill	adventive	Asteraceae	FAC	FAC	FACU	FACU	forb	AN	DI	advent
0	<i>Sonchus oleraceus</i>	L.	adventive	Asteraceae	UPL	UPL	FACU	FACU	forb	AN	DI	advent
*	<i>Sonchus</i> sp.	ND	ND	Asteraceae	ND				forb	ND	DI	advent
0	<i>Sorbaria sorbifolia</i>	(L.) A. Br.	adventive	Rosaceae	(UPL)				shrub	W	DI	advent
0	<i>Sorbus aucuparia</i>	L.	adventive	Rosaceae	(UPL)				sm tree	W	DI	advent
4	<i>Sorbus decora</i>	(Sarg.) C.K. Schneid.	native	Rosaceae	FAC		UPL	FACU	sm tree	W	DI	shade
*	<i>Sorbus</i> sp.	ND	ND	Rosaceae	ND				sm tree	W	DI	ND
5	<i>Sorghastrum nutans</i>	(L.) Nash	native	Poaceae	UPL	FACU	FACU	FACU	grass	PE	MO	full
0	<i>Sorghum bicolor</i>	(L.) Moench	adventive	Poaceae	UPL	UPL	UPL	UPL	grass	AN	MO	advent

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
0	<i>Sorghum halepense</i>	(L.) Pers.	adventive	Poaceae	FACU	FACU	FACU	FACU	grass	AN	MO	advent
*	<i>Sorghum</i> sp.	ND	ND	Poaceae	ND				grass	ND	MO	advent
6	<i>Sparganium americanum</i>	Nutt.	native	Sparganiaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
7	<i>Sparganium androcladum</i>	(Engelm.) Morong	native	Sparganiaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
8	<i>Sparganium emersum</i>	Rehmann	native	Sparganiaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
4	<i>Sparganium eurycarpum</i>	Engelm. ex A. Gray	native	Sparganiaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
*	<i>Sparganium</i> sp.	ND	ND	Sparganiaceae	OBL				forb	PE	MO	full
5	<i>Spartina pectinata</i>	Link	native	Poaceae	OBL	OBL	FACW	FACW	grass	PE	MO	full
5	<i>Spenopholis pensylvanica</i>	(L.) Hitchc.	native	Poaceae	OBL				grass	PE	MO	full
0	<i>Spergula arvensis</i>	L.	adventive	Caryophyllaceae	(UPL)				forb	AN	DI	advent
0	<i>Spergularia marina</i>	(L.) Griseb.	adventive	Caryophyllaceae	OBL				forb	AN	DI	advent
0	<i>Spergularia media</i>	(L.) C. Presl. ex Griseb.	adventive	Caryophyllaceae	FACW	FACW	FACU	FACU	forb	PE	DI	advent
0	<i>Spergularia rubra</i>	(L.) J. Presl. & C. Presl.	adventive	Caryophyllaceae	FACU	FACU	FACU	FACU	forb	AN	DI	advent
*	<i>Spergularia</i> sp.	ND	ND	Caryophyllaceae	ND				forb	ND	DI	advent
8	<i>Spermacoce glabra</i>	Michx.	native	Rubiaceae	FACW	FACW	FACW		forb	PE	DI	shade
*	<i>Sphagnum</i> sp.	ND	ND	Musci	ND				bryo	BR	BR	bryo
7	<i>Sphenopholis nitida</i>	(Biehler) Scribn.	native	Poaceae	(UPL)		FAC		grass	PE	MO	shade
4	<i>Sphenopholis obtusata</i> var. <i>major</i>	(Torr.) Erdman	native	Poaceae	(FAC)		FAC	FAC	grass	PE	MO	full
8	<i>Sphenopholis obtusata</i> var. <i>obtusata</i>	(Michx.) Scribn.	native	Poaceae	FAC-	FAC	FAC	FAC	grass	PE	MO	full
*	<i>Sphenopholis</i> sp.	ND	ND	Poaceae	ND				grass	PE	MO	ND
3	<i>Spiraea alba</i>	Du Roi	native	Rosaceae	FACW+	FACW	FACW	FACW	shrub	W	DI	full
0	<i>Spiraea japonica</i>	L.f.	adventive	Rosaceae	FACU-	FACU	UPL	UPL	shrub	W	DI	advent
0	<i>Spiraea prunifolia</i>	Siebold & Zucc.	adventive	Rosaceae	(UPL)				shrub	W	DI	advent
*	<i>Spiraea</i> sp.	ND	ND	Rosaceae	ND				shrub	W	DI	ND
4	<i>Spiraea tomentosa</i>	L.	native	Rosaceae	FACW	FACW	FACW	FACW	shrub	W	DI	full
10	<i>Spiraea virginiana</i>	Britton	native	Rosaceae	FACU	FACU			shrub	W	DI	shade
4	<i>Spiranthes cernua</i> var. <i>cernua</i>	(L.) Rich.	native	Orchidaceae	FACW	FACW	FACW	FACW	forb	PE	MO	full
5	<i>Spiranthes cernua</i> var. <i>ochroleuca</i>	(Rydb.) Ames	native	Orchidaceae	(FACU)	FACW	FACW	FACW	forb	PE	MO	full
4	<i>Spiranthes lacera</i>	(Raf.) Raf.	native	Orchidaceae	FACU-	FACU	FAC	FAC	forb	PE	MO	full
7	<i>Spiranthes lucida</i>	(H. H. Eaton) Ames	native	Orchidaceae	FACW	FACW	FACW	FACW	forb	PE	MO	full
8	<i>Spiranthes magnicamporum</i>	Sheviak	native	Orchidaceae	FACU-	FACU	FAC	FACU	forb	PE	MO	full
6	<i>Spiranthes ovalis</i>	Lindl.	native	Orchidaceae	FAC	FAC	FAC	FAC	forb	PE	MO	full
10	<i>Spiranthes romanzoffiana</i>	Cham.	native	Orchidaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
*	<i>Spiranthes</i> sp.	ND	ND	Orchidaceae	ND				forb	PE	MO	full
6	<i>Spiranthes tuberosa</i>	Raf.	native	Orchidaceae	FACU-	FACU	UPL	UPL	forb	PE	MO	full
7	<i>Spiranthes vernalis</i>	Engelm. & A. Gray	native	Orchidaceae	FAC	FAC	FAC	FAC	forb	PE	MO	full
5	<i>Spirodela polyrhiza</i>	(L.) Schleid.	native	Lemnaceae	OBL	OBL	OBL	OBL	forb	AN	MO	full
2	<i>Sporobolus asper</i>	(P. Beauv.) Kunth	native	Poaceae	(UPL)				grass	PE	MO	full
6	<i>Sporobolus cryptandrus</i>	(Torr.) A. Gray	native	Poaceae	(UPL)	UPL	FACU	FACU	grass	PE	MO	full
8	<i>Sporobolus heterolepis</i>	(A. Gray) A. Gray	native	Poaceae	(UPL)	UPL	FACU	FACU	grass	PE	MO	full
2	<i>Sporobolus neglectus</i>	Nash	native	Poaceae	FACU-	FACU	UPL	FACU	grass	AN	MO	full
5	<i>Sporobolus ozarkanus</i>	Fernald	native	Poaceae	(UPL)	FACU	UPL	FACU	grass	AN	MO	full
*	<i>Sporobolus</i> sp.	ND	ND	Poaceae	ND				grass	ND	MO	full
2	<i>Sporobolus vaginiflorus</i>	(Torr.) A.W. Wood	native	Poaceae	UPL				grass	AN	MO	full
2	<i>Stachys aspera</i>	Michx.	native	Lamiaceae	FACW	FACW	FACW	FACW	forb	PE	DI	full

Appendix C
Species Codes for VIBI Metric Calculation

CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
4	<i>Stachys cordata</i>	Riddell	native	Lamiaceae	FAC	FAC	FAC	FAC	forb	PE	DI	full
0	<i>Stachys germanica</i>	L.	adventive	Lamiaceae	(FAC-)				forb	PE	DI	advent
6	<i>Stachys palustris</i>	L.	native	Lamiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
*	<i>Stachys</i> sp.	ND	ND	Lamiaceae	ND				forb	PE	DI	full
4	<i>Stachys tenuifolia</i>	Willd.	native	Lamiaceae	FACW+	FACW	OBL	FACW	forb	PE	DI	full
*	Standing dead	ND	adventive	ND	ND				tree	ND	ND	tree
6	<i>Staphylea trifolia</i>	L.	native	Staphyleaceae	FAC	FAC	FAC	FAC	shrub	W	DI	shade
0	<i>Stellaria alsine</i>	Grimm	adventive	Caryophyllaceae	OBL	OBL	OBL	OBL	forb	AN	DI	advent
0	<i>Stellaria aquatica</i>	(L.) Scop.	adventive	Caryophyllaceae	FACW	FACW	FACW	FAC	forb	PE	DI	full
0	<i>Stellaria graminea</i>	L.	adventive	Caryophyllaceae	FACU-	FACU	UPL	UPL	forb	PE	DI	full
0	<i>Stellaria holostea</i>	L.	adventive	Caryophyllaceae	(FAC)				forb	PE	DI	advent
4	<i>Stellaria longifolia</i>	Muhl. ex Willd.	native	Caryophyllaceae	FACW	FACW	FACW	FACW	forb	PE	DI	shade
0	<i>Stellaria media</i>	(L.) Vill.	adventive	Caryophyllaceae	UPL	UPL	FACU	FACU	forb	AN	DI	full
0	<i>Stellaria pallida</i>	(Dumort) Pire	adventive	Caryophyllaceae	(UPL)	UPL	FACU	FACU	forb	AN	DI	full
5	<i>Stellaria pubera</i>	Michx.	native	Caryophyllaceae	(UPL)				forb	PE	DI	full
*	<i>Stellaria</i> sp.	ND	ND	Caryophyllaceae	ND				forb	ND	DI	ND
8	<i>Stenanthium gramineum</i>	(Ker Gawl.) Morong	native	Liliaceae	FACW	FACW	FAC	FAC	forb	PE	DI	shade
10	<i>Stipa spartea</i>	Trin.	native	Poaceae	(UPL)				grass	PE	MO	full
8	<i>Streptopus lanceolatus</i>	(Aiton) Reveal	native	Liliaceae	FAC-	FAC	FAC	FACU	forb	PE	DI	shade
3	<i>Strophostyles helvula</i>	(L.) Elliott	native	Fabaceae	FACU-	FACU	FAC	FAC	forb	AN	DI	partial
0	<i>Strophostyles leiosperma</i>	(T. & G.) Piper	adventive	Fabaceae	(FACU-)				forb	AN	DI	advent
*	<i>Strophostyles</i> sp.	ND	ND	Fabaceae	ND				forb	ND	DI	ND
0	<i>Strophostyles umbellata</i>	(Muhl. ex Willd.) Britton	adventive	Fabaceae	FACU	FACU	FACU	FACU	forb	PE	DI	advent
10	<i>Stuckenia filiformis</i>	(Pers.) Boerner	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
2	<i>Stuckenia pectinata</i>	(L.) Boerner	native	Potamogetonaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
*	<i>Stuckenia</i> sp.	ND	ND	Potamogetonaceae	OBL				forb	PE	MO	full
6	<i>Stylophorum diphyllum</i>	(Michx.) Nutt.	native	Papaveraceae	(UPL)				forb	PE	DI	shade
3	<i>Stylosanthes biflora</i>	(Michx.) B.S.P.	native	Fabaceae	(UPL)				forb	PE	DI	shade
9	<i>Styrax grandifolius</i>	Aiton	native	Styracaceae	FACU	FACU	UPL		forb	W	DI	shade
0	<i>Suaeda calceoliformis</i>	(Hook.) Moq.	adventive	Chenopodiaceae	OBL	FACW	FACW	FACW	forb	PE	DI	advent
9	<i>Sullivantia sullivantii</i>	(Torr. & A. Gray) Britton	native	Saxifragaceae	(UPL)				forb	PE	DI	shade
8	<i>Symphoricarpos albus</i> var. <i>albus</i>	(L.) S.F. Blake	native	Caprifoliaceae	FACU-	FACU	FACU	FACU	shrub	W	DI	partial
0	<i>Symphoricarpos albus</i> var. <i>laevigatus</i>	(Fernald) S.F. Blake	adventive	Caprifoliaceae	(UPL)	FACU	FACU	FACU	shrub	W	DI	advent
0	<i>Symphoricarpos occidentalis</i>	Hook.	adventive	Caprifoliaceae	(FACU)	UPL	UPL	FACU	shrub	W	DI	advent
3	<i>Symphoricarpos orbiculatus</i>	Moench	native	Caprifoliaceae	UPL	FACU	FACU	FACU	shrub	W	DI	partial
*	<i>Symphoricarpos</i> sp.	ND	ND	Caprifoliaceae	ND				shrub	W	DI	ND
7	<i>Symphyotrichom oblongifolium</i>	(Nutt.) G.L. Nesom	native	Asteraceae	(UPL)				forb	PE	DI	full
9	<i>Symphyotrichum boreale</i>	(Torr. & A. Gray) A. Love & D. Love	native		OBL	OBL	OBL	OBL	forb	PE	DI	full
0	<i>Symphyotrichum ciliatum</i>	(Ledeb.) G.L. Nesom	adventive	Asteraceae	(FAC)	FAC	FAC	FAC	forb	AN	DI	advent
4	<i>Symphyotrichum cordifolium</i>	(L.) G.L. Nesom	native	Asteraceae	(UPL)				forb	PE	DI	shade
6	<i>Symphyotrichum drummondii</i>	(Lindl.) G.L. Nesom	native	Asteraceae	(UPL)				forb	PE	DI	shade
9	<i>Symphyotrichum dumosum</i>	(L.) G.L. Nesom	native	Asteraceae	FAC	FAC	FAC	FAC	forb	PE	DI	full
2	<i>Symphyotrichum ericoides</i>	(L.) G.L. Nesom	native	Asteraceae	FACU	FACU	FACU	FACU	forb	PE	DI	full
7	<i>Symphyotrichum firmum</i>	(L.) G.L. Nesom	native	Asteraceae	(OBL)	OBL	OBL	OBL	forb	PE	DI	full

Appendix C
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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
7	<i>Symphyotrichum laeve</i>	(L.) A. Love & D. Love	native	Asteraceae	UPL	FACU	FACU	FACU	forb	PE	DI	full
3	<i>Symphyotrichum lanceolatum</i>	(Willd.) G.L. Nesom	native	Asteraceae	(FACW)	FACW	FAC	FACW	forb	PE	DI	full
2	<i>Symphyotrichum lateriflorum</i>	(L.) A. Love & D. Love	native	Asteraceae	FACW-	FACW	FACW	FAC	forb	PE	DI	shade
6	<i>Symphyotrichum lowrieianum</i>	(T.C. Porter) G.L. Nesom	native	Asteraceae	(UPL)				forb	PE	DI	shade
2	<i>Symphyotrichum novae-angliae</i>	(L.) G.L. Nesom	native	Asteraceae	FACW-	FACW	FACW	FACW	forb	PE	DI	full
7	<i>Symphyotrichum ontarione</i>	(Wiegand) G.L. Nesom	native	Asteraceae	FAC	FAC	FAC	FAC	forb	PE	DI	shade
7	<i>Symphyotrichum oolentangiense</i>	(Riddell) G.L. Nesom	native	Asteraceae	(UPL)				forb	PE	DI	full
6	<i>Symphyotrichum patens</i>	(Aiton) G.L. Nesom	native	Asteraceae	(UPL)				forb	PE	DI	partial
1	<i>Symphyotrichum pilosum</i>	(Willd.) G.L. Nesom	native	Asteraceae	UPL	FAC	FACU	FACU	forb	PE	DI	full
6	<i>Symphyotrichum praealtum</i>	(Poir.) G.L. Nesom	native	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
4	<i>Symphyotrichum prenanthoides</i>	(Muhl. ex Willd.) G.L. Nesom	native	Asteraceae	FAC	FAC	FAC	FAC	forb	PE		partial
7	<i>Symphyotrichum puniceum</i>	(L.) A. Love & D. Love	native	Asteraceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
2	<i>Symphyotrichum racemosum</i>	(Elliott) G.L. Nesom	native	Asteraceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
4	<i>Symphyotrichum shortii</i>	(Lindl.) G.L. Nesom	native	Asteraceae	(UPL)				forb	PE	DI	shade
*	<i>Symphyotrichum</i> sp.	Nees	ND	Asteraceae	ND				forb	PE	DI	ND
0	<i>Symphyotrichum subulatum</i>	(Michx.) G.L. Nesom	adventive	Asteraceae	OBL	OBL	OBL	FACW	forb	AN	DI	advent
3	<i>Symphyotrichum urophyllum</i>	(Lindl.) G.L. Nesom	native	Asteraceae	(UPL)				forb	PE	DI	shade
3	<i>Symphyotrichum undulatum</i>	(L.) G.L. Nesom	native	Asteraceae	(UPL)				forb	PE	DI	full
0	<i>Symphytum asperum</i>	Lepech.	adventive	Boraginaceae	(UPL)	UPL	UPL	UPL	forb	PE	DI	advent
0	<i>Symphytum officinale</i>	L.	adventive	Boraginaceae	(UPL)				forb	PE	DI	advent
*	<i>Symphytum</i> sp.	ND	ND	Boraginaceae	UPL				forb	PE	DI	advent
6	<i>Symplocarpus foetidus</i>	(L.) Salisb. ex Barton	native	Araceae	OBL	OBL	OBL	OBL	forb	PE	MO	shade
7	<i>Synandra hispidula</i>	(Michx.) Baill.	native	Lamiaceae	FAC-	FAC	FAC		forb	PE	DI	shade
0	<i>Syringa vulgaris</i>	L.	adventive	Oleaceae	(UPL)				forb	W	DI	advent
6	<i>Taenidia integerrima</i>	(L.) Drude	native	Apiaceae	(UPL)				forb	PE	DI	full
0	<i>Tamarix chinensis</i>	Lour.	adventive	Tamaricaceae	FACW	FACW	FACW	FAC	shrub	W	DI	advent
0	<i>Tanacetum vulgare</i>	L.	adventive	Asteraceae	(UPL)	UPL	UPL	FACU	forb	PE	DI	advent
0	<i>Taraxacum laevigatum</i>	(Willd.) DC.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Taraxacum officinale</i>	Weber ex F.H. Wigg.	adventive	Asteraceae	FACU-	FACU	FACU	FACU	forb	PE	DI	advent
*	<i>Taraxacum</i> sp.	ND	ND	Asteraceae	ND				forb	PE	DI	advent
0	<i>Taxodium distichum</i>	(L.) Rich	adventive	Taxodiaceae	OBL	OBL	OBL	OBL	tree	W	DI	advent
8	<i>Taxus canadensis</i>	Marshall	native	Taxaceae	FAC	FAC	FACU	FACU	shrub	W	GYMN	shade
6	<i>Tephrosia virginiana</i>	(L.) Pers.	native	Fabaceae	(UPL)				forb	PE	DI	full
3	<i>Teucrium canadense</i>	L.	native	Lamiaceae	FACW-	FACW	FACW	FACW	forb	PE	DI	full
4	<i>Thalictrum dasycarpum</i>	Fisch. & Ave-Lall.	native	Ranunculaceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
5	<i>Thalictrum dioicum</i>	L.	native	Ranunculaceae	FAC	FAC	FACU	FACU	forb	PE	DI	full
5	<i>Thalictrum pubescens</i>	Pursh	native	Ranunculaceae	FACW+	FACW	FAC	FACW	forb	PE	DI	full
7	<i>Thalictrum revolutum</i>	DC.	native	Ranunculaceae	UPL	UPL	FAC	FAC	forb	PE	DI	full
*	<i>Thalictrum</i> sp.	ND	ND	Ranunculaceae	ND				forb	PE	DI	full
4	<i>Thaspium barbinode</i>	(Michx.) Nutt.	native	Apiaceae	UPL	FACU	FACU	UPL	forb	PE	DI	full
4	<i>Thaspium</i> sp.	ND	ND	Apiaceae	ND				forb	PE	DI	full
4	<i>Thaspium trifoliatum</i>	(L.) A. Gray	native	Apiaceae	(FACU)				forb	PE	DI	full
7	<i>Thelypteris hexagonaptera</i>	(Michx.) Weath.	native	Thelypteridaceae	FAC				fern	PE	SVP	shade
4	<i>Thelypteris novaboracensis</i>	(L.) Nieuwl.	native	Thelypteridaceae	FAC				fern	PE	SVP	shade
6	<i>Thelypteris palustris</i>	Schott	native	Thelypteridaceae	FACW+	FACW	OBL	FACW	fern	PE	SVP	full

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9	<i>Thelypteris phegopteris</i>	(L.) Sloss	native	Thelypteridaceae	FACU				fern	PE	SVP	shade
*	<i>Thelypteris</i> sp.	ND	ND	Thelypteridaceae	ND				fern	PE	SVP	shade
0	<i>Thlaspi alliaceum</i>	L.	adventive	Brassicaceae	(FACW-)				forb	AN	DI	advent
0	<i>Thlaspi arvense</i>	L.	adventive	Brassicaceae	UPL	UPL	FACU	UPL	forb	AN	DI	advent
0	<i>Thlaspi perfoliatum</i>	L.	adventive	Brassicaceae	(UPL)				forb	AN	DI	advent
*	<i>Thlaspi</i> sp.	ND	ND	Brassicaceae	UPL				forb	AN	DI	advent
9	<i>Thuja occidentalis</i>	L.	native	Cupressaceae	FACW	FACW	FACW	FACW	tree	W	GYMN	tree
0	<i>Thymelaea passerina</i>	(L.) Coss. & Germ.	adventive	Thymelaeaceae	(FACU)				forb	AN	DI	advent
0	<i>Thymus serpyllum</i>	L.	adventive	Lamiaceae	(FACU)				forb	PE	DI	advent
6	<i>Tiarella cordifolia</i>	L.	native	Saxifragaceae	FAC-	FAC	FACU	FACU	forb	PE	DI	shade
6	<i>Tilia americana</i>	L.	native	Tiliaceae	FACU	FACU	FACU	FACU	tree	W	DI	tree
6	<i>Tilia heterophylla</i>	Vent.	native	Tiliaceae	(FACU)				tree	W	DI	tree
6	<i>Tilia</i> sp.	ND	ND	Tiliaceae	FACU				tree	W	DI	tree
6	<i>Tipularia discolor</i>	(Pursh) Nutt.	native	Orchidaceae	FACU	FACU	FACU	FACU	forb	PE	MO	shade
0	<i>Torilis arvensis</i>	(Huds.) Link	adventive	Apiaceae	(UPL)				forb	AN	DI	advent
0	<i>Torilis japonica</i>	(Houtt.) DC.	adventive	Apiaceae	(UPL)				forb	AN	DI	advent
*	<i>Torilis</i> sp.	ND	ND	Apiaceae	UPL				forb	AN	DI	advent
1	<i>Toxicodendron radicans</i>	(L.) Kuntze	native	Anacardiaceae	FAC	FAC	FAC	FAC	vine	W	DI	partial
3	<i>Toxicodendron rydbergii</i>	(Small ex Rydb.) Greene	native	Anacardiaceae	FAC-	FAC	FAC	FAC	vine	W	DI	partial
7	<i>Toxicodendron vernix</i>	(L.) Kuntze	native	Anacardiaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
0	<i>Tradescantia bracteata</i>	Small	adventive	Commelinaceae	UPL	UPL	FACU	FACU	forb	PE	DI	advent
5	<i>Tradescantia ohiensis</i>	Raf.	native	Commelinaceae	FAC	FAC	FACU	FACU	forb	PE	DI	full
5	<i>Tradescantia</i> sp.	ND	ND	Commelinaceae	ND				forb	PE	DI	ND
5	<i>Tradescantia subaspera</i>	Ker Gawl.	native	Commelinaceae	(FACU)				forb	PE	DI	shade
5	<i>Tradescantia virginiana</i>	L.	native	Commelinaceae	FACU	FACU	UPL	UPL	forb	PE	DI	shade
0	<i>Tragopogon dubius</i>	Scop.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Tragopogon porrifolius</i>	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
0	<i>Tragopogon pratensis</i>	L.	adventive	Asteraceae	(UPL)				forb	PE	DI	advent
*	<i>Tragopogon</i> sp.	ND	ND	Asteraceae	UPL				forb	PE	DI	advent
6	<i>Triadenum fraseri</i>	(Spach) Gleason	native	Clusiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
*	<i>Triadenum</i> sp.	ND	ND	Clusiaceae	OBL				forb	PE	DI	ND
8	<i>Triadenum tubulosum</i>	(Walter) Gleason	native	Clusiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	shade
6	<i>Triadenum virginicum</i>	(L.) Raf.	native	Clusiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
8	<i>Triadenum walteri</i>	(J.G. Gmel) Gleason	native	Clusiaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
10	<i>Triantha glutinosa</i>	(Michx.) Baker	native	Liliaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
0	<i>Tribulus terrestris</i>	L.	adventive	Zygophyllaceae	(UPL)				forb	AN	DI	advent
10	<i>Trichomanes boschianum</i>	J.W. Sturm	native	Hymenophyllaceae	FACW	FACW	FACW		fern	PE	SVP	shade
10	<i>Trichomanes intricatum</i>	Farrar	native	Hymenophyllaceae	(UPL)				fern	PE	SVP	shade
10	<i>Trichomanes</i> sp.	ND	native	Hymenophyllaceae	ND				fern	PE	SVP	shade
7	<i>Trichophorum planifolium</i>	(Spreng.) Palla	native	Cyperaceae	(UPL)				sedge	PE	MO	partial
4	<i>Trichostema dichotomum</i>	L.	native	Lamiaceae	(UPL)	UPL	UPL	UPL	forb	AN	DI	full
7	<i>Trichostema setaceum</i>	Houtt.	native	Lamiaceae	(UPL)				forb	AN	DI	full
*	<i>Trichostema</i> sp.	ND	ND	Lamiaceae	UPL				forb	AN	DI	full
1	<i>Tridens flavus</i>	(L.) Hitchc.	native	Poaceae	FACU	FACU	UPL	UPL	grass	PE	MO	full
7	<i>Trientalis borealis</i>	Raf.	native	Primulaceae	FAC	FAC	FAC	FAC	forb	PE	DI	shade

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0	Trifolium arvense	L.	adventive	Fabaceae	(UPL)				forb	AN	DI	advent
0	Trifolium aureum	Pollich	adventive	Fabaceae	(UPL)				forb	AN	DI	advent
0	Trifolium campestre	Schreb.	adventive	Fabaceae	(UPL)				forb	AN	DI	advent
0	Trifolium dubium	Sibth.	adventive	Fabaceae	UPL	UPL	FACU	FACU	forb	AN	DI	advent
0	Trifolium hybridum	L.	adventive	Fabaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	advent
0	Trifolium incarnatum	L.	adventive	Fabaceae	(UPL)				forb	AN	DI	advent
0	Trifolium pratense	L.	adventive	Fabaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	advent
8	Trifolium reflexum	L.	native	Fabaceae	(UPL)				forb	BI	DI	partial
0	Trifolium repens	L.	adventive	Fabaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	advent
*	Trifolium sp.	ND	ND	Fabaceae	ND				forb	ND	DI	ND
5	Trifolium stoloniferum	Muhl. ex Eaton	native	Fabaceae	(FACU+)				forb	PE	DI	partial
10	Triglochin maritima	L.	native	Juncaginaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
10	Triglochin palustre	L.	native	Juncaginaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
10	Triglochin sp.	ND	ND	Juncaginaceae	OBL				forb	PE	MO	full
7	Trillium cernuum	L.	native	Liliaceae	FACW	FACW	FAC	FAC	forb	PE	MO	shade
7	Trillium erectum	L.	native	Liliaceae	FACU-	FACU	UPL	FACU	forb	PE	MO	shade
6	Trillium flexipes	Raf.	native	Liliaceae	FAC	FAC	FACU	FAC	forb	PE	MO	shade
5	Trillium grandiflorum	(Michx.) Salisb.	native	Liliaceae	(UPL)				forb	PE	MO	shade
9	Trillium nivale	Riddell	native	Liliaceae	(UPL)				forb	PE	MO	shade
6	Trillium recurvatum	L.C. Beck	native	Liliaceae	UPL	UPL	FACU	FACU	forb	PE	MO	shade
5	Trillium sessile	L.	native	Liliaceae	UPL	UPL	FACU	FACU	forb	PE	MO	shade
*	Trillium sp.	ND	ND	Liliaceae	ND				forb	PE	MO	shade
8	Trillium undulatum	Willd.	native	Liliaceae	FACU	FACU		FACU	forb	PE	MO	shade
2	Triodanis perfoliata	(L.) Nieuwl.	native	Scrophulariaceae	FAC	FAC	FAC	FACU	forb	AN	DI	full
5	Triosteum angustifolium	L.	native	Caprifoliaceae	FAC	FAC	FAC	FAC	forb	PE	DI	full
5	Triosteum aurantiacum	E.P. Bicknell	native	Caprifoliaceae	(UPL)				forb	PE	DI	full
5	Triosteum perfoliatum	L.	native	Caprifoliaceae	(UPL)				forb	PE	DI	full
5	Triosteum sp.	ND	ND	Caprifoliaceae	ND				forb	PE	DI	full
9	Triphora trianthophora	(Sw.) Rydb.	native	Orchidaceae	UPL	UPL	FACU	FACU	forb	PE	MO	shade
9	Triplasis purpurea	(Walter) Chapm.	native	Poaceae	(UPL)				grass	AN	MO	full
0	Tripsacum dactyloides	(L.) L.	adventive	Poaceae	(UPL)	FACW	FAC	FAC	grass	PE	MO	advent
0	Triticum aestivum	L.	adventive	Poaceae	UPL				grass	AN	MO	advent
9	Trollius laxus	Salisb.	native	Ranunculaceae	OBL	OBL		OBL	forb	PE	DI	partial
8	Tsuga canadensis	(L.) Carriere	native	Pinaceae	FACU	FACU	FACU	FACU	tree	W	GYMN	tree
0	Tulipa gesneriana	L.	adventive	Liliaceae	UPL				forb	PE	MO	advent
0	Tussilago farfara	L.	adventive	Asteraceae	FACU	FACU	FACU	FACU	forb	PE	DI	advent
0	Typha angustifolia	L.	adventive	Typhaceae	OBL	OBL	OBL	OBL	forb	PE	MO	advent
1	Typha latifolia	L.	native	Typhaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
*	Typha sp.	ND	ND	Typhaceae	OBL				forb	PE	MO	ND
0	Typha x glauca	Godr.	adventive	Typhaceae	OBL	OBL	OBL	OBL	forb	PE	MO	advent
2	Ulmus americana	L.	native	Ulmaceae	FACW-	FACW	FACW	FACW	tree	W	DI	tree
0	Ulmus pumila	L.	adventive	Ulmaceae	(UPL)	FACU	UPL	FACU	tree	W	DI	tree
3	Ulmus rubra	Muhl.	native	Ulmaceae	FAC	FAC	FAC	FAC	tree	W	DI	tree
*	Ulmus sp.	ND	ND	Ulmaceae	ND				ND	W	DI	ND
7	Ulmus thomasi	Sarg.	native	Ulmaceae	FACU+	FACU	FAC	FAC	sm tree	W	DI	partial

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CofC	Scientific Name	Authority	Nativity	Family	OH-IND	EMP-IND	MW-IND	NCNE-IND	Form	Habit	Group	Shade
9	<i>Urtica chamaedryoides</i>	Pursh	native	Urticaceae	FACU	FACU	FACU	FACU	forb	AN	DI	shade
1	<i>Urtica dioica</i> L. var. <i>procera</i>	(Muhl. ex Willd.) Wedd.	native	Urticaceae	(FAC-)	FACU	FACW	FAC	forb	PE	DI	full
0	<i>Urtica dioica</i> var. <i>dioica</i>	L.	adventive	Urticaceae	(FACU)	FACU	FACW	FAC	forb	PE	DI	advent
*	<i>Urtica</i> sp.	ND	ND	Urticaceae	ND				forb	ND	DI	ND
10	<i>Utricularia cornuta</i>	Michx.	native	Lentibulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
10	<i>Utricularia geminiscapa</i>	Benj.	native	Lentibulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
8	<i>Utricularia gibba</i>	L.	native	Lentibulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
10	<i>Utricularia intermedia</i>	Hayne	native	Lentibulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
8	<i>Utricularia minor</i>	L.	native	Lentibulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
*	<i>Utricularia</i> sp.	ND	ND	Lentibulariaceae	OBL				forb	PE	DI	full
6	<i>Utricularia vulgaris</i>	L.	native	Lentibulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
5	<i>Uvularia grandiflora</i>	Sm.	native	Liliaceae	(UPL)				forb	PE	MO	shade
5	<i>Uvularia perfoliata</i>	L.	native	Liliaceae	FACU	FACU	FACU	FACU	forb	PE	MO	shade
5	<i>Uvularia sessilifolia</i>	L.	native	Liliaceae	FACU-	FAC	FACU	FACU	forb	PE	MO	shade
5	<i>Uvularia</i> sp.	ND	ND	Liliaceae	ND				forb	PE	MO	shade
0	<i>Vaccaria hispanica</i>	(Mill.) Rauschert	adventive	Caryophyllaceae	(UPL)	FAC	UPL	UPL	forb	AN	DI	advent
7	<i>Vaccinium angustifolium</i>	Aiton	native	Ericaceae	FACU-	FACU	FACU	FACU	shrub	W	DI	shade
6	<i>Vaccinium corymbosum</i>	L.	native	Ericaceae	FACW-	FACW	FACW	FACW	shrub	W	DI	partial
8	<i>Vaccinium macrocarpon</i>	Aiton	native	Ericaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
9	<i>Vaccinium myrtilloides</i>	Michx.	native	Ericaceae	FAC	FACW	FACW	FACW	shrub	W	DI	shade
10	<i>Vaccinium oxycoccos</i>	L.	native	Ericaceae	OBL	OBL	OBL	OBL	shrub	W	DI	full
6	<i>Vaccinium pallidum</i>	Aiton	native	Ericaceae	(UPL)				shrub	W	DI	shade
*	<i>Vaccinium</i> sp.	ND	ND	Ericaceae	ND				shrub	W	DI	ND
6	<i>Vaccinium stamineum</i>	L.	native	Ericaceae	FACU-	FACU	FACU	FACU	shrub	W	DI	shade
10	<i>Valeriana ciliata</i>	Torr. & A. Gray	native	Valerianaceae	OBL		FACW	FACW	forb	PE	DI	full
0	<i>Valeriana officinalis</i>	L.	adventive	Valerianaceae	(FACU)				forb	PE	DI	advent
7	<i>Valeriana pauciflora</i>	Michx.	native	Valerianaceae	FACW	FACW	FACW	FACW	forb	PE	DI	full
*	<i>Valeriana</i> sp.	ND	ND	Valerianaceae	ND				forb	PE	DI	ND
10	<i>Valeriana uliginosa</i>	(Torr. & A. Gray) Rydb.	native	Valerianaceae	(FACW+)			OBL	forb	PE	DI	full
4	<i>Valerianella chenopodifolia</i>	(Pursh) DC.	native	Valerianaceae	(FAC-)			FAC	forb	AN	DI	full
0	<i>Valerianella locusta</i>	(L.) Latourr.	adventive	Valerianaceae	(UPL)				forb	AN	DI	advent
0	<i>Valerianella radiata</i>	(L.) Dufr.	adventive	Valerianaceae	FAC	FAC	FAC	FAC	forb	AN	DI	advent
*	<i>Valerianella</i> sp.	ND	ND	Valerianaceae	ND				forb	AN	DI	ND
2	<i>Valerianella umbilicata</i>	(Sull.) A.W. Wood	native	Valerianaceae	FAC	FAC	FACW	FACW	forb	AN	DI	full
8	<i>Vallisneria americana</i>	Michx.	native	Hydrocharitaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
6	<i>Veratrum viride</i>	Aiton	native	Liliaceae	FACW+	FACW		FACW	forb	PE	MO	shade
0	<i>Verbascum blattaria</i>	L.	adventive	Scrophulariaceae	(UPL)	UPL	FACU	FACU	forb	BI	DI	advent
0	<i>Verbascum phlomoides</i>	L.	adventive	Scrophulariaceae	(UPL)				forb	BI	DI	advent
*	<i>Verbascum</i> sp.	ND	ND	Scrophulariaceae	UPL				forb	BI	DI	advent
0	<i>Verbascum thapsus</i>	L.	adventive	Scrophulariaceae	(UPL)	FACU	UPL	UPL	forb	BI	DI	advent
0	<i>Verbascum virgatum</i>	Stokes	adventive	Scrophulariaceae	(UPL)				forb	BI	DI	advent
0	<i>Verbena bracteata</i>	Lag. & Rodr.	native	Verbenaceae	UPL	UPL	FACU	FACU	forb	PE	DI	full
0	<i>Verbena canadensis</i>	(L.) Britton	adventive	Verbenaceae	(UPL)				forb	PE	DI	advent
4	<i>Verbena hastata</i>	L.	native	Verbenaceae	FACW+	FACW	FACW	FACW	forb	PE	DI	full
5	<i>Verbena simplex</i>	Lehm.	native	Verbenaceae	(UPL)				forb	PE	DI	full

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*	Verbena sp.	ND	ND	Verbenaceae	ND				forb	PE	DI	ND
3	Verbena stricta	Vent.	native	Verbenaceae	(UPL)				forb	PE	DI	full
3	Verbena urticifolia	L.	native	Verbenaceae	FACU	FAC	FAC	FAC	forb	PE	DI	full
5	Verbesina alternifolia	(L.) Britton ex Kearney	native	Asteraceae	FAC	FAC	FACW	FACW	forb	PE	DI	partial
5	Verbesina helianthoides	Michx.	native	Asteraceae	(UPL)				forb	PE	DI	full
5	Verbesina occidentalis	(L.) Walter	native	Asteraceae	UPL	FACU	FACU		forb	PE	DI	shade
5	Verbesina sp.	ND	ND	Asteraceae	ND				forb	PE	DI	ND
0	Verbesina virginica	L.	adventive	Asteraceae	UPL	UPL	FACU		forb	PE	DI	advent
8	Vernonia fasciculata	Michx.	native	Asteraceae	FAC+	FAC	FACW	FACW	forb	PE	DI	full
2	Vernonia gigantea	(Walter) Trel.	native	Asteraceae	FAC	FAC	FAC	FAC	forb	PE	DI	full
8	Vernonia missurica	Raf.	native	Asteraceae	FACU+	FACU	FAC	FAC	forb	PE	DI	full
3	Vernonia noveboracensis	(L.) Michx.	native	Asteraceae	FACW+	FACW	FACW	FACW	forb	PE	DI	full
*	Vernonia sp.	ND	ND	Asteraceae	ND				forb	PE	DI	full
0	Veronica agrestis	L.	adventive	Scrophulariaceae	(UPL)				forb	AN	DI	advent
6	Veronica americana	Schwein. ex Benth.	native	Scrophulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	partial
6	Veronica anagallis-aquatica	L.	native	Scrophulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	Veronica arvensis	L.	adventive	Scrophulariaceae	(UPL)	UPL	FACU	FACU	forb	AN	DI	advent
0	Veronica beccabunga	L.	adventive	Scrophulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	advent
6	Veronica catenata	Pennell	native	Scrophulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	Veronica chamaedrys	L.	adventive	Scrophulariaceae	(UPL)	UPL	UPL	UPL	forb	PE	DI	advent
0	Veronica filiformis	Sm.	adventive	Scrophulariaceae	(UPL)				forb	PE	DI	advent
0	Veronica hederifolia	L.	adventive	Scrophulariaceae	(UPL)				forb	AN	DI	advent
0	Veronica latifolia	L.	adventive	Scrophulariaceae	(UPL)				forb	PE	DI	advent
0	Veronica longifolia	L.	adventive	Scrophulariaceae	(UPL)				forb	PE	DI	advent
0	Veronica officinalis	L.	adventive	Scrophulariaceae	FACU-	FACU	UPL	FACU	forb	PE	DI	advent
1	Veronica peregrina var. peregrina	L.	native	Scrophulariaceae	FACU-	FAC	FACW	FAC	forb	AN	DI	full
0	Veronica peregrina var. xalapensis	(Kunth) H. St. John & F.A. Warren	adventive	Scrophulariaceae	FACU-	FAC	FACW	FAC	forb	AN	DI	advent
0	Veronica persica	Poir.	adventive	Scrophulariaceae	(UPL)				forb	AN	DI	advent
0	Veronica polita	Fr.	adventive	Scrophulariaceae	(UPL)				forb	AN	DI	advent
6	Veronica scutellata	L.	native	Scrophulariaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
0	Veronica serpyllifolia	L.	adventive	Scrophulariaceae	FAC+	FAC	FACW	FAC	forb	PE	DI	advent
*	Veronica sp.	ND	ND	Scrophulariaceae	ND				forb	ND	DI	ND
0	Veronica verna	L.	adventive	Scrophulariaceae	(UPL)				forb	AN	DI	advent
7	Veronicastrum virginicum	(L.) Farw.	native	Scrophulariaceae	FACU	FACU	FAC	FAC	forb	PE	DI	full
6	Viburnum acerifolium	L.	native	Caprifoliaceae	(UPL)	UPL	UPL	UPL	shrub	W	DI	shade
8	Viburnum alnifolium	Marshall	native	Caprifoliaceae	FAC	FACU		FACU	shrub	W	DI	shade
5	Viburnum cassinoides	L.	native	Caprifoliaceae	FACW	OBL	FACW	FACW	shrub	W	DI	shade
2	Viburnum dentatum	L.	native	Caprifoliaceae	FAC	FAC	FAC	FAC	shrub	W	DI	full
0	Viburnum lantana	L.	adventive	Caprifoliaceae	(UPL)				shrub	W	DI	advent
5	Viburnum lentago	L.	native	Caprifoliaceae	FAC	FAC	FAC	FAC	shrub	W	DI	partial
6	Viburnum molle	Michx.	native	Caprifoliaceae	(UPL)				shrub	W	DI	shade
8	Viburnum opulus L. var. americana	Aiton	native	Caprifoliaceae	FACW	FACW	FAC	FACW	shrub	W	DI	shade
0	Viburnum opulus var. opulus	L.	adventive	Caprifoliaceae	FACW	FACW	FAC	FACW	shrub	W	DI	advent
4	Viburnum prunifolium	L.	native	Caprifoliaceae	FACU	FACU	FACU	FACU	shrub	W	DI	shade
5	Viburnum rafinesquianum	Schult.	native	Caprifoliaceae	(UPL)				shrub	W	DI	shade

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2	<i>Viburnum recognitum</i>	Aiton	native	Caprifoliaceae	FACW-	FAC	FAC	FAC	shrub	W	DI	partial
6	<i>Viburnum rufidulum</i>	Raf.	native	Caprifoliaceae	(UPL)	UPL	FACU		shrub	W	DI	partial
0	<i>Viburnum seiboldii</i>	MIq.	adventive	Caprifoliaceae	(FACU)				shrub	W	MO	partial
*	<i>Viburnum</i> sp.	ND	ND	Caprifoliaceae	ND				shrub	W	DI	ND
5	<i>Vicia americana</i>	Muhl. ex Willd.	native	Fabaceae	(UPL)	FACU	FACU	FACU	forb	PE	DI	full
0	<i>Vicia angustifolia</i>	L.	adventive	Fabaceae	FACU-	FACU	FACU	FACU	vine	AN	DI	advent
5	<i>Vicia caroliniana</i>	Walter	native	Fabaceae	FACU-	FACU	UPL	UPL	forb	PE	DI	full
0	<i>Vicia cracca</i>	L.	adventive	Fabaceae	(UPL)				forb	PE	DI	advent
0	<i>Vicia dasycarpa</i>	Ten.	adventive	Fabaceae	(UPL)				forb	AN	DI	advent
0	<i>Vicia hirsuta</i>	(L.) Gray	adventive	Fabaceae	(UPL)				forb	AN	DI	advent
0	<i>Vicia sativa</i>	L.	adventive	Fabaceae	FACU-	FACU	FACU	FACU	forb	AN	DI	advent
*	<i>Vicia</i> sp.	ND	ND	Fabaceae	ND				forb	ND	DI	ND
0	<i>Vicia tetrasperma</i>	(L.) Schrebr.	adventive	Fabaceae	(UPL)				vine	AN	DI	advent
0	<i>Vicia villosa</i>	Roth	adventive	Fabaceae	(UPL)				forb	AN	DI	advent
0	<i>Vinca major</i>	L.	adventive	Apocynaceae	(FACU-)				forb	PE	DI	advent
0	<i>Vinca minor</i>	L.	adventive	Apocynaceae	(UPL)				vine	PE	DI	advent
0	<i>Vincetoxicum nigrum</i>	(L.) Moench	adventive	Asclepiadaceae	(UPL)				forb	PE	DI	advent
0	<i>Viola arvensis</i>	Murray	adventive	Violaceae	(UPL)				forb	AN	DI	advent
7	<i>Viola blanda</i>	Willd.	native	Violaceae	FACW	FACW	FACW	FACW	forb	PE	DI	shade
5	<i>Viola canadensis</i>	L.	native	Violaceae	(UPL)	FAC	FACU	FACU	forb	PE	DI	shade
5	<i>Viola conspersa</i>	Rchb.	native	Violaceae	FACW	FAC	FACW	FAC	forb	PE	DI	partial
6	<i>Viola cucullata</i>	Aiton	native	Violaceae	FACW+	FACW	OBL	OBL	forb	PE	DI	partial
7	<i>Viola hastata</i>	Michx.	native	Violaceae	(UPL)	UPL	UPL	UPL	forb	PE	DI	shade
8	<i>Viola lanceolata</i>	L.	native	Violaceae	OBL	OBL	OBL	OBL	forb	PE	DI	full
8	<i>Viola macloskeyi</i>	F.E. Lloyd	native	Violaceae	(OBL)	FACW	OBL	OBL	forb	PE	DI	partial
10	<i>Viola missouriensis</i>	Greene	native	Violaceae	FACU	FACU	FACW	FAC	forb	PE	DI	shade
10	<i>Viola nephrophylla</i>	Greene	native	Violaceae	FACW	FACW	FACW	FACW	forb	PE	DI	partial
0	<i>Viola odorata</i>	L.	adventive	Violaceae	(UPL)				forb	PE	DI	advent
9	<i>Viola palmata</i> L. var. <i>pedatifida</i>	(G. Don) Cronquist	native	Violaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	full
4	<i>Viola palmata</i> var. <i>palmata</i>	L.	native	Violaceae	FACW	FACU	FACU	FACU	forb	PE	DI	partial
8	<i>Viola pedata</i>	L.	native	Violaceae	UPL	FACU	UPL	UPL	forb	PE	DI	full
8	<i>Viola primulifolia</i>	L.	native	Violaceae	FAC+	FAC	FACW	FACW	forb	PE	DI	full
4	<i>Viola pubescens</i>	Aiton	native	Violaceae	FACU-	FACU	FACU	FACU	forb	PE	DI	shade
2	<i>Viola rafinesquii</i>	Greene	native	Violaceae	(UPL)				forb	AN	DI	full
5	<i>Viola rostrata</i>	Pursh	native	Violaceae	FACU	FACU	FACU	FACU	forb	PE	DI	shade
8	<i>Viola rotundifolia</i>	Michx.	native	Violaceae	FAC+	FAC	FAC	FAC	forb	PE	DI	shade
4	<i>Viola sagittata</i>	Aiton	native	Violaceae	FACW	FAC	FAC	FAC	forb	PE	DI	full
1	<i>Viola sororia</i>	Willd.	native	Violaceae	FAC-	FAC	FAC	FAC	forb	PE	DI	shade
*	<i>Viola</i> sp.	ND	ND	Violaceae	ND				forb	ND	DI	ND
5	<i>Viola striata</i>	Aiton	native	Violaceae	FACW	FACW	FACW	FACW	forb	PE	DI	partial
0	<i>Viola tricolor</i>	L.	adventive	Violaceae	(UPL)				forb	AN	DI	advent
7	<i>Viola tripartita</i>	Elliott	native	Violaceae	(UPL)				forb	PE	DI	shade
6	<i>Viola villosa</i>	Brainerd	native	Violaceae	FACU-	FACU	FACU		forb	PE	DI	full
9	<i>Viola walteri</i>	House	native	Violaceae	(UPL)	FACU	FACU	FACU	forb	PE	DI	shade
0	<i>Vitex negundo</i>	L.	adventive	Verbenaceae	(UPL)				sm tree	W	DI	advent

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4	<i>Vitis aestivalis</i>	Michx.	native	Vitaceae	FACU	FACU	FACU	FACU	vine	W	DI	shade
6	<i>Vitis cinerea</i>	(Engelm.) Millard	native	Vitaceae	FACW	FACW	FACW	FACW	vine	W	DI	partial
3	<i>Vitis labrusca</i>	L.	native	Vitaceae	FACU	FACU	FACU	FACU	vine	W	DI	full
3	<i>Vitis riparia</i>	Michx.	native	Vitaceae	FACW	FACW	FACW	FAC	vine	W	DI	partial
*	<i>Vitis sp.</i>	ND	ND	Vitaceae	ND				vine	W	DI	ND
3	<i>Vitis vulpina</i>	L.	native	Vitaceae	FAC	FAC	FAC	FAC	vine	W	DI	shade
10	<i>Vittaria appalachiana</i>	Farrar & Mickel	native	Vittariaceae	(FACU)				fern	PE	DI	shade
0	<i>Vulpia bromoides</i>	(L.) Gray	adventive	Poaceae	FACW	FACW	UPL	UPL	grass	AN	MO	advent
0	<i>Vulpia myuros</i>	(L.) C.C. Gmel.	adventive	Poaceae	UPL	UPL	FACU	FACU	grass	AN	MO	advent
4	<i>Vulpia octoflora</i>	(Walter) Rydb.	native	Poaceae	(UPL)	UPL	FACU	FACU	grass	AN	MO	full
6	<i>Waldsteinia fragarioides</i>	(Michx.) Tratt.	native	Rosaceae	(UPL)				forb	PE	DI	full
0	<i>Wisteria floribunda</i>	(Willd.) DC	adventive	Fabaceae	(FACU)				shrub	W	DI	advent
0	<i>Wisteria frutescens</i>	(L.) Poir.	adventive	Fabaceae	FACW-	FACW	FACW	FACW	vine	PE	DI	advent
6	<i>Wolffia borealis</i>	(Engelm. ex Hegelm.) Landolt	native	Lemnaceae	OBL	OBL	OBL	OBL	forb	AN	MO	full
6	<i>Wolffia brasiliensis</i>	Weddell	native	Lemnaceae	OBL	OBL	OBL	OBL	forb	AN	MO	full
3	<i>Wolffia columbiana</i>	Karsten	native	Lemnaceae	OBL	OBL	OBL	OBL	forb	AN	MO	full
*	<i>Wolffia sp.</i>	ND	ND	Lemnaceae	OBL				forb	AN	MO	full
7	<i>Wolffiella gladiata</i>	(Hegelm.) Hegelm.	native	Lemnaceae	OBL	OBL	OBL	OBL	forb	AN	MO	full
9	<i>Woodsia ilvensis</i>	(L.) R. Br.	native	Dryopteridaceae	(UPL)				fern	PE	SVP	shade
6	<i>Woodsia obtusa</i>	(Spreng.) Torr.	native	Dryopteridaceae	(UPL)				fern	PE	SVP	shade
*	<i>Woodsia sp.</i>	ND	ND	Dryopteridaceae	UPL				fern	PE	SVP	shade
6	<i>Woodwardia areolata</i>	(L.) T. Moore	native	Blechnaceae	FACW+	FACW	OBL	OBL	fern	PE	SVP	full
*	<i>Woodwardia sp.</i>	ND	ND	Blechnaceae	ND				fern	PE	SVP	full
8	<i>Woodwardia virginica</i>	(L.) Sm.	native	Blechnaceae	OBL	OBL	OBL	OBL	fern	PE	SVP	full
*	<i>Xanthium sp.</i>	ND	ND	Asteraceae	ND				forb	AN	DI	advent
0	<i>Xanthium spinosum</i>	L.	adventive	Asteraceae	FACU	FACU	FACU	FACU	forb	AN	DI	advent
0	<i>Xanthium strumarium</i>	L.	adventive	Asteraceae	FAC	FAC	FAC	FAC	forb	AN	DI	advent
0	<i>Xanthorhiza simplicissima</i>	Marshall	adventive	Ranunculaceae	FACW	FACW	FACW	FACW	forb	PE	DI	advent
10	<i>Xyris difformis</i>	Chapm.	native	Xyridaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
10	<i>Xyris sp.</i>	ND	ND	Xyridaceae	OBL				forb	PE	MO	full
10	<i>Xyris torta</i>	Sm.	native	Xyridaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
0	<i>Yucca filamentosa</i>	L.	adventive	Agavaceae	(UPL)				forb	PE	MO	advent
6	<i>Zannichellia palustris</i>	L.	native	Najadaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full
3	<i>Zanthoxylum americanum</i>	Mill.	native	Rutaceae	FACU	FACU	FACU	FACU	shrub	W	DI	shade
0	<i>Zea mays</i>	L.	adventive	Poaceae	(UPL)				grass	AN	MO	advent
10	<i>Zigadenus elegans</i>	Pursh	native	Liliaceae	FAC+				forb	PE	MO	shade
9	<i>Zizania aquatica</i>	L.	native	Poaceae	OBL	OBL	OBL	OBL	grass	AN	DI	full
7	<i>Zizia aptera</i>	(A. Gray) Fernald	native	Apiaceae	FAC	FAC	FACU	FACU	forb	PE	DI	full
6	<i>Zizia aurea</i>	(L.) W.D.J. Koch	native	Apiaceae	FAC	FAC	FAC	FAC	forb	PE	DI	full
*	<i>Zizia sp.</i>	ND	ND	Apiaceae	FAC				forb	PE	DI	full
5	<i>Zosterella dubia</i>	(Jacq.) Small	native	Pontederiaceae	OBL	OBL	OBL	OBL	forb	PE	MO	full

Appendix C Column Descriptions:

CofC = The coefficient of conservation assigned to the species.

Scientific Name = Accepted binomial name in for each species.

Authority = Original author of scientific name.

Nativity = Whether or not a species considered to be native in Ohio.

Family = Taxonomic lant family for each species.

OH-IND = Statewide wetland indicator status for species, based on original designation (Peet 1988). This designation has been superceded by Lichvar 2014.

EMP-IND = Wetland indicator for species in the Eastern Mountains and Piedmont US Army Corps of Engineers supplement region (US-COE 2012).

MW-IND = Wetland indicator for species in the Midwest US Army Corps of Engineers supplement region (US-COE 2010).

NCNE-IND = Wetland indicator for species in the Northcentral and Northeast US Army Corps of Engineers supplement region (US-COE 2011).

Form = Growth form of plant species.

Habit = Longevity information.

Group = Taxonomic Sub Class designation.

Shade = Shade tolerance for each species.