Empirically Derived Indices of Biotic Integrity for Shrub Swamps and Forested Wetlands and an Evaluation of the Performance of Various Floristic Quality Assessment (FQA) Indices Applied to Forested Wetlands in Massachusetts

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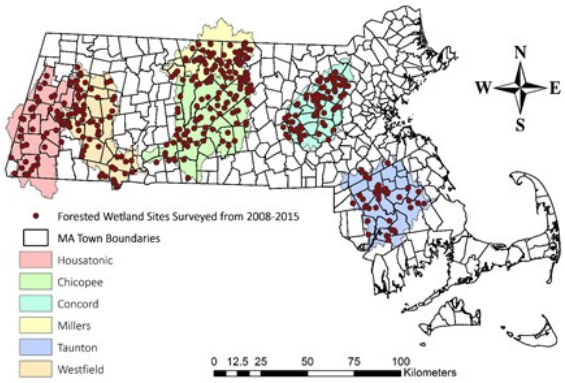

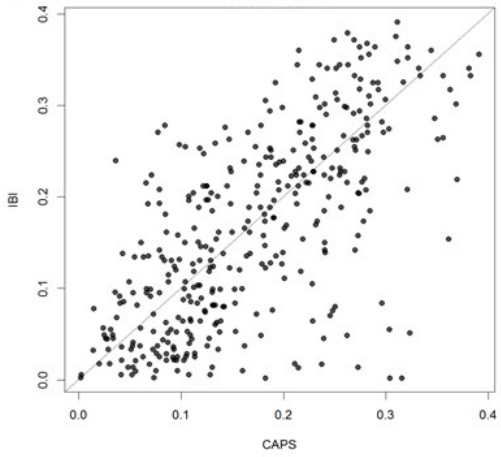

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Introduction

The University of Massachusetts Amherst has been working with the MA Department of Environmental Protection (MassDEP) and the MA Office of Coastal Zone Management (MA CZM) to develop a comprehensive Wetlands Assessment and Monitoring Program for Massachusetts. The Conservation Assessment and Prioritization System (CAPS) is our landscape-scale, level 1, assessment methodology, and provides a comprehensive assessment of all mapped wetlands for ecology integrity, as well as a suite of stressor and resiliency metrics.[1] To complement CAPS, we have been using CAPS Index of Ecological Integrity (IEI) scores as a generalized stressor gradient (GSG) to develop indices of biological integrity (IBIs) based on level 3 (intensive site) assessments for wadeable streams, salt marshes, shrub and forested wetlands (Jackson et al., 2011; McGarigal et al., 2013; Jackson et al., 2017).

Earlier work evaluating multi-taxa IBIs in forested wetlands suggested that IBIs based on vegetation alone performed almost as well as our best multi-taxa IBIs (McGarigal et al., 2013). Given the cost and time involved in collecting and identifying organisms for multiple taxa indices, it was decided to focus future work on developing empirically-based vegetation IBIs for forested wetlands and shrub swamps. A similar, vegetation-based assessment method – the Floristic Quality Assessment method – is being explored in New England and other regions as a potential level 2-3 method for assessing wetlands condition.

Unlike our IBIs, Coefficient of Conservatism scores (C-scores) used in FQA indices are not empirically derived, but are assigned using best professional judgement. Previous work has suggested that the correlation between empirically derived C-scores and those assigned using best professional judgement are relatively weak (correlation coefficient of 0.382 for plants in forested wetlands and 0.211 for shrub swamps) (Jackson et al., 2017). To further test FQA as a method for evaluating wetlands condition, we used our database of vegetation data for 198 shrub swamps and 388 forested wetlands from sites that spanned the entire range of IEI scores (e.g. across the full range of a generalized stressor gradient), to assess the performance of various FQA indices.

This report has two parts. The first is an update on the development of IBIs for shrub swamps and forested wetlands with improvements to the IBI methodology and incorporation of data collected in 2016 and 2017 from an additional 128 shrub swamp sites. Part two is an assessment of FQA performance for a variety of FQA indices and C-scores (e.g. from different Northeastern states and two ecoregions) using vegetation data collected for our IBI development. Also included are various appendices providing more detailed information about the IBI analyses, as well as the usefulness of various taxa for IBI development.

Other deliverables for our FY15-16 Wetlands Program Development Grant include 1) the creation of an Aquatic Connectednessivity Scenario Analysis Tool (http://ecosheds.org/aq-Connectednessivity-tool/#/) and 2) CAPS/Critical Linkages data clipped to states for the 13-state North Atlantic region and available for download (http://umasscaps.org/data_maps/dsl.html).

[1] For more information about CAPS go to www.umasscaps.org.

CHAPTER 1: Empirically Derived Indices of Biotic Integrity for Shrub Swamps and Forested Wetlands

Methodology

The methodology for development of IBIs is described in McGarigal et al. (2013). In brief, the method involves the following steps.

1. *CAPS Assessment of the Landscape*: Run CAPS models to compute the Index of Ecological Integrity (IEI) and stressor metrics for all 30m x 30m cells that make up the undeveloped landscape, including various types of wetlands.
2. *Biological Data Collection*: Vegetation data were collected at randomly selected sites throughout the range of IEI scores (0-1) within target watersheds.
3. *Taxonomic Data Summary*: Summarizing plant species abundance data at each site, for each of the following taxonomic levels: Species, Genus, Family, Order, Class and Phylum.
4. *Regression*: We modeled the relationship between each taxon (dependent variable) and IEI and each stressor metric (independent variable) with two functional forms and eight error models.
5. *Statistical calibration*: We used the fitted models from the Regression step to predict the log-likelihood of different values of the stressor metric (or IEI) at each site based on the abundance of taxa.
6. *Taxa selection*: A group of taxa are selected for inclusion in IBI models based on the performance of each taxon relative to 1,000 pseudo-species.
7. *Outer Cross-validation*: In this outer cross-validation, we divided the data into four groups, repeatedly conducted all of the prior steps on each combination of three groups, and then predicted the fourth group.

Analyses reported in this document include data collected through 2017 (Table 1), including 388 forested wetlands (Figure 1) and 198 shrub swamp (Figure 2) sampling locations.

Table 1. Location of forested wetland and shrub swamp sites used in IBI analyses.

	Forested Wetland	Shrub Swamp
Chicopee Watershed	73	35
Concord Watershed	75	
Miller's Watershed	74	33
Nashua Watershed		33
Quinnebaug		27
Taunton Watershed	39	
Housatonic Watershed	55	35
Westfield Watershed	72	35
TOTAL	**388**	**198**

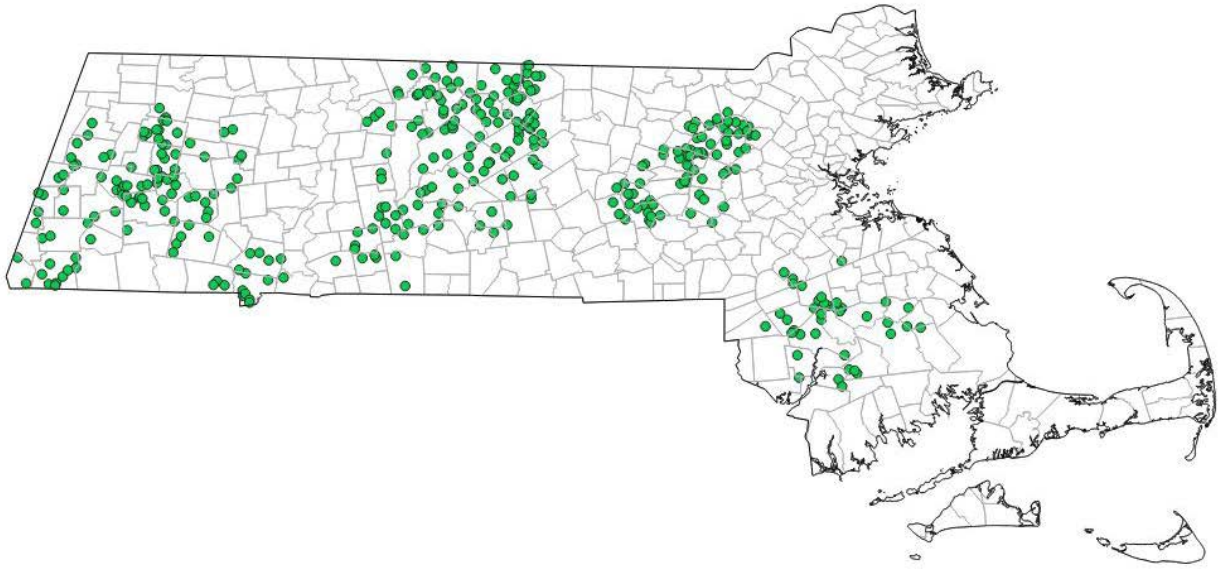

Figure 1: Location of forested wetland sites used for IBI analyses.

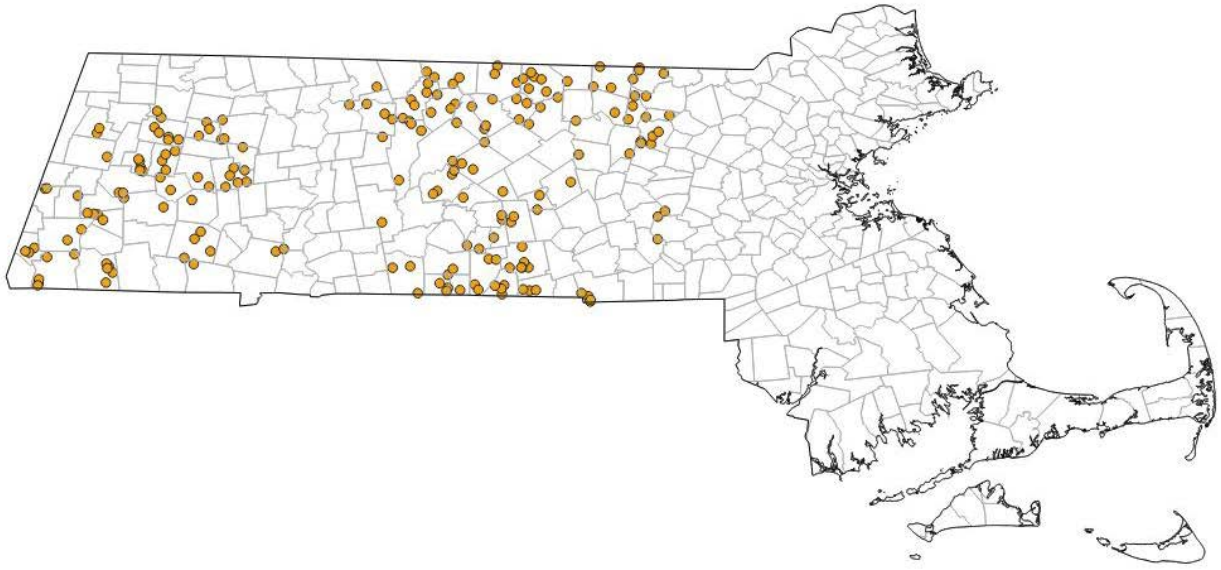

Figure 2: Location of shrub swamp sites used for IBI analyses.

Results

The updated IBIs for forested wetlands included nine metrics (including IEI) that were strong enough to be considered useful according to our analysis (Table 2). Although other IBIs are likely to meet the test for statistical significance, we consider IBIs with a coefficient of concordance < 0.5 to be too noisy to be useful. The two strongest IBIs based on this analysis were for IEI (concordance = 0.62; Figure 3) and the Connectedness metric (concordance = 0.66; Figure 4).

Table 2. Forested wetland IBI coefficients of concordance for IEI and stressor/resiliency metrics.

	Forested Wetland IBI
IEI	**0.62**
Connectedness	**0.66**
Habitat loss	**0.57**
Watershed habitat loss	**0.57**
Edge predators	**0.53**
Agriculture	**0.52**
Invasive earthworms	**0.52**
Invasive plants	**0.51**
Road sediment	**0.50**
Similarity	0.48
Traffic intensity	0.48
Road salt	0.46
Microclimatic alteration	0.45
Aquatic Connectedness	0.29

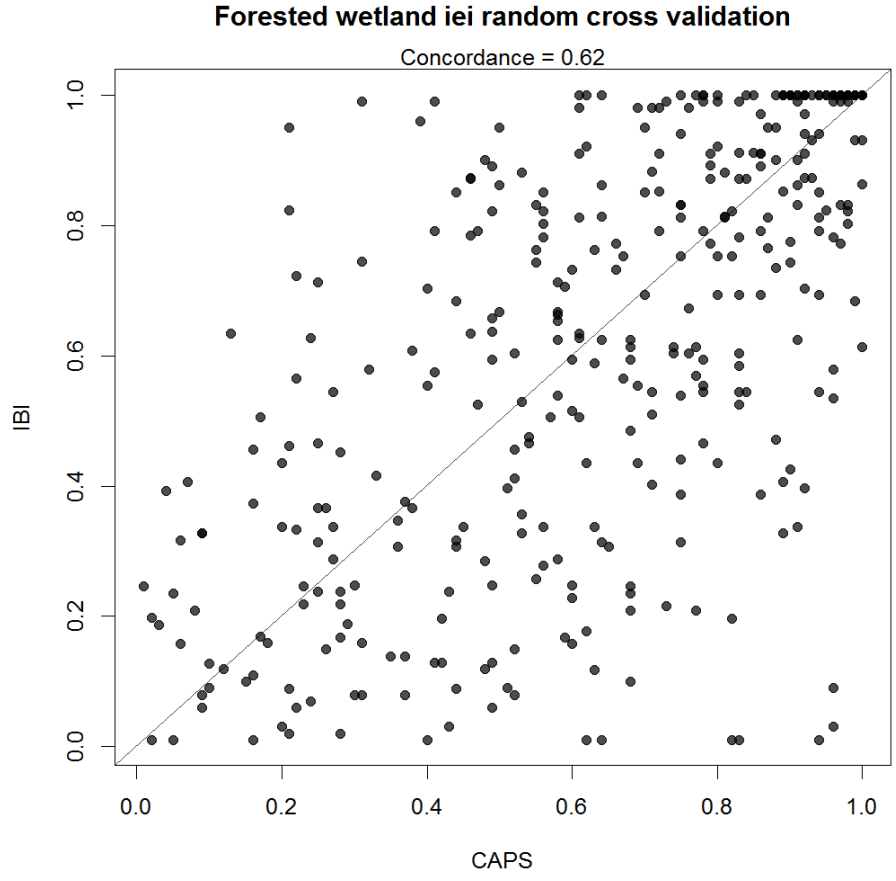

Figure 3. Plot of IBI scores versus CAPS Index of Ecological Integrity (IEI) scores for forested wetlands

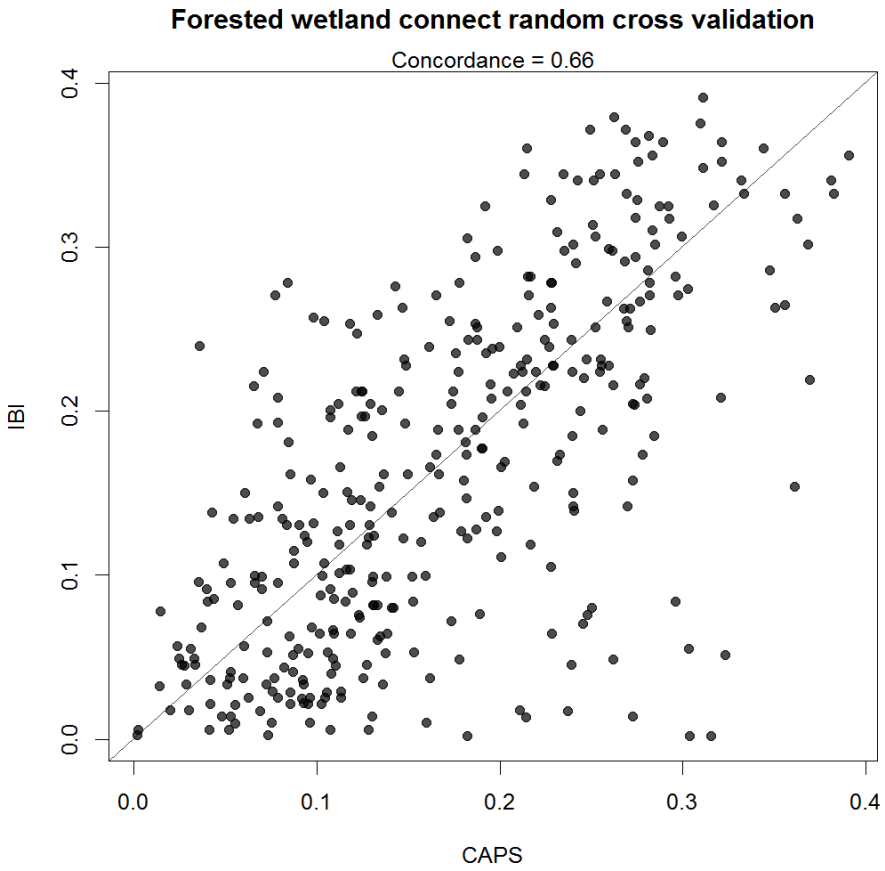

Figure 4. Plot of IBI scores versus CAPS Connectedness metric scores for forested wetlands

Shrub swamp IBIs were recalculated after including 128 new sites that were assessed in 2015 and 2016. IBI analyses were conducted using data from a total of 198 shrub swamp wetlands (Table 3 and Figure 5). Of the shrub swamp IBIs for 12 metrics tested (including IEI) none met our threshold for usefulness (concordance ≥ 0.5). It is possible that the sample size for shrub swamps is still too low to construct meaningful IBIs. The number of shrub swamp sites used for IBI analyses (198) is just over half the number of forested wetland sites (388) available for IBI development.

Table 3. Shrub swamp IBI coefficients of concordance for IEI and various stressor/resiliency metrics.

	Shrub swamp IBI
IEI	0.38
Agriculture	0.44
Connectedness	0.40
Habitat loss	0.39
Edge predators	0.38
Similarity	0.34
Aquatic Connectedness	0.30
Road sediment	0.24
Watershed habitat loss	0.19
Traffic intensity	0.16
Road salt	0.11
Imperviousness	0.10

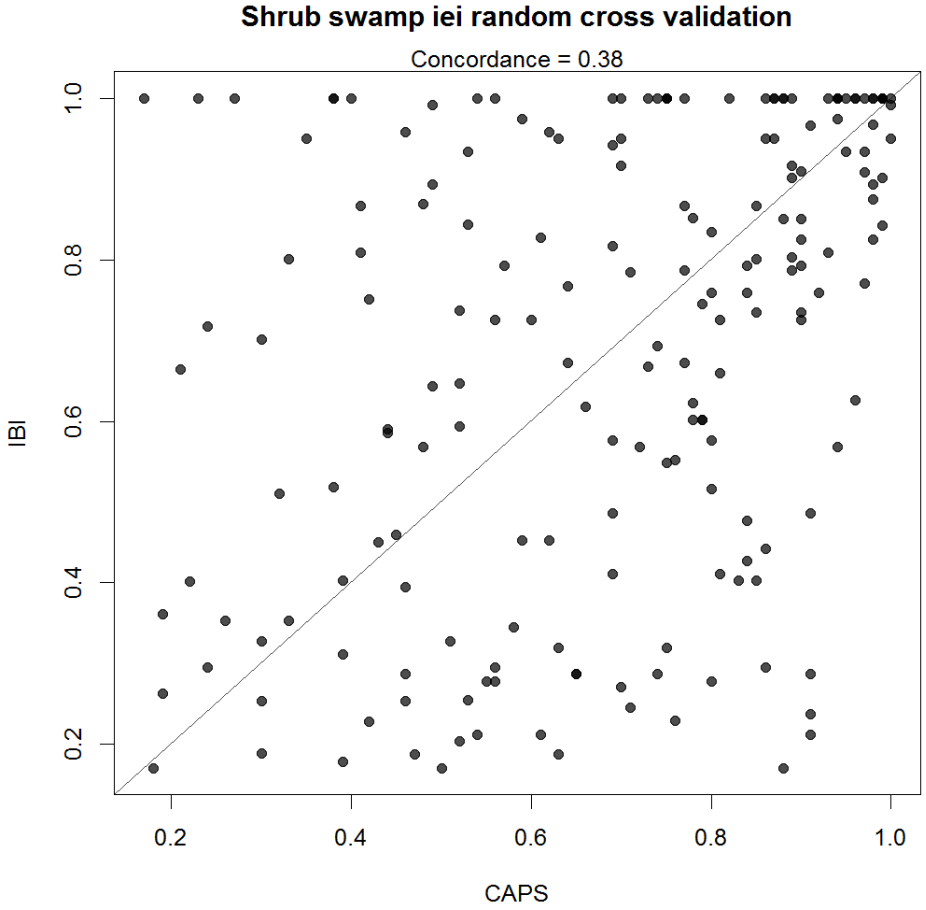

Figure 3. Plot of IBI scores versus CAPS IEI scores for shrub swamps

Forested wetland concordance plots for CAPS metrics and IBIs are included in Appendix A. Shrub swamp concordance plots for CAPS metrics and IBIs are in Appendix B. Plant taxa used for forested wetland IBIs are listed in Appendix C. Plant taxa included in the shrub swamp IBI analysis for IEI are listed in Appendix D.

Discussion

Our efforts to develop empirically-based IBI for various wetland types have so far, been met with mixed success. Empirically derived IBIs for wadeable streams, using aquatic invertebrate data and based on CAPS metrics, yielded strong IBIs (McGarigal et al., 2013). This was not surprising given the long history of using invertebrate IBIs for evaluating the condition of wadeable streams, and the large number of sampling sites (490) for which data were available. We were able to create meaningful forested wetland IBIs for IEI and eight stressor and resiliency metrics (see Table 2), but only after years of data collection had yielded a sample size that was sufficiently large (388 sites). Forested wetland IBIs perform poorly when applied to shrub swamp sites (Jackson et al., 2017) and efforts to create meaningful IBIs for shrub swamp wetlands have so far, been unsuccessful. This may be due to inappropriate CAPS stressor metrics, or because vegetation may not be a strong indicator of condition for scrub-shrub wetlands. However, it could also be due to a sample size that is not yet sufficiently large. Efforts to create IBIs for salt marshes based on vegetation and invertebrates likewise have been unsuccessful (Jackson et al., 2017). We think this may be due to the fact that many of the stressors that affect salt marshes (e.g. nutrient enrichment, sediment deprivation, crab herbivory, and sea level rise) are poorly understood and are not accounted for in CAPS models.

Empirically-based IBI development has turned out to be a very time-consuming and expensive endeavor. There are many wetland types in Massachusetts, the majority of which we have not yet attempted to analyze for IBIs. It would likely take decades of data collection and analyses to develop IBIs for all wetland types across the state. In order to justify the time and expense for continuing this work, we believe that it is important to first determine how IBIs will be used for wetland monitoring and assessment or wetlands protection programs, and how valuable IBIs will be for these efforts.

Unfortunately, wetland IBI development and use has been plagued by a circular logic that draws into question their usefulness for assessment or protection. For example, how do we know whether particular organisms are good indicator of condition? Because it is very difficiult to assess wetland condition directly we typically look for evidence that organisms are correlated with environmental stressors (e.g., generalized stressor gradients). In water bodies and waterways, we can use particular chemical or physical conditions (pH, temperature, DO_2, nutrient levels and concentrations of other contaminants) to determine which species or taxa are good indicators. Wetlands, under natural conditions, vary widely in chemical and physical characteristics, and it is not clear what the relationships are between water quality parameters and designated uses. For wetlands, aquatic life use is a primary designated use and we typically use generalized stressor gradients as indicated by surrounding land use as a reference for understanding biological condition gradients (i.e., IBIs).

CAPS is a particularly sophisticated tool for assessing the effects of land use on wetlands and can serve as a generalized stressor gradient for purposes of developing IBIs. Those IBIs that correspond most closely to the Index of Ecological Integrity (IEI) are ones in which we can have the most confidence. However, if IBIs are only considered effective when they correspond to results from another assessment methodology, then they are only useful if they are more efficient to use than that other methodology. CAPS IEI assessments have been completed for all wetlands in the Northeastern U.S. If IEI is used as the reference for developing and evaluating IBIs, and IBIs are more expensive and time-consuming to implement, then IBIs would appear to add little to our capacity to monitor and assess wetlands.

When developing the conceptual basis for IBI development and use, we conceived the Continuous Aquatic Life Use (CALU) standard for wetlands (see Jackson et al., 2011). Because both our IEI and IBI scales were continuous it was possible to establish continuous aquatic life use standards based on the relationship between IEI (landscape context) and IBI (indicators of biological condition). We considered this an improvement over tiered aquatic life use standards (TALU). At that time, we acknowledged important limitations on the use of CALU.

> Site-level assessment methodologies (SLAM's) for wetlands are time consuming and expensive to develop, requiring the identification of specimens by a variety of taxonomic experts. Our limited ability to generalize about wetland condition from SLAMs means that many more wetland sites would need to be surveyed to generate a comprehensive assessment than for water bodies or waterways. Any attempt to implement a comprehensive assessment and monitoring program like the rotating basin system used for water bodies would likely be impractical for wetlands. [Jackson et al., 2011]

In that report we identified a couple of potential uses for CALU: 1) use CALU to assess wetlands and identify degraded sites needing restoration and identification of sites with high restoration potential, and 2) use CALU as a basis for evaluating mitigation success.

The ability to use IBIs within the CALU framework to identify degraded sites has not been rigorously tested, and there are reasons to be skeptical of this approach. CAPS IEI and IBI scores are based on a suite of stressor and resiliency metrics that we can effectively model across the state. Site specific and episodic degradation, such as from a gasoline leak or illegal chemical dumping, might be detected by CAPS-based IBIs. However, the taxa used in these IBIs may not be the taxa most sensitive to stressors (such as chemical contamination) that are not included in the CAPS models. The relationships between CAPS metrics (including IEI) and IBI scores are quite noisy. It is possible that sites that depart substantially from the presumed IEI-IBI one-to-one relationship may simply reflect the wide scatter of data about this 45 degree line on the CALU plot.

IBIs and the CALU approach may be more appropriate for evaluating and tracking mitigation success (wetland restoration or replacement). However, our research on vegetation as indicators of wetland mitigation success has revealed concerns about the reliability of using vegetation for evaluating wetlands mitigation. A study conducted by UMass and MassDEP

discovered that wetland seed mixes and nursery stock appear to create vegetative communities that are highly robust and resistant to change even when conditions are not appropriate for those species (Jackson et al., 2018). The IBIs developed so far for forested wetlands, and that are in development for shrub swamps, are entirely based on vegetation, calling into question how useful they will be for evaluating mitigation success.

Given our inability to correlate CAPS IEI with vegetation and/or macroinvertebrates in salt marshes, we have decided to focus efforts in the next several years to better understanding the stressors affecting salt marsh condition and ecological integrity (ability to sustain condition over time). Salt marshes are unquestionably the most threatened wetland type in Massachusetts and all of New England, and it is essential to identify and quantify the stressors that make these coastal wetlands so vulnerable to sea level rise. After that, whether we return to IBI development in shrub swamps, or other wetland types, will depend on the uses to which we put IBIs already developed for forested wetlands and wadeable streams.

CHAPTER 2: Performance of Floristic Quality Assessment in Massachusetts Forested Wetlands

Introduction

Floristic Quality Assessment (FQA) has been proposed as an index of biological condition, reflecting the response of an ecosystem's biological community to anthropogenic stressors. The FQA method is a vegetation-based, Level 2, rapid assessment with a long history of use in the Central and Southeastern United States. The method was created in the 1970s to assess the condition of prairies, and is now being used to evaluate other ecosystems, including wetlands (Medley & Scozzafava, 2009).

The FQA process for ecosystem assessment involves calculating an index of biological condition based on vegetation composition. It is assumed that this index of biological condition reflects a general stressor gradient based on anthropogenic disturbance in the surrounding landscape. Individual plant species are assigned a Coefficient of Conservatism score (C-score), a number ranging from 0-10. Low C-scores indicate generalist species, as well as species that are tolerant of degraded habitat. High C-scores indicate specialist species that are relatively intolerant of degraded habitat. C-scores are determined by individual botanists (Bried, et al., 2012), groups of professional botanists (Chamberlain & Ingram, 2012) or combinations of botanist and state managers (Bried et al., 2012). The different states may have different C-scores for the same species, depending on who assigned the score, and how that plant interacts with the local environment (Bried et al., 2012). In all the applications of FQA that we are aware of, non-native species are given scores of 0. The relationship between C-scores and a general stressor gradient is assumed to be linear (Chamberlain & Brooks, 2016).

There are a variety of Floristic Quality Assessment indices (FQAIs) that use vegetation to calculate indices of biological condition, based on plant species composition and C-scores (Wilhelm & Masters, 1995). Some FQA indices exclude non-native plants in their calculation of biological integrity.

Floristic Quality Assessment was originally intended to quantify an area's fidelity to the most natural composition of flora (Wilhelm & Masters, 1995). Alternative uses of FQA's approach have been explored by scientists and managers for assessing the condition of a variety of ecosystems. FQA has been used to evaluate wetland condition in a variety of wetland ecosystems, including forested wetlands (Bell et al., 2017; Nichols et al., 2006), emergent wetlands (Cohen et al. 2004), and a variety of other wetland types (Rothrock and Homoya, 2005; Hargiss et al., 2017; Bourdaghs et al., 2006; Lopez and Fennessy, 2002; Jog et al., 2017; Chamberlain & Brooks, 2016). Only recently have C-scores been developed for New England states (Bried et al. 2012).

As the FQA approach has been applied to an expanding list of ecosystem types and regions, questions have been raised about some of its assumptions and its overall effectiveness (Bourdaghs et al., 2006). The FQA method was originally designed to eliminate a degree of subjectivity from analyses of ecosystems that had historically been more qualitative than

quantitative (Wilhelm & Masters, 1995; Andreas et al., 2004). Others, however, have criticized FQA for its subjective nature, specifically with regard to the assignment of C values (Spyreas, 2016; Wentzell et al., 2016; Bourdaghs et al., 2006). Other concerns include the sensitivity of FQA indices to variabilty in C-score assignment (Spyreas, 2016) and undervaluation of non-native species (Matthews et al., 2015). There are a number of different FQA indices from which to choose, but also a lack of official guidance on which index to use for specific ecosystems, regions or landscape settings (e.g. natural vs. highly developed).

According to the BGC model set forth by the Davies and Jackson (2006) and adopted by EPA, the degree of a biological response should exhibit a relationship with some quantifiable gradient of stress. Research investigating the efficacy of Floristic Quality Assessment have used similar measures to quantify the Generalized Stressor Gradient (GSG), such as characterization of land use and land cover within a circular window around study sites (Bell et al., 2017; Ervin et al. 2006). For the purpose of this research, we used the Conservation Assessment and Prioritization System (CAPS) as an expression of that stressor gradient. CAPS is a sophisticated landscape modeling system that includes metrics for many anthropogenic stressors that affect wetlands (McGarigal et al., 2018).

The purpose of this study was to investigate the relationship between FQA indices of biological condition for forested wetlands and a generalized stressor gradient based on a level 1 evaluation of land use and landscape characteristics. We assessed the performance of Floristic Quality Assessment scores by comparing them against the CAPS characterization of the stressor gradient affecting forested wetlands in New England.

The objectives of this research are:

1. Evaluate the performance of various FQA indices and identify those that provide the best assessment of wetland condition
2. Evaluate how variation in C-scores across states and ecoregions effects FQA performance

Methods

Generalized Stressor Gradient

The Conservation Assessment and Prioritization System (CAPS) is a level 1, coarse-scale assessment methodology developed at the University of Massachusetts, Amherst. CAPS is a computer program and approach for conducting landscape-based assessments of ecological integrity for various natural communities, including wetlands (McGarigal et al., 2018). Ecological integrity is defined as the long-term capability of an ecological community to sustain its composition, structure and function, and thus also its resiliency to stress. The CAPS system identifies the developed and undeveloped elements of the landscape on a computer-based map and evaluates each point in the landscape for a number of stressors and landscape characteristics (Table 4). The results are then used in ecosystem-specific models to calculate an Index of Ecological Integrity (IEI) for each point in the landscape relative to other points of the same ecosystem type within a specified geographic extent. The metrics used by CAPS are

models of anthropogenic stressors or landscape characteristics that are affected by land use. As a result, CAPS IEI can be considered to be a highly sophisticated generalized stressor gradient (stress = 1 – IEI). Points in the landscape with low IEI scores are those exposed to high levels of anthropogenic stressors and high IEI scores represent locations experiencing low levels of anthropogenic stress.

In addition to IEI, we regressed the FQA indices against a simpler metric, habitat loss, which was similar to the methods used in other evaluations of FQA. This metric is calculated in the CAPS model by measuring the intensity of habitat loss caused by all forms of development, including agriculture, in the neighborhood surrounding the focal cell weighted by a logistic function of distance.

Table 4. CAPS weighted metrics of stressors and landscape characteristics (McGarigal et al., 2018)

Metric	Description	Weight (percent)
Habitat loss	Measures the intensity of habitat loss caused by all forms of development in the neighborhood surrounding the focal cell, based on a logistic function of Euclidean distance.	8.9
Watershed habitat loss	Measures the intensity of habitat loss caused by all forms of development in the neighborhood upstream from the focal cell, based on the aquatic distance from the focal cell using on a time-of-flow model.	5.0
Road traffic intensity	Measures the intensity of road traffic (based on measured road traffic rates) in the neighborhood surrounding the focal cell, based on a logistic function of distance.	8.9
Mowing & plowing intensity	Measures the intensity of agriculture in the neighborhood surrounding the focal cell, based on a logistic function of distance.	5.0
Microclimatic alteration	Measures the adverse effects of induced (human-created) edges on the integrity of patch interiors. The metric is based on the “worst” edge effect among all adverse edges in the neighborhood surrounding the focal cell, where each adverse edge is evaluated using a “depth-of-edge” function in which the “effect” is scaled using a logistic function of distance.	5.0
Road salt	Measures the intensity of road salt application in the watershed above an aquatic focal cell weighted by road class and the modeled “influence value” for each cell, which is the aquatic distance from the focal cell based on a time-of-flow model.	5.0
Road sediment	Measures the intensity of road sediment production in the watershed above an aquatic focal cell weighted by road class (i.e., size, substrate, gradient) and the modeled “influence value” for each cell, which is the aquatic distance from the focal cell based on a time-of-flow model.	5.0
Edge predators	Measures the intensity of development associated with sources of human commensal mesopredators (e.g., raccoons, skunks) in the neighborhood surrounding the focal cell, based on a logistic function of distance to development classes.	5.0

Invasive plants	Measures the intensity of development associated with sources of non-native invasive plants in the neighborhood surrounding the focal cell, based on a logistic function of distance to development classes.	8.9
Invasive earthworms	Measures the intensity of development associated with sources of non-native invasive earthworms in the neighborhood surrounding the focal cell, based on a logistic function of distance to development classes.	5.0
Similarity	Measures the amount of similarity between the ecological setting at the focal cell and those of neighboring cells, weighted by a logistic function of distance.	8.9
Connectedness	Measures the disruption of habitat Connectednessivity caused by all forms of development between each focal cell and surrounding cells as well as the "resistance" of the surrounding undeveloped landscape.	18.8
Aquatic Connectedness	An aquatic version of the Connectedness metric, measuring Connectednessivity along streams and rivers. Aquatic Connectedness includes the resistance from culverts, bridges and dams for organisms that are primarily aquatic.	2.0
Tidal restriction	Measures the magnitude of alteration to the tidal hydrology of the focal cell due to tidal restrictions.	8.9

Data Collection

We relied on vegetative survey data from 370 forested wetland sites throughout Massachusetts, available to us from previous research on CAPS IEI performance (Jackson et al., 2017). Sites were located in the Westfield, Taunton, Millers, Concord, Chicopee, and Housatonic river watersheds (Figure 4). Data were collected from 2008 through 2015 by professional botanists. Sites were randomly chosen for field work across the gradient of IEI values. These sites were grouped by IEI, which was broken down into deciles, and then sorted into numbered "bins." Bin labels were randomly sorted, so that field managers and botanists selecting points to survey wouldn't know from which IEI bin a sample point came based on its name.

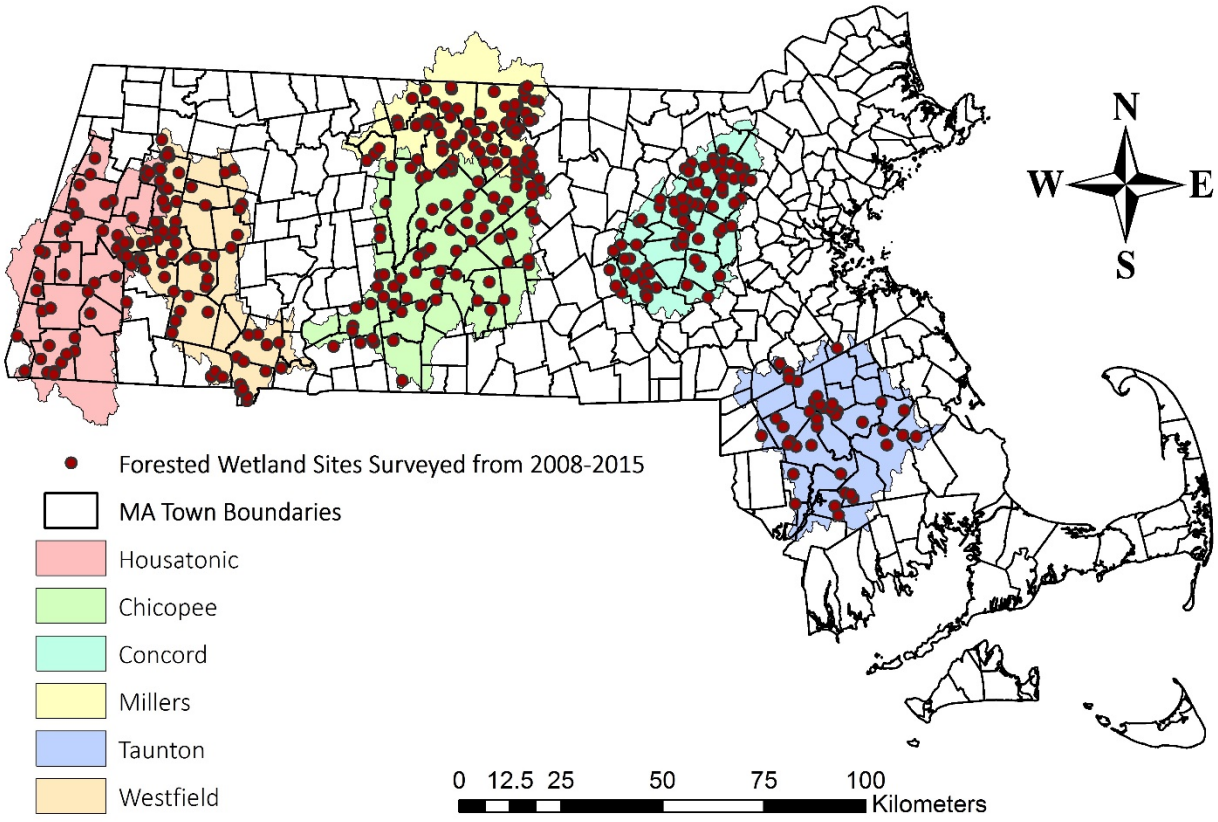

Figure 4. Map of sampling locations in forested wetlands in Massachusetts, surveyed from the years 2008-2015. Sites located in the Westfield, Taunton, Millers, Concord, Chicopee, and Housatonic river watersheds.

Botanists characterized the vegetation at each site by using a line-point intercept system. At each wetland site, botanists set up four 30m transects beginning at the sampling point and extending in each of the four cardinal direction (North, South, East and West). Beginning at the 5m mark, the botanists walked each transect, stopping at 1m intervals along the way, and tallied plant species that intercept the line at each meter mark. After surveying the four transects field botanists did an area search: a walk around the plot to account for any species not detected on the transect lines. Species found during the area search were given an abundance of 0.01 percent.

Floristic Quality Assessment

Plant data collected over the 2008-2015 field seasons gave us information on species composition and abundance needed to calculate indices of Floristic Quality identified from the literature (Table 5). Many different Floristic Quality indices have been devloped to assess site condition. One of our objectives was to determine which of these indices correlated most closely with a general stressor gradient (GSG). We tested the correlation of 12 indices and metrics against the GSG, eight of which were equations that used C-scores to produce an FQA index of biological condition (Table 5). The other four were either simple species richness or nativity metrics.

Coefficients of Conservatism

In order to gauge how variation in C-scores might affect the performance of FQA, we calculated the eight FQA indices using state-specific C-scores from New York and New England (Massachusetts, Connecticut, Rhode Island, New York, Vermont, New Hampshire, and Maine) (NEIWPCC, 2018). Additionally, we calculated FQA indices using two EPA level 3 ecoregional sets of C-scores in Massachusetts (ecoregion 58: Northeastern Highlands and ecoregion 59: Northeastern Coastal Zone) (US EPA, 2013). Figure 5 depicts the level 3 ecoregions within Massachusetts. Plants in these ecoregions are assigned C-scores that are more localized than statewide C-scores (NEIWPCC, 2018).

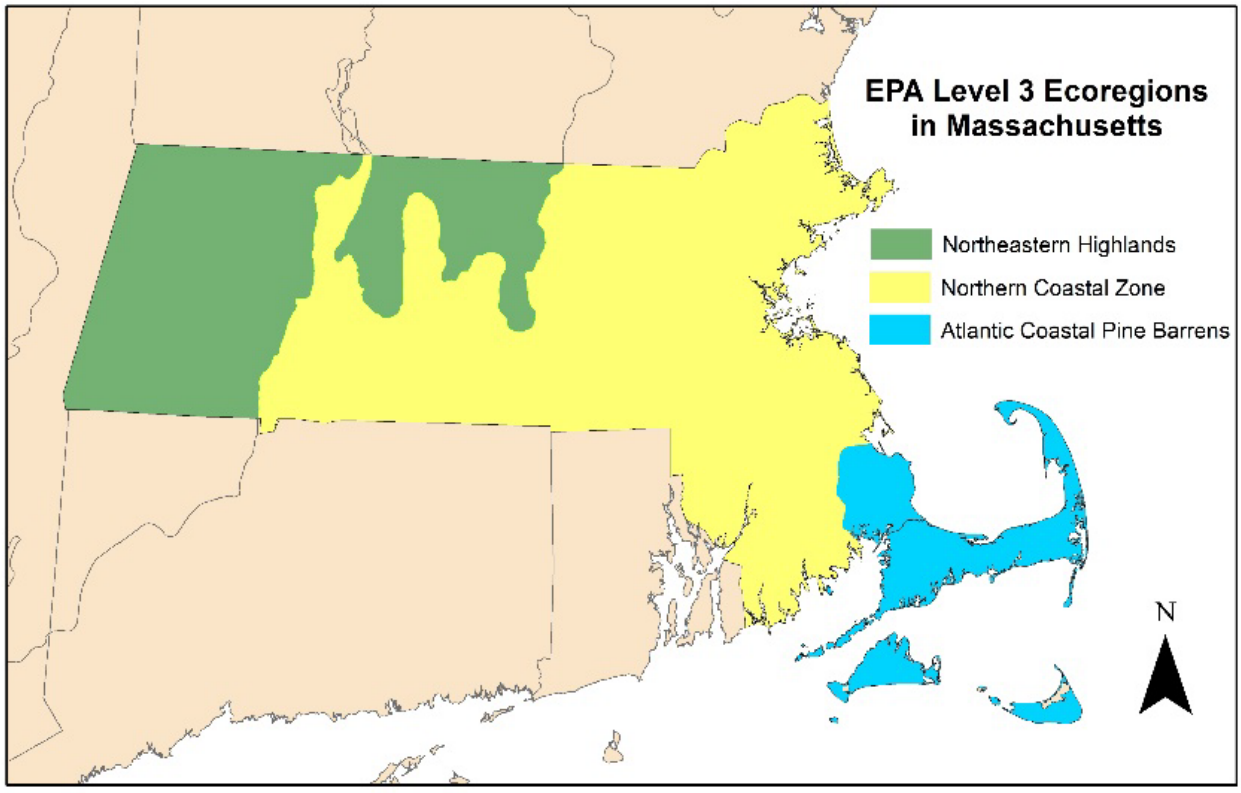

Figure 5. Map of various EPA level three ecoregions in Massachusetts. Sites used in this study fell into two of the three ecoregions: Northeastern Highlands and Northern Coastal Zone.

Table 5. Indices and equations used to calculate floristic quality

Index/Metric Name	Descriptive Name	Equation	Description / Notes	Source
FQA1	"Total FQA"	$\bar{C} \times \sqrt{N}$	All species	Swink & Wilhelm 1979
FQA2	"Native FQA"	$\overline{Cn} \times \sqrt{Nn}$	Native Species only	Swink & Wilhelm 1979
FQA3	"Adjusted FQA"	$\left(\frac{\bar{C}}{10}\ \frac{\sqrt{Nn}}{\sqrt{N}}\right) \times 100$	Weighted by percent native / non-native	Miller & Wardrop 2006
FQA4	"Total Mean C"	$\bar{C}$	Mean C-score for each site	Swink & Wilhelm 1979
FQA5	"Native Mean C"	$\overline{Cn}$	Mean C-score for native species only at each site	Swink & Wilhelm 1979
FQA6	"Total Species Richness"	N	Species Richness	Universal FQA: Freyman et al., 2016
FQA7	"Native Species Richness"	Nn	Species Richness of native species only	Universal FQA: Freyman et al., 2016
FQA8	"Percent Native"	$\frac{Nn}{N}$	Percent native species	Ervin et al. 2006
FQA9	"Frequency-Weighted FQA"	$\frac{\sum(C \times RF)}{N}$	Weighted by abundance.	Cohen et al. 2004
FQA10	"Cover-Weighted Mean C"	$\frac{\sum(C \times MC)}{TC}$	Weighted by its proportion of cover.	Bell et al. 2017
FQA11	"Cover-Weighted FQA"	$\frac{\sum(C \times MC)}{TC} * \sqrt{N}$	Weighted by its proportion of cover.	Bell et al. 2017
FQA12	"Relative Non-native Cover"	$\frac{TCa}{TC}$	The sum of non-native species abundance divided by the sum of all species abundance	Produced for this study

C = C-score for species at each site, *Cn* = Native C-score for species at each site, *N* = Species Richness (Number of species at each site), *Nn* = Native Species Richness (Number of native species at each site), *A* = Non-Native Species Richness (Number of non-native species at each site), *RF* = Relative Frequency (Species abundance divided by total abundance at each site), *MC* = Mean Cover of a species (Species abundance), *TC* = Total Cover (Total abundance of all species), *TCa* = Total Non-native Cover (Total abundance of all non-native species).

Statistical Analysis

The 12 FQA indices in Table 5 were used to calculate site scores for each of the 370 forested wetlands used in this study. In order to express the relationship between each site's FQA score and its stressor gradient, the FQAI scores (the dependent variable, y) were regressed against IEI scores (the independent variable, x) in a scatter plot. We expected this relationship between index and condition to be linear (Chamberlain & Brooks, 2016), so a best fit line (FQA = a + b*IEI) was used to visualize this relationship. The best fit line expresses the strength of each relationship, reported with an r-squared value that measures both tightness of fit and slope. Significance values were not reported because we were not looking for statistically significant outcomes, only investigating the nature of the relationships between FQA and IEI. Instead, we compared differences in the reported r-squared values to find the best and worst performing indices of FQA.

Results

Floristic Quality indices

The FQA index which demonstrated the strongest relationship with the general stressor gradient (IEI), when Massachusetts C-scores were used, was Adjusted FQA (FQA3), with an r-squared value of 0.252 (Figure 6). The second strongest relationship was expressed by Mean C (FQA4), with an r-squared value of 0.245 (Figure 6). Other indices showing some relationship with IEI, listed in decreasing order of r-squared value, were Percent Native (FQA8) with an r-squared value of 0.19 (Figure 7), Native Mean C (FQA5) with an r-squared of 0.176, Total FQA (FQA1) with an r-squared value of 0.131, and Native FQA (FQA2) with an r-squared value of 0.098. The other metrics and indices had either weak or no relationship to the GSG (Tables 6 and 7). Slope estimates and 95% confidence intervals were graphed along with each scatterplot. Tight slope estimates give us confidence that our calculation of the best fit linear relationship between FQA scores and the condition gradient are accurate. Wide 95% confidence intervals indicate that there is a lot of stochastic noise in the linear relationship.

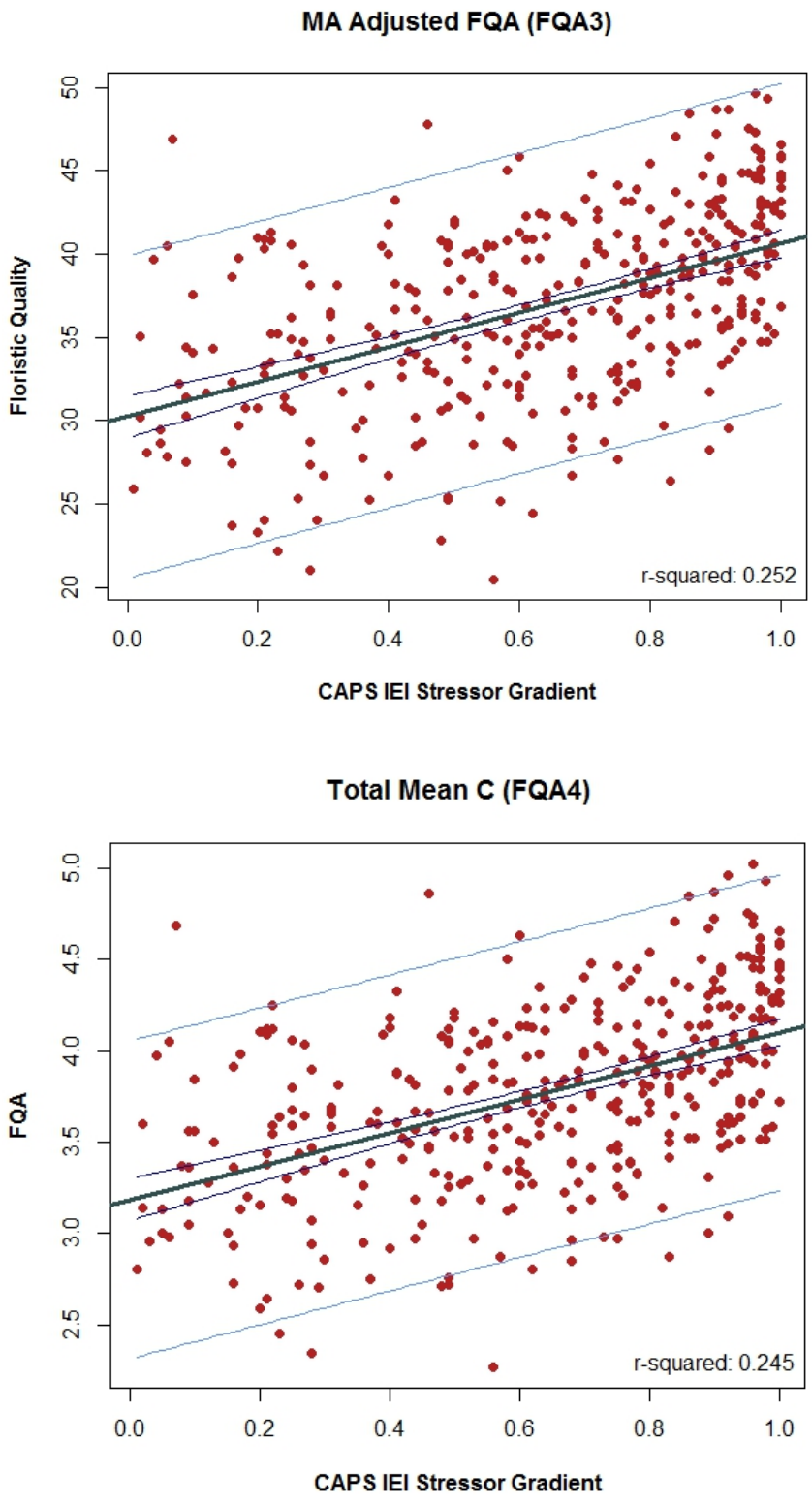

Figure 6. Performance of Adjusted FQA (FQA3, top) and Mean C (FQA4, bottom) using MA C-Scores. Model fit is reported as R^2. Slope estimates in black, 95 % confidence intervals in blue.

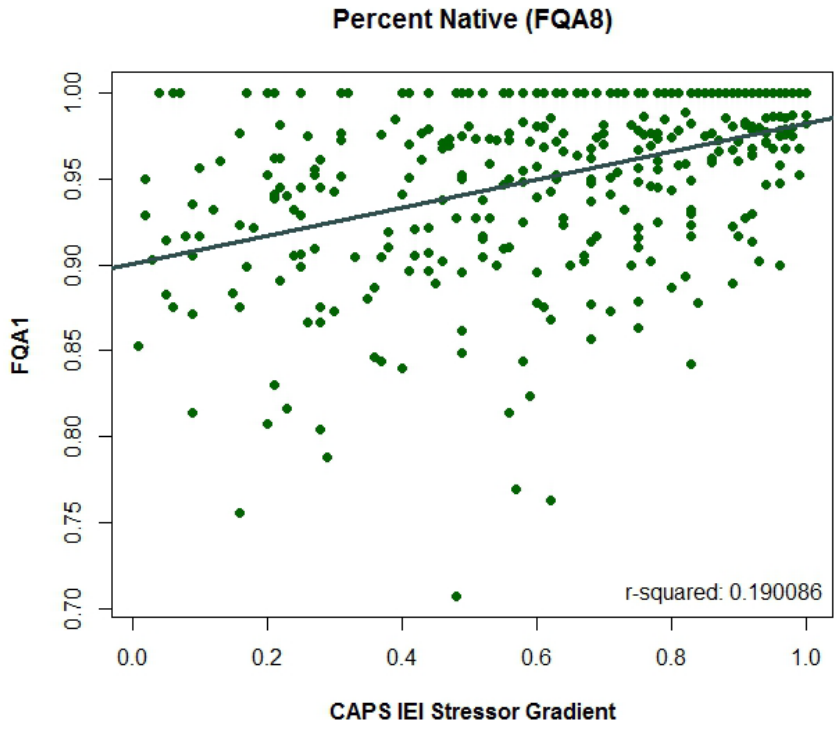

Figure 7. Performance of Percent Native (FQA8) using MA C-Scores. Model fit is reported as R^2. Slope estimate in black.

Table 6. Coefficient of determination (R^2) in the linear relationship between 8 different indices of forested wetland condition and a generalized stressor gradient for 370 forested wetlands in Massachusetts. R^2 values for the eight indices involving Coefficient of Conservatism scores (C-scores) assigned to each plant species were derived separately using C-scores published for each of the New England states plus New York. In Massachusetts, C-scores were also assigned separately by ecoregion (MA_eco).

State	FQA4	FQA3	FQA5	FQA1	FQA2	FQA10	FQA11	FQA9
MA	0.245	0.252	0.176	0.131	0.098	0.024	0.008	0.008
MA_eco	0.216	0.186	0.149	0.112	0.078	0.143	0.089	0.007
CT	0.333	0.33	0.321	0.216	0.159	0.104	0.098	0.008
RI	0.226	0.233	0.143	0.128	0.088	0.007	0.002	0
NY	0.185	0.216	0.19	0.064	0.11	0.145	0.124	0.013
NH	0.202	0.213	0.096	0.106	0.059	0.094	0.056	0.004
VT	0.095	0.118	0.011	0.065	0.028	0.071	0.045	0.009
ME	0.129	0.152	0.018	0.062	0.024	0.06	0.041	0.002

Table 7. Performance (reported as R^2 values) of 4 Floristic Quality Indices that do not involve C-scores, and thus do not vary with State C-score assignment.

State	FQA6	FQA7	FQA8	FQA12
MA	0.002	0.013	0.19	0.072

Coefficient of Conservatism Scores

The use of Connecticut C-scores produced stronger relationships to the condition gradient than the Massachusetts scores. New York state C-scores produced higher correlations than Massachusetts C-scores when used in the cover-weighted FQA indices. In all cases however, the relationships between IEI and cover-weighted scores were relatively weak. The overall strongest correlation between FQA and IEI resulted from using Connecticut state C-scores and Mean C (FQA4) (Figure 8).

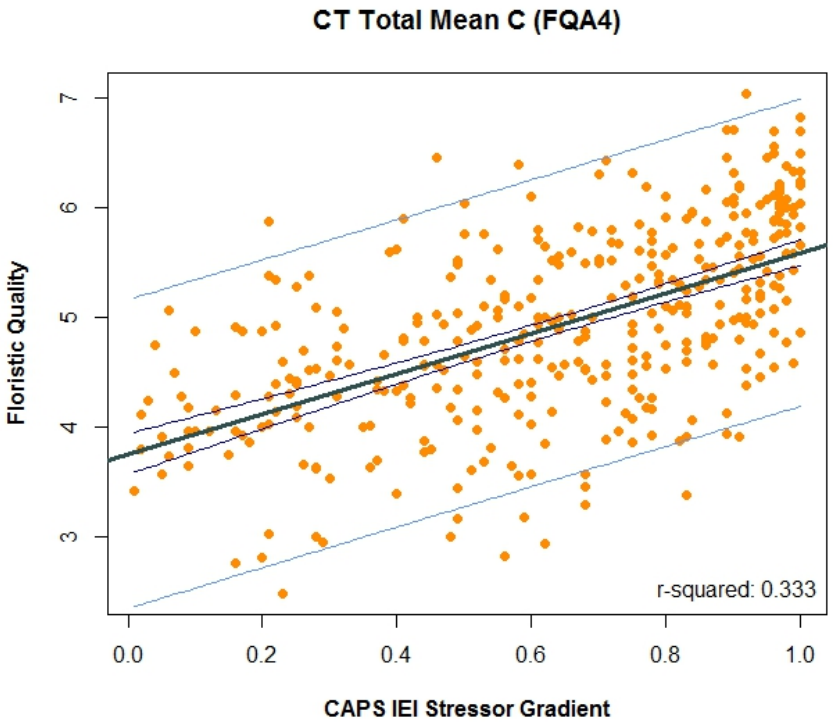

Figure 8. Performance of Total Mean C (FQA4) using CT C-Scores. Model fit is reported as R^2. Slope estimates in black, 95 % confidence intervals in blue.

Our results showed that the use of ecoregional C-scores showed little or no improvement in the performance of FQA indices in Massachusetts, with the exception of cover-weighted indices. FQA indices 10 and 11 both saw increases in performance when used with ecoregional C-scores, although these relationships were all relatively weak. For most FQA indices, statewide C-scores yielded better results than ecoregional C-scores (Table 6). Table 8 shows the correlation coefficients among FQA indices for the different C-scores evaluated.

Table 8. Correlation Matrix of Mean C (one of the top 2 performing FQA indices) comparing state-assigned C-score assignment.

	MA_eco	MA	CT	ME	NH	NY	RI	VT
MA_eco	1	0.9	0.89	0.83	0.94	0.83	0.93	0.89
MA		1	0.91	0.79	0.88	0.88	0.86	0.81
CT			1	0.67	0.82	0.8	0.89	0.72
ME				1	0.84	0.66	0.75	0.82
NH					1	0.8	0.89	0.88
NY						1	0.77	0.78
RI							1	0.81
VT								1

Native and Non-Native Species inclusion

Calculations of FQA, when done with native species only and using MA C-scores, had similar or weaker relationships with site condition than when all species were included (Table 6). In the case of Total vs Native FQA (FQA1 & 2), the removal of non-native species from the calculations resulted in a decrease in r-squared from 0.131 to 0.098. In the case of Total vs Native Mean C (FQA4 & 5), the removal of non-native species from the calculations resulted in a decrease in r-squared from 0.245 to 0.176. The metrics Relative Non-Native cover (FQA12) resulted in small positive relationships with IEI, with an r-squared value of 0.072. The overall strongest FQA metric (FQA3) for MA and the other states was a version of FQA that was weighted by the percentage of native species.

Habitat Loss Metric

In order to assess the validity of our CAPS IEI gradient as a generalized stressor gradient (GSG), we also wanted to explore the relationship between FQA and a simple metric of anthropogenic disturbance similar to those used in other studies. When FQA scores were calculated using the CAPS Habitat Loss metric as the GSG, FQA indices performed comparably or worse than they did when calculated using our CAPS IEI gradient as the GSG.

Variation in Species C-scores

In order to investigate potential areas for improvement of C-score assignment, we examined how variable the C-scores were for plants with highly frequencies of occurrence in our study. Frequency of occurrence was calculated by dividing the number of sites at which a species occurs by the total number of sites in the study. The ten plant species in this study with the highest frequency of occurrence, and their ranges of C-scores for New York and New England are shown in Table 9.

Table 9. Species frequencies of occurrence, and corresponding state-assigned C-scores (MA, CT, ME, NH, NY, RI, and VT).

Taxon	Frequency	Total Sites	Frequency of Occurrence	C-Score MA	CT	ME	NH	NY	RI	VT	C-Score Difference
Acer rubrum	367	371	0.99	2	3	2	3	2	3	2	1
Ilex verticillata	332	371	0.89	5	5	3	3	4	3	7	4
Maianthemum canadense	297	371	0.8	3	5	2	2	4	3	3	3
Pinus strobus	284	371	0.77	2	3	2	2	4	5	4	3
Vaccinium corymbosum	252	371	0.68	4	5	4	4	5	4	7	3
Rubus hispidus	244	371	0.66	2	4	2	2	5	3	4	3
Aralia nudicaulis	221	371	0.6	3	5	4	4	3	5	4	2
Fraxinus americana	210	371	0.57	4	7	2	5	3	5	3	5
Coptis trifolia	210	371	0.57	6	8	4	5	5	7	4	4

Discussion

Floristic Quality indices

One of our two best performing FQA indices was the Adjusted FQA (FQA3). Adjusted FQA was created by Miller and Wardrop (2006). To test Adjusted FQA's performance, they regressed it against an index of human disturbance based on an assessment of surrounding land use, buffer characteristics, and an assessment of on-site stressors. Miller and Wardrop reported an r-squared score of -0.87 from this correlation. The relationship between Adjusted FQA and our stressor gradient produced much lower r-squared values of 0.252 with MA C-scores and 0.33 with CT C-scores. Since its first appearance in 2006, Adjusted FQA has been used in few studies that comparatively test the different Floristic Quality Indices (Chamberlain & Brooks, 2016). Despite its recent creation, Adjusted FQA was chosen as one of the FQAI options in the NEIWPCC online FQA calculator (Freyman et al., 2016).

The other FQA index that performed relatively well in our study was Mean C (FQA4), one of the two original Floristic Quality Assessment indices created by Swink & Wilhelm (1979). Mean C-scores have been used in a number of studies to determine floristic quality (Miller and Wardrop 2006; Spyreas, 2016; Bried et al., 2013; Chamberlain & Brooks, 2016; Bell et al, 2017). This index has been noted for its consistent performance in other studies. Chamberlain and Brooks (2016) praised Mean C, saying that it lacked influence from sample size and species richness, two factors that may cause bias when using Total FQA (FQA1). Spyreas (2016) concluded that Mean C allowed for consistent floristic quality analysis among varying plot sizes, species detectability, rates of species misidentification, and sample size. However, Mean C has also been criticized for not being informative enough. Miller and Wardrop (2006) warned that the use of Mean C-scores alone yielded misleading results. In their research adapting FQA for wetland assessment in Pennsylvania, they found many sites with similar Mean C-scores that had a wide range of disturbance ranks, other FQA index scores, and native species richness. Our Mean C-scores are relatively consistent when used with varying C-score assignments as well,

but we did not test the degree of that consistency. We also found that similar Mean C-scores can be found in sites with IEI scores that varied widely.

In contrast to these better-performing FQA indices, some specific indices that performed poorly against the generalized stressor gradient in our study included FQA2, FQA10, FQA11, and FQA9. Of those listed, FQA2, FQA11, and FQA9 include some measure of species richness in their equations, which may be affecting their performance. Miller and Wardrop (2006) noted that Total FQA (FQA1), Mean C (FQA4) and Adjusted FQA (FQA3) were highly sensitive to species richness, and that sites with larger species richness values always scored higher than those that had fewer species present. Maginel et al. (2016) demonstrated how Total FQA (FQA1) was strongly influenced by the calculation of species richness, and found that their own calculations of Mean C were unable to differentiate between burned and unburned sites when species richness was high.

The relationship between species richness and FQA is also influenced by size of the assessment area (Matthews et al. 2005). In their research, they found that FQA is affected by spatial landscape attributes such as isolation and area (which impact species richness), weakening the relationship between disturbance and plant species composition. This was the same reasoning explained by Bried et al., (2012), when they suggested that variability in species richness is misleading because it is influenced by factors unrelated to human disturbance, such as the size of the assessment area, seasonality, and sampling effort. Bourdaghs et al. (2006) also noted that assessment area size matters, and that FQA reliability increased with sampling area.

Many of the indices that performed poorly in our study (FQA9, FQA10, and FQA11) were weighted by abundance (percent cover or frequency). The cover-weighted Mean C (FQA10) and cover-weighted FQA (FQA11) show very weak relationships with the stressor gradient. However, these two indices were tested by Bell, et al. (2017), and the cover-weighted Mean C correlated very closely with their calculation of Ecological Integrity Assessment scores. The Ecological Integrity Assessment used in that study is different from our CAPS-based Index of Ecological Integrity. Their assessment measured various ecological factors including landscape, buffer, size, vegetation, hydrology, and soil metrics. Another FQA index, cover-weighted FQA (FQA11) did not perform as well, and they recommended the use of Mean C or Weighted Mean C for wetland assessment purposes (Bell et al., 2017). In a study by Cohen et al. (2004), when abundance-weighted FQA (FQA9) was fit to a model comparing it to a different landscape disturbance index, it performed well compared with Mean C. Due to the extra effort involved with calculating frequency in FQA9, they ended up excluded it from their subsequent analyses (Cohen et al., 2004).

It is difficult to understand how, if the plants used in FQA are good indicators of ecosystem condition, indices that only account for the presence/absence of species could out-perform indices that take into account species abundance. The failure of abundance-weighted indices might indicate some fundamental problem with the current approach for assigning C-scores. For example, if a large number of uninformative species are present and weighted by their abundance, it would add noise to any relationship between an FQA index and the stressor gradient.

Coefficient of Conservatism Scores

The process of calculating Floristic Quality Assessment (FQA) is based on the assignment of C-scores for plant species growing in a region of interest. The assignment of C-scores is subjective, and some consider it to be an important weakness of the FQA approach. Bowles and Jones (2006) considered C-scores to be highly biased. In their research with fire-managed systems, they suggested that the inability of FQA and Mean C values to detect negative changes at their sites was most likely due to deficiencies with C-scores.

FQA operates under the assumption that all species are indicators, and each plant species should have a single assigned C value. When Nichols et al. investigated FQA's ability to detect human disturbance in Virginia hardwood flats, they concluded that the C-scores for woody plants do a particularly poor job at distinguishing condition. Matthews et al. (2015) measured the extent to which woody species were undervalued by graphing the relationships between species C-scores and an average of C-scores for other species with which they co-occurred. As such, they found that woody plants, perennial herbs and non-native species all had C-scores that were significantly lower compared to the species they co-occurred with, indicating a potentially undervaluing bias in the C-scores. Cohen et al. (2004) investigated the process of assigning C-scores to individual plant species. They tested the variability in C-scores assigned by 10 individual botanists vs. scores assigned by a panel of experts, reporting "significant disagreement between botanist opinions" (Cohen et al., 2004). The mean pairwise correlation between botanists was 0.62.

We had the four professional botanists who collected data for our research independently assign C-scores to species found at sites used in this study. We also found the variation between C-score assignments to be high (Table 10; mean correlation coefficient = 0.64; range 0.394-0.861). Rothrock and Homoya (2005) were also interested in researching the consistency of C-score assignment. They compared variation in C-scores between Illinois and Indiana, stating that in practice, variation in C-scores between neighboring states should have little impact on the calculation of FQA indices, but their research did not support this. They found that more than a third of species in Indiana diverged from Chicago species C-scores by 1-3 coefficients of conservatism units, and that there was more variation in middle range scores (3-4) than extreme values in low/high scoring species. Rothrock and Homoya did not actually test how this variation in C-scores affected FQA index scores, but our research tested that relationship among C-scores from states in the Northeast. Our results indicate that FQA is sensitive to changes in C-scores (Table 8).

Table 10. Correlation Matrix of variation between C-scores assigned by each botanist. This shows us how similar the assignments of C-scores for each species are between botanists. Mean of all the pair-wise correlation coefficients was 0.64.

	Botanist 1	Botanist 2	Botanist 3	Botanist 4	Mean Scores
Botanist 1	1	0.56	0.61	0.54	0.86
Botanist 2		1	0.39	0.62	0.78
Botanist 3			1	0.47	0.79
Botanist 4				1	0.79
Mean Scores					1

A basic assumption of C-scores is that they become less reliable as an indicator of disturbance the further away they are used from their intended geographic range (Wilhelm and Masters, 1995). In order to improve the assignment of C-scores, Bried et al. (2012) recommended that C-scores be assigned by ecoregion to improve their ecological accuracy. The justification for assigning ecoregional C-scores is that species' ranges and responses to ecological setting are not confined to state boarders (New England Interstate Water Pollution Control Commission, 2018). Under this assumption, we would expect that ecoregional C-scores would out-perform the general Massachusetts C-scores, and that Massachusetts C-scores would perform better when calculated for Massachusetts wetlands than C-scores from other states. Our results contradict these assumptions. We found that when ecoregional scores were used in place of MA scores, the only improvement in the relationship between FQA and the disturbance gradient occurred when cover-weighted indices were used. However, in our tests, cover-weighted indices performed quite poorly overall compared to the other indices. In all the other FQA indices, ecoregion-assigned C-scores performed worse than statewide Massachusetts scores. Also contrary to this general C-score assumption is the fact that using Connecticut C-scores to evaluate Massachusetts forested wetlands resulted in higher correlations with the stressor gradient than when Massachusetts C-scores were used.

At both the state and ecoregional level, C-scores are assigned to plants on the premise that they indicate disturbance equally well across many ecosystem types (Wilhelm and Masters, 1995). Bell et al. (2017) warned that community specific studies are necessary to identify local quality thresholds for habitat quality. Further, the decision to have separate C-scores for different states/ecoregions acknowledges that vegetative communities are determined by more than just stressor gradients; the role of abiotic factors and ecological setting are also important. Differences between one ecoregion and another (or one state and another) are probably small compared to differences among ecosystems (e.g. salt marsh and freshwater tidal marsh, or salt marsh and forested wetland). FQA might be more effective if C-scores were assigned based on ecosystem, in addition to ecoregion, as suggested by Jackson et al., (2017). In that study, an empirically derived, vegetation-based index of biological integrity specifically developed for forested wetlands performed poorly when applied to shrub swamps.

Non-Native Species Inclusion or Exclusion

Another interesting result of this study was how the various FQA indices performed relative to the inclusion/exclusion of non-native species in FQA calculations. We had three pair of indices that were calculated both with and without non-native plants. In the case of Total vs Native FQA (FQA1 and 2), the removal of non-native species from the calculations resulted in a decrease in r-squared from 0.131 to 0.098. In the case of Total vs Native Mean C (FQA4 and 5), the removal of non-native species from the calculations resulted in a decrease in r-squared from 0.245 to 0.176. Improvement in model fit with the inclusion of non-native species is consistent with other studies (Cohen et al. 2004; Miller and Wardrop, 2006; Francis et al., 2000).

Original versions of Floristic Quality omitted non-native species from their analysis, because non-native species were deemed uninformative for defining natural areas (Wilhelm & Masters, 1995). Since then, many people have chosen to include non-native species in FQA calculations when assessing site condition, assigning all non-native C-values of zero. In 2004, Cohen et al., found that the use of nonnative taxa resulted in minor improvements in model fit of Total FQA (FQA1) and Mean C (FQA4) when using landscape development intensity as the generalized stressor gradient. Miller and Wardrop, in their 2006 paper, described the interaction between non-native species and wetland condition by discussing how the quantity of non-natives at any site influences the quality of that site, pointing out that poor quality sites invite the establishment of invasive plants. They concluded that non-native plants are always associated with a decrease in site quality, and that that decrease should be accounted for in FQA calculations. Miller and Wardrop (2006) developed an “Adjusted FQA” index to be sensitive to non-native species richness versus total species richness. Adjusted FQA (FQA3) performed very well in that study when compared to a disturbance gradient score (r-squared = -0.87). Spyreas (2012) acknowledged the informative nature of non-native species and their negative effects on floristic quality through strong invasions. Matthews et al., (2015) suggested that including non-natives in comparisons of FQA indices to a disturbance gradient resulted in slightly improved r-squared values.

References for evaluating FQA

Studies that tested FQA performance have generally relied on calculations of landscape disturbance as the basis for evaluating FQA (Bried et al., 2013; Miller and Wardrop, 2006). There is some disagreement on the use of buffer zones and simple land-use analyses as the basis for evaluating FQA. Jog et al. (2017) stated that land use within a buffer zone does not accurately indicate biological integrity at the 200-m scale. They conceded that due to the limited nature of their study, they were unable to evaluate whether larger scales might be more informative. When Lopez and Fennessey (2002) used a disturbance gradient that took land use intensity within a 100-foot buffer into account, they found it had a strong relationship with FQA scores. Bried et al. in 2012 used an estimation of buffer degradation within a 100-foot buffer around the plot perimeter, coupled with a land use intensity analysis within 500 ft. to quantify disturbance. They also reported strong relationships between Mean C and this disturbance gradient.

In order to make sure the rigorous, Level-1 CAPS approach wasn't an overly complicated way to quantify the GSG, we also evaluated FQA index scores using a simple "habitat loss" metric, similar to GSGs used in other studies. The resulting relationships between FQA indices and habitat loss were not stronger than those between FQA indices and IEI. Therefore, we concluded that the relatively weak relationships between FQAIs and the stressor gradient that we found compared to other studies were not due to some shortcoming of the IEI-based GSG.

There are benefits and disadvantages to using each of the different levels of wetland assessment set forth by the EPA. Land-use data in Level-1 assessments do not fully explain fine-scale, local interactions without site-level confirmation (Hargiss et al., 2017). Level-1 assessments are useful for understanding watershed-scale effects on the condition of a site, provide a broad understanding of the variety of stressors affecting a location, and can provide comprehensive assessments of all wetlands with a watershed. Level-3 assessments provide in-depth understanding of individual site condition and function, but are costly and often require multiple visits and taxonomic expertise that limit the ability to use them broadly across the landscape (Hargiss et al., 2017). Level-2 assessments tend to be less detailed/more subjective than level-3 assessment methods, but are also cheaper and faster to implement than the other two levels (Hargiss et al., 2017). Although it is generally infeasible to use rapid assessment methods (RAMs) to comprehensively assess all wetlands in a watershed or state, they are more suitable than intensive methodologies for assessing large numbers of sites.

These different levels of wetland assessment serve different purposes and used individually are likely to give an incomplete assessment of wetland sites. When Level-2 assessments are validated using Level-1 assessments, any potential improvement of that Level-2 assessment brings it closer to replicating the landscape-level assessment. The Level-2 assessment is then at risk of becoming redundant with the Level-1 assessment. To be useful as a complement to level-1 assessments, level-2 assessment protocols should be validated by, and calibrated to, Level-3 assessments" (US EPA, 2006).

We recommend that Level-2 rapid assessment methodologies be developed from, and tested against, more comprehensive site-based assessment methodologies. The kind of circular logic that comes about when Level-2 methods are evaluated against the results of other stressor-based assessment methods is evident in many studies that seek to create an index of wetland condition based on biological data. New indices are tested against a landscape level or rapid assessment method that use stressor metrics as a surrogate for true indicators of condition. If we only consider indices valid if they replicate stressor gradients, then why do we need them if quantifying human disturbance via landscape-scale assessments is so much easier and can provide comprehensive coverage for all wetlands? Research is needed to test the efficacy of FQA and other rapid assessment methodologies using Level-3, comprehensive assessment methodologies based on condition, rather than stressor, metrics.

Proposals for Improving FQA

A few improvements have been suggested for FQA in the literature. Bried et al. (2012) recommended that sites should be sampled throughout the growing season in order to account for variability in species detectability. Chamberlain and Brooks (2016) suggested that using only dominant species will provide similar Mean C-scores with less work. They defined dominant species using the 50/20 rule developed for wetland delineations, and found little change in Mean C-scores when all grammanoids were removed from the analysis. However, it is possible that use of only dominant plants would place more weight on widespread species that occur in both degraded and relatively pristine sites. An example of a ubiquitous and potentially uninformative species in forested wetlands is red maple (*Acer rubrum*). This species was found at 99% of the forested wetland sites in our research. It accounts for >25% cover at 60 percent of our sites. As a widespread species in forested wetlands, red maple is tolerant of disturbance, but it is not necessarily indicative of disturbance.

Ervin et al., (2006) suggested that a wetness index be used instead of coefficients of conservatism, so that places without established C-scores would be able to calculate floristic quality. They created an index called FAQWet that replaced C-scores with a numeric system that rewarded plants found more frequently in wet environments. FAQWet performed similarly to FQAI in that study, but neither index was correlated to a high degree with indices of human disturbance. The Army Corps of Engineers cautions against the use of wetland indicator status as an indicator of site condition, because those categories were designed to show how often plants occur in wet areas, not to indicate the degree of wetness for a site.

Management Implications

One of the goals of this research was to evaluate the performance of various FQA metrics and indices, and identify those that provide the best assessment of wetland condition. The FQA indices that performed worse in our study also performed poorly in other studies (Miller and Wardrop, 2006; Bell et al., 2017, Chamberlain & Brooks, 2016; Bried et al., 2013). Consistent poor performance suggests that Total FQA (FQA1), Native FQA (FQA2), Total Species Richness (FQA 6), and Native Species Richness (FQA7) should not be used for assessing wetland condition. These equations all involve species richness in the calculations, which may be impairing their ability to assess site condition. We also recommend against the use of Native Mean C (FQA5), because of the superiority of its counterpart, Total Mean C (FQA4). The abundance-weighted indices which performed poorly in this study, Frequency-weighted FQA (FQA9), Cover-weighted Mean C (FQA10) and Cover-weighted FQA (FQA11) have been shown to perform well in other studies (Cohen et al., 2004; Bell et al., 2017), so we believe that there may be potential to further develop abundance-weighted FQA indices even though they had little relationship with the GSG in our study.

Although none of the relationships between FQA indices and our GSG were particularly strong, the indices that performed better than others, Adjusted FQA (FQA3) and Mean C (FQA4), may be worthy of further development as rapid assessment methods. In some regions, plants were

rated by the confidence botanists had in assigning C-scores (Freyman et al., 2016). Weighting C-scores by the confidence scores might improve the performance of these indices.

One option for improving abundance-weighted indices might be to identify and drop species that are relatively uninformative. These are species that show little or no relationship with human disturbance or stressors. For indices where species are weighted by abundance, uninformative species might cause excessive noise in the relationship between FQA and the stressor gradient, especially if those species are commonly encountered and often abundant. Alternatively, species C-scores can be weighted by how strong each plant is as an indicator of condition.

Our research suggests that the performance of the different FQA indices is dependent on the quality of C-scores. Improvement in C-score assignment has the potential to significantly improve the performance of FQA indices. Reliance on the professional, yet subjective, judgement of botanists for C-score assignment undermines confidence in the indices. The whole process would be strengthened by adopting an empirical approach for assigning and testing C-scores. Further, C-scores assignments should vary not just by geography but should also be developed independently for each major wetland system in which they will be deployed.

The noise that we see in our data could be due to natural variation, a design flaw in FQA indices, or the need for better approaches for assigning C-scores. This suggests shortcomings in current approaches to FQA and their ability to accurately assess site condition. The Floristic Quality Assessment method was designed as a tool for assessing the condition of sites through an evaluation of the vegetative community. Ervin et al., (2006) recommended that it would be more appropriate to use FQA for monitoring sites over time, as opposed to point-in-time sampling. Hargiss et al. (2017), concluded that FQA would be best used in combination with other levels of assessment, based on the needs of the surveyors. The authors concluded that it was necessary to conduct in-depth assessments often enough to verify that the assessment levels are in agreement. Whether or not FQA performs well enough for use in a comprehensive wetlands assessment and monitoring program depends on how it will be used in combination with other assessment methodologies. At this point, it is unclear how FQA fits in with the EPA recommended three level approach to wetlands assessment.

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Appendix A: Concordance Plots for CAPS Metrics and Forested Wetland IBIs

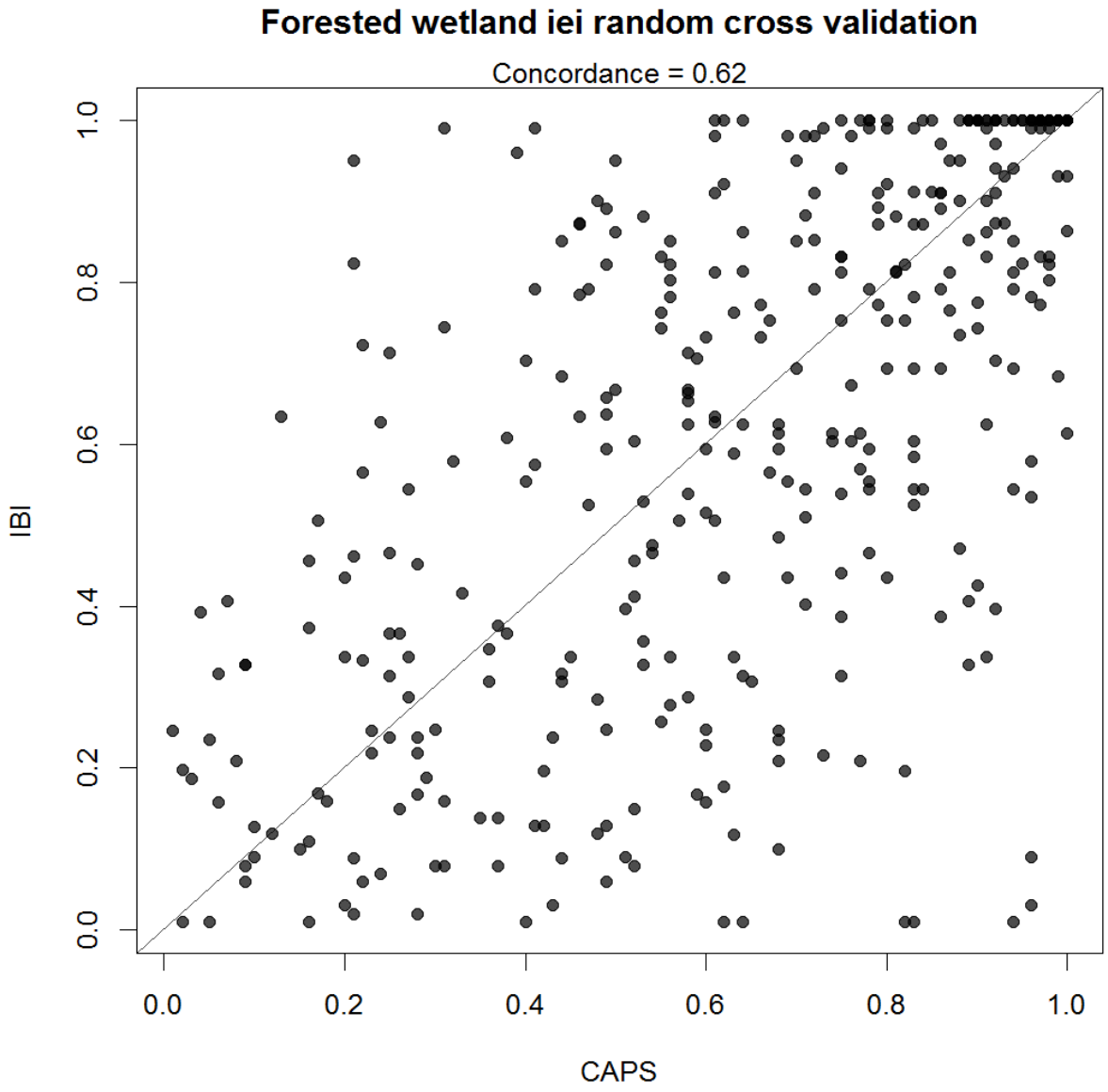

Figure A-1. Plot of IBI scores versus CAPS Index of Ecological Integrity (IEI) scores for forested wetlands

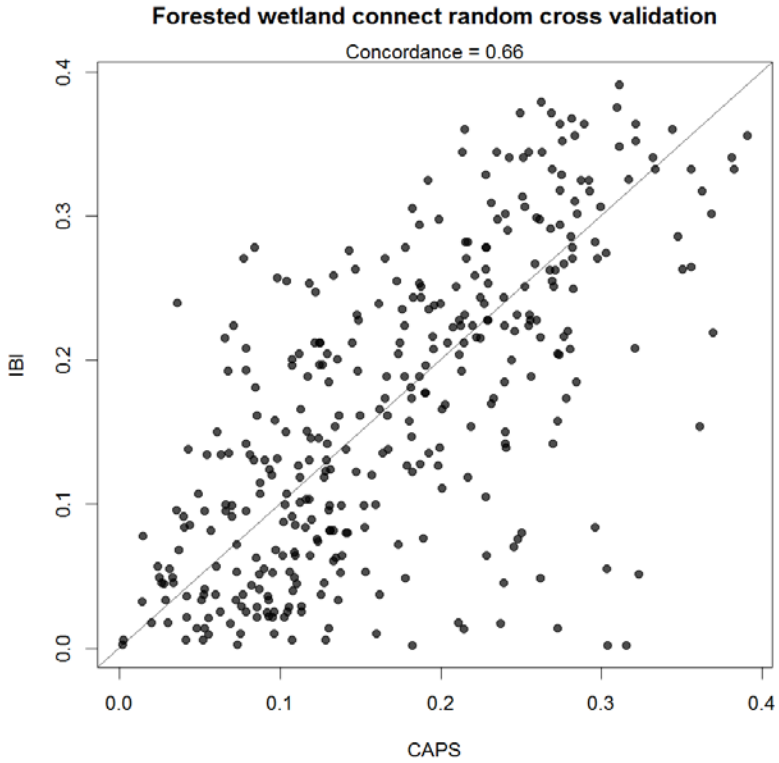

Figure A-2. Plot of IBI scores versus CAPS Connectedness metric scores for forested wetlands

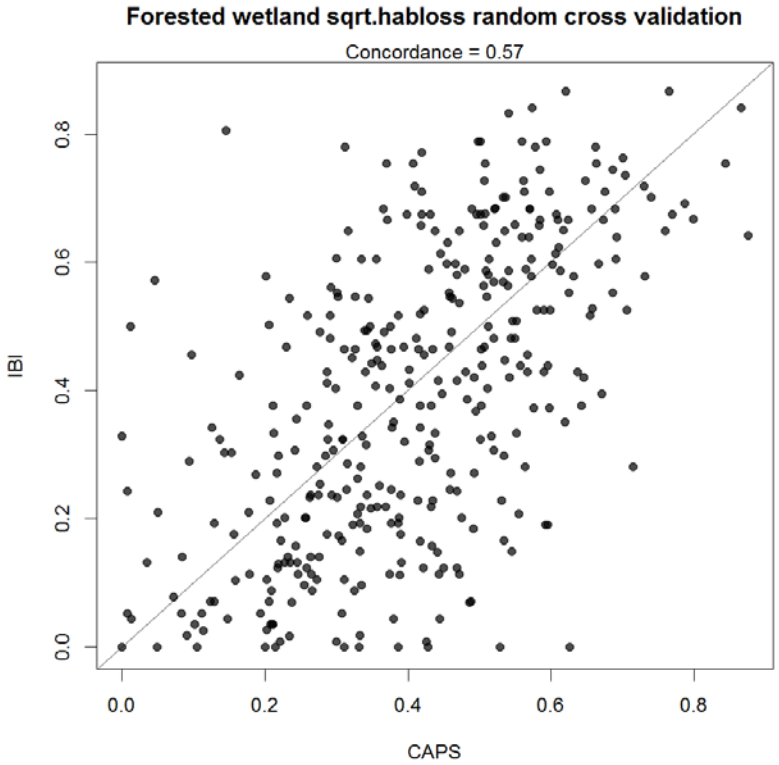

Figure A-3. Plot of IBI scores versus CAPS Habitat Loss metric scores for forested wetlands

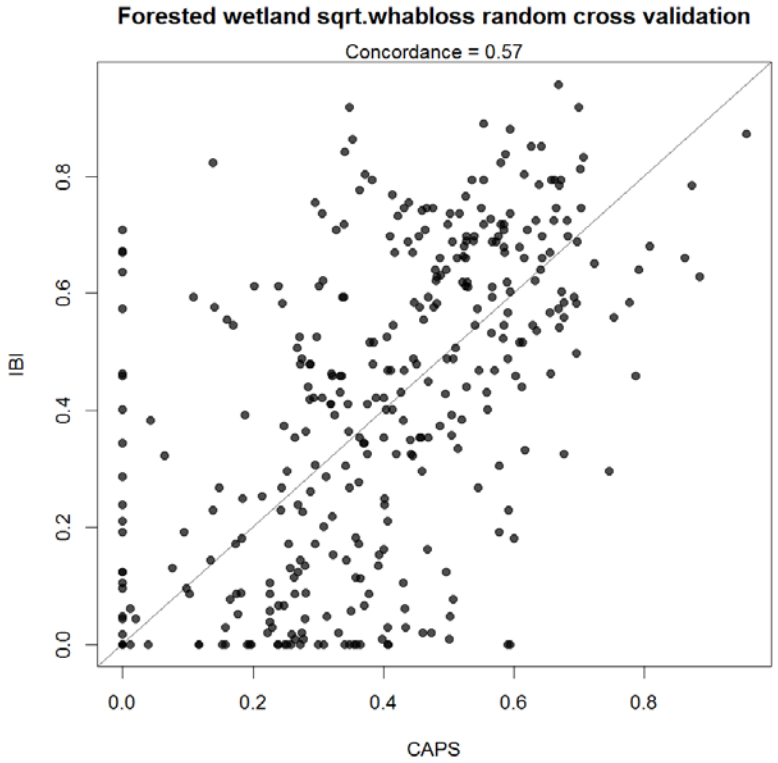

Figure A-4. Plot of IBI scores versus CAPS Watershed Habitat Loss metric scores for forested wetlands

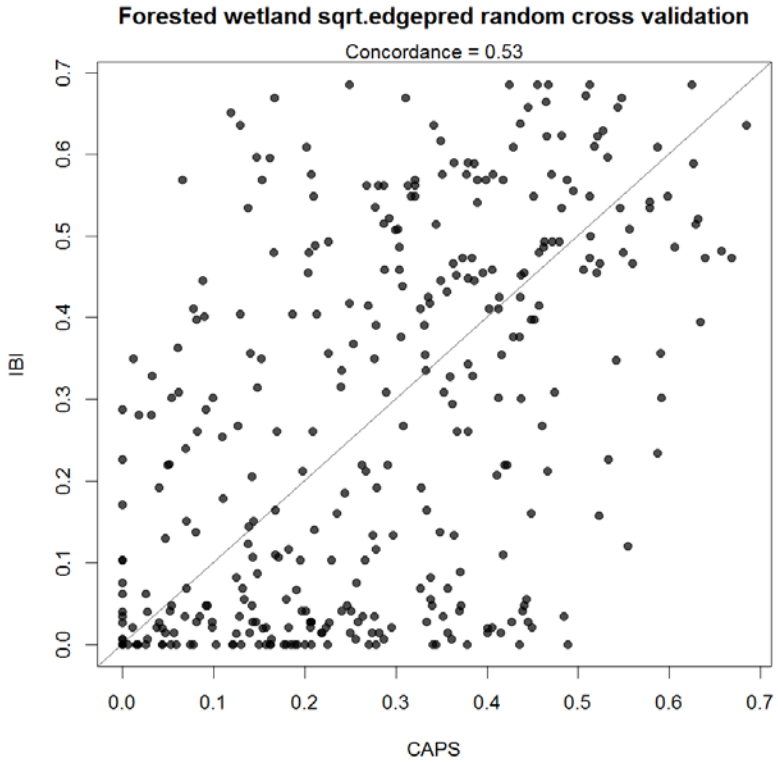

Figure A-5. Plot of IBI scores versus CAPS Edge Predators metric scores for forested wetlands

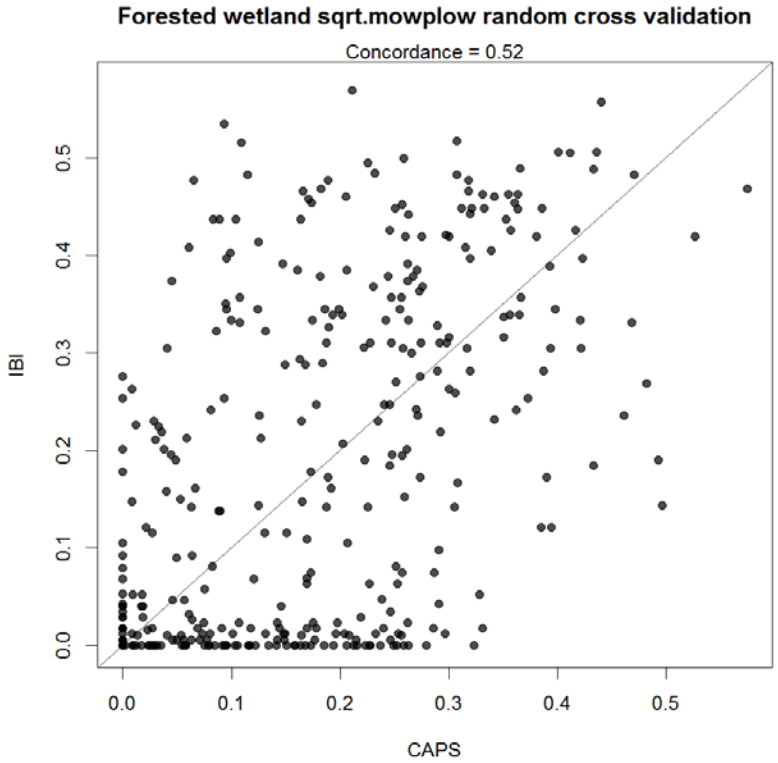

Figure A-6. Plot of IBI scores versus CAPS Agriculture metric scores for forested wetlands

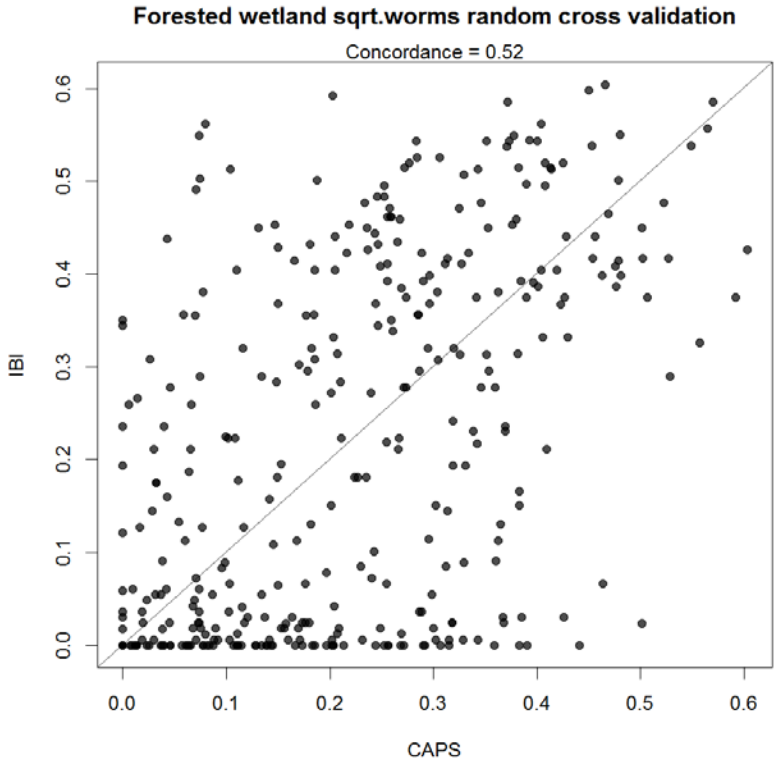

Figure A-7. Plot of IBI scores versus CAPS Invasive Earthworms metric scores for forested wetlands

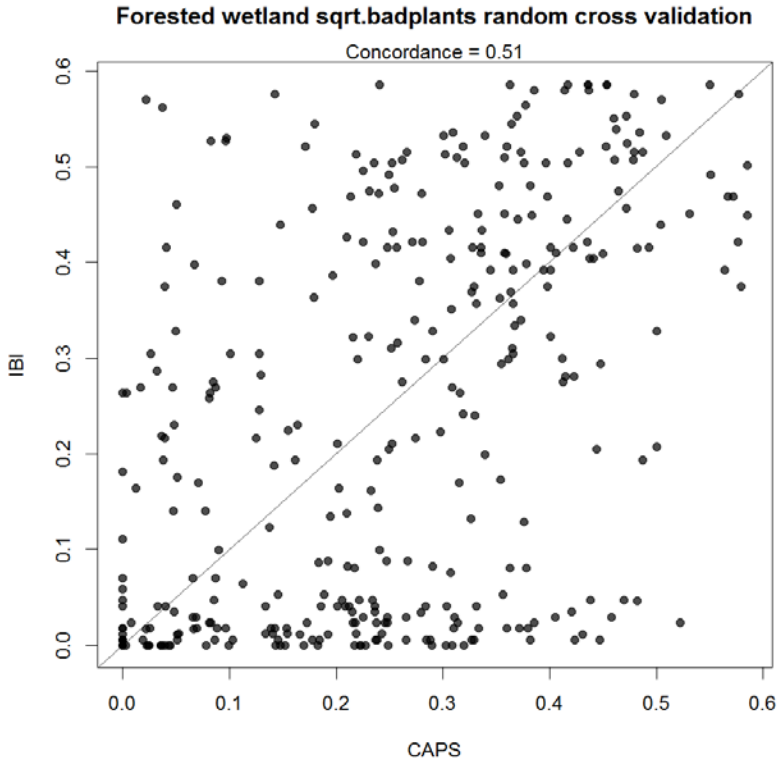

Figure A-8. Plot of IBI scores versus CAPS Invasive Plants metric scores for forested wetlands

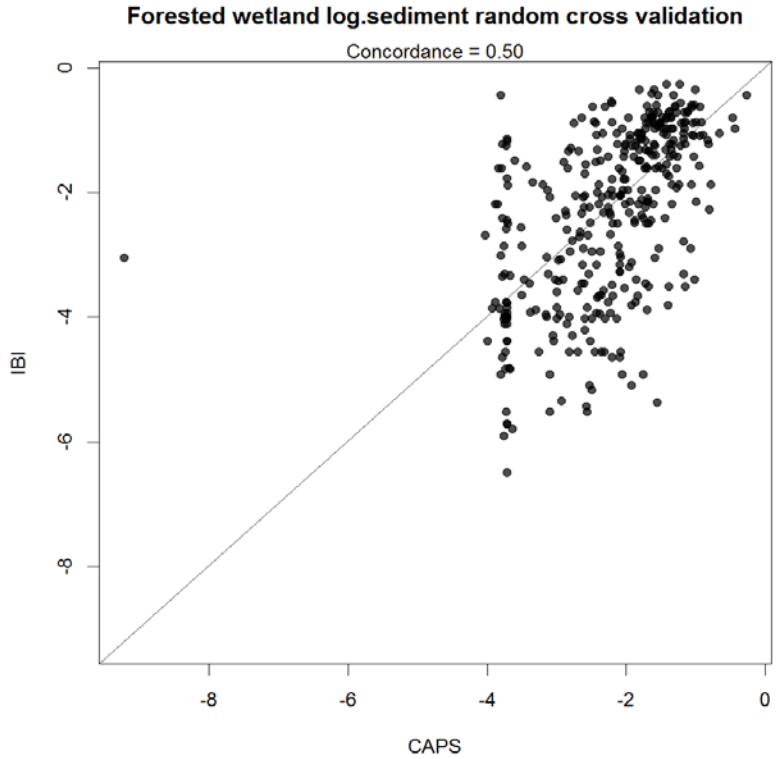

Figure A-9. Plot of IBI scores versus CAPS Road Sediment metric scores for forested wetlands

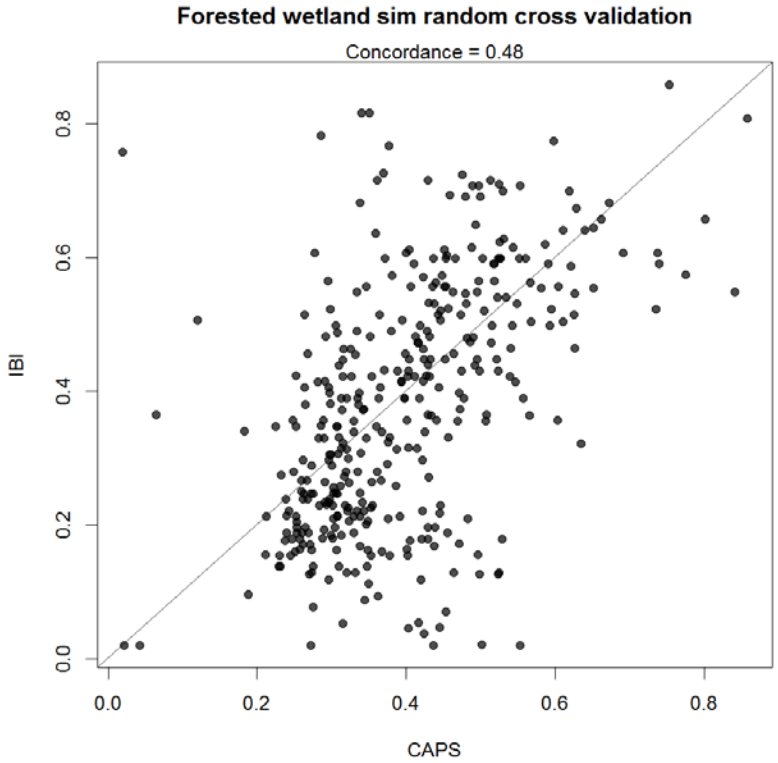

Figure A-10. Plot of IBI scores versus CAPS Similarity metric scores for forested wetlands

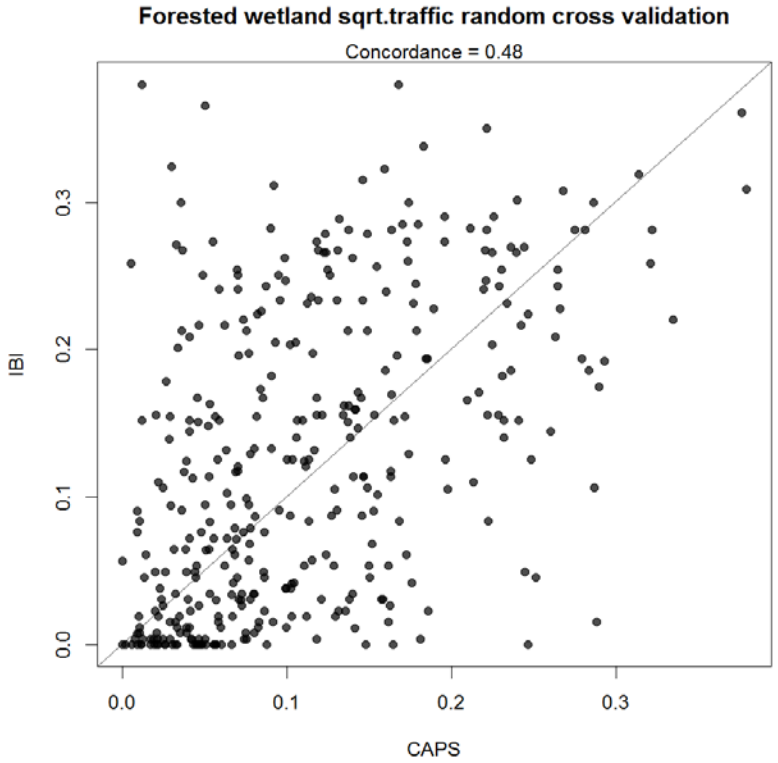

Figure A-11. Plot of IBI scores versus CAPS Traffic Intensity metric scores for forested wetlands

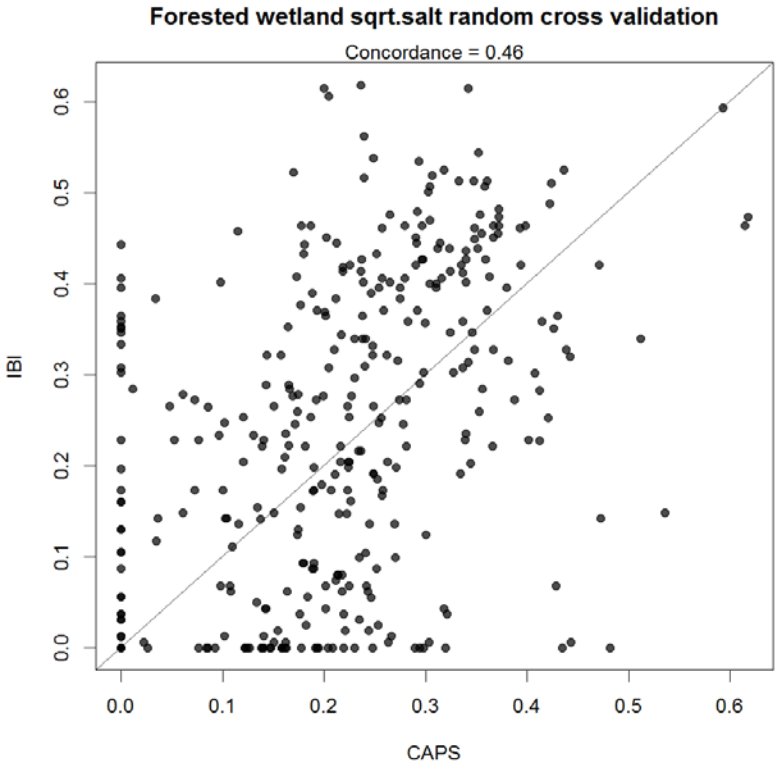

Figure A-12. Plot of IBI scores versus CAPS Road Salt metric scores for forested wetlands

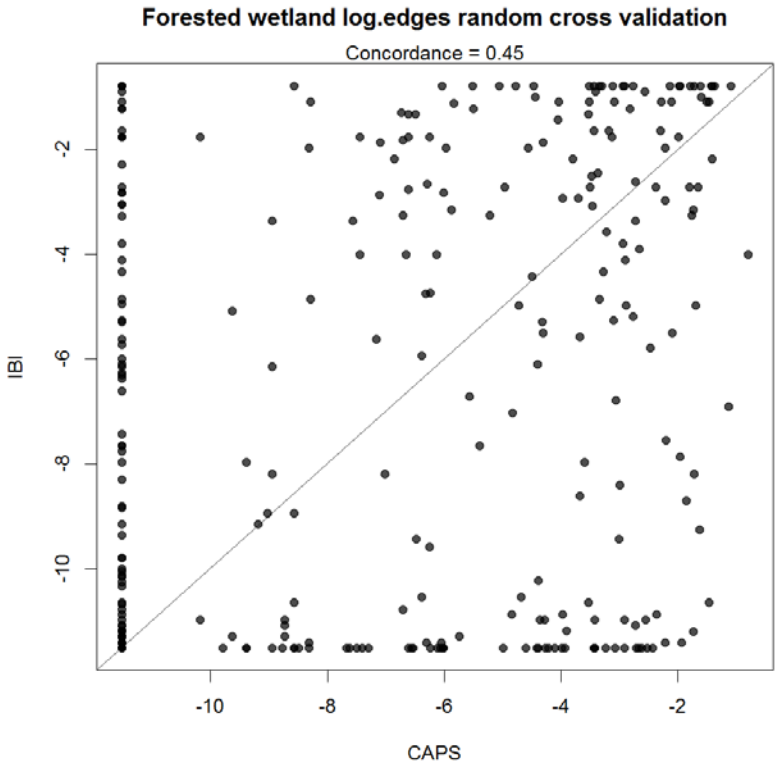

Figure A-13. Plot of IBI scores versus CAPS Microclimatic Alteration metric scores for forested wetlands

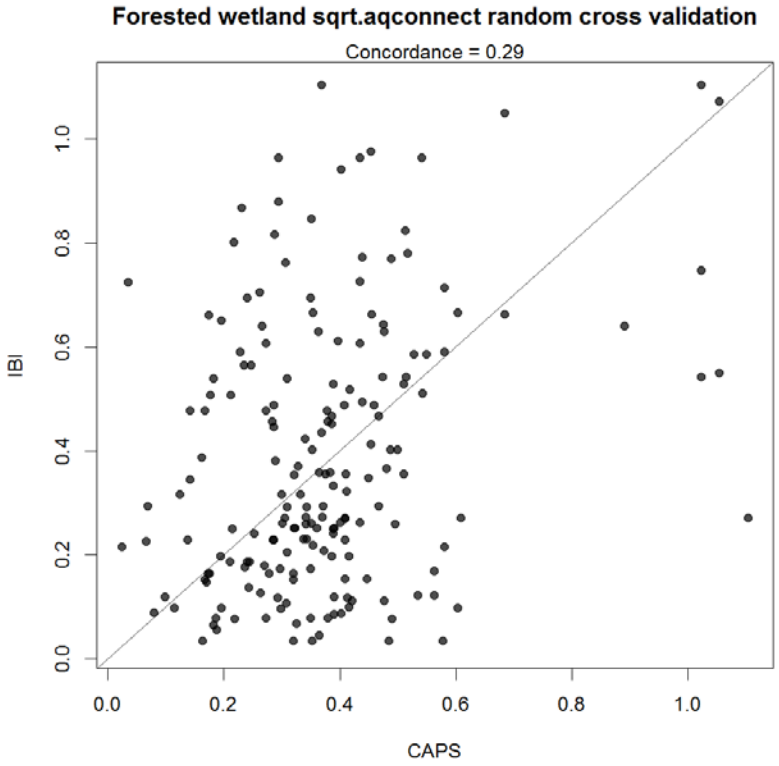

Figure A-14. Plot of IBI scores versus CAPS Aquatic Connectedness metric scores for forested wetlands

Appendix B: Concordance Plots for CAPS Metrics and Shrub Swamp IBIs

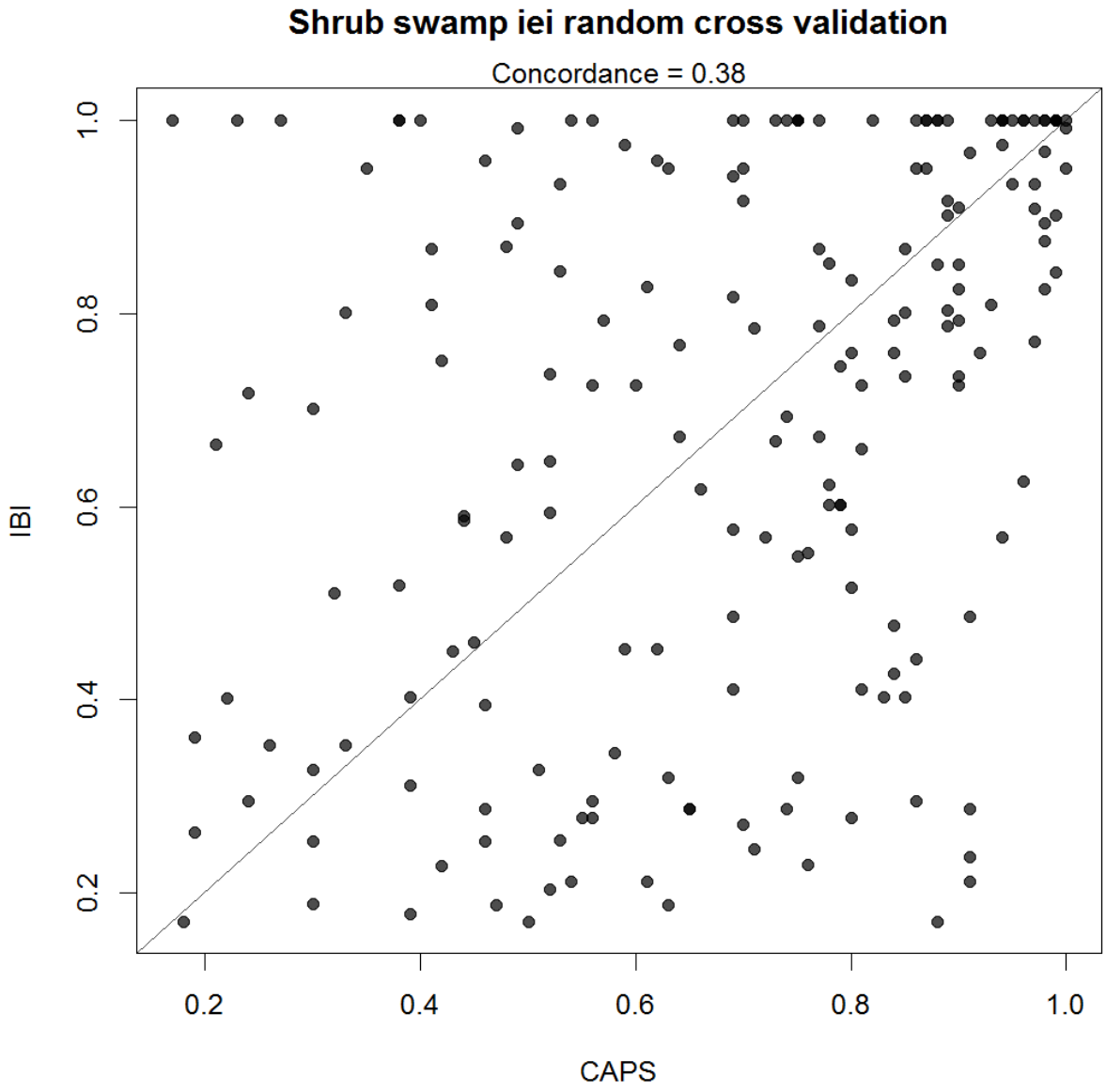

Figure B-1. Plot of IBI scores versus CAPS Index of Ecological Integrity (IEI) scores for shrub swamps

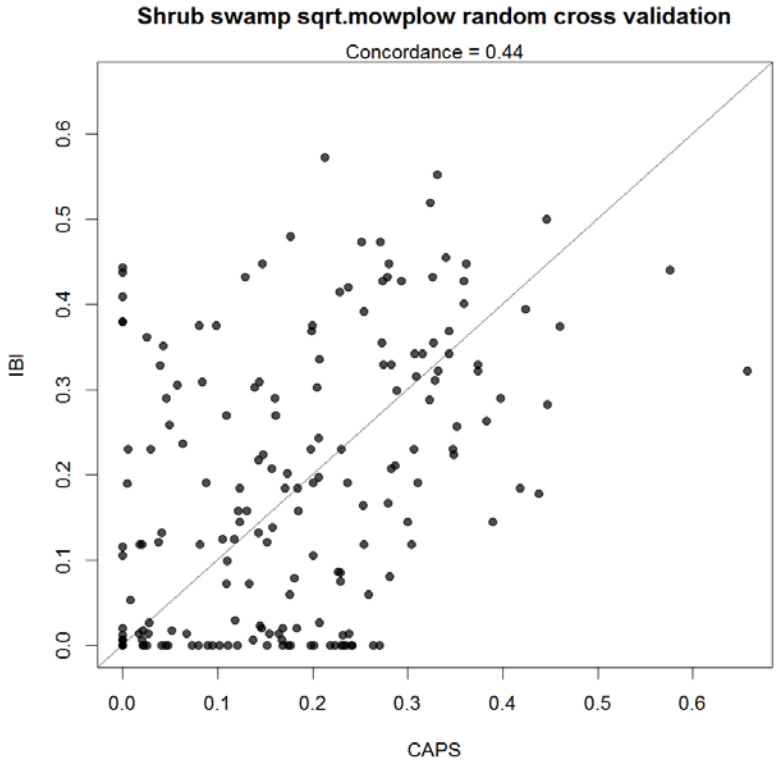

Figure B-2. Plot of IBI scores versus CAPS Agriculture metric scores for shrub swamps

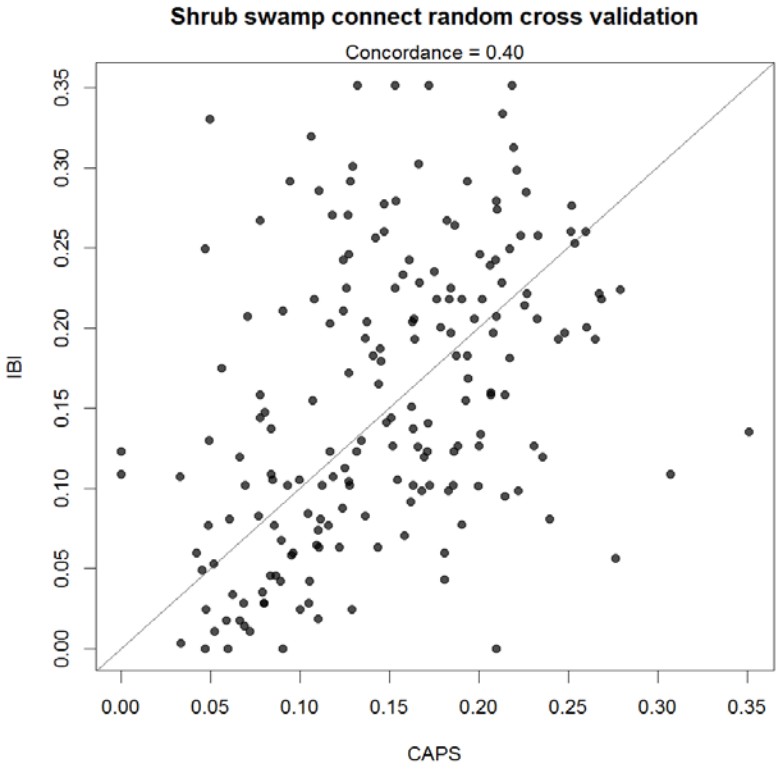

Figure B-3. Plot of IBI scores versus CAPS Connectedness metric scores for shrub swamps

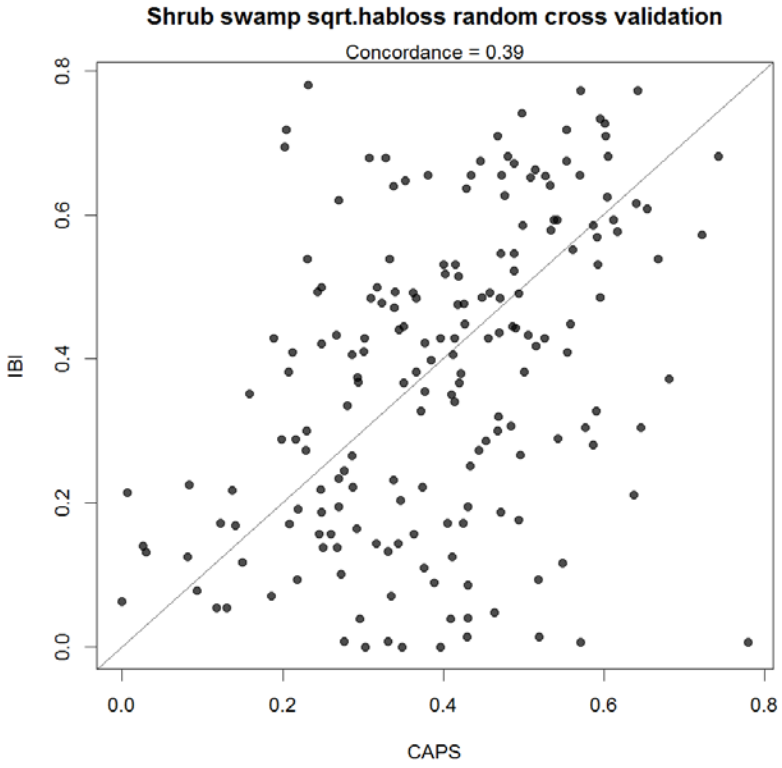

Figure B-4. Plot of IBI scores versus CAPS Habitat Loss metric scores for shrub swamps

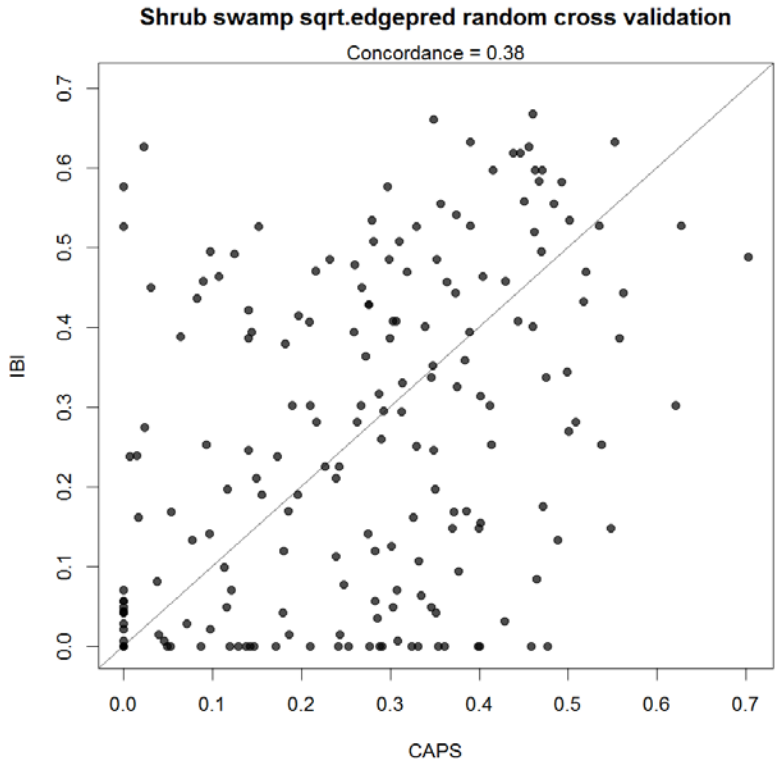

Figure B-5. Plot of IBI scores versus CAPS Edge Predators metric scores for shrub swamps

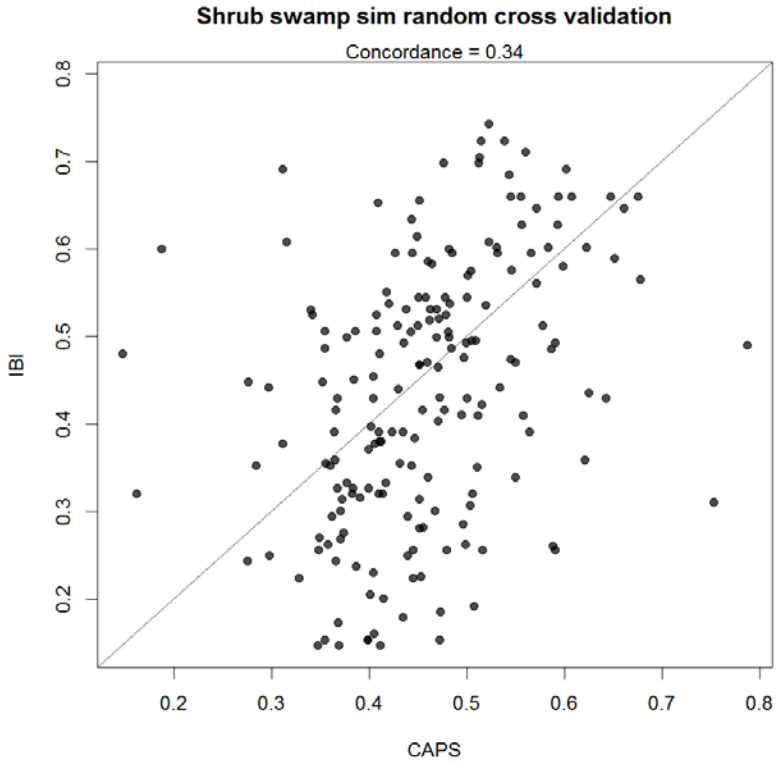

Figure B-6. Plot of IBI scores versus CAPS Similarity metric scores for shrub swamps

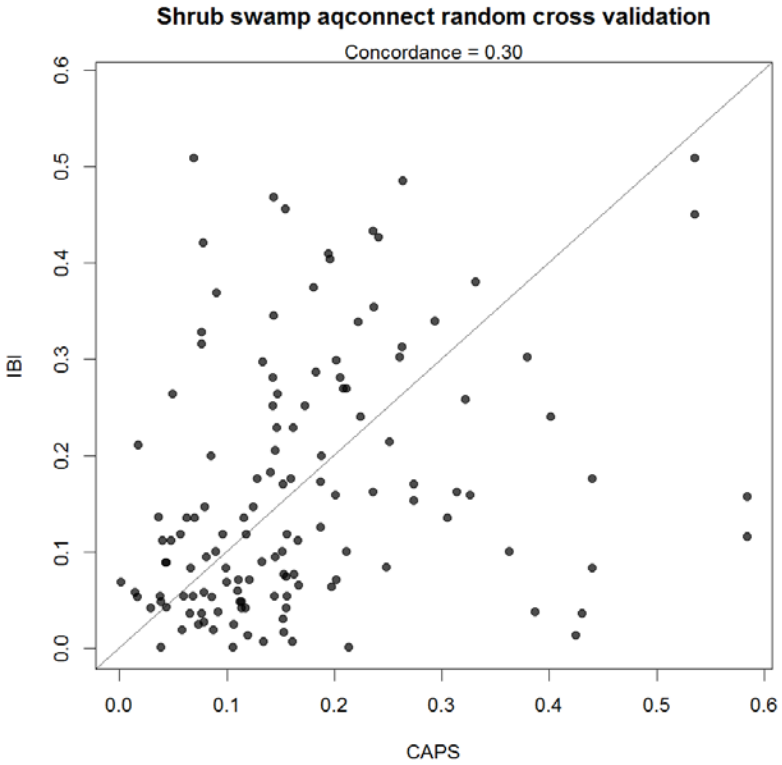

Figure B-7. Plot of IBI scores versus CAPS Aquatic Connectedness metric scores for shrub swamps

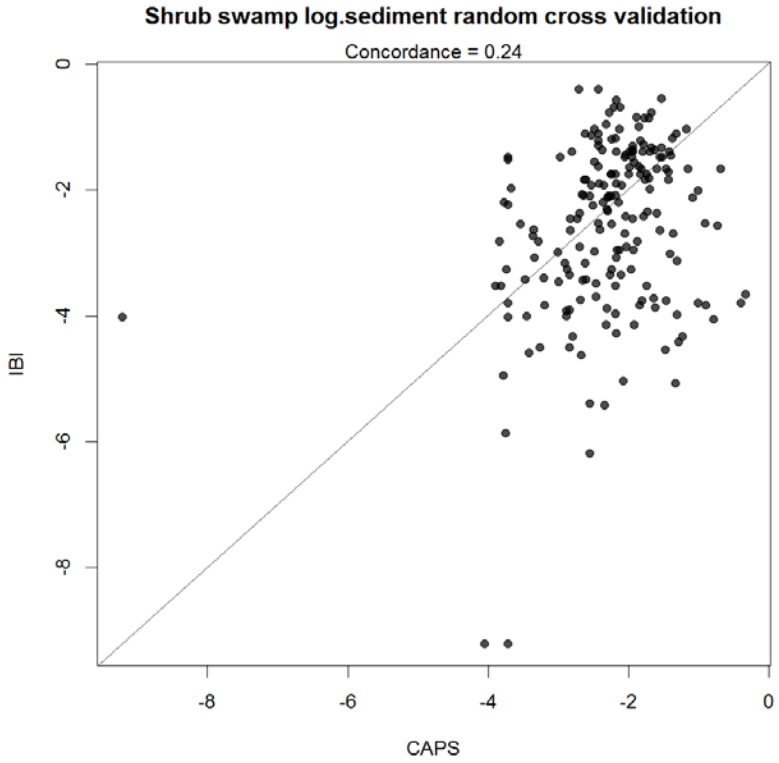

Figure B-8. Plot of IBI scores versus CAPS Road Sediment metric scores for shrub swamps

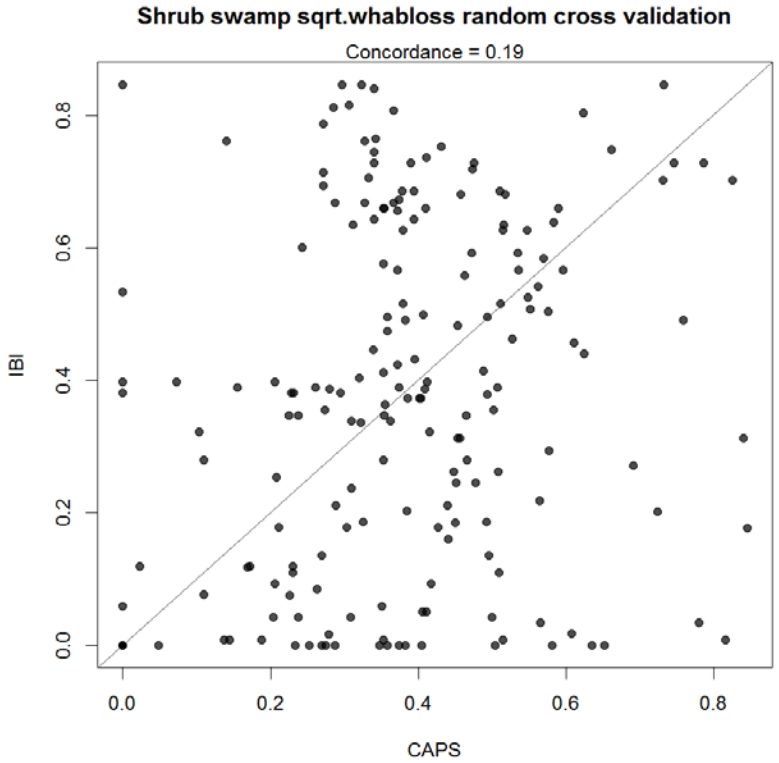

Figure B-9. Plot of IBI scores versus CAPS Watershed Habitat Loss metric scores for shrub swamps

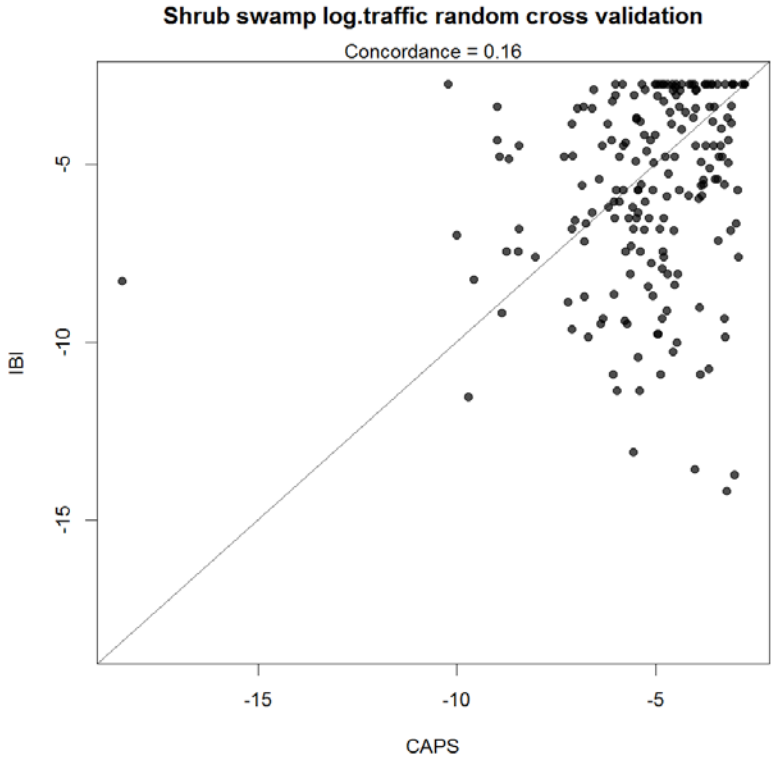

Figure B-10. Plot of IBI scores versus CAPS Traffic Intensity metric scores for shrub swamps

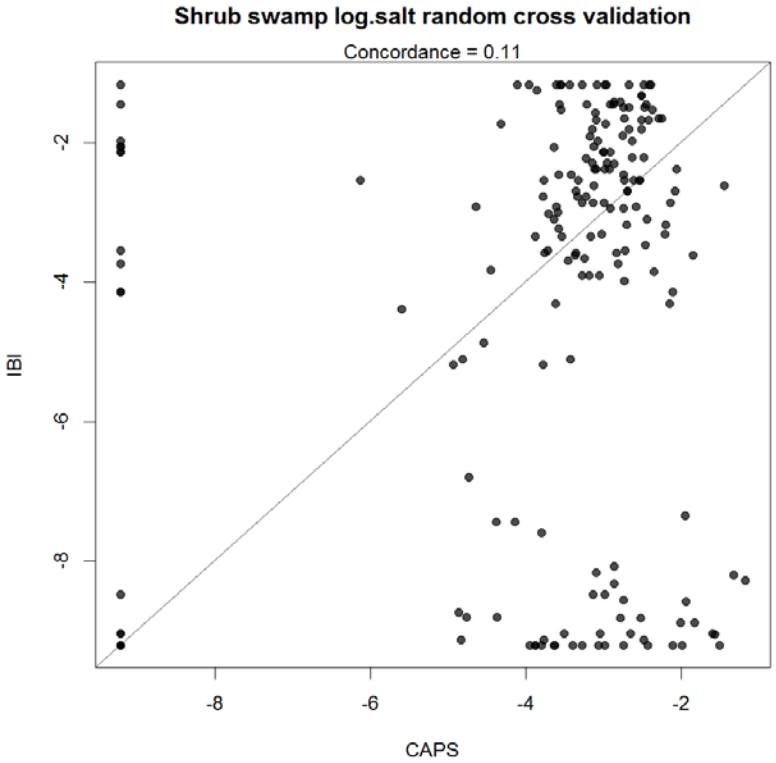

Figure B-11. Plot of IBI scores versus CAPS Road Salt metric scores for shrub swamps

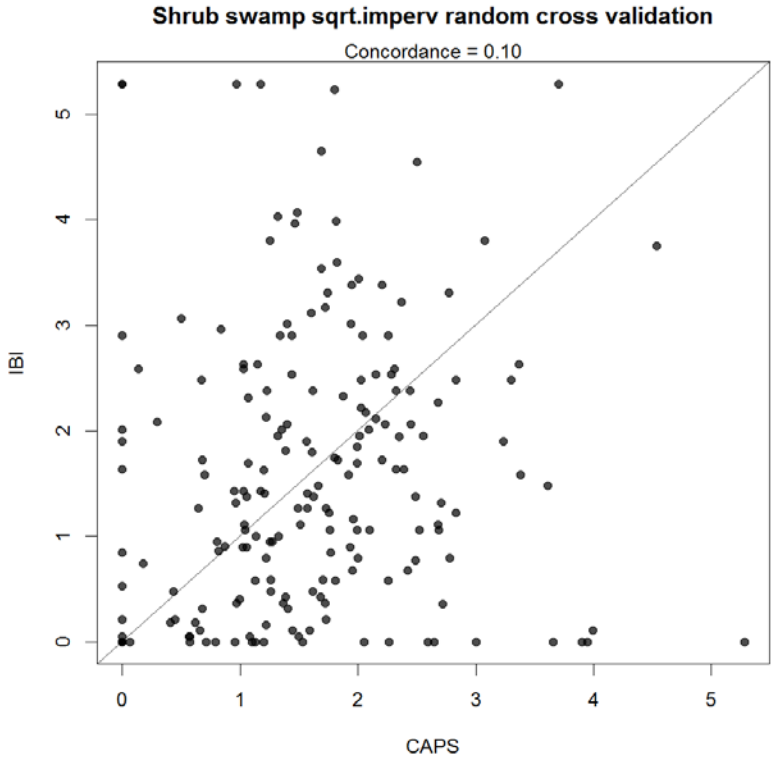

Figure B-12. Plot of IBI scores versus CAPS Imperviousness metric scores for shrub swamps

Appendix C: Plant Taxa Used for Forested Wetland IBIs

This Table relies on the fitted models that contribute to our IBIs. As such it doen't include (1) any taxa that occurred at fewer than 10 forested wetland sites in our training data and (2) any taxa for which no models were successfully fitted. Most likely values, along with upper and lower confidence intervals, were calculated based on the 75th percentile of the non-zero abundance for each taxa. They describe the likelihood profile for the species given a moderately high abundance.

The table includes all metrics for which we were able to construct meaningful IBIs. Data included in the tables include the following.

Taxon: the focal taxonomic group

Metric: the CAPS metric to which the IBI was fit

Marginal p-value: the complement of the proportion of the pseudo-species that the focal species outperformed when predicting the metric from abundance with a single taxa. Lower values indicate better performance. We used a threshold of 0.2 to decide which taxa where included in the IBI.

Most likely value: the metric value that was most likely given the abundance (75th percentile of the non-zero abundance)

Lower ci: the lower end of the 90% confidence interval

Upper ci: the lower end of the 90% confidence interval

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Abies	Connectedness	0	1	0.38	1
Abies balsamea	Connectedness	0	1	0.38	1
Acer	Connectedness	0	0	0	0.92
Acer pensylvanicum	Connectedness	0	0.82	0.56	1
Acer platanoides	Connectedness	0.063	0	0	0.35
Acer rubrum	Connectedness	0	0.11	0	0.86
Acer saccharum	Connectedness	0.004	0.96	0	1
Acer spicatum	Connectedness	0.001	1	0.52	1
Aceraceae	Connectedness	0	0	0	0.92
Ageratina	Connectedness	0.553	1	0	1
Ageratina altissima	Connectedness	0.553	1	0	1
Agrostis	Connectedness	0.026	1	0.65	1
Alnus	Connectedness	0.511	0.44	0	1
Alnus incana	Connectedness	0.796	0.46	0	1
Amelanchier	Connectedness	0.01	0.72	0	1
Amphicarpaea	Connectedness	0.469	0.49	0.15	0.84
Amphicarpaea bracteata	Connectedness	0.469	0.49	0.15	0.84

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Anacardiaceae	Connectedness	0	0.07	0	1
Anemone	Connectedness	0.878	0.51	0	1
Anemone quinquefolia	Connectedness	0.885	0.5	0	1
Apiaceae	Connectedness	0.016	0.67	0.03	1
Apiales	Connectedness	0	0.92	0	1
Aquifoliaceae	Connectedness	0.228	0.59	0	1
Araceae	Connectedness	0	0.36	0	0.95
Arales	Connectedness	0	0.37	0	0.94
Aralia	Connectedness	0	0.72	0	1
Aralia nudicaulis	Connectedness	0	0.73	0	1
Araliaceae	Connectedness	0	0.72	0	1
Arisaema	Connectedness	0.506	0.02	0	1
Arisaema triphyllum	Connectedness	0.506	0.02	0	1
Aster	Connectedness	0.004	0.19	0	1
Aster divaricatus	Connectedness	0.916	0	0	1
Asteraceae	Connectedness	0.025	0.88	0	1
Asterales	Connectedness	0.025	0.88	0	1
Athyrium	Connectedness	0.669	0	0	1
Athyrium filix-femina	Connectedness	0.669	0	0	1
Balsaminaceae	Connectedness	0.001	0	0	1
Berberidaceae	Connectedness	0	0	0	1
Berberis	Connectedness	0	0	0	0.82
Berberis thunbergii	Connectedness	0	0	0	0.8
Betula	Connectedness	0	0.97	0.14	1
Betula alleghaniensis	Connectedness	0	1	0.25	1
Betula lenta	Connectedness	0.163	1	0	1
Betula papyrifera	Connectedness	0.189	0.67	0	1
Betula populifolia	Connectedness	0.715	0.68	0	1
Betulaceae	Connectedness	0	0.99	0	1
Bidens	Connectedness	0.001	0	0	0.65
Bidens frondosa	Connectedness	0.002	0	0	0.49
Bidens tripartita	Connectedness	0.352	0.31	0	0.69
Blechnaceae	Connectedness	0.373	0.37	0.1	0.64
Boehmeria	Connectedness	0.002	0.04	0	0.54
Boehmeria cylindrica	Connectedness	0.002	0.04	0	0.54
Brachyelytrum	Connectedness	0.002	1	0.02	1
Brachyelytrum erectum	Connectedness	0.002	1	0.43	1
Brachyelytrum septentrionale	Connectedness	0.27	0.58	0	1
Brassicaceae	Connectedness	0.112	0	0	1
Calamagrostis	Connectedness	0.481	0	0	1
Calamagrostis canadensis	Connectedness	0.524	0.16	0	1
Caltha	Connectedness	0.156	0.87	0	1
Caltha palustris	Connectedness	0.156	0.87	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Capparales	Connectedness	0.112	0	0	1
Caprifoliaceae	Connectedness	0.352	0.06	0	1
Cardamine	Connectedness	0.167	0.72	0.15	1
Carex	Connectedness	0.005	1	0	1
Carex bromoides	Connectedness	0.528	0.27	0	1
Carex crinita	Connectedness	0.222	0	0	0.7
Carex debilis	Connectedness	0.449	1	0	1
Carex disperma	Connectedness	0.04	0.97	0.61	1
Carex folliculata	Connectedness	0.025	0.58	0.04	1
Carex gracillima	Connectedness	0.203	0.83	0.16	1
Carex gynandra	Connectedness	0	1	0.42	1
Carex intumescens	Connectedness	0.075	0.87	0	1
Carex leptalea	Connectedness	0.095	1	0.36	1
Carex lurida	Connectedness	0.182	1	0	1
Carex scabrata	Connectedness	0.01	1	0.57	1
Carex stipata	Connectedness	0.913	0	0	1
Carex stricta	Connectedness	0.001	0.08	0	0.59
Carex trisperma	Connectedness	0	1	0.49	1
Carpinus	Connectedness	0.288	0.34	0.04	0.65
Carpinus caroliniana	Connectedness	0.288	0.34	0.04	0.65
Carya	Connectedness	0.011	0.01	0	0.74
Carya cordiformis	Connectedness	0.476	0.41	0.15	0.72
Carya ovata	Connectedness	0.191	0	0	0.77
Celastraceae	Connectedness	0	0.01	0	0.67
Celastrales	Connectedness	0.596	0.55	0	1
Celastrus	Connectedness	0	0.13	0	1
Celastrus orbiculatus	Connectedness	0	0.13	0	1
Chamaecyparis	Connectedness	0.5	0	0	0.9
Chamaecyparis thyoides	Connectedness	0.5	0	0	0.9
Chelone	Connectedness	0.004	1	0	1
Chelone glabra	Connectedness	0.004	1	0	1
Chrysosplenium	Connectedness	0.111	0.8	0	1
Chrysosplenium americanum	Connectedness	0.111	0.8	0	1
Cicuta	Connectedness	0.377	0	0	1
Cicuta maculata	Connectedness	0.442	0	0	1
Cinna	Connectedness	0.002	1	0.05	1
Cinna latifolia	Connectedness	0.049	1	0.03	1
Circaea	Connectedness	0.81	1	0	1
Circaea alpina	Connectedness	0.026	0.84	0.61	1
Circaea lutetiana	Connectedness	0.061	0	0	1
Clematis	Connectedness	0.206	0.6	0.09	1
Clematis virginiana	Connectedness	0.206	0.6	0.09	1
Clethra	Connectedness	0.003	0.01	0	0.58

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Clethra alnifolia	Connectedness	0.003	0.01	0	0.58
Clethraceae	Connectedness	0.003	0.01	0	0.58
Clintonia	Connectedness	0	0.96	0.37	1
Clintonia borealis	Connectedness	0	0.96	0.37	1
Clusiaceae	Connectedness	0.454	1	0	1
Coniferophyta	Connectedness	0	0.87	0.12	1
Coptis	Connectedness	0	0.75	0.16	1
Coptis trifolia	Connectedness	0	0.75	0.16	1
Cornaceae	Connectedness	0.843	0.38	0	1
Cornales	Connectedness	0.436	0.34	0	1
Cornus	Connectedness	0.843	0.38	0	1
Cornus alternifolia	Connectedness	0.235	0.02	0	1
Cornus amomum	Connectedness	0.019	0.14	0	0.65
Cornus canadensis	Connectedness	0	0.78	0.26	1
Cornus racemosa	Connectedness	0.297	0.22	0	0.71
Cornus sericea	Connectedness	0.583	0.29	0	1
Corylus	Connectedness	0.042	0	0	1
Corylus americana	Connectedness	0.078	0	0	0.65
Corylus cornuta	Connectedness	0.965	0.47	0	1
Crataegus	Connectedness	0.137	0.68	0.38	0.88
Cupressaceae	Connectedness	0.469	0	0	0.78
Cyperaceae	Connectedness	0.004	1	0	1
Cyperales	Connectedness	0.004	0.96	0	1
Dalibarda	Connectedness	0.142	0.54	0.29	0.79
Dalibarda repens	Connectedness	0.142	0.54	0.29	0.79
Dennstaedtia	Connectedness	0.285	0	0	1
Dennstaedtia punctilobula	Connectedness	0.285	0	0	1
Dennstaedtiaceae	Connectedness	0.49	0.13	0	1
Deparia	Connectedness	0.104	1	0.41	1
Deparia acrostichoides	Connectedness	0.104	1	0.41	1
Dichanthelium	Connectedness	0.502	0.74	0	1
Dipsacales	Connectedness	0.352	0.06	0	1
Doellingeria	Connectedness	0.01	0.7	0.07	1
Doellingeria umbellata	Connectedness	0.007	0.72	0.06	1
Dryopteridaceae	Connectedness	0.137	1	0	1
Dryopteris	Connectedness	0.766	0.35	0	1
Dryopteris carthusiana	Connectedness	0.004	0.28	0	1
Dryopteris clintoniana	Connectedness	0.347	0.58	0.08	1
Dryopteris cristata	Connectedness	0.421	0.45	0	1
Dryopteris intermedia	Connectedness	0.004	1	0.03	1
Epilobium	Connectedness	0.051	0	0	1
Epilobium ciliatum	Connectedness	0.3	0.59	0.22	0.96
Epipactis	Connectedness	0.099	0.65	0.19	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Epipactis helleborine	Connectedness	0.099	0.65	0.19	1
Equisetaceae	Connectedness	1	0.5	0	1
Equisetales	Connectedness	1	0.5	0	1
Equisetophyta	Connectedness	1	0.5	0	1
Equisetopsida	Connectedness	1	0.5	0	1
Equisetum	Connectedness	1	0.5	0	1
Equisetum arvense	Connectedness	0.117	0.33	0	0.91
Equisetum sylvaticum	Connectedness	0.165	0.9	0.12	1
Ericaceae	Connectedness	0.93	0.47	0	1
Ericales	Connectedness	0.226	0.05	0	1
Eubotrys	Connectedness	0.841	1	0	1
Eubotrys racemosa	Connectedness	0.841	1	0	1
Euonymus	Connectedness	0.008	0	0	0.34
Euonymus alata	Connectedness	0.015	0	0	0.35
Eupatorium	Connectedness	0.005	0	0	0.86
Eupatorium maculatum	Connectedness	0.038	0.23	0	0.81
Eupatorium perfoliatum	Connectedness	0.265	0	0	0.64
Eurybia	Connectedness	0.233	1	0.06	1
Eurybia divaricata	Connectedness	0.325	1	0	1
Eutrochium	Connectedness	0.08	0.79	0.56	1
Eutrochium maculatum	Connectedness	0.08	0.79	0.56	1
Fabaceae	Connectedness	0.67	0.51	0	1
Fabales	Connectedness	0.67	0.51	0	1
Fagaceae	Connectedness	0.911	0.02	0	1
Fagales	Connectedness	0	1	0	1
Fagus	Connectedness	0	0.69	0.19	1
Fagus grandifolia	Connectedness	0	0.69	0.19	1
Filicopsida	Connectedness	0.013	0.73	0.05	1
Fragaria	Connectedness	0.08	0.82	0	1
Fragaria virginiana	Connectedness	0.332	0.88	0	1
Frangula	Connectedness	0.001	0.05	0	0.77
Frangula alnus	Connectedness	0.001	0.05	0	0.77
Fraxinus	Connectedness	0.117	1	0	1
Fraxinus americana	Connectedness	0.282	1	0	1
Fraxinus nigra	Connectedness	0.93	0.53	0.03	0.99
Galium	Connectedness	0.325	1	0	1
Galium aparine	Connectedness	0.474	1	0	1
Galium asprellum	Connectedness	0.081	0.67	0.15	1
Galium palustre	Connectedness	0.814	1	0	1
Galium triflorum	Connectedness	0.676	1	0	1
Gaultheria	Connectedness	0.055	0.55	0.16	0.94
Gaultheria hispidula	Connectedness	0.103	0.72	0.3	1
Gaultheria procumbens	Connectedness	0.739	0.48	0.15	0.8

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Gaylussacia	Connectedness	0.215	0.25	0	0.6
Gaylussacia frondosa	Connectedness	0.301	0.19	0	0.62
Gentianales	Connectedness	0.493	0.2	0	0.82
Geraniaceae	Connectedness	0.061	0	0	0.44
Geraniales	Connectedness	0.171	0	0	1
Geranium	Connectedness	0.061	0	0	0.44
Geranium maculatum	Connectedness	0.083	0	0	0.44
Geum	Connectedness	0.311	0.61	0	1
Geum canadense	Connectedness	0.332	0	0	1
Geum rivale	Connectedness	0.85	0.46	0	1
Glyceria	Connectedness	0	0.73	0	1
Glyceria melicaria	Connectedness	0	1	0.59	1
Glyceria striata	Connectedness	0.005	1	0.35	1
Grossulariaceae	Connectedness	0.885	0.54	0	1
Hamamelidaceae	Connectedness	0.003	1	0	1
Hamamelidales	Connectedness	0.003	1	0	1
Hamamelis	Connectedness	0.003	1	0	1
Hamamelis virginiana	Connectedness	0.003	1	0	1
Huperzia	Connectedness	0.013	1	0.52	1
Huperzia lucidula	Connectedness	0.013	1	0.52	1
Hydrocotyle	Connectedness	0.006	1	0	1
Hydrocotyle americana	Connectedness	0.006	1	0	1
Ilex	Connectedness	0.607	0.53	0	1
Ilex mucronata	Connectedness	0.007	1	0.8	1
Ilex verticillata	Connectedness	0.836	0.45	0	1
Impatiens	Connectedness	0.001	0	0	1
Impatiens capensis	Connectedness	0.001	0	0	1
Iridaceae	Connectedness	0.992	1	0	1
Iris	Connectedness	0.992	1	0	1
Iris versicolor	Connectedness	0.146	1	0	1
Juglandaceae	Connectedness	0.011	0.01	0	0.74
Juglandales	Connectedness	0.011	0.01	0	0.74
Juncaceae	Connectedness	0.066	1	0.01	1
Juncales	Connectedness	0.066	1	0.01	1
Juncus	Connectedness	0.066	1	0.01	1
Juncus effusus	Connectedness	0.055	1	0.54	1
Kalmia	Connectedness	0.001	0.91	0.26	1
Kalmia angustifolia	Connectedness	0.683	0.46	0.15	0.78
Kalmia latifolia	Connectedness	0.001	0.8	0.24	1
Lactuca	Connectedness	0.351	0	0	0.61
Lamiaceae	Connectedness	0.053	1	0	1
Lamiales	Connectedness	0.055	1	0	1
Larix	Connectedness	0.52	0.4	0.03	0.77

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Larix laricina	Connectedness	0.517	0.4	0.03	0.77
Lauraceae	Connectedness	0.001	0	0	0.77
Laurales	Connectedness	0.001	0	0	0.77
Leersia	Connectedness	0.17	0	0	0.84
Leersia oryzoides	Connectedness	0.323	0	0	0.7
Ligustrum	Connectedness	0.135	0.16	0	0.33
Ligustrum vulgare	Connectedness	0.135	0.16	0	0.33
Liliaceae	Connectedness	0	0.82	0	1
Liliales	Connectedness	0.945	0	0	1
Liliopsida	Connectedness	0.984	1	0	1
Lilium	Connectedness	0.483	0.34	0	0.84
Lilium canadense	Connectedness	0.479	0.31	0	0.86
Lindera	Connectedness	0.001	0	0	0.76
Lindera benzoin	Connectedness	0.001	0	0	0.76
Lonicera	Connectedness	0.314	0	0	1
Lonicera canadensis	Connectedness	0.004	0.96	0.44	1
Lonicera morrowii	Connectedness	0.005	0	0	0.54
Lycopodiaceae	Connectedness	0.012	0.72	0	1
Lycopodiales	Connectedness	0.012	0.72	0	1
Lycopodiophyta	Connectedness	0.012	0.72	0	1
Lycopodiopsida	Connectedness	0.012	0.72	0	1
Lycopodium	Connectedness	0.469	0.5	0	1
Lycopodium hickeyi	Connectedness	0.967	0.51	0	1
Lycopodium obscurum	Connectedness	0.141	0.5	0	1
Lycopus	Connectedness	0.003	0.86	0	1
Lycopus uniflorus	Connectedness	0	1	0.56	1
Lyonia	Connectedness	0.059	0.36	0	0.83
Lyonia ligustrina	Connectedness	0.059	0.36	0	0.83
Lysimachia	Connectedness	0.377	0.43	0	1
Lysimachia borealis	Connectedness	0.287	0.25	0	0.55
Lysimachia ciliata	Connectedness	0.146	0.53	0	1
Lysimachia terrestris	Connectedness	0.577	0.48	0	1
Lythraceae	Connectedness	0.288	0	0	0.76
Magnoliophyta	Connectedness	0	0	0	1
Magnoliopsida	Connectedness	0	0	0	1
Maianthemum	Connectedness	0.092	1	0	1
Maianthemum canadense	Connectedness	0.173	0.86	0	1
Maianthemum racemosum	Connectedness	0.222	0	0	1
Malus	Connectedness	0.095	0	0	0.96
Malus pumila	Connectedness	0.081	0	0	0.69
Malvales	Connectedness	0.249	0	0	0.56
Medeola	Connectedness	0	0.71	0.17	1
Medeola virginiana	Connectedness	0	0.71	0.17	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Mitchella	Connectedness	0	0.6	0	1
Mitchella repens	Connectedness	0	0.6	0	1
Monotropa	Connectedness	0.019	0.72	0.1	1
Monotropa uniflora	Connectedness	0.019	0.72	0.1	1
Monotropaceae	Connectedness	0.019	0.72	0.1	1
Myrtales	Connectedness	0.004	0	0	1
Nasturtium	Connectedness	0.111	0	0	0.67
Nasturtium officinale	Connectedness	0.111	0	0	0.67
Nemopanthus	Connectedness	0.001	0.79	0.17	1
Nemopanthus mucronatus	Connectedness	0.001	0.79	0.17	1
Nyssa	Connectedness	0.671	0.43	0.03	1
Nyssa sylvatica	Connectedness	0.671	0.43	0.03	1
Nyssaceae	Connectedness	0.671	0.43	0.03	1
Oclemena	Connectedness	0	0.9	0.28	1
Oclemena acuminata	Connectedness	0	0.89	0.3	1
Oleaceae	Connectedness	0.149	1	0	1
Onagraceae	Connectedness	0.007	0	0	1
Onoclea	Connectedness	0.25	1	0	1
Onoclea sensibilis	Connectedness	0.25	1	0	1
Orchidaceae	Connectedness	0.004	1	0.01	1
Orchidales	Connectedness	0.004	1	0.01	1
Osmunda	Connectedness	0.513	0.55	0.04	1
Osmunda cinnamomea	Connectedness	0.368	0.61	0.04	1
Osmunda claytoniana	Connectedness	0.013	1	0	1
Osmunda regalis	Connectedness	0.001	0.36	0	1
Osmundaceae	Connectedness	0.513	0.55	0.04	1
Ostrya	Connectedness	0.471	1	0	1
Ostrya virginiana	Connectedness	0.471	1	0	1
Oxalidaceae	Connectedness	0	1	0.16	1
Oxalis	Connectedness	0	1	0.16	1
Oxalis montana	Connectedness	0	1	0.5	1
Oxalis stricta	Connectedness	0.097	0	0	0.54
Packera	Connectedness	0.052	0.69	0.22	1
Packera aurea	Connectedness	0.052	0.69	0.22	1
Parthenocissus	Connectedness	0	0.1	0	0.92
Parthenocissus quinquefolia	Connectedness	0	0.1	0	0.92
Persicaria	Connectedness	0.777	1	0	1
Phegopteris	Connectedness	0.002	0.84	0.57	1
Phegopteris Connectednessilis	Connectedness	0.004	0.87	0.54	1
Photinia	Connectedness	0.352	0.4	0	1
Photinia melanocarpa	Connectedness	0.326	0.38	0	0.94
Photinia pyrifolia	Connectedness	0.6	0.68	0	1
Physocarpus	Connectedness	0.108	0.17	0.03	0.32

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Physocarpus opulifolius	Connectedness	0.108	0.17	0.03	0.32
Picea	Connectedness	0	1	0.44	1
Picea rubens	Connectedness	0	1	0.42	1
Pilea	Connectedness	0.03	0	0	0.74
Pilea pumila	Connectedness	0.03	0	0	0.74
Pinaceae	Connectedness	0	0.84	0.14	1
Pinales	Connectedness	0	0.86	0.12	1
Pinopsida	Connectedness	0	0.87	0.12	1
Pinus	Connectedness	0.002	0.35	0	0.87
Pinus strobus	Connectedness	0.001	0.35	0	0.87
Platanthera	Connectedness	0.051	1	0.16	1
Platanthera clavellata	Connectedness	0.124	1	0.41	1
Poaceae	Connectedness	0.074	0.9	0	1
Polygonaceae	Connectedness	0.18	0.03	0	1
Polygonales	Connectedness	0.18	0.03	0	1
Polygonatum	Connectedness	0.927	0	0	1
Polygonatum pubescens	Connectedness	0.927	0	0	1
Polygonum	Connectedness	0.187	0	0	1
Polygonum arifolium	Connectedness	0.096	0	0	1
Polygonum sagittatum	Connectedness	0.14	0.78	0.01	1
Polygonum virginianum	Connectedness	0.421	0.03	0	0.85
Polypodiales	Connectedness	0.016	0.73	0.05	1
Polystichum	Connectedness	0.007	1	0.11	1
Polystichum acrostichoides	Connectedness	0.007	1	0.11	1
Populus	Connectedness	0.306	0.61	0.06	1
Populus grandidentata	Connectedness	0.327	0	0	1
Populus tremuloides	Connectedness	0.327	0.63	0.17	1
Potentilla	Connectedness	0.303	1	0	1
Potentilla simplex	Connectedness	0.276	1	0	1
Prenanthes	Connectedness	0	1	0.3	1
Prenanthes altissima	Connectedness	0.3	0.52	0.17	0.86
Primulaceae	Connectedness	0.004	0.55	0	1
Primulales	Connectedness	0	0.58	0	1
Prunella	Connectedness	0.668	0.52	0.03	1
Prunella vulgaris	Connectedness	0.668	0.52	0.03	1
Prunus	Connectedness	0.84	1	0	1
Prunus serotina	Connectedness	0.885	0.42	0	1
Prunus virginiana	Connectedness	0.214	1	0	1
Pteridium	Connectedness	0.894	0.51	0.27	0.75
Pteridium aquilinum	Connectedness	0.894	0.51	0.27	0.75
Pteridophyta	Connectedness	0.013	0.73	0.05	1
Pyrola	Connectedness	0.741	0.47	0.1	0.83
Pyrola elliptica	Connectedness	0.685	0.48	0.18	0.78

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Pyrolaceae	Connectedness	0.623	0.42	0	0.87
Quercus	Connectedness	0.004	0.11	0	1
Quercus alba	Connectedness	0.016	0.16	0	0.64
Quercus bicolor	Connectedness	0.025	0	0	0.73
Quercus rubra	Connectedness	0.03	0	0	1
Ranunculaceae	Connectedness	0	0.88	0.01	1
Ranunculales	Connectedness	0	1	0	1
Ranunculus	Connectedness	0.055	1	0	1
Ranunculus abortivus	Connectedness	0.265	1	0.12	1
Ranunculus hispidus	Connectedness	0.038	0.8	0.03	1
Ranunculus recurvatus	Connectedness	0.541	0.57	0	1
Rhamnaceae	Connectedness	0	0.07	0	0.82
Rhamnales	Connectedness	0	0.3	0	0.84
Rhamnus	Connectedness	0.02	0	0	0.72
Rhamnus cathartica	Connectedness	0.023	0	0	0.69
Rhododendron	Connectedness	0.03	0	0	1
Rhododendron prinophyllum	Connectedness	0.002	0.91	0.44	1
Rhododendron viscosum	Connectedness	0	0	0	0.65
Ribes	Connectedness	0.885	0.54	0	1
Rosa	Connectedness	0	0.17	0	0.72
Rosa multiflora	Connectedness	0	0.14	0	0.72
Rosa palustris	Connectedness	0.224	0.22	0	0.7
Rosaceae	Connectedness	0.661	0.86	0	1
Rosales	Connectedness	0.149	0.8	0	1
Rubiaceae	Connectedness	0.006	0.57	0	1
Rubiales	Connectedness	0.006	0.57	0	1
Rubus	Connectedness	0.002	0.83	0	1
Rubus allegheniensis	Connectedness	0.758	0.96	0	1
Rubus hispidus	Connectedness	0.843	0.73	0	1
Rubus idaeus	Connectedness	0.911	1	0	1
Rubus occidentalis	Connectedness	0.306	0	0	0.86
Rubus pubescens	Connectedness	0	1	0.12	1
Salicaceae	Connectedness	0.297	0.58	0.06	1
Salicales	Connectedness	0.297	0.58	0.06	1
Salix	Connectedness	0.529	0.55	0.13	1
Sambucus	Connectedness	0.01	0	0	1
Sambucus canadensis	Connectedness	0.01	0	0	1
Sapindales	Connectedness	0	0	0	0.95
Saxifraga	Connectedness	0.003	1	0.17	1
Saxifraga pensylvanica	Connectedness	0.005	0.91	0.16	1
Saxifragaceae	Connectedness	0.001	1	0.01	1
Scirpus	Connectedness	0.334	0.72	0.1	1
Scrophulariaceae	Connectedness	0.004	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Scrophulariales	Connectedness	0.03	1	0	1
Scutellaria	Connectedness	0.929	1	0	1
Scutellaria lateriflora	Connectedness	1	0	0	1
Senecio	Connectedness	0.231	0.16	0	0.79
Senecio aureus	Connectedness	0.231	0.16	0	0.79
Smilacaceae	Connectedness	0.004	0	0	0.68
Smilax	Connectedness	0.004	0	0	0.68
Smilax herbacea	Connectedness	0.117	0	0	0.59
Smilax rotundifolia	Connectedness	0.531	0.37	0.01	0.87
Solanaceae	Connectedness	0.005	0	0	0.79
Solanales	Connectedness	0.004	0	0	0.76
Solanum	Connectedness	0.005	0	0	0.79
Solanum dulcamara	Connectedness	0.005	0	0	0.74
Solidago	Connectedness	0.869	0.58	0	1
Solidago gigantea	Connectedness	0.718	0.38	0	1
Solidago patula	Connectedness	0.434	0.36	0	0.87
Solidago rugosa	Connectedness	0.836	1	0	1
Sorbus	Connectedness	0.005	1	0.06	1
Sorbus americana	Connectedness	0.004	0.95	0.16	1
Spiraea	Connectedness	0.02	0.68	0	1
Spiraea alba	Connectedness	0.019	0.69	0	1
Symphyotrichum	Connectedness	0.002	1	0	1
Symphyotrichum lateriflorum	Connectedness	0	1	0.15	1
Symphyotrichum puniceum	Connectedness	0.098	0.69	0	1
Symplocarpus	Connectedness	0	0	0	0.59
Symplocarpus foetidus	Connectedness	0	0	0	0.59
Taxaceae	Connectedness	0.793	0.46	0	1
Taxales	Connectedness	0.793	0.46	0	1
Taxus	Connectedness	0.793	0.46	0	1
Taxus canadensis	Connectedness	0.5	0.55	0.21	0.93
Thalictrum	Connectedness	0.989	0.31	0	1
Thalictrum pubescens	Connectedness	0.995	0.81	0	1
Theales	Connectedness	0.454	1	0	1
Thelypteridaceae	Connectedness	0.001	0.68	0	1
Thelypteris	Connectedness	0.003	0.77	0.01	1
Thelypteris noveboracensis	Connectedness	0	1	0.06	1
Thelypteris palustris	Connectedness	0.01	0	0	1
Thelypteris simulata	Connectedness	0.171	0.39	0	0.84
Tiarella	Connectedness	0	0.88	0.28	1
Tiarella cordifolia	Connectedness	0	0.88	0.28	1
Tilia	Connectedness	0.249	0	0	0.56
Tilia americana	Connectedness	0.325	0	0	0.77
Tiliaceae	Connectedness	0.249	0	0	0.56

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Toxicodendron	Connectedness	0	0.07	0	1
Toxicodendron radicans	Connectedness	0	0.17	0	1
Toxicodendron vernix	Connectedness	0.005	0	0	0.61
Triadenum	Connectedness	0.28	1	0	1
Triadenum virginicum	Connectedness	0.098	0.66	0	1
Trientalis	Connectedness	0	0.7	0	1
Trientalis borealis	Connectedness	0	0.7	0	1
Trillium	Connectedness	0.004	0.97	0.19	1
Trillium undulatum	Connectedness	0.096	0.75	0.15	1
Tsuga	Connectedness	0	1	0.29	1
Tsuga canadensis	Connectedness	0	1	0.29	1
Typhales	Connectedness	0.451	0	0	1
Ulmaceae	Connectedness	0	0	0	0.57
Ulmus	Connectedness	0	0	0	0.57
Ulmus americana	Connectedness	0	0	0	0.53
Urticaceae	Connectedness	0.002	0	0	0.57
Urticales	Connectedness	0	0	0	0.6
Uvularia	Connectedness	0.001	1	0	1
Uvularia sessilifolia	Connectedness	0.001	1	0	1
Vaccinium	Connectedness	0.106	0.33	0	0.98
Vaccinium angustifolium	Connectedness	0.01	1	0.13	1
Vaccinium corymbosum	Connectedness	0.075	0.3	0	0.92
Vaccinium myrtilloides	Connectedness	0.161	0.57	0.28	0.84
Veratrum	Connectedness	0.23	0.62	0.31	0.88
Veratrum viride	Connectedness	0.23	0.62	0.31	0.88
Veronica	Connectedness	0.78	1	0	1
Veronica officinalis	Connectedness	0.779	0	0	1
Viburnum	Connectedness	0.884	0	0	1
Viburnum acerifolium	Connectedness	0.477	0	0	1
Viburnum dentatum	Connectedness	0	0.22	0	1
Viburnum lantanoides	Connectedness	0	0.96	0.37	1
Viburnum lentago	Connectedness	0.762	1	0	1
Viburnum nudum	Connectedness	0	0.66	0	1
Viola	Connectedness	0.206	1	0	1
Viola cucullata	Connectedness	0.112	1	0.42	1
Violaceae	Connectedness	0.206	1	0	1
Violales	Connectedness	0.311	1	0	1
Vitaceae	Connectedness	0	0	0	0.64
Vitis	Connectedness	0	0	0	0.6
Vitis labrusca	Connectedness	0.002	0	0	0.48
Woodwardia	Connectedness	0.373	0.37	0.1	0.64
Woodwardia virginica	Connectedness	0.451	0.35	0.04	0.67
Zizia	Connectedness	0.302	0.57	0.27	0.88

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Zizia aurea	Connectedness	0.302	0.57	0.27	0.88
Abies	IEI	0	1	0.61	1
Abies balsamea	IEI	0	1	0.61	1
Acer	IEI	0	0.19	0	1
Acer pensylvanicum	IEI	0	1	0.72	1
Acer platanoides	IEI	0	0	0	0.54
Acer rubrum	IEI	0	0.2	0	1
Acer saccharum	IEI	0.934	0	0	1
Acer spicatum	IEI	0.032	1	0.65	1
Aceraceae	IEI	0	0.19	0	1
Ageratina	IEI	0.809	0.63	0	1
Ageratina altissima	IEI	0.809	0.63	0	1
Agrostis	IEI	0.184	1	0.74	1
Alnus	IEI	0.977	0.52	0	1
Alnus incana	IEI	0.686	0.54	0	1
Amelanchier	IEI	0.199	0.65	0	1
Amphicarpaea	IEI	0.48	1	0	1
Amphicarpaea bracteata	IEI	0.48	1	0	1
Anacardiaceae	IEI	0	0.22	0	1
Anemone	IEI	0.618	0.82	0	1
Anemone quinquefolia	IEI	0.638	0.68	0	1
Apiaceae	IEI	0.339	0.59	0.07	1
Apiales	IEI	0	0.85	0	1
Aquifoliaceae	IEI	0.377	0.77	0	1
Araceae	IEI	0	0.52	0	1
Arales	IEI	0	0.53	0	1
Aralia	IEI	0	0.94	0	1
Aralia nudicaulis	IEI	0	0.94	0	1
Araliaceae	IEI	0	0.94	0	1
Arisaema	IEI	0.052	0	0	1
Arisaema triphyllum	IEI	0.052	0	0	1
Aster	IEI	0	0	0	1
Aster divaricatus	IEI	0.101	0	0	1
Asteraceae	IEI	0.942	0.53	0	1
Asterales	IEI	0.942	0.53	0	1
Athyrium	IEI	0	0	0	1
Athyrium filix-femina	IEI	0	0	0	1
Balsaminaceae	IEI	0	0	0	1
Berberidaceae	IEI	0	0.33	0	1
Berberis	IEI	0	0.16	0	1
Berberis thunbergii	IEI	0	0.12	0	1
Betula	IEI	0	1	0.14	1
Betula alleghaniensis	IEI	0	1	0.43	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Betula lenta	IEI	0.745	0	0	1
Betula papyrifera	IEI	0.492	0.59	0	1
Betula populifolia	IEI	0.409	0.45	0	1
Betulaceae	IEI	0	1	0	1
Bidens	IEI	0	0	0	0.93
Bidens frondosa	IEI	0	0.12	0	0.77
Bidens tripartita	IEI	0.78	0.45	0	0.94
Blechnaceae	IEI	0.598	0.61	0.13	1
Boehmeria	IEI	0	0.02	0	0.82
Boehmeria cylindrica	IEI	0	0.02	0	0.82
Brachyelytrum	IEI	0.029	1	0	1
Brachyelytrum erectum	IEI	0.109	1	0.36	1
Brachyelytrum septentrionale	IEI	0.288	1	0	1
Brassicaceae	IEI	0.029	0	0	1
Calamagrostis	IEI	0.967	0.43	0	1
Calamagrostis canadensis	IEI	0.66	0.43	0	1
Caltha	IEI	0.297	1	0	1
Caltha palustris	IEI	0.297	1	0	1
Capparales	IEI	0.029	0	0	1
Caprifoliaceae	IEI	0.015	0.12	0	1
Cardamine	IEI	0.265	1	0.14	1
Carex	IEI	0.045	1	0	1
Carex bromoides	IEI	0.72	0.53	0	1
Carex crinita	IEI	0.074	0.25	0	0.86
Carex debilis	IEI	0.941	0	0	1
Carex disperma	IEI	0.181	1	0.94	1
Carex folliculata	IEI	0.012	0.9	0.1	1
Carex gracillima	IEI	0.694	0.61	0.1	1
Carex gynandra	IEI	0.005	1	0.43	1
Carex intumescens	IEI	0.258	0.75	0	1
Carex leptalea	IEI	0.298	1	0.29	1
Carex lurida	IEI	0.46	0.77	0	1
Carex scabrata	IEI	0.131	1	0.5	1
Carex stipata	IEI	0.323	0	0	1
Carex stricta	IEI	0	0.21	0	0.88
Carex trisperma	IEI	0	1	0.61	1
Carpinus	IEI	0.251	0.47	0.01	0.93
Carpinus caroliniana	IEI	0.251	0.47	0.01	0.93
Carya	IEI	0	0	0	1
Carya cordiformis	IEI	0.667	0.57	0.23	0.91
Carya ovata	IEI	0.037	0.05	0	0.91
Celastraceae	IEI	0	0	0	0.8
Celastrales	IEI	0.226	0.56	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Celastrus	IEI	0	0.36	0	0.99
Celastrus orbiculatus	IEI	0	0.36	0	0.99
Chamaecyparis	IEI	0.693	0.44	0	1
Chamaecyparis thyoides	IEI	0.693	0.44	0	1
Chelone	IEI	0.062	1	0	1
Chelone glabra	IEI	0.062	1	0	1
Chrysosplenium	IEI	0.173	0.93	0	1
Chrysosplenium americanum	IEI	0.173	0.93	0	1
Cicuta	IEI	0.244	0.32	0	0.98
Cicuta maculata	IEI	0.232	0.08	0	1
Cinna	IEI	0.102	1	0	1
Cinna latifolia	IEI	0.211	1	0	1
Circaea	IEI	0.014	0	0	1
Circaea alpina	IEI	0.135	1	0.85	1
Circaea lutetiana	IEI	0	0	0	1
Clematis	IEI	0.61	0.69	0.05	1
Clematis virginiana	IEI	0.61	0.69	0.05	1
Clethra	IEI	0.922	0.47	0	1
Clethra alnifolia	IEI	0.922	0.47	0	1
Clethraceae	IEI	0.922	0.47	0	1
Clintonia	IEI	0	1	0.64	1
Clintonia borealis	IEI	0	1	0.64	1
Clusiaceae	IEI	0.398	0.8	0.21	1
Coniferophyta	IEI	0	1	0.24	1
Coptis	IEI	0	1	0.35	1
Coptis trifolia	IEI	0	1	0.35	1
Cornaceae	IEI	0.101	0.45	0	1
Cornales	IEI	0.967	0.48	0	1
Cornus	IEI	0.101	0.45	0	1
Cornus alternifolia	IEI	0.062	0.37	0	1
Cornus amomum	IEI	0	0.34	0	0.81
Cornus canadensis	IEI	0	1	0.51	1
Cornus racemosa	IEI	0.08	0.39	0	0.88
Cornus sericea	IEI	0.401	0.49	0	1
Corylus	IEI	0.012	0	0	1
Corylus americana	IEI	0.002	0	0	0.73
Corylus cornuta	IEI	0.566	0.69	0.07	1
Crataegus	IEI	0.527	0.63	0.28	0.99
Cupressaceae	IEI	0.708	0.04	0	1
Cyperaceae	IEI	0.032	1	0	1
Cyperales	IEI	0.068	1	0	1
Dalibarda	IEI	0.108	0.92	0.4	1
Dalibarda repens	IEI	0.108	0.92	0.4	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Dennstaedtia	IEI	0.406	0.23	0	1
Dennstaedtia punctilobula	IEI	0.406	0.23	0	1
Dennstaedtiaceae	IEI	0.708	0.4	0	1
Deparia	IEI	0.356	1	0.3	1
Deparia acrostichoides	IEI	0.356	1	0.3	1
Dichanthelium	IEI	0.55	0.7	0.19	1
Dipsacales	IEI	0.015	0.12	0	1
Doellingeria	IEI	0.089	1	0	1
Doellingeria umbellata	IEI	0.102	1	0	1
Dryopteridaceae	IEI	0.028	0.3	0	1
Dryopteris	IEI	0.472	0.59	0	1
Dryopteris carthusiana	IEI	0.002	0.38	0	1
Dryopteris clintoniana	IEI	0.323	1	0.03	1
Dryopteris cristata	IEI	0.926	0.49	0	1
Dryopteris intermedia	IEI	0.085	0.79	0.01	1
Epilobium	IEI	0	0	0	1
Epilobium ciliatum	IEI	0.4	1	0	1
Epipactis	IEI	0.27	0.76	0.27	1
Epipactis helleborine	IEI	0.27	0.76	0.27	1
Equisetaceae	IEI	0.901	0.51	0	1
Equisetales	IEI	0.901	0.51	0	1
Equisetophyta	IEI	0.901	0.51	0	1
Equisetopsida	IEI	0.901	0.51	0	1
Equisetum	IEI	0.901	0.51	0	1
Equisetum arvense	IEI	0.001	0.29	0	1
Equisetum sylvaticum	IEI	0.316	0.79	0.23	1
Ericaceae	IEI	0.046	1	0	1
Ericales	IEI	0.226	0.72	0	1
Eubotrys	IEI	0.599	0.94	0	1
Eubotrys racemosa	IEI	0.599	0.94	0	1
Euonymus	IEI	0	0	0	0.49
Euonymus alata	IEI	0	0	0	0.48
Eupatorium	IEI	0.003	0.18	0	1
Eupatorium maculatum	IEI	0.031	0.37	0	1
Eupatorium perfoliatum	IEI	0.101	0	0	0.86
Eurybia	IEI	0.499	1	0	1
Eurybia divaricata	IEI	0.822	1	0	1
Eutrochium	IEI	0.277	1	0.64	1
Eutrochium maculatum	IEI	0.277	1	0.64	1
Fabaceae	IEI	0.903	1	0	1
Fabales	IEI	0.903	1	0	1
Fagaceae	IEI	0.036	0.03	0	1
Fagales	IEI	0	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Fagus	IEI	0	0.98	0.05	1
Fagus grandifolia	IEI	0	0.98	0.05	1
Filicopsida	IEI	0.094	0.71	0.04	1
Fragaria	IEI	0.631	0.59	0.06	1
Fragaria virginiana	IEI	0.662	0.57	0.01	1
Frangula	IEI	0	0.22	0	0.93
Frangula alnus	IEI	0	0.22	0	0.93
Fraxinus	IEI	0.052	0	0	1
Fraxinus americana	IEI	0.017	0	0	1
Fraxinus nigra	IEI	0.147	1	0	1
Galium	IEI	0.996	0.5	0	1
Galium aparine	IEI	0.569	0.86	0	1
Galium asprellum	IEI	0.208	0.89	0.12	1
Galium palustre	IEI	0.92	0	0	1
Galium triflorum	IEI	0.226	0.48	0	1
Gaultheria	IEI	0.031	0.82	0.29	1
Gaultheria hispidula	IEI	0.12	1	0.67	1
Gaultheria procumbens	IEI	0.199	0.7	0.29	1
Gaylussacia	IEI	0.333	0.41	0	0.97
Gaylussacia frondosa	IEI	0.949	0.5	0	1
Gentianales	IEI	0.883	0.5	0	1
Geraniaceae	IEI	0	0	0	0.58
Geraniales	IEI	0	0	0	1
Geranium	IEI	0	0	0	0.58
Geranium maculatum	IEI	0.002	0	0	0.56
Geum	IEI	0.058	0.46	0	1
Geum canadense	IEI	0.06	0	0	1
Geum rivale	IEI	0.679	0.54	0	1
Glyceria	IEI	0.033	1	0	1
Glyceria melicaria	IEI	0.001	1	0.59	1
Glyceria striata	IEI	0.12	1	0.17	1
Grossulariaceae	IEI	0.614	0.55	0	1
Hamamelidaceae	IEI	0.018	1	0	1
Hamamelidales	IEI	0.018	1	0	1
Hamamelis	IEI	0.018	1	0	1
Hamamelis virginiana	IEI	0.018	1	0	1
Huperzia	IEI	0.094	1	0.72	1
Huperzia lucidula	IEI	0.094	1	0.72	1
Hydrocotyle	IEI	0.068	1	0	1
Hydrocotyle americana	IEI	0.068	1	0	1
Ilex	IEI	0.612	0.58	0	1
Ilex mucronata	IEI	0.169	1	0.79	1
Ilex verticillata	IEI	0.712	0.49	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Impatiens	IEI	0	0	0	1
Impatiens capensis	IEI	0	0	0	1
Iridaceae	IEI	0.782	0	0	1
Iris	IEI	0.782	0	0	1
Iris versicolor	IEI	0.286	1	0	1
Juglandaceae	IEI	0	0	0	1
Juglandales	IEI	0	0	0	1
Juncaceae	IEI	0.318	1	0	1
Juncales	IEI	0.318	1	0	1
Juncus	IEI	0.318	1	0	1
Juncus effusus	IEI	0.22	1	0.63	1
Kalmia	IEI	0	1	0.46	1
Kalmia angustifolia	IEI	0.206	0.73	0.14	1
Kalmia latifolia	IEI	0	1	0.52	1
Lactuca	IEI	0.118	0	0	0.62
Lamiaceae	IEI	0.398	1	0	1
Lamiales	IEI	0.32	1	0	1
Larix	IEI	0.624	0.58	0	1
Larix laricina	IEI	0.727	0.59	0	1
Lauraceae	IEI	0	0	0	1
Laurales	IEI	0	0	0	1
Leersia	IEI	0.074	0	0	1
Leersia oryzoides	IEI	0.288	0	0	1
Ligustrum	IEI	0.017	0.2	0	0.55
Ligustrum vulgare	IEI	0.017	0.2	0	0.55
Liliaceae	IEI	0	1	0	1
Liliales	IEI	0.023	1	0	1
Liliopsida	IEI	0.197	1	0	1
Lilium	IEI	0.563	0.66	0.02	1
Lilium canadense	IEI	0.596	0.63	0	1
Lindera	IEI	0	0	0	1
Lindera benzoin	IEI	0	0	0	1
Lonicera	IEI	0.015	0.34	0	1
Lonicera canadensis	IEI	0.04	1	0.74	1
Lonicera morrowii	IEI	0	0.09	0	0.75
Lycopodiaceae	IEI	0.008	1	0.05	1
Lycopodiales	IEI	0.008	1	0.05	1
Lycopodiophyta	IEI	0.008	1	0.05	1
Lycopodiopsida	IEI	0.008	1	0.05	1
Lycopodium	IEI	0.097	0.79	0.05	1
Lycopodium hickeyi	IEI	0.415	0.77	0.51	1
Lycopodium obscurum	IEI	0.211	0.77	0	1
Lycopus	IEI	0.012	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Lycopus uniflorus	IEI	0.01	1	0.7	1
Lyonia	IEI	0.698	0.55	0	1
Lyonia ligustrina	IEI	0.698	0.55	0	1
Lysimachia	IEI	0.297	0.61	0	1
Lysimachia borealis	IEI	0.624	0.59	0.24	0.93
Lysimachia ciliata	IEI	0.665	0.55	0	1
Lysimachia terrestris	IEI	0.068	0.9	0	1
Lythraceae	IEI	0.193	0	0	1
Magnoliophyta	IEI	0	0.12	0	1
Magnoliopsida	IEI	0	0.1	0	1
Maianthemum	IEI	0.002	1	0	1
Maianthemum canadense	IEI	0.127	0.98	0	1
Maianthemum racemosum	IEI	0.001	0	0	0.81
Malus	IEI	0.002	0.15	0	0.82
Malus pumila	IEI	0.006	0	0	0.72
Malvales	IEI	0.066	0	0	0.75
Medeola	IEI	0	1	0.25	1
Medeola virginiana	IEI	0	1	0.25	1
Mitchella	IEI	0	0.85	0	1
Mitchella repens	IEI	0	0.85	0	1
Monotropa	IEI	0.015	1	0.25	1
Monotropa uniflora	IEI	0.015	1	0.25	1
Monotropaceae	IEI	0.015	1	0.25	1
Myrtales	IEI	0	0	0	1
Nasturtium	IEI	0.032	0	0	0.98
Nasturtium officinale	IEI	0.032	0	0	0.98
Nemopanthus	IEI	0	1	0.45	1
Nemopanthus mucronatus	IEI	0	1	0.45	1
Nyssa	IEI	0.283	0.71	0	1
Nyssa sylvatica	IEI	0.283	0.71	0	1
Nyssaceae	IEI	0.283	0.71	0	1
Oclemena	IEI	0	1	0.45	1
Oclemena acuminata	IEI	0	1	0.45	1
Oleaceae	IEI	0.039	0	0	1
Onagraceae	IEI	0	0	0	1
Onoclea	IEI	0.029	0.38	0	1
Onoclea sensibilis	IEI	0.029	0.38	0	1
Orchidaceae	IEI	0.058	1	0	1
Orchidales	IEI	0.058	1	0	1
Osmunda	IEI	0.143	0.79	0.02	1
Osmunda cinnamomea	IEI	0.038	0.83	0.05	1
Osmunda claytoniana	IEI	0.792	0	0	1
Osmunda regalis	IEI	0	0.57	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Osmundaceae	IEI	0.143	0.79	0.02	1
Ostrya	IEI	0.717	0	0	1
Ostrya virginiana	IEI	0.717	0	0	1
Oxalidaceae	IEI	0.026	1	0	1
Oxalis	IEI	0.026	1	0	1
Oxalis montana	IEI	0	1	0.76	1
Oxalis stricta	IEI	0.002	0	0	0.64
Packera	IEI	0.202	0.82	0.27	1
Packera aurea	IEI	0.202	0.82	0.27	1
Parthenocissus	IEI	0	0.18	0	1
Parthenocissus quinquefolia	IEI	0	0.18	0	1
Persicaria	IEI	0.802	0.75	0	1
Phegopteris	IEI	0.029	1	0.82	1
Phegopteris Connectednessilis	IEI	0.05	1	0.79	1
Photinia	IEI	0.943	0.52	0	1
Photinia melanocarpa	IEI	0.78	0.46	0	1
Photinia pyrifolia	IEI	0.347	1	0	1
Physocarpus	IEI	0.015	0.25	0	0.54
Physocarpus opulifolius	IEI	0.015	0.25	0	0.54
Picea	IEI	0	1	0.54	1
Picea rubens	IEI	0	1	0.64	1
Pilea	IEI	0	0	0	0.96
Pilea pumila	IEI	0	0	0	0.96
Pinaceae	IEI	0	1	0.26	1
Pinales	IEI	0	1	0.25	1
Pinopsida	IEI	0	1	0.24	1
Pinus	IEI	0.998	0.51	0	1
Pinus strobus	IEI	0.991	0.5	0	1
Platanthera	IEI	0.241	1	0	1
Platanthera clavellata	IEI	0.363	1	0.27	1
Poaceae	IEI	0.692	1	0	1
Polygonaceae	IEI	0.973	0.55	0	1
Polygonales	IEI	0.973	0.55	0	1
Polygonatum	IEI	0.323	0	0	1
Polygonatum pubescens	IEI	0.323	0	0	1
Polygonum	IEI	0.943	0.54	0	1
Polygonum arifolium	IEI	0.807	0.53	0	1
Polygonum sagittatum	IEI	0.204	1	0.1	1
Polygonum virginianum	IEI	0.481	0.32	0	1
Polypodiales	IEI	0.094	0.71	0.04	1
Polystichum	IEI	0.239	0.82	0	1
Polystichum acrostichoides	IEI	0.239	0.82	0	1
Populus	IEI	0.697	0.53	0.06	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Populus grandidentata	IEI	0.411	0.43	0	0.91
Populus tremuloides	IEI	0.668	0.56	0.16	1
Potentilla	IEI	0.977	0.49	0	1
Potentilla simplex	IEI	0.809	0.52	0	1
Prenanthes	IEI	0.03	1	0.05	1
Prenanthes altissima	IEI	0.566	0.65	0.06	1
Primulaceae	IEI	0	0.87	0	1
Primulales	IEI	0	0.97	0	1
Prunella	IEI	0.61	0.64	0	1
Prunella vulgaris	IEI	0.61	0.64	0	1
Prunus	IEI	0.88	0.58	0	1
Prunus serotina	IEI	0.81	0.5	0	1
Prunus virginiana	IEI	0.735	0.55	0.04	1
Pteridium	IEI	0.385	1	0.35	1
Pteridium aquilinum	IEI	0.385	1	0.35	1
Pteridophyta	IEI	0.094	0.71	0.04	1
Pyrola	IEI	0.552	0.64	0.22	1
Pyrola elliptica	IEI	0.516	0.72	0.17	1
Pyrolaceae	IEI	0.628	0.58	0	1
Quercus	IEI	0	0.08	0	1
Quercus alba	IEI	0	0.23	0	0.89
Quercus bicolor	IEI	0.015	0.23	0	1
Quercus rubra	IEI	0	0	0	1
Ranunculaceae	IEI	0	1	0	1
Ranunculales	IEI	0.001	1	0	1
Ranunculus	IEI	0.667	1	0	1
Ranunculus abortivus	IEI	0.614	0.71	0	1
Ranunculus hispidus	IEI	0.09	1	0.04	1
Ranunculus recurvatus	IEI	0.916	0.48	0	1
Rhamnaceae	IEI	0	0.22	0	0.93
Rhamnales	IEI	0	0.6	0	0.96
Rhamnus	IEI	0	0.29	0	0.86
Rhamnus cathartica	IEI	0	0.32	0	0.83
Rhododendron	IEI	0.16	0.32	0	1
Rhododendron prinophyllum	IEI	0.024	1	0.71	1
Rhododendron viscosum	IEI	0	0.34	0	1
Ribes	IEI	0.614	0.55	0	1
Rosa	IEI	0	0.14	0	0.94
Rosa multiflora	IEI	0	0.13	0	0.88
Rosa palustris	IEI	0.138	0	0	1
Rosaceae	IEI	0.015	0.58	0	1
Rosales	IEI	0.525	0.35	0	1
Rubiaceae	IEI	0.04	0.66	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Rubiales	IEI	0.04	0.66	0	1
Rubus	IEI	0.616	0.66	0	1
Rubus allegheniensis	IEI	0.824	0.35	0	1
Rubus hispidus	IEI	0.073	0.88	0	1
Rubus idaeus	IEI	0.222	0.43	0	1
Rubus occidentalis	IEI	0.063	0	0	0.76
Rubus pubescens	IEI	0.016	0.79	0.16	1
Salicaceae	IEI	0.703	0.54	0.1	0.97
Salicales	IEI	0.703	0.54	0.1	0.97
Salix	IEI	0.651	0.56	0.27	0.86
Sambucus	IEI	0	0	0	1
Sambucus canadensis	IEI	0	0	0	1
Sapindales	IEI	0	0.18	0	1
Saxifraga	IEI	0.079	1	0.13	1
Saxifraga pensylvanica	IEI	0.102	1	0.13	1
Saxifragaceae	IEI	0.015	1	0.1	1
Scirpus	IEI	0.347	1	0.09	1
Scrophulariaceae	IEI	0.073	1	0	1
Scrophulariales	IEI	0.76	0	0	1
Scutellaria	IEI	0.012	0.22	0	1
Scutellaria lateriflora	IEI	0.007	0.19	0	1
Senecio	IEI	0.068	0.15	0	1
Senecio aureus	IEI	0.068	0.15	0	1
Smilacaceae	IEI	0	0.33	0	1
Smilax	IEI	0	0.33	0	1
Smilax herbacea	IEI	0.028	0.16	0	0.83
Smilax rotundifolia	IEI	0.653	0.67	0	1
Solanaceae	IEI	0	0	0	0.9
Solanales	IEI	0	0	0	0.9
Solanum	IEI	0	0	0	0.9
Solanum dulcamara	IEI	0	0	0	0.88
Solidago	IEI	0	0.48	0	1
Solidago gigantea	IEI	0	0.48	0.01	0.96
Solidago patula	IEI	0.667	0.55	0	1
Solidago rugosa	IEI	0	0.3	0	1
Sorbus	IEI	0.021	1	0.29	1
Sorbus americana	IEI	0.01	1	0.46	1
Spiraea	IEI	0.282	0.62	0	1
Spiraea alba	IEI	0.281	0.62	0	1
Symphyotrichum	IEI	0.262	0.67	0.05	1
Symphyotrichum lateriflorum	IEI	0.058	0.93	0	1
Symphyotrichum puniceum	IEI	0.555	0.66	0	1
Symplocarpus	IEI	0	0	0	0.94

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Symplocarpus foetidus	IEI	0	0	0	0.94
Taxaceae	IEI	0.555	1	0	1
Taxales	IEI	0.555	1	0	1
Taxus	IEI	0.555	1	0	1
Taxus canadensis	IEI	0.406	1	0.23	1
Thalictrum	IEI	0.024	0.44	0	1
Thalictrum pubescens	IEI	0.032	0.45	0	1
Theales	IEI	0.398	0.8	0.21	1
Thelypteridaceae	IEI	0.002	0.98	0	1
Thelypteris	IEI	0.012	0.99	0	1
Thelypteris noveboracensis	IEI	0.001	1	0	1
Thelypteris palustris	IEI	0.11	0.03	0	1
Thelypteris simulata	IEI	0.249	0.64	0.08	1
Tiarella	IEI	0.005	1	0.37	1
Tiarella cordifolia	IEI	0.005	1	0.37	1
Tilia	IEI	0.066	0	0	0.75
Tilia americana	IEI	0.106	0	0	0.8
Tiliaceae	IEI	0.066	0	0	0.75
Toxicodendron	IEI	0	0.22	0	1
Toxicodendron radicans	IEI	0	0.38	0	1
Toxicodendron vernix	IEI	0	0.25	0	0.9
Triadenum	IEI	0.392	1	0	1
Triadenum virginicum	IEI	0.428	0.8	0.23	1
Trientalis	IEI	0	1	0	1
Trientalis borealis	IEI	0	1	0	1
Trillium	IEI	0.03	1	0.34	1
Trillium undulatum	IEI	0.092	1	0.38	1
Tsuga	IEI	0	1	0.5	1
Tsuga canadensis	IEI	0	1	0.5	1
Typhales	IEI	0.915	0.07	0	1
Ulmaceae	IEI	0	0	0	0.76
Ulmus	IEI	0	0	0	0.76
Ulmus americana	IEI	0	0	0	0.75
Urticaceae	IEI	0	0	0	0.86
Urticales	IEI	0	0	0	0.78
Uvularia	IEI	0.02	1	0	1
Uvularia sessilifolia	IEI	0.02	1	0	1
Vaccinium	IEI	0.784	0.5	0	1
Vaccinium angustifolium	IEI	0.036	0.88	0.21	1
Vaccinium corymbosum	IEI	0.211	0.45	0	1
Vaccinium myrtilloides	IEI	0.14	0.86	0.57	1
Veratrum	IEI	0.269	1	0.49	1
Veratrum viride	IEI	0.269	1	0.49	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Veronica	IEI	0.846	0.43	0	1
Veronica officinalis	IEI	0.422	0.21	0	1
Viburnum	IEI	0.338	0	0	1
Viburnum acerifolium	IEI	0.472	0.24	0	1
Viburnum dentatum	IEI	0	0.44	0	1
Viburnum lantanoides	IEI	0	1	0.62	1
Viburnum lentago	IEI	0.091	0	0	1
Viburnum nudum	IEI	0	0.95	0	1
Viola	IEI	0.145	1	0	1
Viola cucullata	IEI	0.288	1	0.5	1
Violaceae	IEI	0.145	1	0	1
Violales	IEI	0.252	1	0	1
Vitaceae	IEI	0	0.01	0	0.87
Vitis	IEI	0	0.22	0	0.83
Vitis labrusca	IEI	0	0	0	0.74
Woodwardia	IEI	0.598	0.61	0.13	1
Woodwardia virginica	IEI	0.631	0.58	0	1
Zizia	IEI	0.635	0.56	0.27	0.85
Zizia aurea	IEI	0.635	0.56	0.27	0.85
Abies	Invasive plants	0.001	0	0	0.6
Abies balsamea	Invasive plants	0.001	0	0	0.6
Acer	Invasive plants	0	0.95	0	1
Acer pensylvanicum	Invasive plants	0	0.06	0	0.57
Acer platanoides	Invasive plants	0.004	1	0.47	1
Acer rubrum	Invasive plants	0	0.93	0	1
Acer saccharum	Invasive plants	0.027	1	0	1
Acer spicatum	Invasive plants	0.032	0	0	0.52
Aceraceae	Invasive plants	0	0.95	0	1
Ageratina	Invasive plants	0.708	0.47	0.06	0.88
Ageratina altissima	Invasive plants	0.708	0.47	0.06	0.88
Agrostis	Invasive plants	0.144	0	0	0.38
Alnus	Invasive plants	0.037	0.57	0	1
Alnus incana	Invasive plants	0.066	0.55	0	1
Amelanchier	Invasive plants	0.702	0.55	0	1
Amphicarpaea	Invasive plants	0.547	0.3	0	0.88
Amphicarpaea bracteata	Invasive plants	0.547	0.3	0	0.88
Anacardiaceae	Invasive plants	0	0.95	0	1
Anemone	Invasive plants	0.678	0.23	0	1
Anemone quinquefolia	Invasive plants	0.701	0.09	0	1
Apiaceae	Invasive plants	0.582	1	0	1
Apiales	Invasive plants	0	0.26	0	1
Aquifoliaceae	Invasive plants	0.892	0.51	0	1
Araceae	Invasive plants	0	0.62	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Arales	Invasive plants	0	0.62	0	1
Aralia	Invasive plants	0	0.18	0	1
Aralia nudicaulis	Invasive plants	0	0.18	0	1
Araliaceae	Invasive plants	0	0.17	0	1
Arisaema	Invasive plants	0	0.73	0	1
Arisaema triphyllum	Invasive plants	0	0.73	0	1
Aster	Invasive plants	0	0.81	0	1
Aster divaricatus	Invasive plants	0.093	1	0	1
Asteraceae	Invasive plants	0.017	0.98	0	1
Asterales	Invasive plants	0.017	0.98	0	1
Athyrium	Invasive plants	0	1	0	1
Athyrium filix-femina	Invasive plants	0	1	0	1
Balsaminaceae	Invasive plants	0	1	0	1
Berberidaceae	Invasive plants	0	0.6	0	1
Berberis	Invasive plants	0	1	0	1
Berberis thunbergii	Invasive plants	0	1	0	1
Betula	Invasive plants	0	0	0	1
Betula alleghaniensis	Invasive plants	0	0	0	0.72
Betula lenta	Invasive plants	0.32	1	0	1
Betula papyrifera	Invasive plants	0.28	1	0	1
Betula populifolia	Invasive plants	0.094	1	0.06	1
Betulaceae	Invasive plants	0	0	0	1
Bidens	Invasive plants	0	1	0.01	1
Bidens frondosa	Invasive plants	0	0.98	0.2	1
Bidens tripartita	Invasive plants	0.131	0.52	0	1
Blechnaceae	Invasive plants	0.321	0	0	1
Boehmeria	Invasive plants	0	1	0	1
Boehmeria cylindrica	Invasive plants	0	1	0	1
Brachyelytrum	Invasive plants	0.037	0	0	1
Brachyelytrum erectum	Invasive plants	0.162	0.09	0	0.83
Brachyelytrum septentrionale	Invasive plants	0.514	0	0	1
Brassicaceae	Invasive plants	0.037	1	0	1
Calamagrostis	Invasive plants	0.59	0.42	0.01	0.87
Calamagrostis canadensis	Invasive plants	0.392	0.49	0.08	0.7
Caltha	Invasive plants	0.292	0	0	1
Caltha palustris	Invasive plants	0.292	0	0	1
Capparales	Invasive plants	0.037	1	0	1
Caprifoliaceae	Invasive plants	0.005	0.96	0	1
Cardamine	Invasive plants	0.336	0	0	1
Carex	Invasive plants	0.093	0.18	0	1
Carex bromoides	Invasive plants	0.681	0.43	0	0.85
Carex crinita	Invasive plants	0.057	1	0.27	1
Carex debilis	Invasive plants	0.689	0.14	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Carex disperma	Invasive plants	0.139	0	0	0.15
Carex folliculata	Invasive plants	0.041	0.23	0	1
Carex gracillima	Invasive plants	0.629	1	0	1
Carex gynandra	Invasive plants	0.02	0.12	0	0.75
Carex intumescens	Invasive plants	0.543	0.38	0	1
Carex leptalea	Invasive plants	0.35	0	0	1
Carex lurida	Invasive plants	0.676	0.38	0	1
Carex scabrata	Invasive plants	0.124	0	0	0.67
Carex stipata	Invasive plants	0.468	1	0	1
Carex stricta	Invasive plants	0.008	0.68	0	1
Carex trisperma	Invasive plants	0	0	0	0.57
Carpinus	Invasive plants	0.385	0.55	0.02	1
Carpinus caroliniana	Invasive plants	0.385	0.55	0.02	1
Carya	Invasive plants	0.001	1	0	1
Carya cordiformis	Invasive plants	0.463	0.48	0.19	0.76
Carya ovata	Invasive plants	0.064	1	0	1
Celastraceae	Invasive plants	0	0.94	0.25	1
Celastrales	Invasive plants	0.011	0.91	0	1
Celastrus	Invasive plants	0	0.74	0	1
Celastrus orbiculatus	Invasive plants	0	0.74	0	1
Chamaecyparis	Invasive plants	0.449	0	0	1
Chamaecyparis thyoides	Invasive plants	0.449	0	0	1
Chelone	Invasive plants	0.379	0.17	0	1
Chelone glabra	Invasive plants	0.379	0.17	0	1
Chrysosplenium	Invasive plants	0.37	0.3	0	1
Chrysosplenium americanum	Invasive plants	0.37	0.3	0	1
Cicuta	Invasive plants	0.668	0.47	0	0.99
Cicuta maculata	Invasive plants	0.352	0.54	0	1
Cinna	Invasive plants	0.077	0	0	1
Cinna latifolia	Invasive plants	0.139	0	0	0.98
Circaea	Invasive plants	0.009	1	0	1
Circaea alpina	Invasive plants	0.11	0	0	0.37
Circaea lutetiana	Invasive plants	0	1	0	1
Clematis	Invasive plants	0.832	0.48	0	1
Clematis virginiana	Invasive plants	0.832	0.48	0	1
Clethra	Invasive plants	0.106	0	0	0.94
Clethra alnifolia	Invasive plants	0.106	0	0	0.94
Clethraceae	Invasive plants	0.106	0	0	0.94
Clintonia	Invasive plants	0	0.03	0	0.61
Clintonia borealis	Invasive plants	0	0.03	0	0.61
Clusiaceae	Invasive plants	0.485	0.31	0	0.78
Coniferophyta	Invasive plants	0	0	0	0.86
Coptis	Invasive plants	0	0.12	0	0.78

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Coptis trifolia	Invasive plants	0	0.12	0	0.78
Cornaceae	Invasive plants	0.008	0.83	0	1
Cornales	Invasive plants	0.987	0.25	0	1
Cornus	Invasive plants	0.008	0.83	0	1
Cornus alternifolia	Invasive plants	0.009	0.72	0.15	1
Cornus amomum	Invasive plants	0	1	0.26	1
Cornus canadensis	Invasive plants	0	0.01	0	0.74
Cornus racemosa	Invasive plants	0.21	0.59	0.16	1
Cornus sericea	Invasive plants	0.498	0.57	0.05	1
Corylus	Invasive plants	0.161	0.61	0	1
Corylus americana	Invasive plants	0.037	0.99	0	1
Corylus cornuta	Invasive plants	0.558	0.22	0	1
Crataegus	Invasive plants	0.178	0.5	0.13	0.87
Cupressaceae	Invasive plants	0.946	0.47	0	1
Cyperaceae	Invasive plants	0.058	0.15	0	1
Cyperales	Invasive plants	0.198	0.19	0	1
Dalibarda	Invasive plants	0.301	0.18	0	0.93
Dalibarda repens	Invasive plants	0.301	0.18	0	0.93
Dennstaedtia	Invasive plants	0.672	0.75	0	1
Dennstaedtia punctilobula	Invasive plants	0.672	0.75	0	1
Dennstaedtiaceae	Invasive plants	0.962	0.51	0	1
Deparia	Invasive plants	0.415	0	0	1
Deparia acrostichoides	Invasive plants	0.415	0	0	1
Dichanthelium	Invasive plants	0.547	0.03	0	1
Dipsacales	Invasive plants	0.005	0.96	0	1
Doellingeria	Invasive plants	0.841	0.36	0	1
Doellingeria umbellata	Invasive plants	0.878	0.36	0	1
Dryopteridaceae	Invasive plants	0	1	0	1
Dryopteris	Invasive plants	0.38	0.05	0	1
Dryopteris carthusiana	Invasive plants	0.147	1	0	1
Dryopteris clintoniana	Invasive plants	0.557	0.24	0	1
Dryopteris cristata	Invasive plants	0.059	0.67	0	1
Dryopteris intermedia	Invasive plants	0.128	0	0	1
Epilobium	Invasive plants	0.002	1	0	1
Epilobium ciliatum	Invasive plants	0.754	0	0	1
Epipactis	Invasive plants	0.422	0.32	0	0.82
Epipactis helleborine	Invasive plants	0.422	0.32	0	0.82
Equisetaceae	Invasive plants	0.02	0.63	0	1
Equisetales	Invasive plants	0.02	0.63	0	1
Equisetophyta	Invasive plants	0.02	0.63	0	1
Equisetopsida	Invasive plants	0.02	0.63	0	1
Equisetum	Invasive plants	0.02	0.63	0	1
Equisetum arvense	Invasive plants	0.001	0.9	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Equisetum sylvaticum	Invasive plants	0.478	0.33	0	0.8
Ericaceae	Invasive plants	0.002	0.08	0	1
Ericales	Invasive plants	0.002	0	0	1
Eubotrys	Invasive plants	0.327	0.06	0	1
Eubotrys racemosa	Invasive plants	0.327	0.06	0	1
Euonymus	Invasive plants	0	1	0.52	1
Euonymus alata	Invasive plants	0	1	0.54	1
Eupatorium	Invasive plants	0.024	0.76	0	1
Eupatorium maculatum	Invasive plants	0.097	0.64	0	1
Eupatorium perfoliatum	Invasive plants	0.247	1	0	1
Eurybia	Invasive plants	0.688	0.25	0	1
Eurybia divaricata	Invasive plants	0.467	1	0	1
Eutrochium	Invasive plants	0.316	0	0	0.63
Eutrochium maculatum	Invasive plants	0.316	0	0	0.63
Fabaceae	Invasive plants	0.193	1	0	1
Fabales	Invasive plants	0.193	1	0	1
Fagaceae	Invasive plants	0.009	1	0	1
Fagales	Invasive plants	0.001	0	0	1
Fagus	Invasive plants	0.033	0	0	1
Fagus grandifolia	Invasive plants	0.033	0	0	1
Filicopsida	Invasive plants	0.093	0.28	0	1
Fragaria	Invasive plants	0.137	0.55	0.04	1
Fragaria virginiana	Invasive plants	0.327	0.56	0.04	1
Frangula	Invasive plants	0.001	0.98	0.06	1
Frangula alnus	Invasive plants	0.001	0.98	0.06	1
Fraxinus	Invasive plants	0.001	1	0	1
Fraxinus americana	Invasive plants	0	1	0	1
Fraxinus nigra	Invasive plants	0.209	0.18	0	1
Galium	Invasive plants	0.05	0.56	0	1
Galium aparine	Invasive plants	0.602	0.23	0	1
Galium asprellum	Invasive plants	0.166	0	0	1
Galium palustre	Invasive plants	0.586	0	0	1
Galium triflorum	Invasive plants	0.179	0.56	0	1
Gaultheria	Invasive plants	0.112	0.29	0	0.84
Gaultheria hispidula	Invasive plants	0.112	0	0	0.54
Gaultheria procumbens	Invasive plants	0.466	0.38	0	0.82
Gaylussacia	Invasive plants	0.985	0	0	1
Gaylussacia frondosa	Invasive plants	0.314	0	0	1
Gentianales	Invasive plants	0.542	0.42	0	0.92
Geraniaceae	Invasive plants	0.006	1	0.42	1
Geraniales	Invasive plants	0	1	0	1
Geranium	Invasive plants	0.006	1	0.42	1
Geranium maculatum	Invasive plants	0.011	1	0.42	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Geum	Invasive plants	0.002	0.7	0	1
Geum canadense	Invasive plants	0.1	0.67	0.11	1
Geum rivale	Invasive plants	0.887	0.49	0	1
Glyceria	Invasive plants	0.079	0	0	1
Glyceria melicaria	Invasive plants	0.002	0	0	0.66
Glyceria striata	Invasive plants	0.194	0.25	0	0.78
Grossulariaceae	Invasive plants	0.485	0.78	0	1
Hamamelidaceae	Invasive plants	0.016	0	0	1
Hamamelidales	Invasive plants	0.016	0	0	1
Hamamelis	Invasive plants	0.016	0	0	1
Hamamelis virginiana	Invasive plants	0.016	0	0	1
Huperzia	Invasive plants	0.078	0	0	0.43
Huperzia lucidula	Invasive plants	0.078	0	0	0.43
Hydrocotyle	Invasive plants	0.074	0	0	1
Hydrocotyle americana	Invasive plants	0.074	0	0	1
Ilex	Invasive plants	0.029	0.6	0	1
Ilex mucronata	Invasive plants	0.12	0	0	0.3
Ilex verticillata	Invasive plants	0.018	0.59	0	1
Impatiens	Invasive plants	0	1	0	1
Impatiens capensis	Invasive plants	0	1	0	1
Iridaceae	Invasive plants	0.914	0.48	0	1
Iris	Invasive plants	0.914	0.48	0	1
Iris versicolor	Invasive plants	0.575	0.35	0	1
Juglandaceae	Invasive plants	0.001	1	0	1
Juglandales	Invasive plants	0.001	1	0	1
Juncaceae	Invasive plants	0.336	0	0	1
Juncales	Invasive plants	0.336	0	0	1
Juncus	Invasive plants	0.336	0	0	1
Juncus effusus	Invasive plants	0.201	0	0	0.53
Kalmia	Invasive plants	0.001	0	0	0.66
Kalmia angustifolia	Invasive plants	0.453	0.37	0	0.89
Kalmia latifolia	Invasive plants	0.002	0	0	0.68
Lactuca	Invasive plants	0.145	1	0.43	1
Lamiaceae	Invasive plants	0.557	0	0	1
Lamiales	Invasive plants	0.489	0	0	1
Larix	Invasive plants	0.838	0.6	0	1
Larix laricina	Invasive plants	0.766	0.58	0	1
Lauraceae	Invasive plants	0.002	1	0	1
Laurales	Invasive plants	0.002	1	0	1
Leersia	Invasive plants	0.194	1	0	1
Leersia oryzoides	Invasive plants	0.431	0.99	0	1
Ligustrum	Invasive plants	0.05	0.81	0.48	1
Ligustrum vulgare	Invasive plants	0.05	0.81	0.48	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Liliaceae	Invasive plants	0.002	0	0	1
Liliales	Invasive plants	0.006	0.18	0	1
Liliopsida	Invasive plants	0.131	0	0	1
Lilium	Invasive plants	0.492	0.27	0	0.91
Lilium canadense	Invasive plants	0.52	0.29	0	0.95
Lindera	Invasive plants	0.001	1	0	1
Lindera benzoin	Invasive plants	0.001	1	0	1
Lonicera	Invasive plants	0.011	0.69	0	1
Lonicera canadensis	Invasive plants	0.024	0	0	0.39
Lonicera morrowii	Invasive plants	0	0.91	0.31	1
Lycopodiaceae	Invasive plants	0.025	0.16	0	0.9
Lycopodiales	Invasive plants	0.025	0.16	0	0.9
Lycopodiophyta	Invasive plants	0.025	0.16	0	0.9
Lycopodiopsida	Invasive plants	0.025	0.16	0	0.9
Lycopodium	Invasive plants	0.145	0.29	0	0.88
Lycopodium hickeyi	Invasive plants	0.415	0.25	0	0.52
Lycopodium obscurum	Invasive plants	0.327	0.32	0	1
Lycopus	Invasive plants	0.017	0	0	1
Lycopus uniflorus	Invasive plants	0.005	0	0	0.44
Lyonia	Invasive plants	0.793	0.46	0	1
Lyonia ligustrina	Invasive plants	0.793	0.46	0	1
Lysimachia	Invasive plants	0.547	0.45	0	1
Lysimachia borealis	Invasive plants	0.319	0.14	0	0.69
Lysimachia ciliata	Invasive plants	0.127	0.72	0	1
Lysimachia terrestris	Invasive plants	0.16	0.29	0	1
Lythraceae	Invasive plants	0.21	1	0	1
Magnoliophyta	Invasive plants	0	1	0	1
Magnoliopsida	Invasive plants	0	1	0	1
Maianthemum	Invasive plants	0.005	0	0	1
Maianthemum canadense	Invasive plants	0.285	0.05	0	1
Maianthemum racemosum	Invasive plants	0	1	0.44	1
Malus	Invasive plants	0.002	1	0.3	1
Malus pumila	Invasive plants	0.012	1	0.38	1
Malvales	Invasive plants	0.25	0.64	0.13	1
Medeola	Invasive plants	0	0.05	0	0.91
Medeola virginiana	Invasive plants	0	0.05	0	0.91
Mitchella	Invasive plants	0	0.27	0	1
Mitchella repens	Invasive plants	0	0.27	0	1
Monotropa	Invasive plants	0.009	0	0	0.94
Monotropa uniflora	Invasive plants	0.009	0	0	0.94
Monotropaceae	Invasive plants	0.009	0	0	0.94
Myrtales	Invasive plants	0	1	0	1
Nasturtium	Invasive plants	0.115	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Nasturtium officinale	Invasive plants	0.115	1	0	1
Nemopanthus	Invasive plants	0	0	0	0.8
Nemopanthus mucronatus	Invasive plants	0	0	0	0.8
Nyssa	Invasive plants	0.055	0	0	1
Nyssa sylvatica	Invasive plants	0.055	0	0	1
Nyssaceae	Invasive plants	0.055	0	0	1
Oclemena	Invasive plants	0	0	0	0.77
Oclemena acuminata	Invasive plants	0	0	0	0.74
Oleaceae	Invasive plants	0	1	0	1
Onagraceae	Invasive plants	0	1	0	1
Onoclea	Invasive plants	0	0.88	0	1
Onoclea sensibilis	Invasive plants	0	0.88	0	1
Orchidaceae	Invasive plants	0.233	0.29	0	0.94
Orchidales	Invasive plants	0.233	0.29	0	0.94
Osmunda	Invasive plants	0.059	0.25	0	1
Osmunda cinnamomea	Invasive plants	0.017	0.21	0	0.98
Osmunda claytoniana	Invasive plants	0.526	1	0	1
Osmunda regalis	Invasive plants	0	0.56	0	1
Osmundaceae	Invasive plants	0.059	0.25	0	1
Ostrya	Invasive plants	0.838	0.98	0	1
Ostrya virginiana	Invasive plants	0.838	0.98	0	1
Oxalidaceae	Invasive plants	0.027	0	0	1
Oxalis	Invasive plants	0.027	0	0	1
Oxalis montana	Invasive plants	0	0	0	0.43
Oxalis stricta	Invasive plants	0.012	1	0.28	1
Packera	Invasive plants	0.316	0.22	0	1
Packera aurea	Invasive plants	0.316	0.22	0	1
Parthenocissus	Invasive plants	0	0.93	0	1
Parthenocissus quinquefolia	Invasive plants	0	0.93	0	1
Persicaria	Invasive plants	0.596	0.08	0.04	1
Phegopteris	Invasive plants	0.028	0.03	0	0.43
Phegopteris Connectednessilis	Invasive plants	0.038	0	0	0.47
Photinia	Invasive plants	0.65	0.52	0	1
Photinia melanocarpa	Invasive plants	0.26	0.77	0	1
Photinia pyrifolia	Invasive plants	0.46	0.35	0	0.97
Physocarpus	Invasive plants	0.037	0.8	0.44	1
Physocarpus opulifolius	Invasive plants	0.037	0.8	0.44	1
Picea	Invasive plants	0	0	0	0.67
Picea rubens	Invasive plants	0	0	0	0.58
Pilea	Invasive plants	0.024	1	0	1
Pilea pumila	Invasive plants	0.024	1	0	1
Pinaceae	Invasive plants	0	0	0	0.84
Pinales	Invasive plants	0	0	0	0.86

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Pinopsida	Invasive plants	0	0	0	0.86
Pinus	Invasive plants	0.91	0.5	0	1
Pinus strobus	Invasive plants	0.959	0.5	0	1
Platanthera	Invasive plants	0.247	0.02	0	1
Platanthera clavellata	Invasive plants	0.407	0	0	0.98
Poaceae	Invasive plants	0.717	0.49	0	1
Polygonaceae	Invasive plants	0.776	0	0	1
Polygonales	Invasive plants	0.776	0	0	1
Polygonatum	Invasive plants	0.301	1	0	1
Polygonatum pubescens	Invasive plants	0.301	1	0	1
Polygonum	Invasive plants	0.777	0.07	0	1
Polygonum arifolium	Invasive plants	0.719	0.39	0	1
Polygonum sagittatum	Invasive plants	0.201	0.01	0	0.98
Polygonum virginianum	Invasive plants	0.329	1	0	1
Polypodiales	Invasive plants	0.094	0.28	0	1
Polystichum	Invasive plants	0.475	0.39	0	1
Polystichum acrostichoides	Invasive plants	0.475	0.39	0	1
Populus	Invasive plants	0.083	0.74	0.06	1
Populus grandidentata	Invasive plants	0.301	0.55	0.15	0.93
Populus tremuloides	Invasive plants	0.115	0.96	0.06	1
Potentilla	Invasive plants	0.009	0.62	0.03	1
Potentilla simplex	Invasive plants	0.014	0.62	0.02	1
Prenanthes	Invasive plants	0.06	0	0	1
Prenanthes altissima	Invasive plants	0.612	0.38	0	1
Primulaceae	Invasive plants	0.047	0.34	0	1
Primulales	Invasive plants	0.006	0.36	0	1
Prunella	Invasive plants	0.622	0.41	0	0.95
Prunella vulgaris	Invasive plants	0.622	0.41	0	0.95
Prunus	Invasive plants	0.001	0.68	0.01	1
Prunus serotina	Invasive plants	0	0.73	0	1
Prunus virginiana	Invasive plants	0.011	0.7	0	1
Pteridium	Invasive plants	0.596	0.36	0	0.76
Pteridium aquilinum	Invasive plants	0.596	0.36	0	0.76
Pteridophyta	Invasive plants	0.093	0.28	0	1
Pyrola	Invasive plants	0.592	0.38	0	0.87
Pyrola elliptica	Invasive plants	0.555	0.33	0	0.82
Pyrolaceae	Invasive plants	0.983	0.43	0	1
Quercus	Invasive plants	0	1	0	1
Quercus alba	Invasive plants	0	1	0.08	1
Quercus bicolor	Invasive plants	0.074	1	0	1
Quercus rubra	Invasive plants	0.001	0.96	0	1
Ranunculaceae	Invasive plants	0.005	0.16	0	1
Ranunculales	Invasive plants	0.097	0.38	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Ranunculus	Invasive plants	0.092	1	0	1
Ranunculus abortivus	Invasive plants	0.642	0.43	0.04	0.82
Ranunculus hispidus	Invasive plants	0.069	0	0	1
Ranunculus recurvatus	Invasive plants	0.044	1	0	1
Rhamnaceae	Invasive plants	0	1	0.06	1
Rhamnales	Invasive plants	0	1	0.04	1
Rhamnus	Invasive plants	0	1	0.27	1
Rhamnus cathartica	Invasive plants	0	1	0.24	1
Rhododendron	Invasive plants	0.009	0	0	1
Rhododendron prinophyllum	Invasive plants	0.036	0	0	0.56
Rhododendron viscosum	Invasive plants	0.889	0.76	0	1
Ribes	Invasive plants	0.485	0.78	0	1
Rosa	Invasive plants	0	0.82	0	1
Rosa multiflora	Invasive plants	0	1	0.17	1
Rosa palustris	Invasive plants	0.269	1	0	1
Rosaceae	Invasive plants	0	0.52	0	1
Rosales	Invasive plants	0	0.64	0	1
Rubiaceae	Invasive plants	0.236	0.38	0	1
Rubiales	Invasive plants	0.236	0.38	0	1
Rubus	Invasive plants	0.855	0.47	0	1
Rubus allegheniensis	Invasive plants	0.341	1	0.15	1
Rubus hispidus	Invasive plants	0.022	0.2	0	1
Rubus idaeus	Invasive plants	0.037	1	0.03	1
Rubus occidentalis	Invasive plants	0.07	1	0.17	1
Rubus pubescens	Invasive plants	0.226	0.34	0	0.95
Salicaceae	Invasive plants	0.092	0.65	0.07	1
Salicales	Invasive plants	0.092	0.65	0.07	1
Salix	Invasive plants	0.458	0.84	0.12	1
Sambucus	Invasive plants	0	1	0.04	1
Sambucus canadensis	Invasive plants	0	1	0.04	1
Sapindales	Invasive plants	0	0.92	0	1
Saxifraga	Invasive plants	0.145	0.11	0	0.98
Saxifraga pensylvanica	Invasive plants	0.202	0.17	0	0.98
Saxifragaceae	Invasive plants	0.06	0.12	0	0.94
Scirpus	Invasive plants	0.258	0	0	0.88
Scrophulariaceae	Invasive plants	0.646	0.29	0	1
Scrophulariales	Invasive plants	0.005	1	0	1
Scutellaria	Invasive plants	0.926	0.49	0	1
Scutellaria lateriflora	Invasive plants	0.056	0.53	0	1
Senecio	Invasive plants	0.1	0.76	0.05	1
Senecio aureus	Invasive plants	0.1	0.76	0.05	1
Smilacaceae	Invasive plants	0.701	0	0	1
Smilax	Invasive plants	0.701	0	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Smilax herbacea	Invasive plants	0.09	0.77	0.1	1
Smilax rotundifolia	Invasive plants	0.3	0	0	0.98
Solanaceae	Invasive plants	0	1	0.1	1
Solanales	Invasive plants	0	1	0.11	1
Solanum	Invasive plants	0	1	0.1	1
Solanum dulcamara	Invasive plants	0	1	0.15	1
Solidago	Invasive plants	0	1	0	1
Solidago gigantea	Invasive plants	0	0.68	0.07	1
Solidago patula	Invasive plants	0.767	0.45	0	1
Solidago rugosa	Invasive plants	0	0.67	0	1
Sorbus	Invasive plants	0.012	0	0	0.91
Sorbus americana	Invasive plants	0.005	0	0	0.69
Spiraea	Invasive plants	0.972	0.47	0	1
Spiraea alba	Invasive plants	0.161	0.47	0	1
Symphyotrichum	Invasive plants	0.712	0	0	1
Symphyotrichum lateriflorum	Invasive plants	0.379	0.2	0	1
Symphyotrichum puniceum	Invasive plants	0.708	0.64	0	1
Symplocarpus	Invasive plants	0	1	0	1
Symplocarpus foetidus	Invasive plants	0	1	0	1
Taxaceae	Invasive plants	0.978	1	0	1
Taxales	Invasive plants	0.978	1	0	1
Taxus	Invasive plants	0.978	1	0	1
Taxus canadensis	Invasive plants	0.435	0	0	1
Thalictrum	Invasive plants	0.024	0.95	0	1
Thalictrum pubescens	Invasive plants	0.036	0.91	0	1
Theales	Invasive plants	0.485	0.31	0	0.78
Thelypteridaceae	Invasive plants	0.005	0	0	1
Thelypteris	Invasive plants	0.014	0	0	1
Thelypteris noveboracensis	Invasive plants	0.033	0	0	1
Thelypteris palustris	Invasive plants	0.921	0.55	0	1
Thelypteris simulata	Invasive plants	0.06	0.31	0	0.82
Tiarella	Invasive plants	0.009	0	0	0.79
Tiarella cordifolia	Invasive plants	0.009	0	0	0.79
Tilia	Invasive plants	0.25	0.64	0.13	1
Tilia americana	Invasive plants	0.25	0.78	0.1	1
Tiliaceae	Invasive plants	0.25	0.64	0.13	1
Toxicodendron	Invasive plants	0	0.95	0	1
Toxicodendron radicans	Invasive plants	0	0.82	0	1
Toxicodendron vernix	Invasive plants	0.016	0.78	0.02	1
Triadenum	Invasive plants	0.425	0.07	0	1
Triadenum virginicum	Invasive plants	0.457	0.28	0	0.74
Trientalis	Invasive plants	0	0.12	0	1
Trientalis borealis	Invasive plants	0	0.12	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Trillium	Invasive plants	0.08	0.1	0	0.88
Trillium undulatum	Invasive plants	0.182	0.02	0	0.88
Tsuga	Invasive plants	0	0	0	0.62
Tsuga canadensis	Invasive plants	0	0	0	0.62
Typhales	Invasive plants	0.755	0	0	1
Ulmaceae	Invasive plants	0	1	0.33	1
Ulmus	Invasive plants	0	1	0.33	1
Ulmus americana	Invasive plants	0	1	0.31	1
Urticaceae	Invasive plants	0.002	1	0	1
Urticales	Invasive plants	0	1	0.26	1
Uvularia	Invasive plants	0.018	0	0	1
Uvularia sessilifolia	Invasive plants	0.018	0	0	1
Vaccinium	Invasive plants	0.465	0.46	0	1
Vaccinium angustifolium	Invasive plants	0.139	0.27	0	0.89
Vaccinium corymbosum	Invasive plants	0.516	0.51	0	1
Vaccinium myrtilloides	Invasive plants	0.168	0.09	0	0.63
Veratrum	Invasive plants	0.289	0.02	0	0.66
Veratrum viride	Invasive plants	0.289	0.02	0	0.66
Veronica	Invasive plants	0.45	0.57	0.06	1
Veronica officinalis	Invasive plants	0.446	0.6	0.07	1
Viburnum	Invasive plants	0.215	0.7	0	1
Viburnum acerifolium	Invasive plants	0.708	0.56	0	1
Viburnum dentatum	Invasive plants	0	0.82	0	1
Viburnum lantanoides	Invasive plants	0	0	0	0.59
Viburnum lentago	Invasive plants	0.052	0.68	0	1
Viburnum nudum	Invasive plants	0.008	0.23	0	1
Viola	Invasive plants	0.123	0	0	1
Viola cucullata	Invasive plants	0.382	0.16	0	0.71
Violaceae	Invasive plants	0.123	0	0	1
Violales	Invasive plants	0.177	0	0	1
Vitaceae	Invasive plants	0	1	0.09	1
Vitis	Invasive plants	0	1	0.15	1
Vitis labrusca	Invasive plants	0	0.98	0.16	1
Woodwardia	Invasive plants	0.321	0	0	1
Woodwardia virginica	Invasive plants	0.456	0	0	1
Zizia	Invasive plants	0.124	0.9	0.18	1
Zizia aurea	Invasive plants	0.124	0.9	0.18	1
Abies	Edge predators	0.006	0	0	0.55
Abies balsamea	Edge predators	0.006	0	0	0.55
Acer	Edge predators	0	0.78	0	1
Acer pensylvanicum	Edge predators	0.001	0	0	0.5
Acer platanoides	Edge predators	0.007	0.85	0.45	1
Acer rubrum	Edge predators	0	0.81	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Acer saccharum	Edge predators	0.013	1	0	1
Acer spicatum	Edge predators	0.08	0	0	0.53
Aceraceae	Edge predators	0	0.78	0	1
Ageratina	Edge predators	0.666	0.41	0.05	0.77
Ageratina altissima	Edge predators	0.666	0.41	0.05	0.77
Agrostis	Edge predators	0.193	0	0	0.32
Alnus	Edge predators	0.076	0.62	0	1
Alnus incana	Edge predators	0.166	0.6	0	1
Amelanchier	Edge predators	0.769	0.5	0	1
Amphicarpaea	Edge predators	0.573	0.3	0	0.86
Amphicarpaea bracteata	Edge predators	0.573	0.3	0	0.86
Anacardiaceae	Edge predators	0	0.87	0	1
Anemone	Edge predators	0.808	0	0	1
Anemone quinquefolia	Edge predators	0.829	0.28	0	1
Apiaceae	Edge predators	0.797	1	0	1
Apiales	Edge predators	0	0.17	0	1
Aquifoliaceae	Edge predators	0.757	0.41	0	1
Araceae	Edge predators	0	0.52	0	1
Arales	Edge predators	0	0.53	0	1
Aralia	Edge predators	0	0.11	0	1
Aralia nudicaulis	Edge predators	0	0.1	0	1
Araliaceae	Edge predators	0	0.09	0	1
Arisaema	Edge predators	0	0.72	0	1
Arisaema triphyllum	Edge predators	0	0.72	0	1
Aster	Edge predators	0	0.85	0	1
Aster divaricatus	Edge predators	0.057	1	0	1
Asteraceae	Edge predators	0.021	1	0	1
Asterales	Edge predators	0.021	1	0	1
Athyrium	Edge predators	0	1	0	1
Athyrium filix-femina	Edge predators	0	1	0	1
Balsaminaceae	Edge predators	0	1	0.08	1
Berberidaceae	Edge predators	0	0.96	0	1
Berberis	Edge predators	0	0.96	0	1
Berberis thunbergii	Edge predators	0	0.97	0	1
Betula	Edge predators	0	0	0	0.99
Betula alleghaniensis	Edge predators	0	0	0	0.67
Betula lenta	Edge predators	0.469	1	0	1
Betula papyrifera	Edge predators	0.455	1	0	1
Betula populifolia	Edge predators	0.166	0.74	0.07	1
Betulaceae	Edge predators	0.001	0	0	1
Bidens	Edge predators	0	0.98	0.02	1
Bidens frondosa	Edge predators	0	0.9	0.21	1
Bidens tripartita	Edge predators	0.845	0.49	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Blechnaceae	Edge predators	0.399	0	0	1
Boehmeria	Edge predators	0.001	0.85	0.07	1
Boehmeria cylindrica	Edge predators	0.001	0.85	0.07	1
Brachyelytrum	Edge predators	0.105	0	0	1
Brachyelytrum erectum	Edge predators	0.288	0	0	1
Brachyelytrum septentrionale	Edge predators	0.357	0	0	1
Brassicaceae	Edge predators	0.038	1	0	1
Calamagrostis	Edge predators	0.673	0.36	0	0.92
Calamagrostis canadensis	Edge predators	0.701	0.41	0	0.81
Caltha	Edge predators	0.374	0	0	1
Caltha palustris	Edge predators	0.374	0	0	1
Capparales	Edge predators	0.038	1	0	1
Caprifoliaceae	Edge predators	0.006	0.9	0	1
Cardamine	Edge predators	0.311	0	0	1
Carex	Edge predators	0.175	0.2	0	1
Carex bromoides	Edge predators	0.297	0.44	0.05	0.84
Carex crinita	Edge predators	0.073	1	0.26	1
Carex debilis	Edge predators	0.867	0	0	1
Carex disperma	Edge predators	0.184	0	0	0.12
Carex folliculata	Edge predators	0.017	0.12	0	0.97
Carex gracillima	Edge predators	0.073	1	0	1
Carex gynandra	Edge predators	0.027	0	0	0.83
Carex intumescens	Edge predators	0.537	0.38	0	1
Carex leptalea	Edge predators	0.4	0	0	1
Carex lurida	Edge predators	0.675	0.36	0	1
Carex scabrata	Edge predators	0.223	0	0	0.71
Carex stipata	Edge predators	0.51	1	0	1
Carex stricta	Edge predators	0.007	0.62	0.01	1
Carex trisperma	Edge predators	0	0	0	0.49
Carpinus	Edge predators	0.302	0.51	0.07	1
Carpinus caroliniana	Edge predators	0.302	0.51	0.07	1
Carya	Edge predators	0.001	0.8	0.09	1
Carya cordiformis	Edge predators	0.419	0.47	0.19	0.74
Carya ovata	Edge predators	0.069	1	0.06	1
Celastraceae	Edge predators	0	1	0.25	1
Celastrales	Edge predators	0.889	0.51	0	1
Celastrus	Edge predators	0	0.69	0.06	1
Celastrus orbiculatus	Edge predators	0	0.69	0.06	1
Chamaecyparis	Edge predators	0.455	0	0	1
Chamaecyparis thyoides	Edge predators	0.455	0	0	1
Chelone	Edge predators	0.654	0	0	1
Chelone glabra	Edge predators	0.654	0	0	1
Chrysosplenium	Edge predators	0.324	0.15	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Chrysosplenium americanum	Edge predators	0.324	0.15	0	1
Cicuta	Edge predators	0.757	0.5	0.01	0.98
Cicuta maculata	Edge predators	0.153	0.55	0.07	1
Cinna	Edge predators	0.169	0	0	1
Cinna latifolia	Edge predators	0.249	0	0	1
Circaea	Edge predators	0.007	1	0	1
Circaea alpina	Edge predators	0.149	0	0	0.32
Circaea lutetiana	Edge predators	0	1	0.01	1
Clematis	Edge predators	0.747	0.61	0	1
Clematis virginiana	Edge predators	0.747	0.61	0	1
Clethra	Edge predators	0.223	0	0	0.98
Clethra alnifolia	Edge predators	0.223	0	0	0.98
Clethraceae	Edge predators	0.223	0	0	0.98
Clintonia	Edge predators	0	0	0	0.54
Clintonia borealis	Edge predators	0	0	0	0.54
Clusiaceae	Edge predators	0.451	0.29	0	0.7
Coniferophyta	Edge predators	0	0	0	0.86
Coptis	Edge predators	0	0	0	0.75
Coptis trifolia	Edge predators	0	0	0	0.75
Cornaceae	Edge predators	0.056	0.63	0	1
Cornales	Edge predators	0.979	0.4	0	1
Cornus	Edge predators	0.056	0.63	0	1
Cornus alternifolia	Edge predators	0.007	0.78	0.17	1
Cornus amomum	Edge predators	0	1	0.24	1
Cornus canadensis	Edge predators	0.001	0.04	0	0.67
Cornus racemosa	Edge predators	0.262	0.54	0.18	0.93
Cornus sericea	Edge predators	0.444	0.56	0.04	1
Corylus	Edge predators	0.124	0.69	0	1
Corylus americana	Edge predators	0.097	0.82	0	1
Corylus cornuta	Edge predators	0.677	0.32	0	1
Crataegus	Edge predators	0.759	0.48	0.08	0.88
Cupressaceae	Edge predators	0.614	0.76	0	1
Cyperaceae	Edge predators	0.123	0.16	0	1
Cyperales	Edge predators	0.328	0.15	0	1
Dalibarda	Edge predators	0.329	0.2	0	0.83
Dalibarda repens	Edge predators	0.329	0.2	0	0.83
Dennstaedtia	Edge predators	0.774	0.53	0	1
Dennstaedtia punctilobula	Edge predators	0.774	0.53	0	1
Dennstaedtiaceae	Edge predators	0.736	0.44	0	1
Deparia	Edge predators	0.44	0	0	0.94
Deparia acrostichoides	Edge predators	0.44	0	0	0.94
Dichanthelium	Edge predators	0.526	0.28	0	0.63
Dipsacales	Edge predators	0.006	0.9	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Doellingeria	Edge predators	0.587	0.35	0	1
Doellingeria umbellata	Edge predators	0.607	0.34	0	1
Dryopteridaceae	Edge predators	0.001	1	0	1
Dryopteris	Edge predators	0.47	0	0	1
Dryopteris carthusiana	Edge predators	0.033	1	0	1
Dryopteris clintoniana	Edge predators	0.493	0.26	0	0.81
Dryopteris cristata	Edge predators	0.048	0.92	0	1
Dryopteris intermedia	Edge predators	0.318	0	0	1
Epilobium	Edge predators	0.001	1	0	1
Epilobium ciliatum	Edge predators	0.963	1	0	1
Epipactis	Edge predators	0.561	0.31	0	1
Epipactis helleborine	Edge predators	0.561	0.31	0	1
Equisetaceae	Edge predators	0.004	0.78	0	1
Equisetales	Edge predators	0.004	0.78	0	1
Equisetophyta	Edge predators	0.004	0.78	0	1
Equisetopsida	Edge predators	0.004	0.78	0	1
Equisetum	Edge predators	0.004	0.78	0	1
Equisetum arvense	Edge predators	0	1	0.07	1
Equisetum sylvaticum	Edge predators	0.463	0.27	0	0.77
Ericaceae	Edge predators	0.014	0.16	0	1
Ericales	Edge predators	0.007	0	0	1
Eubotrys	Edge predators	0.395	0.08	0	1
Eubotrys racemosa	Edge predators	0.395	0.08	0	1
Euonymus	Edge predators	0	1	0.47	1
Euonymus alata	Edge predators	0	1	0.5	1
Eupatorium	Edge predators	0.019	0.7	0	1
Eupatorium maculatum	Edge predators	0.068	0.7	0	1
Eupatorium perfoliatum	Edge predators	0.492	0.7	0	1
Eurybia	Edge predators	0.763	0.09	0	1
Eurybia divaricata	Edge predators	0.808	1	0	1
Eutrochium	Edge predators	0.353	0	0	0.54
Eutrochium maculatum	Edge predators	0.353	0	0	0.54
Fabaceae	Edge predators	0.208	1	0	1
Fabales	Edge predators	0.208	1	0	1
Fagaceae	Edge predators	0.042	0.76	0	1
Fagales	Edge predators	0.003	0	0	1
Fagus	Edge predators	0.007	0	0	1
Fagus grandifolia	Edge predators	0.007	0	0	1
Filicopsida	Edge predators	0.111	0.18	0	1
Fragaria	Edge predators	0.109	0.59	0.02	1
Fragaria virginiana	Edge predators	0.25	0.64	0.03	1
Frangula	Edge predators	0.001	0.71	0.06	1
Frangula alnus	Edge predators	0.001	0.71	0.06	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Fraxinus	Edge predators	0.001	1	0	1
Fraxinus americana	Edge predators	0	1	0	1
Fraxinus nigra	Edge predators	0.289	0	0	1
Galium	Edge predators	0.013	0.75	0	1
Galium aparine	Edge predators	0.65	0.33	0	1
Galium asprellum	Edge predators	0.291	0	0	1
Galium palustre	Edge predators	0.771	0	0	1
Galium triflorum	Edge predators	0.468	0.66	0	1
Gaultheria	Edge predators	0.144	0.25	0	0.82
Gaultheria hispidula	Edge predators	0.192	0.02	0	0.53
Gaultheria procumbens	Edge predators	0.438	0.36	0	0.84
Gaylussacia	Edge predators	0.885	1	0	1
Gaylussacia frondosa	Edge predators	0.427	0	0	1
Gentianales	Edge predators	0.395	0.39	0	1
Geraniaceae	Edge predators	0.007	1	0.35	1
Geraniales	Edge predators	0	1	0	1
Geranium	Edge predators	0.007	1	0.35	1
Geranium maculatum	Edge predators	0.01	1	0.37	1
Geum	Edge predators	0.003	0.69	0.01	1
Geum canadense	Edge predators	0.107	0.65	0.12	1
Geum rivale	Edge predators	0.442	0.5	0	1
Glyceria	Edge predators	0.329	0	0	1
Glyceria melicaria	Edge predators	0.009	0	0	0.63
Glyceria striata	Edge predators	0.213	0.23	0	0.74
Grossulariaceae	Edge predators	0.509	0.86	0	1
Hamamelidaceae	Edge predators	0.066	0	0	1
Hamamelidales	Edge predators	0.066	0	0	1
Hamamelis	Edge predators	0.066	0	0	1
Hamamelis virginiana	Edge predators	0.066	0	0	1
Huperzia	Edge predators	0.149	0	0	0.43
Huperzia lucidula	Edge predators	0.149	0	0	0.43
Hydrocotyle	Edge predators	0.108	0	0	1
Hydrocotyle americana	Edge predators	0.108	0	0	1
Ilex	Edge predators	0.845	0.45	0	1
Ilex mucronata	Edge predators	0.219	0	0	0.35
Ilex verticillata	Edge predators	0.965	0.47	0	1
Impatiens	Edge predators	0	1	0.08	1
Impatiens capensis	Edge predators	0	1	0.08	1
Iridaceae	Edge predators	0.534	0.51	0	1
Iris	Edge predators	0.534	0.51	0	1
Iris versicolor	Edge predators	0.685	0.38	0	1
Juglandaceae	Edge predators	0.001	0.8	0.09	1
Juglandales	Edge predators	0.001	0.8	0.09	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Juncaceae	Edge predators	0.399	0	0	1
Juncales	Edge predators	0.399	0	0	1
Juncus	Edge predators	0.399	0	0	1
Juncus effusus	Edge predators	0.241	0	0	0.45
Kalmia	Edge predators	0.001	0	0	0.6
Kalmia angustifolia	Edge predators	0.397	0.33	0	0.89
Kalmia latifolia	Edge predators	0.006	0	0	0.6
Lactuca	Edge predators	0.169	1	0.46	1
Lamiaceae	Edge predators	0.674	0	0	1
Lamiales	Edge predators	0.593	0	0	1
Larix	Edge predators	0.72	0.43	0.02	0.85
Larix laricina	Edge predators	0.72	0.45	0	0.94
Lauraceae	Edge predators	0.001	1	0	1
Laurales	Edge predators	0.001	1	0	1
Leersia	Edge predators	0.198	1	0	1
Leersia oryzoides	Edge predators	0.459	0.95	0	1
Ligustrum	Edge predators	0.074	0.7	0.49	0.92
Ligustrum vulgare	Edge predators	0.074	0.7	0.49	0.92
Liliaceae	Edge predators	0.004	0	0	1
Liliales	Edge predators	0.033	0.1	0	1
Liliopsida	Edge predators	0.469	0.13	0	1
Lilium	Edge predators	0.51	0.32	0	0.68
Lilium canadense	Edge predators	0.549	0.33	0	0.69
Lindera	Edge predators	0.001	1	0	1
Lindera benzoin	Edge predators	0.001	1	0	1
Lonicera	Edge predators	0.019	0.67	0	1
Lonicera canadensis	Edge predators	0.032	0	0	0.32
Lonicera morrowii	Edge predators	0	0.83	0.3	1
Lycopodiaceae	Edge predators	0.045	0.17	0	0.9
Lycopodiales	Edge predators	0.045	0.17	0	0.9
Lycopodiophyta	Edge predators	0.045	0.17	0	0.9
Lycopodiopsida	Edge predators	0.045	0.17	0	0.9
Lycopodium	Edge predators	0.206	0.3	0	0.84
Lycopodium hickeyi	Edge predators	0.435	0.24	0	0.51
Lycopodium obscurum	Edge predators	0.373	0.34	0	0.91
Lycopus	Edge predators	0.007	0	0	1
Lycopus uniflorus	Edge predators	0.009	0	0	0.4
Lyonia	Edge predators	0.777	0.44	0	1
Lyonia ligustrina	Edge predators	0.777	0.44	0	1
Lysimachia	Edge predators	0.377	0.39	0	1
Lysimachia borealis	Edge predators	0.347	0.11	0	0.65
Lysimachia ciliata	Edge predators	0.154	0.69	0	1
Lysimachia terrestris	Edge predators	0.136	0.28	0	0.83

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Lythraceae	Edge predators	0.223	1	0	1
Magnoliophyta	Edge predators	0	1	0	1
Magnoliopsida	Edge predators	0	1	0	1
Maianthemum	Edge predators	0.001	0.05	0	1
Maianthemum canadense	Edge predators	0.262	0.11	0	1
Maianthemum racemosum	Edge predators	0	1	0.45	1
Malus	Edge predators	0.001	0.97	0.27	1
Malus pumila	Edge predators	0.007	0.97	0.42	1
Malvales	Edge predators	0.287	0.6	0.14	0.96
Medeola	Edge predators	0	0	0	0.84
Medeola virginiana	Edge predators	0	0	0	0.84
Mitchella	Edge predators	0	0.19	0	1
Mitchella repens	Edge predators	0	0.19	0	1
Monotropa	Edge predators	0.012	0	0	0.78
Monotropa uniflora	Edge predators	0.012	0	0	0.78
Monotropaceae	Edge predators	0.012	0	0	0.78
Myrtales	Edge predators	0	1	0	1
Nasturtium	Edge predators	0.083	0.93	0.03	1
Nasturtium officinale	Edge predators	0.083	0.93	0.03	1
Nemopanthus	Edge predators	0.001	0	0	0.7
Nemopanthus mucronatus	Edge predators	0.001	0	0	0.7
Nyssa	Edge predators	0.086	0	0	1
Nyssa sylvatica	Edge predators	0.086	0	0	1
Nyssaceae	Edge predators	0.086	0	0	1
Oclemena	Edge predators	0	0	0	0.72
Oclemena acuminata	Edge predators	0	0	0	0.69
Oleaceae	Edge predators	0.001	1	0	1
Onagraceae	Edge predators	0	1	0	1
Onoclea	Edge predators	0	0.88	0	1
Onoclea sensibilis	Edge predators	0	0.88	0	1
Orchidaceae	Edge predators	0.388	0.23	0	1
Orchidales	Edge predators	0.388	0.23	0	1
Osmunda	Edge predators	0.098	0.14	0	1
Osmunda cinnamomea	Edge predators	0.015	0.12	0	1
Osmunda claytoniana	Edge predators	0.429	1	0	1
Osmunda regalis	Edge predators	0	0.53	0	1
Osmundaceae	Edge predators	0.098	0.14	0	1
Ostrya	Edge predators	0.471	1	0	1
Ostrya virginiana	Edge predators	0.471	1	0	1
Oxalidaceae	Edge predators	0.032	0	0	1
Oxalis	Edge predators	0.032	0	0	1
Oxalis montana	Edge predators	0.004	0	0	0.38
Oxalis stricta	Edge predators	0.013	1	0.24	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Packera	Edge predators	0.357	0	0	1
Packera aurea	Edge predators	0.357	0	0	1
Parthenocissus	Edge predators	0	1	0	1
Parthenocissus quinquefolia	Edge predators	0	1	0	1
Persicaria	Edge predators	0.856	0.13	0.09	1
Phegopteris	Edge predators	0.063	0	0	0.39
Phegopteris Connectednessilis	Edge predators	0.095	0	0	0.39
Photinia	Edge predators	0.138	0.5	0	1
Photinia melanocarpa	Edge predators	0.23	0.58	0	1
Photinia pyrifolia	Edge predators	0.44	0.26	0	1
Physocarpus	Edge predators	0.033	0.77	0.42	1
Physocarpus opulifolius	Edge predators	0.033	0.77	0.42	1
Picea	Edge predators	0	0	0	0.63
Picea rubens	Edge predators	0	0	0	0.51
Pilea	Edge predators	0.009	0.94	0.05	1
Pilea pumila	Edge predators	0.009	0.94	0.05	1
Pinaceae	Edge predators	0	0	0	0.83
Pinales	Edge predators	0	0	0	0.84
Pinopsida	Edge predators	0	0	0	0.86
Pinus	Edge predators	0.869	0.48	0	1
Pinus strobus	Edge predators	0.876	0.49	0	1
Platanthera	Edge predators	0.32	0.1	0	0.92
Platanthera clavellata	Edge predators	0.504	0.11	0	0.87
Poaceae	Edge predators	0.282	1	0	1
Polygonaceae	Edge predators	0.843	0.2	0	1
Polygonales	Edge predators	0.843	0.2	0	1
Polygonatum	Edge predators	0.247	1	0.16	1
Polygonatum pubescens	Edge predators	0.247	1	0.16	1
Polygonum	Edge predators	0.825	0.27	0	1
Polygonum arifolium	Edge predators	0.751	0.39	0	1
Polygonum sagittatum	Edge predators	0.302	0.03	0	1
Polygonum virginianum	Edge predators	0.755	0.6	0.03	1
Polypodiales	Edge predators	0.112	0.18	0	1
Polystichum	Edge predators	0.553	0.36	0	0.92
Polystichum acrostichoides	Edge predators	0.553	0.36	0	0.92
Populus	Edge predators	0.023	1	0.05	1
Populus grandidentata	Edge predators	0.347	0.56	0.09	1
Populus tremuloides	Edge predators	0.05	1	0.17	1
Potentilla	Edge predators	0.007	0.63	0.04	1
Potentilla simplex	Edge predators	0.009	0.63	0.03	1
Prenanthes	Edge predators	0.159	0	0	1
Prenanthes altissima	Edge predators	0.652	0.39	0	0.94
Primulaceae	Edge predators	0.007	0.3	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Primulales	Edge predators	0.007	0.32	0	1
Prunella	Edge predators	0.776	0.48	0	1
Prunella vulgaris	Edge predators	0.776	0.48	0	1
Prunus	Edge predators	0	0.75	0	1
Prunus serotina	Edge predators	0	0.76	0	1
Prunus virginiana	Edge predators	0.008	0.7	0	1
Pteridium	Edge predators	0.589	0.3	0	0.77
Pteridium aquilinum	Edge predators	0.589	0.3	0	0.77
Pteridophyta	Edge predators	0.111	0.18	0	1
Pyrola	Edge predators	0.619	0.37	0.01	0.89
Pyrola elliptica	Edge predators	0.577	0.33	0	0.77
Pyrolaceae	Edge predators	0.773	0.45	0	1
Quercus	Edge predators	0.001	0.67	0	1
Quercus alba	Edge predators	0	0.93	0.09	1
Quercus bicolor	Edge predators	0.784	0.53	0	1
Quercus rubra	Edge predators	0.006	0.85	0	1
Ranunculaceae	Edge predators	0.007	0	0	1
Ranunculales	Edge predators	0.19	0.3	0	1
Ranunculus	Edge predators	0.062	1	0	1
Ranunculus abortivus	Edge predators	0.66	0.41	0	0.88
Ranunculus hispidus	Edge predators	0.193	0	0	1
Ranunculus recurvatus	Edge predators	0.024	1	0	1
Rhamnaceae	Edge predators	0	0.71	0.06	1
Rhamnales	Edge predators	0	0.45	0.05	1
Rhamnus	Edge predators	0	1	0.38	1
Rhamnus cathartica	Edge predators	0	1	0.35	1
Rhododendron	Edge predators	0.205	0	0	1
Rhododendron prinophyllum	Edge predators	0.055	0	0	0.51
Rhododendron viscosum	Edge predators	0.528	0.61	0	1
Ribes	Edge predators	0.509	0.86	0	1
Rosa	Edge predators	0	0.8	0.05	1
Rosa multiflora	Edge predators	0	1	0.2	1
Rosa palustris	Edge predators	0.239	1	0	1
Rosaceae	Edge predators	0	0.5	0	1
Rosales	Edge predators	0	0.62	0	1
Rubiaceae	Edge predators	0.297	0.36	0	1
Rubiales	Edge predators	0.297	0.36	0	1
Rubus	Edge predators	0.532	0.48	0	1
Rubus allegheniensis	Edge predators	0.454	1	0.06	1
Rubus hispidus	Edge predators	0.048	0.18	0	1
Rubus idaeus	Edge predators	0.017	1	0.11	1
Rubus occidentalis	Edge predators	0.106	1	0.12	1
Rubus pubescens	Edge predators	0.428	0.31	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Salicaceae	Edge predators	0.045	0.85	0.04	1
Salicales	Edge predators	0.045	0.85	0.04	1
Salix	Edge predators	0.765	0.82	0	1
Sambucus	Edge predators	0	1	0.06	1
Sambucus canadensis	Edge predators	0	1	0.06	1
Sapindales	Edge predators	0	0.75	0	1
Saxifraga	Edge predators	0.172	0	0	1
Saxifraga pensylvanica	Edge predators	0.212	0	0	1
Saxifragaceae	Edge predators	0.107	0	0	1
Scirpus	Edge predators	0.298	0	0	0.76
Scrophulariaceae	Edge predators	0.844	0.21	0	1
Scrophulariales	Edge predators	0.001	1	0	1
Scutellaria	Edge predators	0.007	0.54	0	1
Scutellaria lateriflora	Edge predators	0.007	0.55	0	1
Senecio	Edge predators	0.124	0.77	0.06	1
Senecio aureus	Edge predators	0.124	0.77	0.06	1
Smilacaceae	Edge predators	0.754	0	0	1
Smilax	Edge predators	0.754	0	0	1
Smilax herbacea	Edge predators	0.056	0.79	0.18	1
Smilax rotundifolia	Edge predators	0.456	0	0	1
Solanaceae	Edge predators	0	1	0.22	1
Solanales	Edge predators	0	1	0.2	1
Solanum	Edge predators	0	1	0.22	1
Solanum dulcamara	Edge predators	0	1	0.25	1
Solidago	Edge predators	0	0.94	0	1
Solidago gigantea	Edge predators	0	0.77	0.06	1
Solidago patula	Edge predators	0.723	0.44	0	0.97
Solidago rugosa	Edge predators	0	0.7	0	1
Sorbus	Edge predators	0.024	0	0	0.86
Sorbus americana	Edge predators	0.01	0	0	0.66
Spiraea	Edge predators	0.913	0.46	0	1
Spiraea alba	Edge predators	0.791	0.46	0	1
Symphyotrichum	Edge predators	0.967	0.43	0	1
Symphyotrichum lateriflorum	Edge predators	0.708	0	0	1
Symphyotrichum puniceum	Edge predators	0.847	1	0	1
Symplocarpus	Edge predators	0	1	0	1
Symplocarpus foetidus	Edge predators	0	1	0	1
Taxaceae	Edge predators	0.72	0	0	1
Taxales	Edge predators	0.72	0	0	1
Taxus	Edge predators	0.72	0	0	1
Taxus canadensis	Edge predators	0.398	0	0	0.98
Thalictrum	Edge predators	0.006	0.99	0	1
Thalictrum pubescens	Edge predators	0.007	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Theales	Edge predators	0.451	0.29	0	0.7
Thelypteridaceae	Edge predators	0.009	0.06	0	1
Thelypteris	Edge predators	0.021	0.01	0	1
Thelypteris noveboracensis	Edge predators	0.076	0	0	1
Thelypteris palustris	Edge predators	0.96	0.44	0	1
Thelypteris simulata	Edge predators	0.077	0.26	0	0.88
Tiarella	Edge predators	0.02	0	0	0.97
Tiarella cordifolia	Edge predators	0.02	0	0	0.97
Tilia	Edge predators	0.287	0.6	0.14	0.96
Tilia americana	Edge predators	0.322	0.62	0.13	1
Tiliaceae	Edge predators	0.287	0.6	0.14	0.96
Toxicodendron	Edge predators	0	0.87	0	1
Toxicodendron radicans	Edge predators	0	0.74	0	1
Toxicodendron vernix	Edge predators	0.007	0.77	0.05	1
Triadenum	Edge predators	0.418	0.04	0	0.9
Triadenum virginicum	Edge predators	0.441	0.25	0	0.66
Trientalis	Edge predators	0	0.05	0	1
Trientalis borealis	Edge predators	0	0.05	0	1
Trillium	Edge predators	0.171	0	0	1
Trillium undulatum	Edge predators	0.25	0	0	1
Tsuga	Edge predators	0	0	0	0.56
Tsuga canadensis	Edge predators	0	0	0	0.56
Typhales	Edge predators	0.599	0.08	0	1
Ulmaceae	Edge predators	0	1	0.34	1
Ulmus	Edge predators	0	1	0.34	1
Ulmus americana	Edge predators	0	1	0.32	1
Urticaceae	Edge predators	0.001	1	0.01	1
Urticales	Edge predators	0	1	0.28	1
Uvularia	Edge predators	0.021	0	0	1
Uvularia sessilifolia	Edge predators	0.021	0	0	1
Vaccinium	Edge predators	0.793	0.46	0	1
Vaccinium angustifolium	Edge predators	0.138	0.19	0	0.95
Vaccinium corymbosum	Edge predators	0.573	0.49	0	1
Vaccinium myrtilloides	Edge predators	0.208	0	0	0.57
Veratrum	Edge predators	0.306	0	0	0.64
Veratrum viride	Edge predators	0.306	0	0	0.64
Veronica	Edge predators	0.166	1	0.07	1
Veronica officinalis	Edge predators	0.181	0.98	0.22	1
Viburnum	Edge predators	0.349	0.58	0	1
Viburnum acerifolium	Edge predators	0.905	0.48	0.06	0.9
Viburnum dentatum	Edge predators	0	0.77	0	1
Viburnum lantanoides	Edge predators	0.001	0	0	0.52
Viburnum lentago	Edge predators	0.073	0.7	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Viburnum nudum	Edge predators	0.007	0.19	0	1
Viola	Edge predators	0.186	0.12	0	1
Viola cucullata	Edge predators	0.377	0	0	0.69
Violaceae	Edge predators	0.186	0.12	0	1
Violales	Edge predators	0.278	0.08	0	1
Vitaceae	Edge predators	0	0.96	0.11	1
Vitis	Edge predators	0	0.84	0.16	1
Vitis labrusca	Edge predators	0.001	1	0.16	1
Woodwardia	Edge predators	0.399	0	0	1
Woodwardia virginica	Edge predators	0.787	0	0	1
Zizia	Edge predators	0.136	0.83	0.17	1
Zizia aurea	Edge predators	0.136	0.83	0.17	1
Abies	Habitat Loss	0	0.02	0	0.49
Abies balsamea	Habitat Loss	0	0.02	0	0.49
Acer	Habitat Loss	0	0.91	0.03	1
Acer pensylvanicum	Habitat Loss	0	0.09	0	0.44
Acer platanoides	Habitat Loss	0.018	0.92	0.54	1
Acer rubrum	Habitat Loss	0	0.81	0	1
Acer saccharum	Habitat Loss	0.911	0	0	1
Acer spicatum	Habitat Loss	0.01	0	0	0.46
Aceraceae	Habitat Loss	0	0.91	0.03	1
Ageratina	Habitat Loss	0.924	0.49	0	1
Ageratina altissima	Habitat Loss	0.924	0.49	0	1
Agrostis	Habitat Loss	0.097	0	0	0.4
Alnus	Habitat Loss	0.682	0.52	0	1
Alnus incana	Habitat Loss	0.659	0.5	0	1
Amelanchier	Habitat Loss	0.208	0.36	0	1
Amphicarpaea	Habitat Loss	0.656	0.4	0	1
Amphicarpaea bracteata	Habitat Loss	0.656	0.4	0	1
Anacardiaceae	Habitat Loss	0	0.71	0.06	1
Anemone	Habitat Loss	0.627	0	0	1
Anemone quinquefolia	Habitat Loss	0.738	0	0	1
Apiaceae	Habitat Loss	0.363	0.4	0	1
Apiales	Habitat Loss	0	0.04	0	1
Aquifoliaceae	Habitat Loss	0.558	0.23	0	1
Araceae	Habitat Loss	0	0.55	0	1
Arales	Habitat Loss	0	0.55	0	1
Aralia	Habitat Loss	0	0.2	0	1
Aralia nudicaulis	Habitat Loss	0	0.21	0	1
Araliaceae	Habitat Loss	0	0.2	0	1
Arisaema	Habitat Loss	0.004	0.91	0	1
Arisaema triphyllum	Habitat Loss	0.004	0.91	0	1
Aster	Habitat Loss	0	0.83	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Aster divaricatus	Habitat Loss	0.209	1	0	1
Asteraceae	Habitat Loss	0.023	0.56	0	1
Asterales	Habitat Loss	0.023	0.56	0	1
Athyrium	Habitat Loss	0	1	0	1
Athyrium filix-femina	Habitat Loss	0	1	0	1
Balsaminaceae	Habitat Loss	0	1	0.16	1
Berberidaceae	Habitat Loss	0	0.57	0	1
Berberis	Habitat Loss	0	0.62	0.02	1
Berberis thunbergii	Habitat Loss	0	0.63	0.02	1
Betula	Habitat Loss	0	0	0	0.87
Betula alleghaniensis	Habitat Loss	0	0	0	0.7
Betula lenta	Habitat Loss	0.915	1	0	1
Betula papyrifera	Habitat Loss	0.924	0.61	0	1
Betula populifolia	Habitat Loss	0.367	0.73	0.02	1
Betulaceae	Habitat Loss	0.001	0	0	1
Bidens	Habitat Loss	0	1	0.25	1
Bidens frondosa	Habitat Loss	0	1	0.4	1
Bidens tripartita	Habitat Loss	0.421	0.54	0.31	0.76
Blechnaceae	Habitat Loss	0.537	0.38	0	0.79
Boehmeria	Habitat Loss	0	0.89	0.29	1
Boehmeria cylindrica	Habitat Loss	0	0.89	0.29	1
Brachyelytrum	Habitat Loss	0.04	0.13	0	0.94
Brachyelytrum erectum	Habitat Loss	0.15	0.09	0	0.79
Brachyelytrum septentrionale	Habitat Loss	0.306	0.26	0	1
Brassicaceae	Habitat Loss	0.033	1	0	1
Calamagrostis	Habitat Loss	0.565	0.53	0.11	0.91
Calamagrostis canadensis	Habitat Loss	0.552	0.59	0.07	0.95
Caltha	Habitat Loss	0.352	0	0	0.94
Caltha palustris	Habitat Loss	0.352	0	0	0.94
Capparales	Habitat Loss	0.033	1	0	1
Caprifoliaceae	Habitat Loss	0.01	0.82	0	1
Cardamine	Habitat Loss	0.183	0	0	0.67
Carex	Habitat Loss	0.129	0.04	0	1
Carex bromoides	Habitat Loss	0.341	0.7	0.17	1
Carex crinita	Habitat Loss	0.129	0.78	0.36	1
Carex debilis	Habitat Loss	0.414	1	0	1
Carex disperma	Habitat Loss	0.105	0.14	0.02	0.27
Carex folliculata	Habitat Loss	0.01	0.31	0	0.75
Carex gracillima	Habitat Loss	0.263	0.53	0.15	0.88
Carex gynandra	Habitat Loss	0.006	0	0	0.74
Carex intumescens	Habitat Loss	0.398	0.43	0	0.96
Carex leptalea	Habitat Loss	0.321	0.07	0	0.63
Carex lurida	Habitat Loss	0.571	0.39	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Carex scabrata	Habitat Loss	0.045	0	0	0.45
Carex stipata	Habitat Loss	0.399	1	0	1
Carex stricta	Habitat Loss	0.001	0.8	0.27	1
Carex trisperma	Habitat Loss	0	0	0	0.44
Carpinus	Habitat Loss	0.077	0.76	0.31	1
Carpinus caroliniana	Habitat Loss	0.077	0.76	0.31	1
Carya	Habitat Loss	0.001	1	0.23	1
Carya cordiformis	Habitat Loss	0.334	0.6	0.34	0.84
Carya ovata	Habitat Loss	0.128	0.73	0.3	1
Celastraceae	Habitat Loss	0	0.82	0.36	1
Celastrales	Habitat Loss	0.85	0.41	0	1
Celastrus	Habitat Loss	0	0.69	0.17	1
Celastrus orbiculatus	Habitat Loss	0	0.69	0.17	1
Chamaecyparis	Habitat Loss	0.758	0.76	0	0.94
Chamaecyparis thyoides	Habitat Loss	0.758	0.76	0	0.94
Chelone	Habitat Loss	0.47	0	0	1
Chelone glabra	Habitat Loss	0.47	0	0	1
Chrysosplenium	Habitat Loss	0.416	0.35	0	1
Chrysosplenium americanum	Habitat Loss	0.416	0.35	0	1
Cicuta	Habitat Loss	0.245	1	0.09	1
Cicuta maculata	Habitat Loss	0.211	1	0.38	1
Cinna	Habitat Loss	0.077	0	0	1
Cinna latifolia	Habitat Loss	0.168	0	0	1
Circaea	Habitat Loss	0.02	1	0	1
Circaea alpina	Habitat Loss	0.102	0.09	0	0.42
Circaea lutetiana	Habitat Loss	0.001	1	0.2	1
Clematis	Habitat Loss	0.712	0.42	0	0.99
Clematis virginiana	Habitat Loss	0.712	0.42	0	0.99
Clethra	Habitat Loss	0.722	0.04	0	1
Clethra alnifolia	Habitat Loss	0.722	0.04	0	1
Clethraceae	Habitat Loss	0.722	0.04	0	1
Clintonia	Habitat Loss	0	0.14	0	0.52
Clintonia borealis	Habitat Loss	0	0.14	0	0.52
Clusiaceae	Habitat Loss	0.341	0.34	0.07	0.62
Coniferophyta	Habitat Loss	0	0.06	0	0.74
Coptis	Habitat Loss	0	0.15	0	0.67
Coptis trifolia	Habitat Loss	0	0.15	0	0.67
Cornaceae	Habitat Loss	0.268	0.69	0	1
Cornales	Habitat Loss	0.712	0.55	0	1
Cornus	Habitat Loss	0.268	0.69	0	1
Cornus alternifolia	Habitat Loss	0.105	0.66	0.24	1
Cornus amomum	Habitat Loss	0.001	0.7	0.39	1
Cornus canadensis	Habitat Loss	0	0.18	0	0.55

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Cornus racemosa	Habitat Loss	0.167	0.83	0.3	1
Cornus sericea	Habitat Loss	0.446	0.67	0.16	1
Corylus	Habitat Loss	0.042	1	0	1
Corylus americana	Habitat Loss	0.044	1	0.27	1
Corylus cornuta	Habitat Loss	0.639	0.46	0.07	0.84
Crataegus	Habitat Loss	0.533	0.38	0.04	0.7
Cupressaceae	Habitat Loss	0.763	0.78	0	0.94
Cyperaceae	Habitat Loss	0.074	0	0	1
Cyperales	Habitat Loss	0.278	0	0	1
Dalibarda	Habitat Loss	0.136	0.32	0.07	0.57
Dalibarda repens	Habitat Loss	0.136	0.32	0.07	0.57
Dennstaedtia	Habitat Loss	0.428	0.61	0	1
Dennstaedtia punctilobula	Habitat Loss	0.428	0.61	0	1
Dennstaedtiaceae	Habitat Loss	0.491	0.54	0.04	1
Deparia	Habitat Loss	0.311	0	0	0.67
Deparia acrostichoides	Habitat Loss	0.311	0	0	0.67
Dichanthelium	Habitat Loss	0.589	0.44	0.25	0.63
Dipsacales	Habitat Loss	0.01	0.82	0	1
Doellingeria	Habitat Loss	0.128	0.33	0	0.87
Doellingeria umbellata	Habitat Loss	0.137	0.31	0	0.89
Dryopteridaceae	Habitat Loss	0.017	0.76	0	1
Dryopteris	Habitat Loss	0.535	0.57	0	1
Dryopteris carthusiana	Habitat Loss	0.004	0.62	0	1
Dryopteris clintoniana	Habitat Loss	0.471	0.35	0	0.76
Dryopteris cristata	Habitat Loss	0.106	0.56	0	1
Dryopteris intermedia	Habitat Loss	0.195	0.28	0	1
Epilobium	Habitat Loss	0.005	1	0	1
Epilobium ciliatum	Habitat Loss	0.612	0.27	0	1
Epipactis	Habitat Loss	0.586	0.44	0.07	0.81
Epipactis helleborine	Habitat Loss	0.586	0.44	0.07	0.81
Equisetaceae	Habitat Loss	0.01	0.83	0	1
Equisetales	Habitat Loss	0.01	0.83	0	1
Equisetophyta	Habitat Loss	0.01	0.83	0	1
Equisetopsida	Habitat Loss	0.01	0.83	0	1
Equisetum	Habitat Loss	0.01	0.83	0	1
Equisetum arvense	Habitat Loss	0	0.94	0.32	1
Equisetum sylvaticum	Habitat Loss	0.343	0.32	0	0.76
Ericaceae	Habitat Loss	0.006	0.15	0	1
Ericales	Habitat Loss	0.128	0	0	1
Eubotrys	Habitat Loss	0.433	0.25	0	1
Eubotrys racemosa	Habitat Loss	0.433	0.25	0	1
Euonymus	Habitat Loss	0.001	1	0.56	1
Euonymus alata	Habitat Loss	0.001	1	0.56	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Eupatorium	Habitat Loss	0.004	1	0.01	1
Eupatorium maculatum	Habitat Loss	0.032	0.69	0.11	1
Eupatorium perfoliatum	Habitat Loss	0.234	1	0.26	1
Eurybia	Habitat Loss	0.505	0	0	0.94
Eurybia divaricata	Habitat Loss	0.811	0	0	1
Eutrochium	Habitat Loss	0.249	0.16	0	0.49
Eutrochium maculatum	Habitat Loss	0.249	0.16	0	0.49
Fabaceae	Habitat Loss	0.374	0.82	0	1
Fabales	Habitat Loss	0.374	0.82	0	1
Fagaceae	Habitat Loss	0.177	0.75	0	1
Fagales	Habitat Loss	0.007	0	0	1
Fagus	Habitat Loss	0	0.12	0	1
Fagus grandifolia	Habitat Loss	0	0.12	0	1
Filicopsida	Habitat Loss	0.036	0.32	0	0.95
Fragaria	Habitat Loss	0.674	0.48	0.07	0.89
Fragaria virginiana	Habitat Loss	0.491	0.51	0.13	1
Frangula	Habitat Loss	0	0.85	0.22	1
Frangula alnus	Habitat Loss	0	0.85	0.22	1
Fraxinus	Habitat Loss	0.006	1	0	1
Fraxinus americana	Habitat Loss	0.003	1	0	1
Fraxinus nigra	Habitat Loss	0.752	0.37	0	1
Galium	Habitat Loss	0.489	0.71	0	1
Galium aparine	Habitat Loss	0.811	0.43	0	1
Galium asprellum	Habitat Loss	0.268	0.07	0	1
Galium palustre	Habitat Loss	0.791	1	0	1
Galium triflorum	Habitat Loss	0.562	1	0	1
Gaultheria	Habitat Loss	0.057	0.34	0	0.69
Gaultheria hispidula	Habitat Loss	0.13	0.21	0	0.51
Gaultheria procumbens	Habitat Loss	0.271	0.4	0.08	0.72
Gaylussacia	Habitat Loss	0.329	1	0	1
Gaylussacia frondosa	Habitat Loss	0.788	1	0	1
Gentianales	Habitat Loss	0.585	0.53	0.15	0.9
Geraniaceae	Habitat Loss	0.014	0.83	0.45	1
Geraniales	Habitat Loss	0	1	0	1
Geranium	Habitat Loss	0.014	0.83	0.45	1
Geranium maculatum	Habitat Loss	0.016	0.91	0.48	1
Geum	Habitat Loss	0.036	0.61	0.08	1
Geum canadense	Habitat Loss	0.045	1	0.24	1
Geum rivale	Habitat Loss	0.178	0.58	0	1
Glyceria	Habitat Loss	0.042	0	0	1
Glyceria melicaria	Habitat Loss	0.001	0	0	0.49
Glyceria striata	Habitat Loss	0.171	0	0	1
Grossulariaceae	Habitat Loss	0.936	0.5	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Hamamelidaceae	Habitat Loss	0.033	0	0	1
Hamamelidales	Habitat Loss	0.033	0	0	1
Hamamelis	Habitat Loss	0.033	0	0	1
Hamamelis virginiana	Habitat Loss	0.033	0	0	1
Huperzia	Habitat Loss	0.046	0	0	0.35
Huperzia lucidula	Habitat Loss	0.046	0	0	0.35
Hydrocotyle	Habitat Loss	0.05	0	0	1
Hydrocotyle americana	Habitat Loss	0.05	0	0	1
Ilex	Habitat Loss	0.886	0.45	0	1
Ilex mucronata	Habitat Loss	0.065	0	0	0.23
Ilex verticillata	Habitat Loss	0.981	0.58	0	1
Impatiens	Habitat Loss	0	1	0.16	1
Impatiens capensis	Habitat Loss	0	1	0.16	1
Iridaceae	Habitat Loss	0.408	1	0	1
Iris	Habitat Loss	0.408	1	0	1
Iris versicolor	Habitat Loss	0.355	0	0	1
Juglandaceae	Habitat Loss	0.001	1	0.23	1
Juglandales	Habitat Loss	0.001	1	0.23	1
Juncaceae	Habitat Loss	0.381	0	0	1
Juncales	Habitat Loss	0.381	0	0	1
Juncus	Habitat Loss	0.381	0	0	1
Juncus effusus	Habitat Loss	0.199	0	0	0.56
Kalmia	Habitat Loss	0	0	0	0.57
Kalmia angustifolia	Habitat Loss	0.348	0.39	0	0.86
Kalmia latifolia	Habitat Loss	0.001	0	0	0.56
Lactuca	Habitat Loss	0.19	1	0.6	1
Lamiaceae	Habitat Loss	0.695	0	0	1
Lamiales	Habitat Loss	0.692	0	0	1
Larix	Habitat Loss	0.665	0.46	0.08	0.97
Larix laricina	Habitat Loss	0.828	0.45	0.08	0.94
Lauraceae	Habitat Loss	0	1	0.32	1
Laurales	Habitat Loss	0	1	0.32	1
Leersia	Habitat Loss	0.205	1	0	1
Leersia oryzoides	Habitat Loss	0.423	1	0	1
Ligustrum	Habitat Loss	0.09	0.78	0.51	1
Ligustrum vulgare	Habitat Loss	0.09	0.78	0.51	1
Liliaceae	Habitat Loss	0	0	0	1
Liliales	Habitat Loss	0.042	0.43	0	1
Liliopsida	Habitat Loss	0.676	0.9	0	1
Lilium	Habitat Loss	0.922	0.5	0.09	0.91
Lilium canadense	Habitat Loss	0.656	0.51	0.05	0.98
Lindera	Habitat Loss	0	1	0.36	1
Lindera benzoin	Habitat Loss	0	1	0.36	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Lonicera	Habitat Loss	0.032	0.69	0	1
Lonicera canadensis	Habitat Loss	0.017	0	0	0.42
Lonicera morrowii	Habitat Loss	0	0.91	0.42	1
Lycopodiaceae	Habitat Loss	0.018	0.19	0	0.86
Lycopodiales	Habitat Loss	0.018	0.19	0	0.86
Lycopodiophyta	Habitat Loss	0.018	0.19	0	0.86
Lycopodiopsida	Habitat Loss	0.018	0.19	0	0.86
Lycopodium	Habitat Loss	0.177	0.38	0	0.82
Lycopodium hickeyi	Habitat Loss	0.546	0.41	0.19	0.63
Lycopodium obscurum	Habitat Loss	0.245	0.38	0	0.9
Lycopus	Habitat Loss	0.004	0.03	0	1
Lycopus uniflorus	Habitat Loss	0.003	0	0	0.42
Lyonia	Habitat Loss	0.682	0.49	0.02	0.95
Lyonia ligustrina	Habitat Loss	0.682	0.49	0.02	0.95
Lysimachia	Habitat Loss	0.319	0.42	0	1
Lysimachia borealis	Habitat Loss	0.615	0.36	0	1
Lysimachia ciliata	Habitat Loss	0.255	0.55	0.07	1
Lysimachia terrestris	Habitat Loss	0.045	0.32	0	0.77
Lythraceae	Habitat Loss	0.367	1	0	1
Magnoliophyta	Habitat Loss	0	0.96	0	1
Magnoliopsida	Habitat Loss	0	0.9	0	1
Maianthemum	Habitat Loss	0.004	0.19	0	1
Maianthemum canadense	Habitat Loss	0.032	0.25	0	1
Maianthemum racemosum	Habitat Loss	0.022	1	0.31	1
Malus	Habitat Loss	0.01	1	0.39	1
Malus pumila	Habitat Loss	0.032	0.89	0.46	1
Malvales	Habitat Loss	0.194	1	0.34	1
Medeola	Habitat Loss	0	0.22	0	0.7
Medeola virginiana	Habitat Loss	0	0.22	0	0.7
Mitchella	Habitat Loss	0	0.34	0	0.95
Mitchella repens	Habitat Loss	0	0.34	0	0.95
Monotropa	Habitat Loss	0.01	0.1	0	0.7
Monotropa uniflora	Habitat Loss	0.01	0.1	0	0.7
Monotropaceae	Habitat Loss	0.01	0.1	0	0.7
Myrtales	Habitat Loss	0	1	0.17	1
Nasturtium	Habitat Loss	0.047	0.96	0.3	1
Nasturtium officinale	Habitat Loss	0.047	0.96	0.3	1
Nemopanthus	Habitat Loss	0	0	0	0.58
Nemopanthus mucronatus	Habitat Loss	0	0	0	0.58
Nyssa	Habitat Loss	0.387	0.35	0	1
Nyssa sylvatica	Habitat Loss	0.387	0.35	0	1
Nyssaceae	Habitat Loss	0.387	0.35	0	1
Oclemena	Habitat Loss	0	0	0	0.65

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Oclemena acuminata	Habitat Loss	0	0	0	0.64
Oleaceae	Habitat Loss	0.004	1	0	1
Onagraceae	Habitat Loss	0	1	0.17	1
Onoclea	Habitat Loss	0.036	0.67	0.01	1
Onoclea sensibilis	Habitat Loss	0.036	0.67	0.01	1
Orchidaceae	Habitat Loss	0.395	0.33	0	1
Orchidales	Habitat Loss	0.395	0.33	0	1
Osmunda	Habitat Loss	0.063	0.3	0	0.97
Osmunda cinnamomea	Habitat Loss	0.022	0.27	0	0.92
Osmunda claytoniana	Habitat Loss	0.871	0.78	0	1
Osmunda regalis	Habitat Loss	0	0.56	0	1
Osmundaceae	Habitat Loss	0.063	0.3	0	0.97
Ostrya	Habitat Loss	0.788	1	0	1
Ostrya virginiana	Habitat Loss	0.788	1	0	1
Oxalidaceae	Habitat Loss	0.004	0	0	0.89
Oxalis	Habitat Loss	0.004	0	0	0.89
Oxalis montana	Habitat Loss	0	0.01	0	0.43
Oxalis stricta	Habitat Loss	0.033	1	0.4	1
Packera	Habitat Loss	0.27	0.3	0	0.77
Packera aurea	Habitat Loss	0.27	0.3	0	0.77
Parthenocissus	Habitat Loss	0	0.77	0.09	1
Parthenocissus quinquefolia	Habitat Loss	0	0.77	0.09	1
Persicaria	Habitat Loss	0.86	0.05	0	1
Phegopteris	Habitat Loss	0.012	0.06	0	0.41
Phegopteris Connectednessilis	Habitat Loss	0.022	0	0	0.39
Photinia	Habitat Loss	0.464	0.67	0	1
Photinia melanocarpa	Habitat Loss	0.659	0.61	0	1
Photinia pyrifolia	Habitat Loss	0.922	0.41	0	1
Physocarpus	Habitat Loss	0.06	0.79	0.51	1
Physocarpus opulifolius	Habitat Loss	0.06	0.79	0.51	1
Picea	Habitat Loss	0	0	0	0.47
Picea rubens	Habitat Loss	0	0.05	0	0.48
Pilea	Habitat Loss	0.007	1	0.26	1
Pilea pumila	Habitat Loss	0.007	1	0.26	1
Pinaceae	Habitat Loss	0	0.09	0	0.71
Pinales	Habitat Loss	0	0.05	0	0.74
Pinopsida	Habitat Loss	0	0.06	0	0.74
Pinus	Habitat Loss	0.099	0.53	0.07	0.98
Pinus strobus	Habitat Loss	0.077	0.53	0.08	0.98
Platanthera	Habitat Loss	0.322	0	0	1
Platanthera clavellata	Habitat Loss	0.458	0.18	0	0.83
Poaceae	Habitat Loss	0.582	1	0	1
Polygonaceae	Habitat Loss	0.968	0.62	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Polygonales	Habitat Loss	0.968	0.62	0	1
Polygonatum	Habitat Loss	0.443	1	0	1
Polygonatum pubescens	Habitat Loss	0.443	1	0	1
Polygonum	Habitat Loss	0.796	0.62	0	1
Polygonum arifolium	Habitat Loss	0.425	0.58	0	1
Polygonum sagittatum	Habitat Loss	0.179	0	0	0.8
Polygonum virginianum	Habitat Loss	0.263	1	0.29	1
Polypodiales	Habitat Loss	0.036	0.32	0	0.95
Polystichum	Habitat Loss	0.385	0.25	0	1
Polystichum acrostichoides	Habitat Loss	0.385	0.25	0	1
Populus	Habitat Loss	0.229	0.57	0.23	0.88
Populus grandidentata	Habitat Loss	0.421	0.71	0.19	1
Populus tremuloides	Habitat Loss	0.341	0.56	0.25	0.86
Potentilla	Habitat Loss	0.121	0.56	0.11	0.98
Potentilla simplex	Habitat Loss	0.148	0.54	0.11	0.94
Prenanthes	Habitat Loss	0.033	0	0	0.97
Prenanthes altissima	Habitat Loss	0.588	0.4	0	0.88
Primulaceae	Habitat Loss	0	0.27	0	1
Primulales	Habitat Loss	0	0.29	0	0.95
Prunella	Habitat Loss	0.458	0.6	0.1	1
Prunella vulgaris	Habitat Loss	0.458	0.6	0.1	1
Prunus	Habitat Loss	0.017	0.49	0.05	0.95
Prunus serotina	Habitat Loss	0.01	0.53	0.1	1
Prunus virginiana	Habitat Loss	0.954	0.51	0	0.95
Pteridium	Habitat Loss	0.564	0.35	0.01	0.69
Pteridium aquilinum	Habitat Loss	0.564	0.35	0.01	0.69
Pteridophyta	Habitat Loss	0.036	0.32	0	0.95
Pyrola	Habitat Loss	0.815	0.49	0.13	0.85
Pyrola elliptica	Habitat Loss	0.728	0.44	0.05	0.84
Pyrolaceae	Habitat Loss	0.58	0.52	0.16	0.88
Quercus	Habitat Loss	0.001	0.75	0.09	1
Quercus alba	Habitat Loss	0.001	0.87	0.29	1
Quercus bicolor	Habitat Loss	0.048	1	0	1
Quercus rubra	Habitat Loss	0.01	0.65	0.09	1
Ranunculaceae	Habitat Loss	0	0.02	0	0.97
Ranunculales	Habitat Loss	0.01	0.25	0	1
Ranunculus	Habitat Loss	0.745	1	0	1
Ranunculus abortivus	Habitat Loss	0.695	1	0	1
Ranunculus hispidus	Habitat Loss	0.109	0	0	1
Ranunculus recurvatus	Habitat Loss	0.116	0.65	0.13	1
Rhamnaceae	Habitat Loss	0	0.87	0.24	1
Rhamnales	Habitat Loss	0	0.52	0.21	1
Rhamnus	Habitat Loss	0.002	0.81	0.34	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Rhamnus cathartica	Habitat Loss	0.004	0.76	0.35	1
Rhododendron	Habitat Loss	0.204	1	0	1
Rhododendron prinophyllum	Habitat Loss	0.006	0	0	0.36
Rhododendron viscosum	Habitat Loss	0.004	1	0.07	1
Ribes	Habitat Loss	0.936	0.5	0	1
Rosa	Habitat Loss	0	0.69	0.3	1
Rosa multiflora	Habitat Loss	0	0.71	0.33	1
Rosa palustris	Habitat Loss	0.369	1	0	1
Rosaceae	Habitat Loss	0.001	0.86	0	1
Rosales	Habitat Loss	0.035	0.75	0	1
Rubiaceae	Habitat Loss	0	0.39	0	1
Rubiales	Habitat Loss	0	0.39	0	1
Rubus	Habitat Loss	0.734	0.44	0	1
Rubus allegheniensis	Habitat Loss	0.768	0.88	0	1
Rubus hispidus	Habitat Loss	0.168	0.26	0	1
Rubus idaeus	Habitat Loss	0.285	0.63	0.09	1
Rubus occidentalis	Habitat Loss	0.146	1	0.45	1
Rubus pubescens	Habitat Loss	0.106	0.33	0	0.87
Salicaceae	Habitat Loss	0.214	0.55	0.24	0.86
Salicales	Habitat Loss	0.214	0.55	0.24	0.86
Salix	Habitat Loss	0.539	0.51	0.32	0.71
Sambucus	Habitat Loss	0	1	0.19	1
Sambucus canadensis	Habitat Loss	0	1	0.19	1
Sapindales	Habitat Loss	0	0.93	0.03	1
Saxifraga	Habitat Loss	0.128	0	0	0.99
Saxifraga pensylvanica	Habitat Loss	0.178	0.11	0	1
Saxifragaceae	Habitat Loss	0.039	0.07	0	0.88
Scirpus	Habitat Loss	0.42	0	0	0.79
Scrophulariaceae	Habitat Loss	0.656	0.1	0	1
Scrophulariales	Habitat Loss	0.034	1	0	1
Scutellaria	Habitat Loss	0.003	1	0	1
Scutellaria lateriflora	Habitat Loss	0.002	1	0	1
Senecio	Habitat Loss	0.087	0.82	0.24	1
Senecio aureus	Habitat Loss	0.087	0.82	0.24	1
Smilacaceae	Habitat Loss	0.004	0.66	0.16	0.93
Smilax	Habitat Loss	0.004	0.66	0.16	0.93
Smilax herbacea	Habitat Loss	0.042	0.88	0.35	1
Smilax rotundifolia	Habitat Loss	0.421	0.45	0.14	0.94
Solanaceae	Habitat Loss	0	1	0.32	1
Solanales	Habitat Loss	0	0.99	0.3	1
Solanum	Habitat Loss	0	1	0.32	1
Solanum dulcamara	Habitat Loss	0	1	0.34	1
Solidago	Habitat Loss	0	0.6	0.05	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Solidago gigantea	Habitat Loss	0	0.64	0.18	1
Solidago patula	Habitat Loss	0.227	0.62	0.05	1
Solidago rugosa	Habitat Loss	0	0.8	0	1
Sorbus	Habitat Loss	0.007	0	0	0.67
Sorbus americana	Habitat Loss	0.004	0.09	0	0.6
Spiraea	Habitat Loss	0.302	0.44	0	0.92
Spiraea alba	Habitat Loss	0.292	0.45	0	0.92
Symphyotrichum	Habitat Loss	0.823	0.45	0	1
Symphyotrichum lateriflorum	Habitat Loss	0.128	0.17	0	1
Symphyotrichum puniceum	Habitat Loss	0.92	0.51	0	1
Symplocarpus	Habitat Loss	0	1	0.26	1
Symplocarpus foetidus	Habitat Loss	0	1	0.26	1
Taxaceae	Habitat Loss	0.705	0	0	1
Taxales	Habitat Loss	0.705	0	0	1
Taxus	Habitat Loss	0.705	0	0	1
Taxus canadensis	Habitat Loss	0.374	0.26	0	0.63
Thalictrum	Habitat Loss	0.029	0.7	0	1
Thalictrum pubescens	Habitat Loss	0.038	0.68	0	1
Theales	Habitat Loss	0.341	0.34	0.07	0.62
Thelypteridaceae	Habitat Loss	0	0.25	0	1
Thelypteris	Habitat Loss	0.001	0.17	0	0.99
Thelypteris noveboracensis	Habitat Loss	0.001	0.02	0	0.9
Thelypteris palustris	Habitat Loss	0.458	1	0	1
Thelypteris simulata	Habitat Loss	0.146	0.38	0	0.87
Tiarella	Habitat Loss	0.004	0	0	0.7
Tiarella cordifolia	Habitat Loss	0.004	0	0	0.7
Tilia	Habitat Loss	0.194	1	0.34	1
Tilia americana	Habitat Loss	0.229	1	0.37	1
Tiliaceae	Habitat Loss	0.194	1	0.34	1
Toxicodendron	Habitat Loss	0	0.71	0.06	1
Toxicodendron radicans	Habitat Loss	0	0.63	0	1
Toxicodendron vernix	Habitat Loss	0.001	1	0.32	1
Triadenum	Habitat Loss	0.234	0.04	0	0.69
Triadenum virginicum	Habitat Loss	0.327	0.3	0.02	0.58
Trientalis	Habitat Loss	0	0.17	0	1
Trientalis borealis	Habitat Loss	0	0.17	0	1
Trillium	Habitat Loss	0.014	0	0	0.65
Trillium undulatum	Habitat Loss	0.047	0	0	0.61
Tsuga	Habitat Loss	0	0.07	0	0.59
Tsuga canadensis	Habitat Loss	0	0.07	0	0.59
Typhales	Habitat Loss	0.671	0.66	0	1
Ulmaceae	Habitat Loss	0	1	0.41	1
Ulmus	Habitat Loss	0	1	0.41	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Ulmus americana	Habitat Loss	0	1	0.42	1
Urticaceae	Habitat Loss	0	0.95	0.29	1
Urticales	Habitat Loss	0	0.99	0.4	1
Uvularia	Habitat Loss	0.01	0.01	0	1
Uvularia sessilifolia	Habitat Loss	0.01	0.01	0	1
Vaccinium	Habitat Loss	0.408	0.58	0	1
Vaccinium angustifolium	Habitat Loss	0.053	0.33	0	0.69
Vaccinium corymbosum	Habitat Loss	0.319	0.66	0	1
Vaccinium myrtilloides	Habitat Loss	0.144	0.29	0.08	0.51
Veratrum	Habitat Loss	0.194	0	0	0.49
Veratrum viride	Habitat Loss	0.194	0	0	0.49
Veronica	Habitat Loss	0.534	0.56	0.16	1
Veronica officinalis	Habitat Loss	0.459	0.69	0.17	1
Viburnum	Habitat Loss	0.398	1	0	1
Viburnum acerifolium	Habitat Loss	0.516	0.61	0.12	1
Viburnum dentatum	Habitat Loss	0	0.65	0	1
Viburnum lantanoides	Habitat Loss	0	0.12	0	0.53
Viburnum lentago	Habitat Loss	0.079	1	0	1
Viburnum nudum	Habitat Loss	0	0.29	0	0.87
Viola	Habitat Loss	0.345	0	0	1
Viola cucullata	Habitat Loss	0.268	0.08	0	0.61
Violaceae	Habitat Loss	0.345	0	0	1
Violales	Habitat Loss	0.527	0	0	1
Vitaceae	Habitat Loss	0	1	0.31	1
Vitis	Habitat Loss	0	0.87	0.34	1
Vitis labrusca	Habitat Loss	0.001	0.89	0.4	1
Woodwardia	Habitat Loss	0.537	0.38	0	0.79
Woodwardia virginica	Habitat Loss	0.8	0.29	0	1
Zizia	Habitat Loss	0.868	0.48	0.26	0.7
Zizia aurea	Habitat Loss	0.868	0.48	0.26	0.7
Abies	Agriculture	0.016	0	0	0.47
Abies balsamea	Agriculture	0.016	0	0	0.47
Acer	Agriculture	0	0.58	0	1
Acer pensylvanicum	Agriculture	0.021	0	0	0.5
Acer platanoides	Agriculture	0	0.89	0.39	1
Acer rubrum	Agriculture	0	0.55	0	1
Acer saccharum	Agriculture	0.003	1	0	1
Acer spicatum	Agriculture	0.186	0	0	0.55
Aceraceae	Agriculture	0	0.58	0	1
Ageratina	Agriculture	0.4	0.38	0	1
Ageratina altissima	Agriculture	0.4	0.38	0	1
Agrostis	Agriculture	0.298	0	0	0.41
Alnus	Agriculture	0.006	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Alnus incana	Agriculture	0.008	1	0	1
Amelanchier	Agriculture	0.408	0.61	0	1
Amphicarpaea	Agriculture	0.639	0.22	0	0.98
Amphicarpaea bracteata	Agriculture	0.639	0.22	0	0.98
Anacardiaceae	Agriculture	0	0.68	0	1
Anemone	Agriculture	0.995	1	0	1
Anemone quinquefolia	Agriculture	0.891	1	0	1
Apiaceae	Agriculture	0.284	1	0	1
Apiales	Agriculture	0.003	0	0	1
Aquifoliaceae	Agriculture	0.739	0.31	0	1
Araceae	Agriculture	0	0.34	0	1
Arales	Agriculture	0	0.32	0	1
Aralia	Agriculture	0	0.07	0	1
Aralia nudicaulis	Agriculture	0	0.06	0	1
Araliaceae	Agriculture	0	0.06	0	1
Arisaema	Agriculture	0	0.73	0	1
Arisaema triphyllum	Agriculture	0	0.73	0	1
Aster	Agriculture	0	0.92	0	1
Aster divaricatus	Agriculture	0.015	1	0	1
Asteraceae	Agriculture	0.003	0.94	0	1
Asterales	Agriculture	0.003	0.94	0	1
Athyrium	Agriculture	0	1	0	1
Athyrium filix-femina	Agriculture	0	1	0	1
Balsaminaceae	Agriculture	0	0.97	0.07	1
Berberidaceae	Agriculture	0	0.9	0	1
Berberis	Agriculture	0	1	0	1
Berberis thunbergii	Agriculture	0	0.92	0	1
Betula	Agriculture	0	0	0	0.91
Betula alleghaniensis	Agriculture	0	0	0	0.58
Betula lenta	Agriculture	0.482	1	0	1
Betula papyrifera	Agriculture	0.458	1	0	1
Betula populifolia	Agriculture	0.026	0.81	0	1
Betulaceae	Agriculture	0.006	0	0	1
Bidens	Agriculture	0.015	0.48	0.02	1
Bidens frondosa	Agriculture	0.026	0.51	0.07	0.96
Bidens tripartita	Agriculture	0.685	0.36	0.04	0.67
Blechnaceae	Agriculture	0.222	0	0	1
Boehmeria	Agriculture	0.009	0.48	0.07	0.9
Boehmeria cylindrica	Agriculture	0.009	0.48	0.07	0.9
Brachyelytrum	Agriculture	0.176	0	0	1
Brachyelytrum erectum	Agriculture	0.403	0	0	1
Brachyelytrum septentrionale	Agriculture	0.321	0	0	1
Brassicaceae	Agriculture	0.021	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Calamagrostis	Agriculture	0.601	0.19	0	0.77
Calamagrostis canadensis	Agriculture	0.718	0.19	0	1
Caltha	Agriculture	0.352	0	0	0.98
Caltha palustris	Agriculture	0.352	0	0	0.98
Capparales	Agriculture	0.021	1	0	1
Caprifoliaceae	Agriculture	0.003	0.76	0	1
Cardamine	Agriculture	0.352	0	0	1
Carex	Agriculture	0.38	0.22	0	0.98
Carex bromoides	Agriculture	0.701	0.36	0.04	0.63
Carex crinita	Agriculture	0.018	1	0.16	1
Carex debilis	Agriculture	0.649	0	0	1
Carex disperma	Agriculture	0.229	0	0	0.08
Carex folliculata	Agriculture	0.02	0	0	1
Carex gracillima	Agriculture	0.007	1	0	1
Carex gynandra	Agriculture	0.079	0	0	0.82
Carex intumescens	Agriculture	0.69	0.15	0	1
Carex leptalea	Agriculture	0.484	0	0	0.81
Carex lurida	Agriculture	0.713	0.48	0	1
Carex scabrata	Agriculture	0.287	0	0	0.69
Carex stipata	Agriculture	0.797	0.4	0	1
Carex stricta	Agriculture	0.421	0.49	0.02	0.98
Carex trisperma	Agriculture	0.001	0	0	0.37
Carpinus	Agriculture	0.14	0.46	0.04	1
Carpinus caroliniana	Agriculture	0.14	0.46	0.04	1
Carya	Agriculture	0.003	0.59	0.05	1
Carya cordiformis	Agriculture	0.038	0.37	0.13	0.59
Carya ovata	Agriculture	0.009	0.92	0.07	1
Celastraceae	Agriculture	0	0.7	0.2	1
Celastrales	Agriculture	0.344	0.76	0	1
Celastrus	Agriculture	0	0.58	0	1
Celastrus orbiculatus	Agriculture	0	0.58	0	1
Chamaecyparis	Agriculture	0.385	0	0	0.64
Chamaecyparis thyoides	Agriculture	0.385	0	0	0.64
Chelone	Agriculture	0.69	0	0	1
Chelone glabra	Agriculture	0.69	0	0	1
Chrysosplenium	Agriculture	0.5	0	0	1
Chrysosplenium americanum	Agriculture	0.5	0	0	1
Cicuta	Agriculture	0.787	0.55	0	1
Cicuta maculata	Agriculture	0.768	0.55	0	1
Cinna	Agriculture	0.445	0	0	1
Cinna latifolia	Agriculture	0.346	0	0	1
Circaea	Agriculture	0.007	0.58	0	1
Circaea alpina	Agriculture	0.295	0	0	0.41

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Circaea lutetiana	Agriculture	0.003	0.54	0.01	1
Clematis	Agriculture	0.031	1	0	1
Clematis virginiana	Agriculture	0.031	1	0	1
Clethra	Agriculture	0.23	0	0	0.78
Clethra alnifolia	Agriculture	0.23	0	0	0.78
Clethraceae	Agriculture	0.23	0	0	0.78
Clintonia	Agriculture	0.004	0	0	0.42
Clintonia borealis	Agriculture	0.004	0	0	0.42
Clusiaceae	Agriculture	0.493	0.16	0	0.88
Coniferophyta	Agriculture	0	0	0	0.78
Coptis	Agriculture	0	0	0	0.7
Coptis trifolia	Agriculture	0	0	0	0.7
Cornaceae	Agriculture	0.006	0.92	0	1
Cornales	Agriculture	0.887	0.68	0	1
Cornus	Agriculture	0.006	0.92	0	1
Cornus alternifolia	Agriculture	0.003	0.7	0.13	1
Cornus amomum	Agriculture	0	0.86	0.17	1
Cornus canadensis	Agriculture	0.004	0	0	0.53
Cornus racemosa	Agriculture	0.154	0.72	0.08	1
Cornus sericea	Agriculture	0.394	0.88	0.01	1
Corylus	Agriculture	0.239	0.53	0	1
Corylus americana	Agriculture	0.009	0.99	0	1
Corylus cornuta	Agriculture	0.608	0.32	0	0.85
Crataegus	Agriculture	0.297	0.61	0	1
Cupressaceae	Agriculture	0.7	0	0	1
Cyperaceae	Agriculture	0.36	0.2	0	0.98
Cyperales	Agriculture	0.445	0	0	1
Dalibarda	Agriculture	0.256	0	0	0.93
Dalibarda repens	Agriculture	0.256	0	0	0.93
Dennstaedtia	Agriculture	0.386	1	0	1
Dennstaedtia punctilobula	Agriculture	0.386	1	0	1
Dennstaedtiaceae	Agriculture	0.909	1	0	1
Deparia	Agriculture	0.747	0	0	1
Deparia acrostichoides	Agriculture	0.747	0	0	1
Dichanthelium	Agriculture	0.515	0.18	0	0.75
Dipsacales	Agriculture	0.003	0.76	0	1
Doellingeria	Agriculture	0.819	0.39	0	1
Doellingeria umbellata	Agriculture	0.857	0.4	0	1
Dryopteridaceae	Agriculture	0	1	0	1
Dryopteris	Agriculture	0.781	1	0	1
Dryopteris carthusiana	Agriculture	0.819	0.48	0	1
Dryopteris clintoniana	Agriculture	0.6	0	0	1
Dryopteris cristata	Agriculture	0.024	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Dryopteris intermedia	Agriculture	0.896	1	0	1
Epilobium	Agriculture	0.003	0.88	0	1
Epilobium ciliatum	Agriculture	0.231	1	0	1
Epipactis	Agriculture	0.87	0.45	0	1
Epipactis helleborine	Agriculture	0.87	0.45	0	1
Equisetaceae	Agriculture	0.001	1	0	1
Equisetales	Agriculture	0.001	1	0	1
Equisetophyta	Agriculture	0.001	1	0	1
Equisetopsida	Agriculture	0.001	1	0	1
Equisetum	Agriculture	0.001	1	0	1
Equisetum arvense	Agriculture	0	1	0.11	1
Equisetum sylvaticum	Agriculture	0.403	0.24	0	0.57
Ericaceae	Agriculture	0.009	0.14	0	0.87
Ericales	Agriculture	0.004	0.08	0	0.82
Eubotrys	Agriculture	0.326	0.04	0	0.52
Eubotrys racemosa	Agriculture	0.326	0.04	0	0.52
Euonymus	Agriculture	0	0.92	0.3	1
Euonymus alata	Agriculture	0	1	0.33	1
Eupatorium	Agriculture	0.009	0.75	0	1
Eupatorium maculatum	Agriculture	0.009	0.79	0	1
Eupatorium perfoliatum	Agriculture	0.384	0.43	0	1
Eurybia	Agriculture	0.768	0.2	0	1
Eurybia divaricata	Agriculture	0.825	0.65	0	1
Eutrochium	Agriculture	0.34	0	0	0.37
Eutrochium maculatum	Agriculture	0.34	0	0	0.37
Fabaceae	Agriculture	0.814	0.72	0	1
Fabales	Agriculture	0.814	0.72	0	1
Fagaceae	Agriculture	0.921	0.45	0	1
Fagales	Agriculture	0.009	0	0	1
Fagus	Agriculture	0.051	0	0	1
Fagus grandifolia	Agriculture	0.051	0	0	1
Filicopsida	Agriculture	0.14	0	0	1
Fragaria	Agriculture	0.003	0.98	0	1
Fragaria virginiana	Agriculture	0.008	1	0	1
Frangula	Agriculture	0.003	0.68	0	1
Frangula alnus	Agriculture	0.003	0.68	0	1
Fraxinus	Agriculture	0.004	1	0	1
Fraxinus americana	Agriculture	0.001	1	0	1
Fraxinus nigra	Agriculture	0.534	0.28	0	0.95
Galium	Agriculture	0.008	1	0	1
Galium aparine	Agriculture	0.642	0.34	0	1
Galium asprellum	Agriculture	0.856	0	0	1
Galium palustre	Agriculture	0.231	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Galium triflorum	Agriculture	0.661	0.38	0	0.98
Gaultheria	Agriculture	0.17	0.19	0	0.68
Gaultheria hispidula	Agriculture	0.23	0	0	0.42
Gaultheria procumbens	Agriculture	0.339	0.27	0	0.74
Gaylussacia	Agriculture	0.811	0.03	0	1
Gaylussacia frondosa	Agriculture	0.368	0.05	0	0.63
Gentianales	Agriculture	0.818	0	0	1
Geraniaceae	Agriculture	0.004	1	0.22	1
Geraniales	Agriculture	0	1	0	1
Geranium	Agriculture	0.004	1	0.22	1
Geranium maculatum	Agriculture	0.009	0.98	0.18	1
Geum	Agriculture	0	0.89	0.03	1
Geum canadense	Agriculture	0.007	0.86	0.06	1
Geum rivale	Agriculture	0.038	0.74	0	1
Glyceria	Agriculture	0.921	0.99	0	1
Glyceria melicaria	Agriculture	0.058	0	0	0.87
Glyceria striata	Agriculture	0.266	0.22	0	0.59
Grossulariaceae	Agriculture	0.324	1	0	1
Hamamelidaceae	Agriculture	0.097	0	0	1
Hamamelidales	Agriculture	0.097	0	0	1
Hamamelis	Agriculture	0.097	0	0	1
Hamamelis virginiana	Agriculture	0.097	0	0	1
Huperzia	Agriculture	0.189	0	0	0.35
Huperzia lucidula	Agriculture	0.189	0	0	0.35
Hydrocotyle	Agriculture	0.229	0	0	1
Hydrocotyle americana	Agriculture	0.229	0	0	1
Ilex	Agriculture	0.975	0.46	0	1
Ilex mucronata	Agriculture	0.295	0	0	0.42
Ilex verticillata	Agriculture	0.929	0.45	0	1
Impatiens	Agriculture	0	0.97	0.07	1
Impatiens capensis	Agriculture	0	0.97	0.07	1
Iridaceae	Agriculture	0.809	0.66	0	1
Iris	Agriculture	0.809	0.66	0	1
Iris versicolor	Agriculture	0.804	0.36	0	1
Juglandaceae	Agriculture	0.003	0.61	0	1
Juglandales	Agriculture	0.003	0.61	0	1
Juncaceae	Agriculture	0.901	1	0	1
Juncales	Agriculture	0.901	1	0	1
Juncus	Agriculture	0.901	1	0	1
Juncus effusus	Agriculture	0.331	0	0	0.5
Kalmia	Agriculture	0.006	0	0	0.48
Kalmia angustifolia	Agriculture	0.248	0.22	0	0.73
Kalmia latifolia	Agriculture	0.009	0	0	0.5

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Lactuca	Agriculture	0.034	1	0.44	1
Lamiaceae	Agriculture	0.782	0.05	0	1
Lamiales	Agriculture	0.783	0.15	0	1
Larix	Agriculture	0.692	0.35	0.01	0.69
Larix laricina	Agriculture	0.692	0.35	0.02	0.69
Lauraceae	Agriculture	0.003	1	0	1
Laurales	Agriculture	0.003	1	0	1
Leersia	Agriculture	0.013	1	0.03	1
Leersia oryzoides	Agriculture	0.23	1	0	1
Ligustrum	Agriculture	0.005	0.98	0.39	1
Ligustrum vulgare	Agriculture	0.005	0.98	0.39	1
Liliaceae	Agriculture	0.007	0	0	1
Liliales	Agriculture	0.035	0.05	0	1
Liliopsida	Agriculture	0.857	0.22	0	1
Lilium	Agriculture	0.454	0	0	1
Lilium canadense	Agriculture	0.623	0	0	1
Lindera	Agriculture	0.003	1	0	1
Lindera benzoin	Agriculture	0.003	1	0	1
Lonicera	Agriculture	0.003	0.56	0	1
Lonicera canadensis	Agriculture	0.091	0	0	0.3
Lonicera morrowii	Agriculture	0	0.67	0.23	1
Lycopodiaceae	Agriculture	0.029	0	0	0.78
Lycopodiales	Agriculture	0.029	0	0	0.78
Lycopodiophyta	Agriculture	0.029	0	0	0.78
Lycopodiopsida	Agriculture	0.029	0	0	0.78
Lycopodium	Agriculture	0.138	0.15	0	0.76
Lycopodium hickeyi	Agriculture	0.353	0.07	0	0.42
Lycopodium obscurum	Agriculture	0.268	0.24	0	0.77
Lycopus	Agriculture	0.009	0	0	1
Lycopus uniflorus	Agriculture	0.044	0	0	0.4
Lyonia	Agriculture	0.745	0.36	0	1
Lyonia ligustrina	Agriculture	0.745	0.36	0	1
Lysimachia	Agriculture	0.44	1	0	1
Lysimachia borealis	Agriculture	0.37	0	0	0.88
Lysimachia ciliata	Agriculture	0.006	1	0	1
Lysimachia terrestris	Agriculture	0.114	0	0	1
Lythraceae	Agriculture	0.347	0.45	0	0.78
Magnoliophyta	Agriculture	0	0.67	0	1
Magnoliopsida	Agriculture	0	0.71	0	1
Maianthemum	Agriculture	0.001	0.05	0	1
Maianthemum canadense	Agriculture	0.111	0.08	0	1
Maianthemum racemosum	Agriculture	0	1	0.34	1
Malus	Agriculture	0.004	0.6	0.19	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Malus pumila	Agriculture	0.008	0.65	0.24	1
Malvales	Agriculture	0.919	0.44	0.1	0.71
Medeola	Agriculture	0.006	0	0	0.7
Medeola virginiana	Agriculture	0.006	0	0	0.7
Mitchella	Agriculture	0.001	0	0	1
Mitchella repens	Agriculture	0.001	0	0	1
Monotropa	Agriculture	0.038	0	0	0.68
Monotropa uniflora	Agriculture	0.038	0	0	0.68
Monotropaceae	Agriculture	0.038	0	0	0.68
Myrtales	Agriculture	0	0.63	0	1
Nasturtium	Agriculture	0.306	0.62	0.01	1
Nasturtium officinale	Agriculture	0.306	0.62	0.01	1
Nemopanthus	Agriculture	0.004	0	0	0.52
Nemopanthus mucronatus	Agriculture	0.004	0	0	0.52
Nyssa	Agriculture	0.113	0	0	1
Nyssa sylvatica	Agriculture	0.113	0	0	1
Nyssaceae	Agriculture	0.113	0	0	1
Oclemena	Agriculture	0.003	0	0	0.64
Oclemena acuminata	Agriculture	0.004	0	0	0.64
Oleaceae	Agriculture	0.003	1	0	1
Onagraceae	Agriculture	0	0.66	0	1
Onoclea	Agriculture	0	1	0	1
Onoclea sensibilis	Agriculture	0	1	0	1
Orchidaceae	Agriculture	0.547	0.23	0	1
Orchidales	Agriculture	0.547	0.23	0	1
Osmunda	Agriculture	0.061	0	0	1
Osmunda cinnamomea	Agriculture	0.026	0	0	1
Osmunda claytoniana	Agriculture	0.364	0.49	0	1
Osmunda regalis	Agriculture	0	0.43	0	1
Osmundaceae	Agriculture	0.061	0	0	1
Ostrya	Agriculture	0.673	0.42	0	0.93
Ostrya virginiana	Agriculture	0.673	0.42	0	0.93
Oxalidaceae	Agriculture	0.154	0	0	1
Oxalis	Agriculture	0.154	0	0	1
Oxalis montana	Agriculture	0.011	0	0	0.33
Oxalis stricta	Agriculture	0.009	0.69	0.16	1
Packera	Agriculture	0.367	0	0	1
Packera aurea	Agriculture	0.367	0	0	1
Parthenocissus	Agriculture	0	0.7	0	1
Parthenocissus quinquefolia	Agriculture	0	0.7	0	1
Persicaria	Agriculture	0.709	0	0	0.88
Phegopteris	Agriculture	0.125	0	0	0.36
Phegopteris Connectednessilis	Agriculture	0.154	0	0	0.34

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Photinia	Agriculture	0.972	0.35	0	1
Photinia melanocarpa	Agriculture	0.819	0.44	0	1
Photinia pyrifolia	Agriculture	0.277	0	0	1
Physocarpus	Agriculture	0.012	0.64	0.33	0.99
Physocarpus opulifolius	Agriculture	0.012	0.64	0.33	0.99
Picea	Agriculture	0.004	0	0	0.53
Picea rubens	Agriculture	0.003	0	0	0.43
Pilea	Agriculture	0.004	0.92	0.03	1
Pilea pumila	Agriculture	0.004	0.92	0.03	1
Pinaceae	Agriculture	0	0	0	0.77
Pinales	Agriculture	0	0	0	0.78
Pinopsida	Agriculture	0	0	0	0.78
Pinus	Agriculture	0.913	0.46	0	1
Pinus strobus	Agriculture	0.919	0.46	0	1
Platanthera	Agriculture	0.278	0	0	0.87
Platanthera clavellata	Agriculture	0.5	0	0	1
Poaceae	Agriculture	0.009	0.92	0	1
Polygonaceae	Agriculture	0.963	0.45	0	1
Polygonales	Agriculture	0.963	0.45	0	1
Polygonatum	Agriculture	0.248	0.71	0	1
Polygonatum pubescens	Agriculture	0.248	0.71	0	1
Polygonum	Agriculture	0.321	0.74	0	1
Polygonum arifolium	Agriculture	0.511	0.56	0	1
Polygonum sagittatum	Agriculture	0.395	0	0	1
Polygonum virginianum	Agriculture	0.366	0.62	0	1
Polypodiales	Agriculture	0.14	0	0	1
Polystichum	Agriculture	0.69	0.32	0	1
Polystichum acrostichoides	Agriculture	0.69	0.32	0	1
Populus	Agriculture	0.001	1	0.42	1
Populus grandidentata	Agriculture	0.965	0.36	0	0.64
Populus tremuloides	Agriculture	0.003	1	0.5	1
Potentilla	Agriculture	0	0.72	0.03	1
Potentilla simplex	Agriculture	0	0.77	0.03	1
Prenanthes	Agriculture	0.236	0	0	1
Prenanthes altissima	Agriculture	0.606	0.29	0	0.86
Primulaceae	Agriculture	0.324	0	0	1
Primulales	Agriculture	0.183	0	0	1
Prunella	Agriculture	0.2	0.69	0	1
Prunella vulgaris	Agriculture	0.2	0.69	0	1
Prunus	Agriculture	0	0.98	0	1
Prunus serotina	Agriculture	0	1	0	1
Prunus virginiana	Agriculture	0.009	0.53	0	1
Pteridium	Agriculture	0.434	0	0	0.59

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Pteridium aquilinum	Agriculture	0.434	0	0	0.59
Pteridophyta	Agriculture	0.14	0	0	1
Pyrola	Agriculture	0.605	0.32	0	0.7
Pyrola elliptica	Agriculture	0.569	0.29	0	0.63
Pyrolaceae	Agriculture	0.643	0.35	0	0.75
Quercus	Agriculture	0.006	0.51	0	1
Quercus alba	Agriculture	0.001	0.71	0.02	1
Quercus bicolor	Agriculture	0.113	0.56	0	1
Quercus rubra	Agriculture	0.039	0.67	0	1
Ranunculaceae	Agriculture	0.015	0	0	1
Ranunculales	Agriculture	0.286	0.1	0	1
Ranunculus	Agriculture	0.009	1	0	1
Ranunculus abortivus	Agriculture	0.662	0.39	0	1
Ranunculus hispidus	Agriculture	0.294	0	0	1
Ranunculus recurvatus	Agriculture	0.008	1	0	1
Rhamnaceae	Agriculture	0	0.77	0	1
Rhamnales	Agriculture	0	0.38	0	1
Rhamnus	Agriculture	0	1	0.4	1
Rhamnus cathartica	Agriculture	0	1	0.32	1
Rhododendron	Agriculture	0.097	0.24	0	0.98
Rhododendron prinophyllum	Agriculture	0.091	0	0	0.44
Rhododendron viscosum	Agriculture	0.838	0.38	0	1
Ribes	Agriculture	0.324	1	0	1
Rosa	Agriculture	0	0.59	0.05	1
Rosa multiflora	Agriculture	0	0.64	0.09	1
Rosa palustris	Agriculture	0.125	1	0	1
Rosaceae	Agriculture	0	0.39	0	1
Rosales	Agriculture	0	0.48	0	1
Rubiaceae	Agriculture	0.936	0.46	0	1
Rubiales	Agriculture	0.936	0.46	0	1
Rubus	Agriculture	0.021	0.8	0	1
Rubus allegheniensis	Agriculture	0.357	0.67	0.02	1
Rubus hispidus	Agriculture	0.007	0.13	0	1
Rubus idaeus	Agriculture	0.004	1	0.13	1
Rubus occidentalis	Agriculture	0.009	1	0.19	1
Rubus pubescens	Agriculture	0.396	0.61	0	1
Salicaceae	Agriculture	0.003	1	0.13	1
Salicales	Agriculture	0.003	1	0.13	1
Salix	Agriculture	0.189	0.5	0	1
Sambucus	Agriculture	0	1	0	1
Sambucus canadensis	Agriculture	0	1	0	1
Sapindales	Agriculture	0	0.55	0	1
Saxifraga	Agriculture	0.731	0	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Saxifraga pensylvanica	Agriculture	0.883	0	0	1
Saxifragaceae	Agriculture	0.713	0	0	1
Scirpus	Agriculture	0.386	0	0	0.84
Scrophulariaceae	Agriculture	0.963	1	0	1
Scrophulariales	Agriculture	0.004	1	0	1
Scutellaria	Agriculture	0.36	0.49	0	1
Scutellaria lateriflora	Agriculture	0.367	0.48	0	1
Senecio	Agriculture	0.004	1	0.34	1
Senecio aureus	Agriculture	0.004	1	0.34	1
Smilacaceae	Agriculture	0.731	0.17	0	0.93
Smilax	Agriculture	0.731	0.17	0	0.93
Smilax herbacea	Agriculture	0.299	0.55	0.05	1
Smilax rotundifolia	Agriculture	0.425	0	0	0.91
Solanaceae	Agriculture	0	0.66	0.08	1
Solanales	Agriculture	0	0.71	0.09	1
Solanum	Agriculture	0	0.66	0.08	1
Solanum dulcamara	Agriculture	0	0.63	0.12	1
Solidago	Agriculture	0	0.81	0	1
Solidago gigantea	Agriculture	0	0.81	0	1
Solidago patula	Agriculture	0.729	0.4	0	0.91
Solidago rugosa	Agriculture	0	0.57	0	1
Sorbus	Agriculture	0.051	0	0	0.7
Sorbus americana	Agriculture	0.03	0	0	0.52
Spiraea	Agriculture	0.72	0.41	0	1
Spiraea alba	Agriculture	0.878	0.42	0	1
Symphyotrichum	Agriculture	0.034	1	0	1
Symphyotrichum lateriflorum	Agriculture	0.368	1	0	1
Symphyotrichum puniceum	Agriculture	0.026	1	0	1
Symplocarpus	Agriculture	0	0.76	0	1
Symplocarpus foetidus	Agriculture	0	0.76	0	1
Taxaceae	Agriculture	0.617	0.1	0	1
Taxales	Agriculture	0.617	0.1	0	1
Taxus	Agriculture	0.617	0.1	0	1
Taxus canadensis	Agriculture	0.429	0.01	0	0.67
Thalictrum	Agriculture	0.04	0.67	0	1
Thalictrum pubescens	Agriculture	0.068	0.66	0	1
Theales	Agriculture	0.493	0.16	0	0.88
Thelypteridaceae	Agriculture	0.058	0	0	1
Thelypteris	Agriculture	0.102	0	0	1
Thelypteris noveboracensis	Agriculture	0.267	0	0	1
Thelypteris palustris	Agriculture	0.784	0.35	0	1
Thelypteris simulata	Agriculture	0.026	0.05	0	0.82
Tiarella	Agriculture	0.15	0	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Tiarella cordifolia	Agriculture	0.15	0	0	1
Tilia	Agriculture	0.919	0.44	0.1	0.71
Tilia americana	Agriculture	0.928	0.45	0.08	0.74
Tiliaceae	Agriculture	0.919	0.44	0.1	0.71
Toxicodendron	Agriculture	0	0.68	0	1
Toxicodendron radicans	Agriculture	0	0.55	0	1
Toxicodendron vernix	Agriculture	0.009	0.59	0.04	1
Triadenum	Agriculture	0.457	0	0	1
Triadenum virginicum	Agriculture	0.469	0	0	1
Trientalis	Agriculture	0.003	0	0	1
Trientalis borealis	Agriculture	0.003	0	0	1
Trillium	Agriculture	0.188	0	0	1
Trillium undulatum	Agriculture	0.209	0	0	0.78
Tsuga	Agriculture	0	0	0	0.49
Tsuga canadensis	Agriculture	0	0	0	0.49
Typhales	Agriculture	0.677	0.28	0	0.98
Ulmaceae	Agriculture	0	0.8	0.17	1
Ulmus	Agriculture	0	0.8	0.17	1
Ulmus americana	Agriculture	0	0.78	0.15	1
Urticaceae	Agriculture	0.003	0.59	0.03	1
Urticales	Agriculture	0	0.85	0.12	1
Uvularia	Agriculture	0.036	0	0	1
Uvularia sessilifolia	Agriculture	0.036	0	0	1
Vaccinium	Agriculture	0.46	0.32	0	0.95
Vaccinium angustifolium	Agriculture	0.148	0	0	1
Vaccinium corymbosum	Agriculture	0.694	0.34	0	0.96
Vaccinium myrtilloides	Agriculture	0.224	0	0	0.39
Veratrum	Agriculture	0.453	0	0	0.96
Veratrum viride	Agriculture	0.453	0	0	0.96
Veronica	Agriculture	0.038	1	0.24	1
Veronica officinalis	Agriculture	0.039	1	0.45	1
Viburnum	Agriculture	0.311	0.44	0	1
Viburnum acerifolium	Agriculture	0.724	0.45	0	1
Viburnum dentatum	Agriculture	0	0.68	0	1
Viburnum lantanoides	Agriculture	0.009	0	0	0.48
Viburnum lentago	Agriculture	0.016	0.65	0	1
Viburnum nudum	Agriculture	0.006	0.02	0	0.99
Viola	Agriculture	0.353	0	0	1
Viola cucullata	Agriculture	0.434	0.12	0	0.58
Violaceae	Agriculture	0.353	0	0	1
Violales	Agriculture	0.567	0	0	1
Vitaceae	Agriculture	0	0.98	0.06	1
Vitis	Agriculture	0	0.84	0.1	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Vitis labrusca	Agriculture	0	0.88	0.14	1
Woodwardia	Agriculture	0.222	0	0	1
Woodwardia virginica	Agriculture	0.361	0	0	0.75
Zizia	Agriculture	0.021	0.92	0.17	1
Zizia aurea	Agriculture	0.021	0.92	0.17	1
Abies	Watershed habitat loss	0.001	0.1	0	0.5
Abies balsamea	Watershed habitat loss	0.001	0.1	0	0.5
Acer	Watershed habitat loss	0	1	0	1
Acer pensylvanicum	Watershed habitat loss	0	0.04	0	0.45
Acer platanoides	Watershed habitat loss	0.036	1	0.39	1
Acer rubrum	Watershed habitat loss	0	0.81	0	1
Acer saccharum	Watershed habitat loss	0.405	0	0	1
Acer spicatum	Watershed habitat loss	0.071	0.12	0	0.52
Aceraceae	Watershed habitat loss	0	1	0	1
Ageratina	Watershed habitat loss	0.562	0.31	0	0.76
Ageratina altissima	Watershed habitat loss	0.562	0.31	0	0.76
Agrostis	Watershed habitat loss	0.181	0	0	0.41
Alnus	Watershed habitat loss	0.777	0.42	0	0.87
Alnus incana	Watershed habitat loss	0.757	0.41	0	0.87
Amelanchier	Watershed habitat loss	0.052	0.28	0	1
Amphicarpaea	Watershed habitat loss	0.652	0.31	0	1
Amphicarpaea bracteata	Watershed habitat loss	0.652	0.31	0	1
Anacardiaceae	Watershed habitat loss	0	0.94	0	1
Anemone	Watershed habitat loss	0.66	0	0	1
Anemone quinquefolia	Watershed habitat loss	0.663	0	0	1
Apiaceae	Watershed habitat loss	0.692	0.39	0	0.98
Apiales	Watershed habitat loss	0	0.08	0	0.93
Aquifoliaceae	Watershed habitat loss	0.271	0	0	1
Araceae	Watershed habitat loss	0	0.48	0	1
Arales	Watershed habitat loss	0	0.48	0	1
Aralia	Watershed habitat loss	0	0.18	0	1
Aralia nudicaulis	Watershed habitat loss	0	0.18	0	1
Araliaceae	Watershed habitat loss	0	0.18	0	1
Arisaema	Watershed habitat loss	0.921	0.53	0	1
Arisaema triphyllum	Watershed habitat loss	0.921	0.53	0	1
Aster	Watershed habitat loss	0.048	0.78	0	1
Aster divaricatus	Watershed habitat loss	0.249	1	0	1
Asteraceae	Watershed habitat loss	0.929	0.4	0	1
Asterales	Watershed habitat loss	0.929	0.4	0	1
Athyrium	Watershed habitat loss	0.011	1	0	1
Athyrium filix-femina	Watershed habitat loss	0.011	1	0	1
Balsaminaceae	Watershed habitat loss	0	1	0	1
Berberidaceae	Watershed habitat loss	0	0.57	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Berberis	Watershed habitat loss	0	0.58	0	1
Berberis thunbergii	Watershed habitat loss	0	0.58	0	1
Betula	Watershed habitat loss	0	0	0	0.98
Betula alleghaniensis	Watershed habitat loss	0	0.01	0	0.8
Betula lenta	Watershed habitat loss	0.166	0	0	1
Betula papyrifera	Watershed habitat loss	0.939	0.84	0	1
Betula populifolia	Watershed habitat loss	0.576	0.89	0	1
Betulaceae	Watershed habitat loss	0.001	0.11	0	1
Bidens	Watershed habitat loss	0	0.92	0.13	1
Bidens frondosa	Watershed habitat loss	0	0.88	0.3	1
Bidens tripartita	Watershed habitat loss	0.569	0.48	0.03	0.93
Blechnaceae	Watershed habitat loss	0.312	0.55	0.14	0.98
Boehmeria	Watershed habitat loss	0	1	0.36	1
Boehmeria cylindrica	Watershed habitat loss	0	1	0.36	1
Brachyelytrum	Watershed habitat loss	0.038	0.1	0	0.85
Brachyelytrum erectum	Watershed habitat loss	0.166	0.07	0	0.69
Brachyelytrum septentrionale	Watershed habitat loss	0.231	0.13	0	0.98
Brassicaceae	Watershed habitat loss	0.087	1	0	1
Calamagrostis	Watershed habitat loss	0.261	0.68	0.09	0.99
Calamagrostis canadensis	Watershed habitat loss	0.268	0.56	0.25	0.7
Caltha	Watershed habitat loss	0.221	0	0	0.84
Caltha palustris	Watershed habitat loss	0.221	0	0	0.84
Capparales	Watershed habitat loss	0.087	1	0	1
Caprifoliaceae	Watershed habitat loss	0.173	1	0	1
Cardamine	Watershed habitat loss	0.689	0	0	1
Carex	Watershed habitat loss	0.041	0.22	0	0.97
Carex bromoides	Watershed habitat loss	0.655	0.74	0	1
Carex crinita	Watershed habitat loss	0.249	1	0.01	1
Carex debilis	Watershed habitat loss	0.639	0	0	1
Carex disperma	Watershed habitat loss	0.12	0.07	0	0.22
Carex folliculata	Watershed habitat loss	0.049	0.27	0	0.77
Carex gracillima	Watershed habitat loss	0.986	0.53	0	1
Carex gynandra	Watershed habitat loss	0.001	0	0	0.62
Carex intumescens	Watershed habitat loss	0.103	0.01	0	1
Carex leptalea	Watershed habitat loss	0.279	0	0	0.72
Carex lurida	Watershed habitat loss	0.168	0	0	0.92
Carex scabrata	Watershed habitat loss	0.232	0	0	0.6
Carex stipata	Watershed habitat loss	0.18	1	0	1
Carex stricta	Watershed habitat loss	0.001	0.92	0	1
Carex trisperma	Watershed habitat loss	0	0	0	0.48
Carpinus	Watershed habitat loss	0.236	0.63	0.18	1
Carpinus caroliniana	Watershed habitat loss	0.236	0.63	0.18	1
Carya	Watershed habitat loss	0.091	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Carya cordiformis	Watershed habitat loss	0.974	0.4	0.09	0.7
Carya ovata	Watershed habitat loss	0.23	1	0	1
Celastraceae	Watershed habitat loss	0	1	0.32	1
Celastrales	Watershed habitat loss	0.327	0	0	1
Celastrus	Watershed habitat loss	0	0.88	0.2	1
Celastrus orbiculatus	Watershed habitat loss	0	0.88	0.2	1
Chamaecyparis	Watershed habitat loss	0.382	0.63	0.39	0.78
Chamaecyparis thyoides	Watershed habitat loss	0.382	0.63	0.39	0.78
Chelone	Watershed habitat loss	0.006	0	0	1
Chelone glabra	Watershed habitat loss	0.006	0	0	1
Chrysosplenium	Watershed habitat loss	0.087	0.02	0	0.87
Chrysosplenium americanum	Watershed habitat loss	0.087	0.02	0	0.87
Cicuta	Watershed habitat loss	0.047	0.75	0.4	1
Cicuta maculata	Watershed habitat loss	0.145	0.74	0.35	1
Cinna	Watershed habitat loss	0.181	0	0	1
Cinna latifolia	Watershed habitat loss	0.181	0	0	0.94
Circaea	Watershed habitat loss	0.725	1	0	1
Circaea alpina	Watershed habitat loss	0.15	0	0	0.31
Circaea lutetiana	Watershed habitat loss	0.004	1	0	1
Clematis	Watershed habitat loss	0.61	0.4	0	0.85
Clematis virginiana	Watershed habitat loss	0.61	0.4	0	0.85
Clethra	Watershed habitat loss	0	0.65	0.34	1
Clethra alnifolia	Watershed habitat loss	0	0.65	0.34	1
Clethraceae	Watershed habitat loss	0	0.65	0.34	1
Clintonia	Watershed habitat loss	0	0.05	0	0.48
Clintonia borealis	Watershed habitat loss	0	0.05	0	0.48
Clusiaceae	Watershed habitat loss	0.442	0.24	0	0.67
Coniferophyta	Watershed habitat loss	0	0	0	0.72
Coptis	Watershed habitat loss	0	0.12	0	0.61
Coptis trifolia	Watershed habitat loss	0	0.12	0	0.61
Cornaceae	Watershed habitat loss	0.087	0.34	0	1
Cornales	Watershed habitat loss	0.541	0.06	0	1
Cornus	Watershed habitat loss	0.087	0.34	0	1
Cornus alternifolia	Watershed habitat loss	0.331	0.48	0	1
Cornus amomum	Watershed habitat loss	0	1	0.29	1
Cornus canadensis	Watershed habitat loss	0	0.14	0	0.52
Cornus racemosa	Watershed habitat loss	0.768	0.42	0	0.98
Cornus sericea	Watershed habitat loss	0.618	0.35	0	0.85
Corylus	Watershed habitat loss	0.851	0.68	0	1
Corylus americana	Watershed habitat loss	0.055	1	0.02	1
Corylus cornuta	Watershed habitat loss	0.533	0.25	0	0.9
Crataegus	Watershed habitat loss	0.713	0.41	0.15	0.69
Cupressaceae	Watershed habitat loss	0.289	0.65	0.42	0.79

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Cyperaceae	Watershed habitat loss	0.034	0.21	0	0.98
Cyperales	Watershed habitat loss	0.216	0.22	0	1
Dalibarda	Watershed habitat loss	0.192	0.25	0	0.51
Dalibarda repens	Watershed habitat loss	0.192	0.25	0	0.51
Dennstaedtia	Watershed habitat loss	0.857	1	0	1
Dennstaedtia punctilobula	Watershed habitat loss	0.857	1	0	1
Dennstaedtiaceae	Watershed habitat loss	0.601	0.25	0	1
Deparia	Watershed habitat loss	0.387	0.23	0	0.49
Deparia acrostichoides	Watershed habitat loss	0.387	0.23	0	0.49
Dichanthelium	Watershed habitat loss	0.579	0.34	0	0.75
Dipsacales	Watershed habitat loss	0.173	1	0	1
Doellingeria	Watershed habitat loss	0.18	0.29	0	0.73
Doellingeria umbellata	Watershed habitat loss	0.183	0.29	0	0.74
Dryopteridaceae	Watershed habitat loss	0.022	0.63	0	1
Dryopteris	Watershed habitat loss	0.84	0.36	0	1
Dryopteris carthusiana	Watershed habitat loss	0.004	0.57	0	1
Dryopteris clintoniana	Watershed habitat loss	0.472	0.29	0	0.75
Dryopteris cristata	Watershed habitat loss	0.67	0.36	0	1
Dryopteris intermedia	Watershed habitat loss	0.085	0	0	1
Epilobium	Watershed habitat loss	0.069	1	0	1
Epilobium ciliatum	Watershed habitat loss	0.452	0.11	0	0.84
Epipactis	Watershed habitat loss	0.601	0.38	0.01	0.76
Epipactis helleborine	Watershed habitat loss	0.601	0.38	0.01	0.76
Equisetaceae	Watershed habitat loss	0.83	0.44	0	1
Equisetales	Watershed habitat loss	0.83	0.44	0	1
Equisetophyta	Watershed habitat loss	0.83	0.44	0	1
Equisetopsida	Watershed habitat loss	0.83	0.44	0	1
Equisetum	Watershed habitat loss	0.83	0.44	0	1
Equisetum arvense	Watershed habitat loss	0.038	0.63	0	1
Equisetum sylvaticum	Watershed habitat loss	0.333	0.26	0	0.62
Ericaceae	Watershed habitat loss	0.097	0	0	1
Ericales	Watershed habitat loss	0.287	1	0	1
Eubotrys	Watershed habitat loss	0.312	0.52	0.32	0.72
Eubotrys racemosa	Watershed habitat loss	0.312	0.52	0.32	0.72
Euonymus	Watershed habitat loss	0	1	0.54	1
Euonymus alata	Watershed habitat loss	0	1	0.57	1
Eupatorium	Watershed habitat loss	0.037	0.56	0	1
Eupatorium maculatum	Watershed habitat loss	0.064	0.52	0.05	1
Eupatorium perfoliatum	Watershed habitat loss	0.841	1	0	1
Eurybia	Watershed habitat loss	0.493	0.24	0	0.75
Eurybia divaricata	Watershed habitat loss	0.536	0.23	0	1
Eutrochium	Watershed habitat loss	0.714	0.27	0	0.92
Eutrochium maculatum	Watershed habitat loss	0.714	0.27	0	0.92

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Fabaceae	Watershed habitat loss	0.867	0.21	0	1
Fabales	Watershed habitat loss	0.867	0.21	0	1
Fagaceae	Watershed habitat loss	0.022	0.54	0	1
Fagales	Watershed habitat loss	0.003	0.17	0	1
Fagus	Watershed habitat loss	0	0.11	0	0.73
Fagus grandifolia	Watershed habitat loss	0	0.11	0	0.73
Filicopsida	Watershed habitat loss	0.239	0.29	0	1
Fragaria	Watershed habitat loss	0.702	0.43	0	0.94
Fragaria virginiana	Watershed habitat loss	0.379	0.51	0	1
Frangula	Watershed habitat loss	0	0.78	0.14	1
Frangula alnus	Watershed habitat loss	0	0.78	0.14	1
Fraxinus	Watershed habitat loss	0.478	1	0	1
Fraxinus americana	Watershed habitat loss	0.252	1	0	1
Fraxinus nigra	Watershed habitat loss	0.39	0.31	0	0.95
Galium	Watershed habitat loss	0.812	0.44	0	1
Galium aparine	Watershed habitat loss	0.461	0	0	1
Galium asprellum	Watershed habitat loss	0.256	0.21	0	0.77
Galium palustre	Watershed habitat loss	0.867	0.42	0	1
Galium triflorum	Watershed habitat loss	0.428	1	0	1
Gaultheria	Watershed habitat loss	0.01	0.22	0	0.56
Gaultheria hispidula	Watershed habitat loss	0.181	0.2	0.02	0.38
Gaultheria procumbens	Watershed habitat loss	0.062	0.24	0	0.59
Gaylussacia	Watershed habitat loss	0.689	0.55	0.31	0.69
Gaylussacia frondosa	Watershed habitat loss	0.376	0.48	0.32	0.64
Gentianales	Watershed habitat loss	0.729	0.49	0.07	0.9
Geraniaceae	Watershed habitat loss	0.132	1	0.06	1
Geraniales	Watershed habitat loss	0.006	1	0	1
Geranium	Watershed habitat loss	0.132	1	0.06	1
Geranium maculatum	Watershed habitat loss	0.111	1	0.19	1
Geum	Watershed habitat loss	0.154	0.53	0	1
Geum canadense	Watershed habitat loss	0.096	1	0	1
Geum rivale	Watershed habitat loss	0.672	0.45	0	0.97
Glyceria	Watershed habitat loss	0.021	0	0	1
Glyceria melicaria	Watershed habitat loss	0	0	0	0.47
Glyceria striata	Watershed habitat loss	0.238	0	0	1
Grossulariaceae	Watershed habitat loss	0.663	0.4	0	1
Hamamelidaceae	Watershed habitat loss	0.007	0	0	0.91
Hamamelidales	Watershed habitat loss	0.007	0	0	0.91
Hamamelis	Watershed habitat loss	0.007	0	0	0.91
Hamamelis virginiana	Watershed habitat loss	0.007	0	0	0.91
Huperzia	Watershed habitat loss	0.076	0	0	0.38
Huperzia lucidula	Watershed habitat loss	0.076	0	0	0.38
Hydrocotyle	Watershed habitat loss	0.145	0	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Hydrocotyle americana	Watershed habitat loss	0.145	0	0	1
Ilex	Watershed habitat loss	0.785	1	0	1
Ilex mucronata	Watershed habitat loss	0.161	0	0	0.33
Ilex verticillata	Watershed habitat loss	0.564	1	0	1
Impatiens	Watershed habitat loss	0	1	0	1
Impatiens capensis	Watershed habitat loss	0	1	0	1
Iridaceae	Watershed habitat loss	0.567	0	0	1
Iris	Watershed habitat loss	0.567	0	0	1
Iris versicolor	Watershed habitat loss	0.252	0	0	1
Juglandaceae	Watershed habitat loss	0.091	1	0	1
Juglandales	Watershed habitat loss	0.091	1	0	1
Juncaceae	Watershed habitat loss	0.154	0	0	0.85
Juncales	Watershed habitat loss	0.154	0	0	0.85
Juncus	Watershed habitat loss	0.154	0	0	0.85
Juncus effusus	Watershed habitat loss	0.216	0	0	0.49
Kalmia	Watershed habitat loss	0	0	0	0.51
Kalmia angustifolia	Watershed habitat loss	0.076	0.22	0	0.66
Kalmia latifolia	Watershed habitat loss	0	0	0	0.46
Lactuca	Watershed habitat loss	0.225	1	0.45	1
Lamiaceae	Watershed habitat loss	0.31	0	0	1
Lamiales	Watershed habitat loss	0.273	0	0	1
Larix	Watershed habitat loss	0.511	0.33	0.02	0.64
Larix laricina	Watershed habitat loss	0.511	0.33	0.02	0.64
Lauraceae	Watershed habitat loss	0.006	1	0	1
Laurales	Watershed habitat loss	0.006	1	0	1
Leersia	Watershed habitat loss	0.252	1	0	1
Leersia oryzoides	Watershed habitat loss	0.426	1	0	1
Ligustrum	Watershed habitat loss	0.192	0.6	0.36	0.83
Ligustrum vulgare	Watershed habitat loss	0.192	0.6	0.36	0.83
Liliaceae	Watershed habitat loss	0	0	0	1
Liliales	Watershed habitat loss	0.914	0.68	0	1
Liliopsida	Watershed habitat loss	0.865	0.46	0	1
Lilium	Watershed habitat loss	0.582	0.32	0	1
Lilium canadense	Watershed habitat loss	0.593	0.3	0	1
Lindera	Watershed habitat loss	0.004	1	0	1
Lindera benzoin	Watershed habitat loss	0.004	1	0	1
Lonicera	Watershed habitat loss	0.652	0.8	0	1
Lonicera canadensis	Watershed habitat loss	0.069	0	0	0.49
Lonicera morrowii	Watershed habitat loss	0.004	1	0.02	1
Lycopodiaceae	Watershed habitat loss	0.001	0	0	0.76
Lycopodiales	Watershed habitat loss	0.001	0	0	0.76
Lycopodiophyta	Watershed habitat loss	0.001	0	0	0.76
Lycopodiopsida	Watershed habitat loss	0.001	0	0	0.76

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Lycopodium	Watershed habitat loss	0.034	0.08	0	0.81
Lycopodium hickeyi	Watershed habitat loss	0.31	0	0	0.41
Lycopodium obscurum	Watershed habitat loss	0.1	0.16	0	0.85
Lycopus	Watershed habitat loss	0.003	0	0	1
Lycopus uniflorus	Watershed habitat loss	0.001	0	0	0.35
Lyonia	Watershed habitat loss	0.518	0.38	0	0.92
Lyonia ligustrina	Watershed habitat loss	0.518	0.38	0	0.92
Lysimachia	Watershed habitat loss	0.633	0.38	0	0.97
Lysimachia borealis	Watershed habitat loss	0.298	0.56	0.3	0.81
Lysimachia ciliata	Watershed habitat loss	0.67	0.37	0	1
Lysimachia terrestris	Watershed habitat loss	0.207	0.31	0	0.76
Lythraceae	Watershed habitat loss	0.145	1	0.4	1
Magnoliophyta	Watershed habitat loss	0	0.93	0	1
Magnoliopsida	Watershed habitat loss	0	0.86	0	1
Maianthemum	Watershed habitat loss	0.001	0.05	0	1
Maianthemum canadense	Watershed habitat loss	0.022	0.13	0	1
Maianthemum racemosum	Watershed habitat loss	0.038	1	0.13	1
Malus	Watershed habitat loss	0.023	1	0.09	1
Malus pumila	Watershed habitat loss	0.051	1	0.12	1
Malvales	Watershed habitat loss	0.181	0.66	0.26	0.92
Medeola	Watershed habitat loss	0	0.06	0	0.69
Medeola virginiana	Watershed habitat loss	0	0.06	0	0.69
Mitchella	Watershed habitat loss	0	0.27	0	0.93
Mitchella repens	Watershed habitat loss	0	0.27	0	0.93
Monotropa	Watershed habitat loss	0.014	0	0	0.71
Monotropa uniflora	Watershed habitat loss	0.014	0	0	0.71
Monotropaceae	Watershed habitat loss	0.014	0	0	0.71
Myrtales	Watershed habitat loss	0	1	0	1
Nasturtium	Watershed habitat loss	0.25	1	0	1
Nasturtium officinale	Watershed habitat loss	0.25	1	0	1
Nemopanthus	Watershed habitat loss	0	0	0	0.51
Nemopanthus mucronatus	Watershed habitat loss	0	0	0	0.51
Nyssa	Watershed habitat loss	0.406	0	0	1
Nyssa sylvatica	Watershed habitat loss	0.406	0	0	1
Nyssaceae	Watershed habitat loss	0.406	0	0	1
Oclemena	Watershed habitat loss	0	0	0	0.63
Oclemena acuminata	Watershed habitat loss	0	0	0	0.63
Oleaceae	Watershed habitat loss	0.448	1	0	1
Onagraceae	Watershed habitat loss	0.001	1	0	1
Onoclea	Watershed habitat loss	0.024	0.63	0	1
Onoclea sensibilis	Watershed habitat loss	0.024	0.63	0	1
Orchidaceae	Watershed habitat loss	0.203	0.19	0	0.94
Orchidales	Watershed habitat loss	0.203	0.19	0	0.94

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Osmunda	Watershed habitat loss	0.055	0.11	0	0.96
Osmunda cinnamomea	Watershed habitat loss	0.021	0.06	0	0.94
Osmunda claytoniana	Watershed habitat loss	0.988	0.37	0	1
Osmunda regalis	Watershed habitat loss	0	0.5	0	1
Osmundaceae	Watershed habitat loss	0.055	0.11	0	0.96
Ostrya	Watershed habitat loss	0.488	1	0.02	1
Ostrya virginiana	Watershed habitat loss	0.488	1	0.02	1
Oxalidaceae	Watershed habitat loss	0.011	0	0	0.9
Oxalis	Watershed habitat loss	0.011	0	0	0.9
Oxalis montana	Watershed habitat loss	0.001	0.04	0	0.46
Oxalis stricta	Watershed habitat loss	0.076	0.73	0.22	1
Packera	Watershed habitat loss	0.385	0.01	0	0.75
Packera aurea	Watershed habitat loss	0.385	0.01	0	0.75
Parthenocissus	Watershed habitat loss	0	0.95	0	1
Parthenocissus quinquefolia	Watershed habitat loss	0	0.95	0	1
Persicaria	Watershed habitat loss	0.217	0.56	0.45	0.66
Phegopteris	Watershed habitat loss	0.089	0.14	0	0.46
Phegopteris Connectednessilis	Watershed habitat loss	0.151	0.15	0	0.48
Photinia	Watershed habitat loss	0.242	0.13	0	1
Photinia melanocarpa	Watershed habitat loss	0.718	0.35	0	1
Photinia pyrifolia	Watershed habitat loss	0.238	0	0	1
Physocarpus	Watershed habitat loss	0.092	1	0.5	1
Physocarpus opulifolius	Watershed habitat loss	0.092	1	0.5	1
Picea	Watershed habitat loss	0	0	0	0.47
Picea rubens	Watershed habitat loss	0	0.02	0	0.45
Pilea	Watershed habitat loss	0.109	1	0	1
Pilea pumila	Watershed habitat loss	0.109	1	0	1
Pinaceae	Watershed habitat loss	0	0	0	0.7
Pinales	Watershed habitat loss	0	0	0	0.72
Pinopsida	Watershed habitat loss	0	0	0	0.72
Pinus	Watershed habitat loss	0.879	0.46	0	1
Pinus strobus	Watershed habitat loss	0.908	0.46	0	1
Platanthera	Watershed habitat loss	0.199	0	0	0.93
Platanthera clavellata	Watershed habitat loss	0.289	0	0	0.61
Poaceae	Watershed habitat loss	0.932	0.44	0	1
Polygonaceae	Watershed habitat loss	0.041	0.6	0	1
Polygonales	Watershed habitat loss	0.041	0.6	0	1
Polygonatum	Watershed habitat loss	0.515	0	0	1
Polygonatum pubescens	Watershed habitat loss	0.515	0	0	1
Polygonum	Watershed habitat loss	0.785	0.38	0	1
Polygonum arifolium	Watershed habitat loss	0.736	0.42	0	1
Polygonum sagittatum	Watershed habitat loss	0.29	0.18	0	0.68
Polygonum virginianum	Watershed habitat loss	0.209	1	0.13	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Polypodiales	Watershed habitat loss	0.241	0.29	0	1
Polystichum	Watershed habitat loss	0.934	0.41	0	1
Polystichum acrostichoides	Watershed habitat loss	0.934	0.41	0	1
Populus	Watershed habitat loss	0.61	0.49	0.03	0.89
Populus grandidentata	Watershed habitat loss	0.53	1	0	1
Populus tremuloides	Watershed habitat loss	0.924	0.45	0.09	0.82
Potentilla	Watershed habitat loss	0.691	0.41	0	0.98
Potentilla simplex	Watershed habitat loss	0.713	0.39	0	0.92
Prenanthes	Watershed habitat loss	0.086	0.06	0	0.83
Prenanthes altissima	Watershed habitat loss	0.567	0.36	0.04	0.68
Primulaceae	Watershed habitat loss	0	0.25	0	0.77
Primulales	Watershed habitat loss	0	0.24	0	0.75
Prunella	Watershed habitat loss	0.622	0.39	0	0.82
Prunella vulgaris	Watershed habitat loss	0.622	0.39	0	0.82
Prunus	Watershed habitat loss	0.861	0.44	0	1
Prunus serotina	Watershed habitat loss	0.772	0.42	0	1
Prunus virginiana	Watershed habitat loss	0.199	0.5	0	1
Pteridium	Watershed habitat loss	0.518	0.31	0.05	0.57
Pteridium aquilinum	Watershed habitat loss	0.518	0.31	0.05	0.57
Pteridophyta	Watershed habitat loss	0.239	0.29	0	1
Pyrola	Watershed habitat loss	0.652	0.43	0.13	0.72
Pyrola elliptica	Watershed habitat loss	0.62	0.4	0.09	0.71
Pyrolaceae	Watershed habitat loss	0.785	0.45	0	0.96
Quercus	Watershed habitat loss	0	0.88	0	1
Quercus alba	Watershed habitat loss	0.006	1	0.02	1
Quercus bicolor	Watershed habitat loss	0	1	0.42	1
Quercus rubra	Watershed habitat loss	0.021	0.9	0	1
Ranunculaceae	Watershed habitat loss	0	0.17	0	0.78
Ranunculales	Watershed habitat loss	0	0	0	1
Ranunculus	Watershed habitat loss	0.567	0.32	0	1
Ranunculus abortivus	Watershed habitat loss	0.481	1	0	1
Ranunculus hispidus	Watershed habitat loss	0.345	0.18	0	0.93
Ranunculus recurvatus	Watershed habitat loss	0.943	0.46	0	1
Rhamnaceae	Watershed habitat loss	0	0.76	0.12	1
Rhamnales	Watershed habitat loss	0	0.54	0	1
Rhamnus	Watershed habitat loss	0.003	1	0.07	1
Rhamnus cathartica	Watershed habitat loss	0.001	1	0.13	1
Rhododendron	Watershed habitat loss	0.048	1	0	1
Rhododendron prinophyllum	Watershed habitat loss	0.011	0	0	0.36
Rhododendron viscosum	Watershed habitat loss	0	1	0.02	1
Ribes	Watershed habitat loss	0.663	0.4	0	1
Rosa	Watershed habitat loss	0	1	0.13	1
Rosa multiflora	Watershed habitat loss	0	1	0.19	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Rosa palustris	Watershed habitat loss	0.114	0.87	0.07	1
Rosaceae	Watershed habitat loss	0.028	1	0	1
Rosales	Watershed habitat loss	0.465	0.74	0	1
Rubiaceae	Watershed habitat loss	0.133	0.33	0	1
Rubiales	Watershed habitat loss	0.133	0.33	0	1
Rubus	Watershed habitat loss	0.451	0.34	0	1
Rubus allegheniensis	Watershed habitat loss	0.467	0	0	0.86
Rubus hispidus	Watershed habitat loss	0.936	0.07	0	1
Rubus idaeus	Watershed habitat loss	0.768	0.44	0	1
Rubus occidentalis	Watershed habitat loss	0.616	0.58	0	1
Rubus pubescens	Watershed habitat loss	0.022	0.3	0	0.78
Salicaceae	Watershed habitat loss	0.691	0.54	0.02	0.95
Salicales	Watershed habitat loss	0.691	0.54	0.02	0.95
Salix	Watershed habitat loss	0.423	0.51	0.17	0.82
Sambucus	Watershed habitat loss	0.003	1	0	1
Sambucus canadensis	Watershed habitat loss	0.003	1	0	1
Sapindales	Watershed habitat loss	0	1	0	1
Saxifraga	Watershed habitat loss	0.17	0.23	0	0.7
Saxifraga pensylvanica	Watershed habitat loss	0.22	0.25	0	0.7
Saxifragaceae	Watershed habitat loss	0.035	0.07	0	0.79
Scirpus	Watershed habitat loss	0.352	0	0	0.82
Scrophulariaceae	Watershed habitat loss	0.014	0	0	1
Scrophulariales	Watershed habitat loss	0.851	1	0	1
Scutellaria	Watershed habitat loss	0.168	1	0	1
Scutellaria lateriflora	Watershed habitat loss	0.019	1	0	1
Senecio	Watershed habitat loss	0.392	0.81	0	1
Senecio aureus	Watershed habitat loss	0.392	0.81	0	1
Smilacaceae	Watershed habitat loss	0.001	0.83	0.19	1
Smilax	Watershed habitat loss	0.001	0.83	0.19	1
Smilax herbacea	Watershed habitat loss	0.095	1	0.21	1
Smilax rotundifolia	Watershed habitat loss	0.098	0.84	0.23	1
Solanaceae	Watershed habitat loss	0	1	0.17	1
Solanales	Watershed habitat loss	0	0.98	0.16	1
Solanum	Watershed habitat loss	0	1	0.17	1
Solanum dulcamara	Watershed habitat loss	0	0.85	0.16	1
Solidago	Watershed habitat loss	0.983	0.44	0	0.95
Solidago gigantea	Watershed habitat loss	0.041	0.49	0	0.96
Solidago patula	Watershed habitat loss	0.67	0.4	0	0.84
Solidago rugosa	Watershed habitat loss	0.916	0.49	0	1
Sorbus	Watershed habitat loss	0.011	0.02	0	0.61
Sorbus americana	Watershed habitat loss	0.006	0.06	0	0.56
Spiraea	Watershed habitat loss	0.354	0.37	0	0.87
Spiraea alba	Watershed habitat loss	0.383	0.37	0	0.87

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Symphyotrichum	Watershed habitat loss	0.673	0.37	0	1
Symphyotrichum lateriflorum	Watershed habitat loss	0.18	0.02	0	1
Symphyotrichum puniceum	Watershed habitat loss	0.412	0.33	0	0.99
Symplocarpus	Watershed habitat loss	0	0.98	0.06	1
Symplocarpus foetidus	Watershed habitat loss	0	0.98	0.06	1
Taxaceae	Watershed habitat loss	0.92	1	0	1
Taxales	Watershed habitat loss	0.92	1	0	1
Taxus	Watershed habitat loss	0.92	1	0	1
Taxus canadensis	Watershed habitat loss	0.463	0.24	0	0.64
Thalictrum	Watershed habitat loss	0.105	0.51	0	1
Thalictrum pubescens	Watershed habitat loss	0.123	0.52	0	1
Theales	Watershed habitat loss	0.442	0.24	0	0.67
Thelypteridaceae	Watershed habitat loss	0.038	0.12	0	0.93
Thelypteris	Watershed habitat loss	0.079	0.12	0	0.93
Thelypteris noveboracensis	Watershed habitat loss	0.017	0	0	1
Thelypteris palustris	Watershed habitat loss	0.978	0.61	0	1
Thelypteris simulata	Watershed habitat loss	0.865	0.45	0	1
Tiarella	Watershed habitat loss	0.073	0.09	0	0.76
Tiarella cordifolia	Watershed habitat loss	0.073	0.09	0	0.76
Tilia	Watershed habitat loss	0.181	0.66	0.26	0.92
Tilia americana	Watershed habitat loss	0.295	0.57	0.23	0.89
Tiliaceae	Watershed habitat loss	0.181	0.66	0.26	0.92
Toxicodendron	Watershed habitat loss	0	0.94	0	1
Toxicodendron radicans	Watershed habitat loss	0	0.97	0	1
Toxicodendron vernix	Watershed habitat loss	0.001	1	0.28	1
Triadenum	Watershed habitat loss	0.608	0.38	0	0.92
Triadenum virginicum	Watershed habitat loss	0.516	0.3	0	0.68
Trientalis	Watershed habitat loss	0	0.11	0	0.85
Trientalis borealis	Watershed habitat loss	0	0.11	0	0.85
Trillium	Watershed habitat loss	0.055	0.14	0	0.62
Trillium undulatum	Watershed habitat loss	0.1	0.06	0	0.59
Tsuga	Watershed habitat loss	0	0	0	0.56
Tsuga canadensis	Watershed habitat loss	0	0	0	0.56
Typhales	Watershed habitat loss	0.397	0.21	0	1
Ulmaceae	Watershed habitat loss	0	1	0.28	1
Ulmus	Watershed habitat loss	0	1	0.28	1
Ulmus americana	Watershed habitat loss	0	1	0.27	1
Urticaceae	Watershed habitat loss	0	0.99	0.16	1
Urticales	Watershed habitat loss	0	1	0.28	1
Uvularia	Watershed habitat loss	0.004	0	0	1
Uvularia sessilifolia	Watershed habitat loss	0.004	0	0	1
Vaccinium	Watershed habitat loss	0.618	0.75	0	1
Vaccinium angustifolium	Watershed habitat loss	0.109	0.21	0	0.7

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Vaccinium corymbosum	Watershed habitat loss	0.013	1	0	1
Vaccinium myrtilloides	Watershed habitat loss	0.238	0.25	0.06	0.44
Veratrum	Watershed habitat loss	0.377	0.22	0	0.56
Veratrum viride	Watershed habitat loss	0.377	0.22	0	0.56
Veronica	Watershed habitat loss	0.236	1	0	1
Veronica officinalis	Watershed habitat loss	0.338	1	0	1
Viburnum	Watershed habitat loss	0.516	0.42	0	1
Viburnum acerifolium	Watershed habitat loss	0.337	0.55	0.23	0.88
Viburnum dentatum	Watershed habitat loss	0	0.67	0	1
Viburnum lantanoides	Watershed habitat loss	0.001	0	0	0.5
Viburnum lentago	Watershed habitat loss	0.982	0.4	0	1
Viburnum nudum	Watershed habitat loss	0	0.2	0	0.81
Viola	Watershed habitat loss	0.041	0	0	1
Viola cucullata	Watershed habitat loss	0.241	0.05	0	0.46
Violaceae	Watershed habitat loss	0.041	0	0	1
Violales	Watershed habitat loss	0.068	0	0	1
Vitaceae	Watershed habitat loss	0	1	0.16	1
Vitis	Watershed habitat loss	0	1	0.23	1
Vitis labrusca	Watershed habitat loss	0	1	0.33	1
Woodwardia	Watershed habitat loss	0.312	0.55	0.14	0.98
Woodwardia virginica	Watershed habitat loss	0.868	0.55	0.02	1
Zizia	Watershed habitat loss	0.387	0.45	0.23	0.66
Zizia aurea	Watershed habitat loss	0.387	0.45	0.23	0.66
Abies	Invasive worms	0.019	0.12	0	0.55
Abies balsamea	Invasive worms	0.019	0.12	0	0.55
Acer	Invasive worms	0	1	0	1
Acer pensylvanicum	Invasive worms	0.003	0.04	0	0.45
Acer platanoides	Invasive worms	0.003	0.84	0.38	1
Acer rubrum	Invasive worms	0	0.87	0	1
Acer saccharum	Invasive worms	0.021	1	0	1
Acer spicatum	Invasive worms	0.081	0	0	0.45
Aceraceae	Invasive worms	0	1	0	1
Ageratina	Invasive worms	0.616	0.38	0.03	0.74
Ageratina altissima	Invasive worms	0.616	0.38	0.03	0.74
Agrostis	Invasive worms	0.229	0	0	0.31
Alnus	Invasive worms	0.139	0.51	0	1
Alnus incana	Invasive worms	0.266	0.49	0	1
Amelanchier	Invasive worms	0.443	0.45	0	1
Amphicarpaea	Invasive worms	0.567	0.31	0	0.86
Amphicarpaea bracteata	Invasive worms	0.567	0.31	0	0.86
Anacardiaceae	Invasive worms	0	0.85	0	1
Anemone	Invasive worms	0.613	0	0	1
Anemone quinquefolia	Invasive worms	0.687	0	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Apiaceae	Invasive worms	0.844	1	0	1
Apiales	Invasive worms	0	0	0	1
Aquifoliaceae	Invasive worms	0.703	0.38	0	1
Araceae	Invasive worms	0	0.48	0	1
Arales	Invasive worms	0	0.49	0	1
Aralia	Invasive worms	0	0.05	0	1
Aralia nudicaulis	Invasive worms	0	0.08	0	1
Araliaceae	Invasive worms	0	0.06	0	1
Arisaema	Invasive worms	0	0.59	0	1
Arisaema triphyllum	Invasive worms	0	0.59	0	1
Aster	Invasive worms	0	0.68	0	1
Aster divaricatus	Invasive worms	0.028	1	0	1
Asteraceae	Invasive worms	0.08	0.99	0	1
Asterales	Invasive worms	0.08	0.99	0	1
Athyrium	Invasive worms	0	1	0	1
Athyrium filix-femina	Invasive worms	0	1	0	1
Balsaminaceae	Invasive worms	0	0.97	0	1
Berberidaceae	Invasive worms	0	1	0	1
Berberis	Invasive worms	0	1	0	1
Berberis thunbergii	Invasive worms	0	1	0	1
Betula	Invasive worms	0	0	0	0.9
Betula alleghaniensis	Invasive worms	0	0	0	0.62
Betula lenta	Invasive worms	0.409	1	0	1
Betula papyrifera	Invasive worms	0.752	1	0	1
Betula populifolia	Invasive worms	0.262	0.55	0.04	1
Betulaceae	Invasive worms	0	0	0	1
Bidens	Invasive worms	0	0.95	0.02	1
Bidens frondosa	Invasive worms	0	0.98	0.2	1
Bidens tripartita	Invasive worms	0.712	0.48	0	1
Blechnaceae	Invasive worms	0.395	0	0	1
Boehmeria	Invasive worms	0	0.99	0	1
Boehmeria cylindrica	Invasive worms	0	0.99	0	1
Brachyelytrum	Invasive worms	0.09	0.06	0	1
Brachyelytrum erectum	Invasive worms	0.291	0.15	0	0.74
Brachyelytrum septentrionale	Invasive worms	0.355	0.09	0	1
Brassicaceae	Invasive worms	0.011	1	0	1
Calamagrostis	Invasive worms	0.834	0.44	0	0.96
Calamagrostis canadensis	Invasive worms	0.965	0.48	0	0.95
Caltha	Invasive worms	0.736	0	0	1
Caltha palustris	Invasive worms	0.736	0	0	1
Capparales	Invasive worms	0.011	1	0	1
Caprifoliaceae	Invasive worms	0.002	0.83	0	1
Cardamine	Invasive worms	0.344	0	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Carex	Invasive worms	0.118	0.26	0	0.97
Carex bromoides	Invasive worms	0.658	0.39	0.07	0.72
Carex crinita	Invasive worms	0.065	1	0.1	1
Carex debilis	Invasive worms	0.635	0	0	1
Carex disperma	Invasive worms	0.269	0.09	0	0.32
Carex folliculata	Invasive worms	0.019	0.14	0	0.84
Carex gracillima	Invasive worms	0.901	0.61	0	1
Carex gynandra	Invasive worms	0.027	0	0	0.8
Carex intumescens	Invasive worms	0.291	0.31	0	0.97
Carex leptalea	Invasive worms	0.38	0	0	0.9
Carex lurida	Invasive worms	0.526	0.28	0	1
Carex scabrata	Invasive worms	0.235	0	0	0.6
Carex stipata	Invasive worms	0.954	0.51	0	1
Carex stricta	Invasive worms	0.005	0.59	0.03	1
Carex trisperma	Invasive worms	0	0	0	0.52
Carpinus	Invasive worms	0.723	0.45	0.06	0.93
Carpinus caroliniana	Invasive worms	0.723	0.45	0.06	0.93
Carya	Invasive worms	0.003	0.81	0	1
Carya cordiformis	Invasive worms	0.678	0.4	0.09	0.69
Carya ovata	Invasive worms	0.056	1	0.06	1
Celastraceae	Invasive worms	0	1	0.2	1
Celastrales	Invasive worms	0.803	0.45	0	1
Celastrus	Invasive worms	0	0.66	0	1
Celastrus orbiculatus	Invasive worms	0	0.66	0	1
Chamaecyparis	Invasive worms	0.69	0	0	1
Chamaecyparis thyoides	Invasive worms	0.69	0	0	1
Chelone	Invasive worms	0.593	0.13	0	1
Chelone glabra	Invasive worms	0.593	0.13	0	1
Chrysosplenium	Invasive worms	0.378	0.15	0	1
Chrysosplenium americanum	Invasive worms	0.378	0.15	0	1
Cicuta	Invasive worms	0.703	0.43	0	1
Cicuta maculata	Invasive worms	0.456	0.64	0	1
Cinna	Invasive worms	0.08	0	0	1
Cinna latifolia	Invasive worms	0.21	0	0	0.93
Circaea	Invasive worms	0.005	1	0	1
Circaea alpina	Invasive worms	0.192	0.06	0	0.27
Circaea lutetiana	Invasive worms	0	1	0	1
Clematis	Invasive worms	0.941	0.58	0	1
Clematis virginiana	Invasive worms	0.941	0.58	0	1
Clethra	Invasive worms	0.265	0	0	0.95
Clethra alnifolia	Invasive worms	0.265	0	0	0.95
Clethraceae	Invasive worms	0.265	0	0	0.95
Clintonia	Invasive worms	0	0	0	0.5

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Clintonia borealis	Invasive worms	0	0	0	0.5
Clusiaceae	Invasive worms	0.536	0.31	0	0.66
Coniferophyta	Invasive worms	0	0	0	0.78
Coptis	Invasive worms	0	0	0	0.71
Coptis trifolia	Invasive worms	0	0	0	0.71
Cornaceae	Invasive worms	0.076	0.61	0	1
Cornales	Invasive worms	0.895	0.24	0	1
Cornus	Invasive worms	0.076	0.61	0	1
Cornus alternifolia	Invasive worms	0.003	0.9	0.13	1
Cornus amomum	Invasive worms	0	0.84	0.17	1
Cornus canadensis	Invasive worms	0.003	0.03	0	0.65
Cornus racemosa	Invasive worms	0.54	0.5	0.13	0.92
Cornus sericea	Invasive worms	0.587	0.47	0.06	0.86
Corylus	Invasive worms	0.037	0.75	0	1
Corylus americana	Invasive worms	0.02	0.99	0	1
Corylus cornuta	Invasive worms	0.639	0.32	0	1
Crataegus	Invasive worms	0.691	0.43	0	0.86
Cupressaceae	Invasive worms	0.915	0.99	0	1
Cyperaceae	Invasive worms	0.098	0.25	0	0.97
Cyperales	Invasive worms	0.325	0.27	0	1
Dalibarda	Invasive worms	0.339	0.16	0	0.84
Dalibarda repens	Invasive worms	0.339	0.16	0	0.84
Dennstaedtia	Invasive worms	0.78	0.99	0	1
Dennstaedtia punctilobula	Invasive worms	0.78	0.99	0	1
Dennstaedtiaceae	Invasive worms	0.439	0.49	0	1
Deparia	Invasive worms	0.549	0	0	1
Deparia acrostichoides	Invasive worms	0.549	0	0	1
Dichanthelium	Invasive worms	0.562	0.31	0	0.7
Dipsacales	Invasive worms	0.002	0.83	0	1
Doellingeria	Invasive worms	0.565	0.29	0	1
Doellingeria umbellata	Invasive worms	0.582	0.26	0	1
Dryopteridaceae	Invasive worms	0.003	0.99	0	1
Dryopteris	Invasive worms	0.272	0	0	1
Dryopteris carthusiana	Invasive worms	0.01	1	0	1
Dryopteris clintoniana	Invasive worms	0.402	0.19	0	0.72
Dryopteris cristata	Invasive worms	0.579	0.59	0	1
Dryopteris intermedia	Invasive worms	0.424	0	0	1
Epilobium	Invasive worms	0.001	1	0	1
Epilobium ciliatum	Invasive worms	0.533	0	0	1
Epipactis	Invasive worms	0.378	0.27	0	0.7
Epipactis helleborine	Invasive worms	0.378	0.27	0	0.7
Equisetaceae	Invasive worms	0.844	0.5	0	1
Equisetales	Invasive worms	0.844	0.5	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Equisetophyta	Invasive worms	0.844	0.5	0	1
Equisetopsida	Invasive worms	0.844	0.5	0	1
Equisetum	Invasive worms	0.844	0.5	0	1
Equisetum arvense	Invasive worms	0.003	0.64	0.03	1
Equisetum sylvaticum	Invasive worms	0.438	0.29	0	0.69
Ericaceae	Invasive worms	0.02	0.01	0	1
Ericales	Invasive worms	0.012	0	0	1
Eubotrys	Invasive worms	0.373	0.03	0	1
Eubotrys racemosa	Invasive worms	0.373	0.03	0	1
Euonymus	Invasive worms	0	1	0.46	1
Euonymus alata	Invasive worms	0	1	0.48	1
Eupatorium	Invasive worms	0.02	0.65	0	1
Eupatorium maculatum	Invasive worms	0.083	0.67	0	1
Eupatorium perfoliatum	Invasive worms	0.067	0.6	0	1
Eurybia	Invasive worms	0.657	0.02	0	1
Eurybia divaricata	Invasive worms	0.956	1	0	1
Eutrochium	Invasive worms	0.327	0	0	0.39
Eutrochium maculatum	Invasive worms	0.327	0	0	0.39
Fabaceae	Invasive worms	0.213	1	0	1
Fabales	Invasive worms	0.213	1	0	1
Fagaceae	Invasive worms	0.069	1	0	1
Fagales	Invasive worms	0.002	0	0	1
Fagus	Invasive worms	0.019	0	0	1
Fagus grandifolia	Invasive worms	0.019	0	0	1
Filicopsida	Invasive worms	0.056	0	0	1
Fragaria	Invasive worms	0.703	0.48	0	1
Fragaria virginiana	Invasive worms	0.337	0.48	0.04	1
Frangula	Invasive worms	0.002	0.79	0	1
Frangula alnus	Invasive worms	0.002	0.79	0	1
Fraxinus	Invasive worms	0.006	1	0	1
Fraxinus americana	Invasive worms	0.002	1	0	1
Fraxinus nigra	Invasive worms	0.38	0.19	0	1
Galium	Invasive worms	0.21	0.61	0	1
Galium aparine	Invasive worms	0.577	0	0	1
Galium asprellum	Invasive worms	0.401	0	0	1
Galium palustre	Invasive worms	0.502	0	0	1
Galium triflorum	Invasive worms	0.753	0.45	0.02	0.89
Gaultheria	Invasive worms	0.179	0.26	0	0.79
Gaultheria hispidula	Invasive worms	0.259	0.15	0	0.49
Gaultheria procumbens	Invasive worms	0.399	0.33	0	0.84
Gaylussacia	Invasive worms	0.867	0	0	1
Gaylussacia frondosa	Invasive worms	0.407	0	0	1
Gentianales	Invasive worms	0.826	0.37	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Geraniaceae	Invasive worms	0.003	1	0.34	1
Geraniales	Invasive worms	0	1	0	1
Geranium	Invasive worms	0.003	1	0.34	1
Geranium maculatum	Invasive worms	0.006	1	0.36	1
Geum	Invasive worms	0.005	0.6	0	1
Geum canadense	Invasive worms	0.135	0.6	0.11	1
Geum rivale	Invasive worms	0.696	0.41	0	0.85
Glyceria	Invasive worms	0.108	0	0	1
Glyceria melicaria	Invasive worms	0.01	0	0	0.56
Glyceria striata	Invasive worms	0.244	0.25	0	0.64
Grossulariaceae	Invasive worms	0.573	0.51	0	1
Hamamelidaceae	Invasive worms	0.09	0	0	1
Hamamelidales	Invasive worms	0.09	0	0	1
Hamamelis	Invasive worms	0.09	0	0	1
Hamamelis virginiana	Invasive worms	0.09	0	0	1
Huperzia	Invasive worms	0.169	0	0	0.39
Huperzia lucidula	Invasive worms	0.169	0	0	0.39
Hydrocotyle	Invasive worms	0.117	0	0	1
Hydrocotyle americana	Invasive worms	0.117	0	0	1
Ilex	Invasive worms	0.716	0.4	0	1
Ilex mucronata	Invasive worms	0.257	0	0	0.36
Ilex verticillata	Invasive worms	0.878	0.43	0	1
Impatiens	Invasive worms	0	0.97	0	1
Impatiens capensis	Invasive worms	0	0.97	0	1
Iridaceae	Invasive worms	0.67	0.41	0	1
Iris	Invasive worms	0.67	0.41	0	1
Iris versicolor	Invasive worms	0.553	0.36	0	1
Juglandaceae	Invasive worms	0.003	0.83	0	1
Juglandales	Invasive worms	0.003	0.83	0	1
Juncaceae	Invasive worms	0.358	0	0	1
Juncales	Invasive worms	0.358	0	0	1
Juncus	Invasive worms	0.358	0	0	1
Juncus effusus	Invasive worms	0.246	0	0	0.4
Kalmia	Invasive worms	0.003	0	0	0.58
Kalmia angustifolia	Invasive worms	0.419	0.33	0	0.83
Kalmia latifolia	Invasive worms	0.006	0	0	0.58
Lactuca	Invasive worms	0.113	1	0.46	1
Lamiaceae	Invasive worms	0.768	0.1	0	1
Lamiales	Invasive worms	0.774	0.2	0	1
Larix	Invasive worms	0.418	0.4	0.05	0.73
Larix laricina	Invasive worms	0.662	0.4	0.05	0.73
Lauraceae	Invasive worms	0.001	1	0	1
Laurales	Invasive worms	0.001	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Leersia	Invasive worms	0.196	0.8	0	1
Leersia oryzoides	Invasive worms	0.617	1	0	1
Ligustrum	Invasive worms	0.056	0.68	0.38	0.99
Ligustrum vulgare	Invasive worms	0.056	0.68	0.38	0.99
Liliaceae	Invasive worms	0.006	0	0	1
Liliales	Invasive worms	0.038	0.04	0	1
Liliopsida	Invasive worms	0.359	0.29	0	1
Lilium	Invasive worms	0.486	0.3	0.02	0.59
Lilium canadense	Invasive worms	0.49	0.3	0	0.6
Lindera	Invasive worms	0.001	1	0	1
Lindera benzoin	Invasive worms	0.001	1	0	1
Lonicera	Invasive worms	0.006	0.61	0	1
Lonicera canadensis	Invasive worms	0.041	0	0	0.3
Lonicera morrowii	Invasive worms	0	0.84	0.25	1
Lycopodiaceae	Invasive worms	0.034	0	0	0.97
Lycopodiales	Invasive worms	0.034	0	0	0.97
Lycopodiophyta	Invasive worms	0.034	0	0	0.97
Lycopodiopsida	Invasive worms	0.034	0	0	0.97
Lycopodium	Invasive worms	0.223	0.23	0	0.93
Lycopodium hickeyi	Invasive worms	0.369	0.17	0	0.44
Lycopodium obscurum	Invasive worms	0.409	0.33	0	1
Lycopus	Invasive worms	0.025	0	0	1
Lycopus uniflorus	Invasive worms	0.022	0	0	0.46
Lyonia	Invasive worms	0.745	0.45	0	1
Lyonia ligustrina	Invasive worms	0.745	0.45	0	1
Lysimachia	Invasive worms	0.374	0.38	0	1
Lysimachia borealis	Invasive worms	0.341	0	0	0.63
Lysimachia ciliata	Invasive worms	0.742	0.57	0	1
Lysimachia terrestris	Invasive worms	0.187	0.29	0	0.75
Lythraceae	Invasive worms	0.169	0.95	0.02	1
Magnoliophyta	Invasive worms	0	1	0	1
Magnoliopsida	Invasive worms	0	0.9	0	1
Maianthemum	Invasive worms	0.002	0.04	0	1
Maianthemum canadense	Invasive worms	0.261	0.1	0	1
Maianthemum racemosum	Invasive worms	0	1	0.41	1
Malus	Invasive worms	0	1	0.23	1
Malus pumila	Invasive worms	0.003	0.95	0.36	1
Malvales	Invasive worms	0.269	0.86	0.02	1
Medeola	Invasive worms	0.002	0	0	0.87
Medeola virginiana	Invasive worms	0.002	0	0	0.87
Mitchella	Invasive worms	0	0.05	0	1
Mitchella repens	Invasive worms	0	0.05	0	1
Monotropa	Invasive worms	0.027	0	0	0.82

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Monotropa uniflora	Invasive worms	0.027	0	0	0.82
Monotropaceae	Invasive worms	0.027	0	0	0.82
Myrtales	Invasive worms	0	1	0	1
Nasturtium	Invasive worms	0.036	1	0.07	1
Nasturtium officinale	Invasive worms	0.036	1	0.07	1
Nemopanthus	Invasive worms	0.005	0	0	0.69
Nemopanthus mucronatus	Invasive worms	0.005	0	0	0.69
Nyssa	Invasive worms	0.074	0	0	1
Nyssa sylvatica	Invasive worms	0.074	0	0	1
Nyssaceae	Invasive worms	0.074	0	0	1
Oclemena	Invasive worms	0	0	0	0.65
Oclemena acuminata	Invasive worms	0	0	0	0.65
Oleaceae	Invasive worms	0.005	1	0	1
Onagraceae	Invasive worms	0	1	0	1
Onoclea	Invasive worms	0.003	0.71	0	1
Onoclea sensibilis	Invasive worms	0.003	0.71	0	1
Orchidaceae	Invasive worms	0.278	0.24	0	0.91
Orchidales	Invasive worms	0.278	0.24	0	0.91
Osmunda	Invasive worms	0.066	0.02	0	1
Osmunda cinnamomea	Invasive worms	0.011	0	0	1
Osmunda claytoniana	Invasive worms	0.458	1	0	1
Osmunda regalis	Invasive worms	0	0.44	0	1
Osmundaceae	Invasive worms	0.066	0.02	0	1
Ostrya	Invasive worms	0.872	1	0	1
Ostrya virginiana	Invasive worms	0.872	1	0	1
Oxalidaceae	Invasive worms	0.085	0	0	1
Oxalis	Invasive worms	0.085	0	0	1
Oxalis montana	Invasive worms	0.006	0	0	0.41
Oxalis stricta	Invasive worms	0.003	1	0.29	1
Packera	Invasive worms	0.381	0.08	0	1
Packera aurea	Invasive worms	0.381	0.08	0	1
Parthenocissus	Invasive worms	0	0.8	0	1
Parthenocissus quinquefolia	Invasive worms	0	0.8	0	1
Persicaria	Invasive worms	0.559	0.01	0	0.71
Phegopteris	Invasive worms	0.056	0	0	0.35
Phegopteris Connectednessilis	Invasive worms	0.093	0	0	0.36
Photinia	Invasive worms	0.671	0.43	0	1
Photinia melanocarpa	Invasive worms	0.112	0.51	0	1
Photinia pyrifolia	Invasive worms	0.353	0.18	0	0.97
Physocarpus	Invasive worms	0.006	0.87	0.4	1
Physocarpus opulifolius	Invasive worms	0.006	0.87	0.4	1
Picea	Invasive worms	0.001	0	0	0.6
Picea rubens	Invasive worms	0	0	0	0.53

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Pilea	Invasive worms	0.006	1	0.03	1
Pilea pumila	Invasive worms	0.006	1	0.03	1
Pinaceae	Invasive worms	0	0	0	0.76
Pinales	Invasive worms	0	0	0	0.78
Pinopsida	Invasive worms	0	0	0	0.78
Pinus	Invasive worms	0.863	0.47	0	1
Pinus strobus	Invasive worms	0.874	0.47	0	1
Platanthera	Invasive worms	0.327	0.02	0	0.94
Platanthera clavellata	Invasive worms	0.452	0	0	0.87
Poaceae	Invasive worms	0.751	0.36	0	1
Polygonaceae	Invasive worms	0.784	0.35	0	1
Polygonales	Invasive worms	0.784	0.35	0	1
Polygonatum	Invasive worms	0.202	1	0.16	1
Polygonatum pubescens	Invasive worms	0.202	1	0.16	1
Polygonum	Invasive worms	0.789	0.39	0	0.95
Polygonum arifolium	Invasive worms	0.738	0.39	0	0.92
Polygonum sagittatum	Invasive worms	0.365	0.16	0	0.91
Polygonum virginianum	Invasive worms	0.851	0.53	0	1
Polypodiales	Invasive worms	0.056	0	0	1
Polystichum	Invasive worms	0.358	0.28	0	0.87
Polystichum acrostichoides	Invasive worms	0.358	0.28	0	0.87
Populus	Invasive worms	0.153	0.57	0.04	1
Populus grandidentata	Invasive worms	0.839	0.49	0.1	0.89
Populus tremuloides	Invasive worms	0.176	0.73	0.02	1
Potentilla	Invasive worms	0.007	0.62	0.03	1
Potentilla simplex	Invasive worms	0.006	0.62	0.04	1
Prenanthes	Invasive worms	0.143	0	0	1
Prenanthes altissima	Invasive worms	0.638	0.39	0	0.98
Primulaceae	Invasive worms	0.01	0.31	0	0.97
Primulales	Invasive worms	0.002	0.33	0	0.99
Prunella	Invasive worms	0.612	0.38	0	0.88
Prunella vulgaris	Invasive worms	0.612	0.38	0	0.88
Prunus	Invasive worms	0.002	0.77	0	1
Prunus serotina	Invasive worms	0	0.72	0	1
Prunus virginiana	Invasive worms	0.006	0.77	0	1
Pteridium	Invasive worms	0.576	0.3	0	0.7
Pteridium aquilinum	Invasive worms	0.576	0.3	0	0.7
Pteridophyta	Invasive worms	0.056	0	0	1
Pyrola	Invasive worms	0.553	0.33	0	0.72
Pyrola elliptica	Invasive worms	0.535	0.29	0	0.71
Pyrolaceae	Invasive worms	0.627	0.39	0	0.99
Quercus	Invasive worms	0	1	0	1
Quercus alba	Invasive worms	0	0.99	0.07	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Quercus bicolor	Invasive worms	0.633	0.48	0	1
Quercus rubra	Invasive worms	0.003	0.89	0	1
Ranunculaceae	Invasive worms	0.006	0	0	1
Ranunculales	Invasive worms	0.156	0.2	0	1
Ranunculus	Invasive worms	0.264	1	0	1
Ranunculus abortivus	Invasive worms	0.585	0.34	0	0.69
Ranunculus hispidus	Invasive worms	0.179	0	0	1
Ranunculus recurvatus	Invasive worms	0.041	1	0	1
Rhamnaceae	Invasive worms	0	0.75	0	1
Rhamnales	Invasive worms	0	0.43	0	1
Rhamnus	Invasive worms	0	1	0.23	1
Rhamnus cathartica	Invasive worms	0	1	0.21	1
Rhododendron	Invasive worms	0.844	0.16	0	1
Rhododendron prinophyllum	Invasive worms	0.11	0.11	0	0.55
Rhododendron viscosum	Invasive worms	0.12	1	0	1
Ribes	Invasive worms	0.573	0.51	0	1
Rosa	Invasive worms	0	1	0.01	1
Rosa multiflora	Invasive worms	0	1	0.14	1
Rosa palustris	Invasive worms	0.136	1	0	1
Rosaceae	Invasive worms	0	0.44	0	1
Rosales	Invasive worms	0.002	0.6	0	1
Rubiaceae	Invasive worms	0.238	0.33	0	1
Rubiales	Invasive worms	0.238	0.33	0	1
Rubus	Invasive worms	0.783	0.4	0	1
Rubus allegheniensis	Invasive worms	0.533	0.84	0	1
Rubus hispidus	Invasive worms	0.967	0.14	0	1
Rubus idaeus	Invasive worms	0.02	1	0.04	1
Rubus occidentalis	Invasive worms	0.109	1	0.11	1
Rubus pubescens	Invasive worms	0.22	0.27	0	0.87
Salicaceae	Invasive worms	0.087	0.58	0.04	1
Salicales	Invasive worms	0.087	0.58	0.04	1
Salix	Invasive worms	0.285	0.76	0.13	1
Sambucus	Invasive worms	0	1	0.06	1
Sambucus canadensis	Invasive worms	0	1	0.06	1
Sapindales	Invasive worms	0	1	0	1
Saxifraga	Invasive worms	0.196	0.12	0	0.82
Saxifraga pensylvanica	Invasive worms	0.238	0.17	0	0.82
Saxifragaceae	Invasive worms	0.137	0.03	0	0.88
Scirpus	Invasive worms	0.371	0	0	0.83
Scrophulariaceae	Invasive worms	0.703	0.27	0	1
Scrophulariales	Invasive worms	0.003	1	0	1
Scutellaria	Invasive worms	0.863	0.49	0	1
Scutellaria lateriflora	Invasive worms	0.302	0.52	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Senecio	Invasive worms	0.07	0.72	0.08	1
Senecio aureus	Invasive worms	0.07	0.72	0.08	1
Smilacaceae	Invasive worms	0.653	0	0	1
Smilax	Invasive worms	0.653	0	0	1
Smilax herbacea	Invasive worms	0.025	0.75	0.14	1
Smilax rotundifolia	Invasive worms	0.383	0	0	1
Solanaceae	Invasive worms	0	1	0.16	1
Solanales	Invasive worms	0	1	0.15	1
Solanum	Invasive worms	0	1	0.16	1
Solanum dulcamara	Invasive worms	0	1	0.19	1
Solidago	Invasive worms	0	0.78	0	1
Solidago gigantea	Invasive worms	0	0.63	0.06	1
Solidago patula	Invasive worms	0.633	0.38	0	0.98
Solidago rugosa	Invasive worms	0	0.69	0	1
Sorbus	Invasive worms	0.032	0	0	0.8
Sorbus americana	Invasive worms	0.019	0	0	0.6
Spiraea	Invasive worms	0.752	0.41	0	1
Spiraea alba	Invasive worms	0.752	0.42	0	1
Symphyotrichum	Invasive worms	0.542	0.07	0	1
Symphyotrichum lateriflorum	Invasive worms	0.194	0.18	0	1
Symphyotrichum puniceum	Invasive worms	0.996	0.55	0	1
Symplocarpus	Invasive worms	0	1	0	1
Symplocarpus foetidus	Invasive worms	0	1	0	1
Taxaceae	Invasive worms	0.656	1	0	1
Taxales	Invasive worms	0.656	1	0	1
Taxus	Invasive worms	0.656	1	0	1
Taxus canadensis	Invasive worms	0.551	0	0	1
Thalictrum	Invasive worms	0.006	0.98	0	1
Thalictrum pubescens	Invasive worms	0.006	1	0	1
Theales	Invasive worms	0.536	0.31	0	0.66
Thelypteridaceae	Invasive worms	0.006	0.05	0	1
Thelypteris	Invasive worms	0.019	0.01	0	1
Thelypteris noveboracensis	Invasive worms	0.038	0	0	1
Thelypteris palustris	Invasive worms	0.844	0.46	0	1
Thelypteris simulata	Invasive worms	0.092	0.26	0	0.83
Tiarella	Invasive worms	0.02	0	0	0.75
Tiarella cordifolia	Invasive worms	0.02	0	0	0.75
Tilia	Invasive worms	0.269	0.86	0.02	1
Tilia americana	Invasive worms	0.272	1	0.02	1
Tiliaceae	Invasive worms	0.269	0.86	0.02	1
Toxicodendron	Invasive worms	0	0.85	0	1
Toxicodendron radicans	Invasive worms	0	0.65	0	1
Toxicodendron vernix	Invasive worms	0.006	0.65	0.04	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Triadenum	Invasive worms	0.536	0.28	0	0.86
Triadenum virginicum	Invasive worms	0.533	0.31	0.01	0.61
Trientalis	Invasive worms	0	0	0	1
Trientalis borealis	Invasive worms	0	0	0	1
Trillium	Invasive worms	0.177	0.09	0	0.8
Trillium undulatum	Invasive worms	0.268	0.02	0	0.8
Tsuga	Invasive worms	0	0	0	0.53
Tsuga canadensis	Invasive worms	0	0	0	0.53
Typhales	Invasive worms	0.825	0.41	0	1
Ulmaceae	Invasive worms	0	0.98	0.29	1
Ulmus	Invasive worms	0	0.98	0.29	1
Ulmus americana	Invasive worms	0	0.96	0.28	1
Urticaceae	Invasive worms	0.002	1	0	1
Urticales	Invasive worms	0	0.97	0.23	1
Uvularia	Invasive worms	0.026	0	0	1
Uvularia sessilifolia	Invasive worms	0.026	0	0	1
Vaccinium	Invasive worms	0.844	0.46	0	1
Vaccinium angustifolium	Invasive worms	0.149	0.2	0	0.83
Vaccinium corymbosum	Invasive worms	0.484	0.52	0	1
Vaccinium myrtilloides	Invasive worms	0.265	0.08	0	0.54
Veratrum	Invasive worms	0.383	0.04	0	0.69
Veratrum viride	Invasive worms	0.383	0.04	0	0.69
Veronica	Invasive worms	0.312	0.54	0	1
Veronica officinalis	Invasive worms	0.301	0.57	0.14	0.99
Viburnum	Invasive worms	0.863	0.5	0	1
Viburnum acerifolium	Invasive worms	0.87	0.55	0	1
Viburnum dentatum	Invasive worms	0	0.73	0	1
Viburnum lantanoides	Invasive worms	0.003	0	0	0.52
Viburnum lentago	Invasive worms	0.063	0.62	0	1
Viburnum nudum	Invasive worms	0.011	0.2	0	1
Viola	Invasive worms	0.238	0.04	0	1
Viola cucullata	Invasive worms	0.374	0	0	0.61
Violaceae	Invasive worms	0.238	0.04	0	1
Violales	Invasive worms	0.325	0.08	0	1
Vitaceae	Invasive worms	0	0.88	0.08	1
Vitis	Invasive worms	0	0.7	0.12	1
Vitis labrusca	Invasive worms	0.002	0.82	0.1	1
Woodwardia	Invasive worms	0.395	0	0	1
Woodwardia virginica	Invasive worms	0.859	0	0	1
Zizia	Invasive worms	0.151	0.96	0.12	1
Zizia aurea	Invasive worms	0.151	0.96	0.12	1

Appendix D: Plant Taxa Used for Shrub Swamp IBI Analyses for IEI

This is a summary of taxa evaluated for an IBI for shrub swamp IEI (Index of Ecological Integrity). This Table relies on the fitted models that contribute to our IBIs. As such it doen't include (1) any taxa that occurred at fewer than 10 forested wetland sites in our training data and (2) any taxa for which no models were successfully fitted. Most likely values, along with upper and lower confidence intervals, were calculated based on the 75th percentile of the non-zero abundance for each taxa. They describe the likelihood profile for the species given a moderately high abundance.

The table includes plant taxa that met our marginal p-value threshold of ≤ 0.2 when evaluated for IEI. Data included in the tables include the following.

Taxon: the focal taxonomic group

Metric: the CAPS metric to which the IBI was fit

Marginal p-value: the complement of the proportion of the pseudo-species that the focal species outperformed when predicting the metric from abundance with a single taxa. Lower values indicate better performance. We used a threshold of 0.2 to decide which taxa where included in the IBI.

Most likely value: the metric value that was most likely given the abundance (75th percentile of the non-zero abundance)

Lower ci: the lower end of the 90% confidence interval

Upper ci: the lower end of the 90% confidence interval

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Abies	iei	0.092	1	0.66	1
Abies balsamea	iei	0.092	1	0.66	1
Alisma	iei	0.004	0	0	0.5
Alismataceae	iei	0.02	0.39	0	1
Alismatales	iei	0.02	0.39	0	1
Alnus	iei	0.036	0	0	1
Alnus incana	iei	0.032	0.03	0	1
Amelanchier	iei	0.011	1	0	1
Apiaceae	iei	0.036	0.4	0	1
Apiales	iei	0.064	0.44	0	1
Apios	iei	0.077	0.22	0	0.97
Apios americana	iei	0.077	0.22	0	0.97
Aquifoliaceae	iei	0.006	1	0	1
Arales	iei	0.034	0.37	0	1
Asclepiadaceae	iei	0.001	0	0	0.88
Asclepias	iei	0.001	0	0	0.88

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Asclepias incarnata	iei	0.001	0	0	0.84
Balsaminaceae	iei	0.001	0	0	1
Berberidaceae	iei	0.006	0	0	0.94
Berberis	iei	0.006	0	0	0.94
Berberis thunbergii	iei	0.004	0	0	0.8
Betula alleghaniensis	iei	0.048	1	0	1
Betula populifolia	iei	0.139	0	0	1
Betulaceae	iei	0.064	0	0	1
Bidens	iei	0.001	0.16	0	1
Bidens frondosa	iei	0.006	0.12	0	0.88
Boehmeria	iei	0.002	0.24	0	0.81
Boehmeria cylindrica	iei	0.002	0.24	0	0.81
Boraginaceae	iei	0.019	0.14	0	0.69
Calla	iei	0.194	1	0.55	1
Calla palustris	iei	0.194	1	0.55	1
Campanulaceae	iei	0.084	0.3	0	0.76
Campanulales	iei	0.084	0.3	0	0.76
Caprifoliaceae	iei	0.084	0	0	1
Carex brunnescens	iei	0.15	1	0.3	1
Carex crinita	iei	0.009	0	0	0.84
Carex folliculata	iei	0.004	1	0.02	1
Carex gynandra	iei	0.127	0.96	0	1
Carex intumescens	iei	0.162	1	0	1
Carex leptalea	iei	0.046	0.87	0.26	1
Carex lurida	iei	0.162	0.86	0	1
Carex scoparia	iei	0.199	0.14	0	1
Carex stipata	iei	0.162	0.92	0	1
Carex stricta	iei	0.009	0.38	0	1
Celastraceae	iei	0.026	0.12	0	0.88
Celastrales	iei	0.019	1	0	1
Celastrus	iei	0.043	0.11	0	0.89
Celastrus orbiculatus	iei	0.043	0.11	0	0.89
Chrysosplenium	iei	0.16	1	0.45	1
Chrysosplenium americanum	iei	0.16	1	0.45	1
Cicuta	iei	0.001	0.24	0	1
Cicuta bulbifera	iei	0.07	0.3	0	1
Cicuta maculata	iei	0.004	0.15	0	0.86
Circaea	iei	0.189	0.09	0	0.7
Circaea lutetiana	iei	0.096	0.08	0	0.65
Clusiaceae	iei	0.029	1	0	1
Coniferophyta	iei	0.001	1	0	1
Coptis	iei	0.053	1	0.57	1
Coptis trifolia	iei	0.053	1	0.57	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Cornaceae	iei	0	0	0	1
Cornales	iei	0	0.02	0	1
Cornus	iei	0	0	0	1
Cornus amomum	iei	0	0.19	0	0.92
Cornus sericea	iei	0.067	0.12	0	0.99
Cyperales	iei	0.131	1	0	1
Dichanthelium	iei	0.161	0	0	1
Dichanthelium clandestinum	iei	0.167	0.02	0	1
Dipsacales	iei	0.084	0	0	1
Dryopteridaceae	iei	0.02	0	0	1
Dryopteris	iei	0.161	1	0	1
Dryopteris cristata	iei	0.107	1	0	1
Dulichium	iei	0.024	1	0.08	1
Dulichium arundinaceum	iei	0.024	1	0.08	1
Epilobium	iei	0.004	0.27	0	1
Epilobium ciliatum	iei	0.132	0.39	0	1
Epilobium leptophyllum	iei	0.077	0	0	0.93
Eupatorium maculatum	iei	0.186	0.71	0.07	1
Eupatorium perfoliatum	iei	0.127	0	0	1
Fabaceae	iei	0.019	0.31	0	0.95
Fabales	iei	0.019	0.31	0	0.95
Fagales	iei	0.057	0	0	1
Fraxinus	iei	0.067	0.39	0	1
Fraxinus americana	iei	0.152	0.41	0	1
Galium palustre	iei	0.055	0	0	1
Gentianales	iei	0.001	0	0	0.93
Geraniales	iei	0	0	0	1
Geum	iei	0.006	0	0	1
Glyceria canadensis	iei	0.105	1	0	1
Haloragaceae	iei	0.032	0.06	0	0.86
Haloragales	iei	0.032	0.06	0	0.86
Hypericum	iei	0.149	1	0.12	1
Ilex	iei	0.006	1	0	1
Ilex mucronata	iei	0.091	1	0.03	1
Ilex verticillata	iei	0.138	1	0	1
Impatiens	iei	0.001	0	0	1
Impatiens capensis	iei	0.001	0	0	1
Iris pseudacorus	iei	0.075	0.17	0	0.81
Iris versicolor	iei	0.026	1	0	1
Kalmia latifolia	iei	0.126	1	0.33	1
Lamiales	iei	0.006	0.27	0	1
Lauraceae	iei	0.182	0.27	0	0.95
Laurales	iei	0.182	0.27	0	0.95

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Leersia	iei	0.028	0	0	1
Leersia oryzoides	iei	0.03	0	0	1
Lemna	iei	0.011	0.13	0	0.64
Lemnaceae	iei	0.011	0.13	0	0.64
Lindera	iei	0.195	0.21	0	1
Lindera benzoin	iei	0.195	0.21	0	1
Lonicera	iei	0.001	0.27	0	1
Lonicera morrowii	iei	0	0	0	0.72
Ludwigia	iei	0.042	0.38	0	0.93
Ludwigia palustris	iei	0.042	0.38	0	0.93
Lycopus americanus	iei	0.116	0	0	0.94
Lysimachia terrestris	iei	0.167	1	0	1
Lythraceae	iei	0	0.14	0	0.82
Lythrum	iei	0	0.13	0	0.76
Lythrum salicaria	iei	0	0.13	0	0.76
Magnoliophyta	iei	0.003	0.26	0	1
Magnoliopsida	iei	0.019	0	0	1
Mentha	iei	0.152	0	0	1
Mentha arvensis	iei	0.162	0	0	1
Mimulus	iei	0.024	0.04	0	0.9
Mimulus ringens	iei	0.024	0.04	0	0.9
Myosotis	iei	0.019	0.14	0	0.69
Myosotis scorpioides	iei	0.02	0	0	0.59
Myrtales	iei	0	0.54	0	0.93
Oleaceae	iei	0.123	0.31	0	1
Onagraceae	iei	0	0.17	0	1
Onoclea	iei	0.024	0	0	1
Onoclea sensibilis	iei	0.024	0	0	1
Osmunda	iei	0.061	1	0.04	1
Osmunda cinnamomea	iei	0.142	1	0	1
Osmundaceae	iei	0.061	1	0.04	1
Oxalidaceae	iei	0.064	0.38	0	0.84
Oxalis	iei	0.064	0.38	0	0.84
Phalaris	iei	0	0	0	0.81
Phalaris arundinacea	iei	0	0	0	0.81
Picea	iei	0.033	1	0.72	1
Picea rubens	iei	0.033	1	0.72	1
Pilea	iei	0.006	0.16	0	0.82
Pilea pumila	iei	0.006	0.16	0	0.82
Pinaceae	iei	0.001	1	0	1
Pinales	iei	0.001	1	0	1
Pinopsida	iei	0.001	1	0	1
Pinus	iei	0.193	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Pinus strobus	iei	0.193	1	0	1
Poa palustris	iei	0.195	0	0	1
Polygonaceae	iei	0.006	0.08	0	1
Polygonales	iei	0.006	0.08	0	1
Polygonum	iei	0.006	0.29	0	1
Polygonum sagittatum	iei	0.004	0.23	0	1
Primulaceae	iei	0.158	0.72	0	1
Primulales	iei	0.173	0.73	0	1
Proserpinaca	iei	0.032	0.06	0	0.86
Proserpinaca palustris	iei	0.032	0.06	0	0.86
Rhamnales	iei	0.002	0.21	0	1
Rosa	iei	0	0.4	0	0.89
Rosa multiflora	iei	0.002	0.36	0	0.94
Rosa palustris	iei	0.032	0.41	0	0.91
Rubiaceae	iei	0.021	0.45	0	1
Rubiales	iei	0.021	0.45	0	1
Rubus	iei	0.011	1	0	1
Rubus hispidus	iei	0.006	1	0.04	1
Rubus pubescens	iei	0.165	1	0	1
Rumex	iei	0.053	0.17	0	1
Sagittaria	iei	0.046	0.44	0	1
Sagittaria latifolia	iei	0.046	0.44	0	1
Salicaceae	iei	0.011	0	0	1
Salicales	iei	0.011	0	0	1
Salix	iei	0.004	0	0	1
Salix bebbiana	iei	0.092	0	0	1
Salix discolor	iei	0.029	0	0	1
Salix sericea	iei	0.002	0	0	1
Salix serissima	iei	0.032	0.16	0	0.71
Sambucus	iei	0.046	0.14	0	1
Sambucus canadensis	iei	0.046	0.14	0	1
Saxifragaceae	iei	0.083	1	0.34	1
Scirpus	iei	0.053	0	0	1
Scirpus atrovirens	iei	0.062	0	0	0.68
Scirpus cyperinus	iei	0.024	0	0	1
Scrophulariales	iei	0.138	0.16	0	1
Solanaceae	iei	0	0.15	0	1
Solanales	iei	0	0.1	0	1
Solanum	iei	0	0.15	0	1
Solanum dulcamara	iei	0	0.15	0	1
Solidago gigantea	iei	0.045	0.34	0	1
Spiraea	iei	0.017	1	0	1
Spiraea alba	iei	0.034	1	0	1

Taxon	Metric	Marginal p-value	Most likely value	Lower ci	Upper ci
Symphyotrichum lanceolatum	iei	0.056	0	0	1
Symplocarpus	iei	0.111	0.47	0	1
Symplocarpus foetidus	iei	0.111	0.47	0	1
Thalictrum	iei	0.177	0	0	1
Thalictrum pubescens	iei	0.177	0	0	1
Theales	iei	0.029	1	0	1
Toxicodendron radicans	iei	0.003	0.32	0	1
Toxicodendron vernix	iei	0.167	0.76	0.21	1
Triadenum	iei	0.015	1	0	1
Triadenum virginicum	iei	0.038	1	0	1
Trientalis	iei	0.077	1	0.09	1
Trientalis borealis	iei	0.077	1	0.09	1
Tsuga	iei	0.03	1	0.03	1
Tsuga canadensis	iei	0.03	1	0.03	1
Typha	iei	0.004	0.34	0	1
Typha latifolia	iei	0.004	0.29	0	1
Typhaceae	iei	0.004	0.34	0	1
Typhales	iei	0.029	0.35	0	1
Ulmaceae	iei	0.002	0.07	0	0.91
Ulmus	iei	0.002	0.07	0	0.91
Ulmus americana	iei	0.003	0.25	0	0.85
Urticaceae	iei	0.001	0.19	0	0.85
Urticales	iei	0	0.09	0	0.89
Vaccinium	iei	0	1	0	1
Vaccinium angustifolium	iei	0.139	1	0.29	1
Vaccinium corymbosum	iei	0.001	1	0	1
Vaccinium myrtilloides	iei	0.12	1	0.68	1
Verbena	iei	0.024	0	0	0.91
Verbena hastata	iei	0.024	0	0	0.81
Verbenaceae	iei	0.024	0	0	0.91
Viburnum nudum	iei	0.042	1	0	1
Viola	iei	0.008	0.09	0	1
Violaceae	iei	0.008	0.09	0	1
Violales	iei	0.002	0	0	1
Vitaceae	iei	0.001	0	0	1
Vitis	iei	0	0	0	0.74
Vitis labrusca	iei	0	0	0	0.53