

Coefficients of Conservatism for Plants of the Prairie Parkland and Tallgrass Aspen Parklands Ecological Provinces of Minnesota

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Overall Project Description

This is the first of three projects to create regional Coefficients of Conservatism (C-values) used in Floristic Quality Assessments (FQA) based on an ecological province in Minnesota. The focus here is strictly on the flora of the Prairie Parklands (PPP) and Tallgrass Aspen Parklands (TAP) ECS Provinces which are treated as one region. Two subsequent projects involving the assignment of C-values will be completed in the future for the Laurentian Mixed Forest and Eastern Broadleaf Forest provinces.

FQA Description

The Floristic Quality Assessment (FQA) is a technique for assessing the floristic composition of a given location that is centered on the concept of species conservatism.

Species Conservatism

Species conservatism consists of a species' tolerance to degradation and its fidelity to specific habitats. Species most sensitive to habitat degradation and most confined to a narrow range of microhabitat conditions are considered to be the most conservative. Widely distributed, generalist species and/or species that tolerate ecological degradation are considered to be less conservative. Weedy species that colonize highly degraded sites are considered to be the least conservative. Each native species in a region's flora is assigned a numerical Coefficient of Conservatism value (C-value). These values are assigned on a scale of 0-10, with 0 serving as the least conservative and 10 as the most conservative.

These values are typically assigned by a working group of botanical experts. The expert panel assembled for this project included both private and public sector botanists with extensive experience in the Prairie Parklands and Tallgrass Aspen Parklands provinces. Each panel member worked independently to assign C-values to the species for which they had enough field experience to be confident in assigning a value. Group average and standard deviation were then calculated for each species. Final values were the group means, except in cases where the standard deviation of the group mean was greater than two. In the latter case, a subset of the panel reviewed the evidence and assigned a final value.

Coefficient of Conservatism

Various states have completed a process of assigning C-values on a statewide level. In Minnesota, C-values had been previously developed only for wetland and wetland-transition flora (Milburn et al. 2007). Minnesota has considerable variation in microhabitats between different ecological regions of the state, ranging from sub-boreal habitats in the northeast to the eastern edges of the Great Plains in the west. Some plant species occur in several ecological regions and vary in microhabitat specificity between different regions. For example, *Deschampsia cespitosa* and *Calamagrostis stricta* are widespread in the TAP Province but are restricted to the north shore or rock outcrops in the Laurentian Mixed Forest (LMF) Province.

Clintonia borealis, *Epigaea repens*, and *Mitchella repens* are widespread in the LMF but in the Blufflands Region of the Eastern Broadleaf Forest (EBF) Province they occur as disjuncts in refugia on north-facing cliffs and talus slopes. For this reason, we decided to create c.c. values on an ecoregional basis. These values are being identified by teams of regional experts with extensive experience across the ecological province in question. C values for specific ecological regions have been created elsewhere, such as for wetlands of the southeastern United States (NCDWR 2018-2022).

For this project, botanists assigned C-values to PPP/TAP region plant species based on his/her assessment of the species' sensitivity to unnatural degradation and the narrowness of its microhabitat requirements. Examples of unnatural degradation in the prairie region include the following: overgrazing, fire suppression, forest succession, herbicide application/drift, invasive species invasion, fertilizer drift, ATV use, mining, wetland drainage, and siltation. Examples of microhabitat requirements range from very specific, narrowly defined microhabitat characteristics, such as a calcareous fen, versus a range of many different microhabitat types. Consideration was also given to issues of rarity and distribution in Minnesota. Rarity is not necessarily correlated with high C-values, as a species listed as rare may be reliant on disturbance events including anthropogenic disturbances that mimic natural disturbance. Also, a species may be very common in adjacent Provinces, but may be rare in this region due to limited habitat.

Coefficients of conservatism are based on the accumulated field experience of the people who assign the values and are, by nature, based on professional judgement. The committee created this list because of strong public interest and because C-values can provide an additional tool for assessing the condition of a given vegetation remnant. Small differences in C-values between different species may be fairly meaningless. Analyses that compare groups of species (e.g. numbers or abundances of species with scores of 0-3 versus species with scores of 7-10) may likely be more meaningful.

Criteria for assigning C-values for this project were:

- 0-3: taxa found in a wide variety of plant communities and highly tolerant of anthropogenic degradation
- 4-6: taxa found in a range of plant communities and tolerant of moderate unnatural degradation
- 7-8: taxa restricted to a narrow range of plant community type/closely-related types (narrow range of synecological conditions) but tolerant of moderate levels of unnatural degradation
- 9-10: taxa restricted to a narrow range of plant community type/closely-related types (narrow range of synecological conditions) but have little tolerance of unnatural degradation

The list of species used in this project was based on species known to occur in the Prairie Parklands and Tallgrass Aspen Parklands provinces. The plant names used in this project follow the Minnesota Department of Natural Resources (DNR) MNTAXA plant checklist obtainable from the DNR website. This list is based on the published volumes of “Flora of North America North of Mexico” by the Flora of North America (FNA) for species published by FNA, and Gleason and Cronquist’s “Manual of Vascular Plants of Northeastern United States and Adjacent Canada” for species not yet published in FNA. The list should be considered a work in progress and updates to the flora should be made as needed.

Introduced species were not included in this project. Users wanting to include invasives in their evaluations should assign these species a value of 0.

A number of species were either omitted from this list or were not assigned a C-value. Issues regarding omissions may be as simple as the lack of specified locality information or recent nomenclatural name changes. Twenty-seven species included on the list were not assigned a C-value due to the lack of experience with these species by the panel members. These species will be addressed in the future as more information becomes available to the panel.

Prairie habitat can be found outside of the Prairie Parkland/Tallgrass Aspen Parklands ecological provinces. Ecologists or land managers looking for C-values of prairie species outside of this region can use these values for the time being. C-values for plant species occurring within the EBF and LMF Provinces are planned for completion in 2023.

Applications

C-values have been used in many different ways. The FQA method can provide an additional approach to assess habitat quality in conjunction with other measures.

The Mean C-value of an area can be calculated as the sum of the C values for all native plants divided by the total number of species present. This has been used as an index of the degree to which a site is an intact remnant and helps with prioritizing sites for conservation action. In Missouri, for example, sites with Mean C above 4 have some level of remnant integrity, and above 5 are sites of high ecological significance (Ladd and Thomas 2015). Mean C values for sites (Larson et al. 2020) or for classes of plants (Brudvig et al. 2007) have also been used to evaluate the consequences of management practices on prairie plant community composition.

The Floristic Quality Index (FQI) is often calculated as $\text{Mean } C/n$ in which n is species richness (Swink and Wilhelm 1979). FQI has been used in many ways, including identifying quality natural areas, comparing sites, and monitoring natural area or restoration site quality. An on-line calculator for FQI is available (Freyman et al. 2016).

Calculations weighted by measures of plant frequency or cover provide more information than just presence-absence data and have been used in many states (e.g., see Freyman et al. 2016). In Minnesota, the Minnesota Pollution Control Agency utilizes FQA assessments using the abundance weighted C (wC) in order to assess condition and change in Minnesota wetland

communities. For more information, see the Rapid FQA Manual (PCA 2014). Proper application of this protocol utilizes C values for wetland plants originally published in Milburn et al. 2007 instead of the more recent C values given here.

Expert Panel

The panel was comprised of individuals with extensive botanical experience in the Prairie Parklands and Tallgrass Aspen Parklands provinces of Minnesota. Special thanks goes to those members of the panel for providing both critical input and time. The panel included Dustin Graham, Fred Harris, Michael Bourdaghs, Mike Lee, Otto Gockman, Rhett Johnson, Sara Simmers, Scott Milburn, and Welby Smith.

References

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Minnesota Biological Survey Updated 05/01/2017



MN DNR Official Name	Prairie Region C-value 05-01-2017	MN DNR Official Name	Prairie Region C-value 05-01-2017
<i>Acalypha rhomboidea</i>	0	<i>Amelanchier humilis</i>	5
<i>Acer negundo</i>	1	<i>Ammannia coccinea</i>	4
<i>Acer nigrum</i>	8	<i>Amorpha canescens</i>	8
<i>Acer rubrum</i>	4	<i>Amorpha fruticosa</i>	5
<i>Acer saccharinum</i>	3	<i>Amorpha nana</i>	8
<i>Acer saccharum</i>	6	<i>Amphicarpaea bracteata</i>	4
<i>Acer spicatum</i>	8	<i>Andropogon gerardii</i>	4
<i>Achillea millefolium</i>	1	<i>Androsace occidentalis</i>	3
<i>Achnatherum hymenoides</i>	10	<i>Androsace septentrionalis</i>	2
<i>Acorus americanus</i>	6	<i>Anemone acutiloba</i>	8
<i>Actaea rubra</i>	7	<i>Anemone americana</i>	8
<i>Adiantum pedatum</i>	8	<i>Anemone canadensis</i>	4
<i>Agalinis aspera</i>	8	<i>Anemone caroliniana</i>	7
<i>Agalinis auriculata</i>	8	<i>Anemone cylindrica</i>	6
<i>Agalinis purpurea</i>	7	<i>Anemone patens</i> var. <i>multifida</i>	7
<i>Agalinis purpurea</i> var. <i>parviflora</i>	6	<i>Anemone quinquefolia</i> var. <i>quinquefolia</i>	7
<i>Agalinis tenuifolia</i>	5	<i>Anemone virginiana</i> var. <i>alba</i>	7
<i>Agastache foeniculum</i>	5	<i>Anemone virginiana</i> var. <i>virginiana</i>	7
<i>Agastache nepetoides</i>	5	<i>Antennaria howellii</i> subsp. <i>neodioica</i>	3
<i>Agastache scrophulariaefolia</i>	5	<i>Antennaria microphylla</i>	6
<i>Ageratina altissima</i> var. <i>altissima</i>	2	<i>Antennaria neglecta</i>	3
<i>Agoseris glauca</i> var. <i>glauca</i>	8	<i>Antennaria parvifolia</i>	7
<i>Agrimonia gryposepala</i>	3	<i>Antennaria plantaginifolia</i>	4
<i>Agrimonia pubescens</i>	4	<i>Anthoxanthum hirtum</i>	6
<i>Agrimonia striata</i>	3	<i>Apios americana</i>	5
<i>Agrostis scabra</i>	2	<i>Aplectrum hyemale</i>	9
<i>Alisma gramineum</i>	8	<i>Apocynum androsaemifolium</i>	3
<i>Alisma subcordatum</i>	3	<i>Apocynum cannabinum</i>	3
<i>Alisma triviale</i>	3	<i>Aquilegia canadensis</i>	5
<i>Allium canadense</i> var. <i>canadense</i>	5	<i>Arabis pycnocarpa</i> var. <i>pycnocarpa</i>	5
<i>Allium stellatum</i>	8	<i>Aralia nudicaulis</i>	6
<i>Allium textile</i>	7	<i>Aralia racemosa</i>	7
<i>Allium tricoccum</i>	8	<i>Arctostaphylos uva-ursi</i>	8
<i>Alnus incana</i> subsp. <i>rugosa</i>	7	<i>Arisaema triphyllum</i>	5
<i>Alopecurus aequalis</i> var. <i>aequalis</i>	5	<i>Aristida basiramea</i>	4
<i>Alopecurus carolinianus</i>	4	<i>Aristida dichotoma</i> var. <i>curtissii</i>	5
<i>Amaranthus albus</i>	0	<i>Aristida purpurea</i> var. <i>longiseta</i>	7
<i>Amaranthus tuberculatus</i>	2	<i>Arnoglossum plantagineum</i>	8
<i>Ambrosia artemisiifolia</i>	0	<i>Artemisia campestris</i> subsp. <i>caudata</i>	3
<i>Ambrosia psilostachya</i>	3	<i>Artemisia dracunculus</i>	3
<i>Ambrosia trifida</i>	0	<i>Artemisia frigida</i>	6
<i>Amelanchier alnifolia</i>	6	<i>Artemisia ludoviciana</i> subsp. <i>ludoviciana</i>	4

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<i>Artemisia serrata</i>	6
<i>Asarum canadense</i>	7
<i>Asclepias incarnata</i> var. <i>incarnata</i>	5
<i>Asclepias lanuginosa</i>	9
<i>Asclepias ovalifolia</i>	7
<i>Asclepias speciosa</i>	6
<i>Asclepias sullivantii</i>	8
<i>Asclepias syriaca</i>	1
<i>Asclepias tuberosa</i> var. <i>interior</i>	6
<i>Asclepias verticillata</i>	2
<i>Asclepias viridiflora</i>	8
<i>Astragalus adsurgens</i> var. <i>robustior</i>	8
<i>Astragalus agrestis</i>	6
<i>Astragalus canadensis</i>	5
<i>Astragalus crassicaulus</i> var. <i>crassicaulus</i>	8
<i>Astragalus flexuosus</i> var. <i>flexuosus</i>	8
<i>Astragalus lotiflorus</i>	7
<i>Astragalus missouriensis</i> var. <i>missouriensis</i>	8
<i>Astragalus neglectus</i>	7
<i>Athyrium filix-femina</i> var. <i>angustum</i>	6
<i>Avenula hookeri</i>	8
<i>Bacopa rotundifolia</i>	6
<i>Baptisia lactea</i> var. <i>lactea</i>	7
<i>Beckmannia syzigachne</i>	3
<i>Berula erecta</i>	9
<i>Besseyia bullii</i>	8
<i>Betula alleghaniensis</i>	9
<i>Betula papyrifera</i>	6
<i>Betula pumila</i>	7
<i>Bidens cernua</i>	3
<i>Bidens connata</i>	4
<i>Bidens frondosa</i>	3
<i>Bidens tripartita</i>	3
<i>Bidens vulgata</i>	2
<i>Boechera canadensis</i>	8
<i>Boechera dentata</i>	7
<i>Boechera grahamii</i>	9
<i>Boechera retrofracta</i>	10
<i>Boechera stricta</i>	6
<i>Boehmeria cylindrica</i>	6
<i>Bolboschoenus fluviatilis</i>	5
<i>Bolboschoenus maritimus</i> subsp. <i>paludosus</i>	6
<i>Boltonia asteroides</i> var. <i>latisquama</i>	5
<i>Boltonia asteroides</i> var. <i>recognita</i>	5

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<i>Botrychium campestre</i>	9
<i>Botrychium gallicomontanum</i>	9
<i>Botrychium multifidum</i>	6
<i>Botrychium simplex</i>	5
<i>Botrychium virginianum</i>	5
<i>Bouteloua curtipendula</i> var. <i>curtipendula</i>	6
<i>Bouteloua gracilis</i>	6
<i>Bouteloua hirsuta</i> var. <i>hirsuta</i>	7
<i>Brachyelytrum erectum</i>	8
<i>Brickellia eupatorioides</i> var. <i>corymbulosa</i>	6
<i>Bromus ciliatus</i>	8
<i>Bromus kalmii</i>	8
<i>Bromus latiglumis</i>	7
<i>Bromus pubescens</i>	6
<i>Buchloe dactyloides</i>	7
<i>Bulbostylis capillaris</i>	6
<i>Calamagrostis canadensis</i>	6
<i>Calamagrostis montanensis</i>	9
<i>Calamagrostis stricta</i>	6
<i>Calamagrostis stricta</i> subsp. <i>inexpansa</i>	6
<i>Calamagrostis stricta</i> subsp. <i>stricta</i>	7
<i>Calamovilfa longifolia</i> var. <i>longifolia</i>	6
<i>Callitriche hermaphroditica</i>	10
<i>Callitriche heterophylla</i>	9
<i>Callitriche palustris</i>	7
<i>Caltha palustris</i>	6
<i>Calylophus serrulatus</i>	8
<i>Calystegia sepium</i>	2
<i>Campanula americana</i>	5
<i>Campanula aparinoides</i>	7
<i>Campanula rotundifolia</i>	6
<i>Cardamine bulbosa</i>	7
<i>Cardamine concatenata</i>	8
<i>Cardamine pensylvanica</i>	5
<i>Carex albursina</i>	8
<i>Carex alopecoidea</i>	6
<i>Carex annectens</i>	7
<i>Carex aquatilis</i> var. <i>substricta</i>	7
<i>Carex assiniboinensis</i>	6
<i>Carex atherodes</i>	6
<i>Carex aurea</i>	4
<i>Carex backii</i>	8
<i>Carex bebbii</i>	6
<i>Carex bicknellii</i>	7

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<i>Carex blanda</i>	4
<i>Carex brevior</i>	4
<i>Carex brunnescens</i>	8
<i>Carex buxbaumii</i>	7
<i>Carex capillaris</i>	9
<i>Carex castanea</i>	7
<i>Carex cephaloidea</i>	6
<i>Carex cephalophora</i>	8
<i>Carex chordorrhiza</i>	10
<i>Carex comosa</i>	6
<i>Carex conoidea</i>	7
<i>Carex crawei</i>	7
<i>Carex crawfordii</i>	5
<i>Carex cristatella</i>	5
<i>Carex davisii</i>	9
<i>Carex deweyana</i> var. <i>deweyana</i>	7
<i>Carex diandra</i>	8
<i>Carex disperma</i>	8
<i>Carex duriuscula</i>	5
<i>Carex eburnea</i>	8
<i>Carex emoryi</i>	7
<i>Carex filifolia</i> var. <i>filifolia</i>	7
<i>Carex formosa</i>	9
<i>Carex garberi</i>	8
<i>Carex gracillima</i>	6
<i>Carex granularis</i>	4
<i>Carex gravida</i>	4
<i>Carex grayi</i>	9
<i>Carex grisea</i>	4
<i>Carex gynocrates</i>	10
<i>Carex hallii</i>	8
<i>Carex haydenii</i>	8
<i>Carex hirtifolia</i>	6
<i>Carex hitchcockiana</i>	9
<i>Carex hystericina</i>	6
<i>Carex inops</i> subsp. <i>heliophila</i>	5
<i>Carex interior</i>	7
<i>Carex intumescens</i>	6
<i>Carex lacustris</i>	6
<i>Carex laeviconica</i>	6
<i>Carex lasiocarpa</i> subsp. <i>americana</i>	8
<i>Carex leptalea</i>	9
<i>Carex limosa</i>	10
<i>Carex livida</i>	10

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<i>Carex lupulina</i>	8
<i>Carex meadii</i>	7
<i>Carex molesta</i>	6
<i>Carex normalis</i>	9
<i>Carex obtusata</i>	8
<i>Carex oligocarpa</i>	10
<i>Carex peckii</i>	8
<i>Carex pedunculata</i>	7
<i>Carex pellita</i>	4
<i>Carex pensylvanica</i>	4
<i>Carex praegracilis</i>	5
<i>Carex prairea</i>	8
<i>Carex projecta</i>	5
<i>Carex pseudocyperus</i>	7
<i>Carex radiata</i>	5
<i>Carex retrorsa</i>	5
<i>Carex richardsonii</i>	8
<i>Carex rosea</i>	5
<i>Carex sartwellii</i>	6
<i>Carex saximontana</i>	7
<i>Carex scirpoidea</i> subsp. <i>scirpoidea</i>	9
<i>Carex scoparia</i> var. <i>scoparia</i>	5
<i>Carex siccata</i>	5
<i>Carex sparganioides</i>	8
<i>Carex sprengei</i>	5
<i>Carex sterilis</i>	10
<i>Carex stipata</i> var. <i>stipata</i>	4
<i>Carex stricta</i>	6
<i>Carex sychnocephala</i>	4
<i>Carex tenera</i>	7
<i>Carex tenera</i> var. <i>echinodes</i>	7
<i>Carex tenera</i> var. <i>tenera</i>	6
<i>Carex tetanica</i>	7
<i>Carex tonsa</i>	9
<i>Carex torreyi</i>	8
<i>Carex trichocarpa</i>	8
<i>Carex umbellata</i>	7
<i>Carex utriculata</i>	7
<i>Carex vaginata</i>	10
<i>Carex vesicaria</i>	8
<i>Carex viridula</i> var. <i>viridula</i>	8
<i>Carex vulpinoidea</i>	3
<i>Carex xerantica</i>	10
<i>Carpinus caroliniana</i> subsp. <i>virginiana</i>	7

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<i>Carya cordiformis</i>	7
<i>Castilleja coccinea</i>	6
<i>Castilleja sessiliflora</i>	9
<i>Caulophyllum thalictroides</i>	8
<i>Ceanothus americanus</i> var. <i>pitcheri</i>	8
<i>Celastrus scandens</i>	3
<i>Celtis occidentalis</i>	4
<i>Cenchrus longispinus</i>	2
<i>Cerastium arvense</i> subsp. <i>strictum</i>	6
<i>Cerastium brachypodum</i>	1
<i>Cerastium nutans</i> var. <i>nutans</i>	1
<i>Ceratophyllum demersum</i>	2
<i>Chamaecrista fasciculata</i>	6
<i>Chamaerhodos erecta</i>	7
<i>Chelone glabra</i>	8
<i>Chenopodium berlandieri</i> var. <i>bushianum</i>	1
<i>Chenopodium berlandieri</i> var. <i>zschackei</i>	3
<i>Chenopodium glaucum</i>	2
<i>Chenopodium pratericola</i>	3
<i>Chenopodium rubrum</i>	3
<i>Chenopodium simplex</i>	2
<i>Chenopodium standleyanum</i>	7
<i>Cicuta bulbifera</i>	7
<i>Cicuta maculata</i> var. <i>maculata</i>	6
<i>Cinna arundinacea</i>	7
<i>Cinna latifolia</i>	7
<i>Circaea alpina</i> var. <i>alpina</i>	9
<i>Circaea lutetiana</i> var. <i>canadensis</i>	4
<i>Cirsium altissimum</i>	5
<i>Cirsium discolor</i>	3
<i>Cirsium flodmanii</i>	5
<i>Cirsium muticum</i>	7
<i>Cirsium pumilum</i> var. <i>hillii</i>	9
<i>Cladium mariscoides</i>	9
<i>Claytonia virginica</i>	7
<i>Clematis virginiana</i>	4
<i>Coeloglossum viride</i>	8
<i>Collomia linearis</i>	6
<i>Comandra umbellata</i>	6
<i>Conyza canadensis</i>	0
<i>Conyza ramosissima</i>	0
<i>Coptis trifolia</i>	8
<i>Corallorhiza maculata</i> var. <i>occidentalis</i>	9
<i>Coreopsis palmata</i>	8

MN DNR Official Name	Prairie Region C-value 05-01-2017
<i>Cornus alternifolia</i>	7
<i>Cornus amomum</i> var. <i>schuetzeana</i>	6
<i>Cornus canadensis</i>	7
<i>Cornus racemosa</i>	4
<i>Cornus rugosa</i>	7
<i>Cornus sericea</i>	4
<i>Corydalis aurea</i> var. <i>aurea</i>	4
<i>Corydalis micrantha</i> var. <i>micrantha</i>	6
<i>Corylus americana</i>	4
<i>Corylus cornuta</i> subsp. <i>cornuta</i>	5
<i>Crataegus calpodendron</i>	5
<i>Crataegus chrysoarpa</i>	3
<i>Crataegus macracantha</i>	4
<i>Crataegus mollis</i>	3
<i>Crataegus punctata</i>	4
<i>Crataegus sheridana</i>	5
<i>Crataegus submollis</i>	5
<i>Crataegus succulenta</i>	5
<i>Crepis runcinata</i> subsp. <i>runcinata</i>	7
<i>Cryptotaenia canadensis</i>	4
<i>Cuscuta cephalanthi</i>	9
<i>Cuscuta coryli</i>	9
<i>Cuscuta glomerata</i>	6
<i>Cuscuta gronovii</i> var. <i>gronovii</i>	5
<i>Cuscuta pentagona</i>	8
<i>Cyclachaena xanthifolia</i>	1
<i>Cycloloma atriplicifolium</i>	1
<i>Cyperus acuminatus</i>	7
<i>Cyperus bipartitus</i>	4
<i>Cyperus diandrus</i>	6
<i>Cyperus erythrorhizos</i>	2
<i>Cyperus lupulinus</i> subsp. <i>lupulinus</i>	7
<i>Cyperus odoratus</i>	2
<i>Cyperus schweinitzii</i>	6
<i>Cyperus squarrosus</i>	4
<i>Cyperus strigosus</i>	3
<i>Cypripedium acaule</i>	8
<i>Cypripedium arietinum</i>	10
<i>Cypripedium candidum</i>	9
<i>Cypripedium parviflorum</i> var. <i>makasin</i>	8
<i>Cypripedium parviflorum</i> var. <i>pubescens</i>	8
<i>Cypripedium reginae</i>	9
<i>Cystopteris bulbifera</i>	9
<i>Cystopteris fragilis</i>	7

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<i>Cystopteris tenuis</i>	9
<i>Dalea candida</i> var. <i>candida</i>	8
<i>Dalea candida</i> var. <i>oligophylla</i>	8
<i>Dalea purpurea</i> var. <i>purpurea</i>	7
<i>Dalea villosa</i>	9
<i>Danthonia spicata</i>	6
<i>Dasiphora fruticosa</i>	8
<i>Delphinium carolinianum</i> subsp. <i>virescens</i>	7
<i>Deschampsia cespitosa</i> subsp. <i>cespitosa</i>	8
<i>Desmanthus illinoensis</i>	7
<i>Desmodium canadense</i>	5
<i>Desmodium glutinosum</i>	6
<i>Dicentra cucullaria</i>	8
<i>Dichanthelium acuminatum</i>	4
<i>Dichanthelium boreale</i>	10
<i>Dichanthelium depauperatum</i>	6
<i>Dichanthelium leibergii</i>	8
<i>Dichanthelium linearifolium</i>	7
<i>Dichanthelium oligosanthes</i>	6
<i>Dichanthelium ovale</i> subsp. <i>praecocius</i>	6
<i>Dichanthelium ovale</i> subsp. <i>villosissimum</i>	6
<i>Dichanthelium wilcoxianum</i>	8
<i>Dichanthelium xanthophyllum</i>	9
<i>Diervilla lonicera</i>	9
<i>Dirca palustris</i>	9
<i>Distichlis spicata</i>	6
<i>Doellingeria umbellata</i>	6
<i>Draba nemorosa</i>	2
<i>Draba reptans</i>	4
<i>Dracocephalum parviflorum</i>	4
<i>Drosera rotundifolia</i>	9
<i>Dryopteris carthusiana</i>	7
<i>Dryopteris cristata</i>	8
<i>Echinacea angustifolia</i>	7
<i>Echinochloa muricata</i>	2
<i>Echinocystis lobata</i>	2
<i>Elaeagnus commutata</i>	5
<i>Elatine triandra</i>	7
<i>Eleocharis acicularis</i>	3
<i>Eleocharis coloradoensis</i>	10
<i>Eleocharis compressa</i>	7
<i>Eleocharis elliptica</i>	8
<i>Eleocharis engelmannii</i>	8
<i>Eleocharis erythropoda</i>	4

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<i>Eleocharis intermedia</i>	8
<i>Eleocharis macrostachya</i>	5
<i>Eleocharis obtusa</i>	4
<i>Eleocharis palustris</i>	5
<i>Eleocharis quinqueflora</i>	7
<i>Eleocharis rostellata</i>	10
<i>Eleocharis wolfii</i>	9
<i>Ellisia nyctelea</i>	2
<i>Elodea canadensis</i>	5
<i>Elodea nuttallii</i>	7
<i>Elymus canadensis</i> var. <i>canadensis</i>	4
<i>Elymus curvatus</i>	7
<i>Elymus diversiglumis</i>	6
<i>Elymus hystrix</i>	5
<i>Elymus trachycaulus</i>	5
<i>Elymus villosus</i>	7
<i>Elymus virginicus</i> var. <i>virginicus</i>	4
<i>Enemion biternatum</i>	7
<i>Epilobium angustifolium</i>	5
<i>Epilobium ciliatum</i> var. <i>ciliatum</i>	3
<i>Epilobium coloratum</i>	3
<i>Epilobium leptophyllum</i>	7
<i>Epilobium palustre</i>	9
<i>Equisetum arvense</i>	1
<i>Equisetum fluviatile</i>	7
<i>Equisetum hyemale</i> subsp. <i>affine</i>	2
<i>Equisetum laevigatum</i>	6
<i>Equisetum palustre</i>	9
<i>Equisetum pratense</i>	8
<i>Equisetum scirpoides</i>	9
<i>Equisetum variegatum</i> subsp. <i>variegatum</i>	5
<i>Eragrostis hypnoides</i>	4
<i>Eragrostis pectinacea</i> var. <i>pectinacea</i>	0
<i>Eragrostis spectabilis</i>	4
<i>Erigeron annuus</i>	1
<i>Erigeron glabellus</i> var. <i>pubescens</i>	6
<i>Erigeron lonchophyllus</i>	5
<i>Erigeron philadelphicus</i> var. <i>philadelphicus</i>	2
<i>Erigeron strigosus</i>	2
<i>Eriophorum angustifolium</i> subsp. <i>angustifolium</i>	8
<i>Eriophorum chamissonis</i>	10
<i>Eriophorum gracile</i>	10
<i>Eriophorum viridicarinatum</i>	10
<i>Eryngium yuccifolium</i>	8

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<i>Erysimum asperum</i>	4
<i>Erythronium albidum</i>	7
<i>Escobaria vivipara</i>	10
<i>Euonymus atropurpureus</i>	8
<i>Eupatorium perfoliatum</i>	5
<i>Euphorbia corollata</i> var. <i>corollata</i>	4
<i>Euphorbia dentata</i>	0
<i>Euphorbia geyeri</i>	0
<i>Euphorbia glyptosperma</i>	1
<i>Euphorbia maculata</i>	0
<i>Euphorbia marginata</i>	1
<i>Euphorbia nutans</i>	0
<i>Euphorbia serpyllifolia</i>	1
<i>Euphorbia spathulata</i>	5
<i>Euthamia graminifolia</i>	4
<i>Euthamia gymnospermoides</i>	6
<i>Eutrochium maculatum</i>	4
<i>Eutrochium purpureum</i>	7
<i>Fallopia scandens</i>	4
<i>Festuca subverticillata</i>	5
<i>Fimbristylis puberula</i> var. <i>interior</i>	10
<i>Fragaria vesca</i> var. <i>americana</i>	7
<i>Fragaria virginiana</i>	3
<i>Fraxinus nigra</i>	8
<i>Fraxinus pennsylvanica</i>	2
<i>Gaillardia aristata</i>	7
<i>Galearis spectabilis</i>	9
<i>Galium aparine</i>	2
<i>Galium asprellum</i>	6
<i>Galium boreale</i>	5
<i>Galium concinnum</i>	6
<i>Galium labradoricum</i>	9
<i>Galium obtusum</i> var. <i>obtusum</i>	8
<i>Galium tinctorium</i> var. <i>tinctorium</i>	5
<i>Galium trifidum</i> var. <i>trifidum</i>	6
<i>Galium triflorum</i> var. <i>triflorum</i>	6
<i>Gaultheria hispidula</i>	9
<i>Gaura coccinea</i>	7
<i>Gentiana affinis</i>	10
<i>Gentiana andrewsii</i>	7
<i>Gentiana puberulenta</i>	9
<i>Gentianella amarella</i>	10
<i>Gentianopsis crinita</i>	8
<i>Gentianopsis procera</i>	8

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<i>Geranium bicknellii</i>	5
<i>Geranium carolinianum</i>	5
<i>Geranium maculatum</i>	6
<i>Geum aleppicum</i> var. <i>strictum</i>	4
<i>Geum canadense</i>	4
<i>Geum laciniatum</i>	7
<i>Geum macrophyllum</i> var. <i>perincisum</i>	5
<i>Geum triflorum</i>	6
<i>Glyceria borealis</i>	8
<i>Glyceria grandis</i> var. <i>grandis</i>	5
<i>Glyceria striata</i>	5
<i>Glycyrrhiza lepidota</i>	3
<i>Goodyera repens</i>	9
<i>Gratiola neglecta</i>	4
<i>Grindelia squarrosa</i>	1
<i>Gymnocarpium dryopteris</i>	8
<i>Gymnocladus dioica</i>	7
<i>Hackelia deflexa</i> var. <i>americana</i>	2
<i>Hackelia virginiana</i>	2
<i>Halenia deflexa</i> var. <i>deflexa</i>	8
<i>Hedeoma hispida</i>	2
<i>Hedyotis longifolia</i>	7
<i>Helenium autumnale</i>	4
<i>Helianthemum bicknellii</i>	8
<i>Helianthus annuus</i>	0
<i>Helianthus giganteus</i>	4
<i>Helianthus grosseserratus</i>	4
<i>Helianthus hirsutus</i>	6
<i>Helianthus maximiliani</i>	4
<i>Helianthus nuttallii</i> subsp. <i>rydbergii</i>	9
<i>Helianthus pauciflorus</i> subsp. <i>pauciflorus</i>	7
<i>Helianthus pauciflorus</i> subsp. <i>subrhomboideus</i>	6
<i>Helianthus petiolaris</i> subsp. <i>petiolaris</i>	2
<i>Helianthus strumosus</i>	6
<i>Helianthus tuberosus</i>	3
<i>Heliopsis helianthoides</i> var. <i>scabra</i>	5
<i>Heracleum lanatum</i>	3
<i>Hesperostipa comata</i> subsp. <i>comata</i>	8
<i>Hesperostipa spartea</i>	7
<i>Heteranthera dubia</i>	9
<i>Heteranthera limosa</i>	10
<i>Heterotheca villosa</i>	6
<i>Heuchera richardsonii</i>	7
<i>Hieracium longipilum</i>	7

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<i>Hieracium umbellatum</i>	6
<i>Hippuris vulgaris</i>	6
<i>Hordeum jubatum</i> subsp. <i>jubatum</i>	0
<i>Hordeum pusillum</i>	6
<i>Hudsonia tomentosa</i>	10
<i>Humulus lupulus</i> var. <i>lupuloides</i>	4
<i>Hydrophyllum virginianum</i> var. <i>virginianum</i>	4
<i>Hypericum majus</i>	7
<i>Hypericum pyramidatum</i>	8
<i>Hypoxis hirsuta</i>	8
<i>Impatiens capensis</i>	3
<i>Impatiens pallida</i>	5
<i>Iris versicolor</i>	5
<i>Iris virginica</i>	5
<i>Isanthus brachiatus</i>	5
<i>Isoetes melanopoda</i>	10
<i>Juglans cinerea</i>	6
<i>Juglans nigra</i>	4
<i>Juncus alpinoarticulatus</i>	6
<i>Juncus arcticus</i> var. <i>balticus</i>	3
<i>Juncus brevicaudatus</i>	6
<i>Juncus bufonius</i>	2
<i>Juncus dudleyi</i>	4
<i>Juncus greenei</i>	9
<i>Juncus interior</i>	5
<i>Juncus longistylis</i>	8
<i>Juncus nodosus</i>	5
<i>Juncus tenuis</i>	2
<i>Juncus torreyi</i>	4
<i>Juncus vaseyi</i>	9
<i>Juniperus communis</i> var. <i>depressa</i>	5
<i>Juniperus horizontalis</i>	9
<i>Juniperus virginiana</i> var. <i>virginiana</i>	1
<i>Koeleria macrantha</i>	6
<i>Krigia biflora</i>	7
<i>Lactuca biennis</i>	3
<i>Lactuca canadensis</i>	3
<i>Lactuca floridana</i>	6
<i>Lactuca ludoviciana</i>	5
<i>Laportea canadensis</i>	4
<i>Larix laricina</i>	9
<i>Lathyrus ochroleucus</i>	6
<i>Lathyrus palustris</i>	6
<i>Lathyrus venosus</i> var. <i>intonsus</i>	6

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<i>Lechea intermedia</i>	7
<i>Lechea stricta</i>	5
<i>Leersia oryzoides</i>	3
<i>Leersia virginica</i>	4
<i>Lemna minor</i>	4
<i>Lemna trisulca</i>	4
<i>Lemna turionifera</i>	2
<i>Lepidium densiflorum</i>	0
<i>Leptochloa fusca</i> subsp. <i>fascicularis</i>	0
<i>Lespedeza capitata</i>	5
<i>Lespedeza leptostachya</i>	8
<i>Liatris aspera</i>	7
<i>Liatris cylindracea</i>	9
<i>Liatris ligulistylis</i>	7
<i>Liatris punctata</i> var. <i>punctata</i>	7
<i>Liatris pycnostachya</i> var. <i>pycnostachya</i>	8
<i>Lilium michiganense</i>	6
<i>Lilium philadelphicum</i>	9
<i>Limosella aquatica</i>	4
<i>Lindernia dubia</i> var. <i>anagallidea</i>	8
<i>Lindernia dubia</i> var. <i>dubia</i>	6
<i>Linnaea borealis</i> var. <i>longiflora</i>	9
<i>Linum rigidum</i> var. <i>rigidum</i>	7
<i>Linum sulcatum</i>	7
<i>Liparis loeselii</i>	8
<i>Lithospermum canescens</i>	7
<i>Lithospermum caroliniense</i> var. <i>croceum</i>	7
<i>Lithospermum incisum</i>	7
<i>Lithospermum latifolium</i>	7
<i>Lobelia kalmii</i>	8
<i>Lobelia siphilitica</i> var. <i>ludoviciana</i>	6
<i>Lobelia siphilitica</i> var. <i>siphilitica</i>	6
<i>Lobelia spicata</i>	6
<i>Lomatium orientale</i>	7
<i>Lonicera dioica</i>	6
<i>Lonicera oblongifolia</i>	9
<i>Lotus purshianus</i>	5
<i>Ludwigia polycarpa</i>	7
<i>Lycopus americanus</i>	4
<i>Lycopus asper</i>	4
<i>Lycopus uniflorus</i>	5
<i>Lygodesmia juncea</i>	6
<i>Lysimachia ciliata</i>	5
<i>Lysimachia hybrida</i>	6

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<i>Lysimachia maritima</i>	10
<i>Lysimachia quadriflora</i>	7
<i>Lysimachia thysiflora</i>	6
<i>Lythrum alatum</i> var. <i>alatum</i>	7
<i>Maianthemum canadense</i>	6
<i>Maianthemum racemosum</i> subsp. <i>racemosum</i>	6
<i>Maianthemum stellatum</i>	5
<i>Maianthemum trifolium</i>	8
<i>Marsilea vestita</i>	8
<i>Matteuccia struthiopteris</i> var. <i>pennsylvanica</i>	6
<i>Menispermum canadense</i>	6
<i>Mentha arvensis</i> var. <i>canadensis</i>	3
<i>Micranthes pennsylvanica</i>	8
<i>Mimulus glabratus</i> var. <i>fremontii</i>	8
<i>Mimulus ringens</i> var. <i>ringens</i>	5
<i>Minuartia dawsonensis</i>	10
<i>Mirabilis albida</i>	5
<i>Mirabilis nyctaginea</i>	1
<i>Mitella nuda</i>	8
<i>Moehringia lateriflora</i>	7
<i>Monarda fistulosa</i>	3
<i>Monolepis nuttalliana</i>	3
<i>Monotropa uniflora</i>	8
<i>Muhlenbergia asperifolia</i>	4
<i>Muhlenbergia cuspidata</i>	9
<i>Muhlenbergia frondosa</i>	4
<i>Muhlenbergia glomerata</i>	8
<i>Muhlenbergia mexicana</i>	5
<i>Muhlenbergia racemosa</i>	4
<i>Muhlenbergia richardsonis</i>	8
<i>Mulgedium pulchellum</i>	8
<i>Myosotis verna</i>	5
<i>Myosurus minimus</i>	6
<i>Myriophyllum sibiricum</i>	7
<i>Myriophyllum verticillatum</i>	8
<i>Najas flexilis</i>	5
<i>Najas guadalupensis</i> subsp. <i>guadalupensis</i>	8
<i>Najas guadalupensis</i> subsp. <i>olivacea</i>	10
<i>Najas marina</i>	2
<i>Nassella viridula</i>	6
<i>Nothocalais cuspidata</i>	8
<i>Nuphar variegata</i>	7
<i>Nymphaea odorata</i>	7
<i>Oenothera biennis</i>	1

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<i>Oenothera nuttallii</i>	8
<i>Oenothera parviflora</i> var. <i>parviflora</i>	2
<i>Oenothera perennis</i>	8
<i>Onoclea sensibilis</i>	6
<i>Onosmodium molle</i> var. <i>hispidissimum</i>	4
<i>Onosmodium molle</i> var. <i>occidentale</i>	5
<i>Ophioglossum pusillum</i>	8
<i>Opuntia fragilis</i>	6
<i>Opuntia macrorhiza</i>	8
<i>Orobanche fasciculata</i>	9
<i>Orobanche ludoviciana</i> var. <i>ludoviciana</i>	10
<i>Orthilia secunda</i>	8
<i>Oryzopsis asperifolia</i>	7
<i>Osmorhiza claytonii</i>	5
<i>Osmorhiza longistylis</i>	5
<i>Ostrya virginiana</i>	6
<i>Oxalis dillenii</i>	0
<i>Oxalis stricta</i>	0
<i>Oxalis violacea</i>	6
<i>Oxypolis rigidior</i>	8
<i>Oxytropis lambertii</i> var. <i>lambertii</i>	7
<i>Packera aurea</i>	6
<i>Packera cana</i>	8
<i>Packera paupercula</i>	5
<i>Packera plattensis</i>	5
<i>Packera pseud aurea</i> var. <i>semicordata</i>	6
<i>Panax quinquefolius</i>	10
<i>Panicum capillare</i> subsp. <i>capillare</i>	1
<i>Panicum dichotomiflorum</i> subsp. <i>dichotomiflorum</i>	0
<i>Panicum philadelphicum</i> subsp. <i>philadelphicum</i>	6
<i>Panicum virgatum</i>	4
<i>Parietaria pennsylvanica</i>	2
<i>Parnassia glauca</i>	8
<i>Parnassia palustris</i>	8
<i>Parthenocissus quinquefolia</i>	6
<i>Parthenocissus vitacea</i>	3
<i>Pascopyrum smithii</i>	5
<i>Pedicularis canadensis</i>	7
<i>Pedicularis lanceolata</i>	8
<i>Pediomelum argophyllum</i>	7
<i>Pediomelum esculentum</i>	9
<i>Penstemon albidus</i>	5
<i>Penstemon gracilis</i>	5
<i>Penstemon grandiflorus</i>	5

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<i>Penthorum sedoides</i>	4
<i>Persicaria amphibia</i>	4
<i>Persicaria lapathifolia</i>	2
<i>Persicaria pennsylvanica</i>	2
<i>Persicaria punctata</i>	4
<i>Persicaria sagittata</i>	6
<i>Petasites frigidus</i> var. <i>palmatus</i>	7
<i>Petasites frigidus</i> var. <i>sagittatus</i>	7
<i>Phemeranthus parviflorus</i>	9
<i>Phlox divaricata</i> var. <i>laphamii</i>	7
<i>Phlox maculata</i>	10
<i>Phlox pilosa</i> var. <i>fulgida</i>	8
<i>Phragmites australis</i> subsp. <i>americanus</i>	1
<i>Phryma leptostachya</i>	6
<i>Phyla lanceolata</i>	3
<i>Physalis heterophylla</i> var. <i>heterophylla</i>	4
<i>Physalis virginiana</i>	3
<i>Physostegia virginiana</i> var. <i>virginiana</i>	6
<i>Picea glauca</i>	6
<i>Picea mariana</i>	9
<i>Pilea fontana</i>	5
<i>Pilea pumila</i>	5
<i>Pinus banksiana</i>	7
<i>Piptatherum pungens</i>	6
<i>Piptatherum racemosum</i>	6
<i>Plagiobothrys scouleri</i> var. <i>penicillatus</i>	6
<i>Plantago elongata</i>	7
<i>Plantago eriopoda</i>	5
<i>Plantago rugelii</i>	0
<i>Platanthera aquilonis</i>	7
<i>Platanthera praeclara</i>	10
<i>Platanthera psycodes</i>	8
<i>Poa arida</i>	8
<i>Poa interior</i>	5
<i>Poa palustris</i>	5
<i>Polanisia dodecandra</i> subsp. <i>dodecandra</i>	3
<i>Polanisia dodecandra</i> subsp. <i>trachysperma</i>	3
<i>Polygala paucifolia</i>	9
<i>Polygala sanguinea</i>	6
<i>Polygala senega</i>	7
<i>Polygala verticillata</i> var. <i>isocycla</i>	7
<i>Polygonatum biflorum</i>	5
<i>Polygonatum pubescens</i>	6
<i>Polygonum achoreum</i>	0

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<i>Polygonum tenue</i>	6
<i>Polypodium virginianum</i>	9
<i>Populus balsamifera</i>	4
<i>Populus deltoides</i> subsp. <i>monilifera</i>	1
<i>Populus grandidentata</i>	5
<i>Populus tremuloides</i>	2
<i>Potamogeton amplifolius</i>	8
<i>Potamogeton foliosus</i> subsp. <i>foliosus</i>	5
<i>Potamogeton friesii</i>	7
<i>Potamogeton gramineus</i>	6
<i>Potamogeton illinoensis</i>	5
<i>Potamogeton natans</i>	5
<i>Potamogeton nodosus</i>	7
<i>Potamogeton pusillus</i>	8
<i>Potamogeton richardsonii</i>	7
<i>Potamogeton spirillus</i>	8
<i>Potamogeton zosteriformis</i>	6
<i>Potentilla anserina</i>	3
<i>Potentilla arguta</i> subsp. <i>arguta</i>	7
<i>Potentilla norvegica</i>	2
<i>Potentilla palustris</i>	7
<i>Potentilla paradoxa</i>	5
<i>Potentilla pennsylvanica</i>	8
<i>Potentilla rivalis</i>	2
<i>Potentilla simplex</i>	2
<i>Prenanthes alba</i>	6
<i>Prenanthes aspera</i>	9
<i>Prenanthes racemosa</i>	8
<i>Primula mistassinica</i>	10
<i>Prunus americana</i>	2
<i>Prunus nigra</i>	6
<i>Prunus pennsylvanica</i>	3
<i>Prunus pumila</i>	7
<i>Prunus pumila</i> var. <i>besseyi</i>	8
<i>Prunus serotina</i>	4
<i>Prunus virginiana</i>	3
<i>Psoralidium tenuiflorum</i>	9
<i>Pteridium aquilinum</i> var. <i>latiusculum</i>	3
<i>Puccinellia nuttalliana</i>	5
<i>Pycnanthemum virginianum</i>	6
<i>Pyrola asarifolia</i> subsp. <i>asarifolia</i>	8
<i>Pyrola elliptica</i>	8
<i>Quercus ellipsoidalis</i>	6
<i>Quercus macrocarpa</i>	4

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<i>Quercus rubra</i>	6
<i>Ranunculus abortivus</i>	2
<i>Ranunculus aquatilis</i> var. <i>diffusus</i>	5
<i>Ranunculus cymbalaria</i>	4
<i>Ranunculus fascicularis</i>	6
<i>Ranunculus flabellaris</i>	6
<i>Ranunculus gmelinii</i>	7
<i>Ranunculus hispidus</i> var. <i>caricetorum</i>	6
<i>Ranunculus hispidus</i> var. <i>nitidus</i>	5
<i>Ranunculus pensylvanicus</i>	5
<i>Ranunculus recurvatus</i> var. <i>recurvatus</i>	6
<i>Ranunculus rhomboideus</i>	9
<i>Ranunculus sceleratus</i>	3
<i>Ratibida columnifera</i>	4
<i>Ratibida pinnata</i>	6
<i>Rhamnus alnifolia</i>	8
<i>Rhus glabra</i>	2
<i>Rhus hirta</i>	2
<i>Rhynchospora capillacea</i>	10
<i>Ribes americanum</i>	4
<i>Ribes cynosbati</i>	3
<i>Ribes hirtellum</i>	9
<i>Ribes missouriense</i>	3
<i>Ribes oxycanthoides</i> var. <i>oxycanthoides</i>	9
<i>Ribes triste</i>	8
<i>Rorippa palustris</i> subsp. <i>hispida</i>	4
<i>Rorippa palustris</i> subsp. <i>palustris</i>	3
<i>Rorippa sinuata</i>	9
<i>Rosa acicularis</i> subsp. <i>sayi</i>	6
<i>Rosa arkansana</i>	4
<i>Rosa blanda</i>	4
<i>Rosa woodsii</i> var. <i>woodsii</i>	5
<i>Rubus idaeus</i> var. <i>strigosus</i>	3
<i>Rubus occidentalis</i>	2
<i>Rubus pubescens</i>	7
<i>Rudbeckia hirta</i> var. <i>pulcherrima</i>	3
<i>Rudbeckia laciniata</i> var. <i>laciniata</i>	4
<i>Rumex britannica</i>	5
<i>Rumex fueginus</i>	4
<i>Rumex triangulivalvis</i>	4
<i>Ruppia cirrhosa</i>	6
<i>Sagittaria brevirostra</i>	10
<i>Sagittaria calycina</i> var. <i>calycina</i>	10
<i>Sagittaria cuneata</i>	7

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<i>Sagittaria latifolia</i>	5
<i>Sagittaria rigida</i>	9
<i>Salicornia rubra</i>	4
<i>Salix amygdaloides</i>	3
<i>Salix bebbiana</i>	6
<i>Salix candida</i>	9
<i>Salix discolor</i>	4
<i>Salix eriocephala</i>	5
<i>Salix humilis</i>	8
<i>Salix interior</i>	2
<i>Salix lucida</i>	6
<i>Salix maccalliana</i>	9
<i>Salix nigra</i>	6
<i>Salix pedicellaris</i>	9
<i>Salix petiolaris</i>	5
<i>Salix planifolia</i>	8
<i>Salix pseudomonticola</i>	9
<i>Salix pyrifolia</i>	8
<i>Salix serissima</i>	8
<i>Sambucus canadensis</i> var. <i>canadensis</i>	2
<i>Sambucus racemosa</i> var. <i>pubens</i>	5
<i>Sanguinaria canadensis</i>	7
<i>Sanicula canadensis</i>	8
<i>Sanicula gregaria</i>	6
<i>Sanicula marilandica</i>	5
<i>Sarracenia purpurea</i> subsp. <i>purpurea</i>	10
<i>Schedonnardus paniculatus</i>	6
<i>Scheuchzeria palustris</i>	10
<i>Schizachne purpurascens</i>	8
<i>Schizachyrium scoparium</i> var. <i>scoparium</i>	5
<i>Schoenoplectus acutus</i> var. <i>acutus</i>	6
<i>Schoenoplectus heterochaetus</i>	9
<i>Schoenoplectus pungens</i>	6
<i>Schoenoplectus tabernaemontani</i>	5
<i>Scirpus atrovirens</i>	3
<i>Scirpus cyperinus</i>	4
<i>Scirpus microcarpus</i>	5
<i>Scirpus pallidus</i>	4
<i>Scirpus pendulus</i>	1
<i>Scleria verticillata</i>	10
<i>Scolochloa festucacea</i>	7
<i>Scrophularia lanceolata</i>	4
<i>Scrophularia marilandica</i>	5
<i>Scutellaria galericulata</i>	6

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<i>Scutellaria lateriflora</i>	5
<i>Scutellaria leonardii</i>	7
<i>Scutellaria parvula</i>	8
<i>Selaginella rupestris</i>	8
<i>Senecio integerrimus</i> var. <i>integerrimus</i>	7
<i>Shepherdia argentea</i>	6
<i>Shepherdia canadensis</i>	8
<i>Shinnersoseris rostrata</i>	10
<i>Sibbaldiopsis tridentata</i>	7
<i>Sicyos angulatus</i>	3
<i>Silene antirrhina</i>	2
<i>Silene drummondii</i> subsp. <i>drummondii</i>	8
<i>Silene stellata</i>	7
<i>Silphium laciniatum</i>	8
<i>Silphium perfoliatum</i> var. <i>perfoliatum</i>	5
<i>Sisyrinchium campestre</i>	6
<i>Sisyrinchium montanum</i> var. <i>montanum</i>	6
<i>Sisyrinchium mucronatum</i>	7
<i>Sium suave</i>	5
<i>Smilax ecirrhata</i>	6
<i>Smilax illinoensis</i>	5
<i>Smilax lasioneura</i>	5
<i>Smilax tamnoides</i>	3
<i>Solanum nigrum</i> var. <i>virginicum</i>	0
<i>Solanum rostratum</i>	0
<i>Solidago altissima</i>	1
<i>Solidago altissima</i> subsp. <i>altissima</i>	1
<i>Solidago altissima</i> subsp. <i>gilvocanescens</i>	1
<i>Solidago canadensis</i>	1
<i>Solidago canadensis</i> var. <i>canadensis</i>	1
<i>Solidago flexicaulis</i>	7
<i>Solidago gigantea</i>	3
<i>Solidago hispida</i>	8
<i>Solidago missouriensis</i>	6
<i>Solidago mollis</i>	7
<i>Solidago nemoralis</i>	5
<i>Solidago ptarmicoides</i>	8
<i>Solidago riddellii</i>	8
<i>Solidago rigida</i>	5
<i>Solidago speciosa</i>	7
<i>Solidago uliginosa</i>	9
<i>Sorghastrum nutans</i>	5
<i>Sparganium emersum</i>	7
<i>Sparganium eurycarpum</i>	6

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<i>Sparganium natans</i>	9
<i>Spartina gracilis</i>	7
<i>Spartina pectinata</i>	4
<i>Sphenopholis intermedia</i>	7
<i>Sphenopholis obtusata</i>	8
<i>Spiraea alba</i>	5
<i>Spiranthes cernua</i>	8
<i>Spiranthes lacera</i> var. <i>lacera</i>	8
<i>Spiranthes magnicamporum</i>	7
<i>Spiranthes romanzoffiana</i>	8
<i>Spirodela polyrrhiza</i>	4
<i>Sporobolus compositus</i> var. <i>compositus</i>	4
<i>Sporobolus cryptandrus</i>	3
<i>Sporobolus heterolepis</i>	9
<i>Sporobolus neglectus</i>	1
<i>Sporobolus vaginiflorus</i> var. <i>vaginiflorus</i>	0
<i>Stachys hispida</i>	5
<i>Stachys palustris</i>	4
<i>Staphylea trifolia</i>	7
<i>Stellaria longifolia</i>	5
<i>Stellaria longipes</i> subsp. <i>longipes</i>	5
<i>Streptopus lanceolatus</i>	7
<i>Strophostyles leiosperma</i>	7
<i>Stuckenia pectinata</i>	3
<i>Suaeda calceoliformis</i>	5
<i>Symphoricarpos albus</i>	8
<i>Symphoricarpos occidentalis</i>	3
<i>Symphyotrichum boreale</i>	8
<i>Symphyotrichum ciliolatum</i>	5
<i>Symphyotrichum cordifolium</i>	6
<i>Symphyotrichum drummondii</i> var. <i>drummondii</i>	5
<i>Symphyotrichum ericoides</i>	3
<i>Symphyotrichum laeve</i>	6
<i>Symphyotrichum laeve</i> var. <i>laeve</i>	7
<i>Symphyotrichum lanceolatum</i>	4
<i>Symphyotrichum lateriflorum</i>	5
<i>Symphyotrichum novae-angliae</i>	5
<i>Symphyotrichum oblongifolium</i>	7
<i>Symphyotrichum oolentangiense</i>	7
<i>Symphyotrichum puniceum</i> var. <i>puniceum</i>	6
<i>Symphyotrichum sericeum</i>	9
<i>Symphyotrichum urophyllum</i>	6
<i>Tephroses palustris</i>	6
<i>Teucrium canadense</i>	4

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<i>Thalictrum dasycarpum</i>	5
<i>Thalictrum dioicum</i>	7
<i>Thalictrum venulosum</i>	7
<i>Thaspium barbinode</i>	10
<i>Thelypteris palustris</i> var. <i>pubescens</i>	8
<i>Tilia americana</i>	5
<i>Toxicodendron rydbergii</i>	2
<i>Tradescantia bracteata</i>	7
<i>Tradescantia occidentalis</i> var. <i>occidentalis</i>	6
<i>Triadenum fraseri</i>	8
<i>Triantha glutinosa</i>	8
<i>Trichophorum cespitosum</i>	10
<i>Trichophorum clintonii</i>	9
<i>Trientalis borealis</i>	7
<i>Triglochin maritima</i>	7
<i>Triglochin palustris</i>	9
<i>Trillium cernuum</i>	8
<i>Trillium grandiflorum</i>	9
<i>Trillium nivale</i>	9
<i>Triodanis perfoliata</i>	5
<i>Triplasis purpurea</i> var. <i>purpurea</i>	9
<i>Typha latifolia</i>	4
<i>Ulmus americana</i>	3
<i>Ulmus rubra</i>	6
<i>Ulmus thomasi</i>	8
<i>Utricularia intermedia</i>	8
<i>Utricularia minor</i>	9
<i>Utricularia vulgaris</i>	4
<i>Uvularia grandiflora</i>	7
<i>Uvularia sessilifolia</i>	7
<i>Vaccinium angustifolium</i>	7
<i>Vaccinium caespitosum</i>	10
<i>Vaccinium myrtilloides</i>	9
<i>Vaccinium oxycoccos</i>	9
<i>Vallisneria americana</i>	8
<i>Verbena hastata</i>	3
<i>Verbena simplex</i>	10
<i>Verbena stricta</i>	3
<i>Verbena urticifolia</i>	3
<i>Vernonia fasciculata</i>	5
<i>Veronica catenata</i>	4
<i>Veronica peregrina</i>	1
<i>Veronica scutellata</i>	4
<i>Veronica serpyllifolia</i>	1

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<i>Veronicastrum virginicum</i>	7
<i>Viburnum lentago</i>	6
<i>Viburnum rafinesquianum</i>	6
<i>Viburnum trilobum</i>	6
<i>Vicia americana</i>	5
<i>Viola adunca</i>	9
<i>Viola canadensis</i> var. <i>rugulosa</i>	6
<i>Viola conspersa</i>	8
<i>Viola macloskeyi</i> var. <i>pallens</i>	9
<i>Viola nephrophylla</i>	7
<i>Viola nuttallii</i>	7
<i>Viola palmata</i> var. <i>pedatifida</i>	7
<i>Viola pubescens</i>	5
<i>Viola renifolia</i>	10
<i>Viola sororia</i>	3
<i>Vitis riparia</i>	2
<i>Vulpia octoflora</i>	4
<i>Wolffia columbiana</i>	2
<i>Woodsia ilvensis</i>	9
<i>Woodsia obtusa</i> subsp. <i>obtusa</i>	9
<i>Woodsia oregana</i> subsp. <i>cathcartiana</i>	10
<i>Xanthisma spinulosum</i> var. <i>spinulosum</i>	7
<i>Xanthium strumarium</i>	0
<i>Zannichellia palustris</i>	7
<i>Zanthoxylum americanum</i>	3
<i>Zigadenus elegans</i>	8
<i>Zizania palustris</i>	8
<i>Zizia aptera</i>	7
<i>Zizia aurea</i>	6
<i>Antennaria parlinii</i> subsp. <i>fallax</i>	Unassigned
<i>Astragalus racemosus</i> var. <i>racemosus</i>	Unassigned
<i>Atriplex prostrata</i>	Unassigned
<i>Corispermum americanum</i> var. <i>americanum</i>	Unassigned
<i>Corispermum villosum</i>	Unassigned
<i>Cymopterus glomeratus</i>	Unassigned
<i>Dalea leporina</i>	Unassigned
<i>Descurainia incana</i>	Unassigned
<i>Descurainia pinnata</i> subsp. <i>brachycarpa</i>	Unassigned
<i>Dichantherium perlongum</i>	Unassigned
<i>Erysimum inconspicuum</i>	Unassigned
<i>Festuca saximontana</i> var. <i>saximontana</i>	Unassigned
<i>Grindelia hirsutula</i>	Unassigned
<i>Muhlenbergia sylvatica</i>	Unassigned
<i>Orthocarpus luteus</i>	Unassigned

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<i>Polygonum ramosissimum</i>	Unassigned
<i>Polymnia canadensis</i>	Unassigned
<i>Potamogeton obtusifolius</i>	Unassigned
<i>Ranunculus macounii</i>	Unassigned
<i>Rumex altissimus</i>	Unassigned
<i>Sparganium americanum</i>	Unassigned
<i>Sphaeralcea coccinea</i>	Unassigned
<i>Stellaria crassifolia</i>	Unassigned
<i>Strophostyles helvola</i>	Unassigned
<i>Symphyotrichum falcatum</i> var. <i>commutatum</i>	Unassigned
<i>Turritis glabra</i>	Unassigned
<i>Wolffia borealis</i>	Unassigned