Flora of Ward Pound Ridge Reservation

Seventh Quarterly Report

March 16 – June 15, 2024

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The Friends of Trailside Museum and Ward Pound Ridge Reservation
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Dear Officers of the Board of The Friends of Trailside,

On behalf of myself and my colleagues, Devon Cummings and Daniel Atha, it gives me great pleasure to present to the Board of the Friends of Trailside Museum the seventh quarterly report of the Flora Project covering the period of March 16 through June 15, 2024. We gratefully acknowledge the financial support of the Friends, and we hope our results so far surpass your expectations.

As the growing season began, we wrapped up the specimen mounting of the previous season's vouchers, delivered big boxes of specimens to The New York Botanical Garden and the New York State Museum, began revisiting botanical hot spots and surveying new areas.

During an early season field day, we puzzled over a colony of trees growing in an upland swamp. The emerging buds looked like *Populus*, and as we searched for and found some fallen leaves from the previous season, Daniel recognized it as Swamp poplar, *Populus heterophylla*. This is an exciting discovery, since not only is it listed as threatened NY S2 in New York state, but it is the first record of this species from Westchester County. This discovery once again demonstrates the unique and beautiful habitats that are so important for conservation at The Ward Pound Ridge Reservation.

In consideration of the objectives of the Flora Project, during this three-month period of the early season we collected 87 plant specimens at over thirty-four locations throughout the Ward Pound Ridge Reservation and traveled over seven miles of trails during eleven days of field study. We documented one rare plant species, and seven plants that are the first specimen records from Westchester County.

As the next quarter brings us into the height of the summer season, we will continue to employ the highest scientific standards as we work towards our ultimate goal - to identify and document every wild plant species currently growing in the Reserve as well as plant communities of conservation importance and concern. We hope that you agree that we have are making significant progress towards that goal. We are thankful for your generous support.

Respectfully Yours,

Patricia Butter

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We gratefully acknowledge the Westchester County Parks Staff that have generously contributed their time and expertise to this study: Taro Ietaka, Jeff Main, Daniela Ciatto, Hayley Lewis, Brendan Wallace, Michael Gambino, Lindsey Feinberg, Jason Klein, Leah Cass, Dan Aitchison, Kristina Hayek, Uri Sarig and Jocelyn Lucente.

Objective:

The objective of the Flora Project at Ward Pound Ridge Reservation is to preserve a specimen of every vascular plant species growing spontaneously in the park and to identify and document the ecological communities, prioritizing those of conservation concern. The collection of pressed herbarium specimens of each plant species provides a physical record available for botanical study. The project expands and improves upon the historic records of the reservation by creating an easily accessible resource for conservation efforts by providing a precise and detailed data set and scientifically verifiable records, enabling park management to identify priority plant species and communities for conservation efforts.

Materials and Methods:

This work was performed in accordance with the details set forth in the Flora of Ward Pound Ridge Reservation Proposal approved by the Officers of the Board of the Friends of Trailside on September 15, 2022. Field Work data and specimen collection was performed by Patricia Butter, Devon Cummings, and Daniel Atha with assistance from Taro Ietaka, Lindsey Feinberg, Leah Cass, Jeff Main, Daniela Ciatto, Hayley Lewis, Brendan Wallace, Michael Gambino, Jason Klein, Kristina Hayek, Uri Sarig and Jocelyn Lucente of Westchester County Parks, Friends of Trailside Board member Linda Burke, and volunteers Varner Redmon, Julia Snook, Kevin Sisco, Amy Eli Trautwein, Dorothy Werkmeister, Dennis Galcik, Susan Allport, Gail Jankus, and Maxwell Sabety.

Specimen collection involved creating three pressed and dried herbarium specimens (when populations were sufficient) to specification (11.5” x 16.5”) with parts representing reproductive characteristics and both sides of the leaves of the plant. Whenever possible root structure was also represented.

The specimen data collected included GPS coordinates of the geographic location, a description of the plant’s characteristics that may not be reflected in the dried specimen, the population size, and the plant community in which the species associates.

Photographs were taken of the plants in their natural setting, including detailed photos of key identifying characteristics. These photos were uploaded to the iNaturalist platform.

One specimen of each species will be mounted on archival herbarium paper together with a specimen label for Westchester County Park’s herbarium.

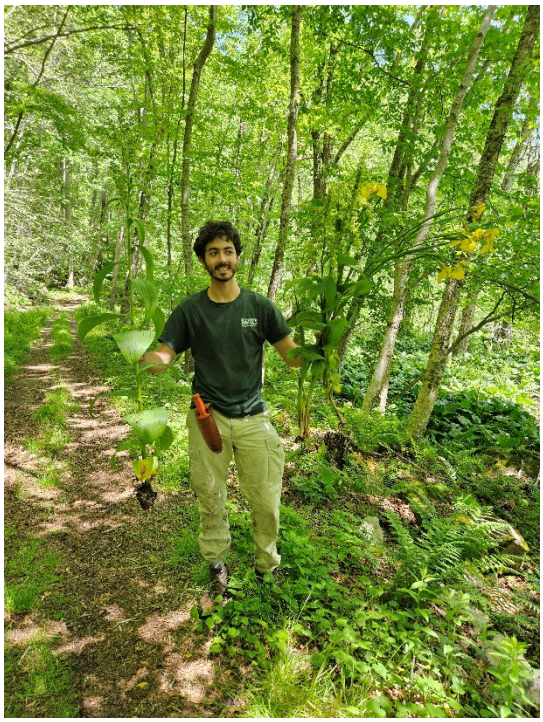
One specimen and label of each species, together with a spreadsheet containing the relevant data will be contributed to the Steere Herbarium at the New York Botanical Garden, which has digitization capabilities to make the specimens available for study to the scientific community at large. An additional duplicate of each specimen will be contributed to the New York State Museum, where the

herbarium is currently undergoing a revitalization, and is expected to be available online in the near future.

A spreadsheet has been established in Google docs with the data for each specimen collected. This data is formatted in the Darwin Core Code for ease of uploading to GBIF, the Global Biodiversity Information Facility by the herbaria.

In consideration of the objective of the Flora Project, eighty-seven plant specimens and data were collected at over thirty-four locations in WPRR (see Appendix I for a map and complete list of collections), in chronological order:

- The group campsite near the Michigan Road parking area
- The Deer Hollow Trail to the Brown Trail
- The edges and hedgerows of Reservation Road
- The drainage ditches along Reservation Road near the Trailside Museum
- The meadow northwest of Trailside
- The Fox Hill Trail along the Cross River
- The meadows adjacent to the Meadow Parking Area.
- The meadows along Michigan Road
- The southern section of Rocks Trail from the BMRA
- The Powerline cut
- The hill next to campsite #7
- The wetlands near the Meadow Parking Area
- The stream near the Main Office
- The meadows along Michigan Road
- The compost area
- The blue trail from Kimberly Bridge to Gilmore Pond.
- The Waccabuc swamp
- The meadows north of the Maintenance Barn
- The Brown Trail to a series of upland swamps
- The watershed east of Deer Hill flowing into the Cross River



Uri Sarig helped collect specimens of False Hellebore and Yellow Iris along the blue trail on May 25, 2024

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Specimen Collections: 87. All specimens and the associated data have been recorded in a shared spreadsheet (see Appendix II for the complete list).

- One rare plant species was documented with specimen records.
- Seven plants collected were the first records of the species from Westchester County.

Notable collections:

A special plant community that we documented this quarter is notable and worthy of mention here. In the index card file in the Trailside Museum, we had found notes about *Clintonia borealis*, Bluebead Lily reported from "H9 Boulder slope" and *Streptopus lanceolatus*, Rose Twisted Stalk from "Seep in cliff north of Gilmore Pond". These notes were intriguing because neither species had been documented in Westchester County before. These plants are typically known from northern, more boreal areas of New York state. This winter, Gail Jankus had also shared her list of photos from Ward Pound Ridge, which included these two species and a note "Blue trail 20-30 feet past split rail fence". We were getting warmer, and even better, she offered to take us to the spot. Additionally, we found iNaturalist observations of these species by Susan Allport with GPS coordinates! Susan also offered to guide us to the site. We were incredibly fortunate on June 25th to have both Susan and Gail join us to document the plants in this unique area where the rock ledges and talus slopes create cool grottos that shelter these typically more northern species of plants.

- Swamp Poplar *(Populus heterophylla)*, NY S2 threatened, first record from Westchester County.
- Dewey's Sedge *(Carex dewyana var. deweyana)*, NY S5, first record from Westchester County, collected from uplands near Spy Rock.
- Blue Bead Lily *(Clintonia borealis)*, NY S5, first record from Westchester County, collected along Blue Trail.
- Rose Twisted Stalk *(Streptopus lanceolatus)*, NY S5, first record from Westchester County, collected along Blue Trail.
- Narrow-leaved Bird's Foot Trefoil (Lotus tenuis), Naturalized, first record from Westchester County, collected from the compost area.
- Meadow Salsify (*Tragopogon pratensis),* Naturalized, first record from Westchester County, collected from the meadows along Michigan Road.
- Common Water Starwort (*Callitriche stagnalis*), Naturalized, first record from Westchester County, collected from the floodplain of the Cross River.

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A leaf of Swamp Cottonwood,
Populus heterophylla, NY S2 threatened
Photo: Daniel Atha

iNaturalist observations: 326

Notable observation:

- Pale Green Orchid *(Platanthera flava)*, NY S4 , three plants were observed, one was in flower, not collected due to scarcity, leaves browsed.

Trailside Herbarium: It is very exciting to see how the collection at The Trailside Herbarium has grown and now includes 496 mounted specimens from the Flora project. Each of these specimens has been carefully collected, documented, dried, labeled and mounted using the highest scientific standards.

The specimens also underwent an aggressive freezing process to eliminate insects. The process included freezing at -2 degrees Fahrenheit for seven days, followed by three days at room temperature, and then an additional seven days at -2 degrees. A complete list of the Herbarium collection is included in Appendix III.

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23 May, 2024, The Trailside Herbarium cabinets with newly mounted plant specimens.

Research and Collaborations: Notable items accomplished included: Reporting rare plant observations to the New York Natural Heritage Program for *Populus heterophylla.*

On May 2, 2024, 354 specimens from the 2023 season were delivered to the Steere Herbarium at the New York Botanical Garden.
On April 19, 2024, 344 specimens from the 2023 season were delivered to the New York State Museum Herbarium. All specimens were delivered together with a spreadsheet containing the data from the labels structured to conform to the Darwin Code Standards utilized by the worldwide biological community to publish their data with GBIF, the Global Biodiversity Information Facility (www.gbif.org).

In summary, the goal of the Flora Project is to identify and document plant communities of conservation importance and concern. This study will advance scientific knowledge of our flora at county, state and regional levels. The Ward Pound Ridge Reservation is an important area for conservation, and the commitment to conservation and financial support of the Friends of Trailside comes at a crucial time. This work on the Flora of Ward Pound Ridge Reservation has been performed by Patricia Butter, Devon Cummings and Daniel Atha in approximately 250 hours of labor. The next quarter will be dedicated to further fieldwork and the collection of specimens.

Report prepared by Patricia Butter with contributions from Devon Cummings and Daniel Atha.

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Top row from left: *Anemonoides quinquefolia, Clintonia borealis*; middle row, *Rhododendron periclymenoides*; bottom row from left: *Lotus corniculatus, Geranium maculatum*. Background photo of upland swamp where *Populous heterophylla* was found. Photos by Patricia Butter and Devon Cummings.

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Appendix I

Map of Ward Pound Ridge Reservation Plant Specimen Collection Sites
18 March – 15 June 2024

See lists of species collected below.

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Collected on March 16, 2024, Group Campsite, Michigan Road
Collector: Patricia Butter

Capsella bursa-pastoris

Collected on April 6, 2024, Deer Hollow Trail to Brown Trail,
Collectors: Patricia Butter, Devon Cummings, Daniel Atha

Picea
Populus heterophylla
Prunus
Taraxacum officinale

Collected on April 20, 2024, Along Reservation Road from Kimberly Bridge to the Main Office, Fox Hill Trail north of Reservation Road
Collectors: Patricia Butter, Devon Cummings

Amelanchier sanguinea
Antennaria plantaginifolia
Equisetum arvense
Glechoma hederacea
Ranunculus abortivus
Antennaria
Antennaria
Salix
Salix
Salix alba var. *vitellina*
Salix eriocephala
Tussilago farfara
Viola rotundifolia

Collected on May 4, 2024, Rocks Trail from BMRA to the Powerline Cut
Collectors: Patricia Butter, Devon Cummings

Amelanchier spicata
Cardamine pratensis
Carex deweyana var. *deweyana*

Potentilla canadensis
Rhododendron periclymenoides
Uvularia sessifolia
Viola subsinuata

Collected on May 8, 2024, Rock outcrop near campsite #7, Cross River near Maintenance Barn
Collector: Patricia Butter

Aquilegia canadensis
Malus
Malus domestica
Prunus avium
Salix eriocephala
Viburnum prunifolium

Collected on May 13, 2024, Stream near Meadow Parking Area, Stream near Main Office
Collector: Patricia Butter

Carex blanda
Carex prasina
Primula japonica
Prunus virginiana var. *virginiana*
Ranunculus caricetorum
Salix sericea
Veronica chamaedrys

Collected on May 15, 2024, Meadow and Michigan Road Parking Areas
Collector: Patricia Butter

Cardamine impatiens
Carex conoidea
Eleocharis
Geranium maculatum
Matricaria discoidea

Collected on May 25, 2024, Blue Trail east, compost area
Collectors: Devon Cummings, Patricia Butter, Taro Ietaka, Uri Sarig, Susan Allport, Gail Jankus

Acer spicatum
Aralia nudicaulis
Asarum canadense
Carex appalachica
Carex cephalophora
Carex rosea
Carex scabrata
Carex sparganioides
Clintonia borealis
Euphorbia cyparissias
Festuca subverticillata
Iris pseudacorus
Lotus tenuis
Lysimachia borealis
Maianthemum racemosum
Mitella diphylla
Schedonorus arundinaceus
Staphylea trifolia
Streptopus lanceolatus
Veratrum viride

Collected on May 26, 2024, Michigan Road meadows, Cross River swamp
Collector: Patricia Butter

Callitriche stagnalis
Carex tribuloides var. *tribuloides*
Festuca rubra ssp. rubra
Melilotus officinalis
Phalaris arundinacea
Sagina japonica
Tragopogon pratensis

Collected on May 31, 2024, Compost area, Michigan Road meadows
Collector: Patricia Butter

Carex normalis
Dichanthelium commutatum ssp. *ashei*

Dichanthelium depauperatum
Pilosella pilloseloides
Vitis riparia

Collected on June 10, 2024, meadows north of Cross River, Brown Trail to upland swamps
Collectors: Patricia Butter, Daniel Atha, Devon Cummings

Allium canadense var. *canadense*
Carex conoidea
Carex pellita
Carex seorsa
Carex vulpinoidea
Danthonia compressa
Eleocharis erythropoda
Festuca subverticillata
Lotus corniculatus
Penstemon digitalis
Poa palustris
Populus heterophylla
Rumex crispus
Sassafras albidum
Vicia cracca

Appendix II: Specimens Collected 16 March - 15 June, 2024

Botanical Name	Collection Date	Collection Number
Capsella bursa-pastoris	16-Mar-2024	1299
Picea	6-Apr-2024	16446
Populus heterophylla	6-Apr-2024	16447
Prunus	6-Apr-2024	16449
Taraxacum officinale	6 Apr 2024	16448
Amelanchier sanguinea	20-Apr-2024	1307
Antennaria plantaginifolia	20-Apr-2024	93
Equisetum arvense	20-Apr-2024	94
Glechoma hederacea	20-Apr-2024	95
Ranunculus abortivus	20-Apr-2024	92
Antennaria	20-Apr-2024	97
Antennaria	20-Apr-2024	96
Salix	20-Apr-2024	1306
Salix	20-Apr-2024	1305
Salix alba var. *vitellina*	20-Apr-2024	1304
Salix eriocephala	20-Apr-2024	1303
Tussilago farfara	20-Apr-2024	1308
Viola rotundifolia	20-Apr-2024	98
Amelanchier spicata	4-May-2024	1315
Cardamine pratensis	4-May-2024	1312
Carex deweyana var. *deweyana*	4-May-2024	1313
Potentilla canadensis	4-May-2024	1314
Rhododendron periclymenoides	4-May-2024	1317
Uvularia sessifolia	4-May-2024	1316
Viola subsinuata	4-May-2024	1318
Aquilegia canadensis	8-May-2024	1320
Malus	8-May-2024	1319
Malus domestica	8-May-2024	1323
Prunus avium	8-May-2024	1322
Salix eriocephala	8-May-2024	1324
Viburnum prunifolium	8-May-2024	1321
Carex blanda	13-May-2024	1330
Carex prasina	13-May-2024	1329
Primula japonica	13-May-2024	1327
Prunus virginiana var. *virginiana*	13-May-2024	1331
Ranunculus caricetorum	13-May-2024	1328
Salix sericea	13-May-2024	1325
Veronica chamaedrys	13-May-2024	1326
Cardamine impatiens	15-May-2024	1336
Carex conoidea	15-May-2024	1335
Eleocharis	15-May-2024	1333
Geranium maculatum	15-May-2024	1332
Matricaria discoidea	15-May-2024	1334
Acer spicatum	25-May-2024	1350
Aralia nudicaulis	25-May-2024	120
Asarum canadense	25-May-2024	123

Carex appalachica	25-May-2024	1353
Carex cephalophora	25-May-2024	1359
Carex rosea	25-May-2024	1358
Carex scabrata	25-May-2024	1360
Carex sparganioides	25-May-2024	1357
Clintonia borealis	25-May-2024	1349
Euphorbia cyparissias	25-May-2024	1347
Festuca subverticillata	25-May-2024	1356
Iris pseudacorus	25-May-2024	1352
Lotus tenuis	25-May-2024	1361
Lysimachia borealis	25-May-2024	119
Maianthemum racemosum	25-May-2024	1355
Mitella diphylla	25-May-2024	1354
Schedonorus arundinaceus	25-May-2024	1348
Staphylea trifolia	25-May-2024	124
Streptopus lanceolatus	25-May-2024	1351
Veratrum viride	25-May-2024	121
Callitriche stagnalis	26-May-2024	1367
Carex tribuloides var. *tribuloides*	26-May-2024	1364
Festuca rubra ssp. rubra	26-May-2024	1366
Melilotus officinalis	26-May-2024	1362
Phalaris arundinacea	26-May-2024	1368
Sagina japonica	26-May-2024	1365
Tragopogon pratensis	26-May-2024	1363
Carex normalis	31-May-2024	1381
Dichanthelium commutatum ssp. *ashei*	31-May-2024	1384
Dichanthelium depauperatum	31-May-2024	1385
Pilosella pilloseloides	31-May-2024	1383
Vitis riparia	31-May-2024	1382
Allium canadense var. *canadense*	10-Jun-2024	1389
Carex conoidea	10-Jun-2024	1388
Carex pellita	10-Jun-2024	1395
Carex seorsa	10-Jun-2024	1391
Carex vulpinoidea	10-Jun-2024	1387
Danthonia compressa	10-Jun-2024	1394
Eleocharis erythropoda	10-Jun-2024	1397
Festuca subverticillata	10-Jun-2024	1393
Lotus corniculatus	10-Jun-2024	135
Penstemon digitalis	10-Jun-2024	136
Poa palustris	10-Jun-2024	1396
Populus heterophylla	10-Jun-2024	1390
Rumex crispus	10-Jun-2024	16451
Sassafras albidum	10-Jun-2024	1392
Vicia cracca	10-Jun-2024	137

Appendix III: Trailside Herbarium Index 15-Jun-24

Family	Botanical Name	Collection
ADOXACEAE	*Sambucus racemosa*	829
ADOXACEAE	*Viburnum dilatatum*	737
ADOXACEAE	*Viburnum lentago*	925
ADOXACEAE	*Viburnum opulus* var. *opulus*	926
ALISMATACEAE	*Sagittaria latifolia*	16414
AMARYLLIDACEAE	*Allium tricoccum*	7
ANACARDIACEAE	*Toxicodendron vernix*	16434
APIACEAE	*Sanicula canadensis* var. *canadensis*	1090
APIACEAE	*Sium suave*	16399
APIACEAE	*Zizia aurea*	923
APOCYNACEAE	*Apocynum cannabinum*	1008
APOCYNACEAE	*Asclepias syriaca*	1013
APOCYNACEAE	*Asclepias tuberosa*	1036
APOCYNACEAE	*Vincetoxicum nigrum*	50
AQUIFOLIACEAE	*Ilex verticillata*	16265
AQUIFOLIACEAE	*Ilex verticillata*	791
ARACEAE	*Arisaema triphyllum*	8
ARACEAE	*Lemna minor*	1242
ARACEAE	*Symplocarpus foetidus*	11
ARALIACEAE	*Panax trifolius*	830
ARALIACEAE	*Panax trifolius*	826
ASCLEPIADACEAE	*Asclepias incarnata*	16372
ASPARAGACEAE	*Maianthemum canadense*	16284
ASPLENIACEAE	*Asplenium platyneuron*	620
ASTERACEAE	*Achillea millefolium*	16351
ASTERACEAE	*Ageratina altissima*	660
ASTERACEAE	*Ambrosia artemisiifolia*	673
ASTERACEAE	*Ambrosia artemisiifolia*	566
ASTERACEAE	*Anaphalis margaritacea*	16232
ASTERACEAE	*Antennaria parlinii* ssp. *fallax*	846
ASTERACEAE	*Artemisia vulgaris*	1220
ASTERACEAE	*Bidens connata*	1180
ASTERACEAE	*Bidens connata*	16423
ASTERACEAE	*Bidens laevis*	16258
ASTERACEAE	*Centaurea stoebe* ssp. *micranthos*	58
ASTERACEAE	*Doellingeria umbellata*	16251
ASTERACEAE	*Erigeron canadensis* var. *canadensis*	683
ASTERACEAE	*Erigeron pulchellus* var. *pulchellus*	919
ASTERACEAE	*Eurybia divaricata*	608
ASTERACEAE	*Euthamia graminifolia*	1093
ASTERACEAE	*Eutrochium fistulosum*	1146
ASTERACEAE	*Helianthus decapetalus*	16384
ASTERACEAE	*Heliopsis helianthoides*	16356
ASTERACEAE	*Hieracium gronovii*	723
ASTERACEAE	*Hieracium paniculatum*	604
ASTERACEAE	*Ionactis linariifolia*	679

ASTERACEAE	*Krigia biflora*	915
ASTERACEAE	*Krigia virginica*	1048
ASTERACEAE	*Lactuca canadensis*	1069
ASTERACEAE	*Mikania scandens*	1105
ASTERACEAE	*Nabalus altissimus*	697
ASTERACEAE	*Oclemena acuminata*	1194
ASTERACEAE	*Packera aurea*	879
ASTERACEAE	*Pilosella ceaspitosa*	918
ASTERACEAE	*Solidago altissima* ssp. *altissima*	1221
ASTERACEAE	*Solidago bicolor*	580
ASTERACEAE	*Solidago caesia* var. *caesia*	658
ASTERACEAE	*Solidago canadensis* var. *canadensis*	1096
ASTERACEAE	*Solidago juncea*	1272
ASTERACEAE	*Solidago nemoralis*	16236
ASTERACEAE	*Solidago nemoralis* ssp. *nemoralis*	576
ASTERACEAE	*Solidago odora*	646
ASTERACEAE	*Solidago patula*	1216
ASTERACEAE	*Solidago puberula*	1253
ASTERACEAE	*Solidago rugosa* var. *aspera*	570
ASTERACEAE	*Solidago sempervirens*	1241
ASTERACEAE	*Solidago speciosa*	718
ASTERACEAE	*Symphyotrichum cordifolium*	81
ASTERACEAE	*Symphyotrichum ericoides*	16244
ASTERACEAE	*Symphyotrichum ericoides*	16252
ASTERACEAE	*Symphyotrichum lanceolatum* var. *lanceolatum*	710
ASTERACEAE	*Symphyotrichum lateriflorum*	16267
ASTERACEAE	*Symphyotrichum novi-belgii* var. *novi-belgii*	701
ASTERACEAE	*Symphyotrichum patens* var. *patens*	562
ASTERACEAE	*Symphyotrichum pilosum* var. *pringlei*	671
ASTERACEAE	*Symphyotrichum pilosum* var. *pringlei*	624
ASTERACEAE	*Symphyotrichum puniceum*	16437
ASTERACEAE	*Symphyotrichum puniceum* var. *puniceum*	1265
ASTERACEAE	*Symphyotrichum puniceum* var. *puniceum*	1215
ASTERACEAE	*Vernonia noveboracensis*	1095
ATHYRIACEAE	*Athyrium angustum*	77
ATHYRIACEAE	*Athyrium filix-femina*	16295
BALSAMINACEAE	*Impatiens capensis*	64
BERBERIDACEAE	*Berberis thunbergii*	9
BERBERIDACEAE	*Caulophyllum thalictroides*	5
BETULACEAE	*Alnus serrulata*	16246
BETULACEAE	*Alnus serrulata*	16269
BETULACEAE	*Betula alleghaniensis*	16401
BETULACEAE	*Betula populifolia*	66
BETULACEAE	*Betula populifolia*	836
BETULACEAE	*Betula populifolia*	16287
BETULACEAE	*Carpinus caroliniana*	16276
BETULACEAE	*Carpinus caroliniana*	16370
BETULACEAE	*Corylus americana*	808
BETULACEAE	*Corylus cornuta* ssp. *cornuta*	819
BRASSICACEAE	*Arabidopsis thaliana*	837

BRASSICACEAE	*Cardamine diphylla*	828
BRASSICACEAE	*Cardamine hirsuta*	807
BRASSICACEAE	*Cardamine hirsuta*	16272
BRASSICACEAE	*Cardamine parviflora*	883
BRASSICACEAE	*Cardamine pennsylvanica*	890
BRASSICACEAE	*Draba verna*	806
BRASSICACEAE	*Lepidium virginicum* ssp. *virginicum*	982
BRASSICACEAE	*Rorippa palustris* ssp. *palustris*	777
BRASSICACEAE	*Rorippa palustris* ssp. *palustris*	767
CAMPANULACEAE	*Lobelia cardinalis*	1110
CAMPANULACEAE	*Lobelia inflata*	784
CAMPANULACEAE	*Lobelia siphilitica* var. *siphilitica*	1143
CAMPANULACEAE	*Lobelia spicata* var. *spicata*	1009
CAMPANULACEAE	*Palustricodon aparinoides*	1044
CAPRIFOLIACEAE	*Lonicera morrowii*	880
CARYOPHYLLACEAE	*Arenaria serpyllifolia*	1077
CARYOPHYLLACEAE	*Cerastium semidecandrum*	16306
CARYOPHYLLACEAE	*Claytonia virginica*	16278
CARYOPHYLLACEAE	*Dianthus armeria* ssp. *armeria*	677
CARYOPHYLLACEAE	*Moehringa lateriflora*	922
CARYOPHYLLACEAE	*Palustricodon aparinoides*	16375
CARYOPHYLLACEAE	*Scleranthus annuus* ssp. *annuus*	1049
CARYOPHYLLACEAE	*Silene antirrhina*	60
CARYOPHYLLACEAE	*Stellaria aquatica*	16312
CARYOPHYLLACEAE	*Stellaria graminea*	924
CELASTRACEAE	*Euonymus alatus*	703
CERATOPHYLLACEAE	*Ceratophyllum demersum*	16439
CISTACEAE	*Crocanthemum bicknellii*	67
CISTACEAE	*Crocanthemum canadense*	16243
CISTACEAE	*Crocanthemum canadense*	644
CISTACEAE	*Lechea minor*	1195
CISTACEAE	*Lechea mucronata*	1289
CISTACEAE	*Lechea mucronata*	622
CISTACEAE	*Lechea racemulosa*	638
CLETHRACEAE	*Clethra alnifolia*	1165
COLCHICACEAE	*Uvularia perfoliata*	16285
COMMELINACEAE	*Commelina communis*	1139
CORNACEAE	*Cornus amomum* ssp. *amomum*	993
CORNACEAE	*Cornus florida*	849
CORNACEAE	*Cornus racemosa*	975
CUPRESSACEAE	*Juniperus virginiana* var. *virginiana*	1016
CYPERACEAE	*Carex albicans*	882
CYPERACEAE	*Carex annectens*	16359
CYPERACEAE	*Carex brevior*	986
CYPERACEAE	*Carex bushii*	985
CYPERACEAE	*Carex communis* var. *communis*	833
CYPERACEAE	*Carex comosa*	1166
CYPERACEAE	*Carex crinita* var. *crinita*	999
CYPERACEAE	*Carex debilis* var. *debilis*	1040
CYPERACEAE	*Carex debilis* var. *rudgei*	892

CYPERACEAE	*Carex digitalis* var. *digitalis*	953
CYPERACEAE	*Carex echinata* ssp. *echinata*	949
CYPERACEAE	*Carex gracillima*	916
CYPERACEAE	*Carex interior*	888
CYPERACEAE	*Carex intumescens*	957
CYPERACEAE	*Carex laxiculmis* var. *laxiculmis*	948
CYPERACEAE	*Carex laxiflora*	954
CYPERACEAE	*Carex lupuliformis*	1162
CYPERACEAE	*Carex lupulina*	731
CYPERACEAE	*Carex lupulina*	793
CYPERACEAE	*Carex muehlenbergii* var. *muehlenbergii*	981
CYPERACEAE	*Carex muehlenbergii* var. *muehlenbergii*	1076
CYPERACEAE	*Carex pennsylvanica*	884
CYPERACEAE	*Carex scoparia*	1039
CYPERACEAE	*Carex swanii*	950
CYPERACEAE	*Carex virescens*	952
CYPERACEAE	*Cyperus bipartitus*	1145
CYPERACEAE	*Cyperus bipartitus*	759
CYPERACEAE	*Cyperus brevifolioides*	754
CYPERACEAE	*Cyperus lupulinus* ssp. *macilentus*	625
CYPERACEAE	*Cyperus lupulinus* ssp. *macilentus*	572
CYPERACEAE	*Cyperus strigosus*	1182
CYPERACEAE	*Dulichium arundinaceum* var. *arundinaceum*	765
CYPERACEAE	*Eleocharis obtusa* var. *obtusa*	751
CYPERACEAE	*Eleocharis obtusa* var. *obtusa*	727
CYPERACEAE	*Rhynchospora capitellata*	739
CYPERACEAE	*Schoenoplectus tabernaemontani*	998
CYPERACEAE	*Scirpus cyperinus*	729
CYPERACEAE	*Scirpus expansus*	1091
CYPERACEAE	*Scirpus hattorianus*	1002
DENNSTAEDTIACEAE	*Dennstaedtia punctilobula*	592
DIOSCOREACEAE	*Dioscorea villosa*	996
DRYOPTERIDACEAE	*Dryopteris intermedia*	775
DRYOPTERIDACEAE	*Dryopteris marginalis*	602
DRYOPTERIDACEAE	*Polystichum acrostichoides*	695
DRYOPTERIDACEAE	*Polystichum acrostichoides*	16297
ELAEAGNACEAE	*Elaeagnus umbellata*	586
EQUISETACEAE	*Equisetum arvense*	16271
EQUISETACEAE	*Equisetum hyemale* ssp. *affine*	574
ERICACEAE	*Chimaphila maculata*	594
ERICACEAE	*Gaylussacia baccata*	895
ERICACEAE	*Hypopitys monotropa*	1183
ERICACEAE	*Kalmia latifolia*	636
ERICACEAE	*Lyonia ligustrina* var. *ligustrina*	978
ERICACEAE	*Lyonia ligustrina* var. *ligustrina*	707
ERICACEAE	*Pyrola elliptica*	61
ERICACEAE	*Rhododendron viscosum*	1001
ERICACEAE	*Vaccinium corymbosum*	16283
ERICACEAE	*Vaccinium pallidum*	16282
ERICACEAE	*Vaccinium stamineum*	588

EUPHORBIACEAE	*Acalypha rhomboidea*	1142
EUPHORBIACEAE	*Euphorbia maculata*	57
EUPHORBIACEAE	*Euphorbia nutans*	1246
FABACEAE	*Amphicarpaea bracteata*	1167
FABACEAE	*Apios americana*	1099
FABACEAE	*Chamaecrista nictitans* var. *nictitans*	564
FABACEAE	*Crotalaria sagittalis*	1159
FABACEAE	*Desmodium marilandicum*	16394
FABACEAE	*Desmodium marilandicum*	612
FABACEAE	*Hylodesmum glutinosum*	1089
FABACEAE	*Lespedeza capitata*	681
FABACEAE	*Lespedeza cuneata*	629
FABACEAE	*Lespedeza procumbens*	640
FABACEAE	*Lespedeza violacea*	16242
FABACEAE	*Lespedeza violacea*	578
FABACEAE	*Medicago lupulina*	1140
FABACEAE	*Securigera varia*	16357
FABACEAE	*Trifolium arvense*	1149
FABACEAE	*Trifolium pratense*	51
FABACEAE	*Trifolium repens*	1035
FAGACEAE	*Quercus alba*	16368
FAGACEAE	*Quercus coccinea*	16289
FAGACEAE	*Quercus ilicifolia*	16293
FAGACEAE	*Quercus montana*	16418
FAGACEAE	*Quercus palustris*	16281
FAGACEAE	*Quercus rubra*	848
FAGACEAE	*Quercus velutina*	16360
HAMAMELIDACEAE	*Hamamelis virginiana*	634
HYDROCHARITACEAE	*Elodea canadensis*	16438
HYPERICACEAE	*Hypericum mutilum*	16254
HYPERICACEAE	*Hypericum perforatum* ssp. *perforatum*	1034
HYPOXIDACEAE	*Hypoxis hirsuta*	894
IRIDACEAE	*Iris versicolor*	16299
JUGLANDACEAE	*Carya ovata*	16371
JUGLANDACEAE	*Juglans nigra*	1255
JUNCACEAE	*Juncus effusus* ssp. *solutus*	1000
JUNCACEAE	*Juncus marginatus*	1144
JUNCAEAE	*Juncus acuminatus*	750
JUNCAEAE	*Juncus canadensis*	797
JUNCAEAE	*Juncus tenuis*	796
JUNCAEAE	*Juncus tenuis*	763
JUNCAEAE	*Luzula multiflora* ssp. *multiflora*	885
LAMIACEAE	*Clinopodium vulgare*	1037
LAMIACEAE	*Lycopus uniflorus*	1269
LAMIACEAE	*Lycopus virginicus*	16248
LAMIACEAE	*Mentha arvensis*	16257
LAMIACEAE	*Mentha spicata* ssp. *spicata*	1109
LAMIACEAE	*Prunella vulgaris* ssp. *lanceolata*	59
LAMIACEAE	*Pycnanthemum tenuifolium*	1141
LAMIACEAE	*Pycnanthemum virginianum*	16245

LAMIACEAE	*Trichostema dichotomum*	1160
LAMIACEAE	*Trichostema dichotomum*	618
LAURACEAE	*Lindera benzoin*	1164
LAURACEAE	*Lindera benzoin*	16275
LILIACEAE	*Erythronium americanum*	16279
LILIACEAE	*Medeola virginiana*	955
LYCOPODIACEAE	*Dendrolycopodium obscurum*	590
LYCOPODIACEAE	*Diphasiastrum digitatum*	16233
LYCOPODIACEAE	*Diphasiastrum tristachyum*	1097
LYCOPODIACEAE	*Lycopodium clavatum*	1098
MALVACEAE	*Hibiscus moscheutos* ssp. *moscheutos*	1106
MELANTHIACEAE	*Trillium erectum*	827
MOLLUGINACEAE	*Mollugo verticillata*	689
MYRICACEAE	*Comptonia peregrina*	631
MYRICACEAE	*Morella caroliniensis*	1161
OLEACEAE	*Ligustrum obtusifolium* var. *obtusifolium*	745
ONAGRACEAE	*Circaea canadensis*	16369
ONAGRACEAE	*Epilobium coloratum*	16255
ONOCLEACEAE	*Onoclea sensibilis*	1094
ONOCLEACEAE	*Onoclea sensibilis*	16296
OROBANCHACEAE	*Epifagus virginiana*	1177
OROBANCHACEAE	*Melampyrum lineare*	951
OROBANCHACEAE	*Pedicularis canadensis*	898
OSMUNDACEAE	*Osmunda spectabilis*	16302
OSMUNDACEAE	*Osmundastrum cinnamomeum*	16294
OXALIDACEAE	*Oxalis stricta*	1226
PAPAVERACEAE	*Capnoides sempervirens*	896
PAPAVERACEAE	*Dicentra cucullaria*	824
PAPAVERACEAE	*Sanguinaria canadensis*	823
PENTHORACEAE	*Penthorum sedoides*	16263
PENTHORACEAE	*Penthorum sedoides*	16264
PHYTOLACCACEAE	*Phytolacca americana* var. *americana*	1222
PINACEAE	*Pinus resinosa*	16292
PINACEAE	*Pinus strobus*	1297
PINACEAE	*Tsuga canadensis*	1298
PLANTAGINACEAE	*Callitriche palustris*	1163
PLANTAGINACEAE	*Chelone glabra*	1266
PLANTAGINACEAE	*Linaria canadensis*	1047
PLANTAGINACEAE	*Linaria canadensis*	979
PLANTAGINACEAE	*Linaria vulgaris*	49
PLANTAGINACEAE	*Plantago lanceolata*	1051
PLANTAGINACEAE	*Plantago major*	55
PLANTAGINACEAE	*Plantago rugelii*	56
PLANTAGINACEAE	*Veronica arvensis*	842
PLANTAGINACEAE	*Veronica serpyllifolia* ssp. *serpyllifolia*	843
POACEAE	*Agrostis canina*	16373
POACEAE	*Agrostis capillaris*	16253
POACEAE	*Agrostis capillaris*	16310
POACEAE	*Agrostis capillaris*	16311
POACEAE	*Agrostis gigantea*	1052

POACEAE	*Agrostis gigantea*	1033
POACEAE	*Agrostis gigantea*	16379
POACEAE	*Agrostis gigantea*	16440
POACEAE	*Agrostis gigantea*	598
POACEAE	*Agrostis hyemalis*	16388
POACEAE	*Agrostis hyemalis*	16389
POACEAE	*Agrostis scabra*	16378
POACEAE	*Andropogon gerardi*	80
POACEAE	*Andropogon gerardi*	1243
POACEAE	*Andropogon virginicus* var. *virginicus*	741
POACEAE	*Anthoxanthum odoratum*	841
POACEAE	*Arrhenatherum elatius* ssp. *elatius*	920
POACEAE	*Brachyelytrum erectum*	16266
POACEAE	*Bromus inermis*	1011
POACEAE	*Calamagrostis canadensis*	16314
POACEAE	*Cenchrus longispinus*	614
POACEAE	*Cenchrus purpurascens*	1244
POACEAE	*Cinna arundinacea*	16415
POACEAE	*Cinna arundinacea*	16391
POACEAE	*Cinna latifolia*	16387
POACEAE	*Cinna latifolia*	16393
POACEAE	*Cinna latifolia*	16397
POACEAE	*Danthonia spicata*	16419
POACEAE	*Dichanthelium clandestinum*	16304
POACEAE	*Dichanthelium columbianum*	1193
POACEAE	*Dichanthelium dichotomum*	16309
POACEAE	*Dichanthelium latifolium*	956
POACEAE	*Dichanthelium oligosanthes* ssp. *scribnerianum*	1078
POACEAE	*Dichanthelium sphaerocarpon*	1038
POACEAE	*Dichanthelium sphaerocarpon*	650
POACEAE	*Digitaria ciliaris*	16421
POACEAE	*Digitaria ischaemum*	675
POACEAE	*Digitaria sanguinalis*	16417
POACEAE	*Echinochloa crus-galli*	1178
POACEAE	*Echinochloa crus-galli*	16262
POACEAE	*Echinochloa crus-galli*	16390
POACEAE	*Eleusine indica*	735
POACEAE	*Elymus canadensis* var. *canadensis*	1217
POACEAE	*Elymus repens*	1014
POACEAE	*Elymus riparius*	16400
POACEAE	*Elymus virginicus*	16392
POACEAE	*Elymus virginicus* var. *virginicus*	610
POACEAE	*Eragrostis cilianensis*	1247
POACEAE	*Eragrostis pectinacea*	1046
POACEAE	*Eragrostis spectabilis*	16234
POACEAE	*Festuca subverticillata*	947
POACEAE	*Festuca trachyphylla*	980
POACEAE	*Festuca trachyphylla*	900
POACEAE	*Festuca trachyphylla*	16307
POACEAE	*Festuca trachyphylla*	16308

POACEAE	*Festuca trachyphylla*	16374
POACEAE	*Festuca trachyphylla*	16381
POACEAE	*Glyceria striata*	958
POACEAE	*Leersia oryzoides*	1179
POACEAE	*Leersia virginica*	1073
POACEAE	*Leersia virginica*	16386
POACEAE	*Microstegium vimineum*	662
POACEAE	*Muhlenbergia sobolifera*	606
POACEAE	*Panicum dichotomiflorum*	16261
POACEAE	*Panicum virgatum*	1219
POACEAE	*Paspalum laeve*	665
POACEAE	*Paspalum setaceum* var. *muhlenbergii*	568
POACEAE	*Phleum pratense* ssp. *pratense*	1012
POACEAE	*Phragmites australis*	687
POACEAE	*Piptochaetium avenaceum*	959
POACEAE	*Poa annua*	1192
POACEAE	*Poa compressa*	1075
POACEAE	*Poa palustris*	16380
POACEAE	*Poa pratensis*	893
POACEAE	*Poa pratensis* ssp. *pratensis*	984
POACEAE	*Schizachyrium scoparium* var. *scoparium*	627
POACEAE	*Setaria faberi*	1224
POACEAE	*Setaria pumila* ssp. *pumila*	714
POACEAE	*Setaria viridis* var. *viridis*	1148
POACEAE	*Sorghastrum nutans*	16395
POACEAE	*Sorghastrum nutans*	584
POACEAE	*Sphenopholis obtusata*	16313
POACEAE	*Tridens flavus*	16396
POACEAE	*Tridens flavus* var. *flavus*	685
POACEAE	*Tripsacum dactyloides* var. *dactyloides*	1218
POLEMONIACEAE	*Phlox paniculata*	78
POLYGONACEAE	*Fallopia scandens*	1147
POLYGONACEAE	*Persicaria arifolia*	16241
POLYGONACEAE	*Persicaria extremiorientalis*	1245
POLYGONACEAE	*Persicaria hydropiper*	16238
POLYGONACEAE	*Persicaria hydropiperoides*	16420
POLYGONACEAE	*Persicaria hydropiperoides*	16422
POLYGONACEAE	*Persicaria longiseta*	16416
POLYGONACEAE	*Persicaria longiseta*	16424
POLYGONACEAE	*Persicaria perfoliata*	1223
POLYGONACEAE	*Persicaria perfoliata*	16382
POLYGONACEAE	*Persicaria robustior*	16237
POLYGONACEAE	*Persicaria robustior*	16240
POLYGONACEAE	*Persicaria robustior*	16247
POLYGONACEAE	*Persicaria robustior*	16385
POLYGONACEAE	*Persicaria robustior*	16398
POLYGONACEAE	*Persicaria sagittata*	16383
POLYGONACEAE	*Persicaria virginiana*	62
POLYGONACEAE	*Polygonum tenue*	16235
POLYGONACEAE	*Polygonum tenue*	616

POLYGONACEAE	*Rumex acetosella*	16353
POLYGONACEAE	*Rumex acetosella* ssp. *pyrenaicus*	983
POLYPODIACEAE	*Polypodium virginianum*	600
PRIMULACEAE	*Lysimachia nummularia*	16303
PRIMULACEAE	*Lysimachia quadrifolia*	16350
PRIMULACEAE	*Lysimachia terrestris*	16376
PRIMULACEAE	*Samolus valerandi*	760
PYROLACEAE	*Pyrola americana*	16403
RANUNCULACEAE	*Anemone quinquefolia*	16277
RANUNCULACEAE	*Caltha palustris*	821
RANUNCULACEAE	*Clematis virginiana*	705
RANUNCULACEAE	*Ficaria verna*	16270
RANUNCULACEAE	*Ranunculus acris*	881
RANUNCULACEAE	*Ranunculus bulbosus*	899
RANUNCULACEAE	*Thalictrum pubescens*	1042
RANUNCULACEAE	*Thalictrum thalictroides*	847
RHAMNACEAE	*Frangula alnus*	1092
RHAMNACEAE	*Frangula alnus*	994
ROSACEAE	*Agrimonia gryposepala*	63
ROSACEAE	*Amelanchier canadensis*	16280
ROSACEAE	*Amelanchier laevis*	16290
ROSACEAE	*Aronia melanocarpa*	1103
ROSACEAE	*Fragaria virginiana*	845
ROSACEAE	*Malus toringo*	582
ROSACEAE	*Photinia villosa*	716
ROSACEAE	*Potentilla recta*	52
ROSACEAE	*Potentilla simplex*	917
ROSACEAE	*Prunus serotina*	16288
ROSACEAE	*Rosa carolina* ssp. *carolina*	699
ROSACEAE	*Rosa multiflora*	976
ROSACEAE	*Rosa palustris*	1045
ROSACEAE	*Rosa palustris*	725
ROSACEAE	*Rosa virginiana*	721
ROSACEAE	*Rubus hispidus*	995
ROSACEAE	*Rubus hispidus*	16352
ROSACEAE	*Rubus occidentalis*	1010
ROSACEAE	*Rubus pensilvanicus*	1070
ROSACEAE	*Spiraea alba* var. *latifolia*	16249
ROSACEAE	*Spiraea tomentosa*	16250
RUBIACEAE	*Cephalanthus occidentalis*	1104
RUBIACEAE	*Galium album*	712
RUBIACEAE	*Galium aparine*	16305
RUBIACEAE	*Galium asprellum*	16259
RUBIACEAE	*Galium circaezans*	1254
RUBIACEAE	*Galium labradoricum*	16256
RUBIACEAE	*Galium labradoricum*	771
RUBIACEAE	*Galium lanceolatum*	960
RUBIACEAE	*Galium lanceolatum*	16268
RUBIACEAE	*Galium palustre*	1041
RUBIACEAE	*Galium tinctorium*	1196

RUBIACEAE	*Galium tinctorium*	65
RUBIACEAE	*Galium triflorum*	1072
RUBIACEAE	*Hexasepalum teres*	1158
RUBIACEAE	*Mitchella repens*	596
SALICACEAE	*Salix cinerea* ssp *oleifolia*	835
SAPINDACEAE	*Acer nigrum*	16355
SAPINDACEAE	*Acer rubrum*	16291
SAPINDACEAE	*Acer rubrum* var. *rubrum*	831
SAPINDACEAE	*Acer saccharum*	832
SAXIFRAGACEAE	*Chrysosplenium americanum*	822
SAXIFRAGACEAE	*Micranthes pensylvanica*	921
SAXIFRAGACEAE	*Micranthes virginiensis*	6
SELAGINELLACEAE	*Selaginella apoda*	16260
SMILACEAE	*Smilax glauca*	795
SMILACEAE	*Smilax rotundifolia*	782
SOLANACEAE	*Solanum carolinense*	16354
SOLANACEAE	*Solanum emulans*	1291
THELYPTERIDACEAE	*Thelypteris noveboracensis*	16402
THELYPTERIDACEAE	*Thelypteris palustris*	16377
THELYPTERIDACEAE	*Thelypteris palustris* var. *pubescens*	652
TYPHACEAE	*Sparganium americanum*	1268
TYPHACEAE	*Sparganium eurycarpum*	16315
TYPHACEAE	*Typha latifolia*	1043
ULMACEAE	*Ulmus*	16274
URTICACEAE	*Laportea canadensis*	691
URTICACEAE	*Pilea fontana*	1181
URTICACEAE	*Pilea pumila var. pumila*	693
VERBENACEAE	*Verbena hastata*	747
VERBENACEAE	*Verbena urticifolia*	1225
VERBENACEAE	*Verbena urticifolia*	16358
VIBURNACEAE	*Viburnum acerifolium*	1108
VIBURNACEAE	*Sambucus nigra* ssp. *canadensis*	997
VIBURNACEAE	*Viburnum dentatum* var. *lucidum*	1107
VIOLACEAE	*Viola blanda*	891
VIOLACEAE	*Viola cucullata*	887
VIOLACEAE	*Viola cucullata*	656
VIOLACEAE	*Viola cucullata*	16286
VIOLACEAE	*Viola cucullata*	16300
VIOLACEAE	*Viola fimbriatula*	844
VIOLACEAE	*Viola fimbriatula*	1050
VIOLACEAE	*Viola labradorica*	840
VIOLACEAE	*Viola miniscula*	889
VIOLACEAE	*Viola miniscula*	886
VIOLACEAE	*Viola sororia*	825
VITACEAE	*Ampelopsis glandulosa*	79
VITACEAE	*Parthenocissus quinquefolia*	1054
VITACEAE	*Vitis labrusca*	1053
VITACEAE	*Vitis labrusca*	977
WOODSIACEAE	*Woodsia obtusa* ssp. *obtusa*	1290