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Richard S. Mitchell, Editor
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ADDRESS ALL CORRESPONDENCE TO NYFA, 3140 CEC, ALBANY, NY 12230 - DUES \$10 PER YEAR

Orontium aquaticum L., a Southern Aquatic by Richard Mitchell

One of the more striking freshwater marsh and shore plants of the southeastern states is golden-club (*Orontium aquaticum*), a conspicuous member of the Araceae that can be found in abundance south of New York along the Coastal Plain to the Texas border. Its appearance is unmistakable when in flower or fruit: the leaves are oblong-elliptic, a little like a *Calla*, but the lax to ascending, fleshy flowering stalks are green at the base, then white for several inches, bearing a bright golden, finger-like spadix at the tip. There is no obvious, sheathing spathe as in its relatives, jack-in-the-pulpit (*Arisaema triphyllum*) and skunk cabbage (*Symplocarpus foetidus*).

At the northern edge of its range, in Massachusetts and New York, the golden club is infrequent to rare, although occasionally found locally in abundance. Its range is discontinuous in New York, where it is found inland in the Susquehanna, Chenango and Delaware River drainages, and at a few scattered locations elsewhere in the southeastern counties, but also jumps from Long Island to the northern estuary of the Hudson River. There, it has been previously recorded from the mouth of Catskill Creek (Greene Co.) and town of Hudson (Columbia Co.) south to Kingston (Dutchess Co.), with one report from Poughkeepsie, which may have been an inland occurrence. The distribution of golden-club in the Hudson River has been documented by Eric Kiviat of Bard College (Kiviat, 1976), and his work may be consulted for excellent details on the subject.

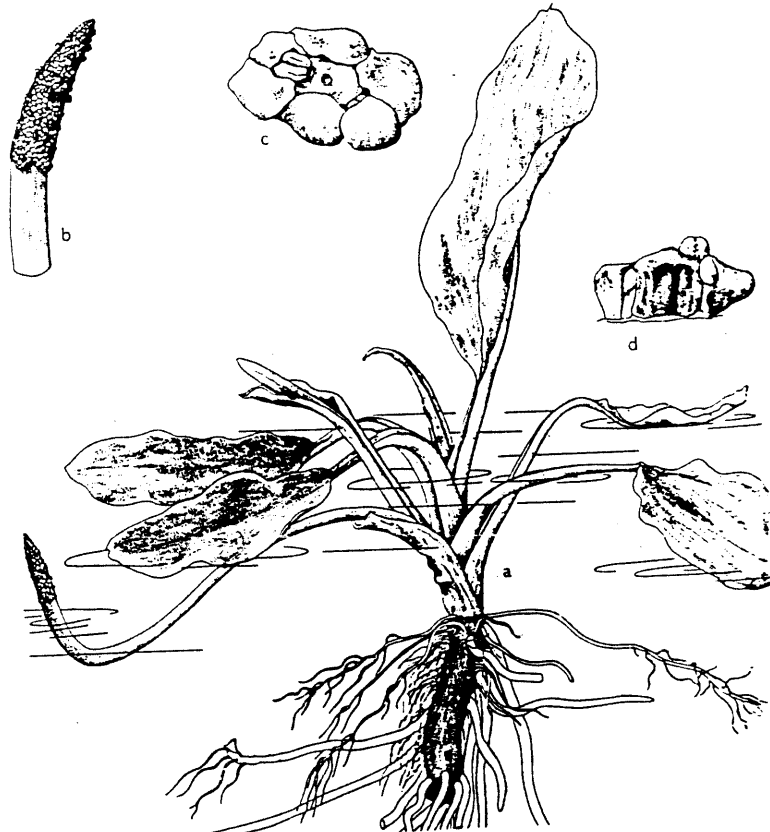
While exploring Storm King State Park this spring, Spider Barbour, Jack Focht and I were making our way around an embayment largely cut off from the Hudson River by the railroad. It is an odd place, where we hoped to find some interesting aquatics later in the season, but we had not expected anything this soon. I was in a crouch, occupied by my surprise to find wild ginger plants (*Asarum canadense*) in the intertidal zone, when Spider called out that he had found *Orontium*. This got our attention quickly, since it had to be an unknown population miles from the southernmost location previously reported from the

Hudson Estuary.

The 20 (or so) plants were found in black muck, in a rather small area, and we have since searched about a mile of shoreline circling the impoundment and its pond-satellites without further success. This makes us wonder if the plants have recently invaded this isolated spot from the north or from a previously-reported location inland in Orange County.

Literature Cited

Kiviat, E. 1976. Goldenclub, a threatened plant in the Hudson River. Hudson River Environ. Soc. Symposium Proc. 13 pp. (xerographic).



Orontium aquaticum L., the golden-club. This showy aquatic, known mostly from the Coastal Plain, has an unusual and discontinuous distribution range in New York State.



Salix atrocineria -- an Overlooked Willow in New York State

by Gordon C. Tucker, N. Y. State Museum

One of the advantages of carrying out local botanical inventories is that, in trying to find as many species as possible in your study area, you collect everything you can find and identify it. Now and then you come across something interesting that is totally unexpected. Recently, I sent duplicates of several willow specimens to Dr. George Argus of the Canadian Museum of Nature. Some of these proved to be *Salix atrocineria* Brot., the dark ashy willow. This species is native to western Europe, and Dr. Argus tells me that the species was previously known in North America only from western North Carolina. I sent him duplicates from Bear Mtn. State Park, Rockland Co. (Tucker, Barbour & Focht 9411) and Fishers Island, Suffolk Co. (Tucker & Horning 6578).

Salix atrocineria is a large shrub, up to 7 m tall. The young twigs are dark grey pubescent, becoming glabrous in the second year, the leaves are obovate to oblong-lanceolate, smooth above, dark green and shiny, with pale, curved hairs on the underside. In the field, it suggests *S. bebbiana*, but a quick way to tell them apart is by peeling the bark from a pencil-sized branch; *S. atrocineria* has a few linear ridges on the heartwood, whereas our native willows lack them.

Since my specimens were identified by George Argus, I started looking for this species in the field and herbarium. I have found recent collections from South Dumpling Island, Suffolk Co. (Tucker & Horning), and West Point, Orange Co. (Mitchell). I also recently collected it at Minnewaska State Park (Ulster Co.), Greenville (Greene Co.), and South Westerlo (Albany Co.). I suspect this European willow is widely naturalized, both in New York and adjacent states, but has gone unnoticed.

ROBERT ROY SMITH (1934-1995)

Dr. Robert R. Smith, Professor of Biology and Curator of the Hoysradt Herbarium at Hartwick College, passed away on 27 June 1995 after a long illness. He had served on the NYFA board of directors since his appointment in 1990.

Bob was born on 11 September 1934 in Stamford, NY. He graduated from Stamford High School in 1952, received his B.A. in Biology from Hartwick College in 1960, M.S. from the University of Florida in 1962, and Ph.D. in botany from the University of Florida in 1968. The subject of his dissertation was a revision of the genus *Heliconia* (Musaceae) in Middle America.

His association with Hartwick College resumed when he accepted a position as Assistant Professor of Biology in September, 1968, followed by promotions to Associate Professor in 1972 and Professor in 1979. Besides teaching a wide variety of courses on campus, he was intimately involved with teaching field courses at both the nearby Pine Lake Campus and Bahamian Field Station on San Salvador Island in the Bahamas.

Bob always enjoyed working in the Hartwick Herbarium, based on a private herbarium that Lyman H. Hoysradt amassed by the late 1870s. Bob fully realized its value, and worked steadily to upgrade the collection. He and I [R. Rabeler] were still involved in processing the last of the Hoysradt specimens a month before his passing.

The flora around Oneonta and in the adjacent Catskills Region occupied a major portion of his research efforts. We published a checklist of the vascular flora of the Pine Lake campus in 1976, based on the numerous collections that he and his students (including myself) had made since the College obtained the property in early 1971. Bob was also working on a flora of Otsego County; a tentative checklist was completed, but not published. He was undertaking efforts to get additional volumes of Karl Brooks' *A Catskill Flora and Economic Botany* published as well.

The flora of the Bahamas was his other major research love. Since the days of his first trip to San Salvador Island, Bob had worked on various floristic projects, eventually leading to publication of two editions of a *Field Guide to the Vegetation of San Salvador Island, The Bahamas*.

I knew Bob for over 20 years, as a teacher, researcher, mentor and friend. A more extensive biography and complete bibliography will be published elsewhere.

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Editor's Note: The following article was submitted by a recipient of a grant from NYFA. We are pleased to offer small grants from time to time to aid field botany projects, and we are always happy to consider applications in the form of short project descriptions, especially from students and amateur botanists.

A Preliminary Vascular Flora of the French Creek Drainage of Western New York -

by Douglas Goldman, University of Texas, Austin, TX 78713-7640

During the late spring and summer of 1993, I conducted a survey of the French Creek drainage, which occupies the southwestern-most corner of New York State, covering most of the townships of French Creek, Mina, and Sherman in Chautauqua County. The New York part of the French Creek drainage covers around 100 square miles, ranges from c. 1340 ft to 1850 ft above sea level, and is part of the Mississippi drainage basin, with streams flowing southward into the Allegheny River. The area is gently rolling and covered by a thin layer glacial till over shale (Van Diver, 1985), and, with the exception of deep glacial deposits around Findley Lake, often with many small kettleholes.

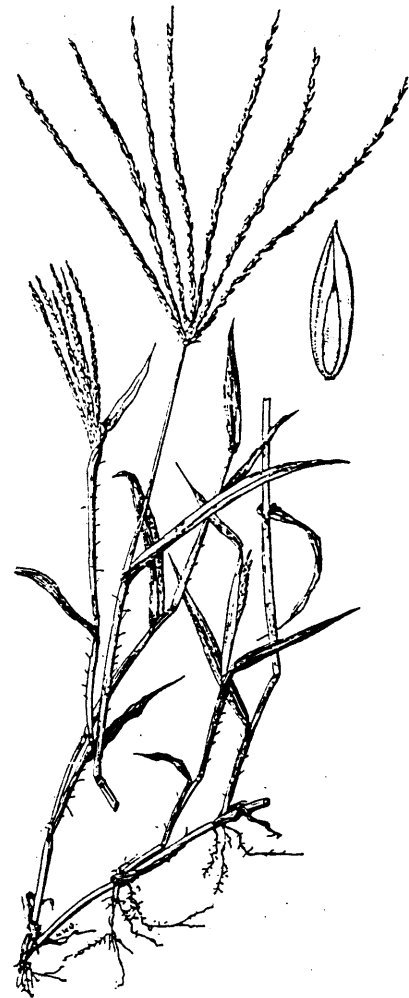
I hypothesized that this portion of the state might contain many interesting floristic elements from more southern and western areas, which could have migrated up the Mississippi drainage, or spread eastward from nearby midwestern states (e.g. Ohio, ca. 60 miles distant). I would not have been surprised to see species such as Ohio buckeye (*Aesculus glabra* Willd.) or shingle oak (*Quercus imbricaria* Michx.) in this area. Other more midwestern and southern plants are known to have northern or eastern range limits in the western-most counties in New York, such as papaw, *Asimina triloba* (L.) Dunal; white clintonia, *Clintonia umbellulata* (Michx.) Morong; strawberry bush, *Euonymus americana* L.; running strawberry bush, *E. obovata* Nutt.; wild potato vine, *Ipomea pandurata* (L.) Meyer; and toad shade, *Trillium sessile* L. (Eaton & Schrot, 1987; New York Flora Association, 1990; Zenkert, 1934).

Methods and Results

I selected 17 collection sites, ten which I visited in mid-June, and seven in mid-August (Table 1). The majority were located near French Creek or its tributaries, since I reasoned that these could be migration corridors. At the majority of sites, specimens of each species observed were collected, and identifications were made in the field, or at the L.H. Bailey Hortorium, Cornell University, using Fernald (1950), and cross-referencing nomenclature with Mitchell (1986), and the New York Flora

Association, 1990. The primary set of herbarium specimens will be deposited at the New York State Museum. The first set of duplicates will be deposited at the Bailey Hortorium, and the second duplicate set at the University of Texas at Austin.

A total of 329 collections were made, representing 81 families, 195 genera, and 275 species, subspecies, or varieties (Table 2). 259 species, equaling 181 genera and 73 families, were angiosperms. Four species comprising four genera and two families, were gymnosperms. Twelve species, representing nine genera and six families, were pteridophytes. Of the collections, 63 (19.2%) were of introduced species, mainly from Europe and Asia, but occasionally from elsewhere in North America (e.g. Black Locust, *Robinia pseudo-acacia* L.).



Digitaria sanguinalis (L.) Scop. This crabgrass has the dubious distinction of being the westernmost plant in New York State. Someone should check Montauk Point to see if it is also our easternmost.

Discussion

I found the flora of this region to be unimpressive, based on my preliminary surveys. Nearly all the taxa encountered were widespread in New York State, as well as in the northeastern U.S. Also the typically midwestern and southern species encountered were not on the edge of their ranges, but were those that range broadly into northeast.

I suggest that the primary reason for this is the age of the forests, which are often young, second- or third-growth. Furthermore, French Creek is near the local eastern extreme among the tributaries of the Mississippi River, it's relative small size making it a less likely migration corridor than the Lake Plains of Lake Erie and Lake Ontario (the former being around 700 feet lower), or the river corridor of the Allegheny. Many plants strongly representing more western or southern regions, which occur in western New York, often occur within close proximity to these larger corridors (Eaton & Schrot, 1987; Zenkert, 1934).

Many miles downstream, in Pennsylvania, where French Creek itself approaches river-size, perhaps one would be more likely to find southern or western elements. Finally, sampling was made difficult by a massive, all-encompassing gypsy moth infestation that occurred in the area in 1993. All species of trees, with the general exception of gymnosperms, were mildly to severely effected. Even forest herbs and shrubs were often damaged. Early on, I often passed up plants damaged by gypsy moths, and probably ignored several species that might have been reported here.

One interesting aspect was the rarity of a few species that are common elsewhere around western and central New York. For example, American beech (*Fagus grandifolia* Ehrh.), Tulip tree, *Liriodendron tulipifera* L., and red oak (*Quercus rubra* L.) were only found at one site each. American beech occurred in a moist, spring-fed and alluvial forest (a common habitat) along French Creek, near the Pennsylvania border. Red oak was located only on deep glacial deposits within the vicinity of Findley Lake. Tulip tree, was absent throughout, with the exception of site 14, where it formed almost a pure stand. This tree was common just north of the escarpment above lake Erie (not part of the French Creek drainage), but very rare south of there. Interestingly, site 14 occupies the extreme southwestern few thousand square feet of New York State, and is commemorated nearby by an elaborate monument hidden in the forest. The monument reads that it is 100 feet north of the southwest corner of the state. With this knowledge, I sought out the southwestern-most plant in New York, which was a clump of *Digitaria sanguinalis* (L.) Scop., a crabgrass.

Since this survey was only a preliminary study, it can't be expected that this document lists all species to be found in the drainage, although a large percentage

of them appears. If this study were to continue, more surveys would need to be done in upland areas. Furthermore, aquatic plants would need closer attention. In one growing season, it was extremely difficult to cover all possible localities. Therefore, it is not out of the question that rare or unusual southern and western elements may still await discovery in this corner of the state.

Data from this study appear below, on pp. 5-12.

Acknowledgments

Particular thanks to Bob Dirig, assistant curator of the L.H. Bailey Hortorium at Cornell University, and Bob Wesley, for their gracious assistance with identifications and management of specimens. This research was supported by a grant from the New York Flora Association, whom I also wish to thank.

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NYNHP Rare Plant Lists Now on the Web -

The New York Natural Heritage Program would like to announce that they are now represented on the World Wide Web. To access the latest rare plant lists for New York and other states, type:

<http://www.heritage.tnc.org>

Letter to the Editor:

I recently received my NYFA subscription and atlas, and was delighted to see the special newsletter issue on *Polygonum perfoliatum*. May I chide you just a bit, though, for failing to name the person who first discovered mile-a-minute weed in the state. ME, that is. Also, I can verify that the achene is sweet: I tasted the fruit when I first saw the plant last September.

-- Sara B. Stein, Pound Ridge, NY.

My apologies, Sara. It was a good find, and you deserve a lot of credit for actually knowing what the thing was. It would have had most New Yorkers scratching their heads. I must confess that I had temporarily misplaced your letters at the time I wrote the article. I later found them between some *P. perfoliatum* specimens on my messiest table. (R.S.M.)

Table 1: Collection sites within the French Creek drainage.

| Collection site | Description | Location | Date |
|-----------------|--|---|---------------|
| 1 | Mesic alluvial and spring-fed forest along French Creek. | About .5 mi. E. of the PA state line. Town of French Creek. | June 15, 1993 |
| 2 | Mesic meadow along east side of French Creek. | N.W. of Marvin Rd., about .1 mi. S.W. of intersection with state rd. 426. Town of French Creek. | June 15, 1993 |
| 3 | Mesic, mixed evergreen-deciduous forest. | Just S. of intersections of Redding Rd. & county rd. 2 with state rd. 426. Town of French Creek. | June 15, 1993 |
| 4 | Mesic to wet, mixed evergreen-deciduous forest. | Between Conway Rd. & French Creek, E. of Black Brook. Town of French Creek. | June 16, 1993 |
| 5 | Creekbanks around a bridge. | Along King Rd., a few hundred feet W. of intersection with county rd. 4. Town of French Creek. | June 16, 1993 |
| 6 | Rich mesic forest above creek. | Between French Creek and county rd. 4, about .3 mi. E. of intersection with county rd. 7. Town of French Creek. | June 16, 1993 |
| 7 | Wet <i>Tsuga</i> forest. | In the Perkins Swamp, just E. of the abandoned Pennsylvania Railroad R.O.W., about 3/4 mi. S. of Bailey Hill Rd., Town of Sherman. | June 17, 1993 |
| 8 | Mesic forest on an east-facing slope . | Above the West Branch of French Creek, just E. of a dirt road which is the NY/PA state line. About .4 mi. N. of state rd. 17. Town of Mina. | June 17, 1993 |
| 9 | Mesic, shrubby, early second-growth forest along the uppermost reaches of French Creek, around 1700 ft elev. | Just S. of Bailey Hill Rd., & about .2 mi. E. of Wait Corners. Town of Sherman. | June 17, 1993 |
| 10 | Small field and roadside, destroyed soon after by development. | Along E. side of state rd. 426, immediately S. of intersection with King Rd. & Griffin Rds. Town of French Creek. | June 17, 1993 |

| | | | |
|----|--|---|-----------------|
| 11 | Roadside along Findley Lake. | Between state rd. 426 & Findley Lake, about 1 mi. S. of the village of Findley Lake. town of French Creek. | August 11, 1993 |
| 12 | Roadside along a forest and tiny field. | Along Shadyside Rd., to the S. & S.W. side of Findley Lake. Town of French Creek. | August 11, 1993 |
| 13 | Low, mesic forest at the edge of a shallow glacial kettlehole. | Around 1mi. S. of the village of Findley Lake. Between Shadyside Rd. & Ball Diamond Rd. Town of French Creek. | August 11, 1993 |
| 14 | Young mesic forest dominated by <i>Liriodendron</i> . | At the extreme S.W. corner of the state of New York, just N. of State Line Rd. Town of French Creek. | August 11, 1993 |
| 15 | Same site as #1 | Same site as #1 | August 12, 1993 |
| 16 | Same site as #5 | Same site as #5 | August 12, 1993 |
| 17 | Same site as #7 | Same site as #7 | August 12, 1993 |

Table 2: List of plants collected from the French Creek Drainage.

| family | Taxon and author | Collection site |
|--------------------------------|---|-----------------|
| Aceraceae | <i>Acer negundo</i> L. | 5 |
| | <i>Acer rubrum</i> L. | 3 |
| | <i>Acer saccharum</i> Marsh. | 1 |
| Adiantaceae | <i>Adiantum pedatum</i> L. | 1 |
| Alismataceae | <i>Sagittaria latifolia</i> Willd. var. <i>latifolia</i> | 5, 16 |
| Anacardiaceae | <i>Rhus typhina</i> L. | 1, 12 |
| | <i>Toxicodendron radicans</i> (L.) Kuntze | 4 |
| Apiaceae | <i>Angelica atropurpurea</i> L. | 2 |
| | <i>Daucus carota</i> L. | 11 |
| | <i>Zizia aurea</i> (L.) Koch | 5 |
| Apocynaceae | <i>Apocynum cannabinum</i> L. var. <i>cannabinum</i> | 12 |
| Aquifoliaceae | <i>Ilex verticillata</i> (L.) Gray | 3 |
| Araceae | <i>Arisaema triphyllum</i> (L.) Schott subsp. <i>triphyllum</i> | 3 |
| | <i>Symplocarpus foetidus</i> (L.) Salisb. | 4 |
| Araliaceae | <i>Aralia nudicaulis</i> L. | 3 |
| Aristolochiaceae | <i>Asarum canadense</i> L. | 6 |
| Asclepiadaceae | <i>Asclepias incarnata</i> L. <i>incarnata</i> | 12 |
| | <i>Asclepias syriaca</i> L. | 12 |
| Aspleniaceae | <i>Dryopteris intermedia</i> (Muhl.) Gray | 6 |
| | <i>Onoclea sensibilis</i> L. | 1, 9 |
| | <i>Polystichum acrostichoides</i> (Michx.) Schott | 1 |
| | <i>Thelypteris novaboracensis</i> (L.) Nieuwl. | 3 |
| Asteraceae | <i>Achillea millefolium</i> L. subsp. <i>millefolium</i> | 15 |
| | <i>Ambrosia artemisiifolia</i> L. | 11 |
| | <i>Anthemis cotula</i> L. | 15 |
| | <i>Arctium minus</i> (Hill) Bernh. | 12 |
| | <i>Aster prenanthoides</i> Muhl. | 12 |
| | <i>Bidens frondosa</i> L. | 15 |
| | <i>Cichorium intybus</i> L. | 11 |
| | <i>Cirsium vulgare</i> (Savi) Tenore | 12 |
| | <i>Erigeron philadelphicus</i> L. | 2 |
| | <i>Erigeron strigosus</i> Muhl. | 12 |
| | <i>Eupatorium maculatum</i> L. | 12 |
| | <i>Eupatorium rugosum</i> Houtt. | 12 |
| | <i>Gnaphalium uliginosum</i> L. | 16 |
| | <i>Helenium autumnale</i> L. var. <i>autumnale</i> | 15 |
| | <i>Heliopsis helianthoides</i> (L.) Sweet subsp. <i>helianthoides</i> | 15 |
| | <i>Hieracium aurantiacum</i> L. | 10 |
| | <i>Hieracium caespitosum</i> Dumort. | 10 |
| | <i>Lactuca biennis</i> (Moench) Fern. | 12 |
| | <i>Lapsana communis</i> L. | 12 |
| | <i>Leucanthemum vulgare</i> Lam. | 10 |
| | <i>Matricaria matricarioides</i> (Less.) Porter | 11 |
| | <i>Senecio aureus</i> L. | 1, 7 |
| | <i>Solidago canadensis</i> L. var. <i>scabra</i> (Muhl.) Torr. & Gray | 12 |
| <i>Solidago flexicaulis</i> L. | 15 | |
| <i>Solidago gigantea</i> Ait. | 12, 15 | |

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| | <i>Solidago graminifolia</i> (L.) Salisb. | 12, 15 |
| | <i>Sonchus arvensis</i> L. subsp. <i>arvensis</i> | 12 |
| | <i>Taraxacum officinale</i> Weber ex Wiggers | 12 |
| | <i>Tussilago farfara</i> L. | 8, 12 |
| Balsaminaceae | <i>Impatiens capensis</i> Meerb. | 12 |
| | <i>Impatiens pallida</i> Nutt. | 12 |
| Berberidaceae | <i>Caulophyllum thalictroides</i> (L.) Michx. | 1 |
| | <i>Podophyllum peltatum</i> L. | 3 |
| Betulaceae | <i>Alnus incana</i> (L.) Moench subsp. <i>rugosa</i> (DuRoi) Clausen | 1, 8 |
| | <i>Carpinus caroliniana</i> Walt. | 1, 3 |
| | <i>Ostrya virginiana</i> (Mill.) Koch | 7 |
| Boraginaceae | <i>Mertensia virginica</i> (L.) Pers. | 1 |
| | <i>Myosotis scorpioides</i> L. | 2 |
| Brassicaceae | <i>Brassica nigra</i> (L.) Koch | 15 |
| | <i>Brassica rapa</i> L. subsp. <i>oleifera</i> DC. | 1 |
| | <i>Capsella bursa pastoris</i> (L.) Medic. | 12 |
| | <i>Cardamine diphylla</i> (Michx.) Wood | 8 |
| | <i>Cardamine pennsylvanica</i> Muhl. | 8 |
| | <i>Hesperis matronalis</i> L. | 1 |
| | <i>Rorippa palustris</i> (L.) Besser subsp. <i>palustris</i> | 12 |
| Caprifoliaceae | <i>Lonicera canadensis</i> Bartr. | 6 |
| | <i>Sambucus canadensis</i> L. | 1 |
| | <i>Viburnum acerifolium</i> L. | 6 |
| | <i>Viburnum cassinoides</i> L. | 3, 4 |
| | <i>Viburnum lantanoides</i> Michx. | 6 |
| | <i>Viburnum lentago</i> L. | 1, 9 |
| | <i>Viburnum recognitum</i> Fern. | 2 |
| Caryophyllaceae | <i>Saponaria officinalis</i> L. | 15 |
| | <i>Stellaria graminea</i> L. | 2, 10 |
| Celastraceae | <i>Celastrus scandens</i> L. | 13 |
| | <i>Euonymus obovata</i> Nutt. | 1, 8, 14 |
| Chenopodiaceae | <i>Chenopodium album</i> L. subsp. <i>album</i> | 12 |
| Convolvulaceae | <i>Calystegia sepium</i> (L.) R.Br. subsp. <i>sepium</i> | 2, 12 |
| | <i>Cuscuta gronovii</i> Willd. | 2, 15 |
| Cornaceae | <i>Cornus amomum</i> Mill. ssp. <i>amomum</i> | 1 |
| | <i>Cornus amomum</i> Mill. ssp. <i>obliqua</i> (Raf.) Wilson | 5 |
| | <i>Cornus sericea</i> L. | 12 |
| Cucurbitaceae | <i>Echinocystis lobata</i> (Michx.) Torr. & Gray | 1, 5, 15 |
| Cyatheaaceae | <i>Pteridium aquilinum</i> (L.) Kuhn | 3 |
| Cyperaceae | <i>Carex crinita</i> Lam. var. <i>crinita</i> | 2 |
| | <i>Carex debilis</i> Michx. var. <i>Rudgei</i> Bailey | 4 |
| | <i>Carex intumescens</i> Rudge | 3 |
| | <i>Carex lurida</i> Wahl. | 3, 16 |
| | <i>Carex rosea</i> Schkuhr | 8 |
| | <i>Carex scoparia</i> Schkuhr var. <i>scoparia</i> | 1 |
| | <i>Carex stipata</i> Muhl. | 3 |
| | <i>Carex stricta</i> Lam. var. <i>stricta</i> | 1 |
| | <i>Carex swanii</i> (Fern.) Mackz. | 4 |
| | <i>Carex tribuloides</i> Wahlenb. | 3 |

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| | <i>Carex vulpinoidea</i> Michx. | 3 |
| | <i>Cyperis bipartitus</i> Torr. | 16 |
| | <i>Cyperis strigosus</i> L. var. <i>strigosus</i> | 15, 16 |
| | <i>Dulichium arundinaceum</i> (L.) Britt | 13 |
| | <i>Eleocharis palustris</i> (L.) R. & S. | 2, 16 |
| | <i>Scirpus atrovirens</i> Willd. | 16 |
| | <i>Scirpus cyperinus</i> (L.) Kunth | 13 |
| | <i>Scirpus tabernaemontani</i> Gmel. | 5 |
| Dipsacaceae | <i>Dipsacus fullonum</i> L. | 12 |
| Equisetaceae | <i>Equisetum arvense</i> L. | 12 |
| | <i>Equisetum sylvaticum</i> L. | 3 |
| Fabaceae | <i>Amphicarpa bracteata</i> (L.) Fern. | 17 |
| | <i>Apios americana</i> Medic. | 15 |
| | <i>Lotus corniculatus</i> L. | 11 |
| | <i>Medicago lupulina</i> L. | 15 |
| | <i>Melilotus alba</i> Desr. | 12 |
| | <i>Robinia pseudo-acacia</i> L. | 5 |
| | <i>Fagus grandifolia</i> Ehrh. | 1 |
| | <i>Quercus rubra</i> L. var. <i>borealis</i> (Michx. f.) Farw. | 11 |
| Geraniaceae | <i>Geranium robertianum</i> L. | 8 |
| Grossulariaceae | <i>Ribes glandulosum</i> Grauer | 4 |
| Hamamelidaceae | <i>Hamamelis virginiana</i> L. | 1, 4 |
| Hydrocharitaceae | <i>Elodea canadensis</i> Rich. | 5 |
| Hydrophyllaceae | <i>Hydrophyllum virginianum</i> L. | 1 |
| Hypericaceae | <i>Hypericum ellipticum</i> Hook. | 12 |
| | <i>Hypericum perforatum</i> L. | 11 |
| Iridaceae | <i>Iris pseudacorus</i> L. | 5 |
| | <i>Iris versicolor</i> L. | 2, 5 |
| | <i>Sisyrinchium angustifolium</i> Mill. | 10 |
| Juglandaceae | <i>Carya ovata</i> (Mill.) Koch | 8 |
| Juncaceae | <i>Juncus articulatus</i> L. | 16 |
| | <i>Juncus bufonius</i> L. var. <i>bufonius</i> | 16 |
| | <i>Juncus effusus</i> L. | 2 |
| | <i>Juncus nodosus</i> L. | 16 |
| Lamiaceae | <i>Clinopodium vulgare</i> L. | 14 |
| | <i>Collinsonia canadensis</i> L. | 8 |
| | <i>Lycopus americanus</i> Muhl. | 15 |
| | <i>Mentha spicata</i> L. | 15 |
| | <i>Prunella vulgaris</i> L. | 10 |
| Lauraceae | <i>Lindera benzoin</i> (L.) Blume | 3, 14 |
| Lemnaceae | <i>Lemna minor</i> L. | 15 |
| Liliaceae | <i>Allium sativum</i> L. | 2 |
| | <i>Allium tricoccum</i> Ait. | 15 |
| | <i>Clintonia borealis</i> (Ait.) Raf. | 4 |
| | <i>Lilium canadense</i> L. subsp. <i>canadense</i> | 1 |
| | <i>Lilium superbum</i> L. | 15 |
| | <i>Maianthemum canadense</i> Desf. var. <i>canadense</i> | 3 |
| | <i>Medeola virginiana</i> L. | 3, 6 |
| | <i>Polygonatum pubescens</i> (Willd.) Pursh | 8 |

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| | <i>Smilacina racemosa</i> (L.) Desf. | 4, 6 |
| | <i>Smilacina stellata</i> (L.) Desf. | 7 |
| | <i>Streptopus roseus</i> Michx. | 1 |
| | <i>Trillium erectum</i> L. | 1 |
| | <i>Trillium grandiflorum</i> (Michx.) Salisb. | 1, 8 |
| | <i>Trillium undulatum</i> Willd. | 4, 8 |
| | <i>Uvularia perfoliata</i> L. | 1 |
| | <i>Veratrum viride</i> Ait. | 1, 7 |
| Lycopodiaceae | <i>Lycopodium lucidulum</i> Michx. | 1 |
| | <i>Lycopodium obscurum</i> L. | 3 |
| Magnoliaceae | <i>Liriodendron tulipifera</i> L. | 14 |
| | <i>Magnolia acuminata</i> (L.) L. | 3, 6 |
| Malvaceae | <i>Malva moschata</i> L. | 12 |
| Monotropaceae | <i>Monotropa uniflora</i> L. | 13 |
| Nyssaceae | <i>Nyssa sylvatica</i> Marsh. | 3 |
| Oleaceae | <i>Fraxinus americana</i> L. | 9 |
| | <i>Fraxinus nigra</i> Marsh. | 3, 5, 17 |
| Onagraceae | <i>Circaea alpina</i> L. | 15 |
| | <i>Circaea lutetiana</i> L. subsp. <i>canadensis</i> (L.) Aschers & Magnus | 8 |
| | <i>Epilobium angustifolium</i> L. | 12 |
| | <i>Epilobium coloratum</i> Biehler | 15 |
| | <i>Ludwigia palustris</i> (L.) Ell. | 5 |
| | <i>Oenothera biennis</i> L. | 13 |
| Orchidaceae | <i>Corallorhiza trifida</i> Chat. | 4 |
| | <i>Epipactis helleborine</i> (L.) Crantz | 8, 17 |
| Osmundaceae | <i>Osmunda cinnamomea</i> L. | 7 |
| | <i>Osmunda claytoniana</i> L. | 3, 7 |
| Oxalidaceae | <i>Oxalis acetosella</i> L. | 3 |
| | <i>Oxalis stricta</i> L. | 10, 15 |
| Papaveraceae | <i>Sanguinaria canadensis</i> L. | 7 |
| Phytolaccaceae | <i>Phytolacca americana</i> L. | 12 |
| Pinaceae | <i>Abies balsamifera</i> (L.) Mill. | 7 |
| | <i>Pinus strobus</i> L. | 3 |
| | <i>Tsuga canadensis</i> (L.) Carr. | 1 |
| Plantaginaceae | <i>Plantago lanceolata</i> L. | 10 |
| | <i>Plantago rugelii</i> Dcne. | 11 |
| Platanaceae | <i>Platanus occidentalis</i> L. | 1 |
| Poaceae | <i>Anthoxanthum odoratum</i> L. | 1, 10 |
| | <i>Brachyelytrum erectum</i> (Schreb.) Beauv. | 3 |
| | <i>Digitaria sanguinalis</i> (L.) Scop. | 14 |
| | <i>Echinochloa crus-galli</i> (L.) Beauv. subsp. <i>crus-galli</i> | 12 |
| | <i>Elymus hystrix</i> L. var. <i>hystrix</i> | 15 |
| | <i>Elymus riparius</i> Wieg. | 15 |
| | <i>Glyceria maxima</i> (Hartm.) Holmb. subsp. <i>grandis</i> (S. Wats.) Hultén | 2 |
| | <i>Glyceria striata</i> (Lam.) Hitch. | 3, 7, 8 |
| | <i>Leersia oryzoides</i> (L.) Sw. | 16 |
| | <i>Milium effusum</i> L. | 1 |
| | <i>Panicum latifolium</i> L. | 15 |
| | <i>Phalaris arundinacea</i> L. | 1, 16 |

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| | <i>Phleum pratense</i> L. | 15 |
| | <i>Poa pratensis</i> L. subsp. <i>pratensis</i> | 1 |
| Polemoniaceae | <i>Phlox divaricata</i> L. | 6 |
| | <i>Polemonium reptans</i> L. | 1 |
| Polygonaceae | <i>Polygonum arifolium</i> L. | 17 |
| | <i>Polygonum hydropiper</i> L. | 12 |
| | <i>Polygonum lapathifolium</i> L. var. <i>lapathifolium</i> | 16 |
| | <i>Polygonum pensylvanicum</i> L. | 15 |
| | <i>Polygonum sagittatum</i> L. | 12 |
| | <i>Polygonum scandens</i> L. var. <i>scandens</i> | 16 |
| | <i>Polygonum virginianum</i> L. | 7 |
| | <i>Rumex acetosella</i> L. subsp. <i>angiocarpus</i> (Murb.) Murb. | 10 |
| | <i>Rumex crispus</i> L. | 5, 12 |
| Primulaceae | <i>Lysimachia ciliata</i> L. | 15 |
| | <i>Lysimachia nummularia</i> L. | 1, 5 |
| | <i>Trientalis borealis</i> Raf. | 3 |
| Ranunculaceae | <i>Actaea spicata</i> L. subsp. <i>rubra</i> (Ait.) Hultén | 7 |
| | <i>Caltha palustris</i> L. | 4 |
| | <i>Cimicifuga racemosa</i> (L.) Nutt. | 12 |
| | <i>Clematis virginiana</i> L. | 9, 15 |
| | <i>Coptis trifolia</i> (L.) Salisb. | 3 |
| | <i>Hepatica nobilis</i> Mill. var. <i>acuta</i> (Pursh) Steyererm. | 1 |
| | <i>Ranunculus abortivus</i> L. var. <i>abortivus</i> | 1 |
| | <i>Ranunculus acris</i> L. var. <i>acris</i> | 1, 10 |
| | <i>Thalictrum dioicum</i> L. | 1 |
| | <i>Thalictrum pubescens</i> Pursh | 1, 7 |
| Rosaceae | <i>Agrimonia gryposepala</i> Wallr. | 12 |
| | <i>Amelanchier arborea</i> (Michx. f.) Fern. var. <i>arborea</i> | 3 |
| | <i>Crataegus punctata</i> Jacq. | 1, 2 |
| | <i>Dalibarda repens</i> L. | 17 |
| | <i>Fragaria virginiana</i> Mill. | 13 |
| | <i>Geum allepicum</i> Jacq. | 9 |
| | <i>Malus pumila</i> Mill. | 2 |
| | <i>Potentilla canadensis</i> L. | 4 |
| | <i>Potentilla recta</i> L. | 10 |
| | <i>Prunus pensylvanica</i> L. | 5 |
| | <i>Prunus serotina</i> Ehrh. | 1, 5 |
| | <i>Prunus virginiana</i> L. | 1 |
| | <i>Rosa multiflora</i> Thunb. | 1 |
| | <i>Rubus allegheniensis</i> Porter | 1, 9 |
| | <i>Rubus odoratus</i> L. | 15 |
| | <i>Sorbus americana</i> Marsh. | 4 |
| | <i>Spiraea alba</i> DuRoi | 2 |
| Rubiaceae | <i>Galium aparine</i> L. | 1 |
| | <i>Galium palustre</i> L. | 1 |
| | <i>Mitchella repens</i> L. | 4, 17 |
| Salicaceae | <i>Populus deltoides</i> Bartr. | 5 |
| | <i>Populus grandidentata</i> Michx. | 7 |
| | <i>Populus tremuloides</i> Michx. | 3 |

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| | <i>Salix bebbiana</i> Sarg. | 3 |
| | <i>Salix exigua</i> Nutt. | 1, 2, 5 |
| | <i>Salix fragilis</i> L. | 5 |
| | <i>Salix nigra</i> Marsh. | 9 |
| Saxifragaceae | <i>Mitella diphylla</i> L. | 1 |
| | <i>Penthorum sedoides</i> L. | 16 |
| | <i>Tiarella cordifolia</i> L. | 1 |
| Scrophulariaceae | <i>Mimulus ringens</i> L. | 5, 15, 16 |
| | <i>Veronica americana</i> (Raf.) Schwein. | 1 |
| | <i>Veronica arvensis</i> L. | 10 |
| | <i>Veronica officinalis</i> L. .. | 8, 10 |
| Smilacaceae | <i>Smilax herbacea</i> L. | 1 |
| | <i>Smilax hispida</i> Muhl. | 3 |
| Solanaceae | <i>Solanum carolinense</i> L. | 15 |
| | <i>Solanum dulcamara</i> L. | 15 |
| Sparganiaceae | <i>Sparganium</i> Sp. | 1 |
| Taxaceae | <i>Taxus canadensis</i> Marsh. | 6 |
| Thymeliaceae | <i>Dirca palustris</i> L. | 1 |
| Tiliaceae | <i>Tilia americana</i> L. | 7 |
| Typhaceae | <i>Typha latifolia</i> L. | 16 |
| Ulmaceae | <i>Ulmus americana</i> L. | 1 |
| | <i>Ulmus rubra</i> Muhl. | 5 |
| Urticaceae | <i>Pilea pumila</i> (L.) Gray | 15 |
| Veberaceae | <i>Verbena hastata</i> L. | 12 |
| | <i>Verbena urticifolia</i> L. var. <i>urticifolia</i> | 15 |
| Violaceae | <i>Viola pubescens</i> Ait. var. <i>eriocarpa</i> (Schwein.) Russell | 1 |
| | <i>Viola rotundifolia</i> Michx. | 6 |
| | <i>Viola sororia</i> Willd. | 4 |
| | <i>Viola striata</i> Ait. | 1 |
| Vitaceae | <i>Parthenocissus quinquefolia</i> (L.) Planch. | 16 |
| | <i>Vitis riparia</i> Michx. | 5 |