NYFA New York Flora Association

Quarterly Newsletter

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Editor's Note: By the time you get this issue, the snow should be gone and the weather will have settled down. It started out as a mild winter up here in the North Country: snow buntings disappeared, woodcocks started peenting, and red-wing blackbirds and geese came back at the end of February (almost a whole month early). Then we were besieged by snow and ice for most of March and into April, during which time the snow buntings reappeared and the woodcocks didn't make a sound. Thus it was a pleasure to peruse this year's list of field trips and workshops (see page 18) and to read the articles by Michael Hough, prompting thoughts about the upcoming botanizing season (perhaps this issue will inspire us all to pay better attention to Geum, an often ignored plant!). Happy Spring, and hope to see you in the field!

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Cuckoo-flowers of NY

by Michael Hough

Do we have two cuckoo-flowers (also called cuckoo bitter-cresses) in New York? The cuckoo-flower with pink or purplish petals (*Cardamine pratensis* L.) was likely introduced from Eurasia and can be found widely naturalized in ditches, lawns, meadows, floodplains, and other moist disturbed areas. The other, with white petals (and referred to by some authors as *C. pratensis* var. *pratensis*), is thought to be native to North America, though there is disagreement regarding its correct name and whether it should be considered synonymous with *Cardamine dentata* Schult.), a species found in northern Europe. *C. pratensis* var. *pratensis* is most readily distinguished from the introduced cuckoo-flower by the petal color, lack of teeth on the terminal leaflet of the basal leaves, and petiolulate leaflets of the upper stem leaves. It also has a more specific habitat preference, found primarily in open, usually calcareous swamps, fens, and shores. Both flower primarily from mid-May to early June.

I became interested in the taxonomic status of this plant after finding a single specimen blooming on the edge of Beaver Lake in Onondaga County on May 18, 2016. I was already familiar with the pink-purple flowered *C. pratensis*, but this plant had pure white flowers and was nearly twice as large as typical *C. pratensis*. A review of taxonomic keys convinced me that this was the white flowered "cuckoo flower" that is now lumped with *C. pratensis* in NY. Just a few days later I found more examples of the white cuckoo flower blooming along the boardwalk at Labrador Hollow. Older references consistently refer to the white flowered cuckoo-flower as native, though some modern treatments do not consider it a separate entity. Further research revealed that some modern authors consider it to be synonymous with *C. dentata* Schult. of northern Europe (Wójcicki & Marhold 2000; Haines 2011), however for the Flora of North America treatment it was decided that this is a question in need of further study (Al-Shehbaz et al. 2010). The confusion of names is evident in how the white flowered versions are currently treated in different states (Figure 1); as a consequence it has been delisted as a heritage element in several states where it may be rare.

Fernald (1920) discussed the similarity of our white cuckoo flower with what had been called at the time *C. pratensis* var. *palustris* Wimm. & Grab. in Europe. He described it as "an unquestionably indigenous plant with milk-white petals". Evidence seems to suggest that our native white cuckoo flower is either equivalent to the *C. dentata* of northern Europe or a different taxon altogether, but it does not make sense to continue to call it *C. pratensis*. The description of *C. dentata* from Poland (Wójcicki & Marhold 2000) seems to fit our white-flowered plants quite well. The terminal leaflet of the basal leaves are entire or more or less sinuate, while in *C. pratensis sensu stricto* the terminal leaflet is distinctly crenate or dentate with several teeth.

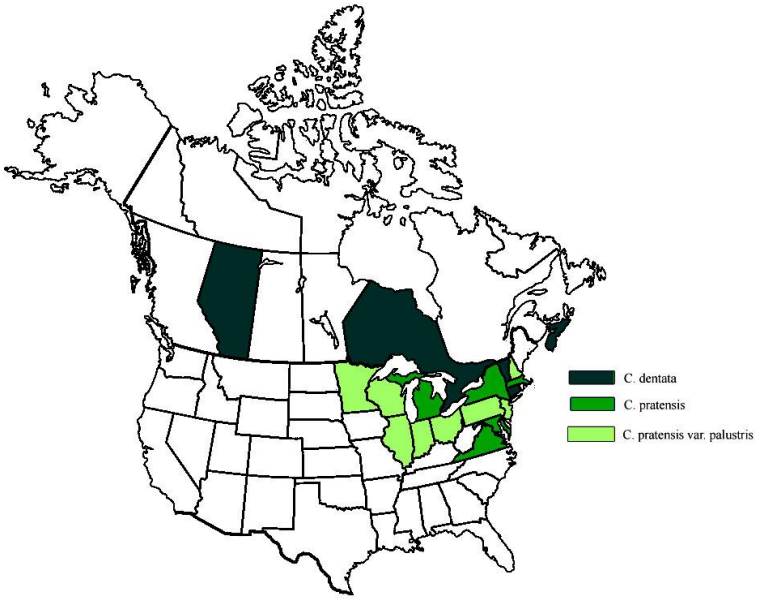

Figure 1. Range of white cuckoo-flower in North America. Colors specify the accepted name for that state or province. The pink-flowered *Cardamine pratensis* is known outside the indicated range but only those states that recognize the native element are shown.

In Canada *C. dentata* is recognized as occurring in the provinces of Alberta, Ontario, Nova Scotia, and possibly in Manitoba and Quebec (Acadia University, 2017). Fernald (1920) also described another native but more northern cuckoo-flower, previously known as *C. pratensis* var. *angustifolia* Hook. that is now recognized as a distinct species, *C. nymanii* Gand. It has pink or purplish petals and differs from the other cuckoo-flowers in the characters of the foliage. It is a circumboreal species only known in the U.S. from Alaska.

Since it has not been assigned a taxonomic rank, it is not clear how common the white cuckoo flower is in New York. To date I have only observed it in two places, both in Onondaga County. New York State Museum records indicate collections (as *C. pratensis* var. *palustris*) from seven counties (Onondaga, Broome, Schenectady, Otsego, Lewis, Tompkins, and Clinton) and observations by Stanley Smith from three others (Madison, Oswego, and Cortland). Approximate locations of these records are shown in Figure 2.

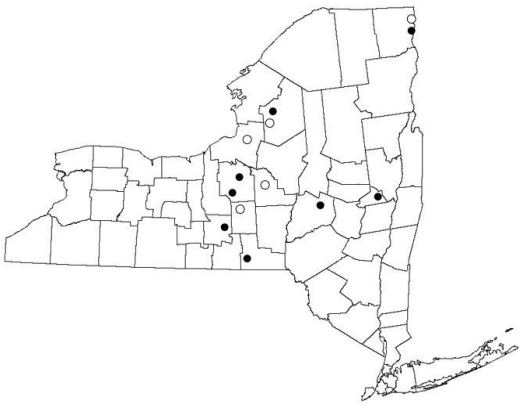

Figure 2. Range of *C. pratensis* var. *palustris* (syn. *C. dentata*) in New York based on New York State Museum records. Solid dots indicate vouchered records while outlined dots represent reported observations.

The following are the conservation status ranks that I could find for U.S. states where white cuckoo flower is known to occur. These all likely refer to the same element (just listed under different names).

Cardamine dentata:
Massachusetts (E, S1); Vermont (T, S1)

Cardamine pratensis var. *palustris*:
Illinois (E); Indiana (WL); Minnesota (T); New Hampshire (IN, E prior to 2005); New Jersey (S3); Ohio (SX); Pennsylvania (E, S1); Wisconsin (No longer on WDNR working list, SC as recently as 2009, T in 2001)

Cardamine pratensis:
Connecticut; Maryland (SR); Michigan; New York (S5); Virginia (No rank, S1 prior to 2006)

State Ranks and Codes
E - Endangered T- Threatened WL - Watch list
S1 - Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in the state.
S2 - Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in the state
S3 - Typically 21 to 100 occurrences, limited acreage, or miles of stream in the state
S5 - Demonstrably secure in the state
SC - Special Concern SR - Reported but without persuasive evidence
SX - Presumed Extirpated IN - Indeterminate

Key based on Fernald (1920) and Wójcicki & Marhold (2000):

Terminal leaflet of basal leaves crenate or dentate, with 3-9 teeth; lateral leaflets of middle and upper cauline leaves ± sessile; petals pink or purplish.....*C. pratensis*
Terminal leaflet of basal leaves entire or obscurely toothed; lateral leaflets of the middle and upper cauline leaves usually with a distinct petiolule; petals white ..... *C. dentata*

C. pratensis - basal leaves. Terminal leaflet with main veins ending in minute teeth

C. dentata - basal leaves. Terminal leaflet entire or ± sinuate

C. pratensis - cauline leaves ± sessile. Note this photo is of a lower cauline leaf and that upper cauline leaves can have more slender leaflets

C. dentata - middle and upper cauline leaves with distinct petiolules

C. pratensis flowers

C. dentata flowers

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Winter Plant Identification Workshop – A Review

by Joseph McMullen

Winter is a fun time to identify plants. Their identification at that time is really not that difficult, but like anything else you need to know what to look for. And, without leaves obscuring your view, winter is a great time to observe plant distribution patterns in plant communities, assuming of course you can identify the plants.

On January 21, seventeen enthusiastic individuals joined me for a workshop covering the interesting and challenging topic of winter plant identification. Although many fail to botanize during the winter months, it is amazing what plants can be identified during the leaf-off season.

Samples of plants displayed at the workshop.

As indicated in this workshop write-up, when deciduous woody trees and shrubs shed their leaves and other parts, distinguishing scars are left behind. These scars, along with persistent fruit from the past season, next season's leaf and flower buds, pith characteristics, and growth form and habit features are used to identify plant species in winter.

The opposite or alternate arrangement of branches/leaf scars is a good place to start when identifying woody species. The traditional pneumonic device of MAD CAP HORSE (maple, ash, dogwood, Caprifoliaceae [viburnums, honeysuckles, elderberries] and horse chestnut) covers most of the opposite branched species. (Unfortunately, the viburnums and elderberries were recently moved into the Adoxaceae family, so we need to modify our device).

The shape of the leaf scar and the arrangement and number of vascular bundle scars is perhaps the next thing to focus on. A leaf scar is formed when the petiole of the leaf breaks away from the twig. Vascular tissue extends from the twig into the petiole to transport material to and from the leaf. In plants, vascular tissue is not a hollow tube like your veins and arteries, but a cluster of specialty cells bundled together. Traces of these vascular bundles remain as scars when the petiole breaks away. The number and arrangement of these bundles is very diagnostic in species identification.

All the maples (*Acer* spp.) have a crescent-shaped leaf scar, with three vascular bundles. Both black walnut (*Juglans nigra*) and butternut (*J. cinerea*) have a monkey face leaf scar, with the vascular bundles arranged in the shape of a U. Sycamore (*Platanus occidentalis*) has a distinct leaf scar; the base of the petiole is hollow and covers the bud, so when it breaks away it leaves an encircling leaf scar. These are just a few of the great examples of leaf and vascular bundle scar traits used to identify plants.

Leaves are not the only foliose structures shed by deciduous plants. Many have stipules that, when shed, leave behind scars. Of note, are the distinguishing encircling stipule scars of tulip tree (*Liriodendron tulipifera*), cucumber magnolia (*Magnolia acuminata*), and all the other woody members of the Magnoliaceae family. Sycamore also has an encircling stipule scar.

These small foliose structures are stipules and when shed they leave a scar, which encircles the stem in tulip tree (*Liriodendron tulipifera*) and other members of the magnolia family.

Buds for next year's foliage and flowering buds (if present) can be distinctive as well. Buds come in different shapes and colors, such as the long pointed bud with numerous copper-colored scales of American beech (*Fagus grandifolia*), the duck bill-shaped bud of tulip tree, or the turban-shaped flowering bud of flowering dogwood (*Cornus florida*). In all willows (*Salix* spp.), one single scale covers the bud, which is characteristically pressed (appressed buds) against the twig. For some species, there are no scales covering the bud (a naked bud), for example witch hazel (*Hamamelis virginiana*). Buds on a little stalk distinguish the alders (*Alnus* spp.). Many other bud traits are notable.

Sycamore (*Platanus occidentalis*) has a hollow petiole base that covers the bud and leaves an encircling scar.

Distinctive sulfur yellow buds of bitternut hickory (*Carya cordiformis*).

Black ash (*Fraxinus nigra*) is told from the other ashes by the little space between the terminal bud and the first two lateral buds (black to the back). Sessile leaflets are also shown here.

Pith color, shape, and sometimes the presence of cross partitions (diaphragms) will separate some species. Our two common red-stemmed dogwoods are easily identified by the white pith of red-osier dogwood (*Cornus sericea*) and the brown pith of silky dogwood (*C. amomum*). All the introduced honeysuckles (*Lonicera* spp.) have a hollow pith. In some species the pith contains diaphragms and the pith may be solid (continuous) or have hollow spaces between the diaphragms (chambered pith). Black walnut and butternut have distinctly chambered pith.

Black walnut (*Juglans nigra)* or butternut (*J. cinerea*)? Both have chambered pith and a monkey face leaf scar, but only butternut has the woolly brow over the leaf scar.

Lenticels, the raised, sometimes corky features on stems, which act as a means to transport gases, separate some species. They are the reason for the specked moniker of alder.

Alders (*Alnus* spp.) have buds on a little stalk and the stem is "speckled" with lenticels.

Many other distinguishing traits were covered during the workshop, including: bark types, like the exfoliating bark of shagbark hickory (*Carya ovata*); growth form shapes, picture the vase shape of American elm (*Ulmus americana*); growth habit, like the dome-shaped clones of gray-stemmed dogwood (*Cornus racemosa);* twig color, like the glaucous young twigs of box elder (*Acer negundo*); persistent (marcescent) leaves, like in beech; persistent fruit, as in some viburnums and box elder; and the presence of galls, like the pine cone gall of willows or the stem gall of tall goldenrod (*Solidago altissima*).

And lastly, it is not only woody species that can be readily recognized in winter. Several of our ferns are winter green, while others, like sensitive fern (*Onoclea sensibilis*) and ostrich fern (*Matteuccia struthiopteris*), leave behind easily identified spore stalks. Dried stalks, basal rosettes, and persistent parts from herbaceous flowering plants are also often easily identified.

Sensitive fern (*Onoclea sensibilis*) spore stalks.

Ostrich fern (*Matteuccia struthiopteris*) spore stalks persist in winter.

This is a summary of a few of the common distinguishing traits. If you want to learn about the many others, you will just have to attend next year's winter workshop.

Winter plant identification workshop attendees in field.

What is a Native Plant Nursery?

By Steve Young, NY Flora Association Board

Walk into most native plant nurseries these days and you will find a wide variety of beautiful plants native to New York, but there may also be some plants not native to our area for sale. On occasion you might also see an exotic labeled as 'New York grown', which means it was grown here but can be from anywhere originally. This designation is often reserved for agricultural products. Usually plants listed as non-native, according to the New York Flora Atlas, are only a small part of the native nursery inventory, but they can be found in native plant nurseries as well as in big box stores and online sales. What should we make of this confusing situation?

The term 'native plant nursery' can mean different things to different people. Some may feel that a native plant nursery should only sell plants that are native to the state where the nursery is located. Nursery owners, though, often include non-natives to provide a little more variety (and income), or plants that they just really like. If you read the website of the native nurseries, or ask the owners, they should be able to tell you just what they include under the term "native plants". They may include only plants from New York, or plants native to Northeastern or Eastern US in general, or occasionally plants from outside the region altogether. Some nurseries define their area on their websites but others do not. It is very useful when they do provide this information to avoid any potential confusion. Plant labels should have scientific names as well, so buyers know exactly what it is being sold (this goes for all nurseries, not just native plant nurseries).

To clarify what is meant by a native plant: it is one that occurs in a particular place at a particular time completely without human assistance. For the state, we can consider plants that presently occur in New York without human assistance to be native here. Using this definition, plants can move into the

state on their own at any time and be considered native. For example, as plants move north on their own with climate change we can evaluate whether they should be considered native.

To make sure you are buying a plant that is native to New York you can check its nativity on the New York Flora Atlas website. If it is not found in NY you can check its native range by looking at its distribution on the GoBotany website of the New England Wildflower Society. If it does not occur in New England you can check its distribution on the Biota of North America Program (BONAP) website. Their North American Plant Atlas (NAPA) shows where plants are native by county, a very useful resource (there is a link to it under each species in the NY Flora Atlas). It shows by color where native North American plants have spread into surrounding states as non-natives, or 'adventives'. It will also show you where the species are rare and common. Unfortunately the USDA PLANTS database does not distinguish when native North American plants are adventive in other states. They only use one color for plants whether they are native or not. This has caused confusion as to what is native and not native in New York; to clarify the plant's nativity, rely on the NY Flora Atlas.

On a smaller scale, New York and the Northeast also contain many ecoregions where plants from one region do not occur in another. For example, plants found in an Adirondack black spruce community may not occur in a Long Island post oak community. Obtaining plants from one of these ecoregions and placing them in the other may not be the best idea, though many native plants do well across ecoregions and could be sold in either area. Nursery owners can sometimes tell you the geographic area where the seed or plants were gathered or grown in case you want to choose genetic stock that is local to your area or ecoregion. In other words, for the plants you want to buy, you can define the particular place you want to consider your plants native to. It is still a challenge for growers to satisfy a local source since consumers don't always ask for it. By asking for such plants you can help build a demand and create a supply. It is probably better to buy locally sourced plants, especially if the plants could affect the genetic integrity of the wild plants in the area, and we should monitor how the movement of native plants for gardens is affecting our local wild plants.

Some nurseries also sell cultivars of native plants, often called nativars. They are the result of artificial selections made by humans from the natural variation found in a species. They are almost always propagated vegetatively to preserve a particular trait. While nativars can provide a larger selection of the same species, there is some opposition to their use because they are not a product of natural selection. You can read more about this in a paper by the website Wild Ones and make your own decision. (http://www.wildones.org/wp-content/uploads/2011/12/Nativars-Statement.pdf)

Native plant nurseries are a very valuable resource for obtaining native plants that are not only beautiful, but that support native food webs critical for the survival of our native wildlife, and are great alternatives to exotic plants. If you are choosing new plants to put in your landscape this year, do some homework and choose a native plant from a native plant nursery.

Resurrecting an Herbarium at Oswego

by Andrew P. Nelson

When I started as a member of the Biology faculty at SUNY Oswego in 1993, the basement hallway of Piez Hall, which housed the Department of Biological Sciences, was lined with old herbarium cabinets filled with mounted and unmounted specimens obtained from Syracuse University in the mid 1970's. In 1994 I became Director of Rice Creek Field Station at Oswego. At Rice Creek, I found a small herbarium containing a few specimens from the Syracuse collection, specimens from the Rice Creek properties, and specimens from various other areas collected by Oswego faculty and students. I remained as director at Rice Creek for the next fifteen years until my retirement. During this time my students and I added additional materials, and donations came in from other individuals and institutions bringing the collection at Rice Creek up to 3442 specimens of vascular plants and 151 specimens of bryophytes.

A new building, Shineman Center, was constructed in 2010 - 2013 to house the sciences at Oswego. A room for the Syracuse materials, complete with new cabinets, was included. I volunteered to take on the task of evaluating and organizing these specimens. When the new herbarium space became available for work in September 2013, I began an inspection of the specimens from Syracuse. At the same time arrangements were made to transfer specimens from Rice Creek that had not come from the actual field station properties to the Shineman Center for incorporation with the Syracuse specimens into an Oswego Herbarium.

Roughly half of the materials from Syracuse consisted of unmounted specimens, many of which were accompanied by little or no data that had survived the move from Syracuse and the years of storage at Oswego. With no date or site of collection many of these were judged of no value and were discarded. This left space in the room and cabinets for the addition of future collections.

The mounted specimens from Syracuse were filed according to the system of Dalla Torre and Harms (1900-1907) in which each genus was assigned a number meant to reflect its position in the system of Engler and Prantl (1887-1915). This was an outdated arrangement and some other system of organization was needed.

A committee consisting of myself and Profs. Kamal Mohamed, Eric Hellquist, and Jinyan Guo was formed to determine policies which should guide the new herbarium. One of the first decisions made was to file specimens in broad categories following the practice of the Angiosperm Phylogeny Group (Chase and Reveal, 2009) and within these major groups to organize species by family and then by genus alphabetically. It was decided to follow as closely as possibly the nomenclature of the Flora of North America (Flora of North America Editorial Committee, 1993 +). For taxa not represented in North America or not yet included in published volumes of the Flora, we found the most current name available without undertaking a lengthy search of current research literature. Wikipedia proved to be a most useful source for this purpose.

I then went through all the mounted specimens with labels or notations giving data on their collection and arranged them according to our newly adopted filing system. In this process synonomy was reviewed to be sure that each taxon included had a current, valid name. With the help of colleagues and students at Oswego we are now labeling new folders, repairing damaged mounts, and working out the format for a database to include records for all specimens in the collection. We will eventually publish this database on line.

The herbarium was registered as the State University of New York College at Oswego Herbarium (OSW) in *Index Herbariorum* (Thiers) last year. As a rough estimate, at this time, it contains over 50,000 specimens. Although most of the specimens are from North America, there are collections from all

continents except Antarctica. Collections of ferns from Hawaii from 1931 and Jamaica from 1906 and 1926 are included. There are also plants collected during expeditions to the Venezuelan Andes in 1931, Bolivia in 1891-92, and the Yucatan in 1938. Additional groups of specimens came from Africa, India, and Australia as well as many from Europe and the Middle East.

The Oswego Herbarium is available for public use by appointment. For more information contact me, Andrew Nelson, at andrew.nelson@oswego.edu or Prof. Kamal Mohamed at kamal.mohamed@oswego.edu.

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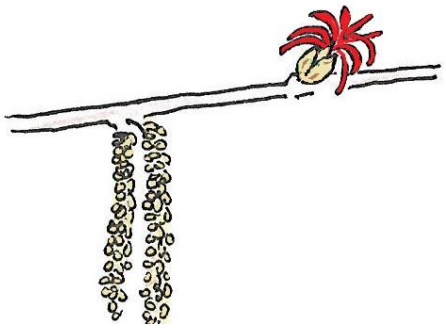

Get Involved!

NYFA is looking for members to join its Board. If you are enthusiastic about protecting and promoting New York's diverse flora, please consider becoming a Director. Our Directors hail from all over the State and have a variety of backgrounds, including environmental firms, land trusts, academia, and government. To learn about the duties and responsibilities of a NYFA Director, check out the By-laws at newyorkflora.org and/or contact the Nominating Committee or any current Director. We look forward to having new supporters on our NYFA team!

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Geum ×*catlingii* and the *Geums* of NY

by Michael Hough

Geum is a cosmopolitan genus in the family Rosaceae; it includes about 45 species, with 16 native to North America. There are ten species that occur in NY, nine that are considered native and one introduced. All of the members of the subgenus *Geum*, commonly known as avens, are characterized by a hook at the end of the style after the stigma has fallen. They have been found to hybridize experimentally and most produce offspring that are at least partially fertile, however the majority of possible hybrids are not typically found in nature (Gajewski, 1957). One exception is the hybrid of *G. rivale* L. and *G. urbanum* L., which has been the subject of numerous plant mating studies, including the classic experiments of Gregor Mendel (1866).

Another exception is Catling's avens (*Geum* ×*catlingii* J.-P. Bernard & R. Gauthier), the hybrid between our native white avens (*G. canadense* Jacq.) and the Eurasian herb bennet (*G. urbanum*). The type specimen of this hybrid was collected in Quebec in 1982 by Jean-Paul Bernard and described in 1986 (Bernard & Gauthier, 1986). It is named in honor of the Canadian plant taxonomist Dr. Paul M. Catling who first observed it with K.L. Catling in Ontario (Bernard & Gaulthier, 1986). While this hybrid has since been reported from a few other locations in Canada, the only occurrence I could find in the U.S. prior to the one presented here is from Ann Arbor, Michigan (McNeil, 1981; specimen at MICH collected by Tony Reznicek & M. Frohlich on June 25, 2002).

I collected *Geum* ×*catlingii* in August 2016 near the Cortland Marl Ponds in Cortland County, NY. There were 30 or more plants scattered along the shaded, disturbed edge of a former railroad bed known locally as the Cortland County Linear Park or Lehigh Valley Trail. Both parent species were found growing nearby, though *G. urbanum* (also collected) was found farther from the colony than *G. canadense*. The hybrid most closely resembles *G. canadense*, but has pale yellow petals and mostly sterile fruits. Based only on the color of the petals it might be mistaken for *Geum virginianum* L., a rare native species with petals much shorter than the lobes of the calyx. Some botanists have considered *G. virginianum* to be a hybrid of *G. canadense* and *G. aleppicum* Jacq. because artificially produced hybrids closely resemble *G. virginianum*, however such crosses are highly sterile (Raynor, 1952; Gajewski, 1957; Robertson, 1974).

In New York we have three summer flowering species of Geum with leafy stems and bright yellow petals that are as long as or longer than the sepals: *G. aleppicum*, *G. macrophyllum* Willd., and *G. urbanum*. *Geum aleppicum* differs from the introduced *G. urbanum* by the greater number of achenes (200+ vs. fewer than 100) and the small size of its stipules. *Geum urbanum* has rather large, oval stipules, a trait that it shares with *G. canadense* (stipules a bit smaller, < 2 cm) and *G.* ×*catlingii*. The earliest records of *Geum urbanum* in North America seem to be from Massachusetts ca. 1884 (Bernard & Gauthier, 1986). While most of our *Geum* spp. are commonly known as avens, *G. urbanum* is also known as herb bennet because it was widely cultivated in the 1800's for use as a medicinal herb (Bernard & Gauthier, 1986). Collections of *G. urbanum* in NY seem to be rather recent (no records found prior to 1983), but it is now known to be widely distributed in the state.

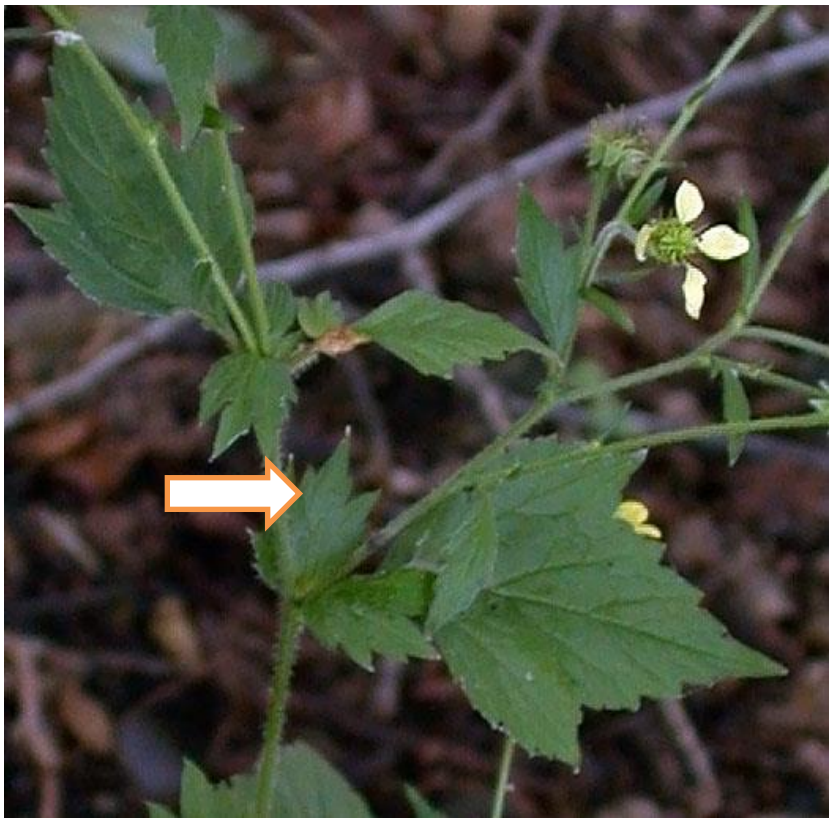
Geum macrophyllum is rare in NY (S1) and can be distinguished from the other two species mentioned above by the relatively large and broad-based terminal leaflet of the basal leaves and frequent lack of epicalyx lobes. Hybrids of any of the three aforementioned species with purple avens, *G. rivale* L. (at least F1 hybrids), would be expected to key to *G. rivale* and have sepals that are more or less anthocyanic (reddish or purplish vs. green), petals that are truncate or emarginate at the apex (vs. rounded at the apex), and flowers nodding to somewhat erect (vs. always erect). The hybrid of *G. macrophyllum* with *G. rivale*, *G.* ×*pulchrum* Fernald, may occur in northern NY where the ranges of the two species overlap, but has not yet been seen here. *Geum* ×*intermedium* Ehrh., a fertile hybrid of *G. rivale* and *G. urbanum*, is apparently

common in Europe and can form hybrid swarms. It is not yet known in North America, but with the expansion of the range of *G. urbanum* here it might be expected.

The hybrid of *G. aleppicum* and *G. rivale*, *G.* ×*aurantiacum* Fr. ex Scheutz was reported from NY by Rydberg (1913) and collected by Charles Peck in June somewhere in the Adirondacks some time prior to 1950 (NYS). Information about this hybrid is lacking. It appears to have been originally described from cultivated material from western North America and said to have erect flowers distinguished by orange petals (Scheutz, 1870), though Rydberg (1913) describes the petals as golden-yellow. *Geum aleppicum* is a species native to both North America and Europe. In the past, North American plants have been treated as a separate species (*G. strictum* Aiton) or as a subspecies or variety of typical *G. aleppicum*. It differs from most other *Geum* spp. by the presence of bristles on the styles (Rohrer, 2014).

Geum urbanum can also hybridize with *G. laciniatum* (*G.* ×*macneillii* J.-P. Bernard & R. Gauthier). This hybrid has not yet been observed in NY (or elsewhere outside of Quebec) and is likely less common than *G.* ×*catlingii* due to the relative scarcity of *G. laciniatum* compared to *G. canadense*. *Geum* ×*macneillii* has pale yellow petals shorter than to about equaling the sepals, so it is possible this hybrid could be confused with *G. virginianum*.

The best time to identify *G.* ×*catlingii* may be mid to late August when both flowering and fruiting material is available. Because it is sterile, it can be expected to be found growing with both parent species. I collected three specimens in 2016 and will eventually deposit them in the SUNY Cortland Herbarium (CORT) along with one specimen of *G. urbanum*. Given that *G. canadense* is a widely distributed and common species and the range of *G. urbanum* appears to be expanding in NY, it is likely that more populations of this hybrid remain to be identified.



Geum ×*catlingii* has large stipules (white arrow) like *G. virginianum* and *G. urbanum*. The pale yellow flowers contrast with the bright yellow petals of *G. urbanum*. Like *G. urbanum* it has petals about as long as the sepals, unlike *G. virginianum* which has petals much shorter than the sepals.

Overall habit of *G.* ×*catlingii*. Note large, leaf-like stipules and pale yellow petals that are as long or longer than the lobes of the calyx. Plants exhibit hybrid vigor and are as large as or larger than *G. canadense*.

Pale yellow petals and mostly sterile heads of achenes are characteristic of *G.* ×*catlingii*.

This head of achenes of *G.* ×*catlingii* has a few achenes with turgid ovaries but most of them clearly sterile. The presence of pale yellow petals and mostly sterile fruit is characteristic of the two hybrids, *G.* ×*catlingii* and *G.* ×*macneillii*. *Geum* ×*macneillii* is probably quite similar save for the long and dense pubescence on the stem and branches of the inflorescence, a feature inherited from the parent *G. laciniatum*. It may have also have shorter petals and a denser heads of achenes in fruit.

Epicalyx (blue arrow) can be seen as the tiny bracts between the lobes of the calyx. This characteristic, along with the petal length and sessile head of achenes distinguishes *G.* ×*catlingii* and most other *Geum* spp. in NY from the earlier flowering *G. vernum*.

Key to *Geum* spp. and hybrids in New York. This key does not include hybrids involving *G. rivale*. *Geum fragarioides* (Michx.) Smedmark is still called *Waldsteinia fragarioides* (Michx.) Tratt. by some authors and the name *Erythrocoma triflora* (Pursh) Greene has been applied to *G. triflorum* in the past. Upon drying, white and yellow petals turn ivory to pale yellow, therefore it is important to note petal color on specimen labels.

1 Leaves primarily basal, the flowering stems ± lacking well-developed leaves; styles ± straight in fruit.
  2 Leaves trifoliate; petals yellow; styles not plumose..... *G. fragarioides*
  2 Leaves pinnately compound; petals purplish; styles plumose in fruit .....*G. triflorum*
1 Plants with well-developed leaves on the flowering stems in addition to the basal leaves; styles hooked near the apex in fruit
  3 Head of achenes elevated above the calyx on a stipe 1-2 mm long; epicalyx absent; petals 1-2 mm long ..... *G. vernum*
  3 Head of achenes sessile or nearly so; epicalyx usually present as small bractlets alternating with the sepals (often absent in *G. macrophyllum*); petals 2-10 mm long (occasionally shorter in *G. virginianum*)
    4 At anthesis: flowers often nodding; sepals purple to red-purple, erect or ascending; petals erect to ascending.....*G. rivale*

4 At anthesis: flowers erect; sepals green, reflexed; petals spreading
5 Petals yellow to orange-yellow
6 Terminal leaflet of basal leaves suborbicular to reniform, cordate or truncate at the base, much larger than the lateral leaflets ..... *G. macrophyllum*
6 Terminal leaflet of basal leaves and principle lateral leaflets similar in size and shape, narrowly to broadly cuneate at the base
7 Achenes numerous, usually 200+ per head; petals (5-) 6-10 mm long; terminal segment of style short-hirsute; stipules of cauline leaves small..... *G. aleppicum*
7 Achenes mostly fewer than 100 per head; petals 4-7 mm long; terminal segment of style minutely pubescent; stipules of cauline leaves large, resembling a pair of leaflets *G. urbanum*
5 Petals white to ochroleucous (pale yellow)
8 Pedicels hirsute; receptacle glabrous or short-hairy
9 Petals ochroleucous; ovaries all or mostly sterile ..... *G. ×macneillii*
9 Petals white; ovaries fertile (achenes turgid) ..... *G. laciniatum*
8 Pedicels puberulent, with or without scattered long hairs; receptacle densely hirsute
10 Petals ochroleucous, shorter than the sepals, 2-4 mm long ..... *G. virginianum*
10 Petals white or ochroleucous, about a long as or longer than the sepals, 3-9 mm long
11 Petals white; ovaries fertile (achenes turgid)..... *G. canadense*
11 Petals ochroleucous; ovaries all or mostly sterile (a few achenes may be turgid) *G. ×catlingii*

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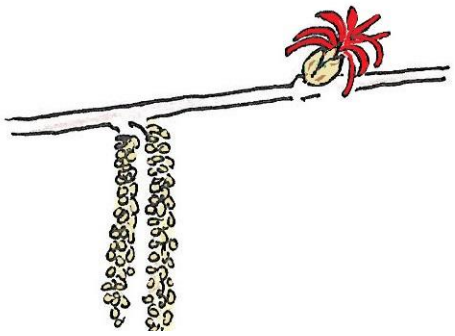

NYFA Field Trips and Workshops for 2017

21 May. (Sunday) 10:00 am. FIELD TRIP: Warner Hill (Washington County). Leader: Rich Ring.

4 June (Sunday). 9:30 am to 4 pm. FIELD TRIP: Thatcher's Pinnacles and Vicinity. (Tompkins County). Leader: David Werier. Joint with Finger Lakes Native Plant Society.

9 - 11 June (Friday - Sunday). WORKSHOP: Grasses of New York (Tompkins County). Instructor: David Werier. Co-sponsored by the Bailey Hortorium, Cornell University.

14 June (Wednesday). 10 am to 5 pm. FIELD TRIP: Plants of Lucky Star Alvar (Jefferson County). Leaders: Don Leopold and Mike Hough.

24-25 June (Saturday - Sunday). FIELD TRIP: In the Footsteps of Hotchkiss - Tug Hill Botany Weekend (Lewis County). Leaders: Anne Johnson and Steven Daniel.

28 - 30 June (Wednesday - Friday). WORKSHOP: Sedge Workshop (Central NY area). Instructor: Tony Reznicek – Co-sponsored with SUNY Environmental Science and Forestry. Contact Ed Frantz (Ed.Frantz@dot.ny.gov) or (315) 793-2421.

1 July (Saturday). 10:00 am. FIELD TRIP: Fredonia College Lodge Nature Preserve (Chatauqua County). Leaders: Jon and Priscilla Titus. Joint with Niagara Frontier Botanical Society.

15 July (Saturday). 10 am. FIELD TRIP: Dry Brook Ridge: A Bog, A Swale and a Cliff Face Walk (Delaware County). Leader: Dr. Mike Kudish.

3 August (Thursday). 10 am. FIELD TRIP: Valcour Island. (Clinton County). Leader: Steve Young. Joint with Adirondack Botanical Society.

5 August (Saturday). 10 am to 1 pm. FIELD TRIP: Whiteface Mountain (Essex County). Leader: Steve Young. Joint with Adirondack Botanical Society.

6 August (Sunday). 10:30 am to 2:30 pm. WORKSHOP: LEARN 10 Heath Family (Ericaceae) (Ulster County). Instructor: Molly Marquand. Joint with Catskill Native Plant Society.

19 August (Saturday). 1 pm to 5 pm. WORKSHOP: LEARN 10 Shrubs (Franklin County). Instructor: Dan Spada. Joint with Wild Center.

26 August (Saturday). 9 am to 4 pm. FIELD TRIP: Exploring Chenango Valley State Park. Leader: Julian Shepherd. Joint with Leatherstocking Botanical Society.

9 September (Saturday), 9 am to 3 pm. FIELD TRIP: Beach Botany at Jones Beach (Nassau County). Leaders: Steve Young and Mike Feder. Joint with the Long Island Botanical Society.

15 September (Friday), 5 pm to 7 pm. LEARN 10 Asters and Goldenrods (Schenectady County). Leader: Steve Young. Joint with the Capital District Friday Field Group.

16 September (Saturday). 10 am. FIELD TRIP: Botany Along the St. Lawrence. (St. Lawrence County). Leaders: Anne Johnson and Steven Daniel.

24th September (Sunday), 10 am to 3 pm. FIELD TRIP: Petal Pedal from East Syracuse to Green Lakes State Park along the Erie Canal Bike Path (Onondaga County). Leaders: Steve Young and Joe McMullen.

See the NYFA website for more detail on each trip.

Steven Daniel went to Mendon on April 8th to see if the dwarf mistletoe (*Arceuthobium pusillum*) was flowering, as he had read it flowered very early, and sure enough, it was. He took photos of the very strange staminate flowers - sessile anthers with nectar in center to attract pollinators.

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