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Editor's Note: For this year's spring issue, we were lucky enough to receive another appropriately themed article - this time on the genus *Veronica*. Thanks to Chris Graham for that, and to whet everyone's appetite further for the botanizing season to come, we follow up with a few trip reports from the previous year as well as a report on Joe McMullen's popular winter plant identification workshop. In addition we have an interesting dwarf mistletoe article, a handy aide to NYS varieties and subspecies, and a message from our president Dan Spada. Don't forget to check out the list of field trips on the NYFA website as new ones have been added since the initial announcement, and lastly, have a great botanizing season!

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Spring Well, Speedwell: a Guide to the Spring *Veronicas* of New York's Roadsides, Lawns, and Fields

by Chris Graham

As a resident of a small urban heat island, the City of Kingston in the mid-Hudson Valley, I see the earliest blooming wildflowers a bit earlier each year than folks who live in rural areas. By late March in most years (and even earlier this year), I see species, such as *Cardamine hirsuta*, *Draba verna*, *Lamium purpureum*, and *Stellaria media*, begin to dot the neighborhood lawns, gardens, and sidewalk cracks with flecks of color and white.

Among the earliest of urban and suburban wildflowers, and perhaps as dominant as any other genus of urban wildflowers in my area (by cover and number of species), are the speedwells (*Veronica* spp.). I had long looked askance at these plants as too "weedy" and abstruse to bother with unless I happened to encounter one in a work project that required identification, a rare enough occurrence that I could get away with such callousness. It's not that I *disapproved* of them, *per se*—but who had the time when so many native vascular plants of more wild habitats beckoned to be studied?

A few years ago, I began taking a closer look at many of our urban wildflowers through a camera lens. In doing so, I came to realize that, while these little plants may be weedy and mostly non-native, they are lovely, interesting, and well worth getting to know—plus, learning them made me a better botanist.

This article covers common urban and ruderal *Veronica* species that begin flowering in the spring (March-May), although the genus does include many other species in New York. The New York Flora Atlas (Werier et al. 2024) lists 26 unique *Veronica* taxa—24 species, two of which have two subspecies. Five are obligate wetland species and are not considered here. Also omitted are 6 species that are not naturalized or are of unknown naturalized status; two naturalized species that have very limited distributions in New York; one common species (*V. longifolia*) of fields and roadsides that begins flowering later (June); and one native subspecies that occurred historically in New York but has not been found in recent years.

The *Veronicas* are herbaceous, annual or perennial Eudicots in the Plantaginaceae (plantain family), formerly of the Scrophulariaceae (figwort family). The flowers are bisexual, hypogynous, slightly irregular, and bilaterally symmetric. The sympetalous corollas have (usually) four lobes (the "petals") of unequal sizes, much longer than the tube, and are various shades of blue, violet, white, and pink, often with different-colored centers and/or darker veins. The calyx is four-parted (the "sepals"), the stamens two, and the pistil bicarpellate with a single style and stigma. Fruits are two-parted, heart- or pumpkin-shaped capsules tipped with the persistent style. Stem leaves are simple and opposite, while inflorescence bracts are alternate.

As with any field identification, it's best to look at several plants in a population when making a determination. Several species are creeping or prostrate and often form dense, ground-hugging mats (Figure 1). Plants in such a patch may appear alternate-leaved because the oppositely-arranged stem leaves are hidden beneath the long, indeterminate racemes with their alternate, foliaceous (leafy)-bracted flowers. Plants may be stunted by repeated mowing. Pedicel (flower stalk) length is important for identification of several species and should be measured when in fruit; pedicels often elongate considerably prior to fruiting. Approximate flowering periods given below are for the mid-Hudson Valley.

The following key and notes on species are based on Haines (2011), Rhoads and Block (2000), Gleason and Cronquist (1991), Weakley et al. *(2022), Flora of North America (Albach 1993+), and the author's observations. Names follow Werier* et al. *(2024).*

Key to the Common Spring Veronicas of Roadsides, Lawns, and Fields

(All pictures on the next pages by the author, except *V. sublobata* by David Werier.)

1. Flowers in axillary racemes, leaves opposite throughout.
   2. Leaves oval or elliptic, with a short petiole. Corolla limbs (i.e. the flowers) 4-8 mm wide ……*V. officinalis*
   2. Leaves ovate (egg-shaped) or triangular-ovate, sessile. Corolla limbs 8-13 mm wide……...*V. chamaedrys*
1. Flowers in terminal racemes; the racemes in most species with foliaceous (leaf-like) bracts, so that flowers appear to be solitary in axils of alternate leaves. Stem leaves opposite.
   3 Corollas ("petals" plus flower tube) white or largely white.
      4. Corollas white; corolla limbs 2 mm wide. Leaves oblong to linear-oblong. Plants annual, from fibrous roots.
         5. Stem glabrous (smooth); sepals and fruits glabrous……*V. peregrina* ssp. *peregrina*
         5. Stem, and commonly sepals and fruits, pubescent with short, gland-tipped hairs …….. ……..……..……*V. peregrina* ssp. *xalapensis* (not pictured)
      4. Corollas white with violet veins; corolla limbs 4-8 mm wide. Leaves elliptic to broad-ovate. Plants perennial, from rhizomes……..…..…*V. serpyllifolia* ssp. s*erpyllifolia*
   3. Corollas blue, blue-violet, or pink.
      6. Pedicels (flower stalks) up to 2 mm long in fruit. Corolla limbs 2-2.5 mm wide……..*V. arvensis*
      6. Pedicels 6-40 mm long in fruit. Corolla limbs 3-15 mm wide.
         7. Leaves palmately 3-5-lobed, sometimes also irregularly toothed.
            8. Corollas pale violet, pink, or whitish, 4-5 (-6) mm in diameter. Pedicels 3-4 (-6) × as long as the calyx ("sepals," including fused base) in fruit……...……*V. sublobata*
            8. Corollas bright blue-violet with bright white center, (4-) 5-7 (-9) mm in diameter. Pedicels 2-3 × as long as the calyx in fruit……*V. hederifolia*
         7. Leaves toothed but not lobed.
            9. Corolla limbs 10-15 mm wide. Pedicels in fruit > 2 × as long as the broad-ovate, orbicular (round), or reniform (kidney-shaped) leaves. Plants perennial, rooting at the nodes…….……*V. filiformis*
            9. Corolla limbs 4-11 mm wide. At least the lower pedicels in fruit < 2 × as long as the broad-elliptic to broad-ovate leaves. Plants annual, not rooting at the nodes.
               10. Pedicels 15-40 mm long in fruit. Corolla limbs (5-) 8-11 mm wide. Fruit 5-9 mm wide, with apical notch between lobes > 90°…….....*V. persica*
               10. Pedicels 6-15 mm long in fruit. Corolla limbs 4-8 mm wide. Fruit 3-6 mm wide, with apical notch between lobes < 90°…….....*V. polita*

Selected notes on species, with photos on the following pages.

V. officinalis—**common speedwell**. Non-native, decumbent perennial of woods, old fields, and roadsides. Found in woods more often than other species in this key. Begins flowering mid- to late May.

V. chamaedrys—**germander speedwell**. Non-native, prostrate or loosely ascending perennial of fields, roadsides, lawns, and woods. Begins flowering late April to early May.

V. peregrina ssp. *peregrina*—**purslane speedwell**. Native, upright, glabrous annual of gardens, moist lawns, alluvial ground, and other moist places. Begins flowering April.

V. peregrina ssp. *xalapensis*—**glandular speedwell**. Native, less common subspecies listed as S3/Rare in New York. (Not pictured)

V. serpyllifolia ssp. *serpyllifolia*—**common thyme-leaved speedwell**. Non-native, creeping or ascending perennial of lawns, fields, and open woods. Begins flowering mid-April. A native subspecies (*V. serpyllifolia* ssp. *humifusa*), listed as SH-historical in New York, is not included in the key.

V. arvensis—**corn speedwell**. Non-native, weakly erect annual of gardens, lawns, fields, and woods. Begins flowering April.

V. sublobata—**pink ivy-leaved speedwell**. Non-native, decumbent to ascending annual of moist and shady lawns, gardens, thickets, and forests. An often overlooked species recently recognized to be naturalized in New York, likely more common and widespread than realized (Atha et al. 2021). Begins flowering March. Note the compound lobing of one of the pictured flowers. Are such “sublobes” the source of the specific epithet?

V. hederifolia—**ivy-leaved speedwell**. Non-native, trailing or weakly ascending annual of lawns, roadsides, moist fields, and open woods. Begins flowering March.

V. filiformis—**thread-stalked speedwell**. Non-native, creeping perennial of lawns and fields. Begins flowering mid- to late April.

V. persica—**Persian speedwell**. Non-native, creeping or weakly ascending annual of lawns, gardens, fields, and roadsides. Begins flowering March.

V. polita—**gray field speedwell**. Non-native, prostrate or ascending annual of lawns, gardens, fields, and roadsides. Begins flowering March.

Figure 1. A tangled mat of creeping *Veronica persica*, a common habit of our urban-suburban, spring-flowering speedwells.

Because of their ubiquity, diversity, and the ease of recognizing the genus, the speedwells make an excellent and fun group of wildflowers to practice keying or using a field guide on, in addition to generally honing your eye for taxonomic detail. Also, several species have not been confirmed as naturalizing, but may just be doing so under our noses, and others may be more widespread than the very limited known ranges.If you keep your eyes on your neighborhood's lawns, neglected gardens and fields, sidewalk cracks, and even flower pots, you may make an important addition to our knowledge of New York's wild *Veronicas*.

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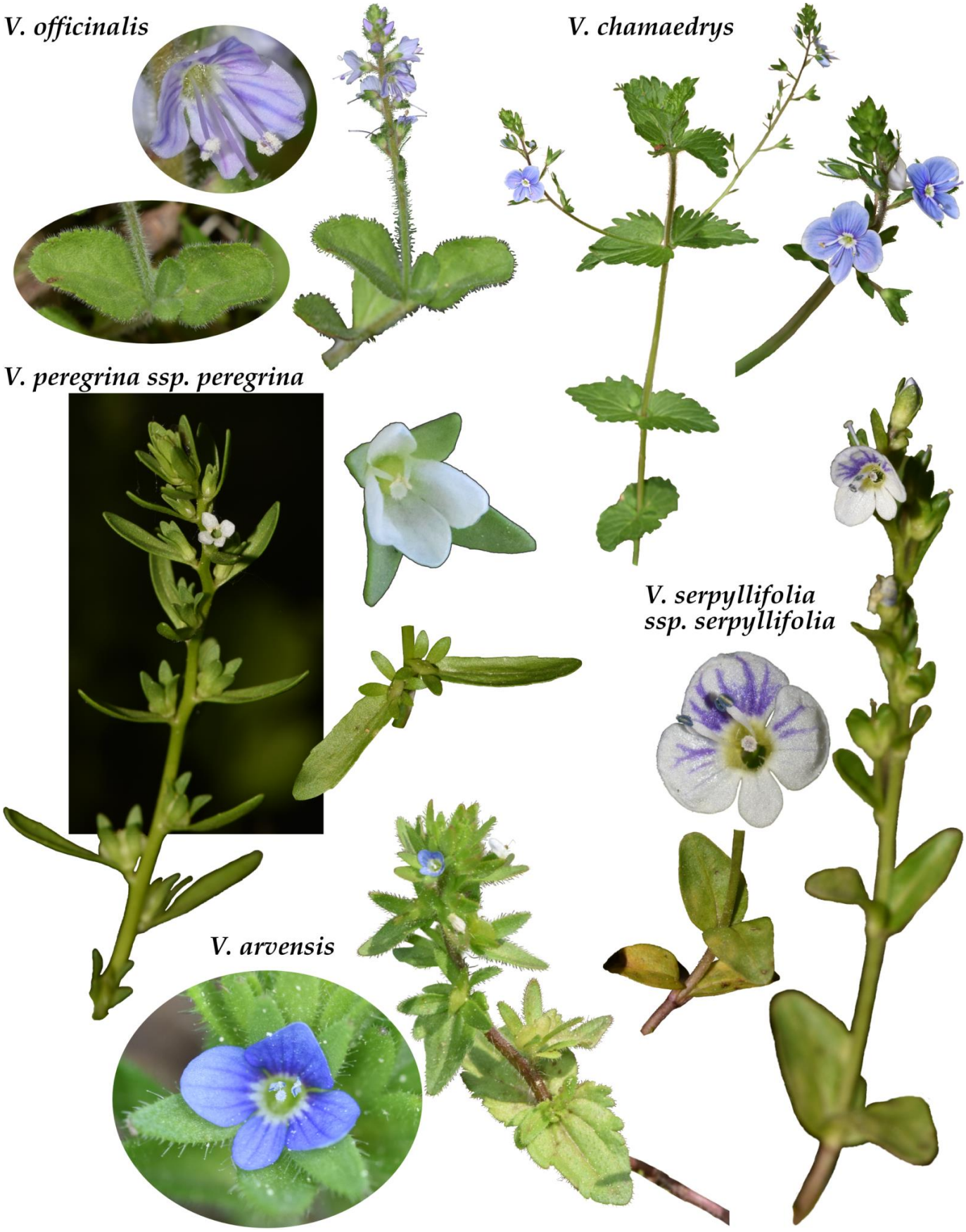
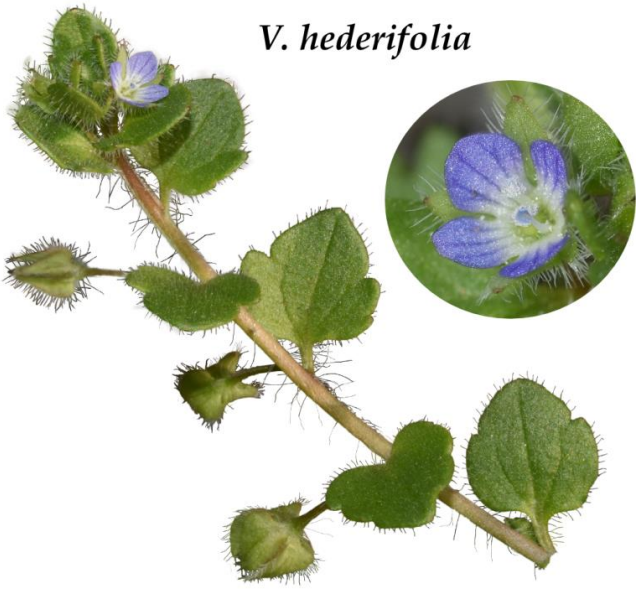

V. officinalis
V. chamaedrys
V. peregrina ssp. peregrina
V. serpyllifolia
ssp. serpyllifolia
V. arvensis

V. sublobata

V. hederifolia



V. filiformis

V. persica

V. polita

2024 Winter Plant Workshop
by Kate O'Connor

We met on January 20, 2024 at the Honeywell Onondaga Lake Visitor's Center, Onondaga Co. for a day of winter botany, and what a winter day it was! A band of blowing lake effect snow arrived right on schedule and prevented several of the registered attendees from joining, but altogether 10 intrepid souls gathered to learn the characteristics needed for identifying common plants in winter.

Our leader, Joe McMullen, contacted us in advance with an invitation to arrive early and get acquainted with the display of over 60 labeled specimens before the official 10 a.m. start. Ferns, grasses, forbs, shrubs, and trees were all well represented. As the workshop began, we gathered around the conference table and Joe passed around an additional 10 to 15 tree twigs, along with photocopied reference materials for each participant.

We spent the morning examining specimens and viewing Joe's PowerPoint, which went through an enormous amount of content and was full of key winter characteristics from growth form to bundle scars, along with a healthy dose of entertaining anecdotes that made each species memorable.

After a cozy lunch, we finished the PowerPoint and looked through the Visitor Center windows at the blowing snow outside. We decided to have one more look at the display specimens indoors before donning parkas, hats, and bibs and heading outdoors.

Along the lakefront, we observed several of the specimens we had learned indoors, plus many more. Joe encouraged us to touch everything, observe closely, and even to smell plants to arrive at our answers. We observed many of the planted willows (*Salix* spp.), dogwoods (*Cornus* spp.), and cottonwoods (*Populus* spp.), as well as the volunteer mugwort (*Artemisia vulgaris*) and garlic mustard (*Alliaria petiolata*) with equal enthusiasm. By the time we all returned to the Visitor Center we were chilly, but satisfied with our newfound identification skills.

The group gathered around the table, ready to learn.

Three Falls Woods Trip, May 21, 2023

by Sara Stebbins

This field trip was led by David DuBois, with organizational assistance from NYFA Board member Chris Graham. Registration was full; many of us plant enthusiasts were eager to explore the unique habitats found at Three Falls Woods. David had promised to show us some rare plants, and excitement levels were high.

Three Falls Woods, located in Manlius, is managed by the Central New York Land Trust. The property is on the Onondaga Escarpment just east of the enormous Jamesville Quarry, which is book-ended on the west side by Clark Reservation State Park. Although it was previously owned by the quarry, Three Falls Woods was never commercially mined and consists of a karst landscape dominated by limestone woodlands with smaller pockets of associated ecological communities, such as calcareous pavement barrens, calcareous cliffs, and calcareous talus slope woodlands, along with more common communities such as a successional shrubland at the western edge of the property along Sweet Road and a strip of floodplain forest along a stream.

Due to limited parking, most of the group met in the parking lot of a nearby shopping center and carpooled the two miles to the preserve. After a round of introductions at the trailhead, we got underway. The first short section of trail passes through a disturbed successional shrubland dominated by non-native and invasive species: lots of European buckthorn, Morrow's honeysuckle, and multiflora rose (the usual suspects), with some natives like chokecherry and grey dogwood mixed throughout. A recent late frost had damaged some vegetation, happily including the pale swallowwort. We paused a few times to examine different species, including the distinctive root structure of the non-native bulbous buttercup, but still kept up a fairly reasonable pace to get to the more interesting habitats ahead.

Once we reached the limestone woodland, all momentum was lost as we discussed virtually every plant species found. We encountered a field chickweed and wondered whether it might be the native *Cerastium strictum* or the very similar non-native *C. arvense*. The growth pattern with just a few scattered plants suggested the former, but the two species are both highly variable and difficult to distinguish, and unfortunately many non-natives are present at Three Falls Woods. Erik Danielson collected a sample and was able to later confirm that this was the native *C. strictum*.

A short distance down the trail, David showed us the first of several truly rare plants, goosefoot cornsalad (*Valerianella chenopodiifolia*). This limestone specialist is an annual and an S1 state listed endangered species. We all took great care not to step on this weak stemmed, somewhat sprawling plant with tiny white flowers that were mostly senescing. Luckily a few inflorescences were still in good condition, as this was a new species for many of us.

Goosefoot cornsalad. Photo by David DuBois

Continuing on, David found a few previously unknown clumps of the next rare plant he'd planned to show us, Carey's sedge (*Carex careyana*). These were rather spindly, depauperate specimens that were growing right in the trail, and appeared to have been somewhat trampled. We didn't spend much

time on these because David promised we would see healthier plants ahead, and he did not disappoint! He led us to several large, robust specimens growing mid-slope on a hill leading down to the creek. This sedge is densely cespitose with purplish-red basal sheaths and is a S1S2 state listed endangered species. As the group slowly progressed downhill, taking turns photographing and admiring the Carey's sedge, several of us fanned out across the slope, and were absolutely thrilled to find many more previously unknown individuals, perhaps 100 clumps or more.

From the base of the slope, we followed a trail upstream along a tributary of Limestone Creek. This area contains a narrow floodplain forest community. Farther upstream, cliffs rise above the trail. David showed us an area where American hart's-tongue fern (*Asplenium scolopendrium* var. *americanum*) is being re-introduced. This S1 species is both state and federally listed as threatened. The plants are currently small and in variable condition; some appeared to be struggling while others look healthy. The acquisition of Three Falls Woods by Central New York Land Trust permanently protected this habitat, finally allowing this long-desired re-introduction to be initiated.

Although our progress was slower than anticipated, we still had time to squeeze in one more unique habitat with one more rare plant. David led us off-trail to see the calcareous pavement barrens community, where we saw rock elm (*Ulmus thomasii*). This community has been adversely impacted by invasive species, but still hosts several characteristic plants, such as early saxifrage (*Micranthes virginiensis*), lyre-leaved rock cress (*Arabidopsis lyrata*), and maidenhair spleenwort (*Asplenium trichomanes*).

This spot was a great place to see rock elm because these plants exhibited great variability in the extent of corky winging on the twigs: some individual trees/saplings had twigs and branches that were all winged, while others showed the winged branch characteristic only partially, and other specimens had very little winging present. The only rock elm I had previously encountered, in Jefferson County, was in a population where all the individuals exhibited prominent winging on the twigs/branches. It was very enlightening to see this variability and will definitely have me looking much more closely at elm twigs in the future in rocky, calcareous habitats.

Erik Danielsen in a crevice. Photo by Anna Stalter.

All in all, this was an outstanding botanical adventure! This trip report focused on the rare plants we saw, because these represented new species for many of us and therefore warrant special mention. Plus, there isn't space to talk about all the great plants we saw and discussed. As a group, we collectively recorded 162 unique species (see next pages) on this outing, in a fairly short time and limited area. I suspect we could significantly expand the species count with another few visits to different habitats and at different times throughout the growing season.

Many thanks to David for sharing Three Falls Woods with us!

Group photo, taken by Erik Danielsen with a timer.

Three Falls Woods list, compiled by Anna Stalter

Communities: LW=Limestone Woodland, LP=Limestone Pavement, SS=Successional Schrubland, FF=Floodplain Forest

Family	***Scientific Name***	**Common Name**	**Conservation Rank**	**Community**			
				LW	LP	SS	FF
Anacardiaceae	*Toxicodendron radicans*	poison ivy	S5	x			
Apiaceae	*Aegopodium podagraria*	bishops goutweed	SNA				x
Apiaceae	*Cryptotaenia canadensis*	honewort	S5	x			
Apiaceae	*Osmorhiza claytonii*	Clayton's sweetroot	S5	x			
Apiaceae	*Zizia aurea*	golden Alexanders	S5	x			
Apocynaceae	*Apocynum androsaemifolium*	spreading dogbane	S5	x			
Apocynaceae	*Vincetoxicum rossicum*	pale swallow-wort	SNA	x	x	x	
Araceae	*Arisaema triphyllum*	common jack-in-the-pulpit	S5	x		x	
Araliaceae	*Aralia nudicaulis*	sarsaparilla	S5	x			
Aristolochiaceae	*Asarum canadense*	wild ginger	S5	x			
Asparagaceae	*Maianthemum racemosum*	false Solomon's-seal	S5	x		x	
Asparagaceae	*Polygonatum pubescens*	downy Solomon's-seal	S5	x			
Aspleniaceae	*Asplenium scolopendrium*	American hart's tongue fern	S1	x			
Aspleniaceae	*Asplenium trichomanes*	maidenhair spleenwort	S4	x	x		
Asteraceae	*Ageratina altissima*	white snakeroot	S5	x			
Asteraceae	*Antennaria* sp.	pussytoes	SNR	x		x	
Asteraceae	*Arctium* sp.	burdock	SNR				x
Asteraceae	*Centaurea jacea*	brown knapweed	SNA			x	
Asteraceae	*Eurybia divaricata*	white wood aster	S5	x			
Asteraceae	*Eurybia macrophylla*	bigleaf aster	S5	x			
Asteraceae	*Lapsana communis*	nipplewort	SNA				x
Asteraceae	*Leucanthemum vulgare*	ox-eye daisy	SNA			x	
Asteraceae	*Polymnia canadensis*	white-flowered leafcup	S4	x			

Asteraceae	*Solidago caesia*	wreath goldenrod	S5	x			
Asteraceae	*Solidago flexicaulis*	zigzag goldenrod	S5	x			
Asteraceae	*Taraxacum officinale*	dandelion	SNA	x		x	
Athyriaceae	*Athyrium angustum*	northern lady fern	S5	x			
Balsaminaceae	*Impatiens capensis*	spotted jewelweed	S5	x			
Berberidaceae	*Berberis aquifolium*	holly-leaved Oregon grape	SNA	x			
Berberidaceae	*Berberis vulgaris*	common barberry	SNA	x			
Berberidaceae	*Caulophyllum* sp.	blue cohosh	SNR	x			
Berberidaceae	*Podophyllum peltatum*	mayapple	S5	x			
Betulaceae	*Carpinus caroliniana*	musclewood	S5	x			x
Betulaceae	*Ostrya virginiana*	eastern hophornbeam	S5	x			
Boraginaceae	*Hackelia virginiana*	Virginia stickseed	S5				x
Boraginaceae	*Hydrophyllum canadense*	Canada waterleaf	S5	x			x
Boraginaceae	*Hydrophyllum virginiana*	Virginia waterleaf	S5	x			
Brassicaceae	*Alliaria petiolata*	garlic mustard	SNA	x			
Brassicaceae	*Arabidopsis lyrata*	lyre-leaved rock cress	S5	x	x		
Brassicaceae	*Barbarea vulgaris*	yellow rocket	SNA	x			
Brassicaceae	*Borodinia laevigata*	smooth rock cress	S5	x			
Brassicaceae	*Cardamine concatenata*	cut-leaf toothwort	S5	x			
Brassicaceae	*Cardamine diphylla*	two-leaf toothwort	S5	x			
Brassicaceae	*Hesperis matronalis*	dame's rocket	SNA	x			
Cannabaceae	*Celtis occidentalis*	northern hackberry	S4	x			
Caprifoliaceae	*Lonicera maackii*	Amur honeysuckle	SNA	x	x		
Caprifoliaceae	*Lonicera morrowii*	Morrow's honeysuckle	SNA	x	x	x	
Caprifoliaceae	*Valerianella chenopodiifolia*	goosefoot cornsalad	S1	x			
Caryophyllaceae	*Arenaria serpyllifolia*	thyme-leaved sandwort	SNA		x		
Caryophyllaceae	*Cerastium strictum*	American field chickweed	SNR	x			
Climaciaceae	*Climacium* sp.	tree moss	SNR	x			
Cornaceae	*Cornus racemosa*	gray dogwood	S5			x	
Cornaceae	*Cornus rugosa*	round-leaved dogwood	S5	x			
Cupressaceae	*Thuja occidentalis*	northern white cedar	S5	x	x		
Cyperaceae	*Carex albursina*	white bear sedge	S5	x			
Cyperaceae	*Carex blanda*	common woodland sedge	S5	x			
Cyperaceae	*Carex careyana*	Carey's sedge	S1S2	x			
Cyperaceae	*Carex eburnea*	bristle-leaved sedge	S4	x			
Cyperaceae	*Carex hitchcockiana*	Hitchcock's sedge	SNR	x			
Cyperaceae	*Carex laxiflora*	loose-flowered sedge	S5	x			
Cyperaceae	*Carex peckii*	Peck's sedge	S4	x			
Cyperaceae	*Carex pedunculata*	long-stalked sedge	S5	x			
Cyperaceae	*Carex platyphylla*	broad-leaved sedge	S5	x			
Cystopteridaceae	*Cystopteris bulbifera*	bulbet fern	S5	x			
Cystopteridaceae	*Cystopteris tenuis*	Mackay's fragile fern	S4	x			
Dryopteridaceae	*Dryopteris carthusiana*	spinulose woodfern	S5	x			
Dryopteridaceae	*Dryopteris goldiana*	Goldie's woodfern	S4	x			
Dryopteridaceae	*Dryopteris intermedia*	evergreen woodfern	S5	x			
Dryopteridaceae	*Dryopteris marginalis*	marginal woodfern	S5	x	x		
Dryopteridaceae	*Dryopteris ×neowherryi*	Wherry's woodfern	SNA	x			
Dryopteridaceae	*Polystichum acrostichoides*	Christmas fern	S5	x			
Elaeagnaceae	*Elaeagnus umbellata*	autumn olive	SNA	x			
Fabaceae	*Robinia pseudoacacia*	black locust	SNA	x			x
Fagaceae	*Quercus muehlenbergii*	chinkapin oak	S4	x			
Fagaceae	*Quercus rubra*	red oak	S5	x			

Geraniaceae	*Geranium robertianum*	herb-robert	S5	x	x		
Grossulariaceae	*Ribes cynosbati*	prickly gooseberry	S5	x			
Hypericaceae	*Hypericum perforatum*	common St.John's-wort	SNA		x		
Juglandaceae	*Carya cordiformis*	bitternut hickory	S5	x			
Juglandaceae	*Juglans cinerea*	butternut	S4	x			
Lamiaceae	*Clinopodium vulgare*	field basil	SNR			x	
Lamiaceae	*Leonurus cardiaca*	motherwort	SNA		x		
Liliaceae	*Erythronium americanum*	trout lily	S5	x			
Malvaceae	*Tilia americana*	American basswood	S5	x			
Melanthiaceae	*Trillium erectum*	wake robin	S5	x			
Menispermaceae	*Menispermum canadense*	moonseed	S5	x			
Oleaceae	*Fraxinus americana*	white ash	S5	x			
Oleaceae	*Ligustrum* sp.	privet	SNR		x		
Oleaceae	*Syringa vulgaris*	common lilac	SNA			x	
Onagraceae	*Circaea canadensis*	enchanter's nightshade	S5	x			
Orchidaceae	*Epipactis helleborine*	weed orchid	SNA				x
Papaveraceae	*Chelidonium majus*	celandine	SNA	x			
Papaveraceae	*Dicentra* sp.	bleeding heart	SNR	x			
Papaveraceae	*Sanguinaria canadensis*	bloodroot	S4	x	x		
Phrymaceae	*Phryma leptostachya*	lopseed	S5	x			x
Pinaceae	*Pinus sylvestris*	Scotch pine	SNA			x	
Pinaceae	*Tsuga canadensis*	eastern hemlock	S5	x			
Plantaginaceae	*Plantago major*	common plantain	SNA				x
Plantaginaceae	*Veronica officinalis*	common speedwell	SNA	x			
Poaceae	*Dactylis glomerata*	orchard grass	SNA			x	
Poaceae	*Elymus hystrix*	bottlebrush grass	S5	x			
Poaceae	*Leersia virginica*	white cutgrass	S5				x
Poaceae	*Patis racemosa*	black-fruited rice grass	S5	x			
Poaceae	*Poa alsodes*	grove bluegrass	S5	x			
Poaceae	*Poa pratensis*	Kentucky bluegrass	SNA		x		
Poaceae	*Schizachne purpurascens*	false melic grass	S5	x			
Polemoniaceae	*Phlox divaricata*	wild blue phlox	S4	x			
Polypodiaceae	*Polypodium* sp.	polypody	SNR	x			
Primulaceae	*Lysimachia nummularia*	creeping Jennie	SNA				x
Ranunculaceae	*Actaea pachypoda*	white baneberry	S5	x			
Ranunculaceae	*Actaea rubra*	red baneberry	S5	x			
Ranunculaceae	*Anemone virginiana*	tall anemone	S5	x			
Ranunculaceae	*Aquilegia canadensis*	wild columbine	S5	x	x		
Ranunculaceae	*Clematis virginiana*	virgin's bower	S5	x			
Ranunculaceae	*Hepatica acutiloba*	sharp-lobed hepatica	S5	x			
Ranunculaceae	*Ranunculus abortivus*	kidney-leaved crowfoot	S5	x			
Ranunculaceae	*Ranunculus bulbosus*	bulbous buttercup	SNA	x		x	
Ranunculaceae	*Ranunculus recurvatus*	hooked crowfoot	S5	x			x
Ranunculaceae	*Thalictrum dioicum*	early meadow-rue	S5	x			
Rhamnaceae	*Rhamnus cathartica*	buckthorn	SNA	x		x	
Rosaceae	*Agrimonia gryposepala*	common agrimony	S5	x			
Rosaceae	*Crataegus* sp.	hawthorn	SNR			x	
Rosaceae	*Fragaria virginiana*	common wild strawberry	S5			x	
Rosaceae	*Geum canadense*	white avens	S5	x			
Rosaceae	*Geum fragarioides*	barren strawberry	S5	x			
Rosaceae	*Potentilla argentea*	silvery cinquefoil	SNA		x		
Rosaceae	*Potentilla recta*	sulphur cinquefoil	SNA		x		

Rosaceae	*Prunus mahaleb*	mahaleb cherry	SNA	x			
Rosaceae	*Prunus serotina*	black cherry	S5	x		x	
Rosaceae	*Prunus virginiana*	choke cherry	S5	x		x	
Rosaceae	*Rosa multiflora*	multiflora rose	SNA				x
Rosaceae	*Rubus occidentalis*	black raspberry	S5		x		
Rubiaceae	*Galium album*	hedge bedstraw	SNA			x	
Rubiaceae	*Galium aparine*	cleavers	S5	x			
Rubiaceae	*Galium circaezans*	forest wild licorice	S5	x			
Rubiaceae	*Galium* sp.	other bedstraw	SNR				
Rutaceae	*Zanthoxylum americanum*	prickly-ash	S5	x			
Salicaceae	*Populus grandidentata*	bigtooth aspen	S5	x			
Sapindaceae	*Acer nigrum*	black maple	S5	x			
Sapindaceae	*Acer platanoides*	Norway maple	SNA	x			
Sapindaceae	*Acer saccharum*	sugar maple	S5	x			
Sapindaceae	*Acer spicatum*	mountain maple	S4S5	x			
Saxifragaceae	*Micranthes virginiensis*	early saxifrage	S5	x	x		
Saxifragaceae	*Mitella diphylla*	two-leaf miterwort	S5	x			
Scrophulariaceae	*Verbascum thapsus*	common mullein	SNA		x		
Staphyleaceae	*Staphylea trifolia*	bladdernut	S5	x			
Ulmaceae	*Ulmus americana*	American elm	S5	x			
Ulmaceae	*Ulmus glabra*	wych elm	SNA				x
Ulmaceae	*Ulmus rubra*	slippery elm	S5				x
Ulmaceae	*Ulmus thomasii*	rock elm	S3	x	x		
Urticaceae	*Laportea canadensis*	wood nettle	S5				x
Viburnaceae	*Sambucus racemosa*	red elderberry		x			
Viburnaceae	*Viburnum acerifolium*	mapleleaf viburnum		x			
Viburnaceae	*Viburnum opulus* var. *opulus*	highbush cranberry					x
Violaceae	*Viola canadensis*	Canada violet	S5	x			
Violaceae	*Viola eriocarpa*	smooth yellow violet	SNR	x			
Violaceae	*Viola pubescens*	downy yellow violet	S5	x			
Violaceae	*Viola rostrata*	longspur violet	S5	x			
Violaceae	*Viola* spp.	other violets	SNR	x			
Vitaceae	*Parthenocissus inserta*	thicket creeper	S5				x
Vitaceae	*Parthenocissus quinquefolia*	Virginia creeper	S5	x			
Vitaceae	*Vitis riparia*	riverbank grape	S5		x		

Message from the President

Dear NYFA Members and Friends,

An early Spring seems to be headed our way in the North Country. Trembling aspen buds have burst. A few years ago we had a similar early bud burst and leaf out, and the aspens were caught by a “late” frost and all the leaves became blackened smudges, and the trees had to expend more energy to leaf out again. It turns out that the frost wasn’t late; it actually came at a normal time; it was the leaves that were early. Dislocations of temperature and precipitation amount, type and seasonality are becoming increasingly disruptive. What are you seeing this year?

We’ve kicked off our field trip season with a chock full schedule of workshops, Learn 10’s and field trips. We welcome botanists of all levels to these events and hope you can take advantage of the diversity of offerings spread throughout NYS. As always, if you have any comments, suggestions or questions, please don’t hesitate to contact me.

Yours botanically, Dan Spada

The Strange and Fascinating Dwarf Mistletoe, *Arceuthobium pusillum* Peck

by Steven Daniel

It was on March 5, 2024, the second consecutive day of over 70° F, at the end of the warmest winter ever recorded in New York, when I wondered whether eastern dwarf mistletoe (*Arceuthobium pusillum*) could be in flower on such an early date. Dwarf mistletoe is a parasite of spruce, primarily black spruce in New York, and is usually found in bogs. A few years earlier, on March 21, 2021, I had found it flowering at a site in Monroe County, at that time one of the earliest recorded dates for its flowering. I returned to the site and approached a group of black spruce where I knew it grew. I immediately saw quite a few fully opened male flowers, with yellow anthers releasing pollen. (Figures 1 and 2). I think it would be hard to dispute the effects of our warming climate on this species.

Figures 1. Face view of the male flower. Figure 2. Male shoots, each with only a couple of nodes.

Dwarf mistletoe is dioecious, meaning that plants are either male or female. Where were the female flowers? I did not immediately see any, though I did notice mistletoe plants lacking male flowers. I wondered if what looked like lateral buds (Figure 3) could be female flowers? I took a small sample home to investigate.

Figure 3. Female shoots, each with at least six nodes. The red arrows point to female flowers.

Under a microscope I dissected the "buds" and thought they might indeed be female flowers. But I wasn't certain - they were extremely small - ~0.7mm long - and difficult to interpret. I wrote to Dan Nickrent, a Cornell botany professor who has studied dwarf mistletoe. Dan has been extremely helpful, answering my questions, suggesting literature, and commenting on this piece. He confirmed they were indeed nearly mature female flowers.

I went back to take another look at the sample, which I had kept in a small vase. Tiny bi-lobed yellow stigmas (Figure 4) were beginning to appear.

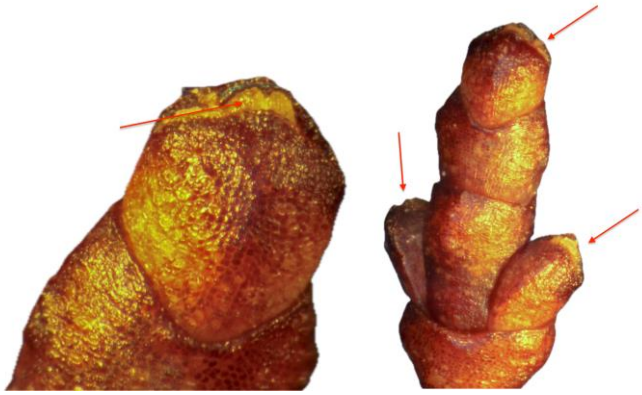


Figure 4. Closer views of female flowers. Red arrows point to stigmas.

Figure 5. *Arceuthobium campylopodum ssp. abietinum* showing pollination droplets on the stigmas of mature female flowers. Photo by Hawksworth and Wiens, at https://parasiticplants.siu.edu/Viscacee/images/ABC.polldroplet.jpg

What I didn't see in my specimen, but learned from Dan, was that when the female flowers are fully mature, they will produce an exudate - a droplet will appear on the surface of the stigma. Figure 5 shows those droplets on a fir dwarf mistletoe, *A. campylodum* ssp. *abietinum.*

Pollination. Flowering so early in the season, before many pollinators are active, I wondered how dwarf mistletoe is pollinated? Baker et al. (1985) found insects, primarily small flies, wasps, and beetles to be the main source of pollination. Hawksworth and Wiens (1996) have suggested that wind pollination may be of some importance as well.

Recognition as a Species. Until 1871, eastern dwarf mistletoe, the smallest *Arceuthobium* in the New World, was unknown to science, though several western species of dwarf mistletoe had been described, primarily through the work of botanist George Engelmann. However in 1871, Lucy Millington, a self-taught botanist living in Glens Falls, was botanizing in a bog near Warrensburg when she first noticed it. A few days later she found more in Elizabethtown. She believed it was a dwarf mistletoe. She reported her discovery (Millington 1871a, 1871b) and sent samples to the Torrey Botanical Society, who sent samples to John Torrey and to Asa Gray. Coincidentally, a few weeks later Charles Horton Peck, Botanist at the New York State Museum, found it on black spruce in Rensselaer County; he sent a sample to Asa Gray, asking for identification help. Gray recognized it as a species of dwarf mistletoe, and sent it on to Engelmann for his determination as to species. Gray (1872) remarked that it is curious that "1st, that it should not have been detected before; 2nd, that it should, after all this overlooking, be found during the same season by two persons in three different counties, and so abundant as to disfigure …the trees it infests." In an Annual Report of the State Botanist, Peck (1873) described the species, crediting Millington as the first person to find it.

Fruits and Dispersal. The fruits and subsequent dispersal of Eastern dwarf mistletoe, are another fascinating story. Figure 6 shows the fruit and seed. Figure 7 shows a fruiting branch on a black spruce growing in Streeter Lake Bog in St. Lawrence County.

Millington (1872) describes its unusual dispersal: "*I picked a single plant with vessels very much swollen. While holding it gently between my thumb and finger, to observe it more closely, I felt the tiniest recoil of the capsule, and the seed struck me a smart blow in the face. I gathered another, and another, and each pretty little bomb went off with a force that must have carried it several feet away.*"

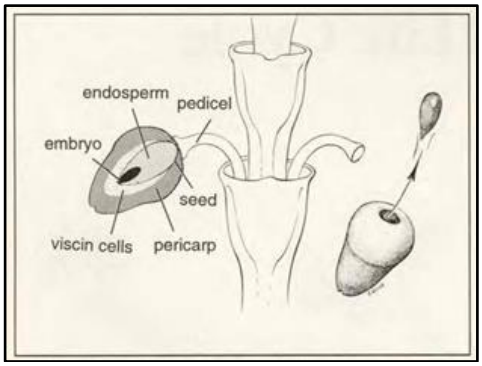


Fig. 7. Photo of female shoots of *A. pusillum* taken August 29, 2017 showing immature fruits. Fruits in this species mature in September to October, during the same growing season as pollination.

Fig. 6. Left: mature *Arceuthobium* fruit and seed including cross-section of mature fruit. Right: Fruit discharging its seed. Reproduced from Hawksworth and Wiens (1996, Fig. 2.3).

That is an excellent description of its dispersal. Dwarf mistletoes have one of the most explosive examples of seed dispersal in flowering plants. The seeds can be expelled up to 50 feet but most are intercepted by needles within 6 to 12 feet. The sticky "viscin" coats the seeds, allowing them to adhere to the needles. Then the seeds often slide down to the base of the needles where they adhere, germinate, and invade the host (Hawksworth and Wiens 1996).

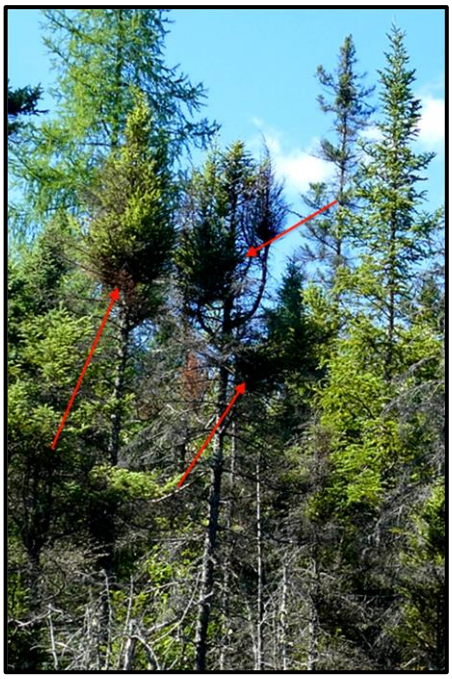


Fig. 8. Black spruce (*Picea mariana*), red arrows indicating witches 'brooms formed by the dwarf mistletoe.

Because eastern dwarf mistletoe is so small and inconspicuous, it is easily overlooked. After years of blindly searching, I finally developed a search image for it as I spent more time in bogs in northern New York. I learned how to recognize the "witches' brooms" that the eastern dwarf mistletoe typically causes on black spruce (Figure 8). Once you tune into that, walk up to the tree and look carefully on the smaller branches - and you often will find the tiny shoots of Eastern dwarf mistletoe.

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Long Lake Lollygag, Herkimer County

by David DuBois

In late August 2023, nine paddlers met on Long Lake in Herkimer County for a lollygag. After a brief introduction about Long Lake, its botanical history as compared to the more basic, nearby White Lake, and a discussion on yellow eyed grass (*Xyris*), the crew launched their canoes. The first destination was a floating peatland on the far side of the lake in view of the launch, but we were immediately sidetracked by a discussion about differentiating the cattail (*Typha*) species growing on the shore next to the launch, which concluded in an examination of micro-floral features of the ripening hotdogs. The crew soon made their way to a floating peat mat made brilliant by the blooming horned bladderwort (*Utricularia cornuta*) and beak sedges (*Rhynchospora alba* and *R. capitellata*). A few *Xyris difformis* flowers looked like they were about to bloom, but the cloudy weather suppressed the full show. After a bit of waiting for sunshine, a light rain began and the group moved onto another floating sphagnum mat farther up the lake, where everyone disembarked to search for plants, sample the huckleberries, and explore the open habitat. The mat was a beautiful display of multicolored sphagnum accented by the cottony tops of tawny cotton grass (*Eriophorum virginicum*) and the remains of purple pitcher plant (*Sarracenia purpurea*) blooms. Some cranberries (*Vaccinium macrocarpon*) were just ripe enough to entice the adventurous eaters, but most were in search of a more substantial meal.

Red sundews, white and brownish beak sedges, and yellow-eyed grasses create a stunning display on the floating mat.

Soon the lollygaggers were in search of some solid ground to eat lunch, which was eaten on a patch of state land bordering the lake. After a short time debating whether or not to count upland species on the plant list, we reassembled and found ourselves enwrapped by the subtleties of pondweed (*Potamogeton*) identification and in deep discussion about identification tips for aquatic plants. The group took on the true botanist's pace covering nearly 75 meters of shoreline in 45 minutes of fantastic discussion, questions, and answers from all directions. Eventually a group consensus took hold to make it to the north end of the lake before time ran out, and the slow pace of the morning gave way to a half mile sprint to the peatlands at the northern end of the

lake. More peatlands and aquatic vegetation occupied the crew, and the afternoon sun finally brought swaths of *Xyris* into bloom. More discussion of *Utricularia* identification from vegetative material and the taxonomic complexities of various groups brought us to the end of our time, and against a strengthening headwind, the crew paddled back toward the cars.

Long Lake proved to be a beautiful place, a *Utricularia* wonderland, and a great place for a lollygag. Thank you to David Werier for bringing us out to this special place and to everyone whose questions, answers, and insights make these field trips so enjoyable.

Discussing the vegetative characteristics of Utricularia species (photo by Connie Tedesco).

The Varieties and Subspecies in the Flora in New York State

by Steve Young botanyvisible@gmail.com

Have you ever identified a species in the field and then later realized that there are two or more subspecies that you weren't aware of? I think it happens to all of us, so I decided to make a spreadsheet list of all the varieties and subspecies in New York and how they are identified so there could be a handy reference when that situation arises. I included columns for family and taxa names, separation characters, nativity, state rank, habitat, range in NY and the source of the information. You will want to be aware of the more common taxa, but is helpful to browse the list to see if there are taxa that surprise you or you have been overlooking (like that other variety of *Eutrochium maculatum*!). Many of the infraspecific taxa are not common (for instance, that other variety of *Eutrochium maculatum*) and were only found once or a very few times a long time ago and I have noted that in the range comments. Have fun looking for infraspecific taxa and let me know if there are any additions or corrections I can make to the list.

You can find the list here to download as a csv file: Infraspecific Taxa of New York State
or go to nyflora.org and click on Botanical Links and go to the category Information Resources. The list is at the bottom of this category.

Botanists pondering varieties on Valcour Island.

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