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Mitchelliana

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Editor's Note: Our lead article in this issue is designed to get everyone ready to look closely at the weedy bedstraws this upcoming season – and help determine the extent of *Galium album* vs. *G. mollugo* in NY. Dan Spada, our new NYFA president, has a message to the members on page 20. We finish with sad news: two New York State botanists passed away recently; see page 26 for remembrances of Ken Hull and Nancy Slack. Lastly, I'd like to thank all you who contribute articles and photos, as well as those who perform the important and sometimes onerous task of proofreading the newsletter every issue.

Articles Inside:

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Notes on Some Weedy Bedstraws

by Michael Hough

In a recent update to the New York Flora Atlas, all records of *Galium mollugo* L. (whorled bedstraw), were changed to *Galium album* Mill. (white or hedge bedstraw), and *G. mollugo* was excluded from the state (Werier et al. 2022). Both are weedy species from Eurasia that are common along roadsides, in fields and meadows, and other disturbed habitats. They are very similar, closely related species characterized by smooth or slightly hairy (not scabrous) stems, whorls of 6-8 slender leaves 10-25(-40) mm long at each node, cuspidate leaf tips, and rotate white flowers with corolla lobes apiculate at the apex. In New England both species are considered to be present (Haines et al. 2011). A few years ago, I found a hybrid plant in an old field in Cortland County, NY with pale yellow flowers that was clearly related to *Galium verum* L. (yellow bedstraw) growing nearby. At the time only *G. mollugo* was listed for NY, so I initially assumed it was *G. mollugo* × *G. verum* which is an unnamed hybrid combination.

Galium verum (left), hybrid (middle), and its other likely parent (right).

However, in reviewing the Haines et al. (2011) description of this hybrid in New England, he notes that it has flowers narrower than 3 mm, while the hybrid with *G. album* (*G.* ×*pomeranicum* Retz.) has flowers usually wider than 3 mm. I put the plant under a scope and took some measurements.

Flowers of *Gallium* ×*pomericanum* photographed under a dissecting microscope.

These flowers were 2.9-3.4 mm wide, suggesting they belong to *G.* ×*pomeranicum*. I went back to the field to examine the white-flowered bedstraws growing near *G. verum* and the hybrid and found considerable variation. Some had smaller flowers (less than 3 mm wide), with open panicles with divaricately spreading branches. Others had larger flowers (more than 3 mm wide) with relatively dense panicles with more ascending branches.

Inflorescences of likely *G. mollugo* (left) and *G. album* (right).

For the remainder of the summer I took note of weedy roadside bedstraws in Central New York and concluded that it is likely both *G. album* and *G. mollugo* are present at least in this part of the state. It seems that *G. album* is the showier of the two, with larger flowers and a denser panicle with shorter, more upright branches. *Galium album* is considered to be the tetraploid member of a larger *Galium mollugo* group, with a chromosome number of 44 rather than 22 for the diploid *G. mollugo* (Kliphuis 1983). I attempted to do chromosomes counts on a few plants but was unsuccessful due to the very small chromosomes present in *Galium* spp. in general.

Below is a table listing the differences between the two species compiled from Bojnanský and Fargašová (2007), Cleal (1998), and Haines et al. (2011).

	***G. album* Mill.**	***G. mollugo* L.**
Flowers (corollas)	(2.5-)3-5 mm wide, white	2-3(-3.3) mm wide, white or cream
Panicle	Narrow, oblong, branches short, erect-ascending	Broad, open, branches spreading
Flowering pedicels	Pedicels usually shorter than diameter of the flower	Pedicels usually longer than diameter of the flower
Fruiting pedicels	Erect or somewhat spreading	Reflexed or widely spreading
Achenes (fruits)	1.6-2 × 1.1-1.3 mm, brown	1-1.4 × 0.9-1.12 mm, dark brown

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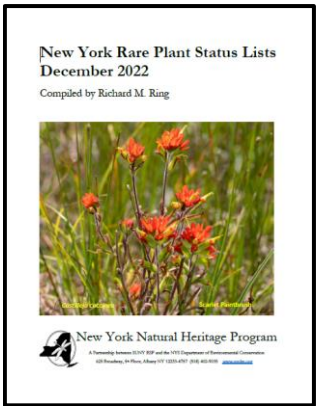
Werier, D., K. Webster, T. Weldy, A. Nelson, R. Mitchell†, and R. Ingalls†. 2022. New York Flora Atlas. [S.M. Landry and K.N. Campbell (original application development), USF Water Inst. Univ. of Florida]. New York Flora Association, Albany, NY.

New Rare Plant List Available



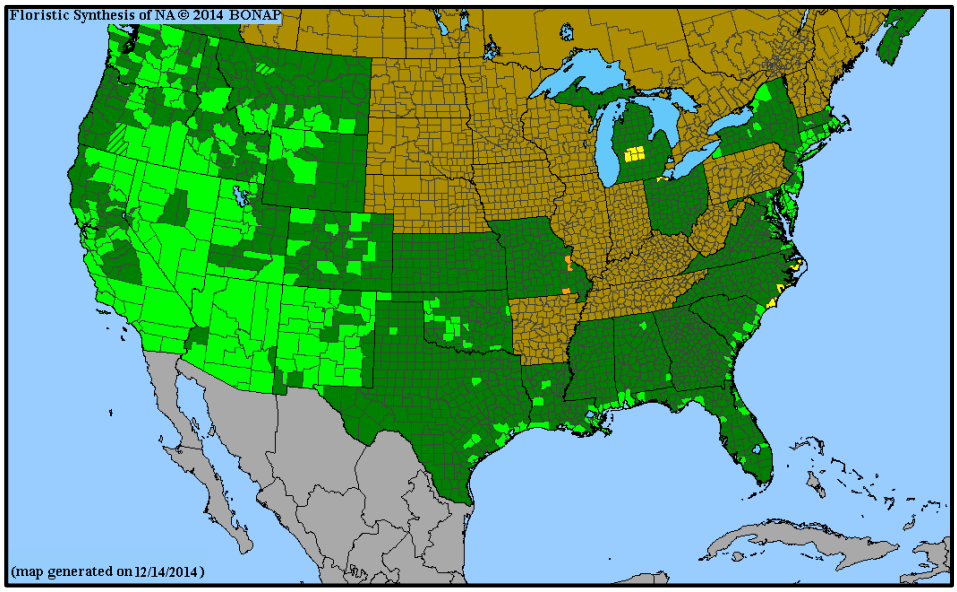
The new **2022 Rare Plant Status Lists** publication is now available. Thanks to this past year's botanical explorations and to your reporting: two taxa new to the state, *Juncus scirpoides* var. *compositus* (Sedge Rush) and *Juncus vaseyi* (Vasey's Sedge) were documented through herbarium work,two species only known through historical records, *Carex sychnocephala* (Many-Headed Sedge) and *Nabalus crepidineus* (Nodding Rattlesnake Root) were discovered to be extant at previously undocumented locations, six plants were added or removed from lists, five plants had rank changes, and two plants had scientific name changes.

Phylogeography of *Schoenoplectus americanus* (Cyperaceae) in the United States: evolutionary history of a widespread halophyte

by Alex Petzke (apetzke@syr.edu), SUNY College of Environmental Science and Forestry
2022 NYFA Research Grant Recipient

The factors governing present-day species distributions are many and complex. Distributions result from dispersal to new locations and vicariance events in which populations become separated when their range is split into discontinuous pieces. These events are overlaid on a template of species interactions, habitat availability, climate, and geology (Lomolino et al. 2010). The distribution of the sedge *Schoenoplectus americanus* (syn. *Scirpus olneyi*; Cyperaceae; chair maker's bulrush) in the US provides an interesting example of the dependency of plant distribution on these factors.

S. americanus is found coastally and inland throughout the western US (Kartesz 2015) where an arid to semiarid climate is responsible for the maintenance of its saline habitat. In the humid eastern part of the US where saline wetlands occur primarily adjacent to marine water bodies, *S. americanus* occurs almost exclusively along the Atlantic and Gulf Coasts in estuarine marshes with salinities of 3.5 to 10 ppt (Blum et al. 2005). Notably, it also occurs in rare, brine-fed inland salt marshes (ISMs) in New York (pers. obs.), about 200 miles from the Atlantic Coast. It also occurs as a single population in a Michigan ISM (Albert 2001).



Distribution of *S. americanus* in the United States.

By examining the distribution of a species' genetic variation across its geographical range we can make inferences about its past distribution and migration across the landscape. An understanding of the population history of *S. americanus* can help us understand how it achieved its current distribution. Did the progenitors of Atlantic and Gulf Coast populations of *S. americanus* disperse from western US populations, or vice versa? From where did the ISM populations in New York and Michigan originate? Are the isolated ISM populations the result of dispersal or vicariance events?

These questions appear to be completely unexplored by genetic methods. *S. americanus* is an appropriate species with which to address general questions about the population structure and evolutionary history of ISM flora as it is one of few species for which we have evidence of its nativity to these wetlands (Catling and McKay 1981).

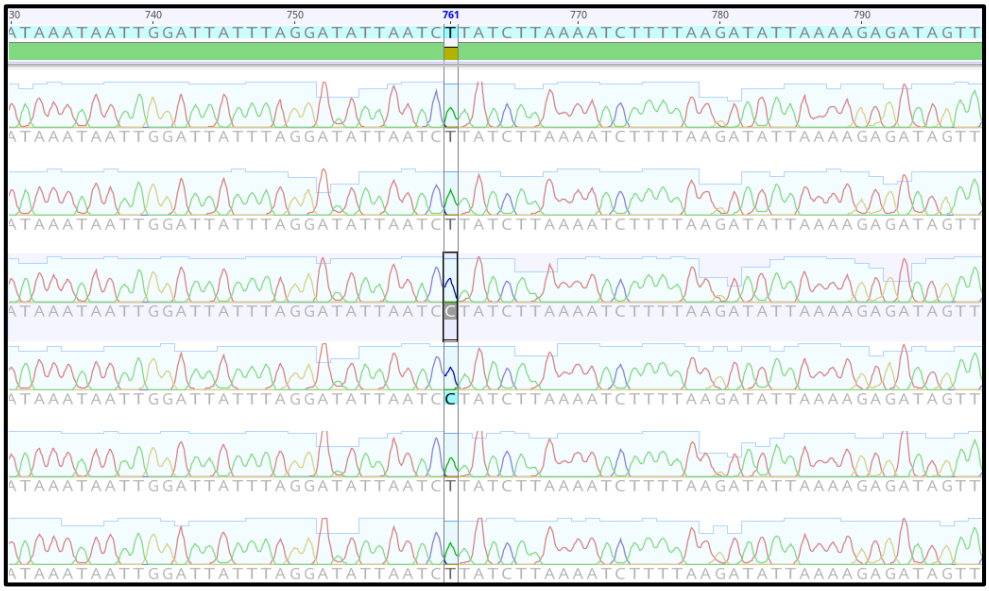
Inland salt marsh at Howland Island (NY).

To initiate my research on the geographic distribution of genetic variation in *S. americanus* several volunteers collected leaf tissue samples and voucher specimens from populations near them, resulting in samples from seven populations spanning five states (CA, MD, MI, MS, NY). The volunteers placed samples in paper envelopes and placed the envelopes in a bag of silica gel to desiccate the leaf tissue and preserve its DNA.

I isolated total genomic DNA from silica gel-dried leaf tissue for two individuals per population except NY, which had only one sample. I screened nine chloroplast DNA (cpDNA) regions for sufficient genetic variation to adequately address my research questions. I prioritized cpDNA regions shown by Shaw et al. (2014) to be most likely to yield informative sequence variation in both monocots and across all taxa. After I confirmed that I could amplify (produce enough copies for sequencing) each cpDNA region, I sequenced those regions in the subset of samples described above to assess intrapopulation variability.

The sequences from the regions of cpDNA I screened showed very little genetic variation. My sequence data showed differences at just one base pair—a single unit of DNA—in three different regions of cpDNA. One set of sequences showed a unique genetic variant in my samples from the Central Valley of California. While the small amount of data precludes any strong conclusions, the result does suggest that the lineage represented by this population may have been isolated from other US lineages for a long time.

Another cpDNA region showed a single differentiating mutation in one sample from the Michigan ISM. While this is interesting considering the research questions outlined above, it is difficult to draw any solid conclusions from this result. Finally, the third cpDNA region showed variability in one individual sampled from the southern California coast. Unfortunately, the other individual I sequenced from that population gave low-quality results and its sequence could not be interpreted.



Some sequence data from the preliminary analysis.

Given the results above, a different approach to my research is warranted. Parts of the genome called simple sequence repeats (SSRs) mutate more frequently than typical cpDNA regions and therefore can illuminate population structure in a way that sequence data from cpDNA cannot (though sequence data has its own advantages). SSR primers (a molecule needed to amplify DNA) were developed in Blum (2005) to aid in studies of *S. americanus*' response to environmental change. This means that I can efficiently apply SSR analysis to my research questions above.

With volunteer help I sampled more populations this summer, bringing the total to 25 populations spanning 15 states. I verified that my SSR regions of interest are amplified by the primers from Blum (2005) and I will continue pursuing my research questions with an SSR-based approach. This SSR analysis will let me characterize population genetic structure across the US range of *S. americanus* and place our unique ISM population in a greater context that will allow us to better understand and appreciate the forces and historical events that have shaped the flora of New York.

I give my sincere thanks to the New York Flora Association for awarding me a 2022 research grant, which covered the sequencing costs for my preliminary research in full.

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Exploring life cycle limitations in the threatened Leedy's roseroot in New York State

by Rachael Renzi, SUNY College of Environmental Science and Forestry
2022 NYFA Research Grant Recipient

Introduction

Leedy's roseroot (*Rhodiola integrifolia* ssp. *leedyi*) is a rare subspecies of Crassulaceae known from only seven disjunct North American populations (NYNHP 2022). For some of you dedicated followers of NYFA newsletters, you may remember Leedy's roseroot from Kali Mattingly's article in the 2016 winter newsletter. Her article described the plant's adaptations for drought tolerance, like CAM photosynthesis and hardy rhizomes (Mattingly 2016). Despite these adaptations, the subspecies has maintained its status as a "critically imperiled" taxon (USFWS 2021). It is thought that the cause of Leedy's roseroot's disjunct distribution was due to the plant's reliance on refugia during the glaciated Pleistocene of the Quaternary period (Dechaine et al. 2013). Today, the largest of the seven extant populations occurs in the Finger Lakes region of New York, which provided me with an awesome opportunity for study. I wanted to know why the plant is so rare and postulate how we can conserve it. Understanding the ecological conditions in which Leedy's roseroot grows; along with a better understanding of its life cycle biology, will help to better inform management decisions to protect existing populations. This research, which was funded by a NYFA research grant, is part of my master's thesis research at SUNY-ESF with academic guidance from Dr. Danilo Fernando and Dr. Donald Leopold.

Methods

In 2021, I established 20-inch x 12-inch plots that contained seedling and juvenile Leedy's roseroot plants. I tracked their decline into dormancy in the fall of 2021, then revisited for a survivorship count in April of 2022. Throughout the spring and summer, undergraduate assistant Tomas Todisco of SUNY-ESF and I repeatedly visited two kilometers of the Leedy's roseroot population in the Finger Lakes region to search for additional seedlings. I also placed Hygrochron iButton (Maxim Integrated Technology) data loggers (iButtons) at four locations corresponding to active seeps in April 2022 which recorded temperature and relative humidity data at substrate level every half-hour until September 2022 (Fig 1).

Figure 1. Leedy's roseroot plants in April 2022 with an iButton data logger twist-tied to the basal portion of the plant.

Results and Discussion

In 2021, I found 13 seedlings of Leedy's roseroot (Fig 2). In the spring of 2022, I revisited the same site and found seven of the original 13 plants. Unfortunately, no new seedlings were found throughout the rest of the population in 2022, which was not due to a lack of searching! According to the National Integrated Drought Information System, the county underwent a moderate drought in July and August of 2022 (NIDIS 2022). My data loggers recorded a decrease in percent relative humidity during July and August as well, which was seen to occur with a drying of the seeps in the cliffs (Fig 3). Leedy's roseroot is a drought-tolerant succulent plant, but only if it has rhizomes, and only if it has CAM photosynthesis capabilities. It is suggested that seedlings may lack anatomical structures necessary for CAM (Guralnick *et al.* 2020). Thus, the dry conditions during the summer may inhibit the establishment of seedlings that lack the adaptations necessary to avoid desiccation.

Figure 2. Leedy's roseroot seeding in situ in 2021

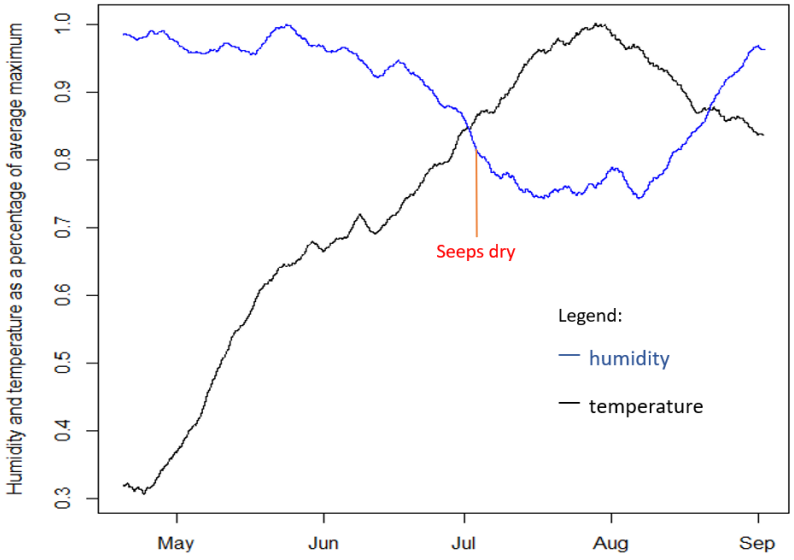

Figure 3. Temperature and relative humidity trends during the 2022 growing season

It is predicted that, in New York, we may experience an increase in summer drought incidents due to climate change (Amlazouri *et al.* 2021). This means that seedling recruitment may grind to a halt, restricting any new genetically distinct individuals from establishing in the Leedy's roseroot population. One method for conserving Leedy's roseroot is already underway. By establishing a population at its historic location in

Watkin's Glen State Park we can examine the extent of habitat conditions under which Leedy's roseroot can survive. For this experimental reintroduction, we (professionals from SUNY-ESF, NY DEC, NYNHP, NYOPRHP) chose sites with consistent moisture availability to provide ideal conditions for seedling recruitment. However, conservation of the original site cannot be overlooked, especially in a changing climate.

Author (right), with binoculars, and assistant Tomas (left) surveying Leedy's roseroot from afar. Photo by M. Jacobson. The search for seedlings was conducted by walking along the base of the cliffs, rather than with binoculars.

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Montauk Miracle, Big Reed Pond, Montauk County Park, September 24, 2022

by Daniel Atha and Vicki Bustamante

Led by one of NYFA's newest board members and resident of Montauk, Vicki Bustamante, fourteen participants hiked to Big Reed Pond, a Coastal Plain Pond, a community ranked S2 (six to 20 occurrences in the state) which in New York is only found on Long Island.

The hike began on high ground (6 feet above mean high tide) on old sand dunes vegetated by Coastal Oak-Hickory Forest with many fine specimens of white oak (*Quercus alba*), black oak (*Q.velutina*), and pignut hickory (*Carya glabra*). The sparse canopy and intense UV radiation favored a rich understory of reindeer lichen, grasses, sedges, and many wildflowers.

Following a well-maintained jeep trail, still in use by local fishermen, the elevation dropped a whopping three or four feet and flattened out. Shallow basins underlain by clay deposits retain enough water to support a Red Maple-Tupelo Swamp. Like the Oak-Hickory Forest, the canopy here is much lower than is found in hardwood swamps at inland sites. The shrub diversity in the Red Maple-Tupelo Swamp is very high, well represented by members of the blueberry and holly families, such as maleberry (*Lyonia ligustrina*), highbush blueberry (*Vaccinium corymbosum*), and winterberry (*Ilex verticillata*). The Coastal Plain Pond is a rare habitat in New York State, today occurring only along the outwash plain of Long Island south of the terminal moraine. These ponds occur in kettle holes and shallow depressions and are fed by groundwater seepage. The Shallow Emergent Marsh habitat at the pond margins was dominated by swamp loosestrife (*Decodon verticillatus*). The Shrub Swamp along the pond margin consists of shrubby species found in both estuarine and palustrine habitats, including both groundsel-tree (*Baccharis halimifolia*) and buttonbush (*Cephalanthus occidentalis*) growing together. Hemp-vine (*Mikania scandens*), Joe Pye weed (*Eutrochium maculatum*), goldenrods and asters were common herbaceous species on the shore. Kevin Sisco, a birding guide from New York City, uploaded observations of plants and animals to iNaturalist (miraculously, there were no ticks!). For a complete list of Kevin's iNaturalist observations see the iNaturalist list here. And see the next page for a complete list of plant species observed that day.

Trip participants (seated left to right): John Potente, Eric Lamont, Donald House, Peter Kukle, Tricia van Oers, Robert Trimer, Cameron Majette, Rozayra Mori Millet; (standing): Kevin Sisco, Bill Miller & Daniel Atha. Photo by Vicki Bustamante.

Plant list from "Montauk Miracle Mile", September 24, 2022 (Complied by Peter Kukle, Robert Reimer, Kevin Sisco & Vicki Bustamante)

Agalinis purpurea, purple false foxglove
Ageratina altissima, white snakeroot
*Agrostis sp., bent grass
*Alliaria petiolata, garlic mustard
Alnus incana ssp. rugosa, speckled alder
Amelanchier canadensis, coastal shadbush
Andropogon gerardii, big bluestem
Apios americana, American groundnut
*Arctium minus, lesser burdock
Aristida longespica, slender threeawn
Aronia prunifolia, purple chokeberry
*Artemisia vulgaris, mugwort
*Arthraxon hispidus, small carpetgrass
Asclepias incarnata ssp. pulchra, eastern swamp milkweed
Asclepias syriaca, common milkweed
*Berberis thunbergii, Japanese barberry
Bidens connata, purple-stemmed beggar's tick
Bidens frondosa, Devil's beggar ticks
Boehmeria cylindrica, false nettle
Carex silicea, beach sedge
Carya cordiformis, bitternut hickory
Carya glabra, pignut hickory
*Celastrus orbiculatus, Asiatic bittersweet
Cephalanthus occidentalis, buttonbush
Chrysopsis mariana, Maryland golden aster
Cirsium discolor, field thistle
Clethra alnifolia, sweet pepperbush
Coleataenia anceps ssp. anceps, beaked panic grass
Crataegus crus-galli, cockspur hawthorn
Cyperus dentatus, toothed flat sedge
Cyperus flavescens, yellow flat sedge
Cyperus grayi, Gray's flat sedge
*Daucus carota, Queen Anne's lace
Decodon verticillatus, swamp loosestrife
*Dianthus armeria, Deptford Pink
Dichanthelium clandestinum, deer-tongue grass
Dichanthelium lanuginosum, woolly rosette grass
Dioscorea villosa, wild yam
*Elaeagnus umbellata, autumn olive
Elymus villosus, downy wild rye
Eragrostis spectabilis, purple love grass
Erechtites hieraciifolius var. hieraciifolius, common pilewort
*Euphorbia maculata, spotted spurge
Eupatorium hyssopifolium, hyssop-leaved thoroughwort
Eupatorium perfoliatum, boneset
Eupatorium pilosum, ragged thoroughwort
Eupatorium torreyanum, Torrey's thoroughwort
Euthamia caroliniana, slender flat-topped goldenrod
Euthamia graminifolia, grass-leaved goldenrod
Eutrochium maculatum, spotted Joe Pye weed
*Froelichia gracilis, slender cottonweed
Hibiscus moscheutos ssp. moscheutos, swamp rose mallow
Hudsonia tomentosa, beach heather
Hydrocotyle verticillata var. verticillata, whorled marsh pennywort
Hypericum gentianoides, orange-grass
Hypericum virginicum, Virginia marsh St. John's wort
*Hypochaeris radicata, hairy cat's ears
Ilex opaca, American holly
Ilex verticillata, winterberry holly
Juncus canadensis, Canada rush
Juncus greenei, Greene's rush
Juncus militaris, bayonet rush
Lechea maritima var. maritima, beach pinweed
Leersia oryzoides, rice cut grass
Lespedeza capitata, roundhead bush clover
Lindera benzoin, spicebush
Linum striatum, rigid yellow flax
Ludwigia palustris, water purslane
Lycopodiella appressa, appressed-leaved bog clubmoss
Lyonia ligustrina, maleberry
Mentha canadensis, American wild mint
Mikania scandens, climbing hempweed
Morella caroliniensis, bayberry
Nyssa sylvatica, blackgum, sourgum
Oenothera biennis, common evening primrose
Onoclea sensibilis, sensitive fern
*Osmanthus heterophyllus, false holly
Osmundastrum cinnamomeum, Cinnamon fern
Osmunda regalis, royal fern
Panicum virgatum, switchgrass
Parthenocissus quinquefolia, Virginia creeper
Paspalum setaceum var. psammophilum, sand beach grass
Peltandra virginica, green arrow arum, Tuckahoe
Persicaria setacea, bristly smartweed
Persicaria virginiana, jumpseed
*Phragmites australis, common reed
*Pinus thunbergii, Japanese black pine
Pityopsis falcata, sickle-leaved golden aster
*Plantago aristata, bracted plantain
*Plantago major, broad leaved plantain
Polygala cruciata, cross-leaved milkwort
Pontederia cordata, pickerel weed
Prunus serotina, black cherry
Pseudognaphalium obtusifolium, rabbit tobacco
Pteridium aquilinum, bracken fern
Pycnanthemum muticum, short toothed mountain mint
Quercus alba, white oak
Quercus rubra, northern red oak
Quercus velutina, black oak
Rhus copallinum var. copallinum, common winged sumac
Rhus glabra, smooth sumac
Rhynchospora capitellata, brownish beak sedge
*Robinia pseudoacacia, black locust

*Rosa multiflora, multiflora rose
Rosa palustris, swamp rose
*Rubus phoenicolasius, wineberry
Rumex verticillatus, swamp dock
*Salix cinerea, gray willow
Sassafras albidum, sassafras
Schizachyrium littorale, dune bluestem
Schoenoplectus pungens, common three-square
Scirpus cyperinus, wool grass
Smilax rotundifolia, common greenbrier
Solidago altissima var. altissima, tall goldenrod
Solidago canadensis, Canadian goldenrod
Solidago nemoralis, gray goldenrod
Solidago odora, sweet goldenrod
Solidago rugosa var. rugosa, common wrinkle-leaved goldenrod
Solidago sempervirens, seaside goldenrod
Sorghastrum nutans, Indian grass
Spiraea alba var. latifolia, broad-leaved meadowsweet
Spiranthes cernua, nodding ladies' tresses
Sporobolus michauxianus, prairie cord grass
Symphyotrichum dumosum, bushy aster
Symphyotrichum novi-belgii, New York aster
Teucrium canadense, American germander
Thelypteris palustris, marsh fern
Typha angustifolia, narrow leaved cattail
Vaccinium corymbosum, highbush blueberry
Vaccinium macrocarpon, cranberry
Verbena hastata, blue vervain
Viburnum dentatum var. venosum, southern arrowwood
Viola lanceolata, lance-leaved violet
Vitis labrusca, fox grape
Xyris torta, slender yellow-eyed grass

*indicates a non-native species. Species total 135

Chubb River Cruise, July 30, 2022

by Sue Pierce

In April, my friend Ruth & I signed up for a July NYFA Field Trip called "The Chubb River Cruise." The Chubb River comes out of the High Peaks and meanders toward Lake Placid. There would be beaver dams, a long carry, and a group of ten nature lovers to paddle with. The trip leader, botanist David Werier, had two special plants, both unique to northerly regions of the state, to show us on this flat and slow section of the river.

The scenery was certainly boreal. The river passes through spruce forests with grassy edges. We all came with different qualifications and interests; several folks are experts in their fields; a few of us are just beginning to learn more about the natural world, and some came out for a nice day on the water.

Patty Butter kept a thorough log of what we saw, taking photos and consulting online apps, while somehow also having the ability to paddle.

Pushing slowly upstream, we passed banks lined with flowers. There were the water-lovers, growing on riverbanks, and sometimes best seen from a boat: white turtlehead (*Chelone glabra*), bulblet-bearing water hemlock (*Cicuta bulbifera*), marsh skullcap (*Scutellaria galericulata*), mountain holly *(Ilex mucronata*), and narrow-leaved gentian (*Gentiana linearis).*

Some of the plants can be found in many a terrestrial back yard, but here they were growing among spruces: common jewelweed (*Impatiens capensis*) and black elderberry (*Sambucus nigra* ssp. *canadensis*). The elderberry was still in bloom at this more northerly higher elevation. (In my area, Glens Falls, it blooms a full month earlier.)

My artistic disposition tends to notice the more colorful or larger plants, but here was a grassy world full of beautiful textures, and experts who knew all their names. Well, I think I learned *one* of them, rattlesnake manna-grass (*Glyceria canadensis*), with beautiful braided seedheads that dangle like rice over the water. David showed us many others that day.

We all spread out and explored on our own, at times rafting up to consult with others. The clouds grew dark at times, and spritzed us lightly once or twice. Despite it being a Saturday, there was no one else out on the river except for our group. Their loss!

I wasn't sure how far we went. We followed the twists and turns of the river for three hours, up to the portage (after consulting a map, it turns out to be maybe one mile!)

Ruth is looking up something on iNaturalist; while a real-life Human Naturalist (and our new NY Natural Heritage Botanist) Rich Ring is examining a specimen with her.

We had gone a fair distance when David stopped mid-stream and said, "Well, here's the first special plant!" It was a mini version of our common yellow pond-lily.

Small-Leaved Yellow Pond-Lily *(Nuphar microphylla*).

The flowers were about the size of a half-dollar, with heart-shaped leaves that would fit in one's

palm. Some were already forming fruits.

One nickname for its larger cousin is "brandy-bottle," a reference to the shape of the fruits and possibly to an alcohol-scent of the flowers.

In David's words, it's "the sweetest and cutest spatter-dock" and I agree.

There was every sort of boat among us – kayaks of varying lengths, Coleman and Grumman canoes, and Kevlar packboats. Ruth and I were glad to have lightweight Hornbecks, especially with a carry coming up next. Having only done “easy” carries, I was apprehensive about this part. My tougher companions had much heavier boats to carry. Everyone was glad to offer help if you needed it.

But we all did it (twice, of course) and it was well worth it to see the second uncommon plant on the far side of the carry – common mare’s tail (*Hippuris vulgaris*).

Common Mare's Tail (*Hippuris vulgaris*).

It was there, just underwater, as though seeking the surface, looking like a small version of the trees onshore. It was already forming fruit. This one might also have remnants of the flowers on it.

The way back took much less time. Going with the mild current, all you had to do was steer and admire the scenery.

Toward the end of our journey, the sun came out, lighting up the little *Nuphar* lanterns as we passed by them once again. David beamed as he looked down at them. We all did, as we carefully paddled among them.

Thank you David, for sharing this place and its special wonders. It was a pleasure to paddle with you all. Special thanks to Ruth for encouraging me to go outside my comfort zone and (of course) have a great time doing so.

Trip participants: David Werier (Cruise Director) Patty Butter, Rich Ring, Kyle Webster, Ruth Brooks, John Titus, Curt Pueschel, Bernie Carr, Jack Williams, and myself.

Do not hesitate to try one of NYFA’s field trips – whatever your level of expertise or experience, your companions will make it a welcoming and fun experience!

Here is a link to my Facebook post for that day, with more photos; it is accessible to anyone: https://www.facebook.com/media/set/?set=a.525023519843144 7&type=3

Plant (and more) list. Compiled by Patricia Butter.

Acer rubrum
Actaea rubra
Agrostis scabra
Alnus incana
Amauropelta noveboracensis
Andromeda polifolia var. *latifolia*
Aralia nudicaulis
Bromus ciliatus
Calamagrostis canadensis var. *canadensis*

Calla palustris
Campanula aparinoides
Carex intumescens
Carex leptalea
Carex novae-angliae
Carex stricta
Carex utriculata
Chelone glabra
Cicuta bulbifera
Clintonia borealis
Comarum palustre
Coptis trifolia
Cornus canadensis
Doellingeria umbellata var. *umbellata*
Eleocharis palustris
Eutrochium maculatum var. maculatum
Galium tinctorium
Gaultheria hispidula
Gentiana linearis
Glyceria canadensis
Goodyera repens
Hippuris vulgaris
Hypericum ellipticum
Hypericum fraseri
Ilex mucronata
Iris sp.
Larix laricina
Lemna sp.
Lycopus americanus
Lysimachia borealis
Lysimachia terrestris
Maianthemum canadense
Mentha canadensis
Nuphar microphylla
Onoclea sensibilis
Oxalis sp.
Persicaria sp.
Picea sp.
Pinus strobus
Poa palustris
Potamogeton epihydrus
Potamogeton natans
Potamogeton spirillus
Rubus dalibarda
Rubus flagellaris
Sagittaria cuneata
Sagittaria latifolia
Sambucus canadensis
Scirpus atrocinctus
Scutellaria galericulata
Sparganium angustifolium
Thuja occidentalis
Torreyochloa pallida
Utricularia macrorhiza
Vaccinium angustifolium
Vaccinium corymbosum

Other Organisms:

Acronicta oblinita
Argia fumipennis
Bombus ternarius
Calopteryx aequabilis
Gerrini sp.
Pirata piraticus
Spongillidae sp.

Birds observed by Bernie Carr

1 Turkey Vulture
1 Bald Eagle
1 Downy Woodpecker
3 Alder Flycatcher
5 Blue Jay
5 Black-capped Chickadee
2 Red-breasted Nuthatch
14 Cedar Waxwing (recently fledged young)
1 Purple Finch
1 American Goldfinch
2 White-throated Sparrow
1 Swamp Sparrow

Late July Botanizing in Northern Jefferson County

by Kyle J. Webster

In late July, our group of naturalists met trip leaders Steven Daniel and Anne Johnson at the Minna Anthony Common Nature Center in Wellesley Island State Park to brave the weekend heat for day one of a two-day field trip in northern Jefferson County.

After gathering near the nature center, we headed down the River Trail, starting in the shade and enjoying the breeze coming off the St. Lawrence River as we followed the coast. Not far into the walk we found an odd looking spinulose wood fern (*Dryopteris carthusiana*) that we thought could be hybridizing with nearby marginal wood fern (*D. marginalis*). A quick check of the NY Flora Atlas showed only two collections of this hybrid in NY, one being nearby in Jefferson Co. and collected by trip participant Bruce Gilman when doing his graduate work in the alvar communities. After collecting a frond and examining the spores under the microscope, though, they all appeared normal and consistent in size, and so we concluded the fern was an aberrant *D. carthusiana*. Interesting nonetheless!

The group gathers around the suspect *Dryopteris carthusiana* talking about ID characters of the various wood ferns.

Right, spores and indusia from *D. carthusiana*, Left, 100x magnification of spores from *D. carthusiana*.

We then continued to explore the woodland, finding calciphiles, such as Wood's sedge (*Carex woodii*), large-leaved aster (*Eurybia macrophylla*), lance-leaved wild licorice (*Galium lanceolatum*), round-lobed hepatica (*Hepatica americana*), and false melic grass (*Schizachne purpurascens*), indicating there was some richness in parts of the forest despite the acid bedrock. At one point we came across a large patch of *Vaccinium* and sat puzzling over the vegetative differences of deerberry (*Vaccinium stamineum*) and hillside blueberry (*V. pallidum*), which we found to be the presence of papillose branchlets in *V. stamineum* and their absence in *V. pallidum*.

Rocky summit grassland dominated just off the River Trail near "The Narrows".

After lunch, we started up a short incline and came out to a view of "The Narrows", a deep channel that separates Wellesley Island from Murray Isle, and then into one of the many rocky summit grasslands present in the park. There was a patch of large-podded pinweed (*Lechea intermedia*) trailside as we emerged from the forest, an interesting member of the Cistaceae (rock rose family) and a first for me.

We explored the openings here, which were dominated by hair grass (*Deschampsia cespitosa*), northern dewberry (*Rubus flagellaris*), and eastern red cedar (*Juniperus virginiana*), before continuing to follow the coast around. A few highlights included poke milkweed (*Asclepias exaltata*), large swathes of woodland sunflower (*Helianthus divaricatus*), trailside wand-like bush clover (*Lespedeza violacea*), hairy bush clover (*Lespedeza hirta*), and notably, a rare hybrid between the two Nuttall's bush clover (*L.* x*nuttallii*).

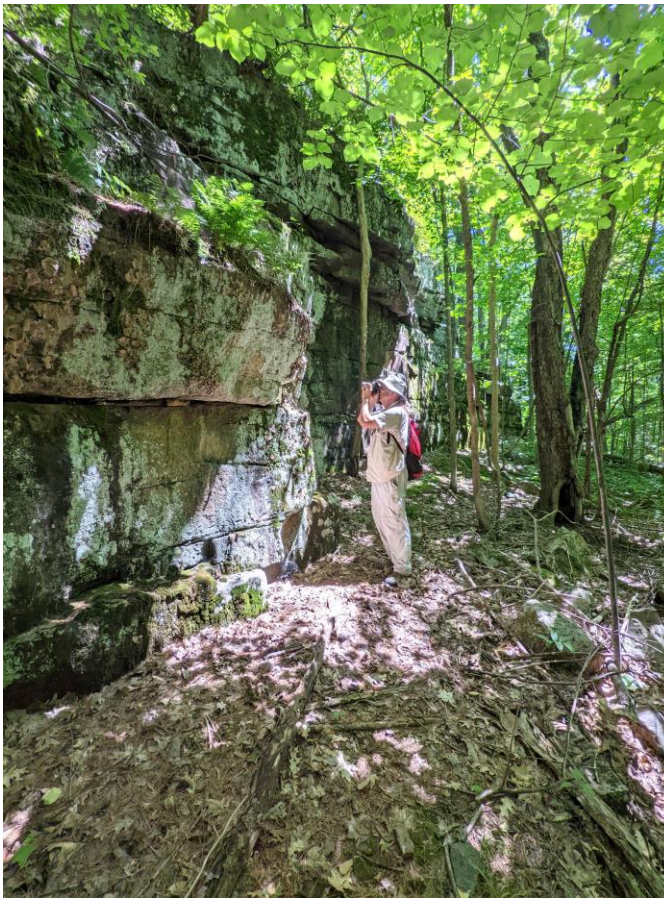
All photos by Steven Daniel. Top left, *Lespedeza* x*nuttallii* at Wellesley Island. Top right, *L.* x*nuttallii* fruit with calyx lobes shorter than the fruit (like *L. violacea*). Bottom left, inflorescence of *L nuttallii* with some long peduncles (intermediate between *L. violacea* and *L. hirta*). Bottom right, *L.* x*nuttallii* with spreading hairs on the stem (like *L. hirta*).

Shortly after rounding the southwestern corner of the peninsula, Steven showed us a patch of Douglass's knotweed (*Polygonum douglasii*) that he had found in 2021. There were hundreds of this State-Threatened annual plant between the trail and South Bay. The plants were not in flower yet, but still distinctive in their lack of a petiole, long hyaline stipules, and small unpleated leaves. After admiring the *P. douglasii*, it was getting late, so we moseyed our way back, making a short stop at a restored wetland before arriving at the nature center to make plans for day two.

Top, patch of *Polygonum douglasii* at Wellesley Island along the River Trail. Bottom, *P. douglasii* stem showing the short petiole and hyaline stipule.

The next morning, we gathered at a DEC parking area on Co. Rd. 22 and then headed into Pulpit Rock State Forest via a recently acquired conservation easement. Steven hustled us through the easement and past many plants so that we would have time to see the more interesting parts of the state forest. It was probably the quickest I've ever moved on a NYFA hike, but it paid off, as we soon entered a saddle containing a rich forest, small stream, and interesting rock outcroppings. Here some of the group puzzled over specimens of rock cress (*Borodinia* sp.) and fragile fern (*Cystopteris* sp.) below the cliffs while others peeled off to see Payne Lake from below.

The group gathered around a *Cystopteris* sp., having the perennial discussion of *C. tenuis* vs. *C. fragilis*.



Bruce Gilman admiring the lichen and bryophyte diversity of the rock outcrops.

After a short lunch, we left the cool comfort of the forest and ascended into the heat of the rocky summit grasslands. Like Wellesley, these too were dominated by *Deschampsia cespitosa* and *Juniperus virginiana* but had much more exposed rock. Oddly, there were also white spruce (*Picea glauca*) scattered about the summit. Many of the largest spruce trees were dead, prompting the group to wonder why - perhaps drought conditions affecting them after reaching a certain size?

Soon after starting to explore the summit we came across a lone, but robust individual of *Polygonum douglasii*, another one of Steven's 2021 finds. This plant was past flower and had mature seed in it, unlike the population at Wellesley. In addition to the characters noted previously, this one could also be distinguished from other Polygonums by its deflexed flowers without wings or keels on the petals.

Left, fruiting *Polygonum douglasii* at Pulpit Rock State Forest. Middle, Flowers and ripe achenes from *P. douglasii*. Right, rocky summit grassland overlooking Payne Lake.

After exploring the summit in the heat, we moved to the shade, finding knights plume moss (*Ptilium crista-castrensis* - also known as the "prettiest moss in mossdom" by Ed Ketchledge according to Bruce), before heading down towards a beaver pond north of the summit. Once there we discovered the dam had recently failed, draining most of the pond and resulting in a vivid green carpet of rice cut grass (*Leersia oryzoides*), blunt spike rush (*Eleocharis obtusa* var. *obtusa*), and needle spike rush (*Eleocharis acicularis*). On the edge of the now beaver meadow there was a large patch of rattlesnake manna grass (*Glyceria canadensis*), which if *Ptilium crista-castrensis* is the prettiest moss in mossdom, is certainly a contender for the prettiest grass in grassdom.

Left, *Glyceria canadensis* inflorescence. R, *G. canadensis* spikelets.

We explored the results of the drawdown for a while longer, pausing to look at other emerging plants before eventually turning back towards the cars and leaving through the easement. Thanks to Steven and Anne for leading yet another botanically rich hike, Fran Lawler for compiling a list of species seen at Wellesley Island, Anne for compiling a species list for Pulpit Rock, and the other trip participants (Bruce Gilman, Kaley Catlin, Meena Haribal, Peter Zimmer, and Rosarya Millet) for the good company and shared knowledge.

Wellesley Island State Park Species List, 7/22/22. Compiled by F. Lawler.

Acer saccharum
Achillea millefolium
Ambrosia artemisiifolia
Amelanchier sp (shrub)
Amelanchier sp (tree)
Amphora fruticosa
Antennaria plantaginifolia
Apios americana
Apocynum androsaemifolium
Aronia melanocarpa
Asclepias exaltata
Avenella flexuosa
Boehmeria cylindrica
Carex appalachica
Carex arctata
Carex gracillima
Carex lucorum
Carex lupulina
Carex pensylvanica
Carex platyphylla
Carex radiata
Carex rosea
Carex sparganioides
Carex tenera
Carex woodii
Carya glabra
Carya ovata
Ceanothus americanus
Circaea canadensis
Corydalis flavula
Danthonia spicata
Deschampsia cespitosa
Dichanthelium lanuginosum
Dichanthelium linearifolium
Dryopteris carthusiana
Dryopteris marginalis
Elymus hystrix
Elymus trachycaulus
Elymus virginicus
Erechtites hieraciifolius
Erigeron annuus
Eurybia macrophylla
Fallopia cilinodis
Galium circaezans
Galium lanceolatum
Gaylussacia baccata
Geranium maculatum
Gnaphalium uliginosum
Heliopsis divaricatus
Heliopsis helianthoides
Hepatica americana
Heteranthera dubia
Hylodesmum glutinosum
Hylodesmum nudiflorum
Hylotelephium telephium
Hypericum perforatum
Hypericum punctatum
Juncus secundus
Juncus tenuis
Juniperus virginiana
Lapsana communis
Lechea intermedia
Leersia virginica
Lespedeza hirta
Lespedeza violacea
Lespedeza xnuttallii
Lonicera dioica
Lycopus europaeus
Melampyrum lineare
Monotropa uniflora
Ostrya virginiana
Pinus resinosa
Pinus rigida
Poa compressa
Poa nemoralis
Podophyllum peltatum
Polygonum douglasii
Polypodium virginianum
Prunella vulgaris
Pteridium aquilinum
Quercus alba
Quercus rubra
Rhamnus cathartica
Rhus aromatica
Ribes cynosbati
Rosa carolina
Rumex acetosella
Schizachne purpurascens
Scutellaria galericulata
Scutellaria lateriflora
Silene sp.
solidago bicolor
Solidago caesia var. caesia
Sorbus sp.
Symphoricarpos albus
Thalictrum pubescens
Thuja occidentalis
Vaccinium angustifolium
Vaccinium stamineum
Vallisneria americana
Viburnum acerifolium
Viburnum rafinesqueanum
Zizia aurea

Pulpit Rock State Forest Species List, 7/23/22. Compiled by A. Johnson.

Acer pensylvanicum
Acer rubrum var. rubrum
Acer saccharum var. saccharum
Acer spicatum
Achillea millefolium var. millefolium
Actaea pachypoda
Actaea rubra
Ageratina altissima var. altissima
Agrostis gigantea
Alnus incana ssp. rugosa
Ambrosia artemisiifolia
Amelanchier sp.
Amphicarpaea bracteata
Anemone acutiloba
Aralia nudicaulis
Aralia racemosa ssp. racemosa
Arisaema triphyllum ssp. triphyllum
Asplenium platyneuron var. platyneuron
Athyrium angustum
Avenella flexuosa
Berberis vulgaris
Betula alleghaniensis
Boechera/Borodina
Capnoides sempervirens
Carex arctata
Carex bromoides ssp. bromoides
Carex communis var. communis
Carex deweyana var. deweyana
Carex gracillima
Carex lacustris
Carex laxiflora
Carex pedunculata
Carex pensylvanica
Carex platyphylla
Carex radiata
Carex rosea
Carex tenera var. tenera
Carpinus caroliniana ssp. virginiana
Carya cordiformis
Cerastium fontanum ssp. vulgare
Chrysosplenium americanum
Cicuta maculata var. maculata
Clinopodium vulgare
Comandra umbellata ssp. umbellata
Cryptotaenia canadensis
Cystopteris fragilis
Danthonia spicata
Daucus carota
Dennstaedtia punctilobula
Dichanthelium implicatum ssp. implicatum
Dichanthelium lanuginosum
Dryopteris carthusiana
Dryopteris intermedia ssp. intermedia
Dryopteris marginalis
Eleocharis acicularis
Eleocharis obtusa var. obtusa

Elymus hystrix var. hystrix
Elymus trachycaulus
Epipactis helleborine
Eupatorium perfoliatum
Eutrochium maculatum var. maculatum
Fagus grandifolia
Fraxinus americana
Fraxinus nigra
Galium circaezans var. circaezans
Galium triflorum
Geranium robertianum
Geum canadense
Glyceria grandis var. grandis
Houstonia caerulea
Huperzia lucidula
Hydrophyllum virginianum
Hypericum perforatum
Impatiens pallida
Inula helenium
Juniperus communis var. communis
Juniperus virginiana var. virginiana
Lactuca biennis
Lactuca canadensis
Laportea canadensis
Leersia oryzoides
Leersia virginica
Lonicera x bella
Maianthemum canadense
Maianthemum racemosum ssp. racemosum
Melampyrum lineare var. lineare
Mentha canadensis
Mitchella repens
Moehringia lateriflora
Ostrya virginiana
Parthenocissus sp.
Persicaria arifolia
Persicaria pensylvanica
Phryma leptostachya
Picea glauca
Pilea sp.
Pinus strobus
Poa compressa
Polygonatum pubescens
Polygonum douglasii
Polystichum acrostichoides
Potentilla recta
Prunus serotina
Prunus virginiana
Quercus alba
Quercus rubra
Quercus rubra
Rhamnus cathartica
Rhus typhina
Ribes cynosbati
Rubus allegheniensis
Rubus idaeus ssp. strigosus
Rumex acetosella ssp. pyrenaicus
Sambucus racemosa var. racemosa
Sanicula canadensis
Scirpus cyperinus
Solidago caesia
Symphyotrichum cordifolium
Symphyotrichum puniceum var. puniceum
Taxus canadensis
Thalictrum dioicum
Thalictrum pubescens
Thelypteris noveboracensis
Tilia americana var. americana
Toxicodendron radicans ssp. negundo
Tragopogon sp.
Trifolium aureum
Trillium erectum
Tsuga canadensis
Ulmus americana
Utricularia gibba
Uvularia sessilifolia
Vaccinium angustifolium
Verbascum thapsus
Veronica officinalis
Viburnum dentatum var. lucidum
Vincetoxicum sp.
Viola canadensis var. canadensis
Viola labradorica
Viola rostrata

Message from thePresident

Dear NYFA Members,

I'd like to take this opportunity to wish you all a Happy New Year and to thank you for your continued support of the New York Flora Association. I'd also like to thank Anna Stalter who served as President of NYFA for the past six years and has led our group with a mixture of extreme competence, humor and professionalism. I hope that I can continue the progress that she has made.

Last year we began a Strategic Planning process by convening a Strategic Planning committee. We hired a professional consultant to guide us through the process and have spent many hours working on developing the information on which to base our Strategic Plan. Many of you helped in that effort by taking the recent survey and I thank you. We hope to have the Strategic Plan approved later this year.

Why are we developing a Strategic Plan? NYFA 's mission is dedicated to increasing the understanding and appreciation of plants that grow wild in New York State through research, education, and native plant conservation. We do that through a variety of means. We maintain the NY Flora Atlas, publish *Mitchelliana* (our quarterly newsletter), and offer field trips, workshops, Learn 10 presentations, and more. The Strategic Plan will allow us to fine tune these efforts to be more responsive and of greater utility to the botanical community. It will also help us identify other activities that are important to our mission. We envision the Strategic Plan as helping us create a systematic approach to achieving these goals. It is a very exciting time.

This coming year I hope to meet many of you at our field trips, workshops, and other events. In the meantime, if you have any ideas that you would like to share that could help us achieve our goals, please don't hesitate to contact me at: nyfa@nyflora.org.

Sincerely, Dan Spada, President, New York Flora Association

Flashbots in the Adirondacks

by Dan Spada and photos by Eric Teed

The Adirondack Botanical Society organized three “flashbots” that focused on the old growth forest area north of Ampersand Mountain. Flashbots are the term we’re using for a quickly organized field trip to look at something of botanical interest. Ray Curran and I organized them by sending out a message to our Adirondack Botanical Society group announcing that we were going to explore the old growth area, the expected focus, where the meeting place was, what time we would meet and what participants should bring. We also asked that they respond if they were going to attend so we would know who to wait for. The lack of snow in November and early December made it easy for us to get out in the woods and explore this year. Even in the winter there is a lot to see botanically speaking!

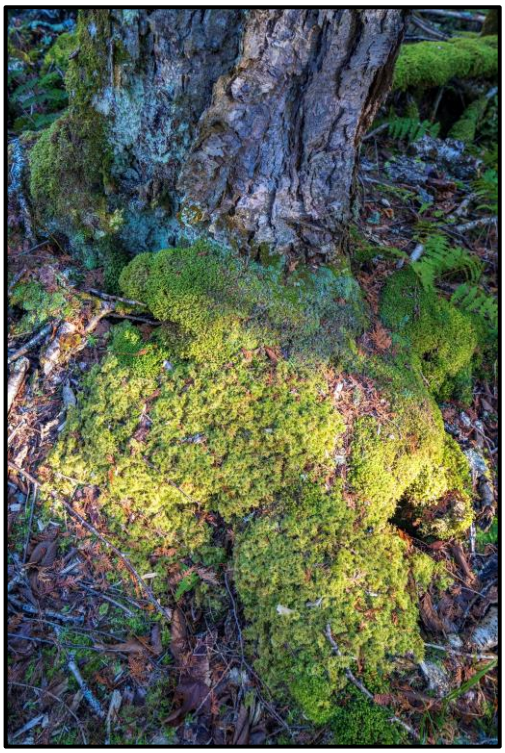
We got a great response, with small groups of around 10. Wedged between hunting season and the inevitable onset of winter, it seemed folks were looking for an excuse to get out and botanize. Ray and I encourage you to host your own flashbots. You may be surprised at what you find and who may join you!

The area in question has been described in the Fall 2022 edition of *Mitchelliana*. It surely is old growth, but we were wondering if it was the original forest. The first two flashbots were focused on assessing the presence and age of red spruce (*Picea rubens*) as compared to eastern hemlock (*Tsuga canadensis*), eastern white pine (*Pinus strobus*) and sugar maple (*Acer saccharum*). Typically, except for the shoreline white pine taken for sailing ships, red spruce was the first conifer to be harvested from the Adirondack forest back in the 1800’s. The wood was desirable, there were ample quantities of the tree, and it floated, thus aiding export from the woods and to a mill. River drives were the normal method of transport to the mill before the advent

of mechanical means of transport in the Adirondacks in the late 1800's. The area in question has some red spruce but not what we would expect from a long-lived and shade tolerant species that is widespread in the understory. Our hypothesis is that if the red spruce were preferentially harvested and then the land was incorporated into the Forest Preserve, the remaining red spruce should be younger than the existing maples, birch, and hemlock as well as the age of the impressive stands of white pine. This is a work in progress and we will report on our findings at some point in the future in *Mitchelliana*.

The third flashbot (on December 9) focused on the bryophyte flora of a small recently found northern white cedar fen and surrounding upland forest. Because of warm temperatures and the lack of snow accumulation the mosses were "active" and apparent. We were fortunate that Tom Phillips made the long drive up from the Capital district to share his experience and expertise. We spent the late morning and early afternoon exploring and botanizing with a lot of hand lens work to tease out the key features of this remarkable moss and liverwort flora. Our species list to date is on the next page.

Mosses
Brachythecium (Sciuro-hypnum) curtum, on fallen yellow birch log
Callicladium (Hypnum) imponens, Brocade Moss, soil in forest
Climacium dendroides, Palm Tree Moss
Dicranum flagellare, Asparagus Broom Moss
Dicranum fulvum, Boulder Broom Moss, rock in forest
Dicranum montanum, Montane Dicranum Moss, second wetland
Dicranum viride, Dicranum Moss, first wetland
Eurhynchium (Eurhynchiastrum) pulchellum, Rug Moss
Hedwigia ciliata , Medusa moss, found on glacial erratic on the way out
Hylocomiadelphus triquetrus, Rough Goose Neck Moss, first wetland
Hylocomium splendens, Stairstep Moss, on rock in forest
Hygroamblystegium tenax, , on mineral soil near stream
Pleurozium schreberii, Phoenix Feather Moss
Ptilium crista-castrensis, Ostrich-plume Moss, on soil in forest
Pseudanomodon (Anomodon) attenuatus, Tree-skirt Moss, base of sugar maple
Polytrichastrum pallidisetum, Eastern Haircap Moss, second wetland
Plagiomnium medium , Greater Tooth Moss, found along the stream after lunch
Pylaisiadelpha (Brotherella) recurvans , Satin Moss, on stump
Rhizomnium appalachianum, Appalachian Penny Moss, first wetland
Rhodobryum ontariense, Rose Moss
Sphagnum capillifolium , Domed Peat Moss, wetland
Sphagnum centrale, , close to stream in cedar area
Sphagnum girgensohnii, Girgensohn's Peatmoss, second wetland
Sphagnum magellanicum, Magellan's Peatmoss, second wetland
Sphagnum squarrosum, Crome Sphagnum, second wetland
Thuidium delicatulum, Delicate Fern Moss



Just a few photos to illustrate the allure of bryophytes!

Liverworts
Bazzania trilobata, Greater Whipwort, soil in hemlock forest
Cephalozia lunulifolia, , on small stump
Frullania eboracensis
Lepidozia reptans, on small stump
Lophocolea heterophylla, on small stump
Porella platyphylla, Wall Scalewort, tree base
Ptilidium pulcherrimum, Tree Fringewort, fallen log
Radula sp.
Trichocolea tomentella, Handsome Woollywort, wetland

Lichens
Cetrelia olivetorum, old growth indicator species
Lobaria quercizans, old growth indicator species
Peltigera horizontalis, old growth indicator species

Exploring the Shavertown Peninsula – August 14, 2022

by Dan Spada

Seven of us followed Mike Kudish out onto the Shavertown peninsula last August. The Shavertown Peninsula is Mike's name for a point that juts out into the north shore of the Pepacton Reservoir, the dammed-up portion of the East Branch Delaware River. It was a beautiful sunny day with moderate temperatures and a notable lack of biting insects. The purpose of the trip was to explore areas that Dr. Kudish believes were impacted by indigenous people's activities. We talked about Mike's "burn index" as well as native people's effect on the landscape we see today. The burn index is based on a tally of species that are often associated with fire. The presence of species such as oaks (*Quercus* spp.), hickories (*Carya* spp.), American chestnut (*Castanea dentata*), mountain laurel (Kalmia latifolia), maple-leaved viburnum (*Viburnum acerifolium*) as well as other ground-cover species in an area that is otherwise dominated by the shade-tolerant species of the northern hardwood-hemlock forest (sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), eastern hemlock (*Tsuga canadensis*)), can provide an indication that the area was burned. The more of these species present, the more the forest was burned repeatedly over a long period. Areas with a very high burn index, such as ten or more such species, may indicate that indigenous people repeatedly burned the forest over many millennia. Why? There is ample evidence that Native Americans repeatedly burned the forest over long periods of time to foster the growth of nut-bearing trees for human consumption, increase visibility in the forest to help defend against enemies, make travel easier through the forest, and to increase and make hunting game easier. Mike has had some success in predicting the location of indigenous people's settlements by looking at the surrounding forest and applying the burn index. Apparently, the northern hardwood-hemlock forest was converted to southern hardwoods (oaks, hickories, chestnut) over millennia through repeated burning. Kudish says: "Most of the burning stopped about the time of the American Revolution when many of the Native folks migrated west. By 1822-1823, the Catskills were quite well settled by folks of European ancestry and burns had become rare, especially in what has become Delaware County. I would think most of the burning stopped about 250 years ago." Once burning stopped, the southern hardwoods began to revert to northern hardwood-hemlock stands, which are much more shade-tolerant. The remnant southern hardwood stands are getting smaller and are often encroached upon by northern hardwood-hemlock. Of course, as Mike says, no one really knows for sure since no one has been around for several hundred years or millennia. But we can make inferences by looking at the species we have now and chart their condition over time.

Our species list for the day:

Trees
Abies balsamea, Balsam fir (in the Pepacton Cemetery)
Acer saccharum, Sugar maple
Acer pensylvanicum, Striped maple
Acer spicatum, Mountain maple
Acer rubrum, Red maple
Amelanchier arborea, Downy shadbush
Betula alleghaniensis, Yellow birch
Betula lenta, Black birch
Betula populifolia, Gray birch
Carya cordiformis, Bitternut
Castanea dentata, American chestnut
Crataegus sp., Hawthorn
Fagus grandifolia, American beech
Fraxinus americana, White ash
Ostrya virginiana, Hop hornbeam
Quercus alba, White oak
Quercus rubra, Northern red oak
Picea abies, Norway spruce
Pinus strobus, Eastern white pine
Populus grandidentata, Big-tooth Aspen
Prunus serotina, Black cherry
Tilia americana, Basswood
Tsuga canadensis, Eastern hemlock

Shrubs
Comptonia peregrina, Sweetfern
Diervilla lonicera, Bush honeysuckle
Hamamelis virginiana, Witchhazel
Hypericum prolificum, Shrubby St. John's-wort
Ilex montana, Mountain holly

Juniperus communis, Common juniper
Kalmia latifolia, Mountain laurel
Lonicera canadensis, American fly honeysuckle
Rhododendron prinophyllum, Early azalea
Spiraea tomentosa, Steeplebush
Vaccinium angustifolium, Common lowbush blueberry
Viburnum acerifolium, Maple-leaved viburnum

Herbs

Ageratina altissima, Common white snakeroot
Anaphalis margaritacea, Pearly everlasting
Aquilegia canadensis, Columbine
Aralia hispida, Bristly sarsaparilla
Aralia nudicaulis, Wild sarsaparilla
Bidens sp., Beggar's tick
Clintonia borealis, Clinton's Lily
Doellingeria umbellate, Flat-topped white aster
Epipactis helleborine, Broad-leaved orchid
Gaultheria procumbens, Wintergreen
Gentiana clausa, Closed gentian
Hepatica americana, Round-lobed hepatica
Hydrocotyle americana, American marsh pennywort
Impatiens capensis, Jewelweed
Lysimachia borealis, Star flower
Lysimachia ciliate, Fringed loosestrife
Lysimachia quadrifolia, Whorled loosestrife
Medeola virginiana, Indian cucumber
Mitchella repens, Partridgeberry
Monotropa unifolia, Ghost pipes
Mycelis muralis, Wall lettuce
Pilea pumila, Green-fruited clearweed
Podophyllum peltatum, Mayapple
Polygala sanguinea, Blood milkwort
Polygonum sagittatum, Arrow-leaved tearthumb
Rubus alleghaniensis, Common blackberry
Rumex crispus, Curly dock
Solidago altissima, Tall goldenrod
Solidago bicolor, Silverrod
Solidago canadensis, Canada goldenrod
Solidago gigantea, Swamp goldenrod
Solidago juncea, Early goldenrod
Solidago rugosa, Common wrinkle-leaved goldenrod
Streptopus roseus, Rose twisted-stalk

Vines

Vitis sp., Grape

Ferns

Amauropelta noveboracensis, New York fern
Athyrium angustum, Northern ladyfern
Dryopteris marginalis, Marginal shield fern
Onoclea sensibilis, Sensitive fern
Osmunda claytoniana, Interrupted fern
Polypodium virginianum, Rock polypody
Polystichum acrostichoides, Christmas fern

Graminoids

Agrostis perennans, Autumn bentgrass
Brachyelytrum aristosum, Northern long-awned wood grass
Carex arctata, Drooping woodland sedge
Carex crinita, Common fringed sedge
Carex debilis, White-edges sedge
Carex platyphylla, Broad-leaved sedge
Carex scoparium, Pointed broom sedge
Cinna latifolia, Slender wood-reed
Danthonia spicata, Poverty grass
Leersia virginica, White cut grass
Oryzopsis asperifolia, Roughleaf ricegrass

Bryophytes

Atrichum angustatum
Dicranum scoparium
Leucobryum glaucum

Remembering Nancy Slack

by Tom Phillips

NYFA received word that Nancy Slack passed away on December 20 at the age of 92. You can read about her life and career in the last issue of the NYFA newsletter, as she was this year's recipient of the Conservationist of the Year award. Beside the many contributions she made in professional arenas, perhaps one of her biggest impacts to the natural history community was how she encouraged, inspired, and gathered like souls around her and formed cohesive and lasting groups such as the Monday Mossers.

Along with raising three children, Nancy was always exploring interesting botanical areas. After her family moved to the Albany area, she became active with the local Nature Conservancy chapter and taught Natural History in an adult education program. Nancy started her PhD at the University at Albany in 1967 and at about the same time helped start the Thursday Naturalists, initially a group of women interested in Natural History. The group eventually decided to allow men to join the group although there had been concern that the "men" would take over. The Thursday Naturalists continue to be active today. In 1971 Nancy completed her PhD studying the vegetational changes on Whiteface Mountain from the base up through several forest types and into the alpine zone. The study included species diversity and community structure for both vascular plants and bryophytes. Her results showed that the species diversity of bryophytes was as high for bryophytes as for vascular plants in the hemlock hardwood and alpine zones and higher in the balsam fir zone. Her thesis project prompted her lifelong interest in bryology and bryophyte ecology.

After completing her PhD, Nancy became a faculty member in the Biology Department at Russel Sage College in Troy NY, teaching courses in Ecology, Evolution and History of Sciences for over 30 years and took part in numerous research projects, many of which focused on bryophytes and bryophyte ecology. She co-edited a "Review of Bryophyte Ecology and Climate Change" and as part of her interest in the history of science wrote a biography of the prominent ecologist Evelyn Hutchinson. Nancy was active with the Environmental Clearing House of Schenectady (ECOS) leading numerous field trips, giving lectures, and hosting "Birds and Breakfast" fundraisers at her home. She also did lectures and workshops for the Adirondack Mountain Club and enjoyed camping and skiing in the Adirondack Park. Most recently, she has been involved with projects monitoring snow bed communities on Mt Washington in New Hampshire for changes related to climate change and the introduction of invasive species focused primarily on invasive dandelions (*Taraxacum officinale*).

During her time at Russel Sage she helped form a bryophyte study group, the Monday Mossers. There were a good number of people in the Albany area who were interested in bryophytes at that time, some of whom were also members of the Thursday Naturalists. They included: Ed Miller, a noted botanist who along with Nancy Williams received the 2014 NYFA Conservationist award; Ruth Schottman, who was well known for her botanical teaching with the Adirondack Mountain Club; Jean Kekes, who would publish several articles in bryology; Bob Ingalls, a noted botanist in New York and a long time NYFA Board member; and myself. With Nancy, we were all founding members of the group. Along the way, Scott LeGreca, a lichenologist, joined while he was working at the Berkshire Museum in Pittsfield MA and the group expanded to include an interest in lichens. The number of participants varied over the years as members aged out, but the Mossers are still active to this day. She will be missed by many.

Remembering Ken Hull

As was reported in the recent Finger Lakes Native Plant Society newsletter, Ken Hull passed away on November 19th 2022 at age 80. Along with the FNLPS, NYFA would like to send condolences to his family. Many NYFA members will remember Ken from our various field trips. He was an active member, going on many of our walks (as well as leading some), contributing to the NYFA newsletter, and making contributions to New York Natural Heritage Program, including a number of new rare plant records for Broome County.

Rosemarie Parker in FLNPS newsletter said: *His enthusiasm was catching, and his good mood never failed. I recall when he took a photo of walk participants at Jam Pond (still occasionally on our home page), and he started to sink into the floating bog. He was unconcerned about the hip-high wet pants, just happy that he had handed off his camera before worrying about extracting himself.*

He was an intrepid and enthusiastic explorer in all kinds of habitat, whether easy or challenging, going up and down hills and through nearly impenetrable thickets and wetlands to see plants despite medical issues. His cheerful demeanor always added much to each group he joined. NYFA will miss him.

Ken Hull afield at Upper Treman State Park near Ithaca, N.Y., August 4th 2018

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