

**New York Flora  
Association Newsletter  
Fall 2021**

**Editor's Note:** Thanks so much to Bryan Pfeiffer for sharing his interesting interlude with *Parnassia*. After reading it, you may find yourself staring deeper into the next *Parnassia* flower you see. This season we did manage to get a few field trips in before they were curtailed again in the interest of safety due to virus resurge; you'll find a few trip reports in this issue. And, once again, the Annual Meeting was held virtually. See inside for a summary of the meeting and take the botany quiz if you weren't there for the meeting itself.

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**New York Flora  
Association**

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**NYFA Mission:**

To promote a greater appreciation and knowledge of the flora of New York through conservation, research, and public education and outreach.

**The Scrupulous Reproduction of Fen Grass-of-Parnassus  
(*Parnassia glauca*): An Exercise in Floral Focus**

by Bryan Pfeiffer

From our spot beside a trail in northeastern Vermont, it might have been easier to turn our attention to the charismatic: warblers calling from the canopy overhead, a rare bee nearby, or even a visit with orchids growing across town. Instead, we studied only the white flowers at our feet.

For two hours on a wet, late-summer day, my friend and colleague Grace Glynn and I did little more than sit in one place to discover, ponder, discuss and enjoy the antics of Fen Grass-of-Parnassus (*Parnassia glauca*). More to the point, we spent two hours understanding how this plant's flowers have sex with one another.

Two hours. One place. One plant. I consider that an act of rebellion.

Diversion and distraction are now human afflictions. Blame the internet in part. FOMO, fear of missing out, is defined as the feeling of anxiety owing to the belief that our friends, posting to social media from somewhere else, are doing something better than we are. "To be everywhere at once is to be nowhere forever," Edward Abbey once wrote. Even nature can offer a kind of FOMO, particularly among birdwatchers, those listers who turn their gaze away from their bird in view toward notions of one better up ahead, toward the "what's next."

For Grace and me there was no what's next, *P. glauca* was enough. That's because this plant is calculating and methodical in its game of reproduction (including how it welcomes that rare bee to its nectar rewards each autumn). So I will distill for you our two hours of flower observation into about two minutes.



Image 1. The first stamen begins its rise to the occasion.

Have a look at this first flower (Image 1). I've labelled key parts. Five stamens encircle a green pistil (barely visible). The staminodes are modified stamens advertising nectar to potential pollinators. Like most flowers, *P. glauca* does not self-pollinate — it relies on insects to carry its pollen from one flower to the next, with those green nectar guides pointing the way for visiting bees and flies. As an insect finds nectar at the base of each flower, it gets dusted with pollen (or gathers it in the case of some bees) before flying off to another bloom.

But *P. glauca* plays a long game with its insects. Instead of producing pollen from all five stamens simultaneously, it issues pollen sequentially, one anther at a time (and probably one anther per day). Better yet, each anther goes to great lengths — literally — to touch its pollinators.

Note how the anther I labelled in Image 1 is elevated on its filament and arched over the pistil. It is the first of the five to make this extension — moving into position to more easily address a visiting insect with pollen (which has yet to emerge from that first anther). After a day or so in place, dishing out its pollen, the stamen will swing outward to make room for one of its brothers to take its turn directly over the pistil. This goes on sequentially until all five stamens have made the maneuver.

In Image 2 note how the fifth and final stamen (at about 4 o'clock) has arched itself over the pistil, with pollen still visible on its anther. The other four anthers, having already completed their mission, are brown and spent, their filaments extended and retracted toward the outer edges of the petals. All the while, that green pistil has not yet developed its stigma. No stigma, no self-pollination from those visiting anthers.



Image 2. The last of the five stamens in place.

Finally, Image 3 shows a flower, late in the game. Its five stamens have completed their journeys. The staminodes remain, luring insects. But note that the green pistil — dead center — now sports a well-developed, four-parted, pale stigma, which will capture, at long last, pollen from a fly or bee visiting from some other *P. glauca* plant.

So there you have it, a plant that methodically rearranges and synchronizes its reproductive parts — a kind of dance that Grace and I could not see in action, but could infer and understand over time. Along the way, we had no distractions: no email, no politics, no tweeting, no pandemic. Instead, only our hand lenses,



our notebooks, a botany manual (Fernald 1950) and a few photos taken now and then so that we could bring this tale to you.



Image 3. The pale, four-parted stigma rises.

Well, not only that. We also had the curiosity, exuberance, temerity and patience to do little more than sit beside a trail watching the flowers of *P. glauca* going about their business of reproduction. I can think of few better ways to spend two hours on a late-summer day.

**Postscript:** I had waited a year to watch this Parnassia performance. One year ago I visited with these same plants, but only to seek out one of their pollinators — a rare bee called Parnassia Miner (*Andrena parnassiae*), which I'm told had been rarely photographed alive on its favorite flower. Only when I wrote about the bee a year ago did I learn from friend and botanist Steven Daniel about these anther antics. If you care to read last year's encounter (<https://bryanpfeiffer.com/2020/09/08/a-rare-bee-and-an-audacious-beetle/>), you will not only learn about the bee and the flower, but also about a beetle that, having been swallowed by a frog, proceeds to crawl out the frog's butt unscathed. (Okay, now *that's* indeed a worthy distraction.)

Armbruster (2013) helped us figure out these flowers (thanks, Steven!). Even so, Grace and I left the *Parnassia* patch with questions. Does each anther really position itself over the pistil for only one day? Does each stamen extend and position itself in a consistent, sequential pattern? Clockwise? Counterclockwise? We'll be back next year to find out!

Those staminodes are also intriguing. Fernald (1950) says they are nectariferous. It would seem that the yellow-green “globules” would be so. But we've read that their nectar source lies at their base. Another thing about the staminodes: there are five of them, equal to the petal and stamen count (and not 15 as might seem to be the case from my photos). It turns out each one of the five staminodes are three-parted, connate at their base, and extending into “little tridents whose prongs are topped with tennis balls” (my term, not official botanical parlance).

## References

Armbruster, W. Scott, et al. 2013. In the right place at the right time: Parnassia resolves the herkogamy dilemma by accurate repositioning of stamens and stigmas. *Annals of Botany*. 2014 Jan; 113(1): 97–103.



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**Fernald, M.L.** 1950. *Gray's Manual of Botany: Eighth (Centennial) Edition — Illustrated.*



Grace Glynn peering at a Parnassus.

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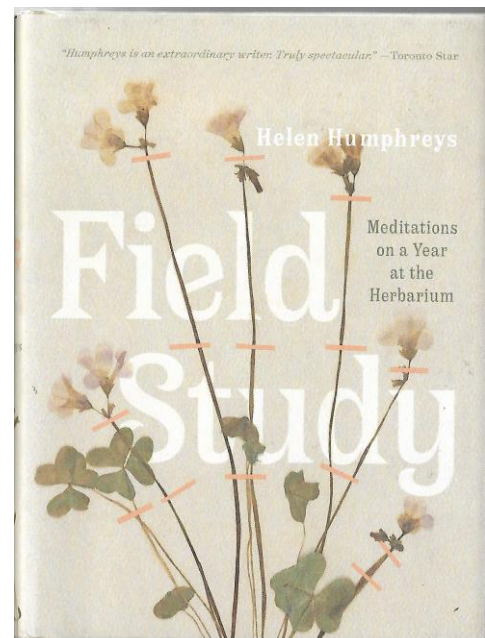


### Book Notice, by Anne Johnson

A book mentioned in the latest issue of the *Field Botanist of Ontario* newsletter caught my attention and piqued my interest enough to find and order a copy. And I'm glad I did! **Field Study** by Helen Humphreys is a book that anyone who collects plants and keeps field notes would appreciate, especially if you have ever wondered if all your collections and notes will just disappear into a void somewhere. This book gives you hope that they may live on after all.

Its subtitle "Meditations on a Year at the Herbarium" gives an idea of the contents: the author spent a year going through the cabinets of the Fowler Herbarium in Kingston, Ontario and found much to think and write about, both the plants and the people that collected them.

Published by ECW Press, ([info@ecwpress.com](mailto:info@ecwpress.com)); also available on Amazon.



## Field Trip to Lake Champlain - August 14 and 15, 2021

by Steven Daniel.

Rich Ring and Kyle Webster led a fun weekend outing to some interesting botanical areas along Lake Champlain in Essex County. There were nine in our group, some of whom were only able to join for one of the days.



Some of the group discussing the geology and plants of the rocky opening. Photo by Kyle Webster.

On Saturday morning we met at a trailhead at Split Rock Wild Forest. Rich began with a brief botanical overview of the site, with background info supplemented by Elizabeth Lee, who lives and works nearby and knows the area well. Rich sternly warned us (as stern as Rich can be, that is) that if we walked at a typical botanist pace we'd never make it to the lakeshore. So we began our forced march with blinders on as he wanted to take us to an off-trail rocky opening with junipers. Once we made it there, however, botanical entropy took over. The group scattered near and far, each of us calling out to share botanical finds. Was this an acid rocky top? Some thought so, and Tom Phillips, our bryophyte guru concurred as he shared mosses that were typical of acid places. But alas, there were also some mosses, Tom noted, that were calciphiles. Indeed the geology was more complex than we first thought. And the vascular plants added to the confusing mix - here was rock harlequin (*Capnoides sempervirens*), and the lovely rusty Woodsia (*Woodsia ilvensis*), sporting bright green fronds after the recent rains. Some of us think of these species as typical of acid rocks, yet growing here was also columbine (*Aquilegia canadensis*), which some considered a calciphile. Discussions ensued - is columbine really a calciphile or is it a "rock-o-phile". You can see how technical discussions can be on NYFA trips!



Other highlights from that rocky opening included rock spikemoss (*Selaginella rupestris*), rock sandwort (*Sabulina michauxiana*), and pellitory (*Parietaria pensylvanica*).



Some of the group languidly perusing the rocky opening. Photo by Kyle Webster.

Forced march over, we proceeded downslope and off-trail, scrambling down some rocky ledges, noting how the nutrients appeared to accumulate more and more as we headed downslope, indicated by the more calcareous nature of the flora.

Kyle briefly disappeared and when he reappeared, he told us he found a plant which he didn't recognize. It meant climbing back up - so up and up we made our way to see just what it was he found. Indeed it was an uncommon plant, small-flowered bittercress (*Cardamine parviflora*), that is found in nutrient-rich rocky places. It was mostly in fruit, but still had a couple of tiny white flowers.

We made our way downslope to the main trail, noting some new interesting plants typical of limestone woodlands. Elizabeth recommended we go to a scenic lake overlook for our lunch spot. And a fine choice it was. About a millisecond after Rich said the site reminded him of the type of habitat where he had found the state rare Fogg's goosefoot (*Chenopodium foggii*). I saw an interesting *Chenopodium* growing on a rock close to where we were eating. There were not many plants but a couple of us took a few fruits to study later. Were those pericarps muriccate (i.e. short small spines) and did the pericarp separate easily from the shiny black seed? These characters would point to *C. foggii*. (The jury is still out as the seeds were mostly immature, but the available evidence is pointing that way.)





The scenic lunch spot. Photo by Kyle Webster.

After lunch some of the group turned back, while others headed to the rocky shoreline, where Rich had promised a special plant he had recently found. For most of us, the veiny meadow rue (*Thalictrum venulosum*) was a new species. It is a northern species of ice-scoured river and lakeshores. It looks a bit like tall meadow rue (*Thalictrum pubescens*), but the lobed leaflets are often lobed again, and it flowers in midsummer. Growing nearby in the rocks was Canada buffaloberry (*Shepherdia canadensis*), a plant always fun to encounter.



On the rocky shoreline. Photo by Kyle Webster.

Wrapping up our day at Split Rock, some of us enjoyed a relaxing dinner at the “Old Dock” in Essex, eating at a table overlooking Lake Champlain on a calm, sunny evening.

The next morning we met at Noblewood Park in Willsboro, and walked to the mouth of the Boquet River. En route we noted a lovely flowering of blue curls (*Trichostema dichotomum*) in a sandy area behind the



main dune. And we noted a single plant of sand cherry, the state rare *Prunus pumila* subsp. *depressa*. When we arrived at the mouth, the river was full from all the recent rains. Nonetheless, we found a number of “drawdown” sedges that Rich hoped to show us. True ‘belly botany’ it was, as all these plants are tiny - and need to be appreciated on their own terms. They are not what most people would gravitate to (or even notice) or qualify as ‘charismatic’, though some of us would disagree. Highlights included the tiny, rare small-flowered dwarf bulrush (the common name is bigger than the plant!), *Cyperus subsquarrosus* (known in some references as *Lipocarpa micrantha*). What a sweet little plant it is, with its tiny spikelets and curling, narrow blue-green leaves - quite abundant along the sandy sloping edge of the river mouth. Another lovely drawdown plant was the tiny Smith’s bulrush (*Schoenoplectiella smithii*). We had several other *Cyperus* species as well as larger sedges like the three-square bulrush, *Schoenoplectus pungens* and soft-stem bulrush, *S. tabernaemontani*. A large and noisy group of Caspian terns feeding nearby provided a nice counterpoint to the more subtle botany.



*Cyperus subsquarrosus*. Photos by Steven Daniel.

A recent observation on iNaturalist from Dan Spada indicated that the rare pinedrops (*Pterospora andromedea*) had been seen in the area recently. With excellent directions from Dan, our group found the individual which Dan reported. It had flowered in 2020, but we could find no new flowering plants this year.

It was a fabulous weekend. Good, diverse botany - from an acid rocky top to calcareous woodlands, sandy river delta, rocky lakeshore, and a floodplain forest. And a fun and compatible group of plant enthusiasts who shared their excitement, questions, and explanations.



The group at the end of the second day. Photo by Tammy Somasundaran.





**A Brief Aside on the Odor of *Apios americana*, by Steven Daniel.**

Smell perception seems so personal, even idiosyncratic. I expect there is also a genetic component. While many of us can often agree on the color of an item, smells are in another category completely. We humans evolved with a relatively undeveloped sense of smell, as smell doesn't have nearly the importance to survival for us as it has in most other mammals.

While observing the veiny meadow rue along the Lake Champlain shoreline, I was concurrently luxuriating in the fragrance of groundnut (*Apios americana*) before I even saw a lush flowering of it. When Kyle came over to see the meadow rue, he immediately said something to the effect of "ooh - what a *fetid* smell that *Apios* has." A few minutes later Rich came by and, despite not having heard Kyle, used the very same term to describe the smell. Now I would use the term 'fetid' to describe the smell of my socks after they have slogged through a bog and stayed on my feet through the better part of a hot summer day - nothing like my experience of the odor of groundnut. At the mouth of the Boquet we saw more *Apios*, and Molly Hale noted it to be a pleasant fragrance, of "vanilla and raspberries". Tammy Somasundaran's description of its odor as "*sweet with an earthy undertone,*" delighted us. So our group had quite the differences in our perception of this odor!

I learned that this isn't the first time people have tried to describe the smell of *Apios* in often opposite terms. A group of volunteers, in a 1993 study, described the smell as: *apple with menthol; unripe apple with vanilla; stale urine; honeycomb; roses; phenol, aged ink, slightly like lilac.*

It is important to remember why plants evolve smells - it's not for humans, rather to attract pollinators. And who are the pollinators of *Apios*, presumably who cannot resist that smell? Speculation based on the color and smell of the flowers was that it was likely pollinated by flies, perhaps carrion-flies attracted to the odor that some consider unpleasant. However, there is no empirical evidence for any fly pollination, rather the only pollinators, based on a 1988 paper that included over 100 hours of field observations of many different *Apios* populations over two years - not a single fly was observed visiting it. The only pollinators were bees, primarily leafcutter bees. Were they responding to the smell?



The next time you see a flowering of groundnut, take a whiff and see what you think.

Photo by Steven Daniel.



## New York Flora Association/Adirondack Botanical Society Joint Field Trip to Four Peaks, July 17, 2021

by Stephen Langdon, as are all photos.

Attendees: Steven Daniel, Stephen Langdon, Thomas Phillips, Zoë Turner-Debs, and David Werier.

In my patinaed copy of Report of the State Botanist For 1924 (NYS Museum Bulletin No. 266) Homer House states,

“My attention was attracted to some outcropping ledges of rock close to the state highway in Lower Jay, upon which was conspicuous a number of Jack Pine, *Pinus Banksiana* Lamb. The following list of plants collected at this spot is interesting as indicating the nature of the flora here.”

Ninety-seven years and six days after House's visit, a small group of amateur and professional botanists visited an Adirondack Land Trust property in the northeastern Adirondack Town of Jay, NY to see for ourselves this interesting flora.

These low mountains east of Whiteface are the transition between the High Peaks and the Champlain Valley. They see less rain and less snow than points west, have a slightly more calcareous bedrock that begins to emerge nearing the edge of the Grenville Uplift, and a longer history of land use as towns like Jay were settled well before the harder to access upland Adirondacks. All of these factors are reflected in the interesting nature of the flora at this site—as House observed.



David exploring a gully.





We documented 106 species of vascular plants and 27 species of mosses that are known to favor both calcareous and acidic habitats. On the thin, rocky summit soils, jack pine transitions to red pine and eastern red cedar depending on the drainage. For an ecologist (me) who aspires to be a better botanist, working through the 46 species of grasses and sedges with knowledgeable folks was a highlight, along with seeing some of the unique rocky outcrop forb species like Douglas’s knotweed and Drummond’s rockcress. Even more of a highlight was spending a fine summer day with like-minded friends, sharing our knowledge and enthusiasm for plants, and hopefully passing on that knowledge to future generations—as House did.

**Four Peaks Plant List**  
(compiled by the group)

<b>Complete name</b>	<b>Common Name and State Rank</b>
<i>Acer pensylvanicum</i>	striped maple S5
<i>Acer saccharum</i>	sugar maple S5
<i>Acer spicatum</i>	mountain maple S4S5
<i>Agrostis gigantea</i>	redtop SE
<i>Agrostis scabra</i>	northern tickle grass S5
<i>Anemone virginiana</i>	tall anemone, thimbleweed S5
<i>Antennaria parlinii</i>	Parlin’s pussytoes SNR
<i>Apocynum androsaemifolium</i>	spreading dogbane S5
<i>Aquilegia canadensis</i>	wild columbine, red columbine S5

**Continued** below left:

<i>Asclepias syriaca</i>	common milkweed S5
<i>Avenella flexuosa</i>	common hair grass S5
<i>Boechera stricta</i>	Drummond’s rock cress S2
<i>Brachyelytrum aristosum</i>	northern shorthusk S5
<i>Bromus ciliatus</i>	fringed brome S5
<i>Bromus kalmii</i>	Kalm’s brome S4
<i>Campanula rotundifolia</i>	harebell S4S5
<i>Cardamine parviflora</i>	small-flowered bitter cress SE
<i>Carex argyrantha</i>	silvery-green sedge S4
<i>Carex backii</i>	Back’s sedge S2
<i>Carex bebbii</i>	Bebb’s sedge S5
<i>Carex brevior</i>	round-fruited sedge S5
<i>Carex cephalophora</i>	oval-headed sedge S5
<i>Carex crawfordii</i>	Crawford’s sedge S4
<i>Carex debilis</i> var. <i>rudgei</i>	Rudge’s sedge S5
<i>Carex digitalis</i> var. <i>digitalis</i>	slender woodland sedge S5
<i>Carex gracillima</i>	graceful sedge S5
<i>Carex gynandra</i>	nodding sedge S5
<i>Carex hirsutella</i>	smooth-fruit hirsute sedge S5
<i>Carex laxiflora</i>	loose-flowered sedge S5

<i>Carex lurida</i>	sallow sedge S5
<i>Carex merritt-fernaldii</i>	Fernald’s sedge S2S3
<i>Carex pallescens</i>	pale sedge S5
<i>Carex platyphylla</i>	broad-leaved sedge S5
<i>Carex rosea</i>	common upland star sedge S5
<i>Carex scoparia</i>	pointed broom sedge S5
<i>Carex siccata</i>	dry-spiked sedge S5
<i>Carex virescens</i>	ribbed sedge S5
<i>Carex vulpinoidea</i>	fox sedge S5
<i>Ceanothus americanus</i>	New Jersey tea S5
<i>Centaurea stoebe</i> ssp. <i>micranthos</i>	spotted knapweed SE
<i>Comptonia peregrina</i>	sweet fern S5
<i>Corallorhiza maculata</i>	late spotted coralroot S4
<i>Cornus rugosa</i>	round-leaved dogwood S5
<i>Danthonia spicata</i>	poverty grass S5
<i>Dichanthelium depauperatum</i>	poverty rosette grass S5
<i>Dichanthelium latifolium</i>	broad-leaved rosette grass S4
<i>Dirca palustris</i>	eastern leatherwood S5
<i>Dryopteris marginalis</i>	marginal wood fern S5
<i>Elymus hystrix</i> var. <i>hystrix</i>	bottlebrush grass S5



*Elymus trachycaulus* blue-green wheat grass S5  
*Epipactis helleborine* helleborine, weed orchid SE  
*Erigeron strigosus* small daisy fleabane S5  
*Fagus grandifolia* American beech S5  
*Festuca subverticillata* nodding fescue S5  
*Galium circaezans* forest wild licorice S5  
*Geranium bicknellii* northern crane's bill S4  
*Geranium carolinianum* Carolina crane's bill S5  
*Geranium robertianum* herb Robert S5  
*Glyceria canadensis* rattlesnake manna grass S5  
*Glyceria grandis* var. *grandis* American manna grass S5  
*Hedeoma pulegioides* American pennyroyal S5  
*Helianthus divaricatus* woodland sunflower S5  
*Houstonia longifolia* long-leaved bluets S5  
*Hypericum punctatum* spotted St. John's wort S5  
*Juncus secundus* secund rush S4  
*Juniperus communis* var. *depressa* American ground juniper S4  
*Juniperus virginiana* var. *virginiana* eastern red cedar S5  
*Lobelia inflata* Indian tobacco S5  
*Luzula multiflora* ssp. *multiflora* common wood rush S5  
*Lycopodium lagopus* one cone clubmoss S4  
*Micranthes virginensis* early saxifrage S5  
*Monotropa uniflora* Indian pipe S5  
*Muhlenbergia mexicana* hairy wire-stemmed muhly S5  
*Oenothera perennis* small sundrops S5  
*Oryzopsis asperifolia* spreading white grass S5  
*Ostrya virginiana* hop hornbeam, ironwood S5  
*Panicum philadelphicum* ssp. *philadelphicum* witch grass S5  
*Parietaria pensylvanica* Pennsylvania pellitory S5  
*Patis racemosa* black-fruited rice grass S5  
*Picea glauca* white spruce S4S5  
*Pinus banksiana* Jack pine S3  
*Pinus resinosa* red pine S5  
*Pinus strobus* white pine S5  
*Piptatheropsis pungens* short-awned rice grass S4  
*Platanthera aquilonis* northern green bog orchid S4  
*Poa nemoralis* woodland blue grass SE  
*Poa palustris* fowl blue grass S5  
*Polygala polygama* bitter milkwort S5  
*Polygonum douglasii* Douglas's knotweed S2  
*Populus tremuloides* trembling or quaking aspen S5  
*Quercus rubra* northern red oak S5  
*Ribes cynosbati* prickly gooseberry S5  
*Ribes rotundifolium* round-leaved gooseberry S5  
*Sabulina michauxii* var. *michauxii* rock sandwort S4  
*Schizachne purpurascens* false melic grass S5  
*Selaginella rupestris* rock spikemoss S4  
*Silene antirrhina* sleepy catchfly S5  
*Sphenopholis intermedia* slender wedge grass S5  
*Spiranthes lacera* var. *lacera* slender ladies' tresses S4  
*Symphoricarpos albus* var. *albus* common snowberry S4  
*Symphotrichum undulatum* wavy-leaved aster S5  
*Trichostema brachiatum* false pennyroyal S3  
*Turritis glabra* tower mustard S5

*Uvularia sessilifolia*  
*Verbena hastata*  
*Woodsia ilvensis*

wild oats, sessile bellwort S5  
 blue vervain S5  
 rusty woodsia S5

### Bryophytes:

*Anomodon attenuatus*  
*Anomodon rostratus*  
*Bazzania trilobata*  
*Ceratodon purpureus*  
*Dicranum flagellare*  
*Dicranum polysetum*  
*Entodon seductrix*  
*Grimmia longirostris*  
*Grimmia pilifera*  
*Hedwigia ciliata*  
*Hylocomium splendens*  
*Hymenostylium recurvirostrum*  
*Hypnum imponens*  
*Leucobryum glaucum*

*Neckera pennata*  
*Plagiothecium laetum*  
*Pleurozium schreberi*  
*Polytrichum juniperinum*  
*Polytrichum piliferum*  
*Porella platyphylla*  
*Ptilidium ciliare*  
*Rhabdoweissia crispata*  
*Rhytidium rugosum*  
*Thuidium delicatulum*  
*Tortella fragilis*  
*Trichostomum tenuirostre*  
*Ulota hutchinsiae*



This wood turtle was not a plant, but was still an exciting find. Photo by Steven Daniel.



## The 2021 New York Flora Annual Meeting

by Anna Stalter

The NYFA Annual Meeting was held virtually on August 29, 2021. Approximately 25 members were in attendance. Every region of the state was represented by at least one NYFA member.

We took care of some official business, kicking things off with NYFA Treasurer **Joe McMullen** who gave a brief report on the NYFA budget and accounts. The Annual Election of Board Members was held and all members present voted to re-elect three board members whose terms expire in 2021: **Rich Ring**, **Kyle Webster**, and **Dan Spada**. New members welcomed to the board by unanimous vote were: **Mary Alldred**, **Vicki Bustamante**, **Clara Holmes**, **Rachel Schultz** and **Chris Graham**.

President **Anna Stalter** and the board then expressed their thanks to **Steve Young** for his 30 years of service to NYFA, during which time he has held every office (at least once) and chaired or participated in every committee! Steve was presented with a commemorative plaque and a NYFA T-shirt.

**David Werier** gave an update on the progress of his Flora of NY project. He will have a new iteration of the flora for people to look over by December 1st.

**Annabel Roberts-McMichael** presented the 2020 Plant Conservationist Award to **Catherine Landis** of SUNY-ESF for her botanical work at Onondaga Lake and elsewhere in the Syracuse area.

Members then shared a wide variety of announcements and updates. **Phillip Crim** shared news of a prospective botanical garden on family property in Eldred, NY, next to the Carpenter Brook fish hatchery. **George Robinson** voiced concern for the lack of botanical support at the state museum and volunteered to head a NYFA committee to formulate a plan of action to address this. **Steve Young** has continued work on the herbarium page for the NYFA website. Stay tuned! **Ian Winick**, recipient of a NYFA research grant, talked about his study of *Lupinus perennis*. **Bruce Gilman** described his efforts to update FLCC herbarium specimens and will continue work on a flora of Ontario County. **Mike Hough** has described a new species of *Spiranthes* named after Chuck Sheviak, an orchid specialist and past curator at the N.Y. State herbarium. **Daniel Atha** gave an update on the new plant species found for NY in the New York City area. **Erik Danielsen** announced a fundraising effort by the Western NY Land Conservancy to preserve a property near Allegany State Park called the Allegany Wildlands. Check out the campaign at <https://www.wnyc.org/allegany-wildlands>.

And last but certainly not least, Steve Young gave the annual plant quiz (and promises to continue this tradition in the future!). See page 14 to test yourself! **Erik Danielsen** had the top score and in second place were **Mike Hough** and **Joe McMullen**. **Steven Daniel** took third place. Congrats to all!



### NYFA Botany Quiz 2021 by Steve Young

If you didn't make our annual meeting in 2021 you missed out on my yearly botany quiz. Here it is in the newsletter, so it's available to everyone! Good luck! (answers on page 19).

What is the scientific name from the habitat-derived common name of:

1. Smooth **rock** cress
2. Northern **seaside** goldenrod
3. **Alpine cliff** fern
4. **Marsh** skullcap
5. **Sandbar** willow

If you found this plant on a shoreline in this city, give the common name and what river it would be on:

6. *Alnus glutinosa* in Schenectady
7. *Staphylea trifolia* in Potsdam
8. *Solidago rigida* in Tonawanda
9. *Decodon verticillatus* in Riverhead
10. *Reynoutria japonica* in Binghamton

Which is the present scientific name, and which is the synonym:

11. Starflower a. *Trientalis borealis* b. *Lysimachia borealis*
12. Sharp-lobed hepatica a. *Hepatica acutiloba* b. *Hepatica nobilis* var. *acuta*
13. Bunchberry a. *Chamaepericlymenum canadense* b. *Cornus canadensis*
14. Beach grass a. *Calamagrostis breviligulata* b. *Ammophila breviligulata*
15. Yellow pinesap a. *Hypopitys monotropa* b. *Monotropa hypopitys*

What region are following rare plants from? (W, C, NW, NE, E, or SE):

16. Few-headed blazing star - *Liatris cylindracea*
17. Appalachian sandwort – *Mononeuria glabra*
18. Prairie smoke – *Geum triflorum* var. *triflorum*
19. Harts-tongue fern – *Asplenium scolopendrium* var. *americanum*
20. Perennial woolly bean – *Strophostyles umbellata*

Bonus Question!

Which is more toward the interior of a dicot root, the pericycle, endodermis, or the primary xylem?



## Catherine Landis, Conservationist of the Year Award Recipient, 2021

by Annabel Roberts-McMichael

I nominated Catherine Landis for this award to recognize her decades-long devotion to the research and restoration of ecosystems, with a focus on plant communities. Catherine has a much-needed understanding of human relationships with plants, and everywhere she goes she helps inspire and guide people to deepen their knowledge, and to actually put it into action by tending the places where we live.

In particular, this award recognizes Catherine's outstanding work on the historical ecology of Onondaga Lake, with her focus on plant communities. In respectful collaboration with Haudenosaunee community members, she created a document of these plants' importance to indigenous peoples, and how they have long cared for these plants. Her work is an instruction manual, carefully compiled and acknowledging many knowledge sources, on how to restore and live equitably and harmoniously with this lake, land, and people.

Catherine can be seen implementing this research on a day-to-day basis. Even in the few years I've known her, I can recall many days when she could be found helping young people get their hands in the soil and connect with plants, or, working with a nursery to grow wild seeds. She facilitates donations of plants to schools and organizations, and plants and tends gardens for traditional cultural knowledge such as at the Skanonh Great Law of Peace Center at Onondaga Lake. She serves as an advisor for students in the SUNY-ESF Botany Club, and she held a course on Wild Edible Plants of the Northeast. In addition, she serves on the board of multiple conservation organizations, helping to protect forest and plant communities in perpetuity.

Catherine is a humble and remarkable person, and I know she would say she is just thankful to be able to do all this with all of your help, and on the beautiful earth we all belong to. But she has done us all a great service - so let's join in, read her work, and plant more plants!



## Hudson River Ice Meadows Trip, July 10, 2021

by Jackie Donnelly

Editor's note: this article is a portion taken from Jackie's blog Saratoga Woods and Waterways, for the full story and larger, nicer photos, see: <https://saratogawoodswaters.blogspot.com/2021/07/a-beautiful-day-in-plant-peoples-heaven.html>

Finally! After days of downpours with crashing thunder, alternating with days when the temps rose to 90 degrees in the sultry shade, a gentler sun rose kindly into a clear blue sky on July 10. This was one lucky day (and a cooler one, too) for the dozen "plant people" who ventured from far and near to explore one of the richest botanical sites in the region, the west bank of the Hudson River "Ice Meadows" in Warren County, New York.



We were lucky, too, for more than the weather, because on this trip (sponsored by the New York Flora Association) we were fortunate to have with us one of our state's leading botanists, David Werier. That's David in the photo below, up to his knees in a plant-lined pool as he offers his careful instruction in how to tell one sedge from another. A fellow botanist, Robert Wesley (standing with notebook in hand), generously assumed the task of recording the huge number of plants we found. (UPDATE: A monumental task indeed! Robert has since submitted a list that includes 180 different species of plants, including woody ones and grass-like plants, as well as forbs. Thank you, Robert!)

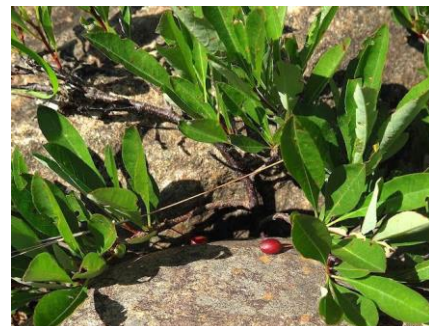


Both climate and geology work together to create this remarkable habitat for rare plants along the Hudson's northern reaches. The wide, flat shore along this stretch consists of both granitic and calcareous rock, and springs deliver mineral-rich water from deep within the earth to pools that collect among the rocks. Even more significant are the monumental heaps of a special frothy ice (called frazil) that are deposited on these banks during the coldest parts of the winter, suppressing any woody growth that would eventually shade these shores, and chilling the earth beneath those heaps until they finally melt, sometimes not until quite late in spring, discouraging the encroachment of invasive plant species. Thus, the origin of the name, "Ice Meadows."

Here's a photo (taken a few years ago) of how monumental those ice heaps can be. They are not only deep, but also extensive, sometimes completely covering the riverside road and even pushing over trees in the roadside forest. This site is almost exactly where we parked our cars this week, having driven along the very road seen as impassable here. (It took many weeks for road crews to cut a passage through these ice heaps that winter.)



Some of the rarest plants that grow here had already finished blooming by the time of our visit, but we could certainly find them still, all by their foliage, and some, like this Dwarf Sand Cherry (*Prunus pumila* var. *depressa*), by ripening fruit. Although this sprawling cherry is rated as a Threatened (S2) species in New York, it grows abundantly here among the rocks on the sandy shore.





New England Violet (*Viola novae-angliae*) is undoubtedly the rarest plant we encountered here, for the east and west banks of the Hudson along this stretch of the river are the only locations where this distinctive native violet has been found in all of New York. The flowers had long gone to seed, but thankfully, this is a violet species that can be told by its long tapered leaves alone. And we found many of them.



I'm sure the grass-lovers among us were delighted to have David's expertise to help them identify many different species of grasses and sedges that flourish out here, in what is essentially a riverside grassland. I still have much to learn in this area, but at least I know Turkey-foot Grass (*Andropogon gerardii*) when I see it, with its long seedheads spread apart like the toes of a turkey's foot.



One of the rarest sedges to thrive at this site is Brown Bog Sedge (*Carex buxbaumii*), which grows around some of the spring-fed pools among the rocks. It strikes me as odd that this sedge, rated as Threatened (S2) in New York and definitely a calciphile, would be dubbed with a vernacular name

like "bog" sedge, since I think of bogs as acidic, not calcareous.

A number of native orchids have found a home on the Ice Meadows. The most commonly encountered is Rose Pogonia (*Pogonia ophioglossoides*), which a couple of weeks ago was blooming here as thick as dandelions on a suburban lawn. Most had faded by now, but here and there we found one as lovely as ever.



Other orchids I have found here over the years include Tubercled Orchid, Smaller Purple Fringed Orchid, and Ragged Fringed Orchid. But not a one of those did we find today. We did find a Small Club-spur Orchid (*Platanthera clavellata*), although it was only beginning to open its florets. Perhaps some of those other orchids are yet to bloom as well.

Not all the plants we found today would be rated as rare. But some of us were surprised to see a goldenrod blooming so early in July. But that's how this particular species earned its vernacular name of Early Goldenrod (*Solidago juncea*). This beautiful Red-blue Checkered Beetle (*Trichodes nuttalli*) ornamented the showy golden florets.



A number of aquatic species populate the spring-fed pools that accumulate in hollows of the bedrock. Although we arrived too late in the season to find any flowers of Flat-leaved Bladderwort (*Utricularia intermedia*), we could certainly see this species' distinctively whorled underwater leaves.



By next month, these rocky pools will be ringed by numbers of the small flowers of Yellow-eyed Grass (*Xyris sp.*) held aloft on slender leafless stems. On this day, we found but a single one in bloom. But that was enough for David Werier to demonstrate the distinguishing features (hidden within the cone-like cluster of bracts at the base of the petals) that revealed this plant to be the *Slender Yellow-eyed Grass* (*Xyris torta*), rated as a Threatened (S2) species in the state.



Although I (as a frequent explorer of this site) was ostensibly the leader of this botanical foray, I discovered that I had much yet to learn about some of

the plants that grow here. At first glance, I thought I recognized this Frostweed flower as the species *Crocianthemum canadense*, even though that species had mostly stopped blooming for the year. Luckily, David was nearby to point out some features of this plant that proved it was instead Hoary Frostweed (*C. bicknellii*), a later-blooming species with a generally bushier appearance and with terminal flowers always surmounting the leaves. The flowers of *C. canadense* are almost always surmounted by leaves toward the end of their blooming time. I had never even realized that Hoary Frostweed grew in this part of the state! Or even that there WAS such a species of Frostweed. I learned something new, indeed!



On all the previous occasions I have visited this part of the Ice Meadows with other botanical companions, we have ended our explorations when we reached the end of the shoreline bedrock pictured here. But many in our group were not nearly ready to stop, wondering what new treasures we might find along all that shoreline that beckoned from upstream. So on we traveled, pushing our way through trackless shrubs and grasses.

To tell the truth, I don't recall if we found any new botanical treasures farther upstream, aside from those we had already seen. I do recall clusters of folks earnestly studying something or other here or there, but I was frankly growing weary, with an arthritic knee telling me it had had enough of scrambling over boulders and shoving through



shrubs for the day. So when one of our group discovered we could climb a short bank to a railroad bed and thus have an easy walk back to our cars, I was truly delighted. And then, delighted yet again, when more botanical treasures were found right along this seemingly unpromising railroad right-of-way.

Here is David once more, showing a few rapt folks one of those treasures, a Mustard-family plant called Drummond's Rock Cress (*Boechera stricta*). What an unexpected find, for this state-listed Threatened species to be thriving among the surrounding "waste-place weeds" that typically grow in such seemingly unpromising soil! Among the most distinguishing features of Drummond's Rock Cress are the long slender siliques (seed pods) that grow in a tight and nearly vertical cluster, which David here holds in his hand.



**Answers to the Botany Quiz:** 1. *Borodinia laevigata* 2. *Solidago sempervirens* 3. *Woodsia alpina* 4. *Scutellaria galericulata* 5. *Salix interior* 6. European or black alder, Mohawk 7. bladdernut, Raquette 8. stiff leaf or stiff flat-topped goldenrod, Niagara 9. water willow, Peconic 10. Japanese knotweed, Susquehanna or Chenango 11. b,a 12. a,b 13. b,a 14. a,b 15. a,b 16. Western 17. Eastern 18. Northwestern 19. Central 20. Southeastern Bonus. Primary xylem



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