



# Mitchelliana

## New York Flora Association Newsletter Fall 2022

**Editor's Note:** As you can see from the table of contents this issue, NYFA has had a busy summer, full of field trips and workshops. We were happy to be back in the field after two slow years. Our lead story, though, is not a trip recap, but an article about how botanists may be able to aid historians.

If you have an article of botanical interest, please consider sharing it with our newsletter audience!

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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.

## Archaeobotanical Research at Bartram's Garden

by Alexandria Mitchem, Columbia University

### The Bartram Family and American Botany

Few names are as famous in the story of early American botany as Bartram. Bartram's Garden was established in Philadelphia, PA in 1728. The garden, situated on Lenapehoking, the ancestral land of the Lenape people, was an early American botanical garden famous for providing specimens essential to the European imperial classification project and later for providing Philadelphians with flora for their own gardens. The garden was in operation for over 100 years, run by three generations of Bartrams. John, the garden's founder, was called the greatest natural botanist of his time by Linnaeus (Duyker 1988). He collected native North American plants, which were propagated in his garden and sold to European collectors and scientists. His son William, also a naturalist, documented many native plants in the American Southeast (Waslekov and Holland Braund 1995; Bartram 1998). Following them, Ann Bartram Carr, John's granddaughter and William's niece, owned and operated Bartram's Garden as a commercial nursery for Philadelphians. When the scientific and commercial landscapes of Philadelphia rapidly declined and it was no longer the major commercial center of the United States (Baatz 1991), the family was forced to sell the nursery in 1850.

The Bartrams were famous for studying plants not just near their home on the Schuylkill River, but throughout the British colonies and the nascent United States. In 1743, John Bartram was invited to accompany Conrad Weiser, a diplomat, and Lewis Evans, a land surveyor, on a journey to Onondaga territory, home of one of the five constituent nations of the Iroquois confederacy. In addition to observing the natural environment of this region (though he wrote little of these observations), John Bartram would have been able to collect samples for both himself and for international trade while on the trip (Goetzmann 2004). In fact, the herbarium of Sir Hans Sloane, founder of the British Museum, contains dozens of mosses and associated notes that were collected on this very trip and sent to him from Bartram. For more information on this trip, see the blog post by DiPrima (2022).

### A Curious Cache

In 1977, architects were studying the construction history of the Bartram Home. Originally a stone parlor house, the structure was expanded several times throughout the successive Bartram generations. Pulling up the floorboards on the third story attic, the architects were greeted not with clues as to the attic's chronology, but with large amounts of desiccated botanical remains. We now know that this material was a rat's nest (when resources are plentiful, rats will forage and nest in different parts of their home ranges, dragging surplus foods back to their nests for later consumption (Dowding and Murphy 1994; Morriss et al. 2012). While not archaeologists or botanists, the architects recognized the

value of this material and carefully collected it for future analysis. The material, roughly two bankers boxes worth, ranges in size from large, well preserved corn cobs to tiny Caryophyllaceae and Lamiaceae seeds indicative of smaller, wilder, and weedy taxa in the garden's environment.

Archaeobotany is the study of human and plant interactions in the past. Macrobotanical remains - plant remains big enough to see with a lower power stereoscope - can be preserved in a variety of ways, such as water logging, carbonizing (or charring), and in this case, desiccation. Today, archaeobotanists, including myself, at the Center for the Analysis of Archaeological Materials at the University of Pennsylvania, are able to analyze the contents of this cache (White et al. 2020).

### Identifying Wild and Weedy Taxa

As anyone who studies agricultural fields will tell you, the plants intentionally grown therein are only one part of a wider ecology. As European crops were brought to the New World in the wake of settler colonialism, weedy taxa were often inadvertently brought as well. Many of these weedy taxa would become invasive in their new environments and naturalize themselves outside the fields to which they had been brought. In a 1758 letter to friend and business partner Peter Collinson, John Bartram details many of the weeds that plagued his Pennsylvania fields. He goes so far as to divide the taxa into weeds that originated in Europe and ones native to North America, and detailing best practices for eradicating each from a field (Bartram 1758).

A key advantageous feature of the Bartram assemblage found in the attic is that the rodents did not bother to sort the field weeds from the grains they were collecting. It may be that the rats (who were in no way trying to aid future scholars) can allow us a unique opportunity to understand the ecology of 18th century Philadelphia fields. Several of the weedy taxa noted in Bartram's letter to Collinson are present in the archaeobotanical assemblage. More excitingly, the whole assemblage is full of weedy chaff that has yet to be identified and has the potential to reveal more taxa, both ones noticed by the Bartrams and perhaps ones that were not.

The most common type of archaeobotanical remains are carbonized, or charred. During this process, many of the fragile parts of a plant burn away leaving hardier plant parts such as seeds and nutshells. However, with desiccated assemblages, fragile chaff, even from small weedy crops, can be preserved. Below are pictures that show an example of the types of chaff present. While archaeobotanical reference books are rarely geared towards identifying these types of specimens, other botanists have the necessary expertise. After some help from a visiting researcher at the L.H. Bailey Hortorium Herbarium, we were able to identify these as *Avena fatua*, or wild oat.



Historical examples of *Avena fatua* recovered from Bartram's Garden. Specimens were identified with help from researchers at the L.H. Bailey Hortorium Herbarium.



Board members of the NYFA suggested that I turn to the association's savvy botanists for help with further identifications. If any members of the association have recommendations for resources to identify these types of specimens, or are interested in trying to identify some themselves, I would be very grateful to hear from you and share some more images. I can be reached at [atm2161@columbia.edu](mailto:atm2161@columbia.edu).

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## Ampersand Mountain Old Growth Expedition, August 21, 2022

by Bernie Carr, Ray Curran, and Dan Spada

The purpose of this NYFA field trip was to walk through and experience a type of plant community that is no longer well-represented in our landscape - old growth forest. There is a tremendous interest in old growth now as it pertains to carbon sequestration, mycorrhizal connections, forest history, and climate disruption resilience. Our expedition explored one small area of the more than 10,000 acres that is located generally east of Middle and Lower Saranac lakes, south of the Saranac River and north and west of Ampersand Mountain and its foothills, and almost totally within the High Peaks Wilderness Area of the Adirondack Park (and with a smaller portion in the Saranac Lakes Wild Forest).

After meeting at the parking area for the Saranac Lake Islands Campground near the bridge on State Route 3, 11 of us and one dog carpooled to and set out from an informal hunter's parking area farther south along Route 3. We followed a hunter's path in a southerly direction. By driving along Route 3 you might be totally oblivious of the remarkable community just a short distance away from the highway because of the



large CCC Scotch pine (*Pinus sylvestris*) plantations on either side. These narrow planted strips do not extend back into the northern hardwood forest any great distance. The topography along our route was generally flat and rolling and led us past glacially deposited boulders and post-glacial erosion features. Several boulders we came across had dense layers of numerous species of moss, lichens, and ferns growing on them; a microhabitat of diversity perched above the forest floor.



Photo by Eric Teed.

Our route also brought us through spectacular old growth forest dominated by large sugar maples (*Acer saccharum*). Several trees were over 36 inches in diameter and over 100 feet tall.



Photo by Eric Teed.

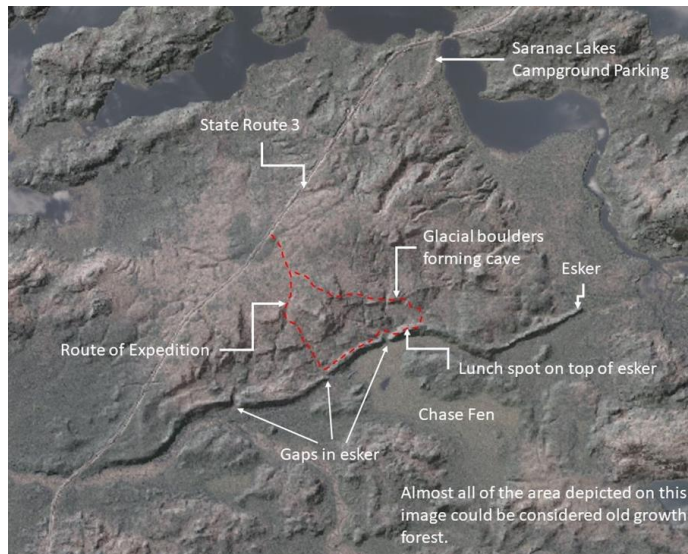
After about a half mile, we encountered a large esker which we began to climb. Eastern white pine (*Pinus strobus*) was dominant on the cobbly, sandy soils of the esker and there were many that were over 40 inches in diameter. During previous visits to this site, we measured the approximate height of several of these pines and noted that many were over 120 feet, with some over 140 feet in height. Erik Danielson had documented a 164.7 foot-tall eastern white pine in this area, which may be one of the tallest trees in NYS.



Photo by Eric Teed.

For those of you familiar with glacial eskers, this particular ridge is quite tall and runs for over a mile along a peatland complex to its south called “Chase Fen” in honor of Greenleaf Chase, a NYS Conservation Department staffer as well as an early Adirondack Park Agency staff member. But the esker is not continuous; it has several gaps. Lidar imagery available on the NYS GIS Clearinghouse (<https://orthos.dhSES.ny.gov/?id=974115>) shows that its segments extend from the east shore of Oseetah Lake to Bartlett’s Carry; a distance of several miles (see next page).





The LIDAR imagery.

Our discussions in the field during the trip were very enlightening. We hypothesized that the esker backed up water on its northern side and then, either because water overtopped the esker at low points along its crest or water seeped through the esker, the ponded water flushed out through the gaps that we see today. Soil test pits would go a long way to proving or disproving the hypothesis.



Photo by Eric Teed.

We also noted that the pines in what has been called the “Valley of the Giants” on the north side of the esker were taller than those on the flanks or crest of the esker, most probably due to their position protected from the prevailing westerlies.

After climbing down from the crest into one of the gaps and then back up on the next esker segment, we came across a large stand of even-aged red pine (*Pinus resinosa*), with the remnants of an understory of paper birch (*Betula papyrifera*). Was this the result of a local fire? The tree species seem to indicate that. This native stand of red pine apparently started life 100 years or so ago; and now the birch is aging out.

Throughout the trip we saw pockets with calcium loving ground cover, such as oak and maidenhair ferns, suggesting more minerotrophic conditions in the soil. We speculated on the differences in soil conditions on the up slope area of the esker (the supposed interglacial lake bottom), where more fertile conditions may occur, leading to the increased size and health of these canopy dominants. Also, a portion of the fen to the south is dominated by northern white cedar (*Thuja occidentalis*).



Photo by Ray Curran.

After lunch on the crest, we headed back north through ancient sugar maple, yellow birch (*Betula alleghaniensis*), red maple (*Acer rubrum*) and eastern hemlock (*Tsuga canadensis*). We also saw large black cherry (*Prunus serotina*), as well as old white ash (*Fraxinus americana*) that have escaped the emerald ash borer so far. Exclamations of “Wow!”, “Look at that!” and “That’s a big one!” were heard as we walked under the high canopy and through the tall straight boles of the trees.





Photo by Bernie Carr.

In the description for this trip, we mentioned both “old growth” and “first growth”. We certainly saw old growth forest on this trip, characterized by a wide range of age classes but with an upper canopy dominated by large old trees, dead standing trees, lots of coarse woody debris (branches and boles) littering the forest floor, canopy gaps into which younger trees were making their bolt to light, and complex structural diversity (upper, mid, lower and shrub canopy). Even though the dominants in old growth are old, not all the original forest components may be present, nor is the community necessarily free of human impact such as burning and logging.

We can find stands of old growth that were logged or cleared for agriculture at some point in the past. Because those disturbances were so long ago, the existing trees are old and the stand exhibits the old growth character traits noted above. If the stand has never been logged or burned by human set fires or cleared for agricultural use, we can call it a “first growth” forest. Why the distinction? It could be for reasons that are more than just nit-picking. By its definition, first growth has never been exposed to human disturbance, so the suite of organisms from soil micro-organisms (like mites, tardigrades, fungi, bacteria, etc.), bryophytes, herbs, shrubs and trees reflect the unaltered development of the system since deglaciation.



Photo by Tom Duca.

We know that logging can reduce soil biodiversity and affect nutrient cycles. Within the context of the northeastern forest, first growth forest systems can give us insight to undamaged, unperturbed, naturally evolved ecosystems, whereas old growth may not. Was this first growth forest that we were walking through? Possibly. Ray Curran noted that there weren’t any large old red spruce (*Picea rubens*) and that they may have been preferentially removed since they were typically the



first trees to be harvested due to the desirability of their wood and the fact that they floated well so loggers were able to run them downriver. This tract is bordered on one side by the Saranac River. If the spruce was removed, it was done a long time ago and there is no evidence, such as stumps, abandoned logging machinery, or skid trails. Ray and others have explored other portions of this large old growth area and have found very impressive large red spruce, and in this area there is ample red spruce in the understory. Does selective removal of one species mean that a stand is no longer considered first growth? We don't know. Interesting questions to discuss and research.

We finished up our expedition with the traditional group photo. It was a very satisfying day with great colleagues.



Back row L to R: Kevin Boyle, Bernie Carr, Ray Curran, Bruce Gilman, Tom Duca, Chris Graham. Kneeling/squatting L to R: Eric Teed, Dan Spada, Amy David, Valerie Pawlewicz, Kyle Webster and Tonks. Photo by Tom Duca.

**2022 Early Season Grass Workshop**  
**June 10-12, 2022**  
 by Sara Stebbins

After a two-year hiatus, plant enthusiasts across the state rejoiced to see workshops back on the NYFA calendar for 2022. To kick off the series, David Werier hosted an early season grass workshop the second weekend in June. Twelve eager participants were in attendance: Aaron Iverson, David DuBois, Ed Fuchs, Emma Martone, Lois Levitan, Marcie Finlay, Molly Peck, Rich Ring, Sara Stebbins, Shirley Denton, Thomas Wirickx, and Vicki Bustamante. Instruction time was divided between lab work at the Bailey Hortorium Herbarium at Cornell University and field work at various natural sites in the Ithaca area.

The workshop commenced with a lab session Friday night, where we signed in and picked up handouts, including David's nearly complete draft

key to Poaceae and an illustrated glossary of grass terms. We were encouraged to take a sample from a bunch of grasses provided and find a seat near a dissecting scope. Once everyone was settled in, David started the evening with a discussion of grass morphology that focused on the specialized terms used to describe various parts of grasses: rhizome, stolon, culm, node, sheath, ligule, auricle, rachis, spikelet, floret, glume, lemma, palea, and awn. Understanding these terms is essential for identifying grasses, as we were to see once we started keying out the provided specimen. Participants initially worked independently or in pairs, and then David walked us through the key to make sure everyone understood how to navigate through the splits. The specimen turned out to be barren brome, a non-native species that is naturalizing in disturbed areas.

On Saturday morning we reconvened on campus and then carpooled to various field sites. At the first



stop, we parked along East King Road near the hospice care facility. The disturbed roadside offered the opportunity to examine some non-native species, including tall rye grass (*Schedonorus arundinaceus*), flat-stemmed blue grass (*Poa compressa*), and Kentucky bluegrass (*P. pratensis*). We then hiked north toward South Hill Natural Area East, stopping along the way to discuss grasses we saw growing in different habitats. For example, in a successional old field, we saw sweet vernal grass (*Anthoxanthum odoratum*), velvet grass (*Holcus lanatus*), and orchard grass (*Dactylis glomerata*), along with an enormous clump of the invasive Chinese silver grass (*Miscanthus sinensis*). In the understory of wet forests we encountered a completely different suite of species, including fowl manna grass (*Glyceria striata*), Canada bluejoint (*Calamagrostis canadensis*), white cut grass (*Leersia virginica*), and rough-sheathed blue grass (*Poa trivialis*). Northern shorthusk (*Brachyelytrum aristosum*) was growing in a drier spot in the forest. We lunched at the edge of an old patch clear-cut after comparing two native rosette grasses, woolly and linear-leaved (*Dichanthelium lanuginosum* and *D. linearifolium*). Along the gas pipeline, we saw poverty oat grass (*Danthonia spicata*) in dry areas and creeping manna grass (*Glyceria acutiflora*). In a wet spot. Returning to the cars, we observed some stunted European alkali grass (*Puccinellia distans*), a halophyte benefiting from the winter salting of an adjacent parking lot.



The best place to learn grasses is out in the field.

The caravan of vehicles then proceeded a short distance to Six Mile Creek. We followed a wide multi-use trail down the hill, seeing a variety of disturbance-adapted species along the edges, including rye (*Lolium perenne*), tall oat grass (*Arrhenatherum elatius*), quack grass (*Elymus repens*), riverbank wild rye (*Elymus riparius*), soft brome (*Bromus hordeaceus*), hairy brome (*B. commutatus*), Canada brome (*B. pubescens*), water foxtail (*Alopecurus geniculatus*), and hard fescue (*Festuca trachyphylla*). Eventually we left the paved trail and turned onto a narrower footpath leading into an upland forest, where many new species were encountered: grove blue grass (*Poa alsodes*), woodland blue grass (*P. nemoralis*), nodding fescue (*F. subverticillata*), slender wedge grass (*Sphenopholis intermedia*), shiny wedge grass (*S. nitida*), and Japanese stilt grass (*Microstegium vimineum*). An optional side trip down a steep slope provided the thrilling opportunity to see forest blue grass (*P. sylvestris*), a state-listed endangered species.

After climbing back up the hill to the cars in the heat, we were all ready for some shade and hydration. We loaded up the vehicles and proceeded to the Ithaca Beer Company, which has an extensive outdoor space: perfect for relaxing and enjoying dinner and refreshments together. They even offer fresh-brewed root beer, a nice alternative for the drivers in the group. We were lucky enough to be joined for dinner by NYFA President Anna Stalter. After dinner, some of us returned to the lab to key out specimens collected in the field or samples brought from home.

On Sunday morning, we met at Upper Buttermilk Falls State Park, where David had made arrangements for us to drive through the gate, and so closer to the grasses we would be visiting. We set off up the gentle slope, reviewing many of the species we'd seen the day before along the way. Upon reaching the Lake Treman outlet, we turned left and crossed the footbridge over Buttermilk Creek, then continued along the trail into an upland forest. Soils here were more calcareous than the sites we'd visited previously, providing the opportunity to see some different species, including





spreading white rice grass (*Oryzopsis asperifolia*), northern oat grass (*Danthonia compressa*), black-fruited rice grass (*Patis racemosa*), and southern shorthusk (*Brachyelytrum erectum*) With rain predicted and a creek ford along the park driveway, we didn't stay long and soon proceeded back to the cars.

Our next stop was along the side of Brooktondale Road, where we examined a stand of the highly invasive slender false brome (*Brachypodium sylvaticum*). It was very interesting to observe that the fine roots of this grass smell strongly of wintergreen. David deputized us all to record the locations where we encounter this grass in the future and report the occurrences to iMapInvasives. I can attest that the free app is very easy to use. We made one last stop on our way back to campus, another brief roadside excursion by the horse pastures along Pine Tree Road. Here we saw several additional disturbance-adapted species, including smooth brome (*Bromus inermis*), rye (*Secale cereale*), and triticale (x*Triticosecale*). Then it was back to campus, where we enjoyed a late lunch on the Ag Quad before heading back indoors to spend more time in the lab.



David talking about woodland grasses.

A huge thanks to David Werier for sharing his extensive knowledge of the grass family with us! The workshop was an absolutely fantastic experience.

Here is the complete list of grasses we saw during the early season grass workshop:

- Agrostis stolonifera* (creeping bent)\*
- Alopecurus geniculatus* (water foxtail)\*
- Anthoxanthum odoratum* (sweet vernal grass)\*
- Arrhenatherum elatius* (tall oat grass)\*
- Brachyelytrum aristosum* (northern shorthusk)
- Brachyelytrum erectum* (southern shorthusk)
- Brachypodium sylvaticum* (slender false brome)\*
- Bromus commutatus* (hairy brome)\*
- Bromus hordeaceus* (soft brome)\*
- Bromus inermis* (smooth brome)\*
- Bromus pubescens* (Canada brome)
- Bromus sterilis* (barren brome)\*+
- Calamagrostis canadensis* (Canada bluejoint)
- Dactylis glomerata* (orchard grass)\*
- Danthonia compressa* (northern oat grass)
- Danthonia spicata* (poverty oat grass)
- Dichanthelium lanuginosum* (woolly rosette grass)
- Dichanthelium linearifolium* (linear-leaved rosette grass)
- Elymus repens* (quack grass)\*
- Elymus riparius* (riverbank wild rye)
- Festuca subverticillata* (nodding fescue)
- Festuca trachyphylla* (hard fescue)\*
- Glyceria acutiflora* (creeping manna grass)
- Glyceria striata* (fowl manna grass)
- Holcus lanatus* (velvet grass)\*
- Leersia virginica* (white cut grass)
- Lolium perenne* (rye grass)\*
- Microstegium vimineum* (Japanese stilt grass)\*
- Miscanthus sinensis* (Chinese silver grass)\*
- Oryzopsis asperifolia* (spreading white rice grass)
- Patis racemosa* (black-fruited rice grass)
- Phalaris arundinacea* (reed canary grass)
- Phleum pratense* (Timothy)\*
- Poa alsodes* (grove blue grass)
- Poa compressa* (flat-stemmed blue grass)\*
- Poa nemoralis* (woodland blue grass)\*
- Poa pratensis* (Kentucky blue grass)\*
- Poa sylvestris* (forest blue grass)
- Poa trivialis* (rough-sheathed blue grass)\*
- Puccinellia distans* (European alkali grass)\*
- Schedonorus arundinaceus* (tall rye grass)\*
- Secale cereale* (rye)\*
- Sphenopholis intermedia* (slender wedge grass)
- Sphenopholis nitida* (shiny wedge grass)
- x*Triticosecale* (triticale)

\* = non-native in New York; + = Friday night lab specimen



## Late Season Grass Workshop August 5-7, 2022

by Stephen Langdon, Saranac Lake, NY

Confession: I am a sloppy botanist. Since I mostly work in the field of ecology and not plant taxonomy this isn't always a problem, as ecologists attend less to evolutionary divergence and more to species functional roles in ecosystems. Ecology and evolution, Aldo Leopold reminds us, are perpendicular planes. However, plant taxonomy does become increasingly critical to ecologists when we ask questions of biodiversity. Since acknowledging a problem is the first step toward fixing it, my aspiration was to clean up my botany act. To this end, I attended the 2022 New York Flora Association's Late Season Grass Workshop in Ithaca.

Poaceae can be an intimidating group. The New York Flora Atlas lists 398 species, subspecies, and varieties in our great and floristically diverse state. Ask an average New Yorker to distinguish or quantify our grass species and... well, most will just think that you are strange for asking the question, while some may find the question a quaint and archaic curiosity. Several dozen people in the state, not afflicted with plant blindness, will actually make a guess at the number. A dozen of that remaining group of plant enthusiasts attended the class. They ranged from professional wetland scientists, land managers, consulting botanists, students, teachers, and general enthusiasts.

We met with our instructor, David Werier, on Friday evening at Cornell's Mann Library to learn morphological terms, discuss the Poaceae key, and key out one grass specimen together. Despite high heat and humidity, we spent Saturday entirely in the field. We visited a number of different habitats along the shores of Cayuga Lake, both at Edwards Lake Cliffs Preserve and at Salt Point Natural Area, focusing on field identification and the gestalt for several sets of species. After a fantastic dinner organized by Tom Whitlow (retired Cornell plant ecologist) and delivered by NYFA President Anna Stalter, many indefatigable botanists returned to the microscope-equipped laboratory to work through the keys and reinforce our field learning.



David pontificating on a grass.

On Sunday, once again in very hot, muggy weather, we walked around various habitats in the alluvial soils of the inlet of Cayuga Lake. After lunch we spent more time in the cool lab, keying out plants, comparing species, and asking questions.

Among the most important lessons for me in my own botanical pedagogy was that botany is a language. Fluency in this language requires repeated practice. The Greek and Latin words needed to describe and recognize the morphological characteristics and the actual plant names are highly precise. Without practice, fluency in any language is lost. I returned from the class able to recognize a few tribes, genera, and species. Importantly, the class reinforced my morphological vocabulary enabling me to more easily use technical keys. As with any learning, working with and sharing bad grass jokes with a wonderful group of like-minded plant enthusiasts may be the greatest fun of all.



NYFA Late Seasons Grass Workshop species list, an asterisk (\*) indicates a non-native species:

- \**Agrostis gigantea*, reedtop
- \**Agrostis stolonifera*, creeping bent
- Andropogon gerardi*, big bluestem
- \**Avena sativa*, cultivated oats
- \**Bromus inermis*, smooth brome
- Bromus latiglumis*, flanged brome
- Bromus nottowayanus*, satin brome
- Bromus pubescens*, Canada brome
- Cinna arundinacea*, stout woodreed
- \**Dactylis glomerata*, orchard grass
- Danthonia spicata*, poverty grass
- \**Digitaria sanguinalis*, northern crab grass
- Diplachne fusca* ssp. *fascicularis*, bearded sprangletop
- \**Echinochloa crus-galli*, Eurasian barnyard grass
- Elymus canadensis* var. *canadensis*, Canada wild rye
- Elymus hystrix* var. *hystrix*, bottlebrush grass
- \**Elymus repens*, quack grass
- Elymus riparius*, eastern riverbank wild rye
- Elymus villosus* var. *villosus*, downy wild rye
- Elymus virginicus* var. *intermedius*, hairy Virginia wild rye
- Elymus virginicus* var. *jejunus*, exserted Virginia wild rye
- Elymus virginicus* var. *virginicus*, Virginia wild rye
- Eragrostis hypnoides*, creeping love grass
- \**Eragrostis minor*, little love grass
- Eragrostis pectinacea* var. *pectinacea*, tufted love grass
- \**Festuca myuros*, foxtail fescue
- Glyceria striata*, fowl manna grass
- Leersia oryzoides*, rice cut grass
- Leersia virginica*, white cut grass
- \**Microstegium vimineum*, Japanese stilt grass
- Muhlenbergia frondosa*, smooth wire-stemmed muhly
- Muhlenbergia schreberi*, nimble Will
- Muhlenbergia sobolifera*, rock muhly
- Panicum capillare* ssp. *capillare*, common witch grass
- Patis racemosa*, black-fruited rice grass
- Phalaris arundinacea*, reed canary grass
- \**Phleum pratense* ssp. *pratense*, common Timothy
- \**Phragmites australis*, Old World reed grass
- Poa palustris*, fowl blue grass
- Poa pratensis* ssp. *pratensis*, common Kentucky bluegrass
- \**Puccinellia distans*, European alkali grass
- \**Schedonorus arundinaceus*, tall rye grass
- \**Setaria faberi*, giant foxtail
- \**Setaria pumila* ssp. *pumila*, yellow foxtail
- \**Setaria viridis* var. *viridis*, green foxtail
- Sorghastrum nutans*, Indian grass
- Tridens flavus* var. *flavus*, purpletop



The hot and tired but happy group.



### NYFA field trip to Whiteface Mountain

by Steve Young

Our annual trip to Whiteface Mountain took place on a beautiful July 9<sup>th</sup>, with some people who had been on the trip before along with a few newcomers. We are always on the lookout for new species and this day was no exception as we discovered *Juncus tenuis* (path rush) and *Salix bebbiana* (Bebb's willow) along the trail. This year the trip took place a month ahead of the time we usually go, so we saw different plants in bloom. The bunchberry flowers were spectacular, and we saw good examples of intact spikelets of *Carex bigelowii* (Bigelow's sedge), and the flowers of the rare *Pyrola minor* (lesser shinleaf) and *Nabalus boottii* (Boott's rattlesnake root).



*Pyrola minor* flowers.



Bunchberry (*Cornus canadensis*) in bloom.



Pure white flowers of *Nabalus boottii*.



Spikelet of *Carex bigelowii*.

It was a busy day for visitors at the summit and tired hikers along the trail asked what we were doing several times. We were able to share our knowledge of the plants with them and talk about NYFA.



At the end of the hike, we took time to have lunch together at the Wilmington turn pull-off and talk about what we saw. Whiteface Mountain never ceases to amaze us with its large and beautiful variety of plants in such a small area. Hope to see you next summer!



*Mononeuria groenlandica* tuft.



Steve, Bruce, Tom, Ruth, Jackie, and Katie at the summit.

## Glacial Geology and Ferns of Wolf Gull by Bruce Gilman

Eleven botanists met on the roadside near the north entrance to Wolf Gull on Saturday morning, August 13, 2022. The weather was great, and enthusiasm ran high. NYFA had previously sponsored a field trip here in 2007 and a return visit to this locale of remarkable fern diversity did not disappoint. Historically, 32 species and several wood fern hybrids had been recorded growing here, including the New York State rare log fern (*Dryopteris celsa*). We hoped to see most of them.

I first learned about Wolf Gull over 40 years ago when Dr. Steve Eaton, biologist at St. Bonaventure University and son of Dr. Elon Howard Eaton, noted ornithologist at Hobart and William Smith Colleges, replied to a newspaper solicitation I had written asking the public to contact me about noteworthy botanical sites within Ontario County where I was studying the flora. Steve took me to the Gull multiple times in the 1970s and 1980s.

Wolf Gull has an unusual geologic origin. At the close of the Wisconsin Stage of the Pleistocene, it was a high elevation glacial meltwater channel located about 150 feet above the highest proglacial lake of the Canandaigua Valley just to the east, Glacial Lake Naples. The time period is likely contemporaneous with the deposition of the Valley Heads moraine in glacially scoured troughs across the Finger Lakes region. At Wolf Gull, melt from the receding ice margin roared through the channel, fell over a 30-foot falls and continued flowing south into an embayment of Glacial Lake Naples. Wolf Gull did not originate as an east-west orientated hanging valley like many of the regional hemlock-northern hardwood ravine forests. In fact, it is oriented north-south and today straddles the major drainage divide separating Chesapeake Bay from the St. Lawrence River. Another feature that sets Wolf Gull apart from local ravines is its subtle topography. Over the course of a mile, elevation change is only 60 feet.

The plunge pool of the ancient waterfall is still evident today, a large muck-filled depression with luxuriant growth of mosses, liverworts and ferns. The forested floor of Wolf Gull has been narrowed over the years with accumulating talus. Springs seep



through the talus contributing to the moist, shaded and cooler microclimate.

We entered Wolf Gull from the north, walking a boundary between planted corn and a successional old field. The farm lane had the typical assortment of weeds, not recorded here. A young stand of pine and aspen guarded the entrance to the forested gull. Our first fern of the day, cinnamon fern, grew in the semi-shaded environment of a streamside wetland. It was accompanied by green-headed coneflower, swamp goldenrod, sensitive fern and marsh fern. Farther along the forested path, evergreen wood fern, lady fern and Christmas fern were seen beneath the full shade of birch, maple, basswood and hemlock. We noted northern maidenhair fern in shaded sites with marginal wood fern throughout. We ventured off trail, across the muddy streambed and saw ostrich fern, many more wood ferns, including several challenging hybrids and, growing on the moist ground, beautiful patches of *Trichocolea tomentella*, the leafy liverwort commonly known as handsome woollywort. It was beautiful under the hand lens.

Returning to the trail, fern diversity and density increased, lining the base of the gull and the lower talus slopes. First silvery spleenwort, then glade fern and finally Goldie's wood fern were observed. The latter species was robust, with its frond abruptly narrow at the tip, colorful scales on the stipe, and characteristic blotches throughout the frond.



The group gathering around to learn about hybrid *Dryopteris*.

As we approached the lip of the ancient waterfall, we explored slightly upslope and to the west. Yes, it was a good spot for lunch, and several additional fern species. We found patches of dissected grape fern, some illustrating the two distinct degrees of dissection in frond shape. There, too, were several oak ferns and a single rattlesnake fern. Carefully working down slope, we explored the muck-filled plunge pool basin. Clinton's wood fern and Boott's wood fern were abundant, and we also saw a few crested wood ferns. Royal fern also thrived here.

While most returned to their vehicles for a lengthy ride home, those living close by took an alternate route to an opening on the summit of the plateau overlooking the Gull. Rocktop fern (here on tree bases), Christmas fern, hay-scented fern, interrupted fern and bracken fern were observed. Dry site plants, like rattlesnake hawkweed, trailing arbutus, silver rod and several grasses were abundant. With time running short, we were not able to explore the sandstone outcrops elsewhere on the summit, so rusty woodsia, fragile fern and ebony spleenwort observations will have to wait for the next field trip.

A compiled checklist of the plants seen at Wolf Gull (2007 and 2022 trips) is provided below and on the next page.

#### Trees:

*Acer negundo* var. *negundo*  
*Acer pensylvanicum*  
*Acer rubrum*  
*Acer saccharum*  
*Acer spicatum*  
*Amelanchier arborea*  
*Betula alleghaniensis*  
*Betula lenta*  
*Carpinus caroliniana* ssp. *virginiana*  
*Carya cordiformis*  
*Fagus grandifolia*  
*Fraxinus americana*  
*Ostrya virginiana*  
*Pinus strobus*  
*Populus tremuloides*  
*Prunus serotina* var. *serotina*  
*Quercus montana*  
*Quercus rubra*  
*Salix xfragilis*  
*Tilia americana*  
*Tsuga canadensis*



**Shrubs and Vines:**

*Clematis virginiana*  
*Cornus alternifolia*  
*Epigaea repens*  
*Gaultheria procumbens*  
*Hamamelis virginiana*  
*Lindera benzoin*  
*Mitchella repens*  
*Parthenocissus quinquefolia*  
*Prunus virginiana* var. *virginiana*  
*Sambucus nigra* ssp. *canadensis*  
*Solanum dulcamara*  
*Taxus canadensis*  
*Vaccinium angustifolium*  
*Vaccinium pallidum*  
*Viburnum acerifolium*  
*Viburnum lantanoides*  
*Vitis riparia*

**Ferns and Allies:**

*Adiantum pedatum*  
*Amauropelta noveboracensis*  
*Athyrium angustum*  
*Botrychium dissectum*  
*Botrychium virginianum*  
*Dennstaedtia punctilobula*  
*Deparia acrostichoides*  
*Dryopteris carthusiana*  
*Dryopteris celsa*  
*Dryopteris clintoniana*  
*Dryopteris cristata*  
*Dryopteris goldiana*  
*Dryopteris intermedia*  
*Dryopteris marginalis*  
*Dryopteris xboottii*  
*Dryopteris xdowellii*  
*Dryopteris xtriploidea*  
*Gymnocarpium dryopteris*  
*Homalosorus pycnocarpos*  
*Huperzia lucidula*  
*Matteuccia struthiopteris* var. *pennsylvanica*  
*Onoclea sensibilis*  
*Osmunda claytoniana*  
*Osmunda regalis* var. *spectabilis*  
*Osmundastrum cinnamomeum* var. *cinnamomeum*  
*Polypodium virginianum*  
*Polystichum acrostichoides*  
*Pteridium aquilinum*  
*Thelypteris palustris* var. *pubescens*

**Herbaceous Plants:**

*Actaea pachypoda*  
*Actaea rubra*  
*Agrostis perennans*  
*Alliaria petiolata*  
*Aralia nudicaulis*  
*Arisaema triphyllum*

*Asarum canadense*  
*Bidens frondosa*  
*Carex albursina*  
*Carex crinita*  
*Carex cristatella*  
*Carex laxiculmis*  
*Carex pedunculata* ssp. *pedunculata*  
*Carex plantaginea*  
*Carex platyphylla*  
*Carex prasina*  
*Carex scabrata*  
*Caulophyllum thalictroides*  
*Chelone glabra*  
*Chrysosplenium americanum*  
*Cinna latifolia*  
*Circaea alpina* ssp. *alpina*  
*Circaea canadensis*  
*Clinopodium vulgare*  
*Collinsonia canadensis*  
*Cryptotaenia canadensis*  
*Danthonia spicata*  
*Elymus hystrix* var. *hystrix*  
*Epilobium coloratum*  
*Epipactis helleborine*  
*Eupatorium perfoliatum*  
*Eurybia divaricata*  
*Euthamia graminifolia*  
*Eutrochium maculatum*  
*Galeopsis tetrahit*  
*Galium circaezans*  
*Galium lanceolatum*  
*Geum aleppicum*  
*Geum canadense*  
*Geum macrophyllum* var. *macrophyllum*  
*Geum urbanum*  
*Geum xcatlingii*  
*Glyceria melicaria*  
*Glyceria striata*  
*Hepatica acutiloba*  
*Hieracium venosum*  
*Hydrophyllum canadense*  
*Hydrophyllum virginianum* var. *virginianum*  
*Impatiens capensis*  
*Impatiens pallida*  
*Juncus tenuis*  
*Lactuca biennis*  
*Laportea canadensis*  
*Leersia oryzoides*  
*Leersia virginica*  
*Lobelia inflata*  
*Maianthemum canadense*  
*Micranthes pennsylvanica*  
*Mitella diphylla*  
*Monarda didyma*  
*Nabalus trifoliolatus*  
*Osmorhiza claytonii*

*Penthorum sedoides*  
*Persicaria punctata*  
*Persicaria sagittata*  
*Persicaria virginiana*  
*Phalaris arundinacea*  
*Pilea pumila* var. *pumila*  
*Plantago lanceolata*  
*Plantago major*  
*Poa saltuensis*  
*Potentilla simplex*  
*Rubus allegheniensis*  
*Rubus odoratus*  
*Rudbeckia laciniata* var. *laciniata*  
*Rumex obtusifolius* ssp. *obtusifolius*  
*Solidago bicolor*  
*Solidago caesia* var. *caesia*  
*Solidago flexicaulis*  
*Solidago gigantea*  
*Solidago nemoralis* ssp. *nemoralis*  
*Solidago rugosa*  
*Symphyotrichum lanceolatum*  
*Symphyotrichum lateriflorum*  
*Symphyotrichum patens* var. *patens*  
*Symphyotrichum prenanthoides*  
*Symphyotrichum puniceum* var. *puniceum*  
*Symphyotrichum undulatum*  
*Tiarella cordifolia*  
*Trillium erectum*  
*Typha latifolia*  
*Viola pubescens* var. *scabriuscula*  
*Viola rotundifolia*



*Botrychium dissectum.*

Participating in the field trip: Kaley Catlin, Ed Fuchs, Bruce Gilman (co-leader), Kristine Herman, Steve Herman, Charlie Ippolito, Catherine Landis, Rozayra Mori-Millet, Colton Ratey, Eddie Watkins, and Kyle Webster (co-leader).



### Annual Meeting Recap, September 10, 2022

It was a beautiful summer day as the 30 or so attendees of the 2022 NYFA Annual Meeting congregated at Five Rivers Environmental Education Center in Delmar, N.Y. We started by botanizing one of the Nature Center’s trails at the usual snail’s pace (perhaps even slower, as people from far flung places were becoming reacquainted with each other). Thanks to Robin Kay, who provided us with a short history of the grounds as we walked. After a delicious lunch at picnic tables next to the Center’s attractive building (and more socializing), Director Gina Jack provided an overview of the history and purpose of Five Rivers, then the official business of the day was conducted. Anna greeted members and gave a short recap of the year after which everyone present voted to approve the slate of board members renewing their terms for another three years.

The highlight of the day was the presentation of the 2022 NYFA Plant Conservationist Award to Nancy Slack, who has shared her knowledge and love of the natural areas of the state, mosses, alpine plants, and conservation in general, over many years with many people. Chris Berte introduced Nancy and touched on the many ways that Nancy has influenced both her and numerous others over the years. Along with Tom Phillips, she compiled the short biography of Nancy found on the following page.

The next order of business was the annual botany quiz by Steve Young, which was a bit unusual this year. We broke up into groups and competed for prizes as he quizzed us on tropical fruits – holding up a sample of each and asking questions such as type of fruit, genus of fruit, family of fruit, and more. See if you can do as well as the top scorer (18 out of 28) – the quiz follows on page 18 and answers are found on page 21.

To wrap up, we were treated to a viewing of a state listed rare plant growing at the Center, winged monkey flower, *Mimulus alatus*.

Thanks to all who contributed and attended, and hope to see you all next year!



Photo by Steve Young.





## Nancy Slack, NYFA Conservationist of the Year

by Chris Berte and Tom Phillips

Nancy Slack began her career as an undergraduate at Cornell studying ornithology and zoology. While her husband Glenn completed his graduate work in physics, she took several botany courses and was able to get a research assistantship studying the cytogenetics of flowering tobacco. After completing her Master's degree at Cornell she received a NYS Museum grant to study *Vaccinium oxycoccos* ecology in the Adirondack High peaks. There she gained knowledge of and appreciation for alpine ecology, an area she has pursued ever since.

After Nancy moved to the Schenectady area she became involved with the Nature Conservancy, helping to preserve a number of important natural areas (including the Pine Bush, though she feels her attempt failed, it was the start of a movement recognizing the importance of that natural area). In 1966 Nancy's family moved to Oxford, England when her husband won a Guggenheim Fellowship. She was able to get a job as a teaching assistant and part of the course involved ferns and bryophytes, which she did not know much about at the time. This started her on another lifelong path studying and spreading an appreciation of bryophytes. After returning from Oxford, Nancy completed her PhD in Plant Ecology at SUNY Albany. Part of her research included the study of the vegetational changes on Whiteface Mountain from the base, up through several forest types, and into the alpine.

Nancy has taught courses in biology, botany, ecology, and the evolution and history of Science at Russell Sage College for over 30 years, as well as numerous non-college courses and workshops, teaching for ECOS (Environmental Clearing House of Schenectady), the Adirondack and Appalachian Mountain Clubs, the Adirondack Chapter of the Nature Conservancy, and the Thursday Naturalists. She has written, along with her friend and alpine enthusiast, Allison Bell, field guides for the alpine region of the Adirondacks and the White mountains of New Hampshire. She has been the recipient of numerous awards including the Nature Conservancy Oak Leaf award, the Adirondack Mountain Club Education Award, The Waterman Fund award for Alpine Research and Stewardship award, and now, the NYFA Conservationist of the Year.



Chris Berte and Nancy Slack, photo by Dan Spada.



**Plant Quiz - NYFA Annual Meeting - September 2022  
Tropical Fruit Botany**



BANANA

Genus or Family Name \_\_\_\_\_  
Fruit type \_\_\_\_\_  
Continent of origin \_\_\_\_\_

LEMON

Genus or Family Name \_\_\_\_\_  
Fruit type \_\_\_\_\_

PAPAYA

Genus or Family Name \_\_\_\_\_  
Fruit type \_\_\_\_\_  
What part do we eat? \_\_\_\_\_  
Continent of origin \_\_\_\_\_

COCONUT

Genus or Family Name \_\_\_\_\_  
Fruit type \_\_\_\_\_  
What part do we eat? \_\_\_\_\_

MACADAMIA NUTS

Genus or Family Name \_\_\_\_\_  
Continent of origin \_\_\_\_\_

PINEAPPLE

Genus or Family Name \_\_\_\_\_  
Fruit type \_\_\_\_\_  
Continent of origin \_\_\_\_\_

MANGO

Genus or Family Name \_\_\_\_\_  
What part do we eat? \_\_\_\_\_  
Continent of origin \_\_\_\_\_

STAR FRUIT

Genus or Family Name \_\_\_\_\_  
Continent of origin \_\_\_\_\_

COFFEE

Genus or Family Name \_\_\_\_\_  
Fruit type \_\_\_\_\_

CHOCOLATE

Genus or Family Name \_\_\_\_\_  
What part do we eat? \_\_\_\_\_



Fruit type choices:

Drupe – berry – hesperidium – nut - pome - pepo - multiple or aggregate of berries

What do we eat choices:

Exocarp, Mesocarp, Endocarp, Endosperm, Seed



Nancy talking about her alpine work. Photo by Steve Young.



## Mohawk Bike Trail Petal Pedal

by Steve Young

The morning of Sunday, September 18th was beautiful, and we expected a good crowd for the bike trip along a Schenectady County section of the Mohawk bike trail, but as it happened, only Connie Tedesco and I showed up for the ride. We saw lots of different trees, shrubs, and vines, some native and some invasive, and a good variety of asters, sunflowers, goldenrods, and other wildflowers growing next to them. The old Erie canal is a series of ponds next to the trail so there was also a good variety of wetland plants. We discovered a huge population of the state-rare *Cyperus erythrorhizos*, red-rooted flat sedge, which had come up in a pond that had dried up from the drought. This flat sedge is known to seed bank in water and come up when an area dries out. Nodding beggar ticks, *Bidens cernua*, and devil's beggar ticks, *Bidens frondosa*, were also common along the wetland edges. Some of the old canal is now swamp and the yellow jewelweed, *Impatiens pallida*, put on a spectacular show, covering the understory. We documented new populations of the invasives Japanese hops, *Humulus japonicus* (*scandens* in iNaturalist) and yam-leaved clematis, *Clematis terniflora*, which was new to Schenectady County (until we pulled it out)! You can cover a lot of ground and see a lot of interesting plants on these bike trips, and I hope we can offer more of them in the future.



New England aster is always so showy.



The marsh full of *Cyperus erythrorhizos* and *Bidens cernua*.



Connie on the newly paved trail.



The spikes of *Cyperus erythrorhizos*.





The yam-leaved clematis showed itself with its large flowers.



Male flowers and many-lobed leaves of Japanese hops.



Moonseed fruits could be mistaken for grapes.



Flowers of heart-leaved aster.



Blue fruits of *Parthenocissus inserta* on red stalks.



## Botanical Notes

### For users of the Atlas:

Don't forget to check News and Announcements periodically – interesting tidbits of information are found therein (<https://newyork.plantatlas.usf.edu/News.aspx>). You'll find updates to the taxonomy and nomenclature of our plant species, as well as recent additions, exclusions, and status changes. It contains all the major changes (not including errata) since the publication of the Catalogue of the Vascular Plants of New York State. For instance, did you know that New York Fern is now *Amauropelta noveboracensis*? See: <https://nyflora.org/mp-files/changes-to-atlas-2021-12-30.pdf> for more. As more updates are made to the Atlas, a revised document will become available, so check back periodically.

### Note from Steve Young:

#### **Newcomb's Wildflower Guide scientific name update available on the NYFA website**

There is a new update to the scientific names in the popular Newcomb's Wildflower Guide at:

<https://nyflora.org/wp-content/uploads/2022/08/Newcombs-2022-August-Update.pdf>

There you will find new names for all the plants that have changed, and ones that have been changed since the last update are also noted (for people who have updated the names in the past). It takes a while to write in all the names in the book, but it is worth it to have them handy in case you want to look them up online or in the NYFA Atlas (or to amaze your friends that you know the new names!).

We encourage users of the guide to write to the publishers to let them know that they need to update the names in the book. There is a general email form at the end of the page here:

<https://www.hachettebookgroup.com/landing-page/contact-us-2/>

If you are interested in all the guides that are available to identify plants in New York, check out the annotated list of guides at the New York Natural Heritage Program at:

[https://www.nynhp.org/documents/2/plant\\_bibliography\\_2020.pdf](https://www.nynhp.org/documents/2/plant_bibliography_2020.pdf)

### Answers to Tropical Fruits Quiz (page 18):

#### BANANA

*Musa*  
Musaceae  
berry  
Asia (India to Guinea)

#### COCONUT

*Cocos nucifera*  
Arecaceae  
drupe  
solid and liquid endosperm

#### MANGO

*Mangifera indica*  
Anacardiaceae  
mesocarp  
Asia (India to Burma)

#### LEMON

*Citrus xlimon*  
Rutaceae  
hesperidium

#### MACADAMIA NUTS

*Macadamia ternifolia*  
Proteaceae  
Australia

#### STAR FRUIT

*Averrhoa carambola*  
Oxalidaceae  
Indonesia

#### PAPAYA

*Carica papaya*  
Caricaceae  
berry  
North America (central or meso)

#### PINEAPPLE

*Ananas comosus*  
Bromeliaceae  
multiple of berries  
South America

#### COFFEE

*Coffea arabica*  
Rubiaceae  
drupe

#### CHOCOLATE

*Theobroma cacao*  
Malvaceae  
seed



## NYFA's first ever membership and supporter survey is now open!

In the July newsletter, we told you that the NYFA board is working on a strategic plan. This summer the NYFA strategic planning committee members and our consultant interviewed people from botanical societies in New York and beyond. Now, we want to hear from you!

Please click on the survey link and take about 10 minutes to share your thoughts, which will inform the NY Flora Association's activities in the coming years.

We want to hear from as many people as possible. It doesn't matter if you've been involved for years or are reading *Mitchellania* for the first time. If we are to increase interest and excitement for New York's native and naturalized plants, we need to be sure that what we do will inspire members of all ages, backgrounds, and experience.

You can help us get this right by taking the survey and sharing it with other wild plant enthusiasts you know. They can be current members, former members, followers, NY Flora Atlas users, or people who love NY's plants that aren't connected with NYFA or our projects.

Take the confidential survey: <https://www.surveymonkey.com/r/NYFA>

Look for a strategic plan update in the February newsletter, and thank you in advance!



After a two year hiatus, the Adirondack Botanical Society got together for an enjoyable fall day at the Paul Smiths VIC. At our meeting we discussed past, present and future projects that ABS could be involved in, field trips for 2023, how to engage younger people, and, general organizational logistics.

Jerry Jenkins then discussed his Northern Forest Atlas plant guides and the group used them to identify specimens, followed by a slow stroll on the "Boreal Life" boardwalk. Keep your eye on the "Adirondack Botanical Society" Facebook page for field trip and workshop announcements, as well as other news and items of botanical interest.

Thanks to Jerry, the Paul Smith's VIC, and Dan and Ray for their work organizing the gathering!



Using Jerry's moss guide to identify Sphagnum. Photo by Steve Langdon.



Late afternoon stroll on the boardwalk, photo by Ray Curran.





A close look at *Polygonum douglasii* as seen on the Wellesley Island field trip. Photo by Steven Daniel.



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**We are only accepting credit card payments through PayPal at this time. If you would like to use a credit card, please use the link on our website: <http://www.nyflora.org/membership/>**

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*Thank you for supporting NYFA and the flora of New York State*

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