

**New York Flora
Association Newsletter
Spring 2020**

Editor's Note: This issue of the newsletter starts with another delightful plant report from Jackie Donnelly. Her story may inspire others to do as she does – become intimately acquainted with a state park or other natural area and let us know what they find. As Jackie says: “I have been so astounded by finding so many plants that are considered rare, and I hope my article inspires other folks to keep their eyes open for the rarities yet to be found wherever they roam”. The advent of spring also means field trips and workshops, see page 22. NYFA will have a new website this April – check it out, same name: nyflora.org. Hope to see you in the field this year and happy spring!

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Rare Plants of Moreau Lake State Park

by Jackie Donnelly

Every February, the Friends of Moreau Lake State Park hold a chili dinner to raise funds to support the park. Last February, when we met to discuss a speaker for this event, it was decided that there was so much good news to convey about the park we should have our own people talk about it instead of hiring an outside speaker. So our park supervisor and the park’s nature educator each volunteered to report on some of the new programs and territorial additions. They then said to me, “Jackie, could you maybe talk for about ten minutes on the plants that grow in the park?” Ten minutes, just ten MINUTES?!? I’ve been wandering this park for more than 25 years, documenting every plant I could find, which now add up to over 400 species – and that’s just wildflowers, not counting trees, mosses, ferns, lichens, liverworts, aquatics, etc. I could talk for ten HOURS and still have more to say (as some of my friends already know)! But then I relented: how about I talk about just the rare plants I’ve found in the park? So that’s what I did at the chili dinner last February, and that is what prompted this article. And over the past year, I’ve found even more rare plants in the park, including one species so rare it was considered Extirpated from New York State.

Moreau Lake State Park (Saratoga and Warren counties) really IS a treasure house of native and rare species. When I visit nature preserves in other parts of our state, I feel lucky if I can find any native plants besides skunk cabbage and poison ivy due to the deer overpopulation and rampant invasive species. But Moreau is remarkable for offering within its (soon-to-be) nearly 7,000 acres many varied, virtually pristine habitats that support a huge variety of native plant species. Among these native plants is one that was rated as Extirpated (SX) in New York, three that are classified by our state as Endangered (S1), two that are rated as Threatened (S2), and two that are rated as Rare (S3).

Many people, when they think of Moreau Lake State Park, think the park consists of the beach, the campgrounds, and that’s about all. But the park really contains a lot more than that! Here is a recent map of the park that reveals its extensive holdings (although this map doesn't yet show the nearly 1,000 more acres the park is due to acquire thanks to recent acquisitions).

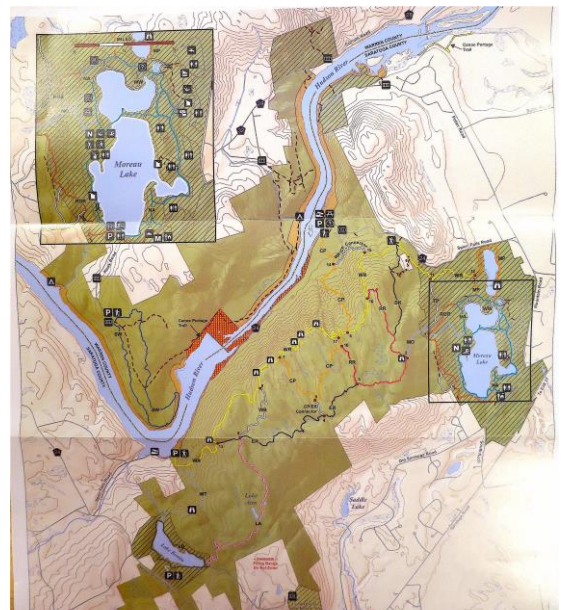


Photo 1: Map of Moreau Lake State Park.

The park includes a big chunk of the Palmetown mountain range that rises on the northern boundary of Saratoga County, and also includes several miles of both banks of the Hudson River. Photo 2 shows a view from one of our mountain heights, looking at some of the park's forested acreage across the river into Warren County.



Photo 2: Overlook.

Within the park there are pine woods and hardwood forests; lakeshore, streambanks, swamp and bog; soils that are basic and others that are acidic; rocky heights and soggy lowlands. We even have three lakes: Moreau Lake, of course, but also Lake Ann way up in the mountains, and the beautiful Lake Bonita, which was acquired only recently along with the former Mt. McGregor Prison lands.



Photo 3: Lake Bonita.

Considering the extent and variety of habitats in the park, it's really not too surprising that I've found some truly rare species here. I imagine there are more as yet to be discovered, but here are the ones I have found in the park so far.

One EXTIRPATED Species



Photo 4: Pringle's coralroot, whole plant.

Can you imagine what might make an amateur wildflower enthusiast like me ecstatic? How about learning that the orchid in photos I once posted on my blog Saratoga Woods and Waterways turned out to be an extremely rare variety that was long thought to be extirpated in our state? That was my big news this past summer, when I was told that an orchid expert had identified those flowers as Pringle's autumn coralroot (*Corallorhiza odontorhiza* var. *pringlei*). This variety was last reported from only one county (Monroe) in all of New York State – and that was back in 1903! And this variety has never since been reported from there or anywhere else in the state, according to the New York Flora Association Plant Atlas. By now, the atlas had classified Pringle's autumn coralroot with an “X”, meaning Extirpated. Not Endangered nor Threatened nor Rare, but simply Gone for Good.

Actually, I find autumn coralroot at Moreau Lake State Park almost every year. And when I do, I post photos of them on my blog. I always assumed that all of the coralroots I photographed were the



common variety, *Corallorhiza odorhiza* var. *odorhiza*, a good find because, hey, they are orchids, but nothing to get too excited about. But my friend Dan Wall is an orchid fanatic who is also an artist, which means he pays very close attention to every orchid he sees (or paints or photographs to include in the book about New York orchids he's working on). A careful observer, Dan notes every detail of petals, stems, and leaves. When he saw some of the coralroots I had pictured on my blog and compared them to those he knew to be the common variety of autumn coralroot, he suspected "my" coralroots could be the really rare ones, and he sought confirmation from New York State botanists Steve Young and David Werier, sending them my photographs to consider.

Of course, they had never had a chance to lay their eyes on a live Pringle's autumn coralroot (at least, not here in New York). But they knew of someone who definitely had, a man who is nationally known as "the" expert on this particular taxon. They sent my photos to Professor John Freudenstein, Chair of the Department of Evolution, Ecology, and Organismal Biology at Ohio State University, who is also director of the herbarium there. After studying my photographs, Professor Freudenstein confirmed my friend Dan's suspicions.

Photo 5 clinched the ID for Professor Freudenstein. Note that the floret is open (chasmogamous), revealing the pollen bundle within.



Photo 5: Pringle's coralroot, open flower.

The ordinary variety of autumn coralroot has cleistogamous (self-pollinating) flowers, with a closed throat. Also, they rarely have petals, and even if they do produce a tiny lower petal, it has a narrower shape than the broad lower petal we can see on this floret.

A big patch of over 30 of these extremely rare orchids once thrived in a wooded area by the park's beach parking lot, but then the park's groundskeepers blew great heaps of fallen leaves over them, not realizing there were orchids of any kind growing at that location. I haven't found them there again, not for a number of years. But happily, my friends Dan Wall and Sue Pierce and I have found two new areas where at least a dozen of them grow. And the park's groundskeepers have tried to remove the leaves from atop the original patch, so we're hoping the Pringle's Autumn Coralroots might yet re-emerge at that site. After all, they are perennials, and the soil fungi they depend on for nutrients probably still reside in that soil.

Three ENDANGERED Species

Just because a flower is considered to be rare doesn't necessarily mean it is gorgeous. For example, this rather weedy-looking plant is among the rarest plants in the state. It's called whorled mountain mint (*Pycnanthemum verticillatum* var. *verticillatum*).



Photo 6: Whorled mountain mint.



Classified by the New York Natural Heritage Program (NYNHP) as an Endangered species, whorled mountain mint is said to occur in no more than 5 sites throughout the state. Moreau Lake State Park has perhaps the healthiest and most abundant population of all, almost 300 flowering plants concentrated on one sandy shore of a cove.

Now, I think you'd agree that a bouquet of these probably wouldn't impress a lady on her first date -- unless maybe she was a rare-plant botanist! Or if she had a magnifier and could get a really close look at the tiny white, purple-polka-dotted florets.



Photo 7: Whorled mountain mint florets.

Of course, if she really were a rare-plant botanist, she'd be pretty irked with you for picking such an endangered plant! (Or any wildflower that grows in any state park!)

Here's another flower that thrives at Moreau but almost nowhere else in the state, according to the NYNHP. This is the large-leaved avens (*Geum macrophyllum* var. *macrophyllum*).



Photo 8: Large-leaved avens.

With its hardly ostentatious small yellow flower, it may look like just another weed, but the large-leaved avens is actually classified as Endangered in our state. Well, it sure isn't endangered here in THIS park!



Photo 9: Avens search party.

When the NYNHP's rare-plant monitor Rich Ring (above, left) joined park staff member Maranda Welch and former park manager Peter Iskenderian to search for more large-leaved avens after my pal Sue Pierce and I had reported about a dozen specimens, we stopped counting after we'd found over a hundred healthy plants along one of the park's sunny trails.

One more state endangered plant Rich Ring and I found at Moreau is the tiny small-flowered



bulrush (*Cyperus subsquarrosus*). It's so small we could have covered this entire plant with a single 50-cent piece



Photo 10: Small-flowered dwarf bulrush.

We found thousands of this wee little flatsedge (and yes, it's a flatsedge and not really a bulrush) all along the sandy or pebbly shore of the lake.



Photo 11: Flatsedge shore.

I was told this plant hadn't been reported at Moreau since 1961 – that's 57 years ago! And we wouldn't have found it if the lake level hadn't fallen so low. These plants were growing on shores that had been underwater until about 3 or 4 years ago. Apparently, the seeds had survived underwater all those years and only when the water went down,

exposing the plants to the air, did they grow and bloom once more.

We were really lucky we went looking for them a year ago this past early September. After all the rain we've had since then, the shore where we found them is once again under water. The lake has risen so high by now, with water well up into the woods, I was afraid it might take another 50-plus years before we would find them again. But Hurray! I did find a few this summer, on the one sandy stretch still remaining along the lake shore (not counting the swimming beach).

Two THREATENED Species

We also have in Moreau Lake State Park at least two plants that are classified as Threatened (S2), the next rarest class of plants, known to exist in more than 6 and up to 20 sites in New York State.

One of those flowers is the small floating bladderwort (*Utricularia radiata*).



Photo 12: Small floating bladderwort.

You won't find this plant while hiking the trails or walking the beach, but you might if you paddle the river, where this plant goes floating along on the river's current. It's held erect in the water by those swollen "pontoons" that radiate from its leafless stem. Because it has no green leaves to photosynthesize, this plant has to obtain its nutrients by other means, which it does through the masses of tiny bladders that it trails along underwater. Each of those tiny sacs can suck in



even tinier aquatic animals, which the plant then digests.

Our second Threatened species is the green rockcress (*Borodinia missouriensis*), a rather weedy-looking Mustard-family plant whose tiny white flowers would draw no attention to its presence among other trailside vegetation.



Photo 13: Rockcress florets.

But when it goes to seed, the green rockcress is easy to spot, with long slender siliques (seedpods) that arc away from the stem like the cascading waters of a fountain.



Photo 14: Rockcress seedpods.

I had been seeing these plants with the arcing seedpods for years, but it was just this year that I decided to find out what they were, and so I posted a photo on Facebook, tagging a few of the plant experts with whom I was friends. And within an hour I had the answer, not just as to what species it was, but also the information that this was a pretty rare plant – a Threatened species, in fact.

Once more, rare-plant monitor Rich Ring returned to Moreau Lake State Park to assess the status of this plant at the park.



Photo 15: Rich Ring with the rockcress.

In photo 15, Rich is counting and documenting the number of stem leaves, a critical factor in determining this plant's species. The definitive number is at least 30. Again, we found well over a hundred of these Threatened plants, and at two different locations in the park.

Two RARE Species

The next, still rare but somewhat more abundant category of unusual plants is called, simply, Rare (S3). Plants in this category are known to exist in between 21 to 100 extant sites. One of those sites is our own Moreau Lake State Park, where I have found two species that fall within that classification.

First is the spectacularly beautiful great St. John's-wort (*Hypericum ascyron* ssp. *pyramidatum*). Of all the state-listed plants we have in the park, this is perhaps the showiest, with



blooms as big as two inches across, and standing on stems over four feet high.



Photo 16: Great St. Johns-wort.

I'd found a few of these plants for years on one of the Hudson islands, but the biggest patch I've ever seen is one I found on the property that's soon to be among the park's newest land acquisitions, nearly 900 acres of the former Finch Pruyn lumber lands along the Hudson River, called the Smith Farm Parcel.

Again, Rich Ring returned to the park to assess the health and abundance of these populations.



Photo 17: Rich with the great St. John's-wort.

Assisted by summer intern Dani Yashinovitz

and my friend Sue Pierce (in the canoe in photo 17), we found well over 60 specimens of these gorgeous wildflowers growing at two locations.

A second plant we have in the RARE category is this pretty little thing called small-flowered gerardia (*Agalinis paupercula*).



Photo 18: Small-flowered gerardia.

Actually, when you see how abundantly this flower grows on the sandy shores of Moreau Lake, it's hard to believe it could ever have been considered a rare plant, but that's how it had been listed in the New York Flora Association's Plant Atlas. I did learn that it was recently moved from the RARE to the WATCH list, which means it is evidently more abundant in the state, but its populations will still be monitored. At any rate, it's certainly not a rare plant in Moreau Lake State Park and hasn't been for many years! If the water level drops to reveal more shoreline next summer, start looking for it along the lakeshore in early September.

These are all the state-listed rare species I've found, so far, within the marvelously varied habitats of Moreau Lake State Park. And this does not include the 15 species of native orchids that thrive within the park, not necessarily rare, but state-listed as Exploitably Vulnerable and thus also protected by law. And who knows what other rarities might yet be discovered here? I hope it's obvious, from what I've reported here, that Moreau Lake State Park is a great place to look for them!



We Have Cactus in New York? Yes, and Two Species!

by Steve Young, Chief Botanist, NY Natural Heritage Program

Cacti are usually associated with the southwestern U.S. and hot dry climates, but there are a couple of species that make it all the way up into New York State. For many years, we thought we only had one species, *Opuntia humifusa* or eastern prickly pear, but recently we learned that another species has been described with occurrences in New York, *Opuntia cespitosa*, with the common name prickly pear (without the eastern). Majure et. al. (2017) states that the difference between the two species was recognized as far back as 1856 by Engelmann (the name was published by Rafinesque in 1830). *Opuntia cespitosa* was later put in synonymy with *O. humifusa* but recently the two have again been recognized as distinct species.

Both prickly pears are similar in appearance, but there are some differences that can be used to identify them. The most obvious distinguishing character is the presence or absence of long spines on the cactus pads. *Opuntia humifusa* lacks the spines while *O. cespitosa* has them, although they may be sparse or possibly absent. There is usually one spine per areole (an areole is the small round bump on the pads where the leaves, glochids, and spines arise), but there may be up to three. This character can be used any time you see pads. The pads of *Opuntia cespitosa* tend to be more rounded and glaucous gray-green than those of the elongated, green pads of *O. humifusa*, but this character is subtle and not always reliable in the plants I have seen. When the plants are flowering, the center of the flowers of *Opuntia cespitosa* are dark red to orange-red to light orange, while the flowers of *O. humifusa* are completely yellow. *Opuntia cespitosa* has glochids (small barbed hairs around the areole) that are conspicuous and dark red, crimson red, or dark amber, aging to light to dark brown. *Opuntia humifusa* has glochids that are inconspicuous, generally only exerted in older, basal stems, and stramineous (but turning light brown or amber in age). Depending on the substrate, *Opuntia cespitosa* may have root tubers while *O. humifusa* does not (see Figures 1 and 2 for these characters) (Majure et. al. 2017).

The range and habitat appear to be different also. *Opuntia humifusa* grows from Long Island, where it is fairly common, north along the Hudson River Valley to Columbia County. The habitat in the NYFA Atlas says: “rocky summits and outcrops, woodlands, sandy maritime areas, and sandy thin fields. In rocky settings it usually occurs in medium sized patches and does not occur evenly spread out throughout a site, probably due to lack of habitat”. This is a good characterization of the habitats where it grows. The rocks where it grows may not be as calcareous as those where *O. cespitosa* grows. Along the Hudson River it tends to grow on outcrops not far from the river and they are usually shales or metamorphic rock. It may be growing close to the river where conditions are ameliorated by the river and similar to the warmer climate on the coast. As you go southward the distribution spreads farther away from the river. Other plants in our flora have this same coastal/Hudson Valley distribution.

Opuntia cespitosa is a more inland species and the most common species in the eastern US, growing mostly west of the Appalachian Mountains. It grows from Wisconsin south to Texas and east to Michigan and southern Ontario and south to Alabama. Occasionally it also grows east of the Appalachians. In New York it grows mainly on calcareous rock in the Binnewater Lakes area from Kingston southwest to Rosendale, but specimens have been collected farther south in inland locations in Orange County. Majure et al. (2017) state that there is apparent introgression with *O. humifusa* at the eastern boundary of the two species, including in New York. I think this can be seen in the characters of some of the Binnewater area plants. The center of the flowers is only light orange or orange and not the deep red of those found farther west. The number of spines per pad may be less in New York than those farther west as well. Another confounding factor for identification is that people move these plants around for horticulture purposes.





Figure 1. *Opuntia humifusa* along the Hudson River, Orange County.



Figure 2. *Opuntia cespitosa*, Binnewater Region, Ulster County.



After examining the observations of *O. humifusa* on iNaturalist, I found that some of them show *O. cespitosa* characters on Long Island and the NYC area, see:

<https://www.inaturalist.org/observations/33957090> - this one from Middle Island shows orange flower centers;

<https://www.inaturalist.org/observations/6875633> - this one from Van Cortlandt Park has very red-centered flowers.;

<https://www.inaturalist.org/observations/28566662> - this one from Nissequogue has long spines.

Some *O. cespitosa* iNaturalist observations from the NYC area and Long Island have good characters but it is not always easy to track down if they are native in an area with a long history of horticulture. See this one from Staten Island: <https://www.inaturalist.org/observations/27061786>

Some of the observations look more like *O. humifusa* and I wonder how many of them were automatically identified by iNaturalist. I think we will have to wait for more people to look closely at these differences and do some genetic work before we figure it all out. In the meantime, get out and enjoy our cactus species in the field and observe them carefully. I encourage you to put your observations in iNaturalist for others to see. And watch out for those glochids, they can be very difficult to extract from your skin if you touch them.

Reference

Majure, Lucas et. al. 2017. Taxonomic revision of the *Opuntia humifusa* complex (Opuntiaeae: Cactaceae) of the eastern United States. *Phytotaxa* 290 (1): 001-065.

Acknowledgements

I would like to thank David Werier and Erik Kiviat for reviewing this article and Erik Kiviat, Ed McGowan, Ian Laih, and Chris Graham for assistance with field work.



***Descurainia sophia* (L.) Webb ex Prantl (Brassicaceae) rediscovered in New York City after more than 100 years**

by Susan J. Hewitt, Daniel Atha, and David J. Ringer

Introduction

Descurainia sophia, common name Flixweed, is a tansy mustard species native to Eurasia. It is introduced in North America, where it is primarily found in the southern and western states (USDA, 2019).

This species was last recorded in New York City in 1901, when it was found at “Oak Point Ballast” in the South Bronx on June 25th of that year. Fifteen years earlier, on June 16th, 1886, it had been recorded from Richmond, Stapleton Flats, Staten Island.

In late April and early May 2019, Flixweed was discovered and identified in two separate locations in



Manhattan. In late March 2020, numerous young plants were growing again in one of the locations. Searching older photographic records on iNaturalist revealed that the plant had been photographed at one of the locations in 2017 and 2018. The species appears to be re-established in New York City.



Flixweed habitat, photos by Susan Hewitt on Manhattan's Upper East Side, East River Esplanade between 76th and 77th Streets.

Uses

A number of medicinal uses are attributed to the species, hence the epithet “sophia”, meaning “wisdom”. The common name Flixweed appears to be a corruption of the name “flux weed”, as one use of the plant was to treat dysentery.

Current status

Flixweed is considered invasive in some parts of the US. In Colorado and Minnesota, it is classified as a noxious weed. It is poisonous to large grazing mammals such as cattle and horses, causing blindness, staggering, and loss of the ability to swallow.

Recent discovery in NYC

On April 21st 2019, the first author photographed two adjacent plants on the Esplanade next to the East River between 76th and 77th Streets on Manhattan's Upper East Side (observation 22841092 on the citizen-science natural-history web platform iNaturalist). Thorough searching at that location revealed approximately 200 plants in an area circa 100 m long by 3 m wide. Pressed specimens were prepared for the William and Lynda Steere Herbarium at the New York Botanical Garden.

A week later, on April 28, 2019, third author David J. Ringer documented a second population consisting of several plants near Pier 51 along Hudson River Park in Manhattan's West Village (observation 23648898 on iNaturalist). On May 7th Ringer found another three plants in the same general area, along the Hudson



River between Gansevoort Street and 13th Street (observations 24770671, 24770691, 247707390 on iNaturalist).

Careful review of older Brassicaceae observations on iNaturalist carried out by Dimitriy Bochkov showed that *D. sophia* had been photographed (but not correctly identified) in previous years by Susan Hewitt: in June 2017 (iNaturalist observation 6539919), and in June 2018 (observation 13617745), both in the same location on the East River Esplanade.

These are the first reports of the species from New York County (Manhattan) (Weldy et al. 2019).

Rediscovery of this species after 100 years begs the question: has the species persisted undocumented for 100 years, or was it re-introduced de-novo from outside the City?



Descurainia sophia. Photos by David Ringer.

Acknowledgements

Thanks to Sara Rall for helping with the original identification, and D. Bochkov for identifying observations from 2017 and 2018.

References

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Fourth Annual Winter Plant Workshop and a Review of Evergreen Tree Groups

by Joseph McMullen, NYFA Board Member, joemcmullen49@gmail.com

The fourth annual NYFA winter plant workshop was held on January 20, 2020 at the Onondaga Lake visitor's center, near Syracuse. The weather on that day included rain, freezing rain, sleet, snow, and wind. It was a tough day for some who had a distance to travel, but 20 of the 21 registrants made it. Maura Sullivan of Finger Lakes Community College got the most committed botanist award. Her car slid off into a ditch near Geneva, was towed to a garage and repaired, and she still made it to the workshop a little later.

I think everyone enjoyed the several handouts, power point presentation, and numerous specimens I collected for display. The afternoon field trip was a little trying, primarily because the road to the park where I intended to go was closed at the last minute to accommodate a movie shoot. I was able to gather most back for a field trip near the visitor's center (see photo).



Hearty and well-dressed group of winter workshop attendees.

A group of plants I cover during the workshop is the evergreen trees. Although these trees hold their leaves throughout the year, they are much more visible in the winter. For some of them, this visibility permits identification from afar during the season. One of my pet peeves about this group is that usually when someone sees an evergreen tree, they automatically call it a pine. Pines (*Pinus spp.*) are common among our evergreens, but there are many more, like spruce (*Picea*), hemlock (*Tsuga*), fir (*Abies*), cedar (*Thuja*), juniper (*Juniperus*), and yew (*Taxus*).

The primary reason deciduous trees shed their broad leaves is to limit the loss of water. The leaves of evergreen trees are very different than deciduous trees. They are usually long and narrow, resembling a needle, and hence the group is referred to as narrow- or needle-leaved trees. This shape reduces the surface area of the leaf, and along with a frequent waxy layer of cutin, restricts water loss during the winter months. It should be noted that evergreens do shed their leaves at times during the year (anyone who has ever had a white pine in their yard can attest to that), they just don't shed them all at once.

When identifying an evergreen tree, the first thing to look for is how the needles are attached to the twig.



Are they attached singly or joined together in bundles? If in bundles of two or more, then it is one of the pines. If attached singly, note the nature of the point of attachment and the nature of the twig when the needle is shed. The base of the needles of firs form a circular pad that smoothly attaches to the twig and leaves a smooth twig when shed. Spruce have a little woody stub at the base of their needles, which remains on the twig when the needles fall. Hemlock needles have a very small petiole resulting in a rough twig when needles are shed. Common species in selected evergreen groups are discussed in the following text.



Remnant woody stubs when spruce needles are shed.

Pines – As mentioned above, the needles of pines are joined together at their base and attach to the twig as a bundle of two or more. The number of needles in each bundle is diagnostic. Pines also usually add a whorl of branches each year, so you can estimate the age of a young pine by counting the number of branch whorls.

The only pine east of the Mississippi River with five needles in a bundle is white pine (*Pinus strobus*). White pine is our tallest eastern evergreen and is an important tree. When the five Native American tribes met on the shore of Onondaga Lake to sign a peace treaty, they gathered together and buried their weapons of war under a white pine tree; the five needles joined as one being symbolic.



White pine, the only five-needle bundle pine in the east.

Our only pine in New York with three needles in a bundle is pitch pine (*Pinus rigida*). Pitch pine is an



important coastal species because it is tolerant of salt (and also fire). It is prevalent on Long Island, in the pine bush near Albany, and is scattered here and there elsewhere, often in barrens, across the state.



Pitch pine, New York's only pine with three needles in a bundle.

Several of our pines have two needles in a bundle, including red pine (*Pinus resinosa*), jack pine (*Pinus banksiana*), and scotch (Scots) pine (*Pinus sylvestris*). Red pine is a northern NY species, but is often planted as an ornamental. It has very long needles and is a good self-pruner. Those clean looking plantations you see with tall straight trees and few side branches are red pine. Jack pine is also a northern NY species. It has very short needles and like pitch pine it has persistent cones. Scotch pine was introduced from Europe. Its stiff, two-needle bundles are of medium length and have a slight twist. The upper trunk of scotch pine is rusty brown in color and is usually crooked. As the story goes, in the 1930s when pines were planted for reforestation purposes, collecting the seeds from the beautiful, tall scotch pine of Europe was difficult, so seeds were collected from shorter, stunted trees and those were the source of our planted trees.

Spruce – Spruce needles are attached singly and are distinctly angled with somewhat four sides. The needles are stiff, sharp pointed, and are attached to the twig with a woody peg-like base which remains when the needle is shed and results in a rough twig. The four spruce you commonly encounter in NY are: Norway spruce (*Picea abies*), red spruce (*P. rubens*), white spruce (*P. glauca*), and black spruce (*P. mariana*).



Left: four sided, square-ish needles characterize all spruce, here on Norway spruce. Right: pendulous secondary branches can identify Norway spruce at a distance.

The introduced Norway spruce is easily recognized at a distance by its long main side branches upturned at the ends, and the distinctly drooping or pendulous secondary branches. They have very large cones, the biggest of our spruces. Norway and red spruce both usually have deep green, longer needles, however the twig of Norway spruce is glabrous while red spruce's is pubescent. Red spruce is a dominant of the spruce-



fir forest seen in the Adirondacks. White and black spruce have shorter, usually blue-green needles; the twig of white spruce is glabrous and that of black spruce finely pubescent. Black spruce is typically found in bogs and wetlands.

Fir – Our only native fir is balsam (*Abies balsamea*). For balsam, the needles are rounded at the tip and attached to the twig with a circular pad. When the needles are shed, the twig is smooth. The needles are white underneath, which easily distinguishes them from yew needles, which have green undersides. Fir cones are different from our other evergreens in that they are upright on the upper side of the twig. Balsam fir is the steeple-shaped evergreen that characterizes the spruce-fir forest in the Adirondacks, and it is also found in forested wetlands of the Catskills and other parts of the state.



Left: balsam fir twig, with blunt needles attached with a circular pad leaving a smooth twig when shed. Right: short blunt needles of eastern hemlock are white underneath and have a minute petiole.

Hemlock – Eastern hemlock (*Tsuga canadensis*) is New York's only native hemlock. Needles of eastern hemlock are short, flat, blunt at the tip, and have two white lines underneath. The white lines are rows of stomata (the openings in leaves where gases are exchanged). Hemlock is a tree that requires a high relative humidity to get started and it is our characteristic evergreen of stream bottoms, coves, protected slopes, and acidic wetlands. It is the state tree of Pennsylvania and is one of my favorites.

Northern White Cedar – Northern white cedar (*Thuja occidentalis*) is our most widespread and abundant cedar. The leaves of northern white cedar are much different than the prior evergreen trees. Rather than being long and narrow, the leaves are reduced to overlapping scales. It is found across the state in limestone soils and wetlands, sometimes in very dense stands.



Scale-like overlapping (imbricate) leaves of northern white cedar.

Hopefully everyone had a chance to identify and enjoy the plants during the leaf-off season, including our much more evident evergreens. From now on, please don't automatically refer to them as pines.

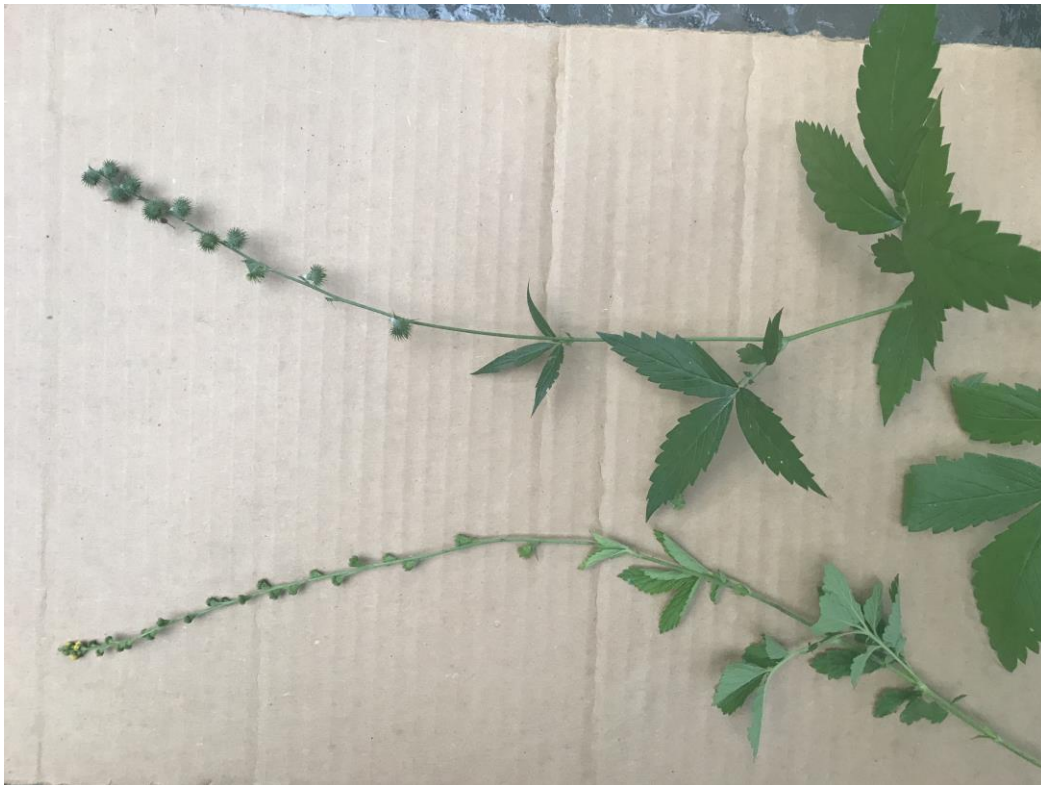


Additions to the St. Lawrence County Flora, 2019

by Anne Johnson

Ten years ago my co-St. Lawrence County botanist and I published our county flora. At that point we had personally recorded 1347 plants, most of them vouchered. Each year since the original publication, new finds have been reported in an article in this newsletter. Now, ten years later, the number has climbed to 1470. The past field season resulted in the following ten new plants being recorded.

Agrimonia rostellata (S2), woodland agrimony. Steven Daniel came across this agrimony in Stammer State Forest in Edwards. It has a smaller hypanthium and shorter bristles than the much more common *A. gryposepala*. We now know of three agrimony species in the county.



Agrimonia rostellata (bottom) and *A. gryposepala* (top). Photo by Steven Daniel.

Carduus acanthoides, plumeless thistle. To me this thistle looks like a slender, greener version of the giant *Onopordum* that occurs sporadically in our county. It is tall, very branched, and very prickly throughout. Steven Daniel first noticed this near Tooley Pond and also on an access road in Yellow Lake State Forest.

Carex siccata, dry spiked sedge. Steven Daniel and David Werier came across lawns of this on a white pine rocky top above the shore at the mouth of the Indian River.

Cerastium nutans, nodding chickweed. David Werier and Kyle Webster found this attractive native chickweed on a rocky top in Lonesome Bay State Forest during a springtime NYFA field trip.

Elymus virginicus var. *jejunus*, exserted Virginia wild rye. This was noticed by Steven Daniel on the side of a beaver affected wetland in sandy soil – its exserted inflorescence makes this one obvious.



Hypericum gentianoides, orange grass. We were pleased to find this interesting plant growing (quite abundantly) as a weed in a cranberry bog. The owner of the bog told us it tasted like pine needles and indeed it did, reflecting its other common name pineweed. He thinks it came in with sand he brought in from a sandpit in neighboring Franklin County.



Hypericum gentianoides, photo by Steven Daniel.

Juncus acuminatus, sharp fruited rush. Steven Daniel noticed this while canoeing. It was growing abundantly in a drawdown of the Oswegatchie River in Fowler. This rush has three stamens instead of the six found in other similar rush species. To me it looks like a cross between *J. articulatus* and *J. alpinoarticulatus*, so if you see a *Juncus* that you can't definitely place, check the number of stamens.

Knautia arvensis, bluebuttons. Steven Daniel found this non-native occurring along a recreational trail in the village of Edwards.

Myriophyllum alterniflorum (S2), alternate flowered water milfoil. Steven Daniel found this uprooted and floating in shallow water along the shore of Trout Lake. It is quite distinctive in its minute size.



Myriophyllum alterniflorum. Photo by Steven Daniel.

Polygonum tenue (S3), pleated leaved knotweed. This small, erect knotweed was superficially similar to *Polygonella* at first glance when seen from above. A good stand of it was growing in sandy disturbed soil in Brasher.



New Rare Plant Finds Submitted to the NY Natural Program from 2019

by Steve Young, Chief Botanist, NYNHP

The field season of 2019 was another great year for rare plant discoveries. David Werier even found an SH and an SX species! I received many more updates to rare species occurrences that are not listed here and wish to thank all those explorers who found them. Some of them were updates that were decades old. I also received new occurrences of plants on the watch list but did not include them here. The information arrives to me in many ways: from the rare plant reporting form (www.nynhp.org/report-rare) to conversations, literature, and social media. It is often overwhelming at times and a backlog builds up that we constantly work on. This year I also included finds posted on iNaturalist (designated with an asterisk) that show up in my NY rare plant collector project. This is actually the easiest way to get information to me as long as I have the exact GPS coordinates and good photos. Thank you all for your excellent work in finding rare plants and for taking the time to report them. Let me know if I missed any so I can update the list. I look forward to seeing what you find in 2020!

Long Island

Nassau County – Greentree Grasslands – *Euonymus americanus* S1 – Jim Stevenson
 Suffolk County - Conscience Bay - *Symphytotrichum tenuifolium* S2S3 - David Laby*
 Suffolk County - Makamah Nature Preserve - *Viburnum dentatum* var. *venosum* S2 - Dan Tyska*
 Suffolk County - Mashomack Meadow - *Spiranthes vernalis* S1S2 - Clark Mitchell*
 Suffolk County - North Fork Preserve - *Lemna perpusilla* S1 - Ethan Maitra*
 Suffolk County - Setauket - *Eupatorium subvenosum* S2S3 - David Laby*
 Suffolk County - Setauket - *Sabulina caroliniana* S2 - Ethan Maitra*
 Suffolk County - South Haven County Park - *Hottonia inflata* S2 – Maggidy*
 Suffolk County - South Setauket - *Lespedeza angustifolia* S2 - Ethan Maitra*
 Suffolk County - South Setauket - *Polygala nuttallii* S2 - David Laby*
 Suffolk County – Dwarf Pine Barrens – *Viola pedata* var. *pedata* S2 – Polly Weigand
 Suffolk County – Manorville – *Lupinus perennis* S3 – John Turner
 Suffolk County – Montauk – *Atriplex glabriuscula* S1 – Vicki Bustamante
 Suffolk County – Mount Sinai Harbor – *Symphytotrichum subulatum* S2 – David Laby
 Suffolk County – Oyster Pond – *Carex hormathodes* S2S3 – Vicki Bustamante
 Suffolk County – Sunrise Highway – *Viola pedata* var. *pedata* S2 – John Heidecker

New York City

Bronx County – Bronx River Forest – *Fraxinus profunda* S1 – NYC Parks
 Bronx County – Pelham Bay Park – *Carex hormathodes* S2S3 – Zihao Wang
 Bronx County – Pelham Bay Park – *Fraxinus profunda* S1 – NYC Parks
 Bronx County - Pelham Bay Park - *Juncus brachycarpus* S1 - Zihao Wang
 Richmond County - Bloomingdale Park - *Magnolia virginiana* S2 - Sara Rall *
 Richmond County - Brookfield Park - *Symphytotrichum subulatum* S2S3 - C. Barron*
 Richmond County - Conference House Park - *Tripsacum dactyloides* S2 - Zihao Wang*
 Richmond County - Great Kills Park - *Oenothera laciniata* S1 - C. Barron*
 Richmond County - Great Kills Park - *Opuntia cespitosa* S1 - C. Barron*
 Kings County - Prospect Park - *Agastache nepetoides* S2 – Howard Goldstein
 Kings County – Marine Park – *Solidago rigida* S2 Maria Roe
 Kings County – Newtown Creek – *Cuscuta campestris* S1 – Erik Kiviat



Lower Hudson

Dutchess County – Cemetery – *Carex mesochorea* S2 – David Werier
 Orange County – Appalachian Trail – *Diospyros virginiana* S2 – Nathan Laing
 Orange County - West Point - *Viola bicolor* S1 - Steve Daniel
 Westchester County – Ward Pound Ridge – *Desmodium ciliare* S2S3 – Michael Gambino
 Westchester County - Marshlands - *Symphotrichum subulatum* S2S3 - Sara Rall*

Eastern New York

Columbia County – Stockport Creek – *Carex davisii* S2 – Dan Smith
 Ulster County – Black Creek Mouth – *Pedicularis lanceolata* S2S3 – NYFA trip
 Ulster County – Esopus – *Carex typhina* S2 – Joe Bridges
 Ulster County - High Falls - *Asclepias purpurascens* S2 - Vicki Koenig*
 Ulster County – New Paltz – *Ellisia nyctelea* SX – David Werier

Adirondacks

Essex County – Alder Pond – *Arethusa bulbosa* S2 – Audrey Hyson
 Essex County – Crown Point – *Carex lupuliformis* S2 – Sara Stebbins
 Essex County – Crown Point – *Schoenoplectus heterochaetus* S2 – Sara Stebbins
 Essex County - Eagle Mountain Wilderness Preserve - *Pyrola asarifolia* S2 – Shelby Perry
 Essex County – Mount Skylight – *Vaccinium cespitosum* S1 - NYFA trip
 Essex County – Hudson Gorge – *Dryopteris fragrans* S1S2 – David Werier
 Essex County – Hudson Gorge – *Woodsia glabella* S1 – David Werier
 Essex County – Whiteface Mountain – *Platanthera hookeri* S1 – Erin Oneill*
 Franklin County – Barnum Pond Bog – *Carex chordorrhiza* S2 – Matt Peters
 Warren County – Dunham Bay Marsh – *Liparis liliifolia* S1 – Ruth Brooks
 Warren County – Oven Mountain – *Polygonum douglasii* S1S2 – Evelyn Greene

Central New York

Herkimer County - Stillwater Reservoir - *Bartonia paniculata* S1S2 - Steve Daniel*
 Jefferson County - Oscars Bay Muskellunge Lake - *Draba arabisans* S2 - Steve Daniel*
 Jefferson County - Oscars Bay Muskellunge Lake - *Pellaea glabella* S2 - Steve Daniel*
 Jefferson County - Three Mile Barrens - *Bouteloua curtipendula* S2 - Steve Daniel*
 Jefferson County - Three Mile Barrens - *Dracocephalum parviflorum* S2 - Steve Daniel*
 Lewis County – Bonaparte Swamp – *Carex gynocrates* S1 – Steven Daniel*
 Lewis County – Bonaparte Swamp – *Carex vaginata* S1 – Steven Daniel
 Lewis County – Bonaparte Swamp – *Equisetum palustre* S2 – Steven Daniel*
 Onondaga County – Baltimore Woods – *Solidago ohioensis* S2 – Don Faber-Langendoen
 Seneca County – Cayuga Lake – *Najas marina* S1 - Kate Des Jardin
 St. Lawrence County - Brasher State Forest - *Pycnanthemum verticillatum* S1S2 - Steve Daniel*
 St. Lawrence County - Cedar Lake Swamp - *Pyrola asarifolia* S2 - Steve Daniel*
 St. Lawrence County - Grindstone Bay - *Boechera grahamii* S2 - Steve Daniel*
 St. Lawrence County - Lisbon Swamp - *Viola nephrophylla* S1 - Steve Daniel*
 St. Lawrence County - Pleasant Lake State Forest - *Bromus nottowanus* S1 - Steve Daniel*
 St. Lawrence County - South Edwards – *Agrimonia rostellata* S2 - Steve Daniel*
 St. Lawrence County - South Edwards - *Symphotrichum boreale* S2 - Steve Daniel*
 St. Lawrence County - Town Line Road Wetland - *Pyrola asarifolia* S2 - Steve Daniel*
 St. Lawrence County - Trout Lake - *Myriophyllum alterniflorum* S2 - Steve Daniel*



Onondaga County – Elbridge – *Gymnocladus dioicus* S1 – Philip Crim
 Tompkins County – Cemetery – *Carex mesochorea* S2 – David Werier
 Tompkins County – Ithaca area – *Spiranthes ovalis* var. *erostellata* S1 – Jay McGowan
 Tompkins County – Lansing – *Jeffersonia diphylla* S2 – Bob Wesley
 Wayne County – Crowfield Farm Sanctuary – *Jeffersonia diphylla* S2 – Silvia Albrecht
 Wayne County – Howland Island/Carncross – *Rumex fueginus* S1 – Frank Morlock



Pycnanthemum verticillatum (Whorled Mountain Mint). Photo by Steven Daniel.

Western New York

Allegany County – Bully Hill State Forest – *Allium cernuum* S2
 Cattaraugus County – Red House – *Carex caroliniana* SH – David Werier
 Chautauqua County – Chautauqua Lake – *Potamogeton hillii* S2 – Racine-Johnson Aquatic Ecologists
 Livingston County – Salt Creek – *Jeffersonia diphylla* S2 - Jeff Fridman
 Livingston County – Tuscarora Keshequa Creek – *Frasera caroliniensis* S2 – Sara Stebbins
 Monroe County – Braddock Bay WMA – *Carex chordorrhiza* S2 – Scott Ward
 Monroe County - Rush Oak Opening - *Poa cuspidata* S1 - Steve Daniel*
 Monroe County – West Rush – *Carex davisii* S2 – David Werier
 Monroe County – West Rush – *Carex formosa* S2– Steven Daniel
 Monroe County – West Rush – *Trillium flexipes* S1– David Werier
 Niagara Co. – Whirlpool State Park – *Houstonia canadensis* S1 – Erik Danielsen
 Niagara County - 6 Mile Creek - *Solidago rigida* S2 – Aaron Heminway
 Niagara County – Fisk Road Woods – *Carya laciniosa* S2 – Justin Zoladz



Carex formosa (Handsome Sedge). Photo by Steven Daniel.



NYFA Field Trips and Workshops for 2020

PLEASE NOTE: We are monitoring the COVID-19 situation and will update field trips and workshops as needed. Please check our website for updates.

This year we have an amazing line-up of field trips and workshops and we look forward to helping each other learn more about our beautiful New York flora. We would also like to thank those who sent in suggestions for future field trips; we really liked the diversity of ideas and will be using them for future planning sessions. For more details on each trip see www.nyflora.org. See you in the field!

June 6, Saturday: Hudson River Ice Meadows East Bank – Jackie Donnelly - Warrensburg, Warren County

June 11, Thursday: iInvasive Woody Plants - Rebecca Hargrave – Morrisville, Madison County

June 12, Friday: Exploring Thousand Acre Swamp – Kyle Webster - Penfield, Monroe County

June 13, Saturday: Hunter Island Pelham Bay Park – Zihao Wang - Bronx County

June 20, Saturday: Three Mile Barrens Alvar – Anne Johnson, Steve Daniel - Jefferson County

June 27, Saturday: Essex Quarry Flora – Steve Young - Village of Essex, Essex County

June 28, Sunday: Searching for Polemonium – Mike Kudish - Kudish Preserve Catskills, Delaware County

July 10, Friday: 4 Peaks Flora – Steve Langdon - Jay, Essex County

July 11, Saturday: Moss Island Flora and Geology – Steve Young - Little Falls, Herkimer County

July 12, Saturday: Hudson River Meadows West Bank – Jackie Donnelly - Warrensburg, Warren County

July 18-19, Saturday-Sunday: Zoar Valley Flora – Erik Danielsen - Cattaraugus County

July 23, Thursday: Learn 10 Trees Workshop – Dan Spada - Saranac Lake, Franklin County

July 24-26, Friday-Sunday: Grass Workshop – David Werier - Ithaca, Tompkins County

July 25, Saturday: Learn 10 Trees Workshop – Dan Spada - Wild Center Tupper Lake, Franklin County

August 1, Saturday: Whiteface Mountain Flora – Steve Young - Wilmington, Essex County.

August 15, Saturday: Flora of Split Rock Mountain – Rich Ring - Westport, Essex County

September 9, Wednesday: Valcour Island – Steve Young and Dan Spada - Plattsburgh, Clinton County

September 11-13, Friday-Sunday: Fern Workshop – Tim Draude – Ithaca, Tompkins County

September 16, Wednesday: Jones Beach Island Rare Plants and Cyperus – Steve Young - Tobay and Cedar Beaches, Suffolk County

September 16-17, Wednesday-Thursday: Aster and Goldenrod Workshop – Tony Reznicek – Watertown, Jefferson County.

September 20, Sunday: Mohawk Bike Trail Petal Pedal – Steve Young - Schenectady, County

September 26, Saturday: Wilson Tuscarora State Park Flora – Ed Fuchs – Wilson, Niagara County





Wishing you all a good 2020 botany season!
Canada Plum (*Prunus nigra*).

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