Founded in 1997.
Logo art of Tall Goldenrod,
Solidago altissima,
by Nat Cleavitt, 2006.

Solidago

Newsletter of the
Finger Lakes Native Plant Society

Volume 23, No. 2 ☙ June 2022

LOCAL FLORA

Yellow Mandarin

by Kenneth Hull

Prosartes lanuginosa or **Yellow Mandarin** (also called **Yellow Fairy Bells**) is a native plant of the Finger Lakes Region. Flowering occurs in the last week of June. It grows fairly close to the ground, and the blossoms are usually hidden by the leaves. It is a member of the lily family (Liliaceae), and not common (*scarce,* according to F. Robert Wesley *et. al., Vascular Plant Species of the Cayuga Region of NYS*, 2008). It prefers deciduous forests. Although it's called "yellow," the flower color is more "lime green" with pale yellow stamens. Does it appear more yellow depending on age of the blossom, level of calcium in the soil, hydrology, or sun exposure? Or is it truly lime green?

☙

This Steering Committee was approved by FLNPS members in April 2022.

The Finger Lakes Native Plant Society Steering Committee

Freyda Black: Facebook Page
Audrey Bowe: Treasurer
Krissy Boys: Native Plant Gardener
Whitney Carleton: Mailings
Patricia A. Curran: At Large
Robert Dirig: Newsletter Editor*
Diane Florini: Meeting Recorder, At Large
Adrianna Hirtler: Publicity
Carolyn Klass: At Large
Mary Squyres: Supper Club
Anna M. Stalter: Secretary, Membership; Outings & Education Chair
Robert Wesley: President

Additional Newsletter Staff

Rosemarie Parker: Webmaster & Assistant Newsletter Editor
David Werier: Newsletter Editor Emeritus

Please Contribute to *Solidago*

We welcome contributions that feature wild plants of the Finger Lakes Region of New York and nearby. We include cryptogams (bryophytes, lichens, fungi, and algae) as "flora," and recognize that green plants provide habitats and substrates for these and many animals, especially insects. We are interested in zoological associations as long as plants are an integral part of the story.

We can use a wide spectrum of material in a variety of writing styles. Our regular columns include **Local Flora** (plant lists or details of species from specific sites), **Outings** (reports of FLNPS-sponsored excursions), and **Plant Profiles** (on specific local plants). We also occasionally publish **Appreciations** (memorials to local botanists and naturalists), **Reviews** (of books, talks, meetings, workshops, and nurseries), **Letters** (commentaries and letters to the editor), **Essays** (on botanical themes), **Verse** (haiku, limericks, sonnets, and poems of less formal structure), **Art** (botanical illustrations, plant designs, pencil sketches, decorations), and **Photographs** (stand-alone images, photo essays, and full-page composite plates, or originals that can be scanned and returned). We also can always use **Fillers** (very short notes, small images, cartoons) for the last few inches of a column.

Solidago

Newsletter of the
Finger Lakes Native Plant Society

Volume 23, No. 2 June 2022

Published quarterly at Ithaca, New York, USA.

FLNPS (founded in 1997) is dedicated to the promotion of our native flora. We sponsor talks, walks, and other activities related to conservation of native plants and their habitats. *Solidago* is published as a colorful online version, and a B&W paper version that is mailed. The online format is posted 3 months after publication. Please see ***www.flnps.org*** for details of membership, past *Solidago* issues, and updates about our programs.

Blue Flag (*Iris versicolor*) is one of the glories of June in Finger Lakes wetlands. Photographed on 10 June 2011, [Also see p. 14.]

Contents

*Please send *Solidago* contributions & correspondence to Robert Dirig, Editor, at editorofsolidago@gmail.com

Deadline for the September 2022 issue is August 15th !

Name That Plant Contest

The photos from last issue's contest [*Solidago* 23(1), March 2022, p. 3] were of **Rock Spikemoss (*Selaginella rupestris*)**, a small moss-like creature, which, for those who are familiar with it, evokes all sorts of praise. Locally it is quite rare, probably because there are not a lot of open rock exposures, and perhaps no rattlesnakes and copperheads. Charlie Smith wrote, "I knew the plant from my undergrad days in Tennessee, where it was more common than here. It seemed to grow well on dry, shaly ledges, along with sunning rattlesnakes and copperheads." Thanks to all who entered, and congratulations to the winners: **Bob Dirig**, **Susanne Lorbeer**, **Rosemarie Parker**, **Charlie Smith**, and **Robert Wesley**.

This issue's mystery plant is shown below.

Grass time! Additional hints and suggestions are often provided to contest participants who try. Common and/or scientific names are acceptable, and more than one guess is allowed. Please submit your answer to **David Werier** at Nakita@lightlink.com

The photographs were taken in New York by David Werier on 18 Sept. 2020 in Erie Co. (right inset of fruiting spike) and 3 August 2021 in Broome Co. (background and left inset of emerging spike).

Letters

Hi Bob!

I wanted to thank you for your excellent work on *Solidago*. It is always a visual delight! Anna Stalter, *10 March 2022, Ithaca, N.Y.*

Hello Bob,

I really enjoyed the last issue of *Solidago* (Mar. 2022). I loved the whole thing, every last word. And I have both the sedge and urban lichen books on order at Barnes & Noble! Thank you, Betsy Crispell, *2 April 2022.*

Plant Trivia

by Norm Trigoboff

1. In our area, what genus of native land plants comes last in alphabetical order?

2. Suppose you hike through the local woods looking for two rare native wetland plants. One is more common farther north of here; the other farther south. You reach a pond surrounded by mucky woods. The pond is too small, of course, to show a climate change from end to end. Still, the temperature does change around the pond. Where might you focus your search for each plant and why?

3. What island has been called "the most alien-looking place on Earth" because of its odd plants?

4. What fruit native to our area has seeds on the outside?

5. What common flavor comes from a plant in the Orchid family?

6. The plant product we use for erasers and tires earned its name because it was good at rubbing out pencil marks. Before rubber, people erased with a different plant product. What?

7. Now that you've had time to think, why is the south shore of the pond from question 2 cold and the north warm?

8. You want to look at the mosses in a fairly steep, east-west running ravine. A creek at the bottom is hard to walk because of many small waterfalls. You want to enter the ravine right where the largest growths of mosses are. You could scout by hiking the north or south rim of the ravine. Which do you choose and why?

9. What do these native plants and animals have in common: *Ambrosia artemisiifolia* (Common Ragweed), *Bidens frondosa* (beggarticks), *Helianthus annuus* (Common Sunflower), *Phytolacca americana* (Pokeweed), *Sciurus carolinensis* (Gray Squirrel), *Spodoptera frugiperda* (Fall Armyworm), *Solidago canadensis* (Canada Goldenrod), *Solidago gigantea* (Late Goldenrod)?

10. This map shows five creeks that flow through Ithaca (see: https://www.cityofithaca.org/301/Six-Mile-Creek-Watershed). You are new to the area and want to look at mosses and other plants that grow on shady, humid rock faces. Where do you go first?

See answers on page 4.

Selaginella apoda (Meadow Spikemoss), doing fine at the Morgan Garden (a Japanese moss garden) at the Herbert F. Johnson Museum of Art on the Cornell University campus in Ithaca, N.Y. The largest leaves are about 2 mm long. Photo by NORM TRIGOBOFF, *11 April 2022*.

Thank You!

FOR THIS ISSUE, we thank ***writers*** Kristine A. Boys, Betsy Crispell, Robert Dirig, Kenneth Hull, Rosemarie Parker, Anna Stalter, Norm Trigoboff, & David Werier; and ***photographers*** Kenneth Hull (p. 1), David Werier (p. 3), Norm Trigoboff (p. 4), Kristine A. Boys (pp. 8-12), Todd Bittner (p. 10), & Robert Dirig (pp. 2, 5-7, & 14). ***Layout & design*** by the Editor; ***proofreading*** by Rosemarie & Kristine; and ***printing*** by Gnomon Copy. Rosemarie and Anna posted our newsletters; Whitney Carleton mailed them; and Audrey Bowe, Rosemarie, and Anna organized calendar items. David helped with a nomenclatural question.

With this issue, we enter our summer hiatus. Please check our website (flnps.org) regularly for announcements of any summer walks or other events. Thanks to our Steering Committee (p. 2) and all of our members for supporting FLNPS through another challenging year. Perhaps we can resume in-person programs in September!

Best Wishes to everyone in our reading audience for joyous outdoor revels with the glorious summer flora!
— Robert Dirig

Plant Trivia Answers

by Norm Trigoboff

1. *Zygodon*, a moss. (Tiny bits of it grow on trees at R H Treman State Park.)

2. You search the south end of the pond for the plant found to the north and vice-versa for the other. Around here, the south shores of woodland ponds are coldest and the north shores are warmest. (You could look for both plants in both places, but I needed a way to frame the question.)

3. One-third of the plant species on the island of Socotra by Yemen are native only there. Alexander The Great is said to have conquered Socotra for a supply of its endemic species of Aloe that could heal wounded soldiers.

4. Strawberry.

5. Vanilla, though today most gets made from petrochemicals.

6. Pieces of damp bread rolled into balls.

7. The sun lies to the south of the pond. It is highest, strongest and most southern at midday. Trees shade the south shore of the pond. The sun shines with full force on the north shore. And the trees and water at the north reflect the light and heat of the sun onto each other like a solar oven. You can see the effect at the end of winter as the ice melts; and in spring and fall when turtles sun in the warm spots. On a FLNPS spring walk at Lime Hollow this May, we saw large (over-wintered) tadpoles congergate at the warm north end of a vernal pond in the woods.

8. You walk the north rim. This lets you look across the ravine and see the north-facing slope. Thick growths of moss are more likely there. (See: R. M. Schuster. 1949. The Ecology and Distribution of Hepaticae in Central and Western New York. *The American Midland Naturalist*. Vol. 42, No. 3, p.666 ff.)

9. They have invaded other continents (in a bad way).

10. You go first to a local topo map to see where east-west flowing sections of creeks are steep. East-west flowing creeks are more likely to have north-facing slopes with good shade and humidity. With the map given here, you can still guess the good spots. Creeks with many bends and oxbows, such as much of Fall Creek, suggest an old creek that flows through flat (eroded) terrain. Straight creeks, as with Lick Brook, are more likely to have long, steep, shady banks.

ECOLOGY/PHOTO ESSAY

THE POND is still, on this early summer day, like a huge mirror, disturbed only by my canoe trail as I silently skirt the shoreline. Dead stubs interrupt my path, necessitating careful maneuvering, and reminding me that ten years ago, this was a flourishing Beaver colony. Now the Beavers are gone, but the drowned swamp remains — and with it, the varied and fascinating life of the

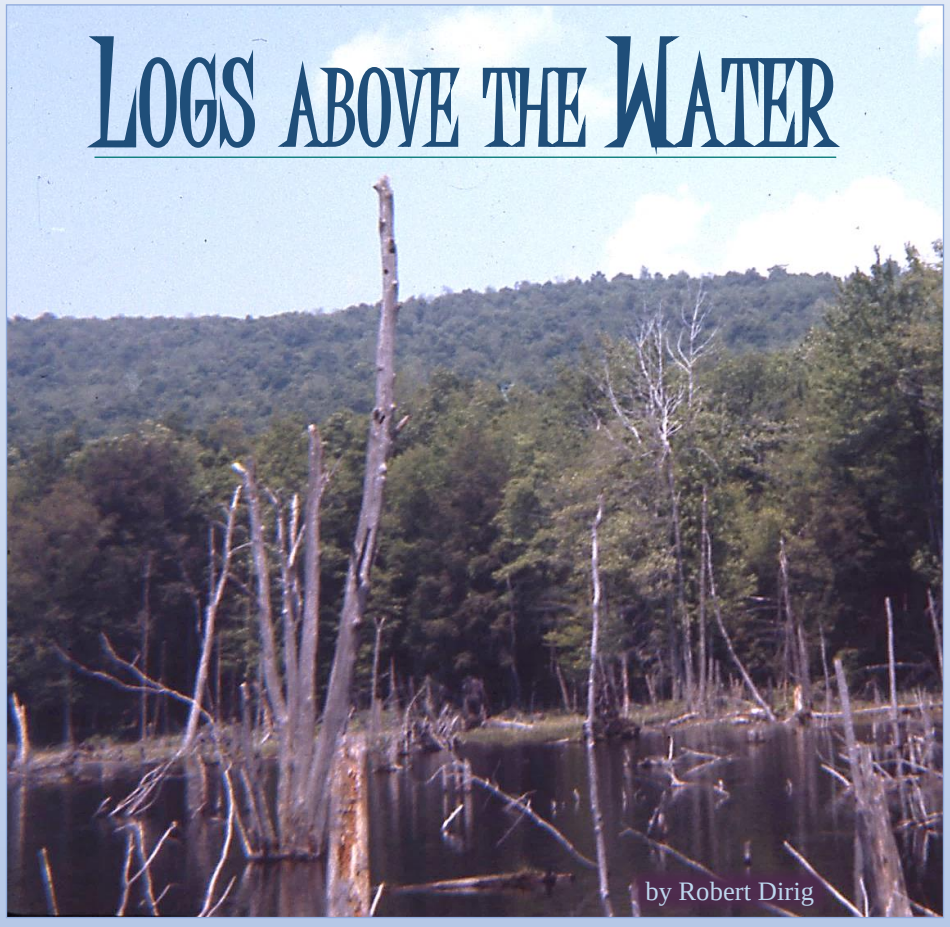
LOGS ABOVE THE WATER

blue damselfly

weathered pine root

decorticated stump

a soggy carpet of bryophytes



by Robert Dirig

Tree Swallow nest

WITH MY HAND ON A RED MAPLE* STUB to steady the canoe, I scan the Pond's edge, trying to catch an impression of the total scene before me.

I see an exquisite, ethereal, and fragile damselfly, blue as the sky, at rest near a beautifully weathered pine root that suggests age and rugged endurance.

Here are decorticated stumps, bone-dry and baked by the sun, amid their fallen brethren, which are covered with lush, soggy carpets of emerald bryophytes.

A few feet distant, I catch my breath at the lovely picture the recently laid, chocolate-splotched white eggs of Eastern Kingbirds make, inside the decaying top of a maple stub.

eggs of Eastern Kingbird

I am much moved by the poetry of a foraging Tree Swallow, dipping, falling, touching wingtips to the water as it snatches a mosquito; then look down and see a baby Snapper clumsily cruising among a maze of pine roots, just beneath the surface.

This is a habitat both harsh and kind, one of serenity and hidden danger, of stagnance and constant change, abounding with dramatic contrasts and paradoxes.

The World of the Logs is teeming with life. Alongside a prostrate trunk buoyed up by the water, I see a tiny frog nestled in a damp, shallow depression — a perfect spot for an amphibian! More gauzy-winged blue damselflies dart nervously among the sedges growing out of the moss on the log. They flee before my shadow as I bend to snap their picture.

A prostrate trunk buoyed up by the water

a tiny frog

Green Heron

The drowsy buzz of a pair of odd little flies exemplifies the mood of this early summer afternoon. Even the Green Heron has retreated from its lookout on the logs, and a Belted Kingfisher has flown back to its nest tunnel in a nearby gravel bank. The yellow flame of Swamp Candles* at the Pond's margin and the golden chalices of floating Spatter-docks* near the logs mirror the sun's warm color.

The Sliders also seem sluggish today, as I approach more closely than usual, but their startled plops indicate an instinctive wariness that never can fully rest, except, perhaps, in hibernation's mud.

Swamp Candles

Spatter-docks

A surprised female Black Duck makes an indignant retreat as I approach the big, hollow Hemlock* stump where they always nest. Thirteen eggs today!

An olive-and-aqua Green Darner zips past, pausing to hover for an instant before landing on a dead branch that protrudes through the water. On several of the maple stubs I passed I noticed the empty, ghostly shells of dragonfly nymphs. I wonder which one he hatched from?

eggs

Black Duck nest stump

dragonfly nymph exoskeleton

I paddle by dead trees with thick brown "beards" of the slime mold *Stemonitis* growing on their trunks. Lichens cover some of the stubs with lacy, greenish-grey rosettes.

Monk's Hood Lichen (top) & Hammered Shield Lichen (bottom), with a bryophyte (right edge)

Occasionally I notice orange mushrooms growing from a stump — a mutualism of ornament in exchange for nourishment.

mushrooms on a stump

IT IS THE SEASON FOR BIRDS' NESTS! I find a large nest I don't recognize (later identified as Common Grackle) in the top of a dead stub, reminding me of a smaller Redwing nest I found among the Lake Sedges* on the north shore.

Redwing's nest

This is the world of the *Logs above the Water*, a subtle ecological niche that is not often explored.

As I turn my canoe back toward the dock, with cameras packed away, I pause for a moment to savor the lively atmosphere of the Pond before paddling onward.

Nest of Common Grackle

This article profiles "Elm Swamp" on the USGS 7.5 minute *Fishs Eddy, N.Y.*, quadrangle, in PEA BROOK, Delaware County, N. Y., in the southern Catskills. It was written nearly fifty years ago, on 22 & 26 July 1972. Photos of the Pond and its denizens were taken on 16 & 17 June 1971, 23 & 29 July 1972, & 3 June 1974. The Green Heron drawing was made on 28 August 1963, after observing this bird for the first time at the Pond. [A few images are slightly blurred due to movement of the canoe while I was photographing them.]

*Red Maple (*Acer rubrum*), Swamp Candles (*Lysimachia terrestris*), Spatter-docks (*Nuphar variegata*), Hemlock (*Tsuga canadensis*), Lake Sedge (*Carex lacustris*).

WILD GARDENING

The Cornell Botanic Gardens' Native Lawn

by Kristine A. Boys

Photographs by the author, except as noted

The Native Lawn blooming in spring 2013

MY ENCHANTMENT WITH THE FOREST ECOSYSTEM OF NORTHEASTERN AMERICA has taken me from gardening at the Brandywine River Museum and Conservancy to the Cornell Botanic Gardens' Mundy Wildflower Garden along Fall Creek, a protected waterway in Ithaca, N.Y. For the last 21 years, I have been working with volunteers and students, removing invasive species, collecting local seeds, and propagating native plants for gardens, plant sales, and natural areas restoration. I love establishing all manner of native plants into the existing landscape.

I have been fascinated with our native grasses since the early days of my career, when F. M. Mooberry, Coordinator of Horticulture at the Brandywine River Museum, introduced me to the riparian species of the Brandywine Valley in Chester County, Pennsylvania. When I became the gardener in the Mundy Wildflower Garden, I was introduced to the native grasses of the New York flood plain forest by our staff botanist Robert Wesley. I was hooked on growing as many grasses as possible. I collect local seeds and propagate them, primarily to establish in areas where invasive species have been removed. My excitement over native grasses has never waned; I consider them extraordinarily beautiful and incredibly useful plants.

Reprinted from *Connecticut Gardener*, Vol. 27, No.4, Sept/Oct 2021, pp. 12-15: conngardener.com.

Each fall I lead a seed collecting walk for the Finger Lakes Native Plant Society. On one of these seed collecting walks many years ago, I noticed a tiny little grass growing on the edge of a seasonal road in Cortland County, New York. The entire plant was no more than three or four inches from the ground. I was immediately attracted to two characters the plant displayed: it was blue, and it was curly! I was excited to learn it was the native **Poverty Oat Grass *(Danthonia spicata*)**, found throughout North America. I had read a fascinating article by Jen Weijer, on his work using short native grasses from the Pacific Northwest as an alternative to conventional turf grasses.[1] The idea of creating a lawn with my tiny new plant friend *D. spicata* was never far from my thoughts.

The characteristic curls of **Poverty Oat Grass** (***Danthonia spicata***).

The year was 2008, and the Cornell Botanic Gardens was engaged in an envisioning plan. Volunteer Rosemarie Parker, intern Leigh Mcgonagle, and I put together a proposal for a Native Lawn. We wanted to use the *Danthonia* to replace the existing European lawn, to counter the negative impacts of traditional lawns: According to the U. S. Fish and Wildlife Service, Americans use about 100 million tons of fertilizer and 80 million pounds of pesticides annually on their lawns; while 30% of the water consumed on the East Coast in the summer is for watering turf.[2] The goal was to have a high biodiversity, low water use, low mow, unfertilized, pesticide free, and an esthetically attractive lawn. We wanted to provide for a thriving insect-plant community. By the fall of 2008, we had removed the European turf with a combination of spraying with glyphosate and scraping with a skid steer.

Danthonia spicata *on an abandoned road in Tioga County, N.Y. Maximum clump size is ca. 1 ft. (30 cm), seen here with a boot toe for scale.*

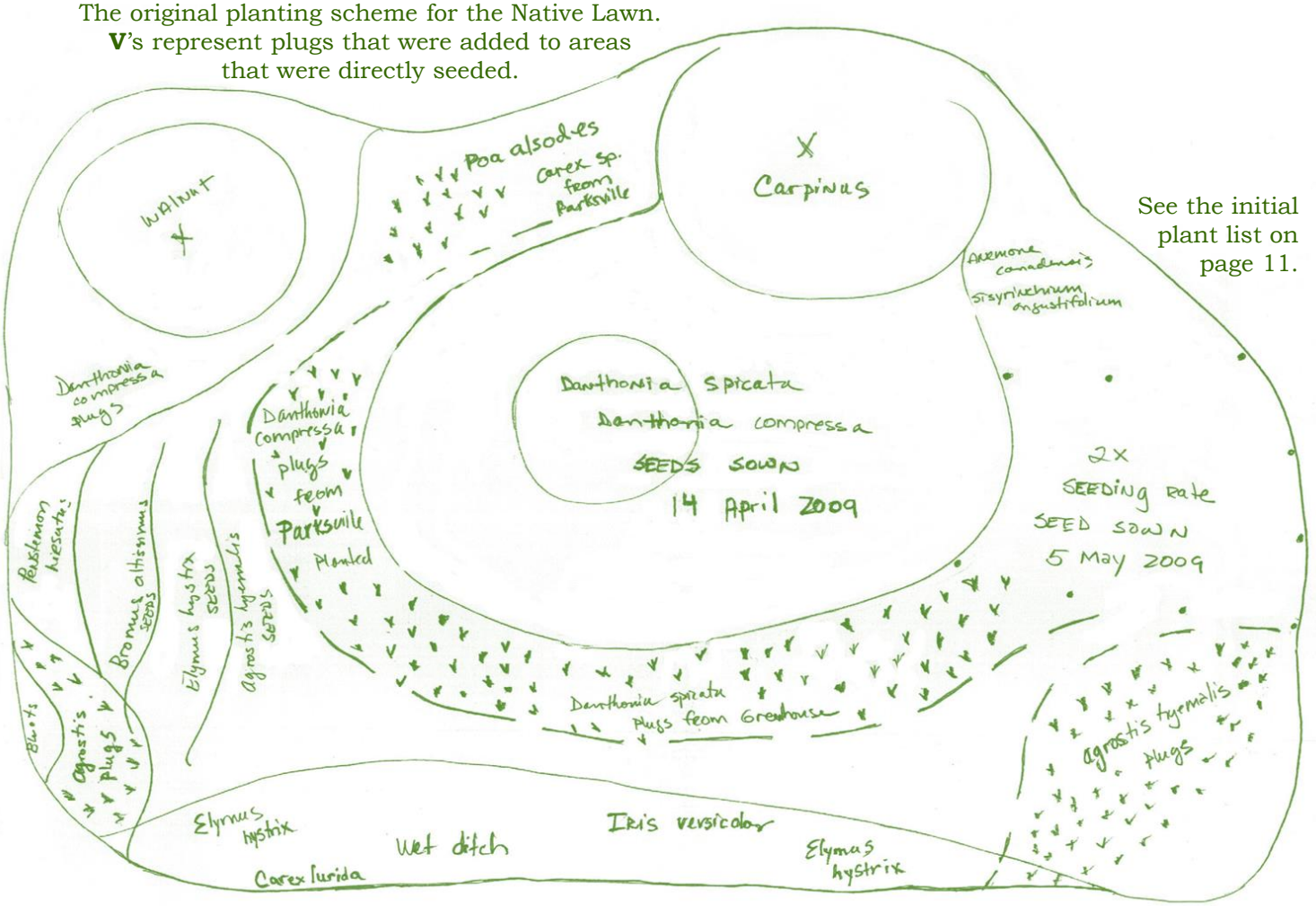
Danthonia spicata *in flower in 2011, when the Lawn was filling in. We allowed the seeds to ripen for collection and reseeding. Additional seeding was needed to increase grass density.*

Northern Oat Grass (*Danthonia compressa*) and leaves of **Hairy Beardtongue** (*Penstemon hirsutus*).

There is no doubt in my mind that the success of this project was due to the help I received from *Danthonia* researchers Scott Warnke[3] and Nadia Navarette-Tindell[4] about how to establish *Danthonia* from seeds. Based on their suggestions, we set out to collect as many seeds as possible from the wild populations we could legally access, particularly from powerline cuts and old roadsides. The seeds were cleaned using the Brush Machine & Clipper Cleaner to remove awns at the NYS Plant Materials Center in Big Flats, N.Y. We developed a short grass/forb mix, using the *Danthonia* seeds and other locally collected species. The mix included short lived grasses as placeholders until the *Danthonia* spp., sedges, and low-growing forbs grew in. The initial plan for seeding and plugging is shown below.

Krissy watering the first broadcast seeding, on 14 April 2009. [*Photo by Todd Bittner*]

The original planting scheme for the Native Lawn. **V**'s represent plugs that were added to areas that were directly seeded.



See the initial plant list on page 11.

We moist-cold stratified the seeds for 60 days before broadcasting them by hand in mid-April 2009. Within two weeks there was germination, and we were growing a native lawn, albeit slowly. By 2010-2011 we were meeting our goal—to demonstrate a viable alternative to a traditional lawn, using locally native species of grasses and forbs in sun and shade. Not everything worked as anticipated. Even though the site was sloped, it was on fill and the soil had too much silt to drain well. Adding sand helped somewhat; to increase the drainage overall we are planning to add the commercially available product "Expanded Shale." Among the species that suffered from the soggy conditions were **Pussytoes** (*Antennaria* spp.), **Moss Phlox** (*Phlox subulata*), and **Bluets** (*Houstonia caerulea*), while some unwanted species were able to move in.

In shadier edges we used **Pennsylvania Sedge** (*Carex pensylvanica)*, **Grove Blue Grass** (*Poa alsodes)*, and **Northern Oat Grass** (*Danthonia compressa)*; all are more shade tolerant than the *Danthonia spicata* used in full sun. In one moist corner we planted **Prairie Dropseed** (*Sporobolus heterolepis)*, and it has formed an ornamental patch by the path. A low wet area by the road served as a border of **Blue Flag Iris** *(Iris versicolor)*, wetland sedges (e.g. **Sallow Sedge**, *Carex lurida*), **Starry Solomon's Plume** *(Maianthemum stellatum),* and **Great Blue Lobelia** *(Lobelia siphilitica).* **Shaved Sedge** *(Carex tonsa)* is a low growing native sedge that was interspersed throughout, and has proved to be a competitive addition to the *Danthonia* base. Asters have moved in and are a welcome colorful display in the fall. They are kept short by a second mowing in late August or early September. The first mowing is at the end of May to control early-blooming non-natives and allow the *Danthonia* to set seed and disperse. If the annual rainfall is abundant there could also be a mowing in July.

I think that any new construction plan or geothermal installation should include a native lawn. It can be beautiful, easier to maintain, and better for the environment. You must plan at least a year ahead to establish the site conditions and obtain your seeds and plants, preferably from a local or regional source. You will enjoy the color, texture, and wildlife that it will bring to an otherwise barren part of your yard.

If I were to make a new native lawn, I would investigate the soils further, replacing silt with expanded shale or small gravel. Turf removal by smothering with a fabric cover, followed by scraping (if you have heavy clay or silt) is sufficient—herbicide was not needed.

The Native Lawn after 3-4 years. Both ***Danthonias*** and ***Carex tonsa*** are clump-forming, which is visible in this image. ***Carex pensylvanica*** on the shaded side is not clump-forming; its roots form a stoloniferous mat of runners. When combined with the forbs, we established a diverse and durable plant community.

Native Lawn Initial Species List as of February 2010

Forbs		Initial placement
Anemone virginiana	Tall Thimbleweed	part shade
Antennaria plantaginifolia	Pussy Toes	full sun
Aquilegia canadensis	Eastern Columbine	throughout
Geranium maculatum	Wild Geranium	part shade
Houstonia caerulea	Bluets	sun
Mitella diphylla	Miterwort	part shade
Opuntia humilis	Eastern Prickly Pear	full sun
Penstemon hirsutus	Hairy Beardtongue	throughout
Phlox subulata	Creeping Phlox	sun
Sisyrinchium angustifolium	Blue-eyed Grass	throughout
Tiarella cordifolia	Foam Flower	part shade

Grasses & Sedges		Initial placement
Agrostis hyemalis	Tickle Grass	throughout
Bromus altissimus	Brome Grass	placeholder
Carex species, e.g., *C. tonsa*	Sedge	sun
Carex pensylvanica	Pennsylvania Sedge	part shade
Danthonia spicata	Poverty Oat Grass	mostly sun
Danthonia compressa	Northern Oat Grass	mostly part shade
Elymus hystrix	Bottlebrush Grass	part shade & road border
Poa alsodes	Grove Blue Grass	part shade
Sporobolis heterolepis	Prairie Dropseed	sun, moist corner

Species for wet road border only	
Carex lurida	Sallow Sedge
Iris versicolor	Blue Flag Iris
Lobelia siphilitica	Great Blue Lobelia
Maianthemum stellatum	Starry Solomon's Plume

Continued on next page

References & Notes

(1) Weijer, Jan, University of Alberta, Edmonton, Canada. "And I Will Send Grass in Thy Fields…." *Recreation Canada*, March 1989, Canadian Parks/Recreation Association.

(2) Slattery, Britt E., Kathryn Reshetiloff, & **Susan M. Zwicker**. 2003. *Native Plants for Wildlife Habitat and Conservation Landscaping: Chesapeake Bay Watershed.* U. S. Fish & Wildlife Service, Chesapeake Bay Field Office, Annapolis, MD. 82 pp.

(3) Warnke, Scott, U.S. Department of Agriculture, Agriculture Research Service, USDA-ARS.

(4) Navarrete-Tindall, Nadia E., Native Plants Program, Cooperative Research and Extension, Lincoln University, Jefferson City, MO.

The Native Lawn in 2011, with a larger bunch grass (**Prairie Dropseed, *Sporobolus heterolepis***) patch in the foreground.

The Native Lawn in October, highlighted by the autumn colors of **Prairie Dropseed**.

WILD GARDENING

Highlights from the Ithaca Native Landscape Symposium 2022 — Fungi, Native Cultivars, & More

by Rosemarie Parker

I was only able to attend one day this year, but I learned a few nifty facts, as I always do. My favorites follow.

KATHIE HODGE, Assoc. Professor of Mycology, Cornell

Of the sugars produced by photosynthesis, the plant provides 10-25% directly to mycorrhizal fungi, in return for their increased absorption of nutrients, nitrogen, potassium, water, and increased disease protection. When mycorrhizal fungi are cut off from "their" plant, the fungi die. Luckily, some fungal species attach in a network to other nearby individuals of the same plant species (even different plant species for some fungi). **Garlic Mustard** (*Alliaria petiolata*) (GM) "knocks out" the mycorrhizal fungi of other plants and substitutes GM's preferred fungi. That inhibits neighbors and improves the habitat for GM.

MAXWELL MCCUNE, Landscape Restoration Specialist, NYS Parks

He uses a very simple system to help with maintenance of plantings in highly visible park areas, such as entries. We all do this internally to some degree, but it was nice to hear it laid out. ***Zone 1*** is highly visible, showy plantings and beds, with regional natives included for color, along with strictly local natives. This zone is weeded 3-4 times per year. ***Zone 2*** is a bit farther out, but still very visible, has more local native species, and is weeded roughly once per year. ***Zone 3*** would be background plantings at entries, at campgrounds, or generally less well traveled, but not the actual natural area. Zone 3 is left alone except for removal of problem species. ***Zone 4*** is the natural area of the park itself, where the botanists take over management. I can see this within my yard plantings, but I clearly need to move more Zone 1 into Zones 2 and 3.

ULI LORIMER, Director of Horticulture, Native Plant Trust

This was a very interesting talk on the business of growing and selling native species so that gardeners can find them. He started with a nice reminder of the various descriptors beyond genus and species. *Be aware that the definitions and distinctions between subspecies, variety, and form are a matter of ongoing debate. The definitions below reflect the speaker's opinion. Just remember that these ranks are hierarchical (sp>ssp>var>form), and different taxonomists may weigh factors and even different criteria to arrive at differing rankings.*

Subspecies (ssp): different in some way, common enough and consistent enough to distinguish, with *geographic separation*.

Variety (var): different, common, consistent enough, but *not completely geographically separate*.

Form (f): *uncommon mutations* amongst the "normal" species. (If common, it would be one of the above!)

Hybrid: genetically mixed species (two or more), either naturally occurring or with human intervention.

Interspecific hybrid ("*Genus* ×*newname*"): naturally occurring hybrid of two species *within the same genus*. Example: *Acer* ×*freemanii*, a natural hybrid of *Acer rubrum* and *Acer saccharinum*.

Intergeneric hybrid (×*Genusmixed*): between different genera, *always within the same family*. Example: "×*Heucherella*" — a hybrid of *Heuchera* and *Tiarella*, both in the Saxifragaceae. I think this occurs mostly with intervention.

Cultivar (Genus 'Cultivar Name'): a *human selection* of a *hybrid or a species*, showing desired traits. Example: *Lobelia* 'Black Truffle' — a dark-foliaged *L. cardinalis*. Usually must be cloned to stay consistent. Trademarks after the name also indicate a selection.

Seed grown strain: a selection with some variation, but stable enough to propagate via seed. Thus, not clonal like most cultivars, but less genetic variability than the straight species. Given a cultivar name, and not always identified as a seed strain *vs.* a clone.

Patented: To be patented, a plant *must* be propagated vegetatively. It can be a hybrid, or a selection of a species, *e.g.*, *Andropogon gerardi* 'Indian Warrior' PP 24999.

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Native plants make up only 13-15% of total sales. In a regional survey, 26% of nurseries carried native plants because clients request natives, for reasons of ecological concerns (18%), adaptability to difficult sites (16%), and/or perceived lower maintenance (13%). Clients are willing to pay more for natives "so long as they are low maintenance" (!! sigh). Yet 50% of purchases are based on ornamental traits rather than nativity or invasive potential. This leads to the phenomenon of "native cultivars" being selected for the wrong reasons, according to Uli.

One concern arising from these selections is the effect on insect herbivory. As a general statement, insect herbivory decreases with changes of foliage color toward red, purple, or blue tones. Leaf variegation has no significant deterrence, nor do changes in growth habit (*e.g.*, smaller), bigger fruit, more fall color, or disease resistance (Baisdon *et al.* 2018). Eliminating pollen or nectar by doubling single flowers is another real downer for insects. Uli suggested you look up Mt. Cuba native plant trials, which include pollination factors, before buying a horticultural form that has caught your attention.

Another of the concerns with using cultivars and non-local genotypes in native beds is outbreeding depression, where the genetic characteristics that lead to success in wild populations are diluted by the influx of different genes. He stated that an incoming gene flow of just 1-5% per generation is sufficient to maintain locally deleterious genes brought in by cultivars or transplants with distant origins. That doesn't make me comfortable! "Hybrid vigor" is a real thing, but no one knows how to predict vigor *vs.* depression. ***And that is why FLNPS doesn't knowingly distribute species that are rare in NYS.***

Reference: Baisdon, Emily, *et al.*, Oct. 2018. *American Society for Horticultural Science* **28(5)**, pp. 596-606.

June Treasures of the Fen

FENS lie in seepy calcareous basins, where richly textured vegetation develops in a soggy mire. These habitats harbor their own special plants that can dazzle with their beauty at this season. Among the loveliest are **Showy Lady's Slippers** (*Cypripedium reginae*), which add a regal touch to surrounding sedges, rues, and ferns [21 June 2001]. In slightly wetter spots, dramatically colored **Blue Flags** (*Iris versicolor*) dominate, often attended by **Long Dash Skippers** (*Polites mystic*), which have learned the secret of the Iris's nectaries, and can easily accomplish "nectar thievery" from the base of a flower [21 June 2009]. Culms of elegant **Green-keeled Cottongrass** (*Eriophorum viridicarinatum*) display their drooping white bristles here and there [9 June 2019]. **Bog Copper** butterflies (*Lycaena epixanthe*) like to perch on them [brown ♀, 11 July 2011; purple ♂, 20 June 2004]. Their larvae eat **Cranberry** leaves (*Vaccinium macrocarpon* or *oxycoccos*), and adults sip nectar at Cranberry flowers. The seasonal pageant will bring other striking plants into bloom as summer progresses in the Fen.