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

Solidago

Newsletter of the
Finger Lakes Native Plant Society

Volume 19, No. 3 September 2018

LOCAL FLORA

Kentucky Yellowwood Revisited

by Arieh Tal

IN OUR NEWSLETTER of last March [*Solidago* 19(1), March 2018, pp. 1-3], I wrote of finding a small population of **Kentucky Yellowwood** (*Cladrastris kentuckea*) in the Cascadilla Gorge at the edge of the Cornell University campus. At the time, I was uncertain how the trees arrived at the location. **Peter Marks** wrote to me shortly after the newsletter was published to suggest a likely source for the trees:

"There used to be a huge Yellowwood tree growing on a piece of land that no longer exists. It was where the Cornell Performing Arts Center is located. The tree was thus not far from the gorge, and its seeds could easily have dispersed into the gorge. I would guess the tree was perhaps 100 years old before it was cut down; thus there would have been lots of opportunities for seed dispersal over the decades."

So, a mystery has been solved. Since then, I've noticed a couple other young Yellowwood trees near the entrance to the gorge (where the stone trail steeply descends, the water cascades beneath the bridge, and the Performing Arts building now stands). As is often said in a different context, "The apple doesn't fall far from the tree."

I resolved to return in spring to the site where I first found the trees, to photograph the flowers. I am now pleased to present an image of the lovely flowers of Kentucky Yellowwood (*see page 1*), along with an image of the fruits (*below*). There are similarities with Black Locust (*Robinia pseudoacacia*).

Thank You! **MANY THANKS** to all who contributed to the **Volume 19, No. 3** issue of ***Solidago***. We thank **WRITERS** Hal Gardner, Sue Gregoire, Adrianna Hirtler, Ken Hull, Carri Marschner, Julia Miller, Joe O'Rourke, Vernon L. Pond, Torben Russo, Anna Stalter, Arieh Tal, David Werier, Colleen Wolpert, & Robert Dirig. **ILLUSTRATIONS** were loaned by Arieh Tal [pp. 1-2, 15], David Werier [p. 4], Anna Stalter [p. 7], Daniel Burnett [p. 8], Norm Trigoboff [pp. 8, 12-13, 17]; also Carri Marschner [p. 9], Nicholas Dietschler [pp. 10-11], Kyle Webster [p. 11], & Mark Whitmore [p. 11] of the NYS Hemlock Initiative; and Sue Gregoire [p. 15], Adrianna Hirtler [p. 16], Julia Miller [p. 18], & Robert Dirig [pp. 3-6, 9, 14, & 17]. Robert Wesley verified plant identifications on pp. 5 & 18, and Steven Daniel & Teresa Iturriaga identified the *Amanita* on p. 6. Peter Fraissinet shared computer expertise & technology. **CALENDAR ITEMS** were organized by Rosemarie Parker, Audrey Bowe, & Anna Stalter. **LAYOUT and DESIGN** by the Editor. **PROOFREADING** by Rosemarie Parker. **PRINTING** of paper copies by Gnomon Copy, Ithaca, N. Y. And **MAILING** by Gin Mistry & Susanne Lorbeer. ***BEST WISHES*** **to FLNPS members (and all others in our reading audience) for joyous revels with the colorful autumn trees and smaller flora! — *Robert Dirig***

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 19, No. 3 September 2018

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.

Contents

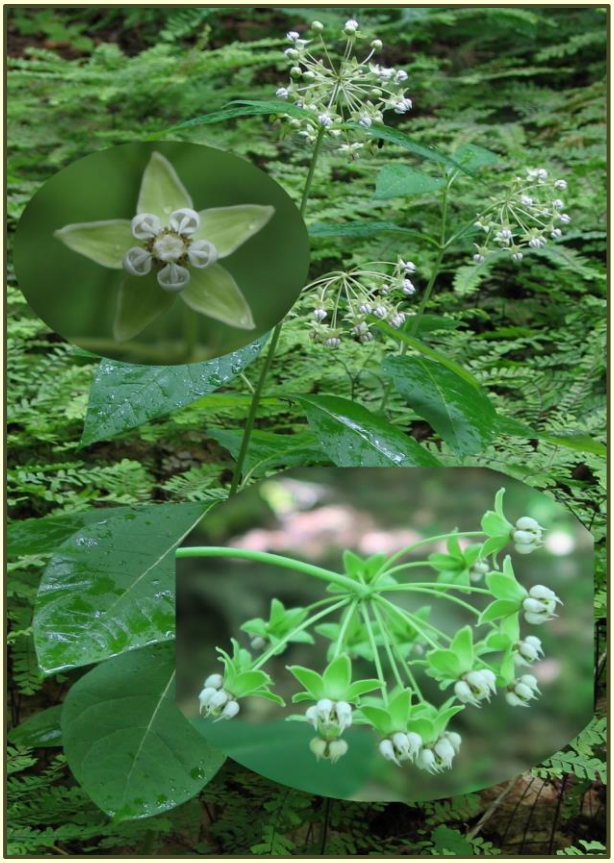
Cones of **Eastern Hemlock (*Tsuga canadensis*)**, Shawangunk Mountains, Ulster Co., N.Y., 5 Feb. 1999. Photo by Robert Dirig. *See story on pp. 9-11.*

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

Deadline for the December 2018 issue is November 15th !

Name That Plant Contest

The photo from last issue's ***Name That Plant Contest*** [*Solidago* 19(2), page 4] was of **American Beech (*Fagus grandifolia*)**. In 2017, American Beech had a large ***mast year*** (*i.e.*, they produced a lot of fruits), and this past spring, there were abundant American Beech seedlings dotting the forest floor. I hope you were able to see one. Thanks to all who entered the contest, and congratulations to contest winners: *Betsy Darlington*, *Bob Dirig*, *Susanne Lorbeer*, *Rosemarie Parker*, and *Robert Wesley*.



This issue's mystery plant is shown above. 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 answers to **David Werier** at .

The photographs were taken by David Werier on 28 June 2004 in Bradford County, Pennsylvania (background image and close-up of flower) and 21 June 2018 in Orange County, New York (close-up of inflorescence).

Letters

See other letters on pages 6 and 15.

Hi Rosemarie:

Solidago is becoming huge! The article on ferns [Vol. 19(2): 7-26] will be very useful. I have no clue of the identity of ferns in my 20 acres of woodland.

Hal Gardner
email of 7 June 2018

Hi Bob,

I found time to get through the latest issue of *Solidago* 19(2)'s "A Gallery of Catskill Ferns." It was absolutely lovely! Artistically, it is perhaps one of my favorite issues, with the many shades of green and a plethora of textures throughout. I loved your *Botrychium* image (66), which I recalled with pleasure seeing in person some time ago. I also loved the picture of you next to "The Meteor," and so wished you had a photo of you and Roddy upon it; but you paint a lovely picture without.

Torben Russo
email of 3 July 2018

Hi Bob,

I rave about your "spread" on ferns. I potentially have some new members for FLNPS, and the newsletters are definitely selling points!

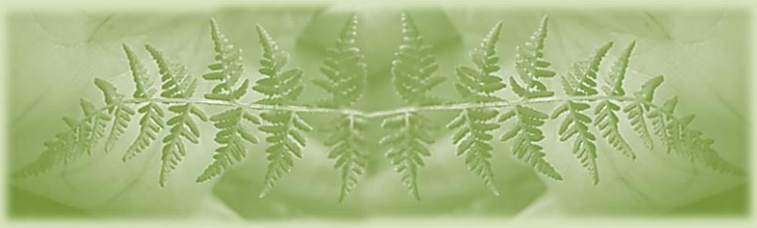
Colleen Wolpert
email of 30 June 2018

Bob,

It was a pleasure to get to know you better on the August 4th Fern Walk at Upper Treman State Park. I so much appreciate your knowledge, willingness to share, and the tremendous work you put into editing *Solidago*. I want to thank Audrey Bowe for leading the walk. She is so vivacious and friendly. It was like we'd been friends for years. These walks are so important for learning the native flora and appreciating the wonders of nature. The Upper Loop is strenuous and challenging, but well worth the effort, even for us older members.

Sincerely,
Ken Hull
email of 5 August 2018

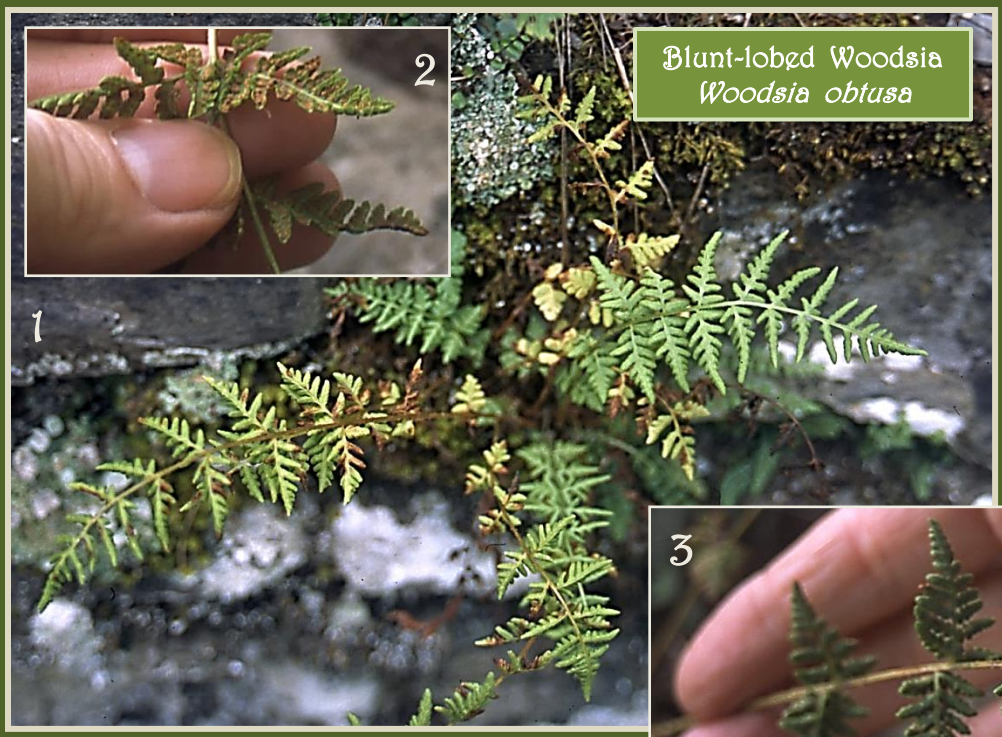
[Please see a report of this outing on pages 5-6.]



EXCURSIONS

A Fern Walk at Upper Treman State Park

4 August 2018, organized and led by Audrey Bowe



Six people attended this Fern Walk on trails through and around a deep glen near Ithaca, N.Y. (Fig. 6, *next page*; another person left half-way into the walk). It was sunny, clear, and 77º to 84ºF., but cooler in the shaded gorge. We focused on ferns, finding 18 species between 10:30 a.m. and 2:30 p.m. (*see table, next page*), three of them not recorded in recent years. Our most exciting find was the **Blunt-lobed Woodsia (*Woodsia obtusa*, Figs. 1-3)**, which was recorded in the glen before 1926 by Wiegand & Eames, but has not been seen there for many years. Figs. 4-5 show *Woodsia obtusa* growing on limy ledges near Watkins Glen, Schuyler Co., N.Y., in 2003 and 2017. These fronds were slightly larger than those we found.

The table of ferns compares our list with others from 2002 and 2012 that were made in the same place. The 2002 group also found Mackay's Fragile Fern (*Cystopteris tenuis* — Robbin Moran's i.d.) and Field Horsetail (*Equisetum arvense*). The 2012 group saw 13 ferns, including New York Fern (*Thelypteris noveboracensis*), which has not been noticed by others on recent trips. We also recorded **Ostrich Fern** (*Matteuccia struthiopteris*) and **Ebony Spleenwort** (*Asplenium playtneuron*), which did not appear on other recent lists. On our trip, we wondered if we were also seeing Mackay's Fragile Fern, but were not sure, in an atmosphere saturated by its close relative, the Bulblet Fern (*Cystopteris bulbifera*). I returned to the Park on Sept. 11th to check, with a handbook and hand lens, and there it was!

We sent our fern list to Joe O'Rourke, who was excited by our finds (*see his letter, next page*). Walks like this, in addition to sharing knowledge within the group, can also uncover new details about the Finger Lakes flora. — *Robert Dirig*

Ferns of the Upper Robert H. Treman State Park near Ithaca, N.Y.

Common and scientific names are from David Werier's *Catalogue of the Vascular Plants of New York State,* 2018, *Memoirs of the Torrey Botanical Society* No. 27, pp. 28-41.

Excursion dates: *2002* — 18 Sept. [a group from the Bailey Hortorium Herbarium, led by Robert Dirig]. ***2012* — 8 July** [a FLNPS Fern Walk, led by Susanne Lorbeer; see report in *Solidago* 13(3): pp. 10-11, Oct. 2012, reported by Ellen Folts]. And ***2018* — 4 Aug.** [a FLNPS walk, led by Audrey Bowe; field notes by Gin Mistry & Robert Dirig; * = three new ferns found on this trip].

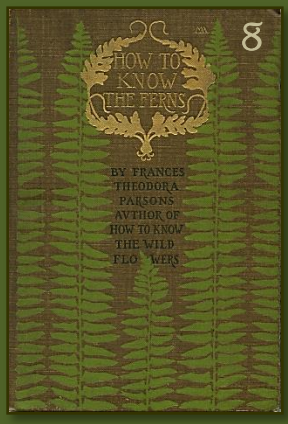
*Blunt-lobed Woodsia, *Woodsia obtusa*: *2018*
Bulblet Fern, *Cystopteris bulbifera*: *2002, 2012* (photos), *2018*
Christmas Fern, *Polystichum acrostichoides*: *2002, 2012, 2018*
*Ebony Spleenwort, *Asplenium platyneuron*: *2018*
Fancy Wood Fern, *Dryopteris intermedia*: *2002, 2012, 2018*
Glade Fern, *Homalosorus pycnocarpos*: *2002, 2012, 2018*
Goldie's Wood Fern, *Dryopteris goldiana*: *2002, 2012, 2018*
Hay-scented Fern, *Dennstaedtia punctilobula*: *2002, 2018*
Mackay's Fragile Fern, *Cystopteris tenuis*: *2002, 2018* [*11 Sept.*]
Maidenhair Fern, *Adiantum pedatum*: *2002, 2012, 2018*
Maidenhair Spleenwort, *Asplenium trichomanes*: *2002, 2012, 2018*
Marginal Wood Fern, *Dryopteris marginalis*: *2002, 2012, 2018*
New York Fern, *Thelypteris noveboracensis*: *2012*
Northern Lady Fern, *Athyrium angustum*: *2002, 2018*
*Ostrich Fern, *Matteuccia struthiopteris: 2018*
Sensitive Fern, *Onoclea sensibilis*: *2002, 2012, 2018*
Silvery Spleenwort, *Deparia acrostichoides*: *2002, 2012, 2018*
Slender Cliff Brake, *Cryptogramma stelleri*: *2012* (photos), *2018*
Spinulose Wood Fern, *Dryopteris carthusiana*: *2002, 2012, 2018*
Virginian Rock Polypody, *Polypodium virginianum*: *2002, 2012, 2018*
Field Horsetail, *Equisetum arvense*: *2002*

Letter

"Finding ferns in Ithaca reminded me of my first and favorite book, where I learned about ferns — *How to Know the Ferns*, by Frances Theodora Parsons, ©1899, Charles Scribner's Sons (Fig. 8). It got me hooked! In her Victorian dress, she climbed New York gorges and managed wonderful photographs of her finds, … documenting all the different species…. Before I go on to 'Googling' facts about her, I just want to appreciate that, so many years later, we can still get the thrill of finding rare or hard-to-find species." [*In response to reading the list of our finds on this walk.*]

Joe O'Rourke
email of 7 August 2018

Intepid Pteridologists at Upper Treman State Park near Ithaca, N.Y., 4 August 2018 (*left to right*): Bob Dirig, Gin Mistry, Norm Trigoboff, Audrey Bowe, and Kenneth Hull. *Photo by an accommodating hiker, name unknown.*



▲ We found a stunning mushroom growing in leaf litter under trees on the gorge rim (Fig. 7). It is very similar to Caesar's Mushroom (*Amanita caesaria*), which occurs in Europe. Thanks to Steven Daniel and Teresa Iturriaga for help with the identification.

EXCURSIONS

A Trip to Jam Pond

holds many delights, and is best taken with a knowledgeable and sure-footed guide. On a perfect July day, nine eager FLNPS members stepped carefully over ferns and sedges, through a swampy woodland, and onto the sphagnum mat that surrounds a kettlehole pond. We saw species typical of an acid bog: Sundews, Bog Rosemary, Labrador Tea, and Cranberries (Large and Small).* Dwarf Mistletoe was observed parasitizing a Black Spruce, and of course, there were orchids!

Text and photos from 14 July 2018 by Anna Stalter

Jam Pond Bog mat (1), showing Tamarack, Leatherleaf, Pitcher Plants, & White Fringed Orchids (2). Dwarf Mistletoe on Black Spruce (3), Tawny Cottongrass flowers (4), Large (*right*) & Small Cranberries (5), Round-leaved Sundews in Sphagnum (6), Grass Pinks (7), & Rose Pogonia (8)

***See scientific names of plants in the box on the next page.**

A Trip to Jam Pond

Scientific Names of Plants

[from previous page]

Bog Rosemary (*Andromeda polifolia*, var. *latifolia*)
Dwarf Mistletoe (*Arceuthobium pusillum*)
Grass Pink (*Calopogon tuberosus*, var. *tuberosus*)
Leatherleaf (*Chamaedaphne calyculata*)
Round-leaved Sundew (*Drosera rotundifolia*)
Tawny Cottongrass (*Eriophorum virginicum*)
Labrador Tea (*Rhododendron groenlandicum*)
Tamarack (*Larix laricina*)
Black Spruce (*Picea mariana*)
White Fringed Orchid (*Platanthera blephariglottis*, var. *blephariglottis*)
Rose Pogonia (*Pogonia ophioglossoides*)
Purple Pitcher Plant (*Sarracenia purpurea*)
Large Cranberry (*Vaccinium macrocarpon*)
Small Cranberry (*Vaccinium oxycoccos*)
Sphagnum Moss (*Sphagnum* sp.)

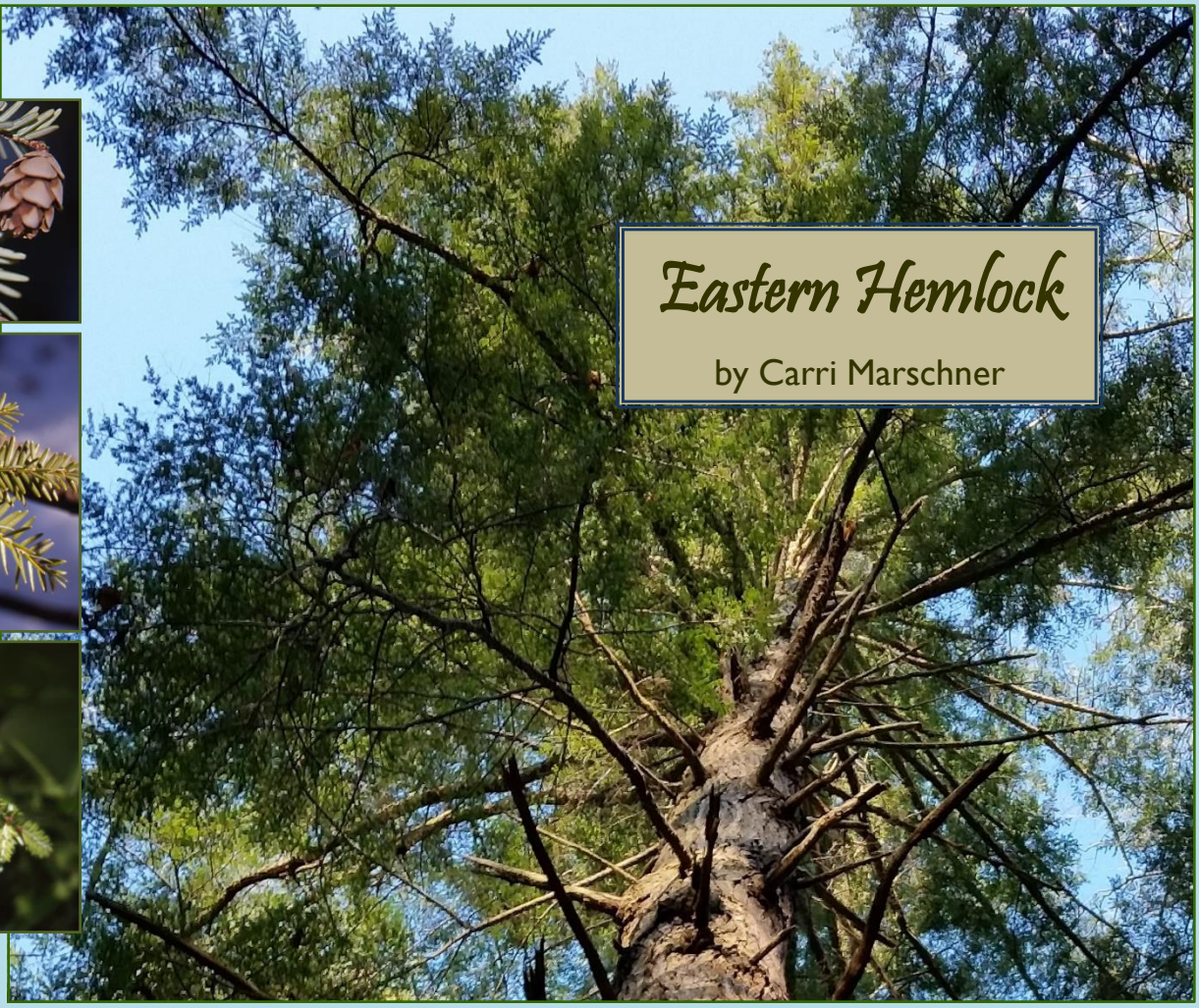
A "white" **Fringed Milkwort** (*Polygaloides paucifolia*). Smartphone photo by Daniel Burnett, May 2018, Ontario County, N.Y.

Name The Trees in This Photograph

[See answers on page 17.]

PLANT PROFILE

***Top to bottom*: Cones, winter needles, and new spring growth.**
Photos by Robert Dirig.



Eastern Hemlock

by Carri Marschner

Eastern Hemlock, by Carri Marschner of NYS Hemlock Initiative

THE EASTERN HEMLOCK (*Tsuga canadensis*) is a common sight in our landscape, but sometimes is overlooked because of its abundance. Despite what we might imagine from our perspective in the Finger Lakes Region, it's the third most common tree in New York. The densest populations are found in the Catskills, the Adirondacks, and the Tug Hill region. In the Lake George region of the Adirondacks, Hemlock comprises 60% of the forest canopy. Here in the Finger Lakes, Hemlock is often a riparian and lakeside species, preferring the deep shade and moist soils of those habitats. Its drooping boughs and feathery texture are an integral part of our Finger Lakes gorges and lakeside views.

Eastern Hemlock is interesting because it creates a very specific habitat that supports a unique assemblage of plant and animal life. As a common species that creates the conditions for other species to thrive, it is considered a foundation species. Hemlock woods actually host fewer species than the surrounding hardwood forests, but their presence in the hardwood landscape increases the diversity of habitat that's available at the landscape scale — which is valuable, even if the specific habitat it creates has a limited species list. Hemlock groves are shady year-round, and provide shelter both in summer heat and winter cold. Many animals seek out Hemlocks' cool shade in summer (up to twenty degrees cooler than the air above the canopy), and also find refuge under Hemlock from wind and deep snow in winter. Hemlock needles decay slowly, creating a deep, acidic duff that can contain viable seeds over a century old. Together with the reduced rain and snow caused by the dense canopy, the area under Hemlocks is shadier, drier, and more acidic than surrounding habitats, which favors a specific group of plant species. These include Partridge Berry (*Mitchella repens*), Wintergreen (*Gaultheria procumbens*), Canada Mayflower (*Maianthemum canadense*), Northern Wood Sorrel (*Oxalis montana*), Indian Pipe (*Monotropa uniflora*), Witch Hazel (*Hamamelis virginiana*), and Mountain Laurel (*Kalmia latifolia*). Animals that use Hemlock groves include Red-backed Salamanders, Red Efts (juvenile Red-spotted Newts), and a wide array of insects and spiders. Spiders are actually more diverse in Hemlocks than in the surrounding deciduous forests, especially web-building spiders. Black-throated Green Warblers, Acadian Flycatchers, Blackburnian Warblers, Canada Warblers, Hermit Thrushes, and Red-shouldered Hawks all use Hemlock groves, along with Ruffed Grouse in the winter.

Hemlocks are the most shade-adapted species in our forests, which they achieve with some interesting physiological tricks. Hemlock needles (*previous page*) are particularly good at using very limited light to photosynthesize, so unlike most other trees in our woods, they maintain a full canopy all the way down the tree to take advantage of every fleck of sun. Young Hemlocks are able to hang on in very deep shade for decades, waiting for a canopy gap to open so they can really grow. Many of the "saplings" in a Hemlock grove can be nearly a century old, despite their small size. Another trick Hemlocks have is the ability to pause their growth multiple times during their life; if conditions become unfavorable, they stop growing and hang on until those conditions change. Most of our hardwoods can't do that once they commit to rapid growth, and once mature can't handle sudden changes in light, even if it's an increase in light.

While any Hemlock forest provides valuable ecological services, old-growth Hemlock forests have some additional features that make them even more precious. Hemlock can live six hundred years or more, and doesn't reach maturity until about 250 years. Like other old-growth forests, they have a varied age structure and the characteristic pit-and-mound topography caused by centuries of trees falling and rotting in place. The large logs of downed old-growth Hemlock can remain intact for over seventy years, and act as nurseries to new trees and understory plants. The varied topography provides a range of microhabitats that support a wider range of understory species in more abundance than second-growth Hemlock forests support. Some of the species favored by New England old-growth Hemlock conditions are Hobblebush (*Viburnum lantanoides*), Canada Yew (*Taxus canadensis*), Clasping-leaved Twisted Stalk (*Streptopus amplexifolius*),* and Evergreen or Fancy Wood Fern (*Dryopteris intermedia*).

Bud Ververka of Mianus River Gorge Preserve with an old-growth Hemlock at Mianus River Gorge. Photo by Nicholas Dietschler of NYS Hemlock Initiative.

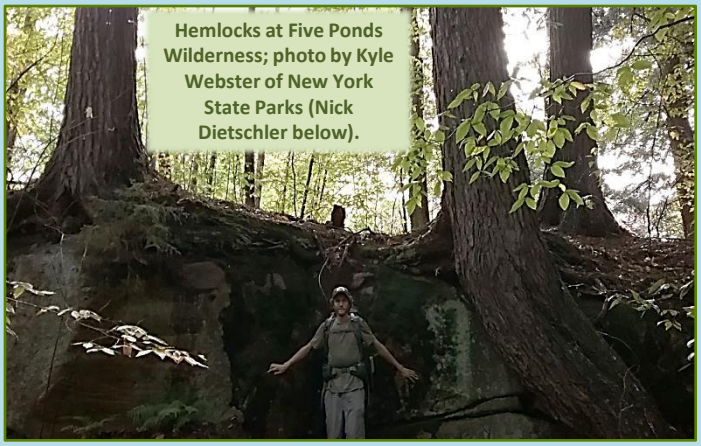
* Its congener, Rose Twisted Stalk (*S. lanceolatus*; older name *S. roseus*), may grow under Hemlocks in the Finger Lakes. – Ed.

EASTERN HEMLOCK IS AT RISK throughout its range from an invasive insect, the Hemlock Woolly Adelgid (HWA). This small, aphid-like insect attaches to Hemlock twigs near the base of needles (*see next page*) and feeds on stored starches in the xylem. There are seven regions in the world that have trees in the Hemlock genus (*Tsuga*), and six of them have a

native Hemlock adelgid — including the Pacific Northwest, where an enthusiastically woolly Hemlock Woolly Adelgid is kept in check by a suite of HWA predators. It's not the feeding of the insect that kills the Hemlocks, it's a combination of the sheer density of the pest and the tree's response to wounding. In a heavy infestation, the tree's walling-off of so many tiny wounds prevents it from getting sap to the end of its twigs to make new foliage, eventually starving the tree.

The HWA present on the East Coast is from southern Japan, and has spread through most of the Eastern Hemlock's range. In the southern U. S., it kills Hemlock in 4-10 years; in New York it's more like 4-20 years, depending on tree location and health, and how many severe winters reduce the HWA population during the infestation. All over the eastern seaboard, scientists and foresters are working hard to develop appropriate biocontrols for this pest; until a solution is found for New York, chemical treatment is the only option to preserve Hemlocks once HWA arrives in a stand. If we are unable to find a biocontrol solution to HWA, we are likely to lose Hemlock as a functional part of our forests in New York.

Eastern Hemlock is a critical part of the ecology of our eastern forests, and an interesting, beautiful species that creates a unique habitat. The cathedral-like coolness of a Hemlock grove is a special experience, and the habitat they create adds to the rich complexity of our eastern forests. Take the opportunity to visit one of our region's lovely Hemlock groves this fall to appreciate their shade and grandeur. Beautiful Hemlock groves can be found at *Robert Treman, Buttermilk Falls*, and *Taughannock Falls State Parks*. The Nature Conservancy's *O.D. Von Englen Preserve* is an example of a Hemlock swamp, one of New York's rare ecological habitats. There are Hemlock stands at *Hammond Hill State Forest*, and the Hemlocks at *Texas Hollow State Forest* are a good example of the decline caused by HWA. Cornell Botanic Gardens has several rich Hemlock sites: *Fischer Forest Preserve* has a few old-growth Hemlocks; *Ringwood Natural Area* has good Hemlock stands; and there are some lovely Hemlocks along *Beebe Lake* on Cornell University's campus, several of which have been treated for HWA by Cornell Botanic Gardens to preserve them into the future. For information on Cornell Botanic Garden preserves, please visit www.cornellbotanicgardens.org.



Hemlocks at Five Ponds Wilderness; photo by Kyle Webster of New York State Parks (Nick Dietschler below).

Notes and References

Most of the interesting facts and research reported in this article were found in the excellent book, *Hemlock: A Forest Giant on the Edge*, by David R. Foster of the Harvard Forest (Yale University Press, 2015). Dr. Wallace has been researching Hemlocks and the impacts of HWA at the Harvard Forest for many years, and there are several ongoing experiments relating to Hemlocks in the Harvard Forest. For more details, please visit his website at http://harvardforest.fas.harvard.edu/david-r-foster.

The information on spider abundance came from Rachel E. Mallis & Lynne K. Rieske's article "Arboreal Spiders in Eastern Hemlock," published in the journal *Environmental Entomology* in 2011 (Vol. 40, No. 6, pp. 1378-1387).

Some of the details on understory vegetation were from Anthony W. D'Amato, David A. Orwig, & David R. Foster's article "Understory Vegetation in Old-growth and Second-growth *Tsuga canadensis* Forests in Western Massachusetts," published in the journal *Forest Ecology and Management* in 2009 (pp. 1043–1052).

Information on Hemlock longevity is from the book *Knowing Your Trees* by G. H. Collingwood & Warren D. Brush, edited by Devereaux Butcher, and published in 1984.

For more information on HWA in New York and the Finger Lakes Region, please visit the ***NYS Hemlock Initiative*** at www.nyshemlockinitiative.info.

HWA, by Mark Whitmore of NYS Hemlock Initiative

HWA, by Nicholas Dietschler of NYS Hemlock Initiative

INVERTEBRATES/HUMOR

[*This article details the discovery of a rarely seen invertebrate that was recently reported from the Finger Lakes Region for the first time. Field botanists and other naturalists may wish to watch for it in persistent mud puddles, while on their excursions. This fascinating story is told with whimsical humor interspersed with facts, in the author's inimitable style. —Ed.*]

CLAM SHRIMP: THE EGG CREAM OF INVERTEBRATES

by VERNON L. POND

CLAM SHRIMP ARE NEITHER CLAM NOR SHRIMP. (An egg cream has neither egg nor cream ~ the "blood-sweat" of hippopotamuses has neither blood nor sweat ~ and the Canadian comedian Red Green is neither red nor green. A linguistics grad student tells me these are "Bahuvrihi Compounds." But all this is neither here nor there.) **Clam Shrimp** look like clams, but are related to fairy shrimp and tadpole shrimp. They are common in the Midwest and western U.S., and in much of the world. New York State has four seldom-seen species (Schmidt *et. al.* 2018).

One August morning in 2016, my hiking group paused in front of a monster puddle on Bald Hill Road, a mostly well-kept dirt road through the woods of Danby State Forest, south of Ithaca, N.Y. They admired its expanse, then decided this was a good place to turn around. That's probably what happened. I had stopped to look at moss and was racing to catch up. By the time I started to admire the puddle, they were on their way. A big colony of *Tubifex* waved in the turbid water. I called to Gopi, a friend who shares my interest in nature, though she lacks any urgency to study it. Gopi vanished into the woods like a streak of raindrops plunging into curly groundcover. I squatted by the puddle, touched the surface, and watched the small red worms (also called sewage worms) retract, then return to wave their tails. **Some pebbles swam across the bottom. That might sound odd, but it was the kind of thing that on a long hike can much relieve the mood of a natural history buff.** By the time Gopi returned, the pebbles had turned into giant ostracods. (Ostracods are usually so tiny that it would take hundreds or even thousands to make a good mouthful.) These were probably too big to be ostracods. Still, it was a good bet they were something other than pebbles. I picked ten of them [Fig. 1] and, over Gopi's protests, invited them to come home with me.

At home, a quick look in an old copy of Pennak's (1978) *Freshwater Invertebrates of the United States*, and the ostracods changed into clams with legs, maybe (Hart 1971). They soon changed their minds again and became Clam Shrimp, which they decided to stay.

Ostracods and Clam Shrimp are both invertebrates that love mud puddles. Ostracods are seldom over 3 mm, have unsegmented bodies, three pairs of legs, and thin, hard, crunchy shells that lack growth rings. Clam Shrimp may be larger, have segmented bodies, at least ten pairs of delicate flat appendages, and soft shells that often have growth rings [Fig. 2]. Clam Shrimp resemble clams in external sculpturing and shape. ***Our local species***, which, according to Pennak (1978) was the ***Mexican Clam Shrimp, Cyzicus mexicanus*** (Claus 1860), gets about 12 mm long, about the size of many Fingernail Clams.

They have growth rings much like those of some Fingernail Clams [*see page 14*], but their shells are colorless, translucent, and leathery or papery, more likely to rip than crack. (The shells of Clam Shrimp are less like the substantial bookends of a clam and more like the parentheses that enclose a quip.) The Clam Shrimp from Danby were coated with the same brownish detritus and silt as the puddle bottom, as well as *Vorticella*, blue green filaments, and other algae. They earn their living by sucking in detritus or biting off anything small enough to fit in their mouths. Clam shrimp swim slowly by waving their antennae. (I'd swim slowly too, if I swam like that.) Their red bodies contrast with their shells [Fig. 3, *next page*]. This red looks much like the red of the *Tubifex*, which is much like the red of many aquatic midge larvae. Someone might be mimicking someone. More likely, red hemoglobin and a clear integument have been in fashion for the last eon or two.

In North America, the Mexican Clam Shrimp occurs from coast to coast and from Mexico to Canada, though with big

gaps in the known distribution. In fact, the distribution map is mostly gaps. **Before I found the ones in Danby, this species was known to extend into the Northeast as far as Pennsylvania** (Frings & Morse 2015). **The four clam shrimp species in New York State are poorly known. All finds should be reported**, though to whom is unclear (I emailed the United States Forest Service, the safekeepers of our woods; Sergeant Green-leaf has yet to reply). If you care to look for Clam Shrimp, here is a search image [Fig. 1, *detail*]: smoothish, ovalish, flattish, possibly silt-covered, pebble-like objects about a centimeter in diameter, in one to four inches of water in silty puddles, on dirt roads through woods. (Mixed metric and English lengths are okay for Clam Shrimp.) Roadside ditches and other waters with a slight current may have much life, and are well worth study, but our Clam Shrimp live only in still water. Most of the time Clam Shrimp are as still as stones, so you will have to get your fingers wet to tell for sure. A small dip net may help. If you pick up a smooth stone that up close looks more like a tiny space alien than anything you've ever seen [Fig. 3]: Good job, you found them!


Fig. 1 (detail)

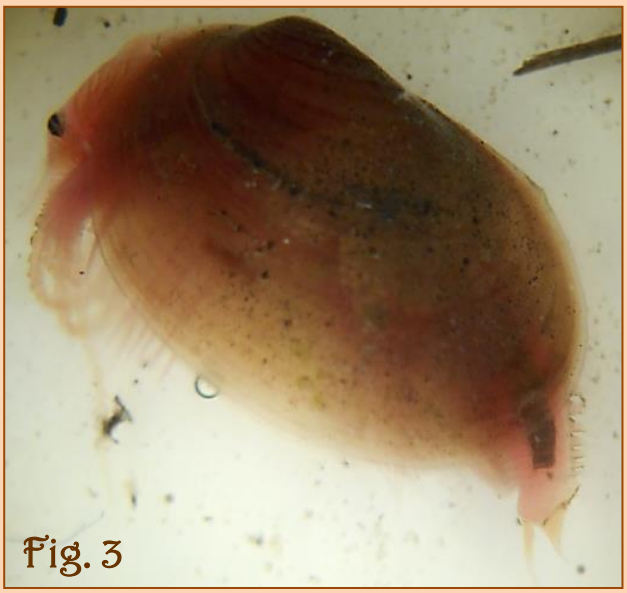


Fig. 3

Gopi and I returned the next week. We brought a hand lens, a small dip net, and jars of different sizes. As Gopi parked, I realized that a broad, open container would help. After wishing aloud for a bowl, I scanned the edge of the road for something usable, and within seconds found a 7-inch ceramic bowl in an unlikely perch on a steep bank. I cleaned it in puddle water and felt a small nick in the rim.

"Next time, I wish for one without any nicks."

"It doesn't work like that." Gopi replied.

"How do you know? How often do you wish for a bowl and then get one?"

Gopi went on about why I should just be glad for what I got. Under her moral guidance I reflected on my petty greed and learned a valuable lesson. Next time, I wish for a field microscope. Still, the bowl helped, and now sits in my kitchen cabinet. I reach for it when strange things turn up in the organic fare that Gopi likes (or in the genetically modified grub that I relish).

The puddle had shrunk a few feet. The water was clear. A nearby larger puddle, which had nearly joined it in the middle of the road, was now split into several. We faced a cluster of small and large mud puddles and tire ruts along a 30-meter stretch of road. The Clam Shrimp were in all the puddles and ruts. A likely common pattern here is that one huge puddle forms during very wet weather and then as the water subsides, many small puddles form in the thick mud. These are reshaped over and over by tires. We saw 300+ Clam Shrimp in water 3-15 cm deep. Several times that number might have been there, if, as was likely, many smaller ones lay hidden in the silt. (If you have trouble visualizing 3-15 cm, note that this is a good depth to stomp in, to soak the kid next to you.)

Slight finger pressure on the ends of the shells made them gape enough to look in with a 10× hand lens [Fig. 2] to see the minute eggs in the females, or the clasping appendages and the different head shape of the males. The eggs also showed right through the females' shells, at least after wiping off the silt. Two pairs mated in the early afternoon. This struck me as reasonable. We also saw raccoon, small bird, and other tracks, frogs, and predaceous diving beetles and their larvae. A bloom of *Euglena* floated on the surface. Grasses and mosses dotted the margins. Pennak (1978) states that "Phyllopods are almost defenseless, and it is also notable that they are not often abundant in ponds containing carnivorous insects, and are rarely present along with carnivorous fishes."

The puddle was on a level stretch of road. On one side of the road, a small trench had been dug by hand sometime that summer, evidently to try to drain the water and make the road passable. On the other side, the more natural drainage side, an overgrown mound of earth a few yards long blocked outflow from the puddle. The mound probably served to close traffic to a short side road, now filled with shrubs and small trees. The puddle might have been holed up there on and off for one or two decades. Pumice and black earth, perhaps a potting mix, had been dumped in the roadside brush. Hauling trash to the woods is a popular local pastime. If waste from aquarium tanks had been dumped here, a natural turn-around spot because of the puddle, then the Mexican Clam Shrimp, which may survive in aquariums, might have thumbed a ride in.

The Clam Shrimp most likely came to work these puddles after an egg or two caught a ride in the mud stuck to a tire. You may wonder where Clam Shrimp lived before dirt roads, and how they commuted to work before they carpooled with passing vehicles. (I write here as if I knew something about work. Please excuse this exaggeration.) Schmidt & Kiviat (2007) suggest that Clam Shrimp might have lived in buffalo wallows and dispersed in the mud on hoofs or fur. However, temporary pools, such as vernal ponds, are common in nature, and egg dispersal by wind would have sufficed in the time before bison, raccoons, water-

fowl, turtles, frogs, or any other thoughtful vertebrates.

Five days later, the puddles had shrunk much. We saw only a dozen or so Clam Shrimp. I strained some silt and found a few smaller ones. A thin yellow surface scum, probably from decaying *Euglena*, and a bacterial film splotched the surface. You've probably seen bacterial films on water. They look iridescent like oil slicks, but they break into plates rather than swirl around when touched by a finger.

I measured some animals. The net result was that the males, which ranged from 7.5 - 9.9 mm. long, were generally smaller than the females, which ranged from 5.6 - 11.9 mm. There were 4.3 females for every male. This struck me as reasonable. The female Mexican Clam Shrimp has a pointed rostrum. The male has a truncate or at least much broader rostrum. The rostrums of the males from Danby varied from smooth and even to very irregular. According to my 1978 copy of Pennak, a key feature of the Mexican Clam Shrimp is 40-50 spines on the telson, its terminal structure. The Danby ones had 34-40 spines. According to Mattox (1957), "*Cyzicus mexicanus* is the most widely distributed and variable species of the genus." The 2001 Pennak key (Smith 2001) runs as far as *Cyzicus*, then stops to catch its breath, looks down at its feet and mumbles, "four species, mostly in the Western U.S." The 2016 key in Thorp & Covich's *Freshwater Invertebrates* (Thorp & Rogers 2016), which is Pennak's competition up the road, runs to *Cyzicus*, then clutches its hamstrings and limps on in a pained voice, "Taxonomy confused, genus in need of revision." I suspect the ones in Danby might really be Mexican Clam Shrimp. On a more scientific note, Schmidt *et al.* (2018) felt that **we need more research before the Central New York *Cyzicus* can be named to species.** Those of you inclined to trust scientists might go with their opinion, rather than mine. (Hey wait, I coauthored that paper.)

I stored some of the eggs in a tiny vial with maybe a half drop of water, then forgot to add alcohol. Some days later it held one or two dozen frenzied larvae. Whether they were rushing to play dates or freshwater algae classes was unclear. At any rate they were on much tighter schedules than the adults. Over the next couple of weeks, a few of them found the time to change into the adult clam shape.

That September, after some searching, I found Mexican Clam Shrimp about 8 miles away in a small, shallow, nondescript puddle on the side of a jeep trail through sloping woods in Shindagin Hollow State Forest (in southern Tompkins County, N.Y.). These were smallish females with fewer telson spines. The smaller size, absence of males, and fewer spines might be due to life in a smaller and thus shorter-lived puddle. This might give the Clam Shrimp and its food less time to grow. Or it might be a different species. One last speculation: Maybe my hiking group felt something other than admiration for that huge puddle that stopped them. If people admired puddles more, we might know more about what lives in them.

In July of 2017, my hiking group returned to Bald Hill Road. The huge, proud puddle had been bulldozed smooth and flat to make the road passable. Two miles north of this disaster, a far more modest roadside puddle held a few dozen Clam Shrimp. Some swam, some mated, most just sat there and waited for whatever Clam Shrimp wait for. They were intermediate in length between the bigger ones from the big puddle and the smaller ones from the small puddle. For the three puddles checked by me, the net result was that Clam Shrimp length relates to puddle size.

I thank Gopi LaBranch, Joyce Noonan, and Susan and Steve Hesse of the Ithaca Hikers for help with transportation; Kathy Hodge for vital mud puddle data; and Peter Fraissinet for help with research.

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FURTHER READING

Gooley, T. 2016. *How To Read Water*. (chapter 4 on puddles). New York: The Experiment LLC.

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A Fingernail Clam (*Sphaerium simile*; older name *S. sulcatum*) for comparison, from a limy stream near McLean, Tompkins County, N.Y.

A New Digital Key to Northeastern Composites

Composite Species (Asteraceae) Finder

Your previous selections: *The sap is milky white. Flower heads contain florets all of the same color and structure. All florets are bisexual and fertile. Floret corollas are white, yellow, orange or greenish. Tips of ligules have five minute teeth.*

< Select one of the two options below. >

Flower heads are pendulous (drooping).

Click the picture below.

(3 species)

Flower heads are erect, ascending or spreading (i.e., not pendulous).

Click the picture below.

(30 species)

<< Return to previous >> << Start Over >>

[This key may also be accessed through flnps.org, News & Resources, Plant Databases.]

A new digital key to 186 species of northeastern composite plant species (Asteraceae), by Arieh Tal, is now operational online at his website: http://botphoto.com. The new key supersedes any similar keys that were posted earlier on his website. The key covers nearly all of the species most people are likely to encounter in New York and New England. The key is "dichotomous," but with lots of assistance in the form of detailed photographs of plant parts and links to an illustrated glossary. There is also an online illustrated tutorial, which provides help in understanding the morphology of plants in the composite family. There is even assistance in how to use the key itself. Detailed photos of six sample species are provided. Users unfamiliar with how the key works can practice using the key to identify one or more of the sample species. This is arguably the best online resource for composite species in the northeastern region. From the home page of botphoto.com, select the option for "Resources" under the Asteraceae section, and follow the prompts to the key.

Letters/Natural History

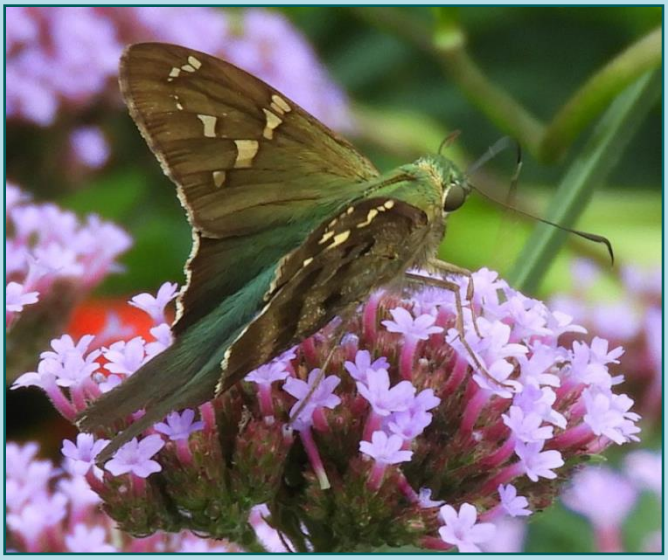
The Long-tailed Skipper

(*Urbanus proteus*): Another New Butterfly for the Finger Lakes Region

Hi Bob,

While working in the garden today [30 Aug. 2018], I saw a dark butterfly zipping around the Tall Verbena (*Verbena bonariensis*), acting like a very fast Clearwing Moth. Fortunately I had a camera with me. What a treat that was. It was the unusual rapid movement that caught my eye. Then I saw the long tails.... *Ohmygoodness*!

Sue Gregoire
emails of 30-31 August 2018
Burdett, Schuyler County, N. Y
42.443508000, -76.758202000



***Editor's Note*:** Sue's very exciting report increases the butterfly species known from the Finger Lakes Region to 114! Long-tailed Skippers occasionally stray into New York (more so in recent years), usually along the Atlantic Coastal Plain. This may be the first report of one so far inland in the state. They are resident in Florida and Georgia, but some adults move north each summer, arriving in August and September in the Northeast. Long-tailed Skippers are slightly smaller than our local Silver-spotted Skipper (*Epargyreus clarus*), with a turquoise body and wing dorsals, and long hindwing tails that resemble a Luna Moth's in shape. Please report any other local sightings.

Goldenrod season is here! Anyone interested in field testing a visual identification key to the 17 goldenrod species found in the Finger Lakes Region? Please contact Adrianna Hirtler at .

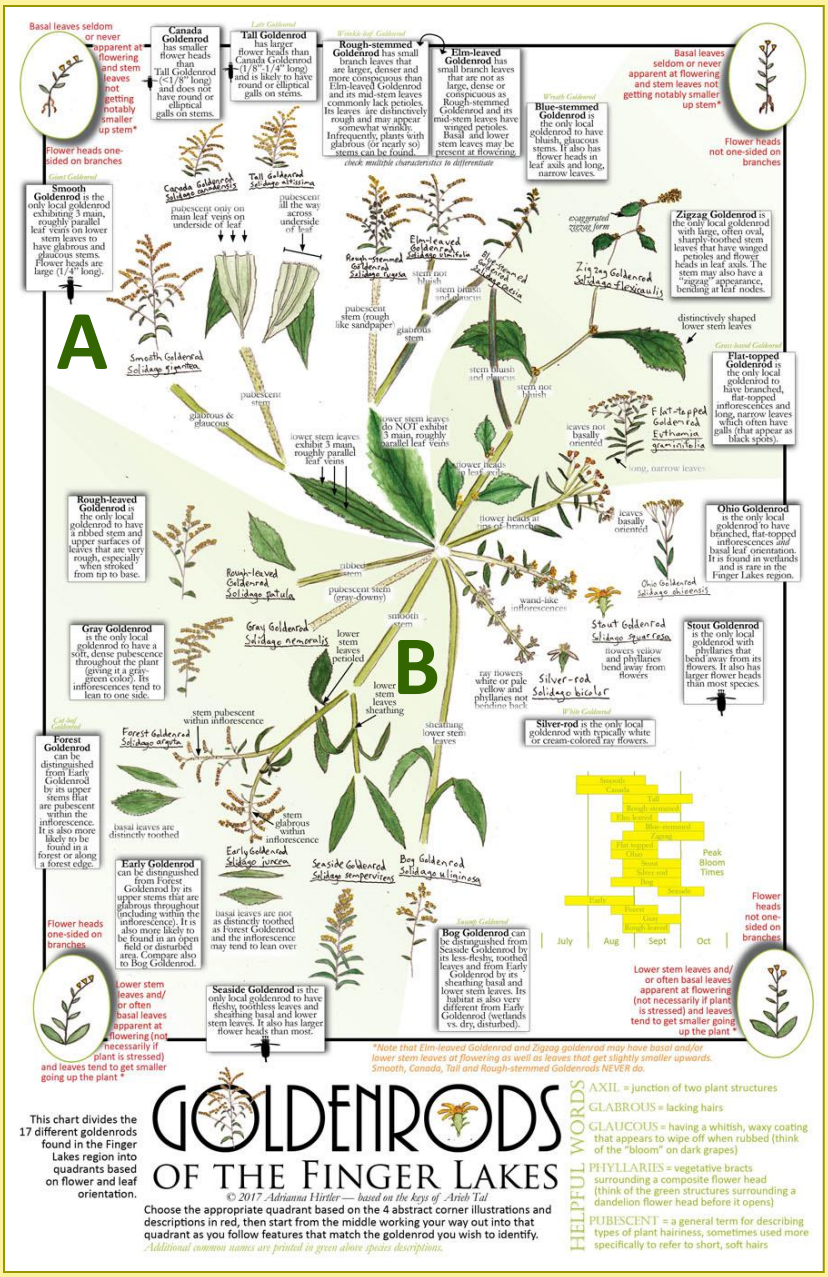
This chart divides the 17 different goldenrods found in the Finger Lakes region into quadrants based on flower and leaf orientation.

[The large green **A** & **B** were added to Adrianna's chart to show sections that are enlarged on the right. — Ed.]

GOLDENRODS OF THE FINGER LAKES

Choose the appropriate quadrant based on the 4 abstract corner illustrations and descriptions in red, then start from the middle working your way out into that quadrant as you follow features that match the goldenrod you wish to identify.

Additional common names are printed in green above species descriptions.



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HELPFUL WORDS

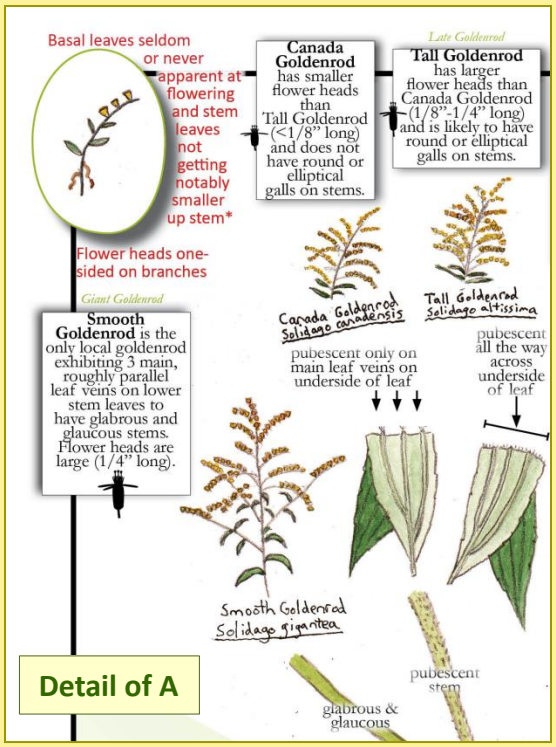
AXIL = junction of two plant structures

GLABROUS = lacking hairs

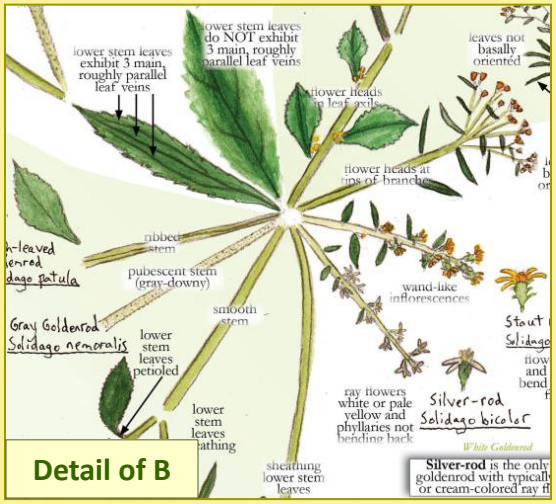
GLAUCOUS = having a whitish, waxy coating that appears to wipe off when rubbed (think of the "bloom" on dark grapes)

PHYLLARIES = vegetative bracts surrounding a composite flower head (think of the green structures surrounding a dandelion flower head before it opens)

PUBESCENT = a general term for describing types of plant hairiness, sometimes used more specifically to refer to short, soft hairs



Detail of A



Detail of B

Finger Lakes Native Plant Society

Beebe Lake's north shore on the Cornell University campus, October 14th 1996. *Photo by Robert Dirig.*

FLNPS Calendar, Autumn 2018

Wednesday ~ October 17th ~ 7:00 p.m. ***Can We Preserve Half of the Earth for Nature?*** A talk by **Julian Shepard** (SUNY Binghamton, Dept. of Biological Sciences).

Edward O. Wilson has recently published a popular exposition of the rather daunting and counterintuitive idea that we should and can still preserve half of the Earth's ecosystems for nature. Julian will outline his ideas and then discuss some recent analyses of the feasibility of the idea, including some projections on how climate change would modulate such efforts.

Saturday ~ October 20th ~ 10:00 a.m. ***Seed Collecting,*** a walk led by **Krissy Boys**. Place to be announced.

Please join Krissy to collect native seeds, the first step toward propagating more native plants, perhaps for you very own garden! **Rain date** is October 21st, or the following weekend. Contact Krissy for more information:

Tuesday ~ November 13th ~ 7:00 p.m. ***The Philosophy and Ethics of Foraging***. A talk by **Sam Thayer**.

Note change of day for this month's talk!

Wednesday ~ December 19th ~ 7:00 p.m. ***Solstice Celebration.***

Please join us for this annual event, which includes door prizes, a plant identification contest, a natural foods contest and feast, and the good company of others interested in the native flora. Please check our website† for details closer to the time.

Wednesday ~ January 16th ~ 7:00 p.m. ***Members' Night.***

This annual program features presentations and exhibits by FLNPS members. The variety and creativity are always surprising. Please save the date, and check our website† for details.

FLNPS evening Talks, the Solstice Celebration, and Members' Night are held at the Unitarian Church Annex (second floor; enter on East Buffalo St.) in Ithaca, N.Y. An elevator is available.

†Please check our website (flnps.org.) for updates and details.

We appreciate suggestions for speakers or topics, walks, outings, and rambles.

Other Regional Events

Wednesday ~ October 10th ~ 7:30 p.m. ***A Bird's Eye View of Nature in the City, and the Surprising Ways We Might Affect Ecological Communities.*** A Botanic Garden Lecture by **Amanda D. Rodewald**, at Statler Hall Auditorium, Cornell.

Wednesday ~ November 7th ~ 7:30 p.m. ***Monarchs and Milkweed: Coevolution, Chemistry, and Conservation.*** A Botanic Garden Lecture by **Anurag Agrawal**, at Statler Hall Auditorium, Cornell.

Saturday ~ November 10th ~ 10:00 a.m. to 5:00 p.m. ***Nut Bonanza at Twisted Tree Farm.*** Conducted by **Akiva Silver**.

This family event is a celebration of the nut harvest. There will be roasting and cracking of nuts all day, talk about trees, and tasting American persimmons, acorns, chestnuts, hickory nuts, butternuts, hazelnuts, & black walnuts. The event is held outside with a bonfire and a covered space in case of rain. Stations will be set up for attendees to experience everything from roasting chestnuts to pressing walnut oil. Kids are welcome! A donation of $5.00-$20.00 is suggested, or bring a local food to share.

Akiva Silver, Twisted Tree Farm, 279 Washburn Rd., Spencer, NY 14883. ☎ (607) 589-7937. *www.twisted-tree.net.*

Names of Trees in This Photograph

[from page 8]

Leaves of **American Beech (*Fagus grandifolia*)** [lower] and **American Chestnut (*Castanea dentata*)** [upper].

Photo by Norm Trigoboff.

LOCAL FLORA

Yellow Ladies' Tresses, *Spiranthes ochroleuca*, in the Finger Lakes Region

by Julia Miller

"I was out in Cornell's Arnot Forest, south of Ithaca, N.Y., a few weeks ago, and found this beautiful cluster of *Spiranthes ochroleuca*! It was very nice to see these autumn-flowering orchids. I identified them by the strong curve of the labellum and their dry-field habitat."

According to the distribution map for *Spiranthes ochroleuca* in Tom Nelson & Eric Lamont's 2012 guide to *Orchids of New England & New York* (Kollath+Stensaas Publishing, Duluth, Minn., pp. 136-137), this is a new record for Schuyler County, N.Y.!

Spiranthes of the Finger Lakes Region

Spiranthes casei, *var.* ***casei*** **(Case's Lady's-Tresses):** Cortland Co.
Spiranthes cernua **(Nodding Lady's-Tresses):** Cayuga, Cortland, Onondaga, Ontario, Tompkins, & Yates Cos.
Spiranthes lacera, *var.* ***gracilis*** **(Southern Slender Lady's-Tresses)**: Tompkins Co.
Spiranthes lacera, *var.* ***lacera*** **(Northern Slender Lady's-Tresses)**: Chemung & Ontario Cos.
→ ***Spiranthes ochroleuca*** **(Yellow Lady's-Tresses)**: Cortland, Livingston, Onondaga, & Schuyler Cos.
Spiranthes romanzoffiana **(Hooded Lady's-Tresses)**: Cortland, Onondaga, Seneca, & Tompkins Cos.

See other photographs and stories about *Spiranthes* orchids in *Solidago* (flnps.org)**:**

Shining Ladies' Tresses, *Spiranthes lucida*, by Julia Miller. *Solidago* 16(4), p. 6, December 2015.

Treasures of the Wayside, A Nod to Ladies'-Tresses [*Spiranthes cernua*], by Robert Dirig. *Solidago* 17(3), pp. 1-2, September 2016.

Letter [*Spiranthes cernua*], by Norm Trigoboff. *Solidago* 17(4), p. 3, December 2016.