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

Solidago

Newsletter of the
Finger Lakes Native Plant Society

Volume 15, No. 1 ~ March 2014

EDITORIAL

Compton Tortoiseshell

Angels of Hope

Five Hardy Butterflies That Hibernate as Adults, Appearing on the First Warm Days as Heralds of Spring

by Robert Dirig

THE YEAR'S FIRST BUTTERFLY brings a sense of joy and wonder, as an unmistakable harbinger of spring! On bright days in March, when midday temperatures begin to reach 60º-70ºF., we may notice a large dark butterfly sailing through the forest, basking on the sunlit leaf carpet, and drinking sap from a crack in a Sugar Maple's trunk. As it fans its burgundy wings, we can admire its borders of black-rimmed blue spots, against their pale lacy edges, but the butterfly seems to blend into the bark when it closes them completely (*page 2, top right*). The waning afternoon sun drives the insect back into its winter quarters, making us question if it were not a vision born of our desire for spring: But it was real, this **Mourning Cloak** (*right, & pages 2-3*), the glory of early spring woodlands, and winged messenger of hope for the winter-weary, to be welcomed with quickened pulse and shouts of exultation!

It seems a paradox that these fragile beings, which we usually associate with open air, sunlight, and flower-filled meadows, should first appear in forests, our darkest and most unpromising butterfly habitats. They have, in fact, passed several months here in a kind of stupor, their blood thickened with *glycerol* (natural antifreeze) — tucked in a hollow tree, inside a pile of rocks or fallen logs, or under loose bark, awaiting the return of warmer days. When we remember that primeval forests covered most of the Northeast for many centuries, providing stable shelters and windbreaks against winter gales, it seems less strange to find our hardiest butterflies here.

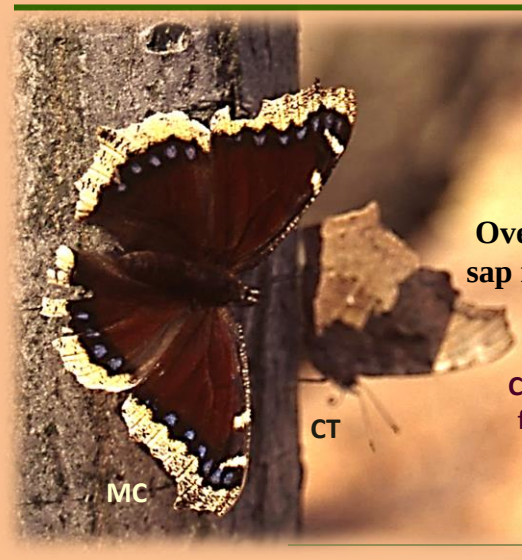
Mourning Cloaks are common in spring forests, especially along lanes or in elevated sunlit openings, where they court and

Mourning Cloak

pair in April. With them in smaller numbers, in some years, are **Compton Tortoiseshells**, our largest tawny hibernators (*top left & page 2*). These mysterious butterflies may appear about the same time that we see the first Mourning Cloaks, or even a day or two earlier. At other times they seem to fill the forest in April, like a flock of Ruby-crowned Kinglets or a flush of warblers — on their way through, and shortly disappearing. This resplendent butterfly is often gregarious, clustering over sap runs to drink, and migrating and sheltering in company. We find it more commonly at higher elevations and in boreal forests of the Northeast, but rather rarely outside of its centers of abundance.

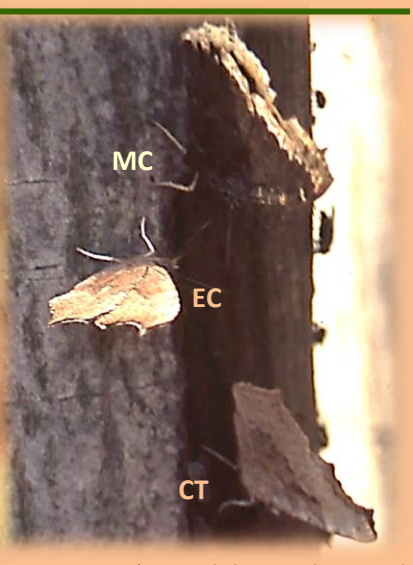
THE EARLIEST WILDFLOWERS BLOOM AT THE SAME TIME THESE BUTTERFLIES APPEAR (*left to right*) **Sharp-lobed Hepatica** (2), **Round-leaved Yellow Violet, & Early Blue Cohosh**

Hibernators' Breakfast



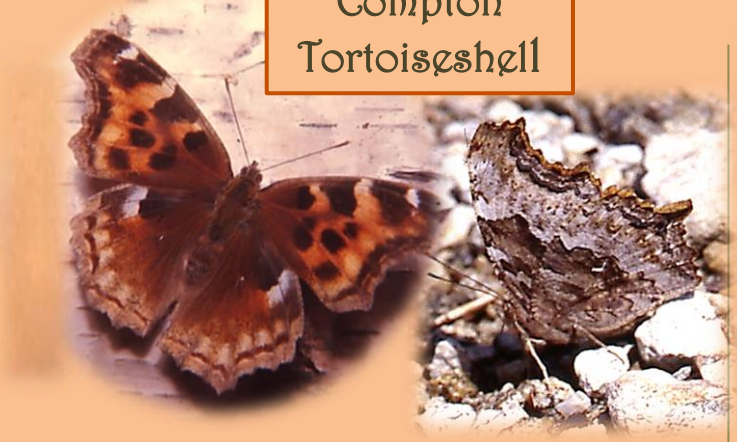
Ovewintered butterflies eagerly cluster at sap runs, especially on maples and birches.

A **Mourning Cloak** (*Nymphalis antiopa,* **MC**), **Eastern Comma** (*Polygonia comma*, **EC**), and **Compton Tortoiseshell** (*N. l-album j-album*, **CT**) feast on Red Maple (*Acer rubrum*) sap on South Hill at Ithaca, N.Y., on April 6th 2005.



[Mourning Cloak larvae eat willow, poplar, and American Elm leaves in wetlands.]

Compton Tortoiseshell



These large sylvan butterflies are very well camouflaged (*right*, resting closed on gravel). Their rarely seen larvae eat White Birch (*Betula papyrifera*), American Elm (*Ulmus americana*), and willow (*Salix* spp.) leaves. Males may sip minerals along streams in summer (*above*).

Eastern Comma

EASTERN COMMAS are smaller than Mourning Cloaks and Comptons. Males perch on hillsides, awaiting females. Wing venters (*left*) are well camouflaged, with a white hooked "comma" on the hindwing (*orange arrow*), hence the name. Larvae eat Stinging Nettle (*Urtica dioica*), Wood Nettle (*Laportea canadensis*), and False Nettle (*Boehmeria cylindrica*) leaves in damp shaded habitats. New adults have bright green hairs on the thorax.

The strikingly beautiful **Milbert's Tortoiseshell** (*Aglais milberti*, *page 3*), with flaming orange bands crossing its dark, blue-bordered wings, is another enigma. When present, it hibernates, probably most often in stone piles. I have witnessed several individuals emerge from a Catskill stone fence on a bright spring day, then return in the afternoon. Imagine the secure, cool, stable hibernaculum the interior of a stone wall provides! These butterflies pair in April, and females lay masses of glittering green eggs on sprouting Stinging Nettles in May. This butterfly is probably more a species of wooded river corridors than the forest itself. In August we may find large companies nectaring with widespread wings above treeline on our highest mountains (*see page 3*).

SLIGHTLY LATER WILDFLOWERS — AND A RIVETING FUNGUS (*left to right*)
Squirrel Corn, Long-spurred Violet, Scarlet Cup Fungus, Carolina Spring Beauty, and Dutchman's Breeches

Eastern Commas (*see page 2 and upper right*) regularly hibernate in the Finger Lakes Region, although they migrate south in fall and return in spring to the Catskills and other elevated regions of the Northeast. In the Ithaca area, they often appear with Mourning Cloaks on the earliest warm, sunny days in March.

The reclusive **Progne** or **Gray Comma** (*Polygonia progne*, *below*) may be glimpsed along forest lanes or perched atop wooded ridges in brilliant spring sunlight, flushing from rest at our feet. Overwintered individuals of this subtle, extremely well camouflaged butterfly are rather difficult to find at this season, the species being much more numerous (but still sometimes hard to find) in the July brood. In the Catskills, its larvae usually feed on Prickly Gooseberry (*Ribes cynosbati*), a gracefully arched shrub with leaves like a tiny maple that grows in rocky woodlands. In the Finger Lakes Region, it favors Smooth Gooseberry (*R. hirtellum*) in fens. (See pages 8-10 for more about *Ribes*.)

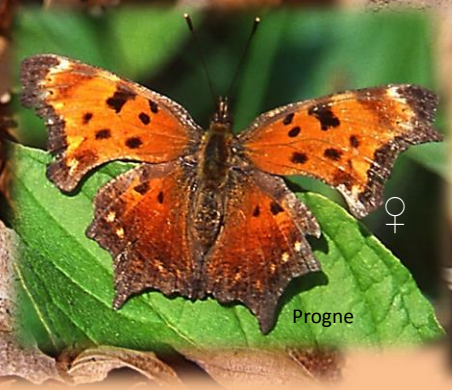
A ♂ **Eastern Comma** (*above*) perched on a fallen Yellow Birch log, McLean Bogs, March 24th 2000.

Milbert's Tortoiseshell

Milbert's Tortoiseshells are scarce in the Finger Lakes, but sporadically reappear. Their communal larvae feed on Stinging Nettle. A fresh ♂ nectared at Alpine Goldenrod (*Solidago leiocarpa*) on Mt. Washington, N.H., Aug. 8th 2010 (*right*).

Progne or Gray Comma

Prickly Gooseberry is a larval host, and Yellow Trout Lily a wildflower associate of its forest habitat (*left*).



Prognes (*above*) are smaller than Eastern Commas (*top of page, right*), have more ragged wing margins, smaller wing spots, and darker ventral wing colors.

Mourning Cloak

A freshly hatched ♂ nectars at Common Milkweed (*Asclepias syriaca*) in Vermont, July 21st 2005

All of our adult hibernators are nymphalids, resemble dead leaves or bark when their wings are closed, are rapid fliers, may change elevation or latitude at different seasons, and live for several months as adults. They are among the few butterflies that actually *reside* in forests, at least during part of the year.

At this season, woodlands beckon us to enjoy the majesty of their massive trunks; the earliest blooms of spring wildflowers; the fragrance of rising sap, damp moss, and dead leaves; and the thrill of seeing our first butterflies reveling in the warming sun. Renewed activity of adult hibernators anticipates the first butterflies that will emerge from overwintered chrysalids. As spring proceeds, these two groups often fly together in the same forests. ☙❧

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To receive a colored version when *Solidago* is published, please ask Rosemarie Parker to join our e-mail distribution list. Each colored version will also be posted on our website (*www.flnps.org*) after the next issue is produced.

Contents

Please send *Solidago* contributions & correspondence to Robert Dirig, Editor, at *red2 "at" cornell.edu*.

Deadline for the June 2014 issue is May 15th!

Please Contribute to *Solidago*

WE WELCOME CONTRIBUTIONS THAT FEATURE WILD PLANTS OF THE FINGER LAKES REGION OF N.Y. 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 the NAME THAT PLANT CONTEST (identifying a mystery plant from images), LOCAL FLORA (plant lists from special sites), OUTINGS (reports of FLNPS-sponsored excursions), PRESSING CONCERNS (news from regional herbaria), and PLANT PROFILES (on specific local plants). We also occasionally publish APPRECIATIONS (memorials to local botanists and naturalists), CHARISMATIC PLANTS (stories about formative early encounters with flora), REVIEWS (of books, talks, workshops, nurseries), LETTERS (commentaries and letters to the editor), ESSAYS (on botanical themes), VERSE (haiku, 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 & returned). We also can always use FILLERS (very short notes, small images, cartoons) for the last few inches of a column. ***Colored images in the online version will be converted into black and white before printing paper copies for mailing.***

Name That Plant Contest

The photo from the last issue's Name That Plant Contest [*Solidago* 14(4), page 5] was of **Giant Blue Cohosh (*Caulophyllum giganteum*)**. In recent years, botanist have realized that there are two species of *Caulophyllum* or Blue Cohosh in eastern North America (*C. thalictroides* and *C. giganteum*). Sometimes we use the name Giant Blue Cohosh or Early Blue Cohosh for *C. giganteum*, and simply Blue Cohosh or Late Blue Cohosh for *C. thalictroides*. The two can look quite similar, but do differ in a number of ways, including *phenology* (when they flower, with *C. giganteum* flowering first). In the past, *C. giganteum* was only treated at the varietal level, as *C. thalictroides* var. *giganteum*, but it seems clear now that the two entities are more distinct than that. One way the two species are distinguished is that *C. thalictroides* (Late Blue Cohosh) usually has yellow or purple-tinged yellow sepals (these are the petal-like structures with the true petals being reduced), and *C. giganteum* (Early Blue Cohosh) usually has purple to purplish-brown sepals (*see photo, page 1*). Another way that the two species are distinguished is that *C. thalictroides* starts to flower as its leaves are opening, while *C. giganteum* generally begins flowering before the leaves unfold.

Thanks to all those who entered the contest, and congratulations to the winners: **Betsy Darlington**, **Lee Donner**, **Harold Gardner**, **Ken Hull**, **Susanne Lorbeer**, **Rosemarie Parker**, **Sandy Podulka**, **Val Ross**, and **Dan Segal**.

THIS ISSUE'S MYSTERY PLANT is shown above. Hints and suggestions are often provided to contest participants who try. More than one guess is allowed. Common and/or scientific names are acceptable. Please submit your answers to

David Werier (*Nakita@lightlink.com*).

The photo was taken by David Werier on 14 May 2006 in Chemung Co., N. Y.

The Case of the Very Sporeful Fern

by Rosemarie Parker

WHILE MOUNTING CULTIVATED PLANT SPECIMENS at the Bailey Hortorium Herbarium (Cornell University, Ithaca, N.Y.) the other day, I was confused by three fronds of the **Japanese Painted Fern** (*Athyrium niponicum*) cultivar "Burgundy Lace". All fronds were similar on top, but only one had the herringbone pattern of curved sori I associate with *Athyrium*. The other two looked like some creature had laid billions of eggs on them. The entire back of each frond was bursting with sporangia. Were they from the same plant, or had the undergraduate collector plucked a bit too widely in the garden bed?

On further research, I found a wonderful scan of this situation in TOM STUART's Hardy Fern Library (*www.hardyfernlibrary.com*). It shows the change from immature sori to their burst-open mature state. Under the microscope, ANNA STALTER confirmed that the individual sporangia had the correct shape, and all three fronds were mounted.

Wondering if our native *Athyrium felix-femina* did something similar, I looked for images on the web. I found only a few that showed the sori totally merging like the Painted Fern, but DAVID WERIER confirmed that this expansion is a general phenomenon with maturing ferns. And the extent to which the pattern seen in immature sori is preserved upon opening of the indusium is going to vary. So for those of you who are, like me, focused on sori as marginal *vs.* along the rib, and curved, straight, or round (*i.e.,* pretty basic, no finesse), I want to warn you: Use a hand lens, and keep in mind that burst sori can give a very different initial impression.

Reference: *Athyrium niponicum*, immature (top) and mature pinnae, showing all the typical athyroid shapes of sori: lunate, inverted-j, and hooked. At maturity all merge.
Scan from: Tom Stuart, *www.hardyfernlibrary.com*, 6 Feb. 2014. *Used with permission*.

Letters

Hi Bob —

Even though the temperatures have often plummeted to 30° and below, reading the December 2013 issue of *Solidago* has warmed my fingers and toes, and also my heart.

Exceptional writing and equally exceptional editing along with exhaustive research can make of any subject exceptional reading. This issue accomplishes this with its imaginative presentation, its informative variety of subjects and its unusual use of color. I'm not used to seeing yellow and gold dominate the yuletide season.

In the first two paragraphs of your article on the resilient and humble **Dandelion,** you have impressed me once again with your love of nature that your talent for writing only enhances. I, too, am saddened that in our desire for the efficiency of uniformity we have robbed our lawns of nature's prolific, haphazard display of this flower.

I am a happy reader when AKIVA SILVER writes that the American Persimmon tree's heartwood is so tough it has been made into golf club heads, that its fruit can be the most sweet or the most sour; or that WILLIAM PLUMMER's review of the book *American Plants for American Gardens* has so tickled my curiosity, I plan to purchase a copy next spring. Because of SCOTT LAGRECA's article on *A Crater Lichen New to New York State***,** I want to walk up the Robert H. Treman State Park's stone stairway to see that lichen for myself.

As a poet, I fell in love with *Y Is for Yucca Moth* that in five lines defines the delicate but imperative relationship between insect and plant.

Congratulations! to all involved, you've made this issue "pure gold."

Thelma Turner
Ithaca, N.Y., 6 December 2013

WOW! Another superlative job.... I cannot praise the efforts of all enough. I was just going to check e-mail quickly, and after an entrancing hour, I'm still lost in the treasures I'm finding here. Bob Dirig's prose is poetry; the photos are amazing, and the breadth of knowledge displayed by the writers leaves one very humbled. THANK YOU!

Dorothy Stiefel
message to the FLNPS website, 4 Dec. 2013

More on Autumn Dandelions & Sulphurs

Dark autumnal forms of Orange Sulphur (*left*) & Clouded Sulphur females

Hi Bob,

I found two of my posts to *NYSButterflies* that are pertinent. I'm including the full text because they reference the Dandelion [*Taraxacum officinale*] status. It is interesting to compare those recent late butterfly years to the early cold weather we had this year.

Nov 28, 2006: *There is excitement in the air in upstate New York, as recent posts indicate that Orange Sulphurs* [Colias eurytheme] *are still flying in small numbers, and we are tantalizingly close to having December butterflies! But the forecast is for a transition into winter weather again on December 1. I suspect there will be a few live adults grounded somewhere in the area.*

I've been following the Sulphur population at Cass Park, Ithaca (Tompkins County, N.Y.), for the past two months. I had good numbers (50+) still flying on Nov 9th, with Clouded Sulphurs [Colias philodice] *distinctly outnumbering Orange* (*and Cabbage Whites,* Pieris rapae). *We then had two weeks of rain and clouds, topped off with cold weather and temperatures in the low 20s (°F.) on several mornings. But in this past Sunday's (Nov. 26th) warmth, I found two Orange Sulphurs flying at Cass Park (near the Hangar Theatre). I found them together there again on Monday (Nov. 27th). They seemed very fresh, and it would be interesting to know their life cycle status. Today I was only able to locate one, and it appeared to be a different individual, with less orange on the basal portion of the wings. All were nectaring on Dandelion*

December 1, 2011: *I stopped at Cass Park today at 12:30 p.m., and found four Sulphurs flying in the Dandelion-rich grass just south of the public pool (within the fenced area). These appeared to be two Clouded Sulphurs and two Orange Sulphurs. Weather was 45°F. and sunny, after Ithaca's fifth warmest November going back to 1893.*

That is a treasure of an article Bob! I do indeed recall being delightfully nourished by the cheer arising from finding late Sulphurs on Dandelions.

Bill Evans
***3** December 2013, Danby, N.Y.*

Solstice Celebration

And a Good Time Was Had by All

by Rosemarie Parker

If you have never been to one of the FLNPS's **December Solstice Celebrations**, or haven't attended in awhile, this note is for you. Approximately 30-40 plant lovers show up to celebrate plants for a couple of hours each year.

Last December, as usual, we had great **food** — all sorts of fruit, desserts, salads, main dishes, and drinks, with at least one native or naturalized plant ingredient. (Well, the chili brought by Charlie & Cricket Smith was more plant-promoting than plant-based, as it contained the notorious invasive herbivore, the White-tailed Deer! Someone's plants are growing better for that harvest.)

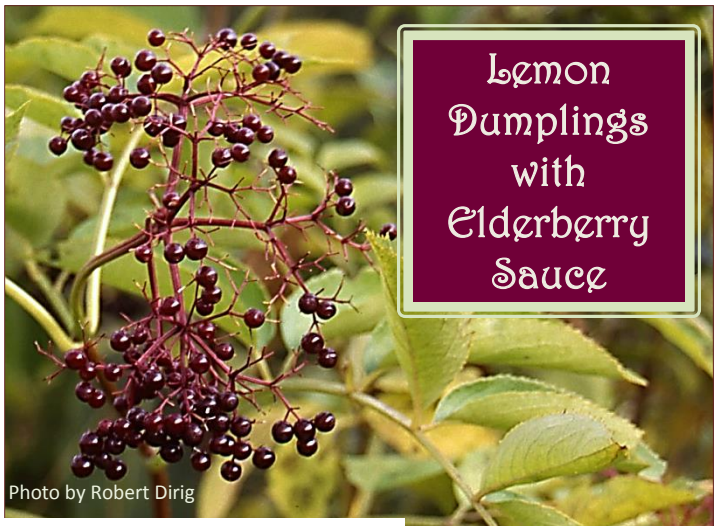
Linda Blossom brought a wonderful concoction of 3 parts wild grape juice to 1 part Concord grape juice — wonderfully tart, like the difference between wild Highbush Blueberries (*Vaccinium corymbosum*) and those you buy in the grocery store. And, along those lines, David Werier brought a dish containing Wild Rice (*Zizania palustris*), maple syrup, and White Pine (*Pinus strobus*) pollen or staminate cones, all of which he had collected in his wanderings. David's Wild Rice was light-colored and fluffy. Mine was the same species, shipped from Minnesota, but dark and not so fluffy. The difference is the way they are processed. The material David collected was processed the traditional way, by "drying, lightly toasting, and then dancing on it to remove the husks (*i.e.* the *lemmas* and *paleas*)." (*That* I would like to see! Sounds like fun.) Large commercial Wild Rice harvests are fermented before drying. I read up on it, and apparently this makes the dancing less necessary. Another loss to improved productivity!

Among the other **foraged food dishes** were a delectable dessert (cheesecake?) with a wonderful sauce; and ***Lemon Dumplings with Elderberry Sauce*** (Sandy & Bill Podulka's winning entry, *see recipe at the right*). With so many entries, tasting everything in order to vote for a favorite was tough, but very pleasant.

Attendees picked up lots of **seeds** to grow this coming spring (ca. 160 species were collected in 2013, and a fair fraction of those made it to the table in December). The dead-plant/evergreen **identification contest** challenged us to dig into memory, field guides, or into our friendly neighbor's expertise to come up with at least a plausible name (won by Bob Dirig). In a change from earlier years, this self-graded contest was not necessary to win a door prize, but participants did get first choices.

THANKS to everyone who donated door prizes, ranging from local foods to hand-made pottery. And a big thank you to Jake Aigeldinger for putting together pleasant background music to keep the subliminals upbeat!

The night ended with a **members' slide show**. This year's presenters were Norm Trigoboff and David Werier, with lots of *ooohs* and *aaahhhs* from the audience.



Lemon Dumplings with Elderberry Sauce

by Sandy & Bill Podulka

Elderberry Mixture

2 cups elderberries
¾ cup sugar • 1 tbs flour
2 tbs lemon juice • ¾ cup water

Combine all the ingredients in a saucepan, heat gently, and keep the mixture warm while you make the dumplings.

Common Elderberry (*Sambucus nigra* ssp. *canadensis*)

Dumplings

¾ cup flour, sifted • 1½ tsp baking powder • ½ tsp cinnamon
½ tsp salt • ¼ cup sugar • ¼ cup lemon peel, grated
¼ cup milk • 1 egg

Add baking powder, cinnamon, salt, and sugar to the sifted flour. In a small bowl, beat egg slightly and then mix in the milk. Stir the egg/milk mixture into the dry ingredients until the dough is just blended. Pour the hot berry mixture into a casserole dish (8 × 8 in. or something similar), and drop in small spoonfuls of the dumpling batter. Bake at 400°F. for 25-30 minutes, until the dumplings are lightly browned. Serve warm with vanilla ice cream or cream.

A Note about Elderberries

You can use fresh or frozen Common Elderberries (*Sambucus nigra* ssp. *canadensis*). To freeze elderberries, gather the entire heads (cymes) in late summer and freeze them, whole, on trays. Once frozen, gently shake the heads to separate the berries from their stems. Then pack the berries, dry, in bags or containers. (This was advice from David Werier.) Did we do this? No. We gathered them onto trays, and then tried to pick each fresh berry off, which created a mix of berries and broken stems. We then used tweezers to pull the broken stems out of the berry mess. Our advice: Use David's method!

This recipe was adapted from one in *Mother Earth News,* at *http://www.motherearthnews.com/real-food/elderberry-recipes-zmaz73jazraw.aspx?PageId=2#ArticleContent*

Hobblebush & Wild Sarsaparilla

If you took some of the seeds of **Hobblebush** (*Viburnum lantanoides*) or **Sarsaparilla** (*Aralia nudicaulis*) at the Solstice Celebration, please check how many you have. If you can spare a few for Krissy, please, *please* contact her at *kbf3@cornell.edu*. All seem to have been distributed, and we needed to save a few! Thank you.

White Pine Blister Rust & *Ribes*

by Akiva Silver

Invasive Fungus

White Pine Blister Rust (WPBR) is a complicated disease with a great story. The rust is a fungus, *Cronartium ribicola*, that requires two host plants to complete its life cycle. The disease is able to kill all five-needled pines. When it was discovered that *Ribes* (gooseberries and currants) served as the alternate hosts, the lumber industry waged war on *Ribes* populations.

There are more than 70 species of *Ribes* native to North America. They are small shrubs that often thrive in the shade of forests. The berries have fed woodland songbirds and rodents for millenia. The color of currants and gooseberries can range from translucent white to green to red to purple to black. The flavor can vary just as much, from terrible to delicious. Many cultivars of both native and Eurasian species abound in gardens and nurseries across the temperate world.

WPBR does not affect *Ribes* too much, but it often kills young White Pines (*Pinus strobus*) and injures older trees. In some stands, mortality of young White Pines can be near 100%, though more and more resistant pines are showing up and being bred.

Originally from Asia, WPBR was introduced into Europe, and then accidentally brought to North America. In the eastern U. S., towering White Pines dominated the landscape. The lust for their valuable timber led to their rapid destruction. The trees were used to build first British and then American naval ship masts. White Pines were so valuable in colonial times that it was illegal for colonists to cut them down. But down they came in great numbers, and by the late 1800s, it was realized that our forests might not last forever. Replanting programs began, but American nurseries were unable to keep up with the demand for White Pine seedlings. We looked to Europe, already well practiced in replanting forests, to supply us with White Pine seedlings. Many thousands of seedlings were shipped from nurseries in Germany, and along with the trees came WPBR.

The disease was first discovered in Geneva, N.Y., in 1906 (*see page 10*). Very soon afterwards, *Ribes* eradication efforts began. WPBR has two different types of spores. One type moves from White Pines to *Ribes* plants, and is capable of traveling 100 miles or more. The other type of spore (*see photo I, page 10*) travels from *Ribes* to the pines, and is only capable of moving a few hundred yards—and herein lies the weakness in the disease. By removing all the cultivated and wild *Ribes* from the immediate vicinity of a valuable White Pine stand, the pines could be protected.

Growing *Ribes* became illegal under federal law (this ban was lifted in 1966, with individual states taking over from there). Work crews hired by the government, mostly through the Civilian Conservation Corps (CCC), systematically swept through and around valuable White Pine stands, uprooting gooseberries and currants. At one point in the 1930s, there were over 11,000 men ripping *Ribes* plants out of the ground. It is hard to imagine how many plants were destroyed, and what effect this had on local ecosystems.

Wild *Ribes* are far more common than most people realize. They are inconspicuous plants that thrive in the shade and tangles of thick woods. Here in upstate N.Y., virtually all woodlots have some wild gooseberries or currants growing in them.

Amazingly, the eradication efforts were considered successful at the time. They drastically reduced the spore inoculum and thus the spread of WPBR. However, as time went on, and eradicated sites were not revisited, the disease came back and spread. Today, WPBR is a serious threat to five-needled pines that grow at high elevations in the Rockies and Sierra Nevadas (*see Fig. C, page 9*).

However, new research has proved that *Ribes* are not the only alternate host. Indian Paint Brush (*Castilleja* sp.) and Snapdragons (*Antirrhinum* sp.) have also been shown to spread WPBR to pines.

While eradication and the banning of *Ribes* plants was the focus in the U. S., in Europe the aim was to breed resistant pines and *Ribes*. This is largely because currants and gooseberries are so popular in Europe. American nurser-

ies and fruit growers wanting to grow *Ribes* pushed for the legalization of resistant varieties. While countless wild plants existed all over, many states decided to permit the sale of resistant *Ribes* varieties. And then, amazingly, in 2012 it was discovered that WPBR has mutated in New Hampshire. There is now a new strain of the fungus that overcomes the resistance in many varieties. Gooseberries and currants that have been advertised as immune by multiple nurseries across the country are actually totally susceptible to the mutated fungus.

Growing *Ribes* has dramatically increased in popularity in the U. S. in recent years. So-called "resistant" and "immune" varieties helped gooseberries and currants get a foothold into American gardens and farms. They are delicious, useful berries, and easy to grow. With outstanding health benefits, *Ribes* have become a growing component of the local food movement. So what now? Since there are virtually no *Ribes* that can be guaranteed to be resistant to WPBR, is it okay to grow them?

This is a choice for individual landowners to make. Here are some key points to consider: Are there young, desirable White Pines growing nearby? Are you willing to watch the pines and prune out infected limbs (an effective control measure, since 99% of infections on White Pines take place lower than 9 feet high)? Are there wild *Ribes* already in the vicinity? Snapdragons or Indian Paint Brush?

Resistance in pines is known and growing. About 20% of unselected White Pines are able to fend off the disease, even while young. About 75% of selected pines from breeding programs are resistant. These numbers will likely only go up with time, as the genotypes of the most susceptible trees are killed off.

It is interesting to know that in the Czech Republic and Poland, our native Eastern White Pine (*Pinus strobus*) is increasingly naturalized. This is a part of the world with a high level of European Black Currant (*Ribes nigrum*) production. *Ribes nigrum* is considered the most susceptible of all the *Ribes* species. Black Currants are not just found on a farm level, where plantings are extensive, but also at individual homes. Over 90% of homes in Eastern Europe have Black Currants planted. Despite this massive presence of the most susceptible *Ribes* species, White Pines have been able to naturalize themselves into the landscape.

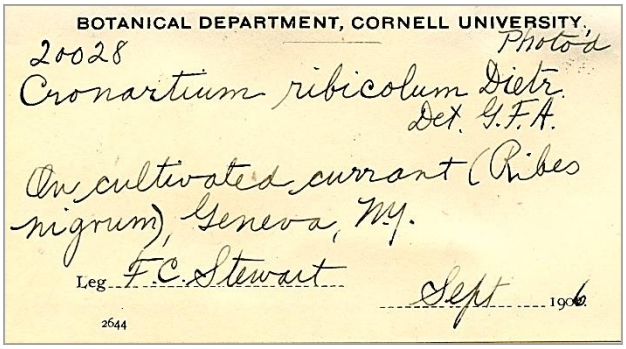
To me, growing gooseberries and currants is a wonderful addition to the garden and to the land. Wild plants abound (*see next page*), and have lived alongside White Pines for thousands of years. I understand the controversy surrounding growing *Ribes*, and welcome any comments or questions. ☙

Akiva Silver, Twisted Tree Farm, 279 Washburn Road, Spencer, N.Y. 14883, (607)589-7937, www.twisted-tree.net

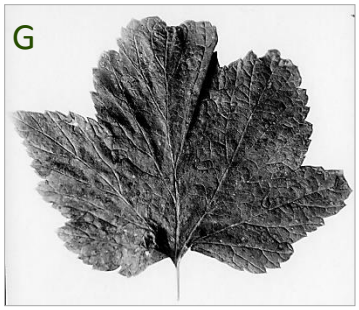
Eastern White Pine (*Pinus strobus*): Healthy needles (A) and trees (B), Ithaca & Catskills, N.Y. Western White Pine (*P. monticola*) with dead top from WPBR, near Mt. Hood, Oregon, 1973 (C). WPBR canker on *P. strobus* trunk, Minnesota, 1955 (D). Branch canker and terminal death on *P. strobus*, South Lansing, N.Y., 1966 (E). ***Photos:*** *R. Dirig (A-B), Plant Pathology Herbarium, Cornell University (C-E).*

WHITE PINE BLISTER RUST ON *RIBES*: First notice of this Old World plant disease in N. A. happened in the Finger Lakes Region! F. C. Stewart collected it on European Black Currant at Geneva, N.Y., in Sept. 1906 (F), and sent it to **G. F. Atkinson** at Cornell for identification. Atkinson photographed the fresh leaf and spores (G-I, using glass negatives) before pressing it for the Herbarium (J). Stewart mentioned it in his 1908 report on "Botanical Investigations" at the Agricultural Experiment Station, recognizing it as a pest of White Pine (K). **W. Sinclair** collected material in Ithaca (Varna), N.Y., that was photographed in color in Sept. 1969 (L-O). —*Ed.* (*Photographs & specimen images courtesy of the Plant Pathology Herbarium at Cornell University.*)

F


BOTANICAL DEPARTMENT, CORNELL UNIVERSITY.
20028 Photo'd
Cronartium ribicolum Dietr.
Det. G.F.A.
On cultivated currant (Ribes nigrum), Geneva, N.Y.
Leg. F.C. Stewart Sept. 1906
2644

G



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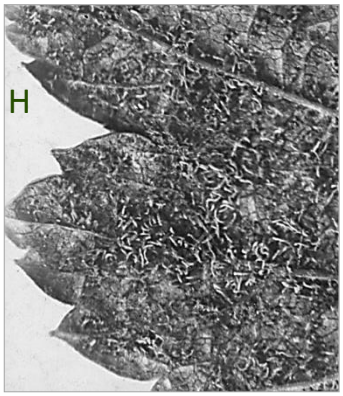

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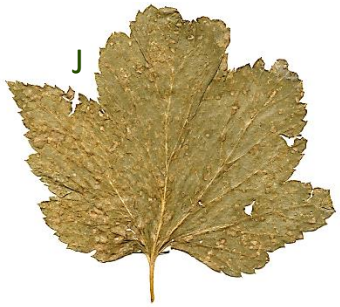

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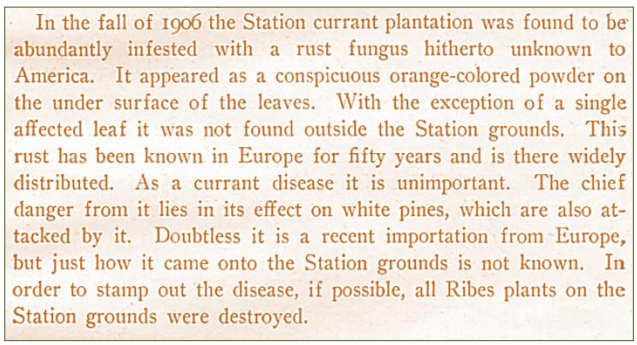
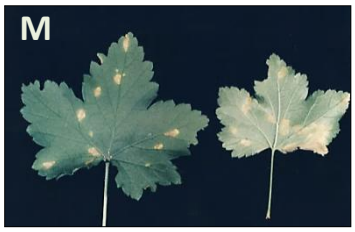

In the fall of 1906 the Station currant plantation was found to be abundantly infested with a rust fungus hitherto unknown to America. It appeared as a conspicuous orange-colored powder on the under surface of the leaves. With the exception of a single affected leaf it was not found outside the Station grounds. This rust has been known in Europe for fifty years and is there widely distributed. As a currant disease it is unimportant. The chief danger from it lies in its effect on white pines, which are also attacked by it. Doubtless it is a recent importation from Europe, but just how it came onto the Station grounds is not known. In order to stamp out the disease, if possible, all Ribes plants on the Station grounds were destroyed.

L

M



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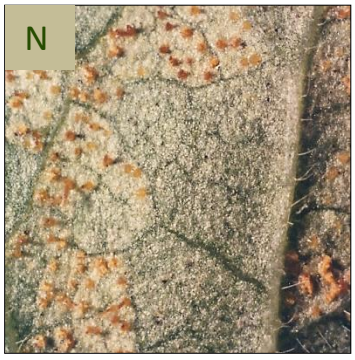


O

P

Q

Native Finger Lakes *Ribes* include the Prickly Gooseberry (*R. cynosbati* , P) of dry stony woods and edges, and Smooth Gooseberry (*R. hirtellum*, Q), which grows in fens near Ithaca. Six additional species are listed for the Cayuga Lake Basin Flora. (*Photos by R. Dirig*)

Mayapple Lore

by Val Ross

THE SHOOTS OF ONE OF OUR MOST INTERESTING NATIVE PLANTS begin to poke up soon after the snow melts in the spring (Fig. 1). *Podophyllum peltatum* is variously known as ***Mayapple***, ***Indian Apple, Umbrella Plant, American Mandrake***, and ***Duck's Foot***. The Greek name is descriptive, PODOPHYLLUM meaning "foot-leaf" and PELTATUM meaning "shield-shaped." One section of the leaf resembles the long, narrow footprint of a duck (hence "Duck's Foot"), and the flower and umbrella-like shape of the leaves resemble the small round convex shield (PELTA) carried by ancient Greek foot-soldiers. "Mayapple" is a misnomer, because it's the flower that appears in May, with the edible "apple" (technically a *berry*) ripening in late summer. The plant is in the Berberidaceae, and is native to deciduous forests of the entire eastern half of the U. S. and Canada.

Plants sprout before the full canopy of the forest unfurls, reaching 12-18 inches in height. The single 3- to 5-cm-diameter flower, which blooms in May, is usually creamy white, though pinkish or purplish-tinged ones are sometimes found (Fig. 2). It has a skunky, nauseating odor. It is a nectarless flower, which makes pollination difficult, because insects aren't rewarded for visiting. You'll rarely see an insect on the Mayapple flower. The plant usually can't fertilize itself, so its ability to get its pollen distributed is a bit of a mystery. According to James E. Crants, in his unpublished University of Michigan doctoral dissertation on *Pollination and Pollen Limitation in Mayapple* (Podophyllum peltatum L.)*, A Nectarless Spring Ephemeral*, Mayapples probably rely on nearby flowers to attract insects. The Mayapple plant has two means of reproduction. Some of the plants are reproductive individuals with flower and fruit, and usually two palmate leaves with 5-9 deeply cut lobes. (Fig. 3). Other Mayapple plants are sterile, with asexual reproduction by rhizomes. Those have one umbrella-like leaf and no flower (Fig. 4). It is common to find clonal rhizome colonies covering the forest floor (Fig. 5, *page 12*). Mayapples like partly to fully shaded forests, and grow under deciduous hardwoods, but do not like the proximity of pine trees. The plant is obligately dependent on mycorrhizae in the root system, which help to gather nutrients from the soil. It is often host to *Puccinia podophylli*, the parasitic Mayapple Rust Fungus, which causes yellow spots on the underside of the leaves, but doesn't seem to hurt the plant very much.

Mayapple makes a wonderful ground cover, but its limitations for use in gardening are that the leaves wither and die in late summer, it needs shade, and it doesn't like to share space with any other plant. It is best propagated by division of its roots, which somewhat resemble the Old World Mandrake's (*Mandragora officinarum*, Solanaceae) roots (hence the name "American Mandrake," though it is not related to real Mandrake). Every part of the root will grow. Divide them preferably in spring, just before the roots begin to shoot, or in the fall when the leaves decay. *P. peltatum* is the only species of *Podophyllum* native to the U. S., but there are four other species native to eastern Asia. These are now imported as ornamentals for southern and western U. S. gardens, but require hardiness zones 6-9, so we need not fear they'll take over our forest floors in the Finger Lakes Region.

The Mayapple's fruit is produced in June, and ripens

Fig. 1: Early shoots.
Fig. 2: Flower under leaves.
Fig. 3: Flower and two leaves on a reproductive plant.
Fig. 4: Sterile plant.

in late summer. It turns yellow when ripe, and is quite edible. The taste is not unpleasant, like a slightly lemony, unripe strawberry. You can eat the ripe apples by themselves as a trail snack, and there are lots of ways to use them in jams, jellies, and drinks. In harvesting them, you have to be quick about your business to beat the squirrels, deer, and box turtles. *Don't eat the seeds, and don't eat them green. The apples will be impressively cathartic if you eat too many* (personal childhood experience). You can collect nearly ripe fruits and finish the ripening at home. *The rest of the plant is inedible and toxic. Native Americans used to commit suicide by eating the roots.*

THE TOXICITY OF THE PLANT is also the source of important medicines. *Podophyllum* species are incredibly important medicinal plants, with a long history of varied usage. Native Americans and early settlers used *P. peltatum* roots and leaves for all kinds of treatments, mostly along the purging, anti-helminthic, and cathartic line. It was thought that its effects on the gastrointestinal tract (vomiting, diarrhea) were helpful for getting rid of "whatever ailed ya," and it was one of the active ingredients in "Carter's Little Liver Pills" in the late 1800s. Tinctures of the roots are still used in homeopathic preparations, and there appears to be brisk trade on eBay for dried Mayapple roots as ingredients for Wiccan elixirs and potions. (It is mistaken for Old World Mandrake in many of the descriptions.) The ground-up leaves and roots have long been recognized as skin irritants, with poultices applied to warts and sores in the old days. *Podophyllin* is the impure resin that is obtained from plant rhizomes, and it is still used medically as a treatment for warts, particularly the genital kind. As a doctor, I have painted podophyllin on dozens of crotches. My impression is that its mode of action, as with most wart treatments, is to irritate the lesion to the point of blistering, then it scabs and falls off. There is supposedly some anti-viral property at work as well. (Nowadays I don't see it used as much as freezing and lasering of the warts.)

The active material in the crude podophyllin resin is a lignan called *podophyllotoxin* (Fig. 6). This organic molecule has been studied for its cytotoxic properties. Two derivatives of podophyllotoxin are actively used for various cancer treatments (etoposide or VP-16, and teniposide or VM-26), and there is ongoing investigation into using it in autoimmune disorders like rheumatoid arthritis. Podophyllotoxin acts by binding to DNA topoisomerase II complexes, with resultant DNA strand breakages. This leads to inhibition of cell division, and kills off bad, rapidly dividing cells. There is a high demand for podophyllotoxin. Because it was originally isolated from the leaves and roots of Asian *Podophyllum* plants, they have been hunted to near extinction in the Himalayas (particularly *Podophyllum emodi* and *Podophyllum hexandrum*). *Podophyllum* is gaining popularity as a cash crop in Europe and Russia. Because importation of the refined podophyllotoxin is so expensive, and demand outstrips supply, efforts have been made to extract it from native U. S. Mayapple plants. It's a hard plant to grow in massive quantities, so other options are being explored. Chemists have synthesized the molecule in the lab, but so far that method of obtaining podophyllotoxin has proved too difficult and expensive to be practical on a commercial basis. Biotechnologists are figuring out ways to grow the podophyllotoxin-producing plant cells and organs in lab cultures. One fascinating discovery was reported in 2006: Some of the endophytic *fungi* that inhabit the root system of the plant — those mycorrhizae mentioned previously in this article that help the plant absorb nutrients from the soil — were also found to produce podophyllotoxin (A. L. Eyberger, R. Dondapati, & J. R. Porter, Aug. 2006, *Journal of Natural Products* 69(8):1621-1624). The fungi might be grown in a lab more easily than plant cells and organelles, and they could eventually be used to produce podophyllotoxin.

IN SUMMARY, our unassuming native Mayapple plant provides us lessons in beauty, botany, Greek, mycology, gastronomy, reproduction, Native American medicine and culture, warts, cancer treatments, chemistry, and the ingenuity of modern scientists in the pharmaceutical industry. We look forward to its arrival this spring!

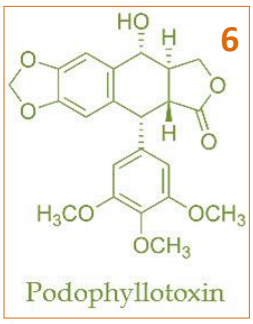


Fig. 5: A clonal rhizome colony. **Fig. 6:** Podophyllotoxin.

[***PICTURE CREDITS:*** **Fig. 2:** Mike Mazur for Crane's Mill, N. J. **Fig. 3:** Photo by Velocicaptor. **Fig. 5:** Nicholas A. Tonelli, Shenks Ferry Wildflower Preserve, Pennsylvania. **Figs. 1 and 4, and border design:** Robert Dirig © 2014.]

Obtaining Plants from Soil and Water Conservation Districts

by Sylvia Albrecht

Several years ago, I purchased some plants through my local **Soil and Water Conservation District** (SWCD), only to learn later that the Oriental Bittersweet (*Celastrus orbiculatus*), Autumn Olive (*Elaeagnus umbellata*), and Russian Olive (*E. angustifolia*) in their "wildlife packets" are nasty plants that I am now, 20-30 years later, trying to remove from my property, where they have spread beyond their initial planting sites.

I have recently reviewed the offerings from the various county SWCDs in New York, and find that still too many plants known to be invasive or that have the potential to become invasive are being offered to the general public. For instance, four years ago, one county office was offering Japanese Barberry (*Berberis thunbergii*). I pointed out the problem to them, and they have dropped that plant from their offerings. Privet (*Ligustrum* sp.) is offered in some counties, as well as invasive clump grasses, including Fountain Grass (*Pennisetum* sp.). The majority of the "wildflower" mixes that different counties offer are the common roadside non-native flowers, with origins in Europe, Asia, and Africa. Some offices offer European Larch (*Larix decidua*) instead American Larch (*L. laricina*). The one county I contacted about this said that they are offering the European species because many insects feed on the American Larch. I tried to explain that insects are a fact of life, and they in turn feed our native birds or other native predatory insects, but I see they are still offering European Larch.

I think the counties, for the most part, are trying to do the right thing, but they don't have all the information. Several counties have started to offer native clump grasses — Indian Grass (*Sorghastrum nutans*), Little Bluestem (*Schizachyrium scoparium*), Purple Love Grass (*Eragrostis spectabilis*), Prairie Dropseed (*Sporobolus heterolepis*), and Switch Grass (*Panicum virgatum*). Some offices are more aware than others of the issues of non-native plants, but there is no statewide oversight (or guidance) of this program.

If you are planning on purchasing plants or seed from your local SWCD, review their offerings carefully, and let them know if their sale includes some plants that are real problem-makers.

For more information about the invasiveness of frequently planted non-native species, refer to the FLNPS website (*http://flnps.org/plants/invasives*) and the **New York State Invasive Species Clearinghouse** (*http://www.nyis.info/index.php?action=israt*).

Other Spring 2014 Events

Friday & Saturday, March 7-8, Ithaca Native Plant Symposium. Two days of interesting and relevant speakers for those who work or play in gardening, landscaping, and native plant restoration. CEU credits are available. See the symposium website for details:

http://www.ithacanativelandscape.com

A few spaces left! Sunday, March 23, Propagating Native Plants from Seed — Part 2 (10:00 a.m. to noon *or* 1:00-3:00 p.m.), conducted by Kathy Vidovitch & Krissy Boys, at The Plantsmen Nursery greenhouse, 482 Peruville Road, Groton. This hands-on workshop will explore options for sowing and stratifying seeds. Seeds and containers will be provided. (Species needing stratifying will be ready for fall planting, others for spring and summer.) Space is limited, and pre-registration is required (*info@flnps.org*). Please indicate which session you wish to attend, and if you *could* attend the other. You must have attended one of the lectures (2010 or 2014), or have experience with seed cleaning, stratifying, and storage. If unsure, please send a message to the registration website (above), and we'll talk!

Editorial Plants

Additional Scientific Names of Plants (and an Ascomycete) Mentioned on Pages 1-3

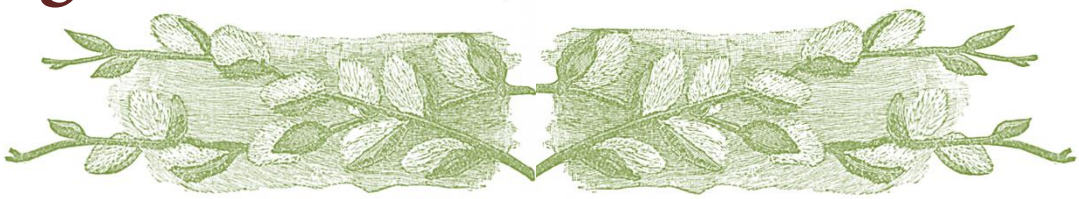
Sugar Maple (*Acer saccharum*), Sharp-lobed Hepatica (*Anemone acutiloba*), Round-leaved Yellow Violet (*Viola rotundifolia*), Early Blue Cohosh (*Caulophyllum giganteum*), poplar (*Populus* spp.), Squirrel Corn (*Dicentra canadensis*), Long-spurred Violet (*Viola rostrata*), Scarlet Cup Fungus (*Sarcoscypha* sp.), Carolina Spring Beauty (*Claytonia caroliniana*), Dutchman's Breeches (*Dicentra cucullaria*), Yellow Trout Lily (*Erythronium americanum*), and Yellow Birch (*Betula alleghaniensis*).

Botanical names used in *Solidago* usually follow the online *New York Flora Atlas* (Browse by Scientific Name): newyork.plantatlas.usf.edu/Browse.aspx?cat=Scientific+Name.

Thank You!

Many thanks to all who have contributed to this issue of *Solidago:* **Writers** Sylvia Albrecht, Bill Evans, Rosemarie Parker, Sandy & Bill Podulka, Val Ross, Akiva Silver, Dorothy Stiefel, Thelma Turner, & David Werier offered material that made this issue special. **Calendar items** and **announcements** were organized by Rosemarie & Anna Stalter. **Illustrations** were loaned by David Werier & Tom Stuart (p. 5); Cornell's Plant Pathology Herbarium (pp. 9-10); Mike Mazur, Velocicaptor, & Nicholas A. Tonelli (pp. 11-12); and Robert Dirig (pp. 1-3, 6-12). The banner image on p. 14 is from p. iii of W. R. Dudley's *Cayuga Flora* (1886). **Layout & design** by the Editor; **proof-reading** by Rosemarie, Anna, Scott LaGreca, & John Freudenstein; **printing** by Gnomon Copy, Ithaca, N. Y.; and **mailing** by Rosemarie & Susanne Lorbeer. **Best wishes** to FLNPS members (and all others in our reading audience) for the coming season of spectacular vernal renewal! — *Robert Dirig*

Finger Lakes Native Plant Society



FIRST FLOWERS (Pussy Willow, *Salix* sp.), from William R. Dudley's *The Cayuga Flora* (1886), p. iii.

Upcoming Walks & Outings, Spring 2014

Two additional events are listed on page 13 of this issue.

March 22 — Saturday — 10:30 a.m. WINTER TREE WALK, led by Akiva Silver. Join Akiva for a walk in the woods at the spectacular Danby State Forest. We will be working on winter identification of trees and shrubs by looking at bark, buds, and form. Akiva will also talk about survival uses of trees and shrubs, as well as their natural history. This State Forest is home to a wide diversity of trees, as well as a massive and surreal wetland. **Meet at CCE at 10 a.m. to carpool; or at the site: Take Rt. 96B south to Danby, turn right on Michigan Hollow Road (which soon becomes Bald Hill Road). Follow this for ca. 3 miles. A parking area is on the right. Look for signs for the Finger Lakes Trail.**

March 29 — Saturday — 1:00 p.m. SUBURBAN MOSS WALK, led by Norm Trigoboff. Norm's walk begins at Ithaca Falls and ends at Carl Sagan's grave site. Along the way, we will see the only Katsura (*Cercidiphyllum japonicum*) tree growing wild in Ithaca, and we hope to see billions and billions of bryophytes. If you have a hand lens, please bring it. **Meet at Ithaca Falls on Lake Street.**

April 27 — Sunday — 10 a.m. EARLY SPRING WALK AT SHINDAGIN HOLLOW, led by David Werier. Join David for a walk in this beautiful State Forest. The usual woodland ephemerals (*e.g.*, Hepatica, Spring Beauty, Trout Lily) should be evident, and perhaps David will uncover some surprises! This will be a moderate walk on forest trails**. Meet at CCE at 9:15 a.m. to carpool.**

May 3—Saturday—1 p.m. UPPER BUTTERMILK STATE PARK, led by Susanne Lorbeer. A walk along the Bear Trail in spring is sure to please. This rich site is home to many species of spring wildflowers, and Susanne knows it well. There is a $7 parking fee at New York State Parks. **Meet at CCE at 1 pm to carpool!!** A trail map is available at: *http://nysparks.com/parks/attachments/ButtermilkFallsTrailMap.pdf.*

May 31 — Saturday — 10 a.m. O.D. VON ENGELN PRESERVE , led by Michael Hough. This TNC preserve (*aka* Malloryville Bog) has long been a favorite of local botanists and geologists. We'll look for Early Azalea (*Rhododendron prinophyllum*) in flower, and may also find Pitcherplant (*Sarracenia purpurea*), Black Chokeberry (*Aronia melanocarpa*), and blueberries (*Vaccinium* sp.) flowering in the bog. An easy walk on trails and boardwalk. **Meet at CCE at 9:15 a.m. to carpool.**

June 7 — Saturday — 10 am. FINGER LAKES NATIONAL FOREST, led by Charlie Smith and Anna Stalter. Charlie has spent many an hour logging bird and butterfly sightings in various locations within the FLNF, and he'll lead the group to some of the best spots for doing so. Oh, and we'll see some plants, too**!** This will be a moderate walk on forest trails**. Meet at the Ballard Pond parking area on Searsburg Road, West of Trumansburg, at 10:00 a.m., or at CCE at 9:00 a.m. to carpool.**

Upcoming Talks, Spring 2014

March 19 — Wednesday -- 7:00 p.m. BOTANICAL TRAVELS FROM COAST TO COAST, by David Brandenburg.

Botanist David Brandenburg has traveled circuitous routes across North America — either by himself or with kindred spirits — looking for fascinating plants. He sometimes finds these species with advance knowledge of their general locations, other times by serendipity. He will spend an evening with the Finger Lakes Native Plant Society reliving some of the highlights from these botanical adventures, where most days ended in a pup tent on the side of the road or in $20-a-night lodgings.

His decades of field work culminated in the 2010 publication of *National Wildlife Federation Field Guide to Wildflowers of North America*. Brandenburg, botanist at The Dawes Arboretum, has done field work for the Ohio Department of Natural Resources and served as Curator of the Herbarium at the Brooklyn Botanic Garden in New York City.

Dave lectures, leads hikes, and conducts hands-on workshops on cultivated plants, trees, shrubs, grasses, aquatic and wetland species, wood anatomy, and other topics. He has a lifelong passion for economic botany — how plants are utilized as foods and flavorings, medicines, perfumes and cosmetics, textile fibers, natural dyes, and materials for construction.

April 16 — Wednesday — 7:00 p.m. "GIVING" TREES, by Akiva Silver.

Akiva will explore some of the most magnetic trees for people and wildlife. These trees can be used as living bird feeders, for reforestation, and can change the face of modern agriculture. People can be an extremely positive force on this planet, and the use of "giving trees" is one of the best ways.

May 21 — Wednesday — 7:00 p.m. DISCOVERING NEW LIFE IN GREAT SMOKY MOUNTAINS NATIONAL PARK: THE ALL-TAXA BIODIVERSITY INVENTORY, by Charles R. Smith.

Since 2000, hundreds of volunteer naturalists, both amateur and professional, have contributed thousands of hours to inventorying the biodiversity of living species in Great Smoky Mountains National Park. The project is called the *All-Taxa Biodiversity Inventory* (ATBI), and has been guided and funded by a non-profit organization, Discover Life in America. A bit larger than 500,000 acres, Great Smoky Mountains National Park is the most-visited National Park in the United States, with more than 9 million visitors each year. To date, the ATBI has documented the occurrence of over 6000 species new to the Park, more than 900 of which are new to science and never before been described.

FLNPS talks are held on the third Wednesday of the month at the Unitarian Church Annex (second floor) in Ithaca, N.Y., beginning at 7:00 p.m. The entryway is on East Buffalo Street. An elevator is available. CCE = Cornell Cooperative Extension at 615 Willow Ave. in Ithaca, N.Y.

*Please watch our FLNPS website (**www.flnps.org**) for updates and summaries of talks and upcoming outdoor walks.*