

PLANT PROFILE

The Subspecies of Jack-in-the-Pulpit (*Arisaema triphyllum*) in Central New York

by Michael Hough



Two subspecies of *ARISAEMA TRIPHYLLUM* occur in our region, *triphyllum* and *stewardsonii*. Typical *A. triphyllum* is tetraploid (4n=56), and occurs primarily in mesic forests, while subsp. *stewardsonii* is diploid (2n=28), and is restricted primarily to swamps. Because subsp. *triphyllum* is tetraploid, the mature plants tend to be larger. In addition, typical

Arisaema triphyllum seems to begin flowering a week or two before subsp. *stewardsonii* (dates in the key are based on limited observations, and should be considered approximate). A more southern taxon, subsp. *pusillum*, occurs in a few New York counties, from Ulster south to Long Island. Like subsp. *stewardsonii*, it is diploid, and shares with it the characteristics in the key, except for the prominent "flutes." Color is probably not a good diagnostic feature, as all three subspecies can have the *spathe* (and even the *spadix*) vary from green to deep purple. There is evidence that the three subspecies are reproductively isolated (Treiber 1980), and therefore might be regarded as three distinct species. However, Huttleston (1949) reported finding six presumed hybrids of subsp. *triphyllum* and subsp. *stewardsonii* in Wayne County, New York. Two of them were apparently triploid (3n=42) and the other four diploid (2n=28). Unfortunately he was not able to determine the fertility of these plants. He also reported finding two specimens with the characteristics of typical *A. triphyllum*, but with a chromosome number of 28, at Big Gully in Cayuga County. The following key is based on field observations and a limited review of the literature (Wiegand & Eames 1926, Huttleston 1949, Thompson 2000).

Spathe not or only weakly fluted; spathe flange 2-9 mm wide; margins of the spathe tube at the summit contiguous, often overlapping; distal (upper) portion of the spadix ± club-shaped; underside of leaves whitish (glaucous) at maturity; flowers May 12-26 subsp. *triphyllum*

Inflorescences of subsp. *triphyllum* (*left*) and subsp. *stewardsonii* (*middle*): (**A**) Distal portion of spadix, (**B**) Spathe flange, (**C**) Spathe tube, (**D**) Summit of spathe tube. Flutes on the spathe of subsp. *stewardsonii* (*right*).

I thank Steve Broyles for helpful comments on this article.

WORKS CITED: Huttleston, D. G., 1949. The three subspecies of Arisaema triphyllum. Bulletin of the Torrey Botanical Club 76(6): 407-413. Thompson, S. A., 2000. Arisaema triphyllum, in Flora of North America, Vol. 22, accessed 22 April, 2015: http://www. efloras.org/florataxon.aspx?flora_id=1&taxon_id=222000013. Treiber, M., 1980. Biosystematics of the Arisaema triphyllum Complex. Ph.D. dissertation, University of North Carolina, Chapel Hill. Wiegand, K. M., & A. J. Eames, 1926. The Flora of the Cayuga Lake Basin, New York: Vascular Plants. Cornell University Memoir No. 92, Ithaca, New York.





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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), and PLANT PROFILES (on specific local plants). We also occasionally publish APPRECIATIONS (memorials to local botanists and naturalists), 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.

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Name That Plant Contest

The photo from last issue's NAME THAT PLANT CONTEST [Solidago 16(1), p. 3] was of the Small-flowered Agrimony (Agrimonia parviflora). In Tompkins County and the Cayuga Lake Basin, this species is quite rare, and one population that was historically known from Coy Glen is believed to be extirpated. Interestingly, close by in the Finger Lakes National Forest, it is quite common in most of the old fields and pastures. As with all agrimony species, when the fruits become ripe later in the fall, they easily become detached from the plants, and stick to whatever animal walks by, including humans. Thanks to all who entered the contest, and congratulations to the winners: BOB DIRIG, HAL GARDNER, SUSANNE LORBEER, ROSEMARIE PARKER, NANCY REYNOLDS, VAL ROSS, GEORGEANNE VYVERBERG, & COLLEEN WOLPERT.



THIS ISSUE'S MYSTERY PLANT IS SHOWN ABOVE. Don't be fooled by the non-typical form of this species that is illustrated by my image. Hints and suggestions are often provided to contest participants who try. Common and/or scientific names are acceptable. More than one guess is allowed. Please submit your answers to

David Werier

The photograph was taken by David Werier on 17 May 2015 in Tompkins County, New York. Hi Robert,

Letters

This may be useful to your readers. It is unquestionably innovative. We have recently finished the first completely visual keys to a group of organisms, the Fagaceae of the southeastern United States:

http://kirchoff.wp.uncg.edu/

http://biology.uncg.edu/pages/Kirchoff_TaxonomyPrize_2013.html http://ure.uncg.edu/prod/cweekly/2013/01/23/brucekirchoff2/

> Cheers, Stanley Scharf email of 19 March 2015

Bob,

You've done it again! Outdo yourself each issue. Your nettle butterflies photos and poetry are simply exquisite. An absolute visual and literary feast. Ahhh — the wonderful sting. Yes.

And I have yet to see those eggs stacked like you show for the [Eastern] Comma. One day!

I think you've created a perfect venue for your creative expression.





~ 3~



COMMON HACKBERRY (*CELTIS OCCIDENTALIS*) is one of the worst-named and least appreciated trees. They are truly magnificent, full-sized canopy trees that grace the forests of the Northeast. The copious fruits they produce are bar none excellent wildlife food. Hackberry's bizarre bark alone makes it worth growing, but there is so much more to these resilient native trees.

It is a complete mystery to me why Common Hackberry is not better known. The trees produce a quality hardwood, are commonly scattered throughout the Northeast, have striking bark and berries, and make excellent shade and street specimens. Hackberries are outstanding trees for wildlife and foragers.

There are many species of hackberry found around the world, including several in North America. *Celtis occidentalis* is the familiar hackberry of the Finger Lakes Region and Northeast.

THE BERRY

Common Hackberries have a thin, very sweet purple skin surrounding a crunchy shell, with a tiny nut inside. All hackberries are edible and highly nutritious. They have been consumed by humans for millennia, and are one of the first known foods that humans ate and stored. Caches of hackberries have been found in ancient cave sites. It is no wonder that early people were eating hackberries. They are high in fat, protein, carbohydrates, and vitamins. Hackberries are almost like a hybrid between a nut and a berry. They are a versatile, powerpacked food.



Flavor will vary from tree to tree, but in general they are sweet, tasty, and crunchy. Some are thin-shelled, and have the consistency of a peanut M&M, others are much harder. At times they can be so crunchy that it is hard to chew them. This crunchiness is best overcome with a little processing: Smash the berries in a mortar and pestle, or with blocks of wood. The more crushed up, the better. You can then take the mash and form it into any shape. It will keep quite well stored at room temperature, and makes an excellent trail food.

HARVESTING

Hackberries are not easy to harvest. They are small, and grow high up in the tree. I usually collect hackberries in the winter when there is snow on the ground. If you knock the branches with a stick, the fallen berries are easy to see on the snow. They can be collected any time they are ripe, starting in the fall until early spring, when migrating birds return and wipe them out. They do not rot on the tree, as they don't spoil easily.

BARK

The bark of the Common Hackberry is so distinctive, it is a wonder that it is not more common in ornamental landscape plantings. They would be a great addition to a winter garden, especially. The bark looks like millions of skinny ridges that are

layered like sedimentary rock. Many people think of the Grand Canyon when they see the bark. A group of kids with whom I was working named Common Hackberry "the rougher bumper tree." There is no other tree a person could reasonably confuse with Common Hackberry.

CULTURE

Hackberries are native to rich alluvial flood plains. However, they are very tough, adaptable trees that will grow just about anywhere. They do very well



Photos of Common Hackberry fruits and bark by Akiva Silver. Photo of leaves by Robert Dirig.

Solidago 16(2), June 2015



The Three Hackberry Butterflies

ECOLOGY

of the Finger Lakes by Robert Dirig

Photos copyright © 2015 by Robert Dirig

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Common Hackberry, continued from previous page

in urban settings, along creeks, and on the edges of weedy fields. They can be very fast-growing in decent soil.

Many cities have chosen to plant them because of their ability to withstand drought and flooding. They are not messy trees. The berries are picked by birds (or foragers) before they hit the ground.

PROPAGATION

Common Hackberries are easy to grow from seed. I collect seed at the end of the winter, and plant about an inch deep and an inch apart in fertile, weed-free soil. A 12- to 18-inch tree can be expected the first year at this spacing. Watch out for seed predators, though, as many wild critters would gladly eat all your hackberries.

Hackberries belong on our city streets, in hedgerows, parks, and surrounding livestock and poultry yards. They are generous trees that ask nothing in return. Plant a few, and add a gift to people and wildlife that can last for centuries.

চ্চিত্থে Akiva Silver, Twisted Tree Farm, 279 Washburn Rd., Spencer, N.Y. 14883.



Hackberry Emperor Asterocampa celtis (1-4)

Larvae of these three butterflies feed on Common Hackberry leaves in moist, limy habitats. Well camouflaged males of this Emperor "puddle" (2) to obtain salts and minerals, and bask in evening light (1). Young larvae hibernate, feeding to maturity on new leaves in the spring (3), and pupating under a leaf (4). Adults fly in two broods (June and August), and may land on people to sip perspiration.





American Snout Libytheana carinenta (5-8)

Snouts have very long *palpi* that look like a nose between the antennae (5-6). In June, immigrating females lay eggs on Hackberry, on which the larvae (7) feed and pupate (8). Their offspring fly south in autumn. Males feed at puddles and flowers, flushing with a unique, bouncing, knee-high flight.

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Tawny Emperor Asterocampa clyton (9-12)

This species (9-10) is similar to the Hackberry Emperor, also feeding at puddles and on human perspiration (10), and basking in evening sunlight (9). Their dorsal colors are brighter, and the undersides look like old wood (10). The larvae also hibernate, but this species has one adult flight in July. Larvae (11) form

chrysalids (12) on foodplant leaves. *These three butterflies are treasures in our local Insect fauna.* ଛ୦୦୯



Essay

~ 6 ~

Do Plants Dance, Prance, and Wear Pants?

by Norm Trigoboff

PLANTS HAVE LONG BEEN THOUGHT TO RESPOND WELL TO MUSIC AND KIND WORDS (common knowledge). However, the anecdotal nature of the evidence, the few, if any, mechanisms by which plants might hear and interpret sound, and the fringe element/whacko character of some of the advocates for the idea have discouraged serious research. This paper explores a related — and I hope more scientifically respectable — similarity between plants and animals, that between plant stems and animal legs.

A strong intuitive similarity between plant stems and animal legs arises from their long narrow shapes, their proximity to the ground, their high strength-to-weight ratios, and their roles in physical support. Their functional equivalence may be gathered from the common practice of supporting a lame leg with a cane or crutch made of wood, *i.e.*, a plant stem. In addition, note that we often call the nodes of plants, such as grasses and horsetails, "joints." The key piece of evidence is that the terminal meristems of plant stems and the growth plates of vertebrate long bones show several important morphological similarities, especially at the microscopic level. Until now, these have been overlooked by both plant and animal morphologists.

Let us first consider a generalized plant *shoot tip*. All new longitudinal growth of a plant stem starts in an area known as the *terminal meristem*. This consists of several zones. The central, or initial zone is a group of very slowly dividing cells. The *central zone* provides cells to the next zone below, the *peripheral zone*, where cells divide rapidly. Beneath the peripheral zone is the *transition zone*, where cells form long longitudinal files. The last zone is the *rib meristem*, which consists of the stem's differentiated tissue. (Plant root tips may be analyzed similarly, but since no one in their right mind would say that roots look like legs, we will ignore them.)

Let us next consider a generalized animal long bone. All new longitudinal growth of such a bone starts in an area known as the *growth plate*. This consists of several zones. The *reserve zone* consists of very slowly dividing cells, known as *chondrocytes*. The reserve zone provides the cells to the next zone below, the *proliferative zone*, where the cells divide rapidly. Beneath the proliferative zone is the *hypertrophic zone*, where the cells form long *longitudinal files*. These files look strikingly similar to those in plant stems. (The next and final zone is the *calcification zone*, but since plant stems seldom, if ever, calcify to the same extent as bones, we will ignore it.) Further similarities are that terminal meristems and growth plates are avascular, aneural and non-ossified; longitudinal growth of both depend on cell division and cell enlargement; the growing structure adapts to mechanical forces (compression and tension) with differential growth; plant cells die to give rise to xylem and chondrocytes die to give rise to bone; growth is monopolar (daughter cells move away from a proliferative zone in one direction); and chondrocytes and plant cells enlarge as they move away from proliferative zones. Note that although the concept of zonation is widely accepted in the study of meristems and growth plates, the exact details in each are still debated. Here, we follow the general practice of employing the treatments that best support the point we wish to make.

Whether stems and legs are *analogous* in the biological sense — having similar functions, but different evolutionary origins, internal structures, and developmental courses — is unclear. Their internal structures and developmental courses are a little too similar for them to be analogous. The other option, *homologous* — having a common evolutionary origin, though not necessarily the same function — seems even less likely. We probably need a new term. On the other hand, analogous and homologous are confusing enough; we might do better just to pretend we didn't notice this problem.

To conclude, we are now in a better position to address the question of whether plants dance, etc. However, all we can say for sure is that they probably could, if they wanted to. Further research is needed in the fields of musical preference and dance style. SOCR

ACKNOWLEDGEMENTS

I thank Bob Dirig for ignoring significant logical inconsistencies.

ADDITIONAL READING

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Romberger, J. A. 1963. Meristems, Growth and Development in Woody Plants. USDA For. Serv. Tech. Bull. 1293: 214.

Villemure, I., & I. Stokes. 2009. Growth Plate Mechanics and Mechanobiology. A Survey of Present Understanding. *Journal of Biomechanics* 42: 1793–1803.



Figure 1: Comparison of a generalized plant stem tip (1a) to a generalized long bone tip (1b). Note that these are false color images.

REVIEW

Ithaca Native Landscape Symposium, March 2015 by Gin Mistry

THE ITHACA NATIVE LANDSCAPE SYMPOSIUM was held this year on Friday, March 6, and Saturday, March 7, 2015. The symposium was organized by **Dan** Segal, owner of The Plantsmen Nursery, and **Rick** Manning, Landscape Architect. The symposium, held at Cinemapolis in Ithaca, was well attended; the snacks were great, the seats were comfortable. I attended the first day of the symposium, and have summarized the presentations that I heard that day.

The first talk, about New York State Ecoregions, was presented by Steve Young of the NYS-DEC. This was a very comprehensive description of all the ecoregions in New York State. The main impression I have of Mr. Young's talk is that New York State has an unbelievably vast number of different ecoregions. An "ecoregion" is determined by the climate, the precipitation, the topography, and the geology of an area. We viewed a large map of the state, and travelled from the pine barrens of Long Island, through beaches, forests, hills, highlands, plains, and dunes to the high peaks of the Adirondacks. Ithaca is situated in an ecoregion called the Allegheny Plateau, and its plant communities are those that thrive in this particular region. The handouts included a very detailed, large map of New York State showing the location of these ecoregions.

Joy Kuebler, RLA, ASLA, and Ken Parker, CNLP, spoke on The Seneca Nation's Native Plant Policv: Sustainina Our Culture by Restorina our Traditional Gardens. The Seneca Nation lands consist of several territories in Cattaraugus County in western New York. The Nation has adopted a Plant Policy that directs its communities to plant only native plants, especially those that are significant to the traditional Seneca Nation culture. Meadow, forest, and food gardens are being planted around the buildings and schools in the territories, and education about native plants is emphasized. It was especially satisfying to see the lovely forest garden planted around a new community building. This native garden of trees, shrubs, and small plants was planted after the original landscaping around the building was removed. (That original landscape consisted of Norway Maples and other European plants.)

The third presentation of the morning was the one I had been looking forward to the most, and I was not disappointed. **Robin Kimmerer**, Professor of Plant Ecology at SUNY-Syracuse, author, and founding director of The Center for Native People and the Environment, spoke to us about **A** *Wealth of Plants: Indigenous Use and Stewardship of Native Plants in Central New York*. (As soon as I saw her name on the program, I signed up for the symposium. Ms. Kimmerer spoke to the FLNPS a few years ago, and I remember being enthralled by her viewpoint. I also love her book called *Gathering Moss.*)

Ms. Kimmerer greeted us with a welcome in her ancestral language of the Potowatomi People. She told us of the Center for Native People and the Environment at SUNY-Syracuse, where **TEK** meets **SEK** (Traditional Ecological Knowledge meets Scientific Ecological Knowledge). Historically, the Native People in this area "managed" the forest to produce food plants (mast, fruits, brambles, greens, leeks, etc.), medicinal plants (willows, sumac, White Cedar, Joe Pye Weed, and many others used for various ailments), and plants for fibers used in constructing dwellings, fences, and baskets (ash, dogwood, sweetgrass, etc.).

She described the culture of Native People as stressing gratitude and responsibility toward the environment: not taking, but giving. In using plants native to our environment, Ms. Kimmerer emphasized following the unwritten guidelines of the "Honorable Harvest":

Never take the first plant you see.
 Ask permission of the land.
 Listen and look for the answer. (Assess the sustainability of the plant you are taking.)
 Take only what is needed.

Use everything you take.
 6. Minimize harm.
 7. Be grateful.
 8. Share what you have taken.
 9. Reciprocate the gift.

In her thoughtful discussion of interacting with the environment, Ms. Kimmerer gave us much to think about, as the world is fast "using up" our natural resources and destroying the sources of our own sustainability.

Our next speaker was Jim Sterba, author of Nature Wars, The Incredible Story of How Wildlife Comebacks Turned Backyards into Battle Grounds. Mr. Sterba described the history of our relationship to the natural environment in the United States. When Europeans arrived in 1620, the environment was seen as a wilderness to be used. Beavers and deer were harvested for trade, forests were destroyed for lumber and farming, mountain lions and wolves were exterminated. The demands for fuel, fur, and feathers continued unabated until 1900. (Not Ms. Kimmerer's "Honorable Harvest.") This period has been called the "era of extermination." Finally the realization occurred that the wilderness was no longer infinite, and the conservation movement gained strength. Remarkably, much of the damage has been repaired. By 1950, two-thirds of the Northeast was again forested. Wildlife has returned, as deer, turkeys, and other animals were reintroduced. But now there is conflict between people who want to live in a "rural" environment and the deer, skunks, raccoons, bears, geese, and other wild creatures that infringe on "our" property! Mr. Sterba suggested that we need to learn how to reconnect to the landscape, and to manage the ecosystem to benefit all its inhabitants.

Mr. Larry Weaner discussed Self-proliferating Landscapes. He stressed planting garden areas with native plants that will continue to grow and spread on their own, for years. He suggested planting species in a replica of their natural habitat; e.g., Wild Lupine grows in sandy soils, Liatris likes wet areas. He also stressed including different plants that have multiple strategies of proliferation, such as by seed dispersal [asters, etc.], by rhizomes [Pennsylvania Sedge, Golden Ragwort], and by stolons [Phlox subulata, Chrisogonum virginiana]. Mr. Sterba pointed out that if you do nothing, things grow. If you foster self proliferation, you allow plants to grow and spread, and fill the natural garden spontaneously.

The last hour of the day was divided among three presenters:

Krissy Boys from Cornell Plantations described Propagating Native Plants. She outlined the steps necessary for propagation: (1) Collect seeds from plants from June to December. (2) Clean and store the seeds. (3) In February, March, and April the seeds can either be sown in flats, or "stratified" in a cold moist environment. (4) In spring [March to April] the seeds need heat and light to germinate. (5) Finally, the seedlings should be potted or planted out when ready. Ms. Boys pointed out that the seeds of different plants require different treatments, and some take several years to germinate. I sensed that many people had guestions and felt confused by the seemingly "simple" steps. More time for questions would have been helpful.

The next "short" presentation was titled Streambank Restoration. George Fowler of Woldt Engineering Company described an organic approach to restoring eroded stream banks. His ideas included: armored soil layering - using coir matting, willow cuttings, and roots along the bank, and using large woody material - anchored logs, with plantings behind them to hold the soil. Using this method, as opposed to traditional "rip rap," encourages a healthy stream for fish and other animals. (This presentation echoed a similar talk of two years ago.) Mr. Fowler's talk was informative and interesting, but was also somewhat rushed.

The last presentation of the day, Native Grassland Restoration at Ganondagan, was given by Peter Jemison, the site manager, and Whitney Carlton, the Park aide. Ganondagan State Historic Site is located in Victor, N.Y., and is the site of a large seventeenth century Seneca community. Mr. Jemison welcomed us in his ancestral language, stating that he is of the Heron Clan of the Seneca People. He explained that the plan for the site includes planting native grasses and forbs, and educating visitors about the plants and the Seneca culture. A number of ethnobotanical trails have been developed, which label plants in three ways: the common name, the Latin name, and the Seneca name.

Ms. Carlton followed, stating that education about the Seneca culture is the main purpose of the site. She described their ongoing projects of removing invasive plants and establishing native grasses.

I would have liked to hear more about Ganondagan. The presentation seemed too short.

As always the symposium gave me new ideas and new knowledge. I enjoyed the focus on the plants and culture of the Native People in our area

ഗ്രരു Ithaca Native Landscape Symposium - Learnings from Day Two by Rosemarie Parker

ACTUALLY, THE FIRST INTERESTING THING I LEARNED ON DAY TWO WAS FROM A FRIEND WHO WAS THERE ON DAY ONE. Larry Weaner (more on him later) mentioned on Friday that if you grew Ilex verticillata from cuttings, they don't spread via suckering. While this can be good or bad depending on the circumstances, for me it is the first concrete example of an unintentional but real difference from propagating via cuttings versus seeds. Dan Segal said years ago that you don't have the full genetic compliment when you use only cuttings, and I have been pondering that for all this time. Is this non-suckering a general statement for shrubs, or just for *llex*? I wonder.

Steve Young, from the New York Natural Heritage Program, and a FLNPS member, gave a great review of the grasslands of the state. More types than I had realized. Of note: Hempstead Plains on L.I. is only a remnant, but the 34-acre preserve is still nice. You can see Hypoxis and Birdsfoot Violet in the very droughty sand and gravel - if you are lucky. In New York, Sporobolis heterolepis, a lovely mounded grass that grows very slowly, but is so striking, apparently only occurs naturally in alvars. For more information on the various ecological communities of New York State, and the typical plants in each, look at the New York Natural Heritage Communities online at

http://www.acris.nynhp.org/communities.php.

Josh Cerra, a landscape architect from Cornell, talked about the Yard Works project. He takes students to communities that are interested in revamping their landscapes, and the students study the issues and try to design an ecologically improved community, while addressing concerns such as pedestrian flow and public areas. They design private vards and open spaces together to help provide wildlife corridors on the ground and in trees. He had a wonderful slide showing windows of opportunity for pollination and nectaring that help to select plants with the right phenology.

If you get an opportunity to hear Larry Weaner speak, go. His landscape firm deals in a realm of budgets and acreage that most of us will never see. But he has a way of generalizing and explaining that I find always leads to something I can apply locally. On Saturday, he spoke on designing and managing woodlands and meadows. He speaks of planning for succession, but for meadows he also spoke of preventing it. He uses the term "vegetative trajectory" to describe the sort of planning involved. Some of the simple ideas: Keep the soil poor, and consider adding sulfur to increase native grasses versus lawn grasses. Decide where you want your shrubby area to end, and put your path there. Your original planting can spread, but when it hits a mowed path, it will be restrained (hope for me and my roses!). Mow or weedwhack twice a year, just at the height where your "good plants" are topping out. Many of the aggressive or invasive species will be taller, and you can minimize their ability to compete. To read some of Larry's articles, go to the New Directions in the American Landscape (NDAL) website at

http://www.ndal.org/articles.htm.

There were two examples of local projects, one an interesting look at concept plans for the Morris Chainworks, the other an update by Rick Manning on the efforts to incorporate more native plants into the historic landscape of Stewart Park, and to renovate Fuertes Woods. And finally, Dan Segal gave us a run-through of his favorite natives for landscapes - at least this year's version. I'm thinking, "Where could I put one of those ... and that ... and that, too."

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Save Our Ashes by Anna Stalter

THE EMERALD ASH BORER (EAB) is surely headed our way. Landowners are preemptively cutting the ash from their woodlots, and municipalities are weighing the risks and costs of removing neighborhood trees before their certain demise. Though a landscape without ash trees seems bleak, you can do something to insure that these species will be a part of future forests. MARSB, the Mid-Atlantic Regional Seed Bank, is enlisting volunteers to collect ash seeds in their own neck of the woods. Seeds will be preserved for an EAB-free future, and ash trees replanted where the seeds were collected. 2014 was not a mast year for ash, and it is hoped that 2015 will be better.

General guidelines for seed collection (from the Catskill Regional Invasive Species Partnership) include: (1) Scout seed collection areas ahead of time, (2) Collect seeds when they are physiologically mature, (3) Avoid collecting seeds with insect damage, (4) Separate collections by mother tree, and (5) Store seeds in paper bags at room temperature until shipped to a storage facility.

Excellent resources for species identification and seed collection details (including a PowerPoint presentation and an actionpacked video) can be found at: http://nsl.fs. fed.us/geneticconservation_Ash.html, and at www.marsb.org. A map showing the extent of EAB infestation in New York, and links to many other resources, are available on the DEC website:

http://www.dec.ny.gov/animals/7253.html.

Be on the lookout now for ash trees from which you can collect ripe seeds later in the season. Help save our ashes for the future!

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The very beautiful Emerald Ash Borer (left) is smaller than a penny. An ash leaf and seeds (above). [Image credits on page 17.]

Solidago 16(2), June 2015



Rarely Seen, But Common

by Robert Dirig

HEN I WAS ABOUT SIX YEARS OLD, my Grandmother found a large green moth resting on the footpath between our houses. She picked it up, carried it

home, and let it cling to a white lace curtain. My parents took me to see it, and we all marveled over its exquisite colors and shape, and were sure it must be rare. We did not exaggerate its beauty, for the LUNA MOTH (*above & p. 12*) is surely one of the loveliest winged giants of night. Fortunately, its reputation for rarity is a misconception: Luna and most of our other big moths are actually quite common, if one knows when, where, and how to look for them.

The Finger Lakes Region is richly endowed with very large moths, known scientifically as *Saturniidae* or *Giant Silkworms*. Luna, Cecropia, Polyphemus, Io, and Promethea may be abundant here in season, while the Imperial Moth and Tuliptree Silkmoth are much less common. Rarest is the Royal Walnut Moth, which was historically recorded in Ithaca and Elmira.

The most striking features of these unusual insects are their wingspans (some approaching 6-7 inches)

and their gorgeous, colorful wing designs. After we have exclaimed and gloated sufficiently over these qualities, curiosity prompts several questions: *Why are the moths so rarely seen? Do males differ from females? How do they find their mates? What enemies do they have? How do they pass the winter? What do they eat? Where do they go when the sun comes up? And what is the general pattern of their lives?*

Large moths are not regularly seen because most species are active when many people are sleeping between midnight and dawn. Add to this the facts that nearly all produce adults only once a year, and that the individual moths do not eat, living at most a week, and this seeming paradox of rarely seen but common moths makes more sense. Also, despite their brilliant colors, these giant insects are surprisingly inconspicuous when resting in natural attitudes in the wild.

A close look at any saturniid moth will reveal the antennae, attached to the front of the head. Some individuals bear magnificent ferny plumes, while others have smaller appendages that are string-like or only slightly branched. Careful observation shows that

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less well developed antennae always correlate with a relatively larger wing and body size. These are the females. Males use their more elaborate plumes to follow the *pheromones* (chemical attractants) emitted by unmated females of their kind. Mark-releaserecapture studies have disclosed the marvelous sensitivity of this system: Males can locate females from a distance of 2½ miles, if the air currents are right! In addition to antennal contrasts, males have more slender bodies and smaller wings, and may be a bit more brightly colored. Males of Promethea, Imperial, and Io are immediately distinct from females because of different colors and wing patterns. *Our giant moths do not feed* as adults, the caterpillars having ingested all the nourishment necessary for passage through their fourstage life cycle. Whereas butterflies and many smaller moths have a proboscis on the front of the head, through which they suck up nectar or other liquid foods, the mouthparts of saturniids are vestigial and do not function. *As might be expected*, such

> large insects have many natural enemies. A cat, bird, or squirrel may encounter a Promethea or Polyphemus resting in a bush, and only a few scraps of wing will tell the tale.

Barred Owls swoop to catch Cecropias and Lunas in their talons, then glide to a nearby tree to feast. Bats catch and eat many large moths (the bats evident around lights as blurred shadows, there one minute and gone the next). Persons who do not understand their harmless beauty may squash such apparently formidable insects when they are suddenly encountered on a wall or sidewalk beneath an all-night light. *But many moths escape these perils*, protected by their cryptic colors and quiet habits. Polyphemus folds its huge tawny wings into a very convincing dead leaf. Luna's emerald translucence hides it well among Butternut leaves. The bright red- and cream-marked wings of Cecropia are folded in such a way that the visible features seem to break up its outline. Io rests with its bark-like forewings covering the colorful eyed hindwings.

Emergence Sequence of Cecropia

1 - Cut-away view of outer and inner cocoon, showing matte black pupa shell.
 2 - Male moth emerging through one-way valve on top.
 3 - Partly expanded wings.
 4 - Fully developed moth, 85% life size.

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When a small child, I touched a male **IO** (*right*) resting on a windowsill, and jumped back when his big hindwing "eyespots" were suddenly flashed in my face. Years later, after understanding this ruse, I was thrilled when a **POLYPHEMUS** (*below right*) abruptly revealed her owlish eyespots as I accidentally disturbed her daytime repose. Behavior producing a *startle response* is a well known defensive strategy of saturniids, and probably works well with birds or other potential predators when camouflage fails.

The *life pattern* of all our giant moths is much the same. Adults emerge from overwintered pupae in the first hot days of late May and early June. Males quickly fly upwind to "calling" females and mate, the pair staying together for several hours (often overnight). After they separate, the male goes his way, perhaps mating with other females before expiring. The female's swollen abdomen contains hundreds of eggs that are deposited over several nights. She flies to specific trees or shrubs that serve as caterpillar foods and lays eggs on the leaves, usually in small groups. Each egg is glued to the leaf by cement from the female's body. Incubation lasts 1-2 weeks. When ready to hatch, the

tiny caterpillar chews its way out of the eggshell, then crawls to the edge of the leaf and begins its first meal.

<u>Polyphømus Moth</u> (below) — ♀ showing wing undersides, and open, revealing owlish hindwing eyespots; wild cocoon and fully grown caterpillar; "face" of a ♂, highlighting his elegant antennae.

<u>IO Moth</u> (*above*) — Yellow \bigcirc and pinkish-brown \bigcirc , showing hindwing eyespots; papery cocoon; larvae with stinging spines.



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Moth caterpillars (larvae) are eating machines. Most saturniid larvae average 3/16 inch long on hatching, but may reach 3 to 5 or more inches in length when fully fed a few weeks later. Caterpillars grow by molting — the old skin splits behind the head, and the larva crawls out in a new, larger skin. Molting occurs four times at weekly or 10-day intervals until the caterpillar is fully fed. Striking color changes may appear after each molt, and fully grown saturniid caterpillars can be as beautiful as the adults.

Cecropia's larva is green, studded all over with red, yellow, and blue knobs. Promethea's is sleeker, but similarly colored. Luna's and Polyphemus' are less striking, resembling dew-spangled leaves of their foodplants. Imperial's comes in two color forms — chocolate-brown or bright green. But the king of all is the Hickory Horned Devil (p .15), the magnificent caterpillar of the Royal Walnut Moth. This miniature dragon was historically found at Ithaca, Tompkins County, and near Elmira, Chemung County, in the Finger Lakes Region, but the moth is rare this far north. All of these are perfectly harmless. Io is our only saturniid caterpillar to beware of: bright green with red and white lateral stripes and sharp spines resembling clusters of pine needles. Its spines sting like nettles, thus deterring predators.

When fully fed in late summer, caterpillars prepare for pupation. Cecropia and Promethea larvae spin tough brown cocoons that remain attached to their foodplants throughout the winter (p. 16), but the Polyphemus' and Tuliptree Silkmoth's cocoons usually drop with the leaves. The relatively flimsy winter quarters of Io and Luna are spun on the ground, while Imperial and Royal Walnut Moth caterpillars burrow into the soil, pupating in a cell several inches beneath the surface without forming a cocoon.

The change from caterpillar to pupa is much like a larval molt. The last caterpillar skin splits down the back and is sloughed off, exposing the soft new pupa. This soon hardens into a "mummy" of the adult, with eyes, antennae, feet, wings, and abdominal segments plainly outlined (*pp. 10, 15*). The pupa passes the winter inside its silken or earthen chamber, the new moth eclosing the following June or July.

Attending the emergence and expansion of a giant moth is one of the rarest treats in Nature (p. 10). This is often heralded by persistent rustlings from within, as the new moth repeatedly bumps its head against a section of the cocoon softened by fluid from its mouth. Finally an antenna pokes out, then a furry leg, and quickly the whole body is dragged forth. A frantic race to suspend itself begins, for the soft new wings must expand without touching anything, or the moth will be unable to fly. Cecropia and Promethea often cling to their cocoons, but other species crawl up a tree trunk or rock, or into a bush. Once settled, the wings begin to grow at a surprising rate, as fluids from the body are pumped into them. After forty-five minutes they have developed from the size of a fingernail to their full sweep of 5 or 6 inches; but the wings still need to harden,

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and it may be several hours before the moth flies. Females soon produce the pheromone that attracts males of their kind, and often mate before they fly. Then the life cycle begins anew with the laying of eggs that will ultimately produce another generation of moths a whole year hence.

CHILDHOOD INTERACTIONS WITH LARGE MOTHS CAN LEAVE VIVID IMPRESSIONS. My experiences with LUNA MOTHS (Actias luna, pp. 9, 12) have had a spiritual dimension throughout my life. What a thrill it was to see another of these huge emerald insects clinging to the white shingles of our house, eleven years after the one at my grandmother's! It had come so silently I could scarcely believe it was not a vision. But experience soon proved Luna to be not uncommon: A few nights later, five males flew to a female that had emerged from a cocoon. She mated with a male, laid eggs, and I grew the caterpillars, had several cocoons, and subsequently held a newlyemerged male on my finger as his lemon-yellow wings slowly expanded — except for the long trailers. I continued to watch, heartsick over his disfigurement, until suddenly the tails pumped out. By now the wings had turned bright green, and a perfect moth resulted after all. Finding a faded female Luna lying dead on the ground in a Bitternut Hickory grove spoke eloquently of nocturnal egg-laying, now done, probably on those very trees. Luna caterpillars eat Hickory, Butternut, Black Walnut, Birch, and Oak leaves.

CECROPIA (*Hyalophora cecropia*, *right & pp. 10, 16*) is a bit more familiar because its cocoons are so easily seen on Birch, Cherry, Maple, Apple, Elderberry, and Hop Hornbeam sprouts edging roadsides or growing along utility lanes or city streets. It still seems impossible that such a huge insect, calmly fanning its magnificent wings, could emerge from one of these hard brown cocoons, even though I know it to be true from repeated experience. After finding my first Cecropia clinging to the light post in our yard, I was so excited that I could not sleep! This largest of our moths is common, even in cities.

POLYPHEMUS (*Antheraea polyphemus, pp. 11, 16*), named for the giant Cyclops in Homer's Odyssey because of its compelling hindwing eyespots, is very abundant in June. What a revel I had in the yard one night, when thirty big males were gliding about, seeking the caged females I had used as a lure! This large sample revealed the great variability in the ground color of this giant moth — some straw-yellow, some rusty-red, some almost grey, some tan — and all with bright pink and black stripes and gorgeous eyespots of black, yellow, and blue. Polyphemus males sport the most beautiful ferny antennae of all our large moths (*p. 11*). The caterpillars eat Maple, Elm, Birch, and Oak leaves.

Black, khaki-edged **PROMETHEA** (*Callosamia promethea, pp. 14, 16*) males fly late in the afternoon, not at night. I had never seen one until I used a newly-emerged



<u>Cccropia Moth</u> (above) — 3° adult ($\frac{1}{2}$ life size), fully grown caterpillar, and cocoon on Red Maple.

female as bait. My family was having dinner when males began to arrive, and I ran out between bites to catch them, too excited to eat. They all flew in from the south, and I pondered over their foodplant. It was nearly 30 years before I found Promethea cocoons on Sassafras bushes in the Delaware River corridor, and on Spicebush in an upland swamp, to prove the larval hostplants in that region. Promethea's name derives from its cocoons, which are silk-bound to twigs, an allusion to *Prometheus* of classical mythology, who was chained to a rock by *Zeus* as a punishment for giving fire to mortals. Elsewhere the larvae also eat Cherry, Ash, and Lilac.

The similar **TULIPTREE SILKMOTH** (*Callosamia angulifera*, *p. 14*) is rare around Ithaca, with a late June flight season. This close relative of Promethea feeds on its namesake tree, and is not common this far north. It is widespread farther south, wherever Tuliptrees grow. It may have a second brood in late July and August in warmer areas.

Cecropia

Moth

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Tuliptree Silkmoth

(below) — reared specimens of ♀ & ♂. Ova
& larvae are similar to Promethea's, but the cocoons usually are not suspended.



IO (*Automeris io*, *p. 11*) has been familiar since very early childhood. I reared a brood from mats of tiny caterpillars found on shadbush and willow leaves in our hedge (being very careful of their stinging spines). The red and yellow males and larger pinkish-lavender females were gorgeous beyond description. Male Ios came frequently to lights, resting on the lawn or wall. Their larvae grew best on Basswood, although they will eat many kinds of leaves. My eight-year-old brother Johnny learned about their spines the hard way: He was vastly excited over finding a fully grown Io larva, but very sorry about his stinging fingers!

What a triumph it was to find emerged **ROYAL WALNUT MOTHS** (*Citheronia regalis, p. 15*), with colorful wings of slate, brick, and canary, after long weeks of feeding the huge larvae, and ten months of hoping over their shiny black pupae! My Mother crooned to the Hickory Horned Devil caterpillars, and she and my Father invited every visitor to see them placidly munching Staghorn Sumac leaves in our dining room. This moth reached its northern limit in New York and New England, where it is now largely extirpated, probably due to insecticide spraying in the 1970s.

I reared the lovely yellow and purple **IMPERIAL MOTH** (*Eacles imperialis, p. 15*) on White Pine. This is the "Yellow Emperor," made famous by Gene Stratton-Porter in her 1909 novel *A Girl of the Limberlost*, a classic in the saturniid literature. Imperials used to range widely in New York, but have been largely absent since the 1970s, probably because of insecticide spraying. I have never seen one outdoors, although they have recently been found in the Finger Lakes Region in Ithaca in 1990, and at Seneca Falls in 1999. I had high hopes when I tied out reared females in Sixmile Creek (one of its former haunts around Ithaca), but no males came there in 1974.

ASIDE FROM CHANCE ENCOUNTERS, HOW CAN ONE SEE THESE WINGED GIANTS OF NIGHT? Leaving an outdoor light burning through the dark hours in June and checking it before the birds awaken is one way.

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Giant moths — and many other nocturnal insects — are also strongly attracted to special "black lights," which are sold by **BioQuip Products** (*www.bioquip.com/html/catalog.htm*) and **Leptraps** (*www.leptraps.com*). [Do not look directly at ultraviolet lights to avoid eye damage.] Obtaining cocoons and hatching the moths, especially females that will attract males, is more sure. My 40-page booklet, *Growing Moths* (N.Y.S. 4-H publication M-6-6, 1974, available from me as a *pdf*), details how to find, catch, and raise these moths. W. J. Holland's classic *Moth Book*, Robert T. Mitchell & Herbert S. Zim's Golden Nature Guide *Butterflies and Moths*, and David Beadle & Seabrooke Leckie's recent *Field Guide to Northeastern Moths* of the Peterson series are excellent guides to regional species.



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A Luna visits the blacklight.



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Cameo with Moon, Stars, & Luna Moth

Drawn by **John F. Cryan**, colored by **Robert Dirig** Copyright © 2015 by John F. Cryan.

Larval Plants of Saturniid Moths in the Finger Lakes Region

This is a record of the natural cocoon substrates of Polyphemus, Cecropia, and Promethea Moths that were found mostly in and near Ithaca, N.Y., between 1974 and 2015. When fully-fed larvae of these moths approach pupation, they seek a sheltered place in which to spin a cocoon that will house and protect their pupa through the winter. This often is on the larval foodplant, which is usually woody in this region. This list may be helpful to people who wish to encourage giant moths in their yards and gardens. For each species, the number of occurrences is given in parentheses following the plant name and dates.

Polyphemus larva & cocoons were found on:

Hickory (Carya sp.), larva, by Jeremy Weiss, 2002 (1) English Oak (Quercus robur), cocoon, by Angie Macias, 2014 (1) Red Osier Dogwood (Cornus sericea), cocoon, 1997, see photo, p. 11 (1)

Cecropia cocoons were found on:

Sugar Maple (Acer saccharum), 1977, 1999 (2) Silver Maple (A. saccharinum), 1990 (1) Box-elder Maple (A. negundo), 1975 (1) Red Maple (A. rubrum), 2015 (1)

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While writing this article, I have had my saturniid specimens in view beside my desk. After half a century of familiarity, I still gaze with wonder at the immensity and glamour of these souvenirs of boyhood zeal. Most of them came to lights or unmated females in my parents' vard in the southern Catskills, N.Y., in the 1960s-1970s. Revisiting my collection and written records has brought a realization of the richness and subtle charm these wonderful insects have brought to my life, and to everyone in my sphere. Moths are harmless and lovely, a stained glass window into a dark and silent world we do not see, perhaps rare to our experience, but not rare in fact. What velvet nights of magic, those nights I spent with giant moths sweeping the sky around my beacon, while I glimpsed the infinite in quaint designs upon their painted wings.

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Cecropia, continued:

Hemlock (*Tsuga canadensis*), 1988, 2015 (2) Gray Dogwood (*Cornus racemosa*), 1975 (1) Silky Dogwood (*Cornus amomum*), 1974 (1) Witch Hazel (*Hamamelis virginiana*), 1996 (1) Choke Cherry (*Prunus virginiana*), 1998 (1) Purple Loosestrife (*Lythrum salicaria*), 1986 (1) [The latter is technically an herbaceous host, but the old stalks persist, and provide good support for cocoons. This plant has been much used by Cecropia and other saturniids as a larval foodplant and cocoon substrate in Hudson River valley wetlands since the 1970s.]

Promethea cocoons were found on:

cultivated Silverbell Tree (Halesia carolina), 1993 (1) American Elm (Ulmus americana), ca. 1994 (1) White Ash (Fraxinus americana), ca. 1994, 1999 (3) [I found a patch of 9 Promethea eggshells and the hatched first-instar larvae, on the underside of adjacent leaflets on an ash tree (Fraxinus sp.) at the edge of a woodland near Ithaca, on 1 July 2004 (see photos, p. 14).] Green Ash (F. pennsylvanica), det. by E. A. Cope, 1991 (2) Honeysuckle (Lonicera sp.), 1994 (6) Choke Cherry (Prunus virginiana), Schuyler Co., 1999 (3) Alternate-leaved Dogwood (Cornus alternifolia), 3 April 2010 (still hanging on the tree in June 2015!), see photo, p. 14 (1)

American Basswood (*Tilia americana*), 1995, 1996, 2003 (3) American Beech (*Fagus grandifolia*), 2013 (1)

Common Lilac (*Syringa vulgaris*): *John G. Franclemont*, late Professor of Entomology at Cornell, told me in 1967 that years earlier, he could easily collect a bushel of Promethea cocoons in an afternoon from the Lilac hedge surrounding Alumni Fields at Cornell! I have occasionally checked the few remaining Lilacs, but never found one there.

The 2015 Spring Plant Sale By Rosemarie Parker

THE SPRING PLANT SALE WAS A SUCCESS! FLNPS continues to have a table that attracts people who want to buy native species for their yards and gardens. We don't have many large sizes, but we have many different species (about 95 this year), and they are affordable; so people can try a few to see how they work. We are able to offer plants that don't look so hot in pots, *e.g.* ephemerals going dormant. Most folks won't buy a stick or an empty pot, so commercial vendors rarely have any. But knowledgeable gardeners appreciate a chance to buy them. Thanks to all of you who purchased our plants.

This is a large effort — the most ambitious FLNPS event of the year — and I want to thank *all* the folks who help in so many ways. Everyone who collected, cleaned, and shared seeds for Krissy and the Wildflower Garden, or from your own sources — thank you. Thanks to those who helped by growing and donating plants: **Bill Plummer, Katy Creeger, Gin Mistry, Sandy & Bill Podulka, Dawn Dybowsky, Nancy Reynolds, Rosemarie Parker**, and, of course, **Krissy Boys**.

Thanks to those who handled the tedious jobs: potting up, sticking labels, finding pictures, alphabetizing and sorting plants, cleaning up, and those who helped customers find what they needed: Krissy Boys and mom Audrey Boys, Katie Creeger, Dawn Dybowsky, Meena Haribal, Mark Inglis, David Keifer, Ellen Lane, Susanne Lorbeer, Carri Marshner, Louise Mudrak, Rosemarie Parker, Nancy Richards, Anna Stalter, and Marie Terlizzi.

None of this could happen without the partnership of Cornell Plantations. Encouraging folks to learn about native plants, and to use them in the landscape, is an objective we share. Unsold plants, plus additional donations from both Plantations and FLNPS members, have been given to worthy educational efforts elsewhere. This year they went to the Friends of Rogers Environmental Education Center for a demonstration pollinator garden, and to Ganondagan State Historic Site for invasives restoration and pollinator education.

Our sales are a major source of income, so we can continue to bring in a speaker every now and then, fund scholarships, and rent a room for our monthly programs. Plus we educate a lot of folks about the uses and benefits of native plants in cultivated landscapes, and help the pollinators and other critters at the same time.

Thank You!

MANY THANKS to all who sent material for this issue of Solidago! We thank **WRITERS** Steve Daniel, Robert Dirig, Michael Hough, Gin Mistry, Rosemarie Parker, Stanley Scharf, Akiva Silver, Anna Stalter, Norm Trigoboff, & David Werier, whose contributions make this issue special. CALENDAR ITEMS and ANNOUNCEMENTS were compiled by Rosemarie Parker & Anna Stalter. Norm Trigoboff sent the notice about the Andrews Foray. ILLUSTRATIONS were loaned by Michael Hough (p. 1, bottom, which he "created from photographs using various filters in a program called GIMP"); David Werier & Rosemarie Parker (p. 3); Akiva Silver (p. 4, *bottom*); Norm Trigoboff (p. 6); the University of Wisconsin site, https://datcpservices.wisconsin.gov/ eab/index.jsp (Emerald Ash Borer image, p. 8); USDA-NRCS PLANTS Data-base/USDA NRCS. Wetland flora: Field office illustrated guide to plant species, USDA Natural Resources Conservation Service (drawing of ash leaf and seeds, p. 8); John F. Cryan (the gorgeous "Cameo with Moon, Stars, and Luna Moth" design, pp. 9, inset, & 16); and Robert Dirig (design from Arisaema triphyllum, pp. 1-2 & 18), banner of Hackberry leaves (pp. 4-5), photos of Hackberry butterflies (p. 5), and saturniid art and photos (pp. 9-15). LAYOUT & DESIGN by R. Dirig; **PROOF-READING** by Rosemarie Parker & Scott LaGreca; PRINTING by Gnomon Copy, Ithaca, N. Y.; and MAILING by Rosemarie Parker & Susanne Lorbeer.

This issue marks the finish of my third year as Editor. I am enormously grateful to all who have contributed material for these twelve issues, and look forward to year four.

VERY BEST WISHES to FLNPS members (and all others in our reading audience) for a joyous summer of frequent revels with wild flora!

— ROBERT DIRIG

Remembrance

Merry Jo Bauer Dec. 25, 1935 – May 6, 2015

Long-time FLNPS members will remember Merry Jo. She joined in 1998, shortly after the Society formed, and served on the Steering Committee as Publicity Chair for many years. Her enthusiasm for both FLNPS and the Finger Lakes Land Trust led to the native plant garden at the FLLT office on Court Street in Ithaca. The original plantings were all FLNPS plant sale extras! Her obituary can be read, and condolences left, at the *Ithaca Journal (http://www.ithacajournal.com/* click on "Obituaries," and search for Bauer). [Contributed by Rosemarie Parker]

Finger Lakes Native Plant Society Upcoming Walks, Summer 2015

June 27 — Saturday — 9:00 a.m. FERN WALK AT FAIRFIELD STATE FOREST, led by Ken Hull.

This joint walk with the *Leatherstocking Botanical Society* is an opportunity to see **Grape Ferns** (*Botrychium* spp.) in nearby Tioga County. Early departure from CCE* (<u>8:15 a.m.</u>), or meet in Slaterville Springs at <u>9:00 a.m.</u> Advance signup required: Please visit *info@flnps.org*.

July 11 — Saturday — 9:00 a.m. WALK AT JAM POND, led by Michael Hough.

Jam Pond is a diverse peatland in Chenango County, located within the DEC's Five Streams Management Unit. This walk will require some bushwhacking, and we are certain to get wet feet, so come prepared. It will be well worth the effort! Meet at CCE at 9:00 a.m. to carpool.

July 18 — Saturday — 1:00 p.m. ASTERACEAE WALK #2, led by Arieh Tal.

The second in a series of three walks to learn how to identify our native Asteraceae. Location TBD. Please meet at CCE at 1:00 p.m. to carpool, and watch the FLNPS website at *flnps.org* for updates.

<u>July 25 — Saturday — 8:00 a.m.</u> WALK AT ALVAR HABITATS OF JEFFERSON COUNTY, led by Renee Petipas and Bruce Gilman.

This will be a guided, all-day excursion to these unique alvar landscapes. Pack a lunch, and dress for hot, sunny conditions. Early departure at 8:00 a.m. from CCE.

August 23 — Sunday — 1:00 p.m. WALK AT FISCHER OLD GROWTH WOODLAND, led by Anna Stalter.

Please meet at 1:00 p.m. at CCE to carpool.

September 12 — Saturday — 1:00 p.m. ASTERACEAE WALK #3, led by Arieh Tal.

The last in a series of walks to learn how to identify our native Asteraceae. Location TBD. Please meet at CCE at 1:00 p.m. to carpool, and check the FLNPS website for more details.

Other Activities, Late Summer 2015

<u>September 18 to 20 — Friday to Sunday.</u> THE 39TH A. LEROY ANDREWS FORAY, a relaxed gathering of professional and amateur Bryologists and Lichenologists, Pinelands Center at Mount Misery, 801 Mt. Misery Road, Browns Mills, NJ 08015.

This year, the Foray will be held in the heart of the world famous **New Jersey Pine Barrens**. Participants with all levels of skill and interest are welcome, and sure to benefit from the experience. If you are interested in mosses or lichens, but lack advanced knowledge, all the more reason to attend. The Pinelands Center, our home base this year, is especially well located for Bryologists and Lichenologists, being surrounded by **Brendan Byrne State Forest**.

The basic cost for meals and lodging this year is \$150 per person, based on shared occupancy. There will be no dinner provided on Friday night. For those who wish to find their own accommodations, meals and registration will be \$65 per person. Some single rooms may be available onsite, at additional cost. A locked microscope room and a larger meeting room will be available for our use at no additional charge.

We will visit various sites of interest in the Pine Barrens on Saturday morning and afternoon, and again on Sunday morning. Options will be provided to the group, so individuals can pursue their specific interests to the greatest degree possible. Additional information on field trips will become available at a later date. There will be no shortage of ideas for those who wish to continue exploring the area individually on Sunday afternoon.

A registration form is available (the deadline for registration is August 14, 2015). Any questions may be directed to David Austin at See also: *https://sites.google.com/site/andrewsforay2015nj/*.

*CCE: Most FLNPS walks begin at the Tompkins County Cooperative Extension center at 615 Willow Avenue in Ithaca, N.Y. Please watch our website (www.flnps.org) for updates.