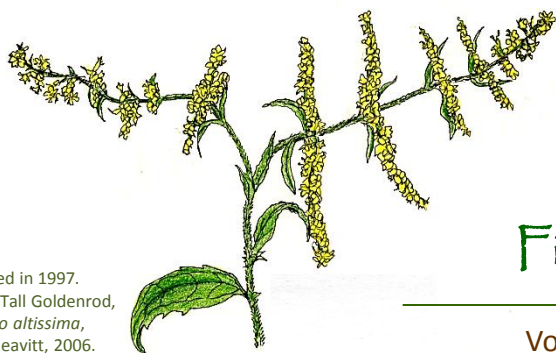


Founded in 1997.
Logo art of Tall Goldenrod,
Solidago altissima,
by Nat Cleavitt, 2006.



Solidago

Newsletter of the Finger Lakes Native Plant Society

Volume 15, No. 3



September 2014

EDITORIAL

by Robert Dirig

False Earthstars

Astraeus hygrometricus (Pers.) Morgan



Stage 1,
photographed
at the Albany
Pine Bush on
13 May 1973
(F-1, R.D. &
CUP).



THE FALSE EARTHSTAR IS A GRACEFUL NORTH AMERICAN BASIDIOMYCETE that grows on exposed sand in very local populations of a few to many individuals. It regularly occurs in pine barrens of the Upper Hudson River Valley Sand Plains from Albany to Glens Falls, New York, but there seem to be few records elsewhere in the state. As it often grows with Wild Lupine (*Lupinus perennis*), it can co-occur with the Karner Blue Butterfly (*Lycaeides samuelis*). Earthstar specimens that I collected while documenting habitat associates of this endangered insect are cited by number herein, with place of deposit indicated by these abbreviations: **NY** = Herbarium, New York Botanical Garden, Bronx; **CUP** = the Plant Pathology Herbarium, Cornell University; and **R.D.** = my personal herbarium.

Life History, Behavior, & Ecology

Individual False Earthstars look like puffballs when young and unopened. They are partially embedded in the sand, and covered with a whitish layer of fungal threads. This tears away, exposing an outer tissue layer (*exoperidium*) that breaks open in a star-shaped pattern of 7-10 or more rays. Then the nearly spherical “puffball” moves above the ground (*Wikipedia*, hereafter cited as *W*). At this stage, the fungus is *hygroscopic* (it absorbs water), unfurling when moistened by rain or dew, but curling up in response to desiccation. When damp, the star points (*peridial rays*) expand to lie flat on the sand (*drawings 1-4 and photo above*), but they curl over the central “puffball” (*gleba*) when dry (*drawing 5*).

The alternate common names **HYGROSCOPIC EARTHSTAR**, **HYGROMETER EARTHSTAR**, and **BAROMETER EARTHSTAR** reference this behavior (*W*). They release their spores through a slit at the top of the sack when moist (*see photo above*).

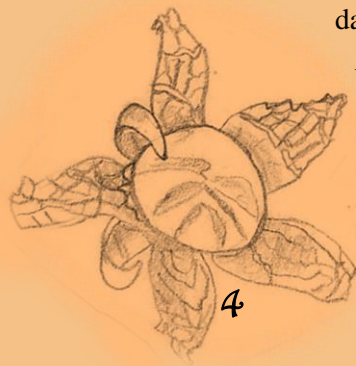
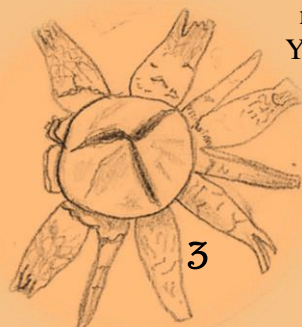
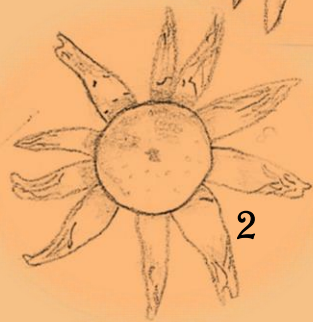
False Earthstars also use a “tumbleweed” strategy to disperse — dry, curled-up individuals blow around their open habitats in the wind, scattering their brownish-purple, spherical spores that are covered with tiny warts and spines (*W*). As

the Earthstars age, their rays become seamed and weather-beaten (*drawing 4*), like a wind-worn old face. When the “puffball” eventually disintegrates, the Earthstar dies. I expect that individual fruiting bodies may persist for more than a year.

[Text continues on page 2.]

False Earthstars,
showing a progression

in age from 1 to 4. Number 5 illustrates the *peridial rays* (star points) curling in over the central *gleba* (puffball) when dry. Life-size pencil drawings from specimens, ca. 1985: F-8 (1-3), F-16 (4), and F-54 (5), all in R.D.



[continued from page 1] False Earthstars are *ectomycorrhizal* (associated with the roots of trees), including oaks and pines, especially those growing in sandy soils. In this *mutualistic* relationship, the fungal mycelia help the tree's roots absorb phosphorus from the soil, while the fungus receives carbohydrates produced by the tree's photosynthesis (W).

Periodic Observations & Habitats

DURING REGULAR FIELD WORK AT THE ALBANY PINE BUSH, a large tract of pine barrens vegetation between Albany and Schenectady, N.Y., I made periodic observations and collections of the False Earthstar at one site over 23 years (1973 to 1996), and from 1978 to 1980 at another:

The **first site** [see photo at right] was on a fully sunlit, 45°-sloping sand bank on the SE side of New Karner Road (Rt. 155), 0.2 to 0.3 mile NE of Route 90 (New York State Thruway). Fresh Earthstars were "very common" there on 13 May 1973, my first sighting of the species (*F-1* in R.D. & as *CUP-056941* in CUP; photo on p. 1). It was re-collected in fresh condition on the same bank on 3 Oct. 1976 (*F-9* in R.D.). It was also present on 8 June 1989 (*F-68* in R.D.), 2 June 1990 (*obs.*), and 1 June 1994 (*obs.*). However, I could not find any there on 26 April 1996. Perhaps a fire or vegetational succession had altered the microhabitat characteristics required for their presence?

The **second site** was along a sand trail that follows the "**King's Highway**," a colonial road that still curves through the historic "Pine Plains" between Albany and Schenectady, SE of Rt. 155, ca. 0.1 mile N of the NYS Thruway. Numerous *Astraeus* occurred in an open area, 10 feet across, on the SW shoulder of the trail. On 22 May 1979, I noted it there "in the usual place," and wrote that the fungi were "from last season." This species may have been present in this spot as early as 1977, and certainly was through 1978. It was recorded at the same place on 29 Sept. 1979 & 17 Jan. 1980 ("old ones from last season"), but I have not seen it there since. This spot was more frequently disturbed than the first site.

I also made collections of this fungus on different dates in an abandoned sand pit in the Town of Milton, Saratoga Co., N.Y. (now known as the **WOODS HOLLOW NATURE PRESERVE**): 4 June 1978 (*F-29* in R.D., NY), and slightly worn examples on 17 July 1978 (*F-30* in R.D., NY). STEWART H. BURNHAM (a regional botanist of the Lake George area, who later worked as Assistant Curator of the Cornell University Herbarium) also collected this *Astraeus* in a "sandy field N.W. of Tripoli, southern W. Fort Ann," in Washington Co., N.Y., on 18 Oct. 1905 (*CUP-020580* in CUP) and 11 July 1915 (*CUP-020598* in CUP).

All sandy sites where I have seen the False Earthstar have been disturbed in the recent past, but were essentially stable for several years. The fungus obviously can persist for long periods at favorable sites. [Text continues on page 3.]



Albany Pine Bush habitat of False Earthstars (and Wild Lupines), SE bank of Rt. 155, 13 May 1973. Note the fine sand in the foreground.



A company of nine *Astraeus hygrometricus* growing on coarse sand at DIKE 17 WILDLIFE AREA, Black River State Forest, Jackson Co., **Wisconsin** (which supports Karner Blues on the western edge of their range), on 10 June 1996 (*F-79* in R.D., and photos above & on page 3). See Dirig (1997: 19-20) for a detailed comparison of this habitat with New York pine barrens. The individual marked **U** in the bottom row shows the surface that rests on the sand. Photographed in the afternoon of a day with a rainy morning, showing full expansion of the rays.

[Additional False Earthstar specimens from Karner Blue sites include *F-62* from Allegan Co., Michigan; and *F-69*, from a former Karner Blue population site near Pinery Provincial Park in Ontario, both in R.D.]

CUP-A-019976

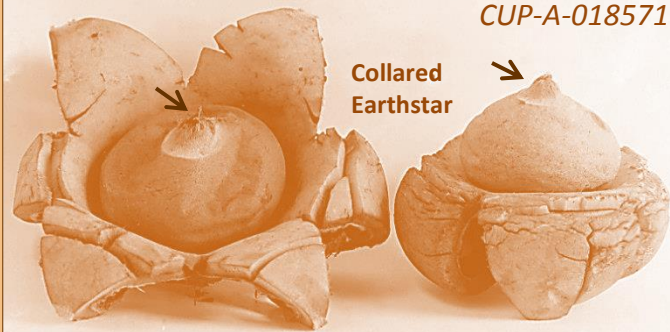
The **Collared Earthstar**, *Geastrum triplex* (formerly in the genus *Geaster*), Geastraceae



Two sepia photos by George F. Atkinson, courtesy of the Plant Pathology Herbarium, Cornell University

CUP-A-018571

Collared Earthstar

*Astraeus hygrometricus*

[Continued from page 2]

False & "True" Earthstars

Historical photographs of the **Collared Earthstar** (*Geastrum triplex*) appear above, juxtaposed with a closeup of Wisconsin *Astraeus hygrometricus* (same date and site as page 2). Species of the genus *Geastrum* (alternately spelled *Geaster* in older literature) are the "true" Earthstars, belonging to the fungal family Geastraceae. Their spore sack has an opening on top that is surrounded by a *peristome* or disk, in contrast to the single slit in *Astraeus* (see arrows). *Geastrum triplex* also differs in biology, being described as "saprotrophic" or "saprobic," getting its nutrients from decomposing organic matter. It occurs in hardwood forests, often around well-rotted tree stumps, and may be larger than the False Earthstar. *Astraeus* belongs to a different fungal family, the Diplocystaceae (W).

CHRISTIAAN HENDRIK PERSOON originally described the False Earthstar as *Geastrum hygrometricum* in 1801. In 1889, the new genus *Astraeus* was proposed by **ANDREW P. MORGAN**, based on fine morphological differences of the fruiting body. He called the sand-loving species *Astraeus hygrometricus* (Pers.) Morgan, the name we still use today (W). Native people of the Blackfoot Nation called fungi of both genera "Fallen Stars," believing them to be stars that fell to earth during supernatural events (W).

False Earthstars in the Finger Lakes

Exciting stories await discovery in scientific collections, especially when specimens are well documented. Our "Local Collection" of fungi in the Atkinson Herbarium at CUP is a treasure chest of information about the Finger Lakes mycoflora. It has recently been indexed and databased, making it more accessible for research on local fungi.

There is one regional specimen of *Astraeus hygrometricus* at CUP, from "near Ithaca" (see label at right). If readers should happen upon a colony of this lovely fungus in a sandy nook — looking like small starfishes stranded on a beach at high tide — please inform the Editor (see box, page 4). ☺

Notes on Sepia Photos

CUP-A-019976 was collected on humus at Taughannock Falls, N.Y., on 4 Aug. 1906 by C. W. Edgerton.

CUP-A-018571 was growing in cracked mud at Freeville, N.Y., on 19 Aug. 1904, C. H. Kauffman, coll. (both Tompkins Co.).

Acknowledgements

Susan C. Gruff, Kathie Hodge, Richard P. Korf, & Scott LaGreca helped access CUP specimens and facilities. John F. Cryan assisted with logistics of pine barrens field work. The section on periodic field observations was adapted and updated from an earlier version in *Skenectada* (Dirig 1986). Scott LaGreca & Angie Macias reviewed the text and figures before publication. CUP photos are copyright © 2014 by the Plant Pathology Herbarium at Cornell University. Text, drawings, and colored photographs are copyright © 2014 by Robert Dirig.

Literature Cited

Dirig, R. 1986. Periodic Observations of Fruiting Fungi and *Sphagnum* at the Pine Bush, Albany County, New York, 1973-1984. *Skenectada* 3: 24-25.

Dirig, R. 1997, spring. Karner Blue, Sing Your Purple Song. *American Butterflies* 5(1): 14-20.

These **Wikipedia** sources were also very helpful:

[http://en.wikipedia.org/wiki/Astraeus_hygrometricus]

[http://en.wikipedia.org/wiki/Geastrum_triplex],

both accessed 12 August 2014.

☺

BOTANICAL DEPARTMENT, CORNELL UNIVERSITY

030831

Astraeus hygrometricus, Pers

Near Ithaca, NY,

Finger Lakes specimen: CUP-A-030831 (early 1900s).
Courtesy of the Plant Pathology Herbarium, Cornell University.



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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.

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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), 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.

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

Deadline for the December
2014 issue is November 15th!

Name That Plant Contest

The photo from last issue's NAME THAT PLANT CONTEST [*Solidago* 15(2), page 4] was of a seedling of Sugar Maple (*Acer saccharum*).

Peter Marks wrote, "I enjoyed seeing the choice of mystery plant in the latest newsletter — one of the most common forest plants in the region, young-of-the-year Sugar Maple, complete with cotyledons. My favorite tree seedling at this stage is Basswood, with its spectacular five-fingered cotyledons."

The Sugar Maple contest proved to be quite challenging, with many contest participants struggling to determine the plant, even though, as Peter mentioned, it is one of the most common forest trees in the region. What threw most people off is that the first two true leaves lack the five pronounced lobes that the more typical leaves possess. Last year (2013), Sugar Maples had what we term a *mast year*. In spring 2013, Sugar Maples had a big flowering event, with most trees glowing bright yellow from the heavy output of flowers. Then came the abundant fruits, and this spring (2014), abundant seedlings. Sugar Maples undergo a phenomenon we call *masting*, where all the individuals of a species synchronously produce a large crop of fruits at irregular intervals. So it is not every year that they flower and fruit heavily, and then produce such large cohorts of seedlings. And 2013-2014 proved to be one of those cycles. It will likely be a number of years until the next "event." So keep paying attention to the wondrous cycles of nature. I particularly like the color Sugar Maple-dominated hillsides turn in the spring of a mast year. And individual trees can also be quite stunning.

Thanks to all those who entered the contest, and congratulations to the winners: **Nat Cleavitt, Betsy Darlington, Ken Hull, Susanne Lorbeer, Peter Marks,** and **Rosemarie Parker.**



THIS ISSUE'S MYSTERY PLANT is shown at the bottom of the left column. 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 ([redacted]).

The photo was taken by David Werier on 5 September 2004 in Cayuga County, N. Y.

Letters

Hello Bob,

Lovely little article on CGA [Cherry Gall Azure]. It is beautifully illustrated.... I'm sure it caught the attention of the botanists.

David M. Wright
(co-describer of the species)
Lansdale, Pennsylvania,
email of 9 June 2014

☞☞☞



Bob:

I found your article and pictures about the Cherry Gall Azure in the last FLNPS Newsletter fascinating. Next year, I'll have to pay more attention when I find cherry galls.

Charles R. Smith
Dryden, New York,
email of 22 June 2014

☞☞☞

Thank You!

MANY THANKS to all who have contributed to this issue of *Solidago*:

Writers David Werier, Rosemarie Parker, David M. Wright, Charles R. Smith, Norm Trigoboff, Bill Evans, & Akiva Silver offered material that made this issue special.

Calendar items and announcements were organized by Rosemarie & Anna Stalter.

Illustrations were loaned by CUP (p. 3), Norm Trigoboff (pp. 4, 11), David Werier (p. 5); Rosemarie Parker (p. 6), Akiva Silver (pp. 7-8), Meena Haribal (p. 9), Natalie Cleavitt (p. 11); Evelyn Halsey (seed sketches, 11); and Robert Dirig [pp. 1-3, 5 (Azure), 9 (scenic), 10].

Layout & design by the Editor; **review of copy** by Rosemarie, Scott LaGreca, & Angie Macias; **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 an enjoyable autumn of exciting interactions with beautiful wild plants during this glorious season!

— Robert Dirig

WILD GARDENING

Like Bees?
Grow *Allium cernuum*
by Rosemarie Parker

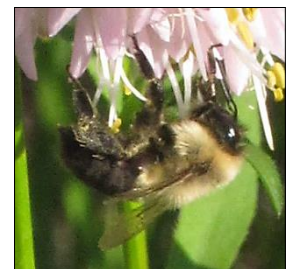


I HAVE MANY POLLINATOR-FRIENDLY PLANTS IN MY YARD, but I am often amazed at how *some* plants just seem to be alive with busy insects. Enough so that they catch my attention from a distance. (Kind of like those dark trees near buildings that clearly have a million sparrows cheeping, but you can't see any — except that insects are both audible and visible.) As I write this in early August, the number one plant is clearly *Allium cernuum*, the Nodding Onion. I started with a small clump, but I have tossed the seeds here and there, left the heads on to self-sow, and even started moving large clumps longer distances. The deer do not eat them, so I use them to fill the spaces left by over-browsing.

As long as the temperature is warm enough, my largest clump is covered with Honey Bees (*Apis mellifera*), small bumble bees (*Bombus* spp.), lots of little guys that move too fast for me to focus upon, and the occasional butterfly (see photos at the right). I have a few *Allium stellatum* mixed in, but the bees do not seem to make a distinction. Both Alliums can live in dry to regular soil, in part to full sun, and reach about 18 inches when really happy. The only negative is that *A. cernuum* can aggressively self-sow in good conditions. With deer keeping many competitors down, I may have to start pulling out those seedlings. Or maybe *you* would like some to give your bees a mid-summer treat? 🐝

I saw my first truly wild Nodding Onion this summer at Tanglewood Nature Center in Elmira, N.Y. There were two towards the edge of the woods at the side of a path. Less sun than mine, and probably less water, so they were more delicate looking, but still exciting to me. Check out their New York distribution in the New York Flora Atlas (newyork.plantatlas.usf.edu/Plant.aspx?id=1855). While not listed for Tompkins County, Nodding Onion is found south and west of us on rocky slopes and bluffs in Chemung, Schuyler, Steuben, and Tioga Counties.

Wild *Allium cernuum* is State-Threatened in N.Y., but is available from many plant nurseries. It grows on calcareous soils in the Catharine Creek valley of Schuyler County, New York.



Above: Inflorescence with Honey Bee. Above right: A pair of Peck's Skippers (*Polites peckius*), ♂ open in front. Right: A Bumble Bee. Below: Close up of the flowers. Photos by the author.



WILD GARDENING

The Benefits of Bare Root Trees

by Akiva Silver



The author holding one-year-old bare root Persimmons

THE MOST CONVENIENT THINGS ARE NOT ALWAYS THE BEST THINGS. This is the case when it comes to quality trees for planting. The differences between bare root and potted trees are numerous and very significant on several levels. With a potted tree, we have the convenience of buying any time of year and delaying planting for months.

Bare root trees are grown in the ground, never in any kind of container. They can only be safely transplanted when they are dormant and the ground isn't frozen. Here in upstate New York, that is a short window that generally only happens during the months of November and April. The rest of the time, the trees can't be moved without risking heavy losses. So, what's so great about bare root trees that I would be willing to sacrifice this convenience?

SOIL: Because bare root trees are grown in the ground, they require zero potting soil. There is no perlite, peat moss, shredded bark, or any other bulk materials being trucked around. The soil used to grow bare root trees stays in one place forever, it never needs to be hauled anywhere. It can be built on and improved year after year. After only a few growing seasons, I am very proud of my nursery beds, which are teeming with earth-worms, mycelium, and a healthy network of living microorganisms.

I grow my bare root trees in deep beds of loose, living, friable soils that are extremely high in organic matter. The soil is so deep that I can often pull out whole roots of Dandelions and sometimes even Burdock without a tool.

At my nursery, a layer of mulch, usually in the form of wood chips, covers the beds. This protects the soils from the compacting effects of rain, and from the volatilizing effects of the atmosphere. As rains and melting snows seep into these nursery beds, the water is slowly absorbed through the capillaries of the soil. Compare this to a potted tree, which leaches out rainwater, carrying with it nitrates and phosphates from fertilizers that can enter waterways.



Two-year-old bare root Mulberries

I should mention that not all bare root nurseries have the best soil practices. Many of the larger ones, in particular, use herbicides and mechanical cultivation on their fumigated, synthetically fertilized soils. So, if it is important to you, check with individual growers. There are several nurseries besides mine, doing great things with their trees and soils.

ROOTS: A living network of microorganisms, earthworms, and mycelium interacts with the tree. In this environment, roots form fibrous, spreading systems. They do not circle around each other as in a pot, but rather form natural, healthy, and quite beautiful shapes. A circling root system can often lead to permanent damage, as tree roots will wrap around their own trunk, eventually girdling the tree. The roots of field-grown trees always come in the shape determined by the tree rather than the container.

Quality grown bare root trees are feeding on a living soil that does not suffer extremes in temperature fluctuation. Their roots will become extremely fibrous with many hairs, and their rates of growth can often be double that of potted trees grown right next to them.

WATER: As pots will have holes in the bottom to let water out, they need to be watered frequently. They are usually above ground and black. The temperature in containers fluctuates constantly. A small black pot can dry out in a matter of hours, compared to mulched soil, which can take weeks if not months.

Almost every day that it doesn't rain during the summer, I water my potted plants. It is a very different story in the bare root beds. Because of the high organic matter content and a layer of mulch, I never water them. The soils in the bare root beds can be kept so healthy that there is no need for any irrigation whatsoever. This is a tremendous savings in energy, time, and materials. Also these beds can absorb water, rather than leaching out water and nutrients.

One added bonus to the water aspect of bare root trees is that they are planted while dormant. The tree suffers very little, if any transplant shock. The soil is moist during the dormant season, and a thick layer of wood chips will keep that moisture all year during a typical northeastern summer. So, bare root trees rarely even need to be watered after the initial planting here in the Northeast.

SPACE: Bare root trees can be grown in very tight spacings. I grow 4-foot apple trees only about 5-6 inches apart within the row. I grow mulberry seedlings by the hundreds in a 3 × 20 foot strip. In a 40 × 50 foot space, I can fit well over a thousand trees. My goal within the next couple of years is to grow 10,000 trees in my half-acre nursery. There is no way this is possible with potted plants. By their very nature, they take up more space, especially the popular round pots that facilitate circling root systems.

Typically, potted plants sit on top of plastic weed fabric, herbicide-cleared gravel, or pavement. How much of this space could be devoted to something more beautiful if we grew our trees in nursery beds instead of nursery pots?

PRICE: As if the health of the tree and the soil wasn't enough to make bare root the best choice, the price is also much cheaper. When we buy potted trees, we are paying someone to purchase or make potting soil, to move around a pot and overwinter it, and to water that pot incessantly. We are paying more money for a disfigured root system that may never recover.

Because bare root trees are so much easier to grow, and so much less resource-intensive, they are a lot cheaper. Container trees are typically 2-3 times more costly than a similar tree grown in the ground. An expensive, grafted, 5- to 6-foot-tall bare root tree will rarely exceed \$30-40. It is not hard to find potted trees for more than \$40, as any gardener knows.

TIMING: This is where bare root really suffers — or excels — depending on your perspective. Bare root plants look like a stick with roots during a grey time of year. Potted trees can be full of leaves and flowers during the most exciting times of spring and summer for gardeners.

Bare root propagation beds filled with chestnuts and persimmons



Planting a bare root chestnut tree

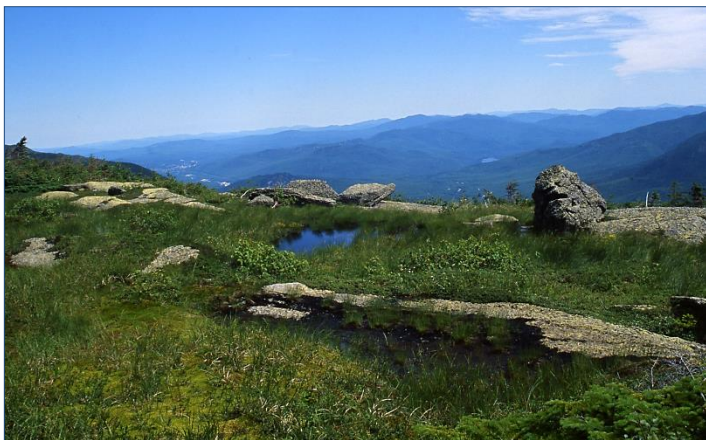
Bare root trees are only available during April and November here in N.Y. By the time May rolls around, trees are beginning to leaf out and it is not as safe to transplant them without soil attached to their roots. When we do transplant bare root trees, it must be done carefully so that the roots can never dry out. They will come packed in a moist material like sawdust or newspaper and should be planted or heeled in immediately. Trees can be heeled in until they begin to break dormancy. To heel them in, simply dig a shallow hole in which to lay the trees in a bundle and cover their roots with soil or mulch. A shady spot is ideal.

Planting trees within the timing of when they are dormant is not as convenient, but it is better for the trees. They experience very little transplant shock, and when spring arrives in full force, they hit the ground running.

A HUNDRED YEARS AGO NO ONE SOLD TREES IN POTS, but people still exchanged and transplanted lots of fruit, nut, and ornamental trees. They even shipped these plants around the world. This was all done during the right time of the year for the trees, while they were sleeping. I encourage gardeners to return to a simpler method of obtaining trees, one that does not require plastic pots and potting soils being trucked around, and one that leaves our soils and waterways healthy. In no way do I mean to berate the growers of container trees. My intent in writing this is to illuminate the profound benefits of quality bare root trees.

AKIVA SILVER, Twisted Tree Farm, 279 Washburn Road, Spencer, N.Y. 14883,

BOOK REVIEWS



Near the summit of Mt. Washington, N. H. Photograph by Robert Dirig.

***Field Guide to the New England Alpine Summits*, by Nancy Slack & Allison Bell, 2013, Appalachian Mountain Club Books, Boston, Massachusetts, 191 pages, \$19.95**

Reviewed by Norm Trigoboff

This colorful photo-based field guide presents the common, eye-catching trailside sights, from glacial features on the horizon to the subtle beauty of fingertip-sized lichens. It also includes vascular plants, bryophytes, birds, amphibians, mammals (with two pages of scat photos), insects, and spiders, as well as points of interest in geology, weather, climate, human history, and ecology.

One balmy fall day last September, I went with the ANDREWS FORAY (a group that meets once a year to study lichens and bryophytes) to visit Vermont's Mount Mansfield. Nobody told me what to expect. At the summit, between spells of very cold rain, a thick, almost freezing mist kept my gloves soaked. Scenic views were scarce and brief. I spent 20 minutes in the mountaintop welcome center with my fingers clamped to a cup of hot water in an effort to thaw them out enough to hold a hand lens. I learned what *Krummholz* meant in a hurry. It's a place where trees look like curled frozen fingers, and fingers look like curled frozen trees. Though I endorse experiential learning, I would have preferred to prepare for that trip by perusing the part of this field guide that discusses clothing suitable for alpine summits.

The book focuses mostly on plants and animals unseen at lower, less rugged elevations. The conservation-minded authors use their long experience to anticipate the questions of hikers. It's the kind of book that professionals who answer questions at mountaintop interpretation centers love. The hardy staff at the top of Mt. Mansfield said they loved the earlier edition. The amount of wear on their copy, visible even without a hand lens, confirmed this. My only gripes with the new edition are minor. *Pluton*, *felsenmeer*, and many other terms are defined, but not listed in the index. And the photo of *Sphagnum magellanicum* looks wrong. Nancy Slack assures me it's right. It still looks wrong, but what do I know?

***85 Acres: A Field Guide to the Adirondack Alpine Summits* (1993) is a much smaller book by the same authors. It treats the alpine summits in New York State.**



***An Identification Guide, Bumble Bees of North America*, by Paul H. Williams, Robbin W. Thorp, Leif L. Richardson, & Sheila R. Colla, 2014, Princeton University Press, 208 pp., \$25.**

Reviewed by Bill Evans

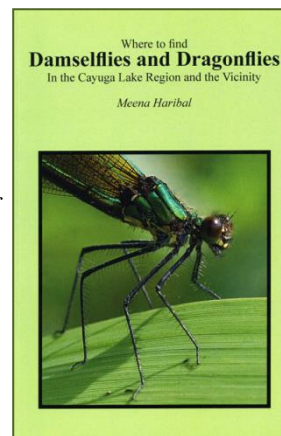
This is the first modern bumble bee field guide for the continent. Here in central New York, we are in a zone that potentially has 16-20 species, but a number of these appear to be recently extirpated. For example, the Rusty-patched Bumble Bee (*Bombus affinis*), which as recently as the 1980s was common in New York, now seems to have disappeared. I started collecting bumble bees this year in my annual roadkill survey along a 3-mile portion of Route 96B in Danby. During warm days in May, I regularly salvaged 20+ bumble bee carcasses per mile. Numbers seem lower now (18 June 2014). Many species are similar, and I haven't yet delved into the subtle differences, but I can share one interesting statistic — the "Tri-colored" Bumble Bee (*B. ternarius*) composes only about 1% of the specimens I've collected so far. This species stands out in having two bright orange bands on its *tergum* (lower abdomen).



***Where to Find Damselflies and Dragonflies in the Cayuga Lake Region and the Vicinity*, by Meena Haribal, 2014, a self-published paperback, printed at Cornell Print Services, ca. \$17.50 (electronic copy available).**

Reviewed by Bill Evans

I am very proud to announce this new local field guide. To put this treasure of a book in perspective, imagine the excitement you'd feel if there were no written botanical record of the Cayuga Lake Basin, and then you received a copy of Wiegand & Eames' *Flora of the Cayuga Lake Basin* (the 1926 classic on local vascular plants); or you are a beginning birder, and obtain a copy of *Birding the Cayuga Lake Basin* (2013). Local field guides provide a much easier structure for beginners and intermediate students to



get a grasp on regional biota, focusing on species that may actually be found in an area so users aren't overwhelmed, sorting through species that may not occur there. We are fortunate to have a great depth of natural history knowledge and local resources in our midst in the Cayuga Lake Basin. I anticipate that this passionately conceived and well-written book will light a bonfire of interest in the damselflies and dragonflies of our region, where we have over 100 species!

I was fortunate to receive an advance copy. They are available by contacting the author (mmh3@cornell.edu). If you are interested, don't hesitate, as only 200 copies were printed. For anyone interested in seeing the book, I have donated a copy to the Danby Community Library at the Danby Town Hall on Rt. 96B, south of Ithaca, N.Y., which is open Saturdays from 10:00 am to noon, and Wednesdays from 1:30-3:30 pm.





ECOLOGY

Silver-spotted Skipper

(*Epargyreus clarus*)

[yellow-bordered pictures, A-F]

Fully-grown larvae build nests by silking leaflets of **False Indigobush** (*Amorpha fruticosa*, A-B). When exposed, they resemble a yellow-green snake with orange eye-spots (B-C). Larvae turn brown before pupating (D) inside the nest. Adults are brown with amber forewing bands above (E), and a silvery hindwing spot beneath (F).



Spicebush Swallowtail

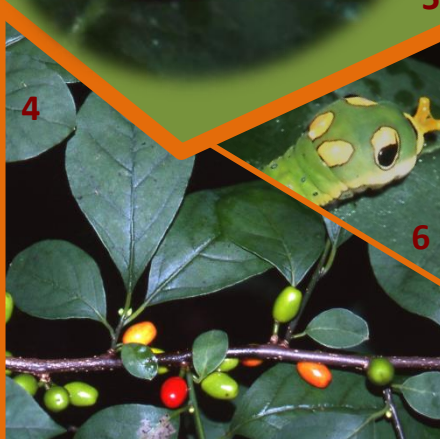
(*Papilio troilus*)

[orange-bordered pictures, 1-10].

Fully grown caterpillars (1-2) rest inside cocoon-like nests (3) on the larval foodplants, **Spicebush** (*Lindera benzoin*, 4) and **Sassafras** (*Sassafras albidum*). They are colored like green snakes (5), with large eyespots and an orange "forked tongue" (*osmeteria*, foul-scented organs, 6). Larvae turn yellow (7) before forming a chrysalis (8). Adults are velvety black with greenish (males, 9) or blue (females, 10) areas on the hindwings. They live in swamps or along the edges of oak-hickory woodlands.

Larval Jack-in-the-Boxes

by Robert Dirig



Text & photos
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Haunts of the Hollow Hickory



The photos are of hickory nuts chewed by flying squirrels!
Contributed by Norm Trigoboff.
Can anyone explain why the squirrels chew into the nuts this way?



Oh! Starry Earth

Polytrichum juniperinum, Polytrichum piliferum, Cladonia sp., and the corner of a Populus grandidentata leaf on sandy soil, Thornton, New Hampshire, summer 2004. Watercolor, painted from a digital image by NATALIE CLEAVITT

FLNPS Notes & Announcements

compiled by Rosemarie Parker

Welcome to the new season of **FLNPS walks and talks** (see below and next page)! Please check our website (www.flnps.org) regularly for details and updates about our indoor and outdoor programs.

We would welcome some energetic new faces on our **Steering Committee!** We are in need of a permanent **Publicity Chair** (thanks to Meena Haribal for filling in) and a **Membership Chair**.

FLNPS was finally granted **non-profit, tax-deductible status**, retroactive through January 15, 2011.



ANNUAL AUTUMN SEED COLLECTING WALK, led by **Krissy Boys**, **Saturday, October 18** (rain date Sunday, October 19), meet **1:00 p.m.**, location to be announced. If interested, **please register at info@flnps.org** to be notified of rain delay.



[See TALKS on p.12.]

Finger Lakes Native Plant Society



LAST FLOWERS (Witch Hazel, *Hamamelis virginiana*) from W. R. Dudley's *The Cayuga Flora* (1886), p 132.

Colored from an early black-and-white woodcut by Anna Botsford Comstock.

Upcoming Talks, Fall 2014 ~ Spring 2015

October 8 — Wednesday — 7:00 p.m. MALLORYVILLE BOG AND THE O. D. VON ENGELN PRESERVE: AN ENVIRONMENTAL STORY OF NATURAL HISTORY, TEAMWORK, AND PERSEVERANCE, by Bob Beck.

The unique flora at Malloryville has been appreciated for many, many decades. Its glacial kettles and eskers and diverse wetlands are a treat for hikers. But the background of Malloryville includes a planned gravel mine, long environmental reviews, land deals, and finally safety as a Nature Conservancy Preserve. Bob Beck will relate his very personal story at Malloryville, where he is now the Preserve Steward, having been deeply involved at every step. At the talk, his recent book, *The Journey at Malloryville Bog: Commitment, Teamwork and Tenacity in Defense of Land and Nature* (2013), will be available for purchase and signing.

November 19 — Wednesday — 7:00 p.m. THE ICE AGES IN THE FINGER LAKES, by David Barclay, Associate Professor of Geology, SUNY Cortland.

Understanding the geological history of our region enhances the study of native flora. Many of the unique aspects of our flora arise from the varied topography (e.g., eskers, kettle holes) left by glaciers. The Ice Ages were a time of profound climatic and environmental change. A continental ice sheet extended southwards from Canada on multiple occasions, and substantially altered the landscape of the Finger Lakes Region. David will focus on how this ice sheet interacted with a pre-existing system of valleys to produce the Finger Lakes, gorges, and outburst flood channels that comprise our local landscape.

December 17 — Wednesday — 7:00 p.m. FLNPS SOLSTICE PARTY (details to be announced).

January 21, 2015 — Wednesday — 7:00 p.m. FLNPS MEMBERS' NIGHT.

Show a few slides, read a poem, ask a burning question, explain your latest plant-related theory or discovery. This night is for members who have a short story to tell, even if the slides are so-so, and even if they are stunning. We hope for an eclectic evening of plant pursuits.

February 18 — Wednesday — 7:00 p.m. ALVAR PLANT COMMUNITIES, by Renee Petipas, Cornell University (details to come later).

March 18 — Wednesday — 7:00 p.m. [Still to be scheduled.]

April 15 — Wednesday — 7:00 p.m. THE ASTER FAMILY (COMPOSITES), by Arie Tal.

An introduction to the large composite family, Asteraceae.

May 20 — Wednesday — 7:00 p.m. THE GILBOA FOSSIL FOREST, by William Stein, Binghamton University.

The Gilboa Fossil Forest, near Schoharie Dam in New York, has been known for some time. A few years ago, new excavations allowed much more insight into this Middle Devonian forest of giant cycads. Remember, the definition of "native" requires not only a place, but a time period. So come and hear about a much earlier native flora of New York.

[See an October FLNPS WALK on p.11.]

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.

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