



Friends of Thacher State Park

Emma T Thacher Nature Center • 87 Nature Center Way • Voorheesville, NY 12186
November—December 2022 • Vol. 26 No. 6

Pigments in Fall Foliage



After some early leaf browning from this year's drought, we have finally entered peak leaf peeping season.

Changes in leaf color are caused by the disappearance and appearance of pigments - molecules that give living things color by absorbing some wavelengths of light while reflecting others. Chlorophyll, for example, makes leaves green because it absorbs red, yellow, and blue light, but reflects green light. Chlorophyll plays an important role in converting light energy from the sun into chemical energy during photosynthesis, so as long as a plant is making food, chlorophyll will be present in the leaves. Although other pigments are present in leaves during the spring and summer, the abundance of chlorophyll causes the green color to dominate while the yellows and oranges remain hidden.

As a tree prepares to shut down food production for the winter, it builds walls of cells that block nutrient flow to the leaves. As a result, the leaves are no longer able to replenish chlorophyll as it degrades. When this happens, the green color fades, making way for the other pigments in the leaves to show through. These other pigments include carotenes, which create the yellow colors prominent in aspens and birches in the fall, and carotenes, which create the orange colors prominent in beeches and sugar maples. The vibrant red and purple colors we see most distinctly in red maples belong to a class of pigments known as anthocyanins. Unlike the yellow and orange pigments, anthocyanins are produced at the end of the summer, as opposed to being hidden in the leaves all season.

Although their exact functions are not well understood, researchers believe that anthocyanins help mitigate damage to the cellular machinery involved in photosynthesis when the tree faces stressful conditions like lower temperatures and high levels of sun

exposure (anthocyanins may also be produced in higher levels during the summer when a tree receives more direct sunlight than it needs). In this way, anthocyanins act like sunscreen to protect the increasingly fragile leaves in the fall (Feild et. al., 2001*). As a result, you may see red coloring around the outside of a tree where leaves receive the most direct sunlight, while interior leaves remain green or yellow.



Photo of fall foliage at Thacher by Michelle Johnston

The four groups of pigments which make the Northeast a leaf-peeping destination in the fall, chlorophylls, xanthophylls, carotenes, and anthocyanins, are also found throughout the year in flowers and

fruits. Anthocyanins give color to purple and blue flowers including the New England Asters that have been blooming throughout the park in recent weeks, but they are also responsible for the color in eggplant, blueberries, raspberries, tomatoes, apples, and many more food staples. Carotenes make carrots and pumpkins orange, and xanthophylls give color to yellow squashes, peppers, and corn. So even as the leaves turn brown and fall, we can continue to appreciate fall's vibrant colors as long as we eat our fruits and vegetables.

- by Marina Dreeben

*Feild, T. S., Lee, D. W., & Holbrook, N. M. (2001). Why leaves turn red in autumn. The role of anthocyanins in senescing leaves of red-osier dogwood. *Plant physiology*, 127(2), 566-574. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC125091/>



Fall Bird Migration

Autumn is a time of great change in the Helderbergs: green hillsides turn into a kaleidoscope of warm colors, bustling winds replace the sound of crickets in the evening, and morning frost kills the gardens. For peregrine falcons, pine warblers, and other migratory bird species, the changing weather means impending cold and famine. The mass avian migration that results each fall is one of nature's most fascinating spectacles.

A large amount and wide diversity of birds can be seen during migration. Audubon volunteers observed eleven different raptor species near the Thacher Overlook one afternoon this September, including osprey, merlin, peregrine falcon, and over 200 broad-winged hawks. Though impressive, these totals pale in comparison to the estimated number of songbirds, wood warblers, waterfowl, and other species that pass over Thacher some nights. Migrating birds can be picked up on weather radar, and scientists can estimate the number of traveling birds based on the size and density of a radar reading. According to BirdCast, a migration tracker run through the Cornell Lab of Ornithology, an estimated 2,900 birds flew over Albany County on the night of September 26th this year. Two nights later, an estimated 4,061,400 birds made the same trek – this year's high through 10/14. Why the difference? Birds don't like to migrate when conditions are cold, wet, and windy, as on the 26th. When a calm evening does present itself, as on the 28th, birds make sure to take advantage of the ideal weather.

Birds migrate to all corners of the Americas. In the fields surrounding Ketcham Road, pairs of birdhouses have been installed to provide nesting locations for grassland species. Come fall the eastern bluebirds that nest in one box may migrate to the southern United States, the tree swallows nesting next door may fly to Central America, and the bobolinks sitting atop each may travel as far as Argentina. Where a species spends

its winter depends upon its preferred food, habitat, and climate. For most migratory birds this means leaving the Capital Region, but for a handful of others the opposite is true. Northern saw-whet owls, for example, will fly north each fall to mate in boreal forests. Some cold-tolerant species like pine siskin, snow bunting, and snowy owl can only be seen in the winter because they breed in northern Canada each summer.

If you're a birder interested in taking advantage of the fall deluge, it's important to study the specific migration patterns for each class or species of birds that interests you. Shorebirds are best seen at the reedy northern end of Thompson's Lake, near the beaver lodge, each morning from early August to late September. Raptors arrive shortly thereafter, with prime viewing from morning to midday at the Overlook in late August through September. Palm warblers, blue-headed vireos, blackpoll warblers, and other small birds can be found in coniferous treetops throughout the park in September and early October. Waterfowl are generally the latest migrants, arriving at Thompson's Lake from late September through early December. All that being said, it's a good idea to keep your eyes and ears open all year round – you never know what surprises you'll find on the trail.

- by Peter Farquharson



*Migrating Waterfowl. Photo credit US Fish and Wildlife Service
www.fws.gov/northeast/chinco/*

Friends of Thacher Park Meeting Dates for 2022

Annual Meeting, Wednesday, November 9 at Thacher Visitor Center (Masks may be required)

After a short business meeting at 6:30pm, Dr. Rachel Netzband will talk at 7:00pm about local amphibians.

We'd love to connect with you!

We humans thrive on connections. To one another, to pets and other animals, and to the natural world we are an intrinsic part of. During pandemic lockdowns, so many of us sought the connections we were missing in nature, escaping to parks and other wild places like Thacher. A place I find connection is with the Board of the Friends of Thacher Park. Far from the stuffy, over-formal body suggested by the lofty nomenclature 'Board of Directors,' the Friends Board has always been a caring, open, and supportive group of like-minded folks from around the Capital District. Our mission is to support and advocate for the Park through volunteerism, education and environmental stewardship, and we do it by drawing on the diverse talents of our Board and broader membership. From trail stewardship to grant-writing, I Love My Parks Day cookouts and crafts at the Holiday Bazaar, there is a role for just about anyone, with any abilities, background, or interests. I find I always learn something from a fellow board member or Park staff during our board meetings, which are held every two months at the Thacher Visitor Center.

We invite you to connect with us! All our meetings are open, but the Annual Meeting on Nov. 9 (see details in this newsletter) is a particularly good way to get more involved and has the added feature of a guest speaker. We will have a short business meeting before the evening's program. We hope you'll consider joining us on the 9th. We'd love to connect with you!

- by *Laure-Jeanne Davignon*



Holiday Bazaar at Thacher Visitor Center!

**Saturday December 3, 10:00am-4:00pm, &
Sunday, December 4, 11:00am-4:00pm**

Browse the selections of jewelry, art glass, paintings, nature photographs, soaps and beauty products, basketry, and more, while enjoying live music and hot mulled cider, the latter compliments of the Friends! Support local artisans and crafters and surprise your loved ones with unique hand-crafted gifts this holiday season!

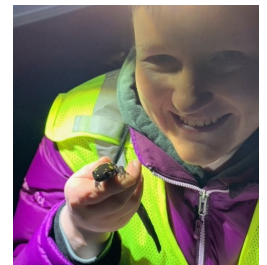


Local Amphibians!

**Presentation on Wednesday, Nov. 9, 7pm
at Thacher Visitor Center**

Amphibians are important indicators of the health of the environment, and in the Northeast we are home to dozens of species. Dr. Rachel Netzband will talk about our local amphibians following a short business meeting of the Friends at 6:30pm. Come join us and learn about how amphibians are an important part of our ecosystem and their relevance to New York in particular.

Dr. Rachel Netzband is originally from Syracuse and got her bachelor's at SUNY Oswego. Here she combined her love for amphibians with a fascination of viral diseases and researched the prevalence of amphibian diseases in the area. She then went to SUNY Albany to pursue a PhD in the role of RNA biology in viral diseases such as Dengue virus, Zika virus, and HCV. Now she is a scientist at Regeneron pharmaceuticals and lives in the country with her ducks and quails.



Featured Plant: Small Cranberry (*Vaccinium oxycoccos*)

Most people think of cranberries as something that shows up in a can at the grocery store in time for Thanksgiving, but did you know that cranberries are actually native in New York? Both of the two most common type of true cranberry – American cranberry and small cranberry – grow in wet, nutrient-poor, acidic soils in and around Albany County. Before finding their way to our tables, cranberries were used for centuries by cultures around the northern hemisphere. Come visit the bog garden at Thacher Nature Center to see small cranberry in person!



- by *Shannon Duerr*

Check for updates at www.friendsofthacherpark.org

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As always, call (518) 872-0800 or (518) 872-1237 to verify activity times and dates.

Please feel free to call board members with questions or suggestions.

Many thanks to Peter Farquharson, Marina Dreeben, Shannon Duerr, Laure-Jeanne-Davignon, Rachel Netzband and Sigrin Newell for their contributions to this newsletter.—Christine Gervasi (Editor)

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<https://etc.usf.edu/clipart/>

Wednesday, November 9, 2022

Next: Annual Membership Meeting

6:30 pm at Thacher Visitor Center *(masks may be required)*

Followed by a presentation at 7:00pm by Dr. Rachel Netzband on local amphibian species

Change Your Perspective



We are immersed in time. You only have to try to go 24 hours without looking at a clock to know that. When you feel overwhelmed by clocks and schedules, come to Thacher for a fresh perspective on time.

You will, of course, defend yourself against ticks. But look at it from the ticks' point of view. While waiting for a meal, time stops for a tick. Time simply doesn't exist. Nymphs

can go one year between meals, adults can go two years between meals. The rhythm of life for a nymph is wait, eat, molt, wait, eat, molt, wait, eat, mate. As a warm-blooded host, you offer a tick a brief opportunity to experience time.

For spittlebugs, time is only now. These cute little critters that live inside piles of frothy bubble on the stems of plants must eat and pee constantly. They stick their straw-like mouth parts into the xylem of the plant and suck. Sugar and amino acid concentrations in the plant are exceedingly dilute.

To meet their nutritional needs all they do is suck and excrete excess water. This can be up to 150 times their own body weight every day. For a 150-pound human that would be about 2,250 gallons a day.

Hibernating mammals, from bears to chipmunks spend three to four months disconnected from time. Winter is also a time of stasis for many herbaceous plants. Fortunately people can be active year-round. Come up to Thacher Park any time of the year for a hike. Leave your clocks behind. Imagine a world in which time plays a completely different role.

- by Sigrin T. Newell



Photos of Thacher Park in fall by Autumn Van Iderstine (top left) and Michelle Johnston (bottom right)

As always, you can find a color version of the newsletter at www.friendsofthacherpark.org