



Friends of Thatcher State Park

Emma T Thacher Nature Center • 87 Nature Center Way • Voorheesville, NY 12186
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A Winter World



Here I am, cozy in a 65 degree kitchen. It is 4 pm and I'm looking out the kitchen window at a bunch of birds frantically pecking away at the seeds in the bird feeder. I'm also looking at one deer and one rabbit, equally frantically gobbling up what the birds spill. My outdoor thermometer reads -8.6°F . "How do they do it?" I wonder, not for the first time. Sure, they have what I do not, a layer of fur, a flurry of feathers, but the night temperatures are supposed to drop to about -15°F not including wind chill, and that is not the first time this week. So how do our furred and feathered friends make it through our New York winters?

And then I remembered an audiobook I listened to a year or two ago, Bernd Heinrich's "Winter World. The Ingenuity of Animal Survival". Dr. Heinrich is a naturalist and professor emeritus of Biology at the University of Vermont. Now 77 and retired to a log cabin in the Maine woods, he spent much of his career trudging on snow shoes through a frozen landscape, studying the physiological and ecological adaptations of wildlife in the winter woods of the Northeastern United States.

One of the animals that most puzzled him was the golden-crowned kinglet. This small bird, the size of a walnut and the weight of two pennies, lives and breeds mainly in coniferous forests at high elevations in the US and Canada, where it also overwinters. Due to its small body size, its energy needs in winter are enormous; in fact, it must eat three times its body weight during the day to make up for the weight loss it encounters by shivering to keep warm during the night. How does it do this? It took a considerable time tracking the secretive bird in the Vermont woods, but it seems that like many of our feathery winter guests, this bird spends much of its time eating: inch-worm caterpillars overwintering on trees

of all things. The rest of the time golden-crowned kinglets stay huddled together to protect themselves from losing body heat. It is a life very close to the edge though. Not finding quite enough caterpillars during the day, or losing too much heat during the night may mean certain death for those birds.



Other animals have found different ways of dealing with the cold and the absence of food. We all know what bears do - hibernate so they avoid dealing with the worst of it. But even that is not a small feat, inviting as it may sound at times. It means that bears don't move, eat or drink, or indeed urinate for several months. Oddly enough, this does not cause any build-up of toxic substances or kidney issues, or bone and muscle loss, something we would have to deal with if we tried the same.

Then again, bears also don't have to worry about hypertension or arteriosclerosis despite a diet of high fat in the fall. Scientists recently discovered that a hibernating bear's body temperature drops by less than 10 degrees, but its metabolic rate is reduced by up to 75%, functioning with 1-2 breaths and 4 heart beats per minute. How bears exactly manage hibernation is a mystery that is just beginning to be unraveled. For instance, some of the urea in the urine is transformed into nitrogen which is used to build protein, allowing the bear to maintain muscle mass.

There are of course other adaptations. Snapping turtles take one long breath in the fall and then burrow in the mud at the bottom of the pond, where they stay until the ice breaks in the spring, effectively holding their breath. Wild honey bees survive winters as a colony, maintaining a hive temperature of about 50°F by generating heat with their flight muscles. And

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some animals, such as voles, stay active throughout winter. They make tunnels in the snow, and protected at just around freezing temperatures they wander around gnawing tree bark and other edibles. Voles, in turn, serve as a food source for animals like foxes, weasels, fishers, bobcats and coyotes, who can hunt them even hidden in a snowpack of a foot or more.

But then there is the astonishing case of the wood frog. This frog doesn't burrow deep, but seeks shelter under leaves near the surface instead, where it promptly freezes solid. In its frozen state, if you pulled one of its legs it would break off. Now, if we were frozen, we would die. But the wood frog has adapted to this, being able to withstand temperatures as low as zero degrees for several months, and yet, thaw out in the spring

and hop away. One of the mechanisms it uses to manage this is to produce a special protein that helps blood and fluid outside the cells to freeze first. In addition, it makes large amounts of glucose, which it stores inside its cells. Glucose acts like antifreeze, keeping whatever water remains inside the cells from freezing, which is important since ice crystals would destroy the cell membranes. Frozen like this, wood frogs spend the winter in suspended animation, without apparent heart or brain activity, until warmer temperatures arrive in spring.

So if as you are looking out at a frozen winter landscape, think about our feathered and furred friends (or the cold-blooded ones), even if they are not visible, and call yourself lucky for having a heated den. And maybe, if you can, put some seeds into your birdfeeder.

-Christine Gervasi

Welcome Interns!

At the end of January three new Student Conservation Association (SCA) interns will arrive at the park for a 10-month term. Vanessa Gabel and Haley Oryell will be working primarily at the Nature Center. Vanessa has a geology degree and Haley has a biology degree. Thomas Cummings will be working at the Visitor Center, his degree is in geology. The interns will be presenting education and interpretation programs at the park, nature center, and campground, and performing conservation service projects in the park, as well as participating in larger projects with the entire SCA Hudson Valley Corps.

There have been a lot of new amenities and improvements in the park in recent years and a big increase in visitation. We are looking forward to expanding our programming and stewardship projects throughout the park with help from Vanessa, Haley, and Thomas. Please join us in welcoming them.

- by Nancy Engel

Thacher Park's new Visitor Center was profiled in the recent edition of "On the Ground", the newsletter of the Open Space Institute. The article recapped the journey of Thacher Park from being threatened with closure less than 7 years ago to the creation of Thacher Park Center. Thacher Park Center was made possible through a public-private partnership, with funds provided by the State under the NY Parks 2020 initiative, and through a private fundraising campaign launched by the Open Space Institute. Today, Thacher Park Center serves as a meeting place for its 300,000 annual visitors, and with its educational and interpretive exhibits as a gateway to discovering and exploring the natural and geological treasures that the park provides.

Happy New Year, Everyone!

Notice: The timing for the Native Plant Sale Pre-order has been changed. We are sending it out two months earlier – when all your other gardening catalogs arrive – so you can plan early! The new deadline for pre-orders is February 18. Again this year we are offering pre-selected Garden Kits (see last page). These have been very popular so be sure to make your selections and send them in by Sunday, February 18. Thank you and Happy Planning!



- by Laurel Tormey-Cole

Check for updates at www.friendsofthacherpark.org

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

Please feel free to call any board member with questions or suggestions.

Many thanks to Nancy Engel, Laure-Jeanne Davignon, Sigrin Newell and Laurel Tormey-Cole for their contributions to this newsletter.

Want to contribute? Please email me at cgervasi@albany.edu
Christine Gervasi—Editor



Friends of Thacher Park Member Form

Member benefits: Newsletter, Scheduled Events Calendar & 10% Discount at the Nature Center Gift Shop.
Renewal date follows name on address label.

Name _____

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City _____ State _____ Zip _____

Phone _____ Cell _____ Email _____

☐ I'd like to become a member of the Friends of Thacher Park. Enclosed is my check for \$ _____.

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☐ Individual \$20

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☐ Corporate \$100

☐ Senior (62) \$5

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Please make checks payable to the **Friends of Thacher Park** and send to Bonnie Schaller, 6324 Hawes Rd, Altamont, NY 12009. For more info: bschaller@nycap.rr.com

Woods with no snow ...



As I write this on December 5, there still is no snow covering the ground. Snow will come, but warmer winters mean that there will likely be many days in which the ground is bare. Though you will have to leave your skis and

snowshoes behind, there still are many reasons to explore Thacher on snow-free winter days.

In the drab woods, the bright green of mosses catches your eye. Mosses continue to photosynthesize all winter, even under the ice. Several mosses are so distinctive in appearance that their name tells you what they look like. Rose Moss (*Rhodobryum ontarioense*), a charming limestone lover on the Schoolhouse Trail looks like little green roses about a quarter of an inch across. Tree Moss (*Climacium americanum*) stands almost an inch to an inch and a half tall and looks like a little cedar tree. Broom moss (*Dicranum scoparium*) grows in patches with all of the leaves bent over in exactly the same direction, looking like small whisk broom. Pincushion Moss (*Leucobryum glaucum*) is pale greyish green and grows in high rounded lumps, almost inviting you to keep your pins stuck in it. Although I hesitate to perpetuate the negative image, a folk name, "Mother-in-Law" moss, is amusing.

Photo of Common Greenshield Lichen by Jason Hollinger [CC BY-SA 3.0 (<https://creativecommons.org/licenses/by-sa/3.0/>)]

You invite your mother-in-law to sit on this nice cushion. When she does, she gets a very wet seat, as this moss holds lots of water.

Lichens are easily seen in winter too. These are a symbiotic combination of a fungus and an algae. The fungus provides chemicals which break down the rock, tree bark, or other substrate to anchor the lichen. The algae provides green chlorophyll for photosynthesis. Lichens are pale green, white, orange or yellow, but not bright green. This is because we see the photosynthesizing chlorophyll through the filter of the fungus.

This symbiosis allows lichens to grow in challenging locations. The Common Greenshield lichen (*Flavoparmelia caperata*), a 6 to 8 inch circular patch grows on tree trunks. It is jokingly known as 40-Mile-an Hour lichen because you can recognize it while driving by at that speed. At the opposite end of the scale, Pixie Cups (*Cladonia pyxidata*) that look like miniature wine goblets are no more than half an inch tall. Another tiny lichen, British Soldiers (*Cladonia cristatella*) has that name because there are bright red knobs on top of each one.

Finally, as you dream of summer, there is another plant that is surprisingly green in the drab winter woods. Blueberry stems (*Vaccinium sp.*) have chlorophyll that stays active all winter, grabbing what few rays of sunshine are available to support the new year's flower and berry production.

- by Sigrin T. Newell

A happy 2018 everyone!

Friends of Thacher Park
c/o Emma Treadwell Thacher Nature Center
87 Nature Center Way
Voorheesville, New York 12186-2601



Next:

Wednesday, January 10, 2018
Board Meeting
7:00 pm at Thacher Park Center

2018 Native Plant Sale Preorder - Garden Kits 2018 -

Purple for Pollinators

Moist to Average/Full Sun to Afternoon Sun
\$50.00 (a \$60.00 value!)

Wild Bergamot	(2) <i>Monarda fistulosa</i>
Obedient Plant	(2) <i>Physostegia virginiana</i>
Blue Vervain	(2) <i>Verbena hastata</i>
Tall Ironweed	(2) <i>Vernonia novaboracensis</i>
New England Aster	(2) <i>Aster novae-angliae</i>

Semi-Shade & Woodland Garden Kit

Average moisture/Part Shade
\$52.00 (a \$64.00 value!)

Columbine	(2) <i>Aquilegia canadensis</i>
White Baneberry	(2) <i>Actaea pachypoda</i>
Bleeding Heart	(2) <i>Dicentra eximia</i>
Foam Flower	(2) <i>Tiarella cordifolia</i>
Black Cohosh	(1) <i>Cimicifuga racemosa</i>
Cinnamon Fern	(1) <i>Osmunda cinnamomea</i>



Monarch & Butterfly Garden Kit

Moist to Average/Full Sun to Afternoon Sun
\$75.00 (a \$90.00 value)

Rose Milkweed	(3) <i>Asclepias incarnata</i>
Cardinal Flower	(3) <i>Lobelia cardinalis</i>
Spotted Joe Pye	(3) <i>Eupatorium maculatum</i>
Culver's Root	(3) <i>Veronicastrum virginicum</i>
Boneset	(2) <i>Eupatorium perfoliatum</i>
Indian Grass	(1) <i>Sorghastrum nutans</i>

Monarch & Butterfly Garden Kit

Dry to Average/Full Sun to Afternoon Sun
\$75.00 (a \$90.00 value!)

Butterfly Milkweed	(3) <i>Asclepias tuberosa</i>
Northern Blazing Star	(3) <i>Liatris scariosa</i>
Showy Mountain Mint	(3) <i>Pycnanthemum muticum</i>
Stiff-leaved Goldenrod	(3) <i>Solidago rigida</i>
Frost Aster	(2) <i>Aster pilosus</i>
Sideoats Grama Grass	(1) <i>Bouteloua curtipendula</i>

Sorry, plants in these kits cannot be substituted!

Please see the insert in this newsletter for more selections on individual plants and order information. All preorders must be received by February 18.