EXPERIENCING A FOREST WITHOUT SIGHT

Forest Notes

NEW HAMPSHIRE'S CONSERVATION MAGAZINE

Our Oyster River Farmland Project

Summer Nature Survival Tricks

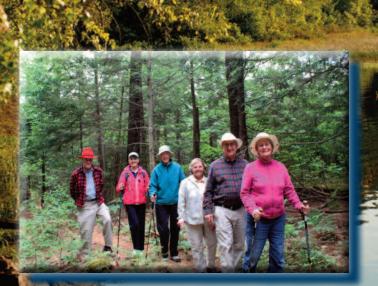
SUMMER 2017

SOCIETY FOR THE PROTECTION OF NEW HAMPSHIRE FORESTS



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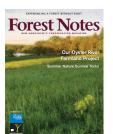
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On our cover:

The Forest Society is working to conserve 36 more acres abutting the Oyster River in Durham by raising funds to buy a conservation easement on the Emery Farm, where we have worked previously to conserve 58 acres. Please see project details on page 28.

Photo by Jerry and Marcy Monkman/EcoPhotography.





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See You on the Western Side

hat do an artist colony, a timber harvest, a high elevation tarn and a town forest have in common? They're all field trip destinations and part of the Forest Society's 2017 annual meeting being planned in Claremont. Each year we meet in a different part of the state to explore the wonders both natural and cultural—of that particular geography. We want to show off to our members the land protection projects we and our conservation partners have achieved on their behalf. It's a great way to explore the varied ecosystems of New Hampshire and how they have shaped our communities and character.

As a statewide land trust, forestry and conservation organization, we like to celebrate the work you have made possible in every corner of the Granite State. Recently we celebrated the completion of the Powder Major's Forest in Madbury, Durham and Lee, a project that brought three communities together to conserve an historic farm and woodland. We visited the Powder Major's Forest as part of our meeting last year.

Today we're closing in on the permanent protection of 1,870 acres at the Manchester Water Works' Tower Hill Pond, a beloved place for recreation, special habitats and the protection of



drinking water quality for more than 160,000 people. Perhaps next year we'll visit Tower Hill Pond for the meeting. Meanwhile, take a look at *this years'* field trips and annual meeting program (P. 14).

Our annual meeting is a celebration of place, of conservation and of the people (you) who make this work possible. Our members love being together, sharing stories and enjoying common cause. We all find inspiration in being together in the woods and fields of our state. I hope you'll join us in Claremont this September!

Jane Girlyley

Jane Difley is the president/forester of the Society for the Protection of New Hampshire Forests.

Society for the Protection of New Hampshire Forests

A non-profit membership organization founded in 1901 to protect the state's most important landscapes and promote wise use of its renewable natural resources. Basic annual membership fee is \$40 and includes a subscription to *Forest Notes*.

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The Forest Society proudly supports the following organizations:









Award Recognizes Forest Society for Leadership on Water Quality

The Forest Society was honored to receive the 2017 Source Water Protection Award from the N.H. Dept. of Environmental Services (DES) on May 18.

The award recognizes the Forest Society for "its outstanding efforts to advance the permanent protection of water supply lands through its leadership role in the creation of the Water Supply Land Protection Grant Program, the Merrimack Conservation Partnership, vigorous promotion of land conservation to protect drinking water sources, and spearheading projects such as the Tower Hill Pond project."

The Tower Hill Pond project involves conserving 1,870 acres of forestland in Candia and Hooksett surrounding Tower Hill Pond. The Forest Society is closing in on raising \$1.9 million to buy conservation easements on the forests from the Manchester Water Works. These forests filter and buffer the pond, which is a drinking water source for more than 160,000 people.

Please see www.forestsociety.org to learn more about this opportunity to keep New Hampshire's drinking water clean.



Sarah Pillsbury (left), administrator of DES's Drinking Water and Groundwater Bureau, presented the award to Brian Hotz, vice president of land protection at the Forest Society.



Above and right: Kids from Exeter's Lincoln Street School enjoy a beautiful day on the Mt. Major summit.

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Go to www.facebook.com/ForestSociety and like our page to find out more about things to do and places to go!

Does your local school hike Mt. Major?

If your local elementary or middle school hikes Mt. Major in Alton, be sure to tell field trip coordinators about the Forest Society's Mt. Major Outdoor Classroom (MMOC) project. The Forest Society is partnering with schools to enhance the educational value of Mt. Major field trips. Six schools are taking part so far, and there's room for more, thanks to grant funding from the Dorr Foundation and the Samuel P. Pardoe Foundation.



Here's how it works: The Forest Society visits students, teachers, and parent chaperones at their school in advance of their field trip to deliver a free presentation on the natural, cultural, and geological history of Mt. Major, as well as hiking safety and etiquette. Then, staff and/or volunteers join the classes on their field trip to be available as a resource.

This spring, the Forest Society trained six new volunteers to assist with guiding MMOC school groups on their hikes. The volunteers are critical to the success and growth of this program.

"They are the Forest Society's ambassadors," said Dave Anderson, the Forest Society's director of education. "They welcome groups to the mountain, hike with and encourage students to the summit, and answer any questions hikers might have about what they're experiencing."

To find out how to get involved with the MMOC, contact Anderson at danderson@ forestsociety.org.

Annual Photo Contest Entries Wanted!

Help celebrate conservation by emailing us your favorite photos taken on Forest Society reservations or any land conserved through an easement with the Forest Society. The Forest Society's annual photo contest is under way! We're awarding prizes in five categories: Lovely Landscapes, Plants and Wildlife, People Enjoying Our Reservations (or easements), Young Shutterbugs (for kids) and Dog Heaven. Photos should be sent at 1 MB or larger. We'll publish the top 12 photos in an upcoming issue of Forest Notes. Email photos to photos@forestsociety.org.

For more details, rules and how to enter go to forestsociety.org under the Get Involved tab. Y



Kate Wilcox shared this prize-winning photo of a St. John's Wort flower for last year's contest.







The Nature of Summer

Enhancing Our Delight in the Forest, One Story at a Time

The deeper our knowledge of the everyday miracles happening in our forests, the more we enjoy and appreciate them. The Center for Northern Woodlands, a nonprofit based in Corinth, Vt., works to increase understanding of and appreciation for the natural wonders, economic productivity and ecological integrity of forests in the Northeast. It publishes Northern Woodlands magazine, as well as "The Outside Story," a weekly series of ecology essays written by expert naturalists and nature writers.

For the second time, the center has compiled the best of "The Outside Story" essays into a book, The Outside Story: Writers Explore the Nature of the Northeast, Vol. 2. Both the series and book are supported by the N.H. Charitable Foundation's Wellborn Ecology Fund.

On the pages following, you'll find three of the stories from the seasonally arranged book's summer section. It's a sample that may well leave you wanting for more. If so, you can order the book at a special discount for Forest Society members at www.northernwoodlands.org, using the code SPNHFTOS2. For every order using this code, the Forest Society will receive a \$5 donation.





Blackberries get their color from anthocyanins, which advertise when the berries are ripe. They go through several color changes, from green to white to red, signaling to animals (and pie bakers) that the berries will be ready soon.

Blackberry Season

By Rachel Sargent

The bank in front of our house is a dense tangle of arching canes and thorns as large as cat claws. I wriggle further in, lips pressed against the pain of scratches and fingers straining for that last, fattest, blackest berry. I brush it, and it falls into the gloom of leaves and grass, never to be retrieved. Disentangling myself, I take my bowl of berry plunder back to the house where my dad will make the best pie I know: wild blackberry.

Wild blackberries are delicious, grow like weeds, and ripen in August, just in time for my birthday. They belong to the rose family along with raspberries, strawberries, the stone fruits, and unexpectedly, almonds.

It is unlikely to surprise anyone that blackberries are closely related to raspberries. People often mistake black raspberries for blackberries, but there are easy, tell-tale differences between these plants. Here's the quick and dirty way of distinguishing between them: Both black and red raspberries pull off their stems completely, leaving hollow or dome-shaped fruits, while blackberries have fleshy cores, making them more solid.

When the plants aren't fruiting, they are much more difficult to tell apart. Both grow as a tangle of canes with compound

leaves of three to five leaflets. However, again, a closer look reveals differences. The thorns of blackberries are straight while black raspberry thorns are hooked. Both berries have white flowers with five petals, but the petals of blackberry flowers spread out to look like a five-pointed star, while black raspberry flowers have stubbier, close-set petals giving the whole flower a rounder shape.

In one of those ironic twists of botany, despite their name, blackberries are not considered berries at all. They are aggregate fruits made up of juicy little spheres called drupelets. Aggregate fruits come from a single flower, but each carpel (the female part of a flower) forms a fleshy fruit with a stony covering over the seed. The seeds in the drupelets of blackberries are so small that they are hard to see, but you can imagine all those little seed pips as itty-bitty peach pits. A true berry, as a botanist would define one, is a fleshy fruit produced from one ovary in the flower. This means strawberries aren't berries either, but blueberries really are berries. And to further confuse you, so are tomatoes and bananas. (Botanists like to make fruit difficult for the rest of us).



Blackberry thorns are straight, while raspberry thorns are curved. Illustration by Adelaide Tyrol. The rich, dark color that gives blackberries their name comes from a group of organic compounds called anthocyanins. Anthocyanins are common plant pigments, ranging from red to purple to blue, depending on the pH the pigment is exposed to in the plant's tissues. Red autumn leaves, purple pansies, and blueberries all owe their color to anthocyanins. In flowers, the anthocyanin color is used to say, "Here I am! Pollinate me!" In fruits, its message is, "Eat my seeds!" Not only do blackberries use anthocyanins to advertise when they are ripe, they have something called "preripening fruit flags." That means they go through several color changes, from green to white to red, before finally ripening to black. These pre-ripening colors are signals (or flags) to animals that the berries will be ready soon.

Anthocyanins do more than just make pretty colors. They can act as a kind of plant sunscreen, blocking blue-green and ultraviolet wavelengths that can damage sensitive tissues. This is why new leaves have red anthocyanins in them, even though, unlike fruits, they do not want to be eaten. And as a final perk, antho-

cyanins are powerful antioxidants, so don't feel so guilty about sneaking that extra piece of blackberry pie.

People aren't the only ones who love to eat blackberries. Many times out picking, I've had a show-down with a beetle, ant, or slug over just which of us will get a berry. Of course, larger animals—birds, bears, rodents, and other wildlifeeat blackberries too, and play an important role in dispersing seeds through defecation. By hitch-hik-

ing inside an animal, blackberry seeds can travel long distances. This is the reason plants often seem to spring up overnight, as soon as there's an open spot in the woods for them. I've seen this effect close to home, although not with wildlife. My dog loves blackberries and will eat them right off the canes. Thanks to her, we now have blackberries in far-flung patches around the house.





When these primrose flower petals fold up for the night, only the yellow tips of the primrose moth's wings will stick out, blending in perfectly.

A Moth "Settled in Quivering Contentment"

By Bryan Pfeiffer

Like most of you, I spend my summer leisure time contemplating the tongue of the primrose moth.

Okay, it's not exactly a tongue. Butterflies and moths have a straw-like proboscis that they coil like a watch spring and unfurl to suck nectar from flowers. The primrose moth's proboscis is about half the length of its body. That anatomy alone might be enough to generate interest in this insect. But now consider that the primrose moth is Pepto-Bismol pink with a lemony margin at the tips of its wings. In that pink presentation and probing proboscis, the primrose moth offers us a lesson in form, function, and evolution.

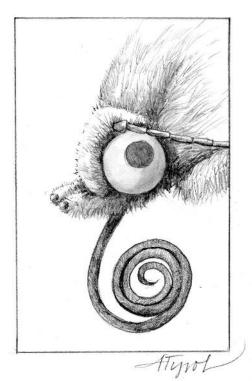
Primrose moths (Schinia florida) fly around searching for the evening primrose (Oenothera biennis), a common garden and roadside plant with a dangling, elegant yellow flower that opens at night and closes by day. A nighttime moth lingering in the flower until dawn gets an intimate embrace of petals.

Besides the hug, the moth gets nectar. I'm not actually sure what the plant gets out of this deal. The moth doesn't appear to pollinate evening primrose, according to botanists and scientific literature published on this particular encounter of insect and plant. In fact, the moth seems to get the best of this relationship. The female lays her eggs on the primrose, and when the caterpillars emerge they start munching the plant where it hurts the flower buds.

Although most of the action happens at night, alert flowerwatchers can witness, in broad daylight, this intimate meeting of moth and bloom. It ranks among the countless examples of the struggle for existence and the powerful, shared evolution of insects and plants. If, like the moths themselves at night, you make the rounds to primrose flowers by day, every so often you will find your pink grail, still buried in a blossom after a night of binge-nectaring. The moth is like a drunk passed out at the bar at dawn, only tougher to locate than a drunk. The shocking pink is often hidden in the yellow petal embrace, with only the wings' yellow trailing edges still visible. Those edges resemble the yellow edges of the primrose petals. The moth has evolved with camouflage so that it can sit and drink nectar, and linger by day, presumably unnoticed by predators.

One of my favorite naturalists, William Hamilton Gibson, says we can hardly know the evening primrose until we know its nighttime visitor. Gibson was an exuberant nineteenth-century writer and illustrator. In his 1892 book Sharp Eyes, a collection of essays and illustrations through the seasons, which you must own, Gibson revels in the moth and its blossom:

"Is this a mere withered, useless blossom that droops upon its stem? Is it not rather the prettiest luminous fairy tent that ever sheltered a day-dream? Last night, when its four green sepals burst from their cone, and sprang backward to release their



The primrose moth uses its long proboscis to reach into the tubular neck of the primrose flower and sip nectar. Illustration by Adelaide Tyrol.

bright, glossy petals, a small moth quickly caught the signal, and settled in quivering contentment, sipping at its throat. Its wings were of the purest rose-pink, bordered with yellow."

Gibson continues:

"In the color of its marking, we find an outward expression of its beautiful sympathy, the yellow margins of the wings which protrude from the flower being quite primrose-like, and the pink being reflected in the rosy hue which the wilting primrose petals so often assume, especially at the throat."

Did you catch that "beautiful sympathy?" First, the yellow match: wing tips and petal. But a wilted primrose flower turns pinkish. So a primrose moth merely sitting on the stem of the plant may resemble an old flower and still find safety in the color pink. Evolution by means of natural selection (or so we assume).

What we cannot see in this little drama is the moth's proboscis lapping nectar from the base of a primrose blossom. But we can imagine or deduce it. Take a close look at the flower. It has a long, slender tube with nectar, called the hypanthium, below the base of the petals. It's a long reach for a moth seeking nectar. No matter. In nature form follows function. The moth unfurls its built-in drinking straw for a sweet reward, much as we depend on our drinking straw for that last half-inch of a favorite milkshake.

So, this July, get your favorite milkshake or maple creamee to go—and enjoy it in the good company of the primrose and its illustrious visitor.



Meat Eating Trees?

By Kent P. McFarland

Plants are not often thought of as predators. They're the nice guys. With over 300,000 species known to exist, only a small fraction are known to be meat-eaters. In our northern bogs, for example, insects are trapped on the sticky hairs of sundew or drowned in the pitcher plant's water.

Research now suggests that at least one tree may owe its size to more than just sun, water, and good soils.

The eastern white pine is one of the tallest native tree species in our region. Give them a few hundred years in ideal floodplain habitat, with roots sunk deep into sandy and silty soils and protected by hillsides from winds and lightning, and they'll grow to over 200 feet tall with nearly 8-foot-diameter

It takes a lot of energy and nutrients for a tree to grow to such grandeur. One thing that might help the eastern white pine is its surprising relationship with a meat-eating fungus.

The bicolored deceiver (Laccaria bicolor) appears above ground as a small, tan mushroom with lilac-colored gills. It is found in most coniferous woodlands throughout temperate regions around the globe. The fungus has a symbiotic relationship with many trees, including the eastern white pine. It forms a mycorrhizal sheath, like roots of the fungus, around the small root tips of the tree. The fungus receives sugars from the tree's photosynthesis that takes place above ground, while it supplies the plant with essential nutrients and helps to increase water uptake by the tree roots from below ground.

Bicolored Deceiver (Laccaria bicolor)

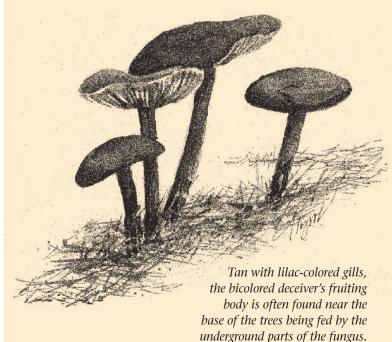
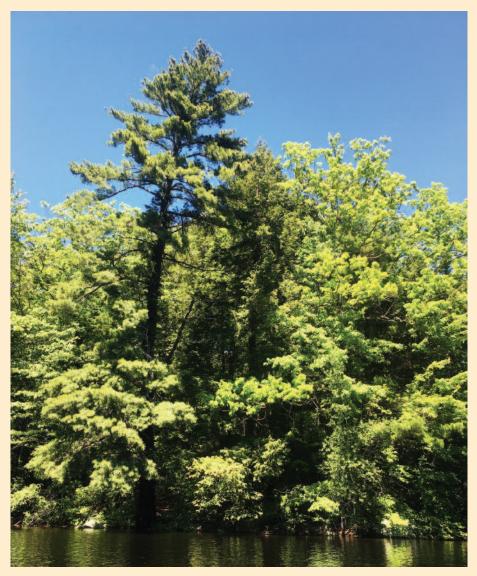


Illustration by Adelaide Tyrol.



Did tiny prey absorbed by tiny fungi help this eastern white pine at Pawtuckaway State Park grow so tall?

Such symbiotic relationships between trees and fungi are common. About 95 percent of plants get some nutrients from fungi, and fungi play a critical role in the food web. In particular, fungi (along with lightning strikes and soil bacteria) are critical for converting atmospheric nitrogen into reactive forms, such as nitrate and ammonia, which other living things can use for growth.

What makes the eastern white pine's relationship with the bicolored deceiver surprising is the way the tree benefits from the fungus' meat-eating habits. This discovery occurred by accident, during a study of tiny soil arthropods called springtails.

Many observers know springtails as snow fleas, the wingless insects often seen by the thousands jumping across the snow in late winter. They are incredibly small, but they can occur in huge numbers. Soil ecologists John Klironomos and Miranda Hart at the University of British Columbia wondered if springtails had an adverse effect on trees since they eat fungi that help to secure nutrients for many plants. They set up a simple experiment to feed the springtails a diet of fungi, including bicolored deceiver.

That's when their experiment took a strange turn. All of the springtails died when they were with bicolor deceiver. "It was as

shocking as putting a pizza in front of a person and having the pizza eat the person instead of vice versa," Klironomos told Science News.

To confirm their findings, Klironomos and Hart fed a few hundred springtails a diet of bicolor deceiver while others were fed a diet either devoid of the fungus altogether or with another fungi species. After two weeks, only five percent of the springtails that were with bicolor deceiver remained alive. In contrast, nearly all the springtails that ate other species of fungi or whose diet was devoid of fungi survived.

The fungus was killing the springtails and breaking them down with a special enzyme. The researchers believe that the fungus first

paralyzes the springtails with a toxin and then extends fine filaments into them to absorb nutrients.

So how does this make the eastern white pine tree a meateater? As a follow-up experiment, Klironomos and Hart fed a batch of springtails a diet with nitrogen that was tagged radioactively so they could follow it through the food web. The insects were added to containers of bicolor deceiver growing with white pine seedlings. After a few months they tested the seedlings and found that 25 percent of the nitrogen in the trees was radioactive, and thus had come directly from the springtails. It's as if white pine were fishermen using the fungus like a giant net to capture their prey.

Now, new research from scientists at Brock University in Ontario suggests that this adaptation may be shared by many plants. Green muscardine fungus, a soil-dwelling fungus found in many ecosystems, has long been known to infect insects. It has now been shown to associate with plant roots and transfer nitrogen from its insect prey to grass and even beans.

With webs of mycelia hunting tiny prey underground to help giants grow and capture the sun above, understanding who is eating whom just got a lot more complicated. Y



with a glorious picturesque landscape as a reward. I've heard about the views atop Mount Major—rolling mountains with lush greens and blues fading into the horizon. Lake Winnipesaukee gleams for miles. This is not what I see but can only imagine.

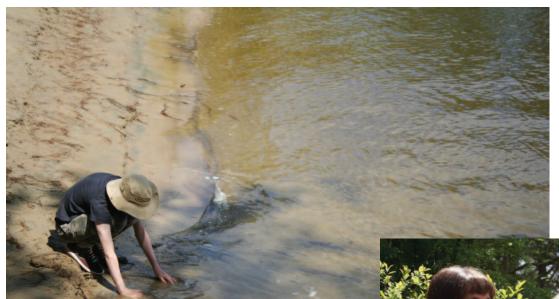
hiker Sophia Swanson feel the bark of a tree with Amy Nichols of the Forest Society at the Merrimack River Outdoor Education and Conservation Area in Concord.

My vision is somewhat like looking through a kaleidoscope with only constant swirling shades and shapes of whites, blacks, and grays. So, many people have asked me, why would I want to trip and stumble my way through the forest at all? If there's no vision (pun intended), why bother?

The simple answer is that the joy is in the journey. Let me take you on my version of a hike as a person who is blind at the Merrimack River Outdoor Education and Conservation Area (MROECA), aka "The Floodplain," in Concord. This was a shared guided sensory experience for youth with vision loss as a collaboration between Future In Sight, for which I serve as community relations coordinator, and the Forest Society.

As we stepped onto the trail, the first thing I noticed was the crunchy step onto fallen dry leaves, and earth mixed with stumps to avoid as my white cane now doubled as a sort of walking stick in one hand. My sighted guide walked at my other side. It grew dense with shadow the deeper we went into the woods, leaving the distant road noise behind us. This sense of quiet was very calming. Still, not knowing what we couldn't envision around us carried some anticipation.

Relying on our other senses, we often heard the light buzzing of the mosquitos, invisible to us, as we attempted to swat away at them in mid-air. It's all part of the package when journeying into the woods. Our main guide was excellent at finding tactile



Noah Adams enjoys the cool sand and water along the trail.

objects along the way. For example, you've probably seen plenty of sugar maple, pine, and oak trees, but have you ever hugged one to distinguish their different size trunks and distinctive bark?

A few of the trees had twisted, haunting types of trunks. They could never be used for logs, we learned, but were purposefully left among the silva, as a natural playground. In actuality an insect had once infested the area. Many trees had to be removed, but these seemed to fight back and make their own distorted statements.

We held pine cones and breathed in the sweet fragrance of honeysuckle. We compared the touch of the needles from a pine and its rich bucolic scent to that of the shorter softer needles of the spruce that can only be defined in my mind as the holidays.

While forests are vast in depth and height, in many ways they are also small to someone with vision loss, because we are looking inward at what is brought to us rather than looking outward at the natural environment. Both near and far, reachable and unreachable, existing as a unique dichotomy. This is unfathomable beauty found in the joy of the journey.

Just as suddenly as we stepped into the cover of shadow, we emerged into open field and direct sunlight. I felt a little like Laura Ingalls on the banks of Plum Creek; only here we were on the banks of the Merrimack River. At first, it was difficult to know we were near water, as the current was nearly nonexistent. Then a boat passed, sending its wake with ripples of water lapping the shore. Fish could be heard occasionally making a splash of things. A couple of the youth tossed pebbles into the river, eager to enjoy the plunking sound upon impact. Of course, these are not things to be seen, but nonetheless heard and taken in along with imagination. This experience is no less exhilarating than the visual one, as the joy is in the journey.

The author learns to identify spruce needles with Forest Society naturalist Dave Anderson.

Standing under the trembling aspen tree, we heard the lift of the gentle breezes, as the aspen leaves crinkled in the air current. We were shown how the early natives used the plant stem of the scouring rush to clean things. It must have taken a long time back then to do the dishes. It took enough time just to buff up one copper penny.

Story infused with sensory engagement filled our hike with a greater appreciation for the world around us. If beauty is in the eye of the beholder, then although I may be without physical sight, I am not lacking in vision. Next time you are on a hike, I hope you will find the same amazing joy of the journey. Y



Future In Sight has a long history here in New Hampshire, serving the needs of those with vision loss since 1912. Our unique and specialized services help those who are blind and visually impaired live safe, independent, and full, active lives. One might even say we help people along their journey. For more information, please check out our web site at www.futureinsight.org or call us at 603-224-4039.





Left: Chatting and learning along a floodplain trail at the Merrimack River Outdoor Education and Conservation Area in Concord.

Right: Enjoying a June hike at the Creek Farm Reservation in Portsmouth.

Go Take a (Guided) Hike!

or nearly 25 years, I've kept a memento **◄** from one of the first guided hikes I ever went on. It's a single hickory nut-about a third the size of and paler than a walnut in its shell—from a hike on a conserved forest near the Seacoast. Our guide stopped at a tall tree with brown bark that looked like it was peeling off in long, vertical strips.

"That's why it's called a shagbark hickory," she explained, before telling us about the edible nuts at our feet.

This was a brand new tree for me, and it was a revelation that I could actually collect, shell and eat hickory nuts—if I ever got to them before the squirrels! I remember the delight of knowing that I would always be able to identify this shaggy tree when I saw it in the woods. The nut that I stuck in my pocket that day now sits on the windowsill in my office, a tiny celebration of learning about the natural world.

In 2016, the Forest Society greatly expanded its offerings of guided hikes in order to engage more people in conservation.

"We wanted to reach out to serve our members and to engage new audiences who may not know much about conservation yet but are interested in the outdoors. What better way to engage them than to invite them to explore some of the 185 forest reservations we own and manage around the state?" said Dave Anderson, the Forest Society's director of education.

The Forest Society partnered with WMUR to promote the popular first round of "Five Easy Hikes in Five Weeks," which drew more than 150 hikers, many of them new to the Forest Society. The first series was so well received that we again partnered with WMUR and also the nonprofit Stay Work Play New Hampshire, to expand the series to offer three more rounds, one last winter and spring, one this summer and one this fall.

We invite you to come out for one, several or all of the fall hikes coming up. Each hike will be guided by Forest Society staff members and volunteers who have spent untold hours getting to know these properties and all they have to offer. The fall series will focus on-what else?-colorful foliage.

You could explore these special places on your own, but if you come on a guided hike with us, who knows what might end up on your windowsill for the next 25 years?

> - Brenda Charpentier, Forest Notes editor

The hikes are free, but pre-registration for each one is required by visiting forestsociety. org/events. Trip sheets with directions will be emailed to you. Call us at 224-9945 for more information. Here's a brief look at the five fall hikes and their destinations.

See www.forestsociety.org for more upcoming events

Five (Easy) Hikes in Five Weeks—Fall Foliage Series

SUNDAY, SEPT. 24, 10 a.m. to 1 p.m.

Rocks Estate/Welcome to Fall Foliage Season

Bethlehem

Catch the early fall color up north! The historic and scenic Rocks Estate in Bethlehem offers long views of the Presidential Range and sprawling fields of cultivated Christmas trees. The Rocks trail system includes an interpretive trailside museum with displays depicting the history of The Rocks.

THURSDAY, OCT. 5, 4:30 p.m. to 7:30 p.m. Hay Reservation/Sunset Hill Full Moon Hike

Newbury

Shine-on Harvest Moon! The full moon arrives early on October 5. This hike from The Fells and adjacent John Hay National Wildlife Refuge will reach the summit of Sunset Hill on the Forest Society's Hay Forest Reservation. Beech, birch and maples will provide color commentary. Sunset time is 6:20 p.m. We will hike down in dusk. Bring a snack for a summit picnic supper.

SATURDAY, OCT. 14, noon to 4 p.m. Morse Preserve/Colors of Pine Mountain

Alton

Following Columbus Day weekend, fall foliage remains spectacular with generally smaller crowds and less traffic. The Forest Society

Morse Preserve on Pine Mountain in Alton is a hidden Lakes Region gem with spectacular views of Lake Winnipesaukee and 12 prominent peaks of the Belknap Range.

WEDNESDAY, OCT. 18, 10 a.m. to 1 p.m.

Mount Monadnock/Parker Trail to Little Mountain

Iaffrey

The famed "path less traveled" at Mount Monadnock is often one that does not lead to the summit. The Parker Trail and adjacent Lost Farm Trail on the lower portions of Mount Monadnock traverse from the state park headquarters to a hidden lower lookout point called "Little Mountain" near the Old Toll Road. Little Mountain offers views of Monadnock's summit overhead and the surrounding hills of Southwest New Hampshire.

SUNDAY, OCT. 29, noon to 3 p.m. Madame Sherri Forest/Haunted History

Chesterfield

Join this end-of-foliage season and pre-Halloween walk to revisit the legacy of Chesterfield's most colorful former resident: Madame Sherri. The Forest Society's 513-acre Madame Sherri Forest includes the stone ruins of her former chateau known as "Madame Sherri's castle." The forest includes portions of the Ann Stokes Loop Trail leading to beautiful Indian Pond beneath the ledges of Mt. Wantastiquet in Chesterfield.



Register for the Forest Society's 2017 Annual Meeting Saturday, September 16 at Claremont Savings Bank Community Center





Please join us for field trips, an excellent dinner and presentation at the Claremont Community Center. Field trips start at various times at nearby locations. All field trips will end around 3:30 p.m. Participants should plan to arrive at the community center before 4:30 p.m.

KEYNOTE SPEAKER:

Sharon Francis

throughout the country.

Sharon Francis of Charlestown has worked effectively on behalf of land conservation at the national, regional and state levels for more than five decades.

Her career began as a ghost writer for Secretary of the Interior Stewart Udall in the 1960s and brought her to the White House to work for President Lyndon Johnson on projects authorizing new national parks, protecting wilderness areas and keeping a proposed dam from being built in the Grand Canyon. She also helped Lady

Bird Johnson to encourage beautification in cities and along highways

She later led the New Hampshire-Ohio Acid Rain Partnership, and during the Carter administration became the director of public participation at the U.S. Environmental Protection Agency. From 1990 to 2010, Francis served as executive director of the Connecticut River Joint Commissions, fostering cooperation between Vermont and New Hampshire.

In 1990, she received the Teddy Roosevelt Conservation Award from President George H. W. Bush, and in 2004, was selected for EPA's Lifetime Achievement Award. Francis is a past member of the Forest Society's Board of Trustees and currently serves on the Policy Committee.

Field trip options below — see back cover for registration details

1. Cornish Town Forest 12:30 p.m. to 3:30 p.m.

This hike, co-sponsored by the Cornish Conservation Commission, will visit a "rich mesic forest" natural community and a scenic vista of Mount Ascutney overlooking the Connecticut River. The property was acquired by the Forest Society as part of the larger Olsen Estate tracts in the late 1990s and sold to the Town of Cornish with deed restrictions. This is a scenic loop hike of approximately three miles through Cornish Town Forest, a successful example of multi-use management including preservation of rare plants, forestry, hunting, mountain biking, hiking, primitive camping and limited motorized recreation. Difficulty: This hike is entirely on maintained trails but includes some steep terrain.

2. Andrew Brook Trail to Lake Solitude 11 a.m to 3:30 p.m.

This is a classic hike on the southeastern slope of Mount Sunapee along the Andrew Brook Trail to a high elevation "tarn," Lake Solitude. Lake Solitude and Mount Sunapee's north face were protected by the Forest Society beginning in 1912. The hiking trail passes through the Forest Society's 112-acre Andrew Brook Forest in Newbury, which was protected in two stages in 2010 and 2016 with tremendous fundraising efforts in the local community. Round trip distance for the trail is 3.7 miles over moderately strenuous terrain with some steep and rocky sections. Elevation gain is approximately 1,400 feet. Enjoy the peaceful shore of Lake Solitude with early fall color, or ascend to White Ledges, with fantastic views of the lake below. Bring a bag lunch and plenty of water and wear sturdy hiking shoes.

3. The Cornish Arts Colony 12:30 p.m. to 3:30 p.m.

This tour includes the conserved landscapes and historic architecture of a once-thriving arts colony established in Cornish overlooking the Connecticut River Valley. The Grace Bulkeley conservation easement property protects 773 acres of scenic forestland surrounding a historic private family estate located adjacent to Saint-Gaudens National Historic Site in Cornish. The tour will also visit Saint-Gaudens, the historic home, studios and gardens of Augustus Saint-Gaudens, one of America's greatest sculptors. There will be an opportunity to view more than 100 of the sculptor's works in galleries and on the grounds. Easy walking. Driving required between sites.

4. Forestry Tour at Silver Mountain on the Ashuelot River Headwaters 12:30 p.m. to 3:30 p.m.

A sustainable timber harvesting tour to learn from licensed N.H. foresters about the Forest Society's long-term forestry objectives, sustainability practices and timber harvesting on conservation land. The sprawling 1,826-acre Ashuelot River Headwaters is a large, contiguous block of working forest landscape. Recent and ongoing forest management operations are taking place as both weather conditions and wood markets permit. This tour will detail forestry, timber harvesting and the roles that weather and markets play. The tour includes approximately one mile of hiking on uneven ground along timber harvest roads and skid trails. Driving may be required between sites.



>>> Please reserve your spot early; we expect registrations to fill up fast. See back cover for registration options.

The Forest Society thanks the following businesses for their generous support.

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And many thanks to those businesses who give less than \$250.

The Forest Society...Where Conservation and Business Meet

For information on business memberships, please contact Susanne Kibler-Hacker at (603) 224-9945 or via email at skh@forestsociety.org.



Clockwise from top, left: Dave Dupuis, livestock manager at Meadowstone Farm in Bethlehem, tells the kids about taking good care of goats. Students then got a chance to milk the 5-year-old female goat Dupuis brought to the Rocks; Fourth graders get a good look at the brook trout brought by N.H. Fish and Game biologists who taught them about hatchery raised fish; Honey bees were a big hit with the students; Kids check out items made from wood during a presentation by Grafton County Forester Jim Frohn and Coos County Forester Brendan Prusik.

Outdoor Learning is Memorable Learning

Forest Society hosts a 'School to Farm Day'

By Brenda Charpentier

olding up a green maple leaf, Coos County Forester Brendan Prusik told a group of fourth graders that leaves are amazing machines that manufacture the oxygen we breathe, then he followed up with a stumper:

"Where does the energy come from that enables leaves to make oxygen?"

"Water," said one fourth grader.

"Air," said another.

"Roots," said one more, followed by more guesses of "gas," then "oil."

"It starts with an S," Prusik hinted.

"Soap!" a boy said, excitedly.

"Soap?" asked Prusik, sounding alarmed. Finally, a tall boy named Travis saved

the day when he said, "the sun."

Standing in the sun at a working farm

while learning about leaves, trees and the wood products that come from the forest very likely will help the kids remember this important concept. That idea is the crux of School to Farm Days, field trips coordinated by the N.H. Agriculture in the Classroom and held at farms around the state.

The Rocks Estate, the Forest Society's

Christmas tree and maple sugar farm in Bethlehem, hosted a School to Farm Day in late May. Students—135 mainly fourth graders from Grafton County schoolsspent the day rotating around agriculturerelated displays manned by volunteers and professionals tasked with showing kids where our food and farm products come from. The kids could milk a goat, examine wood items, see a hatchery-raised brook trout up close, and watch honeybees, among other activities. Forest Society volunteers and staff taught about growing Christmas trees, tapping maple trees and conserving forests and farmland.

"The vast majority of students-and even many parents and teachers—are really removed from where their food comes from, and this is an effort to reconnect them," said Debi Cox, the state coordinator of N.H. Agriculture in the Classroom, a nonprofit educational organization begun in 1991 as part of the national Agriculture in the Classroom network.

Food and wood products fall into the same category in the minds of kids and adults who don't live in rural areas. These items seem to appear miraculously in stores, ready made. The School to Farm Day lets kids hear from people raising the bees that produce honey, feeding the cows that produce milk or caring for the forests that produce lumber and furniture.

The experience is meant to have a lasting impression, Cox said, by introducing kids to careers in agriculture that they may not have known existed.

This year's event was sponsored by the Grafton County Conservation District, so the schools didn't have to pay the \$3 per student cost. Many of the schools used parent volunteers as carpool drivers and

did not have to incur busing charges, making the field trip a freebie. The low or no cost makes it more likely schools will take part, since district budgets typically only allow a couple of field trips per year.

Nigel Manley, the Rocks' manager, said he was thrilled to host the event as an extension of other activities meant to give kids first-hand experiences at the farm, such as visiting to learn about vegetable gardening, making maple syrup and pruning Christmas trees.

"When kids are here and they see a tractor go by, they get really excited to be at a real working farm," he said. "School to Farm Day brings a lot of different agriculture professionals and volunteers all together in one place, and when that place is a farm, the kids start to understand what agriculture is all about." \mathbb{Y}

VOLUNTEER SPOTLIGHT

Anyone Else Got a Dad to Lend?

If he's anything like Dave Heuss, we'll take him

By Carrie Deegan

olunteers follow many different paths to arrive at the Forest Society. For land steward Dave Heuss, it was his daughter Molly who urged himokay, more like pushed him—out the door to volunteer for us. Molly Heuss, a former outreach coordinator for the N.H. Dept. of Resources and Economic Development, saw that her dad was running out of house projects a few years into his retirement and knew the Forest Society's Land Steward Program would be a good fit for his interests and energy. He was, after all, a 33year member of the Forest Society.

Dave took the land steward training in the spring of 2016 and adopted the Woodman Forest in Boscawen. He visits regularly to walk the property and clean up trash along the road frontage, but it's a quiet place without any concentrated recreational use.

"I've discovered some beautiful places on the property," Dave says, describing peaceful wetland areas and ledgy spots with nice views that he almost always has to himself. "It's been fun having a bit of land that's mine—even though it isn't, really."

Dave's volunteer contribution has not been limited to his hours monitoring the Woodman Forest. Not even close. Since he became a land steward, Dave has been at just about every group workday we've scheduled, and even some that weren't

Volunteer Spotlight continued on page 19.



Dave Heuss clears brush for a view cut.





Left: Milan Village Elementary School students armed with loppers clear a trail at the Milan Community Forest.

Right: The Oak Hill area as seen from the Milan Hill fire tower. Most of the land in the middle of the photo is now conserved as part of the Milan Community Forest.

Forest Feat

They started from scratch and ended with an income-making community resource

By Brenda Charpentier

ow do you measure the success of a grassroots effort to create a 1,393-acre town forest? Sure, signed closing documents are wonderful. The satisfaction of knowing the land will stay

open and provide income from timber management is great. But George Pozzuto, chair of the Milan Community Forest Committee, also measures it by the enthusiasm of the fifth grade kids who are already building a trail on the part of Milan's first town forest that's close to their school.

"It's impressive to see the amount of work those fifth graders can do in a day!" Pozzuto said.

The same could be said for Pozzuto's committee of Milan community members, although you'd have to replace "in a day" with "in five years." Acquiring seven parcels totaling 1,393 acres and conserving them through Forest Society-held easements was no small feat for a town that had never had a town forest. They truly began at the beginning.

"We had never done it, and we knew nothing about it. That was our first hurdle," Pozzuto said.

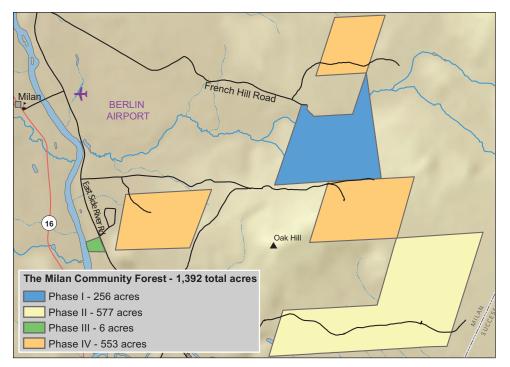
Despite the learning curve, they established the forest with 265 acres in 2016 and this spring closed on more parcels, which expanded the forest to 1,393 acres. The last parcel to be added was 6.6 acres along the Androscoggin River, so now the town's swath of protected land stretches from the river bank up to the town's scenic ridges.

Creating a town forest big enough to provide diverse habitat for wildlife corridors out of nothing but an idea required many partnerships. The committee's first big success was getting guidance from the Northern Forest Center and getting a

start-up grant from the Open Space Institute to create a colorful brochure and mail it to every voter in town. The next was a "Yes!" town meeting vote that approved a capital reserve fund and authorized the selectmen to acquire land.

Support was based on two realities: the town's financial footing and a strong citizen desire for open space. Committee members presented to voters a financial picture for the next 50 years that showed that owning land and managing it for timber production created a reliable revenue stream that was stronger than relying on taxes from privately owned land, much of which was in Current Use.

"The second concern was open space. As the larger land holdings get fragmented and more often than not get bought by people with no ties to the North Country, the people who enjoy hunting and fishing and being out in the woods are seeing



more "no trespassing" signs go up, so there was that concern that they wouldn't be able to use the land," Pozzuto said.

Once the voters said "GO!" the scramble began to buy land, conserve land already owned by the town and find the money required to make it all happen, with the goal of not raising taxes to acquire land. The committee tapped into the expertise of the Trust for Public Land, which helped to obtain private and public grants from the U.S. Forest Service Community Forest Program, The N.H. Land and Community Heritage Investment Program (LCHIP), The Open Space Institute, The Neil and Louise Tillotson Fund of the N.H. Charitable Foundation, and the N.H. Dept. of Environmental Services. Generous landowners also accepted discounted prices for their land.

The Forest Society's role is to hold the conservation easements on the land, easements written to ensure that the forest is managed to the highest standards of sustainability.

"The Milan Community Forest properties are an asset rich with recreational opportunities, forest resources and wildlife habitat. But, what really makes this project significant is the initiative of Milan to seek out and reserve a community forest that will serve the community for generations to come," said Ryan Young, the Forest Society's strategic projects manager who coordinated the easements.

The fifth-grade project to build trails emphasizes how the community forest provides a connection to the land so the town's kids can develop the same appreciation for the natural world that inspired their elders.

"One of the things that has become more noticeable and ingrained in the community (because of the conservation project) is the relationship between our village school and outdoor education," Pozzuto said.

With the successful conservation of 1,393 acres behind them, the committee is not about to stop now.

"Our vision is to create an ecologically resilient corridor that goes west to east thrugh town and connecs the White Mountain National Forest to the Mahoosuc Gateway... and evnturally, with the help of other conservation efforts, reaches to Moosehead Lake in Maine," Pozzuto said. "We're just getting started!" \"

Volunteer Spotlight continued from page 17.

scheduled except for a panicked call looking for last-minute volunteers. You might find him building new waterbars at Monadnock Trails Week, planing lumber for new property signs at our annual sign workshop, demolishing old cabins on newly conserved land, burning brush piles in winter, or slinging trash bags into the Forest Society truck during a clean-up day.

"Dave is up for anything," says Land Steward Coordinator Jenn Seredejko, "and he's always cheerful about it, no matter how difficult or disgusting."

One of the things Dave has developed a reputation for is troubleshooting.

"He's always fixing some tool or suggesting a better way to do something that saves us time and effort," says Jenn. "I appreciate that so much."

Dave is among the small group of volunteers helping guide Kearsarge Regional High School (KRHS) students in completing projects for our Mount Kearsarge Outdoor Classroom initiative on the Black Mountain Forest Reservation in Sutton. Most of the students involved are on a vocational track at KRHS and don't necessarily thrive in traditional classroom settings.

"These kids just learn differently," says Dave. "When I was in school in the 50s and 60s, there was only one way of teaching and one way you had to learn. As a hands-on learner myself, that was a challenge, and I didn't always do well," he explains. "So, I'm pretty sympathetic to what it's like for these kids."

Dave enjoys woodworking in winter and raises a big vegetable garden in the warmer months. He admits he may have passed on his penchant for hands-on work to his three grown daughters, who have careers in metalsmithing, marine biology and forestry. And to the one in forestry, Molly, we'd like to extend a special message: Thanks for sending us your dad. Y

Carrie Deegan is the community engagement and volunteers manager at the Forest Society.

The Route of the Northern Pass Problem

SEC hearings grind on, experts questioned at every turn, more delays

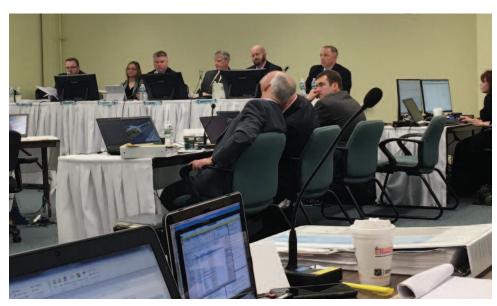
By Jack Savage

Since April of this year, the state Site Evaluation Committee tasked with considering the 26,000-page application submitted by Eversource for a proposed 192-mile transmission line through the heart of New Hampshire, has been holding adjudicatory hearings as part of its decision-making process. Eversource executives and experts hired by Northern Pass Transmission have been on the stand facing cross-examination by the Counsel for the Public and dozens of intervenors in the process, including the Forest Society.

Like every other aspect of Northern Pass, which was announced to the public way back in 2010, the SEC process is proving to be lengthy. After two months of hearings, the SEC found itself scheduling additional trial days later in the summer, approaching the Sept. 30, 2017 date on which the committee hoped to issue a decision. Many involved believe that deadline to be unrealistic.

The delay is meaningful because Hydro-Quebec, the province-owned utility that would pay Eversource to build Northern Pass, wants a guaranteed contract for at least some of the power that would be delivered. Having lost out on a three-state RFP last fall, HQ and Eversource have targeted the so-called Massachusetts Clean Energy RFP that has a late July 2017 deadline for bids.

But Northern Pass isn't the only bidder, and competitive projects like the New England Clean Power Link (underground and underwater in Vermont, with permits in hand) and newcomer Granite State Power Link (from National Grid) are preparing bids into the Mass RFP as well. Northern Pass, an already more expensive proposal, won't be in a position to guarantee a delivery date by the time it submits its bid.



As Northern Pass attorneys confer in the foreground, the Construction Panel fields questions from intervenors as part of the adjudicatory hearings at the SEC.

What the Process Reveals

But delays in the SEC process may be the least of Northern Pass's worries. The adjudicatory hearings so far have consisted of one intervenor after another—as well as the Counsel for the Public—questioning the qualifications and independence of the various experts hired by Northern Pass to provide analyses of the various impacts of the project were it ever to be permitted and built. Every assumption by Northern Pass has been challenged, from the fundamentals of energy pricing to the extent of the adverse impacts to the number of jobs the project would generate.

Which, by way of example, is less than touted: It turns out a 'job' is defined as a person working for one year, so a person working for three years on constructing Northern Pass is reported as three 'jobs' by Northern Pass. And when it comes to projecting 'induced jobs', a large percent-

age of those would be outside of New Hampshire.

Many of the adverse impacts of the project are a result of the route that Northern Pass has chosen to propose. The northern portion of the line, where new right of way would need to be created, crosses the international boundary in Pittsburg and then heads east before dropping south, then doubles back west. A more direct route, with arguably far fewer adverse impacts, would be underground along Route 3 north to south.

And while Northern Pass executives are proposing to underground 52 miles through the White Mountains, they refused to consider using I-93, instead following a serpentine route of two-lane state roads. In Concord, they are proposing to go overhead as high as 160 feet in close proximity to neighborhoods like McKenna's Purchase.

The Forest Society has advocated full burial of the transmission line along appropriate transportation corridors if it is to be built. One alternative, analyzed by the U.S. Dept. of Energy, would accomplish that by putting the DC-to-AC conversion station in Deerfield instead of Franklin, where Eversource has proposed.

Key Questions

So far, there remain key questions for the SEC subcommittee to sort out:

- To what extent are the adverse impacts visual, environmental, economic, from construction—unreasonable?
- To what extent would the project provide any public benefit-energy price reductions or positive economic impact—to New Hampshire?

To many observers, it would appear at this point in the process that Northern Pass has worked to systematically underestimate the adverse impacts and overstate the benefits. It's also the case that any energy and economic benefits that might accrue from Northern Pass would result from either of the other competing transmission proposals.

Intervenors such as the Forest Society and Appalachian Mountain Club, among others, have submitted their own testimony and in some cases presented reports from experts we've hired. (The Forest Society, for example, commissioned a report on the aesthetic impacts of the proposed project.) Northern Pass attorneys will have an opportunity to cross examine intervenors as part of the process later this summer.

The Deadline Looms

Because of the enormity of the proposed project, the resulting size of the application, and the large number of intervenors, the adjudicatory hearings have taken longer than projected. In June, more hearing dates were being contemplated extending into August and September.

Consequently, the likelihood of the SEC reaching a fully-reasoned decision by the Sept. 30, 2017 deadline it set for itself seems increasingly remote. Further delays would seem to put Northern Pass at a disadvantage compared to its competitors. After hearing testimony from the construction panel, many observers believe Eversources' two-year construction timeframe to be irrationally optimistic.

In short, reaching the end of New Hampshire's Northern Pass saga will take longer than anyone thought. And at this point, the outcome is not at all clear. Y

Jack Savage is vice president of Communications and Outreach at the Forest Society.

FOREST SOCIETY 2017 PHOTO CONTEST CALL FOR ENTRIES

Enter your best shots taken on a Forest Society reservation or easement land for a chance to have your photo published in an upcoming issue of Forest Notes, and win free passes to Lost River Gorge and Boulder Caves or a Forest Society hat.

The top three winners will be chosen in these categories:

Lovely Landscapes — your best shot highlighting the forest, fields, waters and mountains you find on our conserved properties.

Having Fun Outdoors — people enjoying our conserved land.

Dog Heaven — dogs having their day on our conserved land.

Flora & Fauna — wildlife, plants or other beautiful natural resources you encounter on our conserved lands.

Young Shutterbugs — photos of any subject taken on our conserved lands by anyone under age 18.

Welcoming submissions now through Aug. 15.



Lost River Gorge and Boulder Caves, North Woodstock.



Top photo by Jerry and Marcy Monkman, EcoPhotography. Left photo by Eliza Cowie. Middle photo by Kirsten Durzy. Right photo by Bart Hunter.

Go to forestsociety.org/photocontest for rules and how to enter





With the popularity of ATV riding in the North Country comes the need for comprehensive planning to decide where trails should or should not be located.

Keep the Wheels Turning for a Trails Master Plan in the North Country

By Will Abbott

If you are a frequent traveler on Interstate 93 during the winter, you have observed the success of snowmobiling in New Hampshire, evidenced by the abundance of trailers hauling snow machines north. North of the Notches, and particularly Pittsburg, is snowmobile Mecca.

Over the past five years, other kinds of motorized vehicles have been seen with growing frequency on trailers heading north on I-93—the All Terrain Vehicle (ATV) and the Ultra Terrain Vehicle (UTV). As the climate warms, the North Country seeks a new kind of recreationist, riding a vehicle designed for use in all four seasons. And as the median age of New Englanders gets older, these increasingly more powerful machines provide a way for people with mobility challenges to continue to enjoy the outdoors.

Enjoyment, of course, is subjective.

If you live in a quiet neighborhood where the State happens to own land it decides to use as a trailhead for ATV trail access, and your town has allowed ATVs to use local roads, your neighborhood could lose its tranquility from dawn to dusk.

If you regularly drive on a busy town or state road where ATVs now share the road, with kids as young as 12 riding the ATV, driving your car can become an unnerving experience.

If your home is close to a town road now used by ATVs as well as cars, the noise and dust that come with increased ATV use can be unsettling on a daily basis.

If you own land over which ATV trails designed for modest use all of a sudden host 300 machines a day on a busy weekend, such use can change your land in ways that significant snowmobile use does not.

If you recreate on trails in areas that cannot successfully be integrated with motorized use, your use of trails can be crowded out by motorized uses. Nonmotorized recreation is a vital part of the Coos County recreation economy.

Some Coos County leaders appear to be banking on the ATV/UTV market to rejuvenate a rural economy that has been devastated by the decline of the paper industry. Fifteen years ago the State bought a 7,500-acre piece of land in Berlin fronting on Route 110 to create a new state park for ATVs—Jericho State Park. Many thought this would provide an opportunity to build a destination for ATVers that would help grow the local economy. By most measures, Jericho has met or exceeded its original goals.

Nine local ATV clubs in Coos County organized an effort to build on what Jericho started, creating a network of longer distance ATV trails to link clusters of local club trails. Called "Ride the Wilds," this growing network of trails interconnects communities and trails county wide.

What's missing is a clear guide for the successful development of the ATV industry in Coos County. One guide could be a master plan creating a clear picture of the future for these trails, a plan informed by all stakeholders with an interest in decision-making about the establishment of ATV trails. The good news is that the North Country Council (the regional planning commission for New Hampshire's northern three counties) is initiating an effort to gather all stakeholders in Coos County to talk about the value of a master plan for all recreational trails in the county. This is a good first step for landowners, for communities, for local and state law enforcement, for non-motorized recreationists and for the ATV clubs and ATV trail riders. The Forest Society intends to actively engage and support this effort to build a future for all recreational trails in Coos County, including a sustainable network of ATV trails that works for all. \mathbb{Y}

Will Abbott is vice president of Policy/Reservation Stewardship at the Forest Society.

We Need a Strong Biomass Market to Support Intact N.H. Forests

By Matt Leahy

Although most people are probably most familiar with the Forest Society's work to protect the state's most important landscapes, our mission statement also places an equal commitment to promoting the wise use of New Hampshire's renewable natural resources. On all the 55,000 acres of land we own, our foresters have developed plans which detail how we will manage those reservations based on their timber, wildlife habitat, water quality, natural communities, recreation values and their unique natural and cultural features.

It can be surprising for some to learn that these management plans can include timber harvests. In fact, we host an average of five to nine timber harvesting operations each year, covering about 650 acres. How, they probably wonder, can an organization that, by its very name, stands for the protection of forests allow the cutting down of trees? Our timber harvests are aimed at improving the health and diversity of the forests as well as the creation of wildlife habitats, the preservation of plant biodiversity and the promotion of recreational opportunities. In other words, a sustainable timber operation actually results in the protection of New Hampshire's forests.

The challenge for landowners who manage their woodlands with this longterm vision is how to accomplish that goal while minimizing the costs that come with it. Given that 75 percent of New Hampshire's forests are privately owned by families, individuals, corporations and conservation organizations like ours, and given the economic and environmental benefits the forests provide, supporting the forest owners should be a priority of policy makers.

Fortunately, we have seen such efforts at the state level. One important example of how New Hampshire already is encouraging and incentivizing these groups to maintain the lands they own as working forests is the Renewable Portfolio Stan-



A market for low-grade wood, which often gets chipped and used for biomass, supports sound forest management by private landowners, who own 75 percent of the forestlands in New Hampshire.

dards (RPS). Under New Hampshire's RPS program, each supplier of electricity in New Hampshire must obtain about 25 percent of their electricity from renewable energy resources by the year 2025. One of the renewable energy sources specified in the law is biomass.

The state has six independent biomass energy plants that use low-grade timber (trees unsuitable for lumber). Having a market for this timber is an incentive to maintain these working forests while improving the overall forest health. Without such encouragement, a landowner could be incentivized to cut only the trees best suited for lumber mills, leaving behind genetically inferior timber stands. Or, a landowner may leave the forests entirely unmanaged. Perhaps even worse, an owner would have to simply sell off the woodland for development. Any of those scenarios will harm New Hampshire's forests and by extension the quality of life here.

During the 2017 Legislative session, lawmakers debated a bill, SB 129, that sought to increase the value of the payments biomass plant operators receive from the utilities to generate renewable energy. The Forest Society actively supported SB 129 because we believe a policy that provides incentives for landowners to care for and maintain their lands will provide both an economic return and help ensure the biological richness of the state. That is an outcome we all should be able to support.

So, while it may seem counter-intuitive that actively managing our woodlands by harvesting timber is a good thing, creating incentives for landowners to do that in a sustainable way will ensure that our forests continue to play a central role in the overall quality of life that makes New Hampshire so unique.

Matt Leahy is a Public Policy Manager at the Forest Society.

How to Be a Picture Poster

Crowdsourced photos will show how forests grow back and change

By Carrie Deegan

hen Forest Society staff members receive questions from the public about a recent timber harvest on our reservations, which we often do, we're always happy to explain. But sometimes people's eyes start to glaze over when we start talking about "even aged management" or "early successional forests," and we really wish we could hop in a time machine and just show them what the area will look like in three, five, 10, 15 or 20 years' time. That's why we've started a new crowdsourcing initiative to help us with outreach and interpretation of harvests. It's called Picture Post, and it's based on the old saying, "a picture is worth a thousand words."

You're probably now wondering what on earth a "Picture Post" is. Well, it is a literal post where you take pictures, but not dramatic selfies or group shots. These posts are strategically located to allow the public to help us document environmental change in an area. Every Picture Post has an octagonal top where you can line your camera or smartphone up against each of the sides and take 360 degrees of images. The photos can then be uploaded to the Picture Post website (www.picturepost.unh.edu), run by the University of New Hampshire, where all images are made available for anyone to view and/or download.

Our new Picture Post project is being funded by a generous grant from the Getz Charitable Trust, Citizens Bank NA, Trustee. So far, we've installed posts at the Merrimack River Outdoor Education and Conservation Area in Concord, Monson Center in Milford, the Weeks Woods in Gilford and the Crider Forest in Stoddard.

Picture Posts are a great way to crowdsource documentation of recreational use changes, shoreline erosion, beaver activity,



This picture post at the Crider Forest in Stoddard is located on the site of a recent timber harvest, for which the goal is to regenerate white pine. Images collected from this picture post will show stages of regrowth over the years.



This set of picture post images shows seasonal changes over one year at the Merrimack River Outdoor Education and Conservation Area in Concord, where the Forest Society is documenting the effects of an Emerald Ash Borer infestation.

fluctuating lake levels or crop growth, to name just a few applications. But as a forestry organization, most of our Picture Posts will be tied to the Forest Society's interest in forest management and health. We have already installed Picture Posts on several reservations where we have recently conducted timber harvests, and these posts will help us create a visual record of changes in these places. They will eventually form a catalogue of images spanning months and years and even decades after the initial management action, which will help others visualize what we're trying to achieve on new harvests.

We have also installed several Picture Posts in areas of forest where we have known infestations of exotic invasive forest pests, such as the Emerald Ash Borer (EAB) in Concord or Hemlock Wooly Adelgid (HWA) at Monson Village in Milford. In these areas, we expect that infected trees will decline and eventually die, leaving a void in the forest ecosystem that will be filled by alternate species. Change in forest composition generally takes many decades, but in these cases the timeframe should be dramatically shortened. The Picture Posts will help us document how quickly the invasive pests are killing target trees, giving us a better idea of what

future forests in New Hampshire might look like as the pests spread.

We are very excited about the Picture Post initiative on Forest Society reservations, but they only work as long as volunteers from the public are willing to take photo sets over time. We hope you will get out there and find them! For a list of Forest Reservations with Picture Posts, please visit our website. In the future, if you call and ask about a large patch cut we've recently made on a forest, we hope to have a series of effective images to help explain what the young forest we're growing will look like in just a few years, and why it will benefit wildlife and overall ecosystem health. Y





Left: The forested banks along the stream in Warner keep the water temperature from rising too high for brook trout.

Right: N.H. Fish and Game biologist Ben Nugent uses electro-shocking equipment strapped to his back to stun fish temporarily so they can be counted, assisted by Steve Junkin, a field forester with the Forest Society.

Summer Survival in a Cold Mountain Brook

Protected, well managed forests sustain eastern brook trout

By Dave Anderson

t the western toe-slope of Mt. Kearsarge, within earshot of Interstate 89, a no-name brook tumbles through the Forest Society's Black Mountain Forest Reservation. Feeding into Stevens Brook near Kearsarge Regional High School, this small stream contains a high density of small but colorful native brook trout. Stevens Brook drains south to the Warner River which, in turn, drains to the Contoocook River.

Also on the Black Mountain Forest Reservation, pristine Mountain Brook drains to Cascade Brook which drains north, east and south via the Blackwater River through Andover, Salisbury and Webster.

These watersheds are heavily forested, from steep spruce or hemlock-clad mountain slopes to red maple wetlands of the valley floodplains. Mountain Brook is hemmed by steep-walled ravines. The dark forest canopy includes shade-tolerant red spruce, hemlock, beech and yellow birch. Idyllic cascades and deeper pools surround moss- and fern-covered granite boulders where tiny, bejeweled native brook trout dart beneath banks to avoid approaching danger. Mink tracks are etched in the silt at the water's edge. Few anglers venture deep and steep to pursue the tiny trout.

In the cold, upper reaches of these mountain brooks, it's the dense forest cover that moderates seasonal water temperature fluctuations. Populations of brook trout found in the smallest brooks are imperiled downstream by the warmer water of flat terrain and by land use changes that increase siltation along the lower reaches of the Warner, Blackwater and Contoocook Rivers.

New Hampshire Fish and Game fisheries biologists have been working with volunteers from the Basil Woods Chapter of Trout Unlimited on an assessment of

this high quality brook trout habitat in the Warner River watershed. Biologists sampled tributary streams using electrofishing to determine where brook trout are most numerous. Electro-fishing sends a current of electricity produced by a portable backpack-mounted battery into pools to temporarily stun fish. Fish float to the surface, where they are scooped up with nets and released unharmed.

Summertime is the most difficult season for cold water fish. Small brooks are "flashy," prone to flooding with heavy rain but also "droughty," prone to dryingup entirely during prolonged drought. As brooks dry up, fish are trapped in eversmaller shrinking pools.

Water temperatures exceeding 65 degrees Fahrenheit begin to affect trout health. Warmer water contains less dissolved oxygen than cold water. Temperatures in excess of 68-70 degrees are generally



N.H. Fish and Game intern Martin Bean holds out two sizes of eastern brook trout found during the survey.

accepted as the upper limit for healthy brook trout populations. Brook trout are the aquatic version of the "canary in a coal mine." They experience stress at lower temperatures than other species. Dense forest cover and spring-fed water contributions to the flashy, high mountain brooks maintain the water quality and cold temperatures and help to sustain perennial streamflow.

The Warner River watershed study includes outreach to communities and landowners, including the Forest Society. Careful management of intact forests located on the trout-rich, upper reaches of these tributaries will remain the most important consideration to the future of the isolated populations of native brook trout.

Goals for outreach to landowners may include helping to implement in-stream fish habitat improvement projects. With proper permits and planning, carefully adding deadfall logs, intentionally felling trees into streams or digging out roots and winching large trees and root masses directly into sterile reaches of brooks can

slow the current and create pools. Roots and tangled woody debris trap leafy vegetation. Tiny invertebrate insects, like caddis fly larvae, function as shredders, breaking down leafy debris and feeding myriad other insects whose larvae are important food for trout. Deep pools and associated undercut stream banks provide hiding cover and resting areas.

The perils of summer drought may subside suddenly when autumn rains, remnants of spent-hurricanes or tropical storms, wring out clouds over the cooler mountains of the Northeast, breaking weeks-long dusty droughts. Recharged brooks in autumn are where trout reproduce, depositing eggs in stream-bottom gravel nests called "redds" in late October.

Checking pools in June, fisheries biologists observed tiny young-of-the-year fingerling trout in some of the smallest pools—proof that these streams remain viable as nurseries for this colorful native species. Y

Naturalist Dave Anderson is director of education for the Forest Society. He can be reached via e-mail at danderson@forestsociety.org or through the Forest Society's website: www. forestsociety.org.

To see more about the habitat work being done by the Warner River Watershed Conservation Project, see: www.warnerriverwatershedconservationproject.wordpress.com.



The Forest Society encourages landowners to consult with a licensed forester before undertaking land management activities. The following are paid advertisers.

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the main goals of the Emery Farm project.

Left: Customers find fresh produce, a coffee shop, greenhouse plants and ice cream at the farm store.

Support Locally Grown Food and Great Bay Habitats

he Forest Society's members and friends have an opportunity to protect 36 highly developable acres of a farm that has been part of the fabric of New Hampshire's Seacoast Region for 10 generations.

The Emery Farm on Route 4 in Durham is a favorite spot for locally grown vegetables and fruits. Its location on the tidal Oyster River and Smith Creek where they merge before flowing into Great Bay makes the protection of this land a high priority for both aquatic wildlife habitat quality and for preserving a vital connection between the community and local foods.

Landowner David Hills has already conserved 58 acres of the farm with the Forest Society, and he is now offering to sell a conservation easement on another



36 acres at a price below market value. The easement will ensure sound stewardship and permanently protect the pastureland and river frontage while perpetuating the land's use as a farm. Alternatively, this flat and scenic riverfront close to the Seacoast will be at risk for residential development.

Since 1990. Hills has leased the farm to Bill and Brad Towle, and the two families have been operating it for the past 27 years. They grow strawberries, blueberries, raspberries, pumpkins, tomatoes, Christmas trees, hay, mums and cut flowers. Visitors enjoy the retail store, coffee shop, petting barn, tractor rides for pumpkin picking and the chance for pick-your-own experiences. School tours give children the opportunity to better understand where their food comes from.

This last phase of the farm's conservation will enlarge the block of conserved land nearby, which includes the townowned Wagon Hill Farm.

Fortunately, we have already raised most of the \$1.4 million we need to complete this project through grants from the Natural Resources Conservation Service, the Land and Community Heritage Investment Program (LCHIP), the Town of Durham, the Great Bay Resource Protection Partnership, and Great Bay 2020. Now we must raise the remaining \$80,000 to safeguard this farmland, of which precious little is left near the Seacoast. Please send your gift by Aug. 31 and know that you have preserved a vital part of New

or via e-mail at skh@forestsociety.org.





Top: The 36 acres being conserved include frontage on the Oyster River, near its entrance into *Great Bay. This frontage makes the project important for protecting the water quality of this* vulnerable estuary.

Bottom: The Emery Farm's store and pick-your-own operation along Route 4 in Durham offer visitors locally grown foods and plants.

for your help! 505

Hampshire's heritage. Thank you! Y			
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It's Time for Early-Bird Registration! 2017 ANNUAL MEETING • SATURDAY, SEPTEMBER 16 • CLAREMONT





Photo on left by John Welch/jwelc photo on right by Paul Gagnon.

Come for a day of exploring the Andrew Brook Trail to Lake Solitude (left), the Cornish Town Forest (right) or one of the other great field trips planned for the 2017 Annual Meeting.

HIGHLIGHTS:

11 a.m.

FIELD TRIPS AND WORKSHOPS

to 3:30 pm • Cornish Town Forest

- Andrew Brook Trail to Lake Solitude
- The Cornish Arts Colony
- Forestry Tour at Silver Mountain on the Ashuelot River Headwaters

4 pm to 8 pm

ANNUAL BUSINESS MEETING

- Registration and Reception
- Business Meeting
- Dinner
- Awards and Program

COST: Early Bird price is \$45 per person prior to August 18.

Regular price is \$50 per person.

Final registration deadline is September 8.

Pre-registration is required. There will be no on-site registration. Please register early as space is limited. For more information and to register, please visit www.forestsociety.org or contact Sara Krzyzaniak at (603) 224-9945 or skrzyzaniak@forestsociety.org.

EARLY BIRD DEADLINE: AUGUST 18!

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See page 14 for field trip options!