



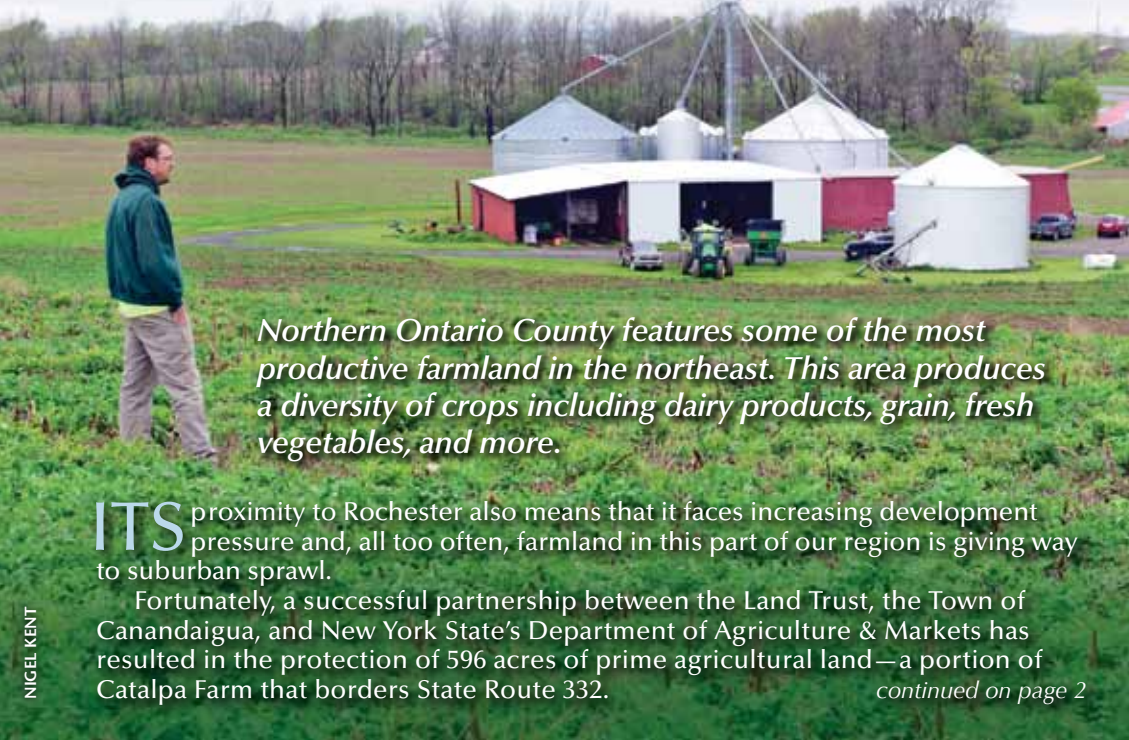
The Land Steward

NEWSLETTER OF THE FINGER LAKES LAND TRUST

working to protect the natural integrity of the Finger Lakes region

Vol. 29, No. 3 • Summer 2017

596 Acres of Canandaigua Farmland Conserved Forever



Northern Ontario County features some of the most productive farmland in the northeast. This area produces a diversity of crops including dairy products, grain, fresh vegetables, and more.

ITS proximity to Rochester also means that it faces increasing development pressure and, all too often, farmland in this part of our region is giving way to suburban sprawl.

Fortunately, a successful partnership between the Land Trust, the Town of Canandaigua, and New York State's Department of Agriculture & Markets has resulted in the protection of 596 acres of prime agricultural land—a portion of Catalpa Farm that borders State Route 332.

continued on page 2

NIGEL KENT

Million Dollar Gift Strengthens Land Stewardship Program

Thanks to the generosity of an anonymous donor, the Land Trust's increasingly important effort to care for its preserves and conservation easements has been strengthened by a million dollar contribution. This transformative gift will be used to create the Darlington Stewardship Fund—named in honor of Land Trust founder and longtime volunteer Betsy Darlington of Ithaca.

"What an incredible honor," says Betsy. "I am so grateful to this generous donor, and wish I could thank him or her in person. This will give the Land Trust's wide-ranging stewardship efforts a huge boost."

The independently invested fund will be managed in tandem with the organization's existing Stewardship Fund. Together, the funds will provide an income stream to cover costs associated with preserve management activities as well as the monitoring of conservation easement properties.

"This is a tremendous gift," says Executive Director Andy Zepp. "We know that we will face greater challenges in the future in terms of our preserves and easements. Donations like this will ensure that we have the resources needed to face them and will be able to ensure the integrity of our conservation lands."

Before realizing income from the fund, however, the Land Trust must first raise an additional \$250,000 in matching funds. Please contact Kelly Makosch at our Ithaca office if you'd like to make a contribution toward this challenge.

New "Go Finger Lakes" Web Site... Is Your Regional Guide to the Best Hikes, Bikes, Paddles, and Outdoor Adventures

Summer provides an easy excuse to get outside. Wander down your favorite trail, go for a paddle on the closest lake, or take your family to the nature center down the road. For those seeking a bit more adventure, or simply hoping to experience something new, the options can be overwhelming and hard to find.

Luckily, the Land Trust launched gofingerlakes.org, a new web site offered as a free public service to help residents and visitors discover the best

continued on page 4

11th graders from Campbell-Savona High School, in Steuben County recently used gofingerlakes.org as part of a school project.



SARAH SHUTT

Thanks to a timely text message, an uneventful summer evening was interrupted by the news that 4 to 5-foot long lake sturgeon were spawning just downstream of Ithaca Falls, in downtown Ithaca. I rushed to the spot and was rewarded by the amazing spectacle of these large prehistoric-looking fish breaching the surface of the water and sticking their lengthy snouts into the air.

It was truly a memorable sight and one that was made possible by a long-term conservation program of the New York State Department of Environmental Conservation in partnership with the U.S. Fish and Wildlife Service and others. For 19 years now, biologists have been stocking these fish in Cayuga Lake and it is only now that these long-lived fish (they can live to be 100 years old!) have reached maturity and are able to reproduce.

The natural world never fails to provide opportunities to inspire awe and appreciation for the beauty around us. We in the Finger Lakes are

particularly fortunate in that our diverse region provides a home for everything from black bears and bobcats to Bald Eagles and Sandhill Cranes—from rare orchids to my new favorite fish, the lake sturgeon.

One of the reasons our sturgeon seem to be thriving is that there is suitable habitat and reasonably clean water. We have to pay attention to both of these if we want to continue to be inspired by our natural world. Toward this end, the Land Trust is diligently working with a number of partners to advance our regional conservation agenda that was released last fall. If you haven't seen it, please check it out at www.fllt.org/top10.

And if you find yourself on Cayuga Lake this summer, keep an eye out for one of our mighty sturgeon!



Andrew Zepp,
Executive Director, Finger Lakes Land Trust



DAWN DITTMAN

New York State Department of Environmental Conservation Aquatic Biologist Emily Zollweg-Horan holding a lake sturgeon.

596 Acres of Canandaigua Farmland Conserved Forever *continued from cover*

Nestled in the hollow of Trenchman's Hill, north of Canandaigua, Catalpa Farm has seen changes over its long history. William Pritchard started a dairy farm in the late 1800s. It remained a dairy until the late 1970s, when it was split into two separate farms by Roger and Edson Pritchard. Chris and Gary, sons to Roger and Edson continued to grow each individual farm through the 1980s and 90s. Recently, Gary's son Seth purchased the half owned by his cousin Chris, effectively re-uniting the land as one farm again.

Over the years, the Pritchard family has upgraded the machinery used on the farm, purchasing larger equipment to help improve efficiency. Most of the equipment is outfitted with satellite guidance, allowing for localized applications of fertilizer and reduced runoff. This level of farming efficiency is important ecologically, as the farm drains into Beaver Creek and Padelford Brook, a primary tributary to the Canandaigua Outlet.

Catalpa Farm is less than a mile from Brock Acres, a commodity crop farm, where 726 acres will also be protected by the Land Trust using funds from the state and the Town of Canandaigua. Both farms are located in the Town of Canandaigua's proposed "Padelford Brook Greenway," a farmland protection program aimed at reducing commercial and residential development pressure. Catalpa is the third farm the Land Trust has protected in partnership with the Town of Canandaigua and New York State.

"We're grateful for the Pritchards' commitment to the land as well as our partners at the Town of Canandaigua and New



Seth (seated in tractor), Naomi, Amanda and Gary Pritchard—owners of Catalpa Acres

York's Department of Agriculture and Markets," said Land Trust Executive Director Andy Zepp. "We're particularly appreciative of New York State Senator Pam Helming's leadership of this project when she was serving as Canandaigua Town Supervisor."

"Farming and agriculture are the cornerstone of our community and play a critical role in our local and state economy," said Senator Helming. "Conserving precious farmland at Catalpa Farms, where nearly 600 acres have been permanently

saved, will help to ensure future generations are able to utilize this land for its intended purpose—farming. Many thanks to the Finger Lakes Land Trust, the Town of Canandaigua and the Pritchard family for their efforts in seeing this project through to completion."

One Mile of Finger Lakes Trail Conserved through Land Trust Partnership

The Finger Lakes Trail (FLT) winds its way across the entire Southern Tier, including more than 90 miles that pass through Ithaca's Emerald Necklace.

While the Emerald Necklace features 50,000 acres of public conservation land, the FLT also passes through a considerable amount of private property along the way—in many cases simply on the basis of a revocable handshake agreement.

As Ithaca grows, more and more houses are interrupting the rural landscape, often displacing the Finger Lakes Trail. The Land Trust is working in partnership with the Finger Lakes Trail Conference (FLTC), the NYS Department of Environmental Conservation (NYSDEC) and local municipalities to create a corridor of conserved lands to permanently host the FLT.

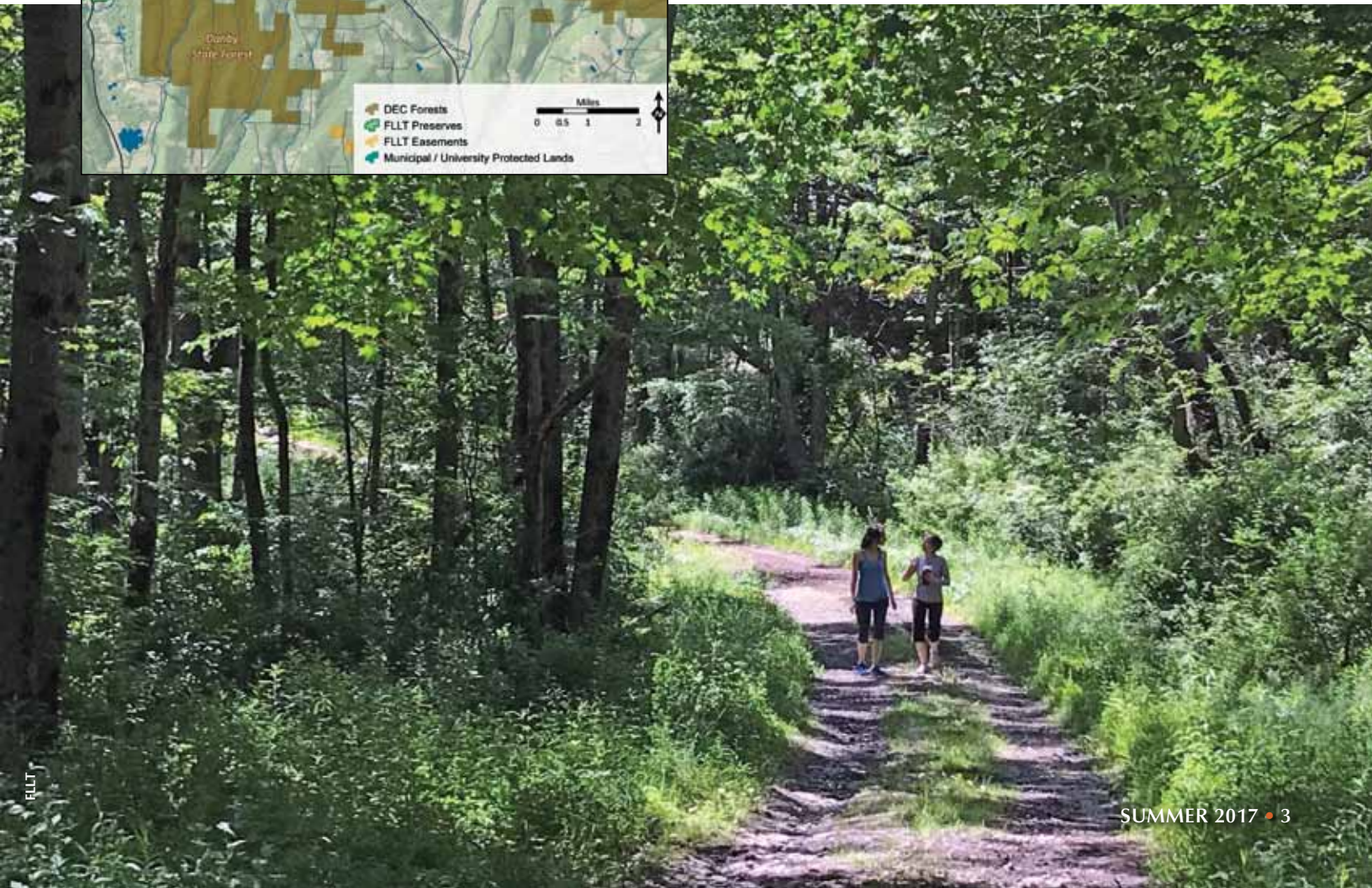
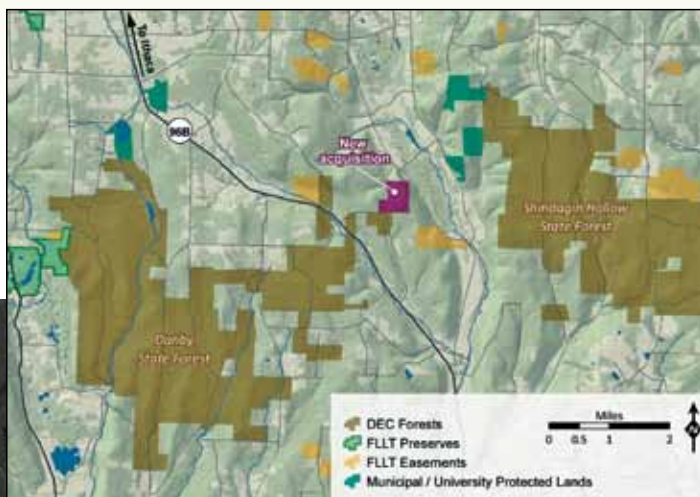
Recently, the Land Trust took a significant step forward by acquiring 144 wooded acres and one mile of the FLT in the

town of Danby, just south of Ithaca. The purchase was made possible by a loan from the FLTC's Sidote Stewardship Fund. Additional support for the project was provided by a grant from Tompkins County's Capital Reserve Fund for Natural, Scenic, and Recreational Resource Protection.

The hilltop property is located just east of State Route 96B and it is almost entirely wooded—featuring a forest of mixed hardwoods along with some pine and hemlock. Protection of the property ensures wildlife habitat continuity identified as a priority in both Tompkins County's Countywide Conservation Plan and New York State's Strategic Forest Management Plan. When state funding is available, the Land Trust will convey the property to the NYSDEC as an addition to the adjacent Danby State Forest.

"Strong partnerships made this project possible," said Land Trust Executive Director Andy Zepp. FLTC President Pat Monahan adds "We have collaborated in the past and will continue to do so in the future. Our mission statements are very compatible. Together, we can protect the Finger Lakes Trail. Forever."

The Land Trust, the FLTC, and the NYSDEC are already hard at work on their next collaborative protection project.



New “Go Finger Lakes” Web Site

continued from cover

locations in the region for outdoor adventuring. Featuring over 55 locations and 650 miles of trails throughout the Finger Lakes, the site is mobile-ready with a searchable map, photo galleries, trail descriptions, and directions.

“People always ask us where they can get outside,” says Andy Zepp, Executive Director of the Finger Lakes Land Trust. “We created Go Finger Lakes to help people discover new places to explore outside of their usual rounds.”

The Land Trust hopes the guide will help people find new adventures. Site users can explore the locations through an interactive map featuring state forests, nature centers, rail trails, and other prime conservation lands, including popular segments of the Finger Lakes Trail.

“Many people come to understand the importance of land and water conservation after they fall in love with a beautiful trail or particular forest,” explains Kelly Makosch, Director of Development and Communications at the Land Trust. “Go Finger Lakes will help people appreciate and protect the wild places that make our region so special.”

Zepp adds that the web site will serve not only outdoor enthusiasts but also people interested in learning more about the beauty and diversity of the region. “By promoting our most stunning natural areas through videos, photography, and experiential writing, Go Finger Lakes will encourage residents and visitors to appreciate the Finger Lakes region as a whole.”

Gofingerlakes.org and the beautiful Finger Lakes Trail (FLT) in Watkins Glen State Park recently inspired a group of 11th graders from Campbell-Savona High School, in Steuben County. During a Wilderness and the American Identity unit, students were asked by teacher Sarah Shutt to explore the gofingerlakes.org site, hike on the FLT, and then create animated public service videos to encourage people to “Get Outside” in the Finger Lakes. The students, many who were on the FLT for the first time, used materials they gathered on the trail to produce videos highlighting the benefits of spending time in nature.

Initial funding for the creation of Go Finger Lakes was provided by the Fred L. Emerson Foundation, Tompkins County Tourism Program, the John Ben Snow Foundation, and New York’s Environmental Protection Fund and the NYS Conservation Partnership Program, administered by the Land Trust Alliance.

The Land Trust is pleased to announce Ithaca’s Press Bay Alley, Elmira Savings Bank, and Finger Lakes Visitors Connection are all onboard as the first annual sponsors of the Go Finger Lakes site. To learn more about sponsorship opportunities, please contact Kelly Makosch at kellymakosch@llt.org.



JOSHUA SEIDMAN-ZAGER

Conservation Easement Protects Portion of Taughannock Creek

About a mile north of Cayuta Lake in Schuyler County, there is a wetland area that serves as the origin of Taughannock Creek. The creek wends its way north through Mecklenburg, takes a sharp turn eastward just south of Trumansburg, and tumbles over a well-known, 215-foot drop before emptying into Cayuga Lake.

Not far from its point of origin, Taughannock Creek winds through a portion of Richard Paige’s property in the town of Hector. In partnership with the Land Trust, Richard recently protected this portion of the creek by placing a conservation easement on the property.

The easement will keep both residential development and corporate agriculture at bay. “It’s really important to protect this from big farm operations that have taken over a lot of the land in this area,” said Richard.

Richard’s parents bought the 60-acre parcel in 1940 and raised chickens, trading the eggs for feed with the now defunct Spencer Co-Operative. After living elsewhere for much of his adult life, Richard moved back to the property in the mid-1990s with his wife, Nancy Adams, to help take care of it and his elderly parents. Richard built a house and workshop out of local stone, and they planted an extensive garden.

Richard and Nancy also worked tirelessly to establish wildlife habitat on the property. They maintained 20 acres as a hayfield for a local farmer, but the hay is only harvested after the breeding season for grassland birds. They established an extensively varied forest plantation on another 20 acres. “I planted a thousand seedlings a year for a number of years,” said Richard. “Not all of them survived, but we’ve got a pretty good forest now.”

The remainder of the property consists of riparian habitat, including 750 feet of frontage on both banks of Taughannock Creek, and an adjacent area that has been gradually reverting from farmland to woods.

Nancy, who was a conservation easement steward volunteer with the Land Trust, passed away last August after a long battle with cancer. “Protecting this land was important to both of us,” said Richard, “and after Nancy passed away, I wanted to make sure to see it through.”

—Jeff Tonole

The Land Trust gratefully acknowledges Attorney Christopher Werner of the law firm Boylan Code in Rochester for providing pro bono legal services in support of this project.

Spring Bird Quest Highlights

As the Spring Bird Quest (SBQ) is a bird-a-thon fundraiser, every year I first size up its success in terms of bird species found and dollars raised. This year's SBQ measured up pretty well—86 species found over Memorial Day weekend, leading to at least a couple thousand dollars in donations.

But over the years I've come to value the SBQ even more for how it engages people—getting us together on Land Trust properties, connecting us with birds, and reminding us of the Land Trust's role in protecting their vital habitats. I've even come up with a little statistic for it.

$$S \times B = Q$$

Where S = the number of bird species found on each bird walk
and B = the number of birders on each walk
and Q = an integrated quantity, in units of birder-species

I know it's imprecise. It's probably a little too cute. But I think it aptly characterizes the fun and value of the event. And I feel certain that this weekend's walks set new standards for Q, as mighty throngs of attendees encountered dozens of our breeding birds on five preserves protected forever by the Land Trust—35 birders collectively finding 64 species at the Lindsay-Parsons Biodiversity Preserve, 25 birders and 41 species at the Bock-Harvey Forest Preserve, and so on. Insofar as Q is a measure of engagement, or specifically the volume of bird encounters that people got on the preserves, this SBQ sure delivered a lot of it!

—Mark Chao



Every year, Land Trust volunteer and Ithaca birder Mark Chao leads a series of walks on FLLT preserves during Memorial Day weekend. Known as Spring Bird Quest, the walks are a wonderful opportunity to experience the spectacle of migrant and breeding birds, learn about their behavior and ecology, and raise funds to protect their habitat.



*pictured above:
A Chestnut-sided Warbler, spotted
at the Bock-Harvey Forest Preserve
in Enfield, Tompkins County*

*Spring Bird Quest at the Lindsay-
Parsons Biodiversity Preserve in
West Danby, Tompkins County*

SCENES

from Around Our Region...



Briggs Gully at the Wesley Hill Nature Preserve in Richmond, Ontario County



Trailblazers Dick Kurtz, Martin van der Grinten, John Slechta, Myra Shulman, Roger Hopkins, Harold Drane and Jason Gorman at the Houghton Land Preserve in Corning, Steuben County—thanks to their volunteerism, the preserve will soon be open to the public.





NOEL BASTIEN



Red-spotted Newts were in abundance at the Thayer Preserve in Ithaca, Tompkins County, for our "herp" hike in May.

JENNY SWEET



Young visitors crossing the creek at the Ellis Hollow Nature Preserve in Dryden, Tompkins County, for Story Walk.



NIGEL KENT

Dutchman's breeches

Key Addition to New York State's Largest Wildlife Management Area Completed

The New York State Department of Environmental Conservation (DEC) and the Land Trust recently completed an 86-acre addition to Connecticut Hill Wildlife Management Area in the town of Catharine, Schuyler County. Connecticut Hill encompasses more than 11,500 acres of undeveloped land southwest of Ithaca and is the largest wildlife management area in the state.

The Land Trust acquired the property in 2015 and held it until sufficient funds were available to allow for purchase of the land by DEC. The parcel was identified as a priority for protection because of its value as wildlife habitat as well as the fact that it features 1,000 feet of level road frontage. Addition of this land to the wildlife management area greatly enhances public access while securing open meadows and mature hardwood forests of beech, oak, maple, and hickory with scattered pines and hemlocks.


"I applaud our partners in the Finger Lakes Land Trust for helping New York State to secure this unique parcel that will bolster and link together existing conservation areas," said DEC Commissioner Basil Seggos. "This addition will not only protect this vital habitat, it will ensure that visitors have even more opportunities for outstanding recreational enjoyment."

With elevations reaching 2,000 feet, Connecticut Hill is a popular destination for hunting, hiking, birding, snowmobiling, snowshoeing, and cross-country skiing. In total, Connecticut Hill contains

approximately nine miles of designated hiking trails, and many more miles of dirt roads and access lanes. Recognized as one of the state's Important Bird Areas, Connecticut Hill is host to a wide variety of songbirds, as well as wide ranging mammals such as fishers and black bear.

Connecticut Hill is also an important component of the Emerald Necklace, a proposed greenbelt linking 50,000 acres of existing conservation land in an arc around Ithaca, from the Finger Lakes National Forest in the west to the Hammond Hill State Forest in the east. The Emerald Necklace is recognized as a priority project within New York State's Open Space Plan and is a conservation priority for the Land Trust.

"This acquisition helps ensure the integrity of one of our region's largest intact forests and also enhances public access for outdoor recreation," said Land Trust Executive Director Andrew Zepp. "The public will now benefit from much easier access to thousands of acres of conservation land."



The recent addition (center background) as well as the Connecticut Hill Wildlife Management Area border productive farmland next to the hamlet of Cayutaville.

Land Trust Dedicates New Hike/Bike Trail near Geneva & Seneca Lake

On National Trails Day, June 3, the Land Trust formally opened a new biking and hiking trail at its Bishop Nature Preserve in the town of Fayette, Seneca County.

The newly improved path wends its way through the preserve and provides a connection to the adjacent Cayuga-Seneca Canal Trail for people looking to extend their outdoor adventure. Improvements to the preserve include a stone-dusted path, two interpretive kiosks, and a safer, expanded parking area on West River Road.



The 30-acre Bishop Nature Preserve features woodlands that provide habitat for a variety of songbirds and other wildlife. The site also serves as an access point for the Cayuga-Seneca Canal Trail, a 4-mile multi-purpose recreational trail that currently extends from nearby State Route 96A to the village of Waterloo. In the future, the trail will ultimately connect Geneva and the Montezuma National Wildlife Refuge.

Funding for this project came from an anonymous donor and the New York State Conservation Partnership Program, which is funded through the state's Environmental Protection Fund and administered by the Land Trust Alliance, in coordination with the NYS Department of Environmental Conservation.

Learn more about the Cayuga-Seneca Canal Trail on the Land Trust's new web site—gofingerlakes.org. "Go Finger Lakes" features over 55 locations and 650 miles of trails across the 12-county Finger Lakes region and serves as a guide for residents and visitors to discover the best locations for hiking, mountain biking, kayaking, canoeing, cross-country skiing, and other outdoor activities.

State Grants Provide Support for Conservation in the Finger Lakes

The Land Trust was awarded \$75,000 in grant funding through the New York State Conservation Partnership Program. The program is funded through the state's Environmental Protection Fund and administered by the Land Trust Alliance, in coordination with the NYS Department of Environmental Conservation (DEC).

A total of \$1.8 million in Conservation Partnership Program grants were awarded to 58 nonprofit land trusts across New York. "Through partnerships with local land trusts, the Environmental Protection Fund provides critical support for open space programs across the state," said DEC Commissioner Basil Seggos. "These grants help local land trusts support our work to protect New York's peerless waters, lands, and habitats and preserve our state's natural resources, while leveraging even more resources communities can put to good use protecting these irreplaceable assets."

The Land Trust was awarded \$65,000 to hire a full-time Conservation Easement Steward to monitor conserved land. This new position will take on the Land Trust's substantial and growing regional portfolio of conserved lands, allowing the Director of Stewardship to focus on strategic direction, invasive species management, preserve

continued on page 10

Plan today... save the lands and waters you love tomorrow.

Create your legacy by investing in the Land Trust through a gift from your estate. Discover how you can conserve the places you call home, maximize your philanthropic giving, and meet your financial goals.

To learn more, please call Kelly Makosch at the Land Trust office at (607) 275-9487.

State Grants Provide Support for Conservation in the Finger Lakes *continued from page 9*

enhancement, expanded volunteer programs, and new partnerships to advance stewardship and landowner services in the Finger Lakes region.

An additional \$10,000 was granted to help cover the costs associated with the recent protection of Sheffield Farm in Ithaca. This 470-acre horse farm is located within the West Hill Wildway—an effort to create a walkable greenbelt on Ithaca's west side.

"The Conservation Partnership Program has demonstrated impressive statewide success by supporting land trusts in our local communities," said Andy Zepp, Land Trust Executive Director and chair of the Land Trust Alliance's New York Advisory Board. "Together with state funding for land conservation and farmland protection, this program helps to protect and care for New York's precious water resources, natural heritage and working lands, and to create trails, preserves and community gardens. It directly benefits our economy, from tourism and outdoor recreation to farming and forestry. The program leverages additional resources to advance New York's Open Space Conservation Plan, enhancing services and support for local municipalities, and enabling private landowners and land trusts to achieve their stewardship goals," he added.

Our appreciation for gifts in honor of:

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FROM
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FROM
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Lois Darlington*

Molly McLeod
FROM
Jeff Katris

honor

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FROM
Janet Starr

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Buy Your Lakeshore Dream House While Supporting the Land Trust!

THE LAND TRUST SEEKS A BUYER for a beautiful log home and lakeside cottage situated on a wooded 4-acre lot on the western shore of Cayuga Lake in Seneca County. This truly unique property features 350 feet of shoreline and two docks! The home features four bedrooms, three full baths, wrap around decks, and a hot tub, while the lakeside cottage features a fireplace and cathedral ceilings.

The property is listed for sale for \$639,000. Proceeds will be used to support the Land Trust's land protection and stewardship programs. The Land Trust is grateful to the anonymous donors who contributed this special property.

For additional information, contact Jill Burlington at Warren Real Estate by calling 607-330-5244 or visit www.warrenhomes.com.



Seeking Car or Truck Donation

The Land Trust is seeking the donation of a car or truck with low mileage to assist our stewardship staff—a fuel-efficient, compact car with all-wheel drive is preferred. As per IRS guidelines, contributions are tax deductible to the extent allowed by law. Please contact Director of Development and Communications Kelly Makosch at (607) 275-9487.

A CLOSER LOOK

Breaching Boundaries

The remarkable symbiotic relationship of algae and Spotted Salamanders

Across eastern North America, usually on the first warm and humid night of the spring, Spotted Salamanders (*Amblystoma maculatum*) emerge from the ground and migrate, often by the hundreds, to their breeding pools. There the males swim ardent circles around females in courtship, then deposit spermatophores, which the females take into their bodies to initiate fertilization. A few days later, females lay two to four masses of up to 250 eggs, affixing them to submerged twigs and plants in gelatinous capsules about the size of a tennis ball.

It's a unique spectacle, eagerly anticipated by wildlife enthusiasts. But most people don't know that after the breeding frenzy subsides, another mind-boggling phenomenon starts to unfold.

Spotted Salamanders breed almost exclusively in shallow, fish-free bodies of water—especially vernal pools, but also ponds, roadside ditches, and even tire tracks. These pools are often low in dissolved oxygen. Therein lies the key to this story.

Scientists have understood for more than 125 years that Spotted Salamanders have a mutualistic relationship with algae. Plainly visible in the jelly of the salamander egg masses, the algae are of a single-celled species, *Oophila amblystomatis*—which means, aptly, “love of salamander eggs.” The algae raise the oxygen content of the egg capsules and remove waste, thereby facilitating the salamanders' normal embryonic development. In turn, ammonia waste from embryos creates a nitrogen-rich environment thought to be optimal for the algae's own metabolism.

It was long assumed that the algae reside only in the jelly of the egg capsules, or in the surrounding water. But in 2010, a team led by Ryan Kerney discovered that the algae actually also **live inside the cells** of the salamander embryos and early-stage larvae.

This is the first documented case of algae inhabiting the cells of any vertebrate. Algae had previously been known to inhabit the cells of many single-celled organisms and certain marine invertebrates, including sponges, corals, and sea anemones. The predominant understanding with vertebrates, however, was that their more advanced immune systems destroy any foreign body entering their cells.

The algae become noticeable inside the salamander embryos just as cells begin to organize into specific tissues, particularly the nervous system. Before and after this stage, algae are much less abundant inside the cells. This explains in part why the phenomenon took so long to discover—scientists were not examining the salamander cells at just the right moment in their development. Furthermore, the algae are very difficult to see using traditional light microscopes; only the use of fluorescent and electron microscopes enabled Kerney to detect algae in the salamander cells.

This remarkable discovery has opened much scientific inquiry into related issues—including the fundamental question of how the algae get inside the cells. Kerney and colleagues have discovered *O. amblystomatis* in the oviducts of adult females, thus raising the intriguing possibility that



Algae live not only in the jelly of these egg capsules, but in the very cells of the salamander embryos.



mothers may pass the algae on to their offspring. It is also clear that many of the algae invade the embryos' cells from outside. The exact mechanism is unclear, but seems to be related to elevated levels in the host cell of a lipoprotein that triggers endocytosis—the formation of a concavity on the cell membrane that takes in the foreign body and eventually surrounds it. But Kerney's imaging shows no membrane around the algae inside the salamander cells. So if endocytosis is indeed happening, then there must be some yet-unknown way by which the algae escape the sac that swallows them up.

Then there is the question of what happens inside the salamander cells. Kerney and colleagues have observed that salamander mitochondria (organelles that carry out cell respiration) congregate around the algae, affirming that the embryonic cells probably respire using oxygen and carbohydrates produced by the algae. Furthermore, the most recent research, published in May 2017 by John Burns and colleagues, illuminates why the embryos tolerate the algae—one specific immune response pathway involving a protein family called NF-kappa-b seems to be suppressed.

But while evidence suggests a benefit for the salamander, it seems that the algae might end up worse off once subsumed by the animal cell. Burns describes how algae inside salamander cells show stress responses and inhibited photosynthesis, perhaps because of low light. The algae also suddenly start to engage in fermentation, indicating a possible deficit of sulfur or oxygen. So this intracellular relationship now appears less like sunny mutualistic bliss than a cohabitation gone sour.

But it is still a revolutionary discovery for science, and a revelation of new wonders for us amateur nature-lovers. Who would ever have thought that these quivering capsules, sitting unseen in pools not much more than a puddle, would host such drama—a struggle for sustenance, a breaching of boundaries, an ambiguous alliance, and indeed, a redefinition of life as we thought we knew it? —Mark Chao

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Finger Lakes Land Trust

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Summer 2017 Calendar

CAMINO DE CAYUGA, SATURDAY, AUGUST 20, 11:00am, Toro Run Winery, 3050 Swick Road, Ovid, NY. Hike from Toro Run Winery to the Land Trust's VanRiper Conservation Area and enjoy wine and food tastings along the way. A Brazilian BBQ and live music by Seneca Jam will begin at 12:00pm. All ticket sales benefit the Land Trust! Be sure to reserve your spot! Tickets are \$10 in advance or \$15 at the door. For inquiries or reservations, call Toro Run at 315-530-2663.

TALKS & TREKS

WHAT LIVES IN GRIMES GLEN? SATURDAY, AUGUST 26, 9:45am, Grimes Glen County Park, Naples, NY. Cosponsored by the Canandaigua Lake Watershed Association. Environmental Educators Edith Davey and Steve Lewandowski will lead a workshop focused on aquatic life found in beautiful Grimes Glen.

CREEK WALK FOR KIDS & FAMILIES! SATURDAY, AUGUST 26, 10:00am, Thayer Preserve, Ithaca, NY. Join Sarah Fiorello, Interpretation Coordinator for Cornell Botanic Gardens, for an exploration of what lives under the rocks and in the streambed of Lick Brook at the Thayer Preserve.

SNAIL WALK, SATURDAY, SEPTEMBER 16, 10:00am, Ellis Hollow Nature Preserve, Ithaca, NY. Come explore the fascinating world of land snails and slugs with malacologist and naturalist Marla Coppolino.

NATURE WALK AT THE HINCHCLIFF FAMILY PRESERVE, SATURDAY, SEPTEMBER 30, 10:00am, Spafford, NY. Join naturalists Sandy Bonanno and Fran Lawlor to learn about the birds, flowers and other natural wonders at the Hinchcliff Family Preserve overlooking Skaneateles Lake.

Detailed directions and more info can be found at www.fllt.org/events. Except in the case of extreme weather, walks go rain, sun or snow. Please check our Facebook page or web site at www.fllt.org/events for updates.