

# Grafton Land Trust, Inc.

www.graftonland.org

Spring 2013 Newsletter

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#### **Grafton Land Trust Newsletter** P.O. Box 114, Grafton, MA 01519

Michael Urban and Lori Muhr *Editors* Julie Norberg, IBA Print Shop *Design* 

### Dear Land Trust Friends and Colleagues,

I'm leaving the board after a number of years, and it's been an uplifting experience. At a time when most environmental news is deeply troubling, a good percentage of Americans are indifferent to the reality of rapid climate change and its human causes, and there is every reason to believe that the sixth great extinction in two billion years is well underway, it's pleasant, if somewhat illusory, to retreat into the comfort of a successful local effort – that of the Grafton Land Trust – to preserve a small portion of the natural world.

I had the privilege of working on the board during a period of intense advancement led by such hard-working visionaries as Roger Hohman, Joe Tancrell and Ken Crater. During these years, the GLT greatly expanded its holdings and conservation restrictions. Counting them together the GLT now has 6% of the land in Grafton under conservation. With Jeanne Johnson and Ken Holberger as allies, we brought our lands and trails into public view with signs, maps, and a website. We now have a perfect office staff of one (Shauna Cardenas) – just enough to take the pressure off devoted volunteers. Our accounts are impeccable (Todd Berry). Best of all we found our replacements in Michael Urban, Lori Muhr, and their athletic pals. Having no inclination toward running relays or rolling kayaks, I am leaving the field to the younger set.

It's interesting to reflect on how this organization works. Times change. As different people come forward with different skills and interests, the leadership shifts its focus. Each activity may have only two or three devoted movers. What impresses me most is that the aggregate outcome is so successful.

We needed trail maps; Ken Holberger loved to make maps using his GPS-enabled trail bike. We had three houses in need of renovation for renting; Dick Dion devoted himself to it. We needed events and fund-raising; Joe Tancrell's favorite thing was to organize events and fund-raising. We needed property signs; I got hooked on building property signs and getting special permits. We needed to learn about the legal details of conservation restrictions, lawsuits to protect acquisition agreements, and LLCs; Ken Crater attached himself to those problems. We acquired non-forested open fields, a different habitat with maintenance requirements; I spent two years finding the right farmer to bring them into appropriate agricultural use. Ken Webb decided he was destined to oversee trail maintenance. We needed more educational activities and Lori Muhr adopted this challenge. And so on for a website, horse-riding events, hunting policy, accounting procedures, new activities for children, dogs, and the athletically minded. A great list!

What's next? The mission of the Grafton Land Trust will continue to provide shelter and encouragement for a wide range of civic actions, depending on the individuals who step forward and the pressures of the moment. The natural world we wish to protect from human depredation will give back to us ten-fold in enjoyment, wonder, and discovery. The pleasure of sharing and collaboration in the work and respect for each other's interests and creativity will carry the Land Trust forward into a long and lively future.

As for myself, my next focus may be forest ecology. Trees live longer than we do if we let them, thus connecting us to the past and future of the web of life that surrounds us. They add perspective. For those of you who want to learn more about it, I heartily recommend two books that have particularly sparked my curiosity and delight: *The Forest Unseen* 

by David George Haskell and *Reading* the Forested Landscape by Tom Wessells.

Ed Hazzard

#### Thank You and Best Wishes to Ed Hazzard

We bid farewell this month to Ed Hazzard, who served the Grafton Land Trust for more than a decade as director, vice president and president; the Board will sorely miss him. Among Ed's many meritorious contributions was the recent transformation of Potter Hill Meadows to Potter Hill Farm, which now harnesses organic farming practices as a tool for land management. Ed's tireless efforts propelled his vision into reality on Potter Hill. It is with tremendous respect and heartfelt gratitude that we thank Ed for his contributions to the GLT and the Grafton community at-large. We wish him the best with all of his future endeavors.



Ed Hazzard manages the Grafton Land Trust table at the annual Tufts Open House. Photo by Michael Urban.

# **ONE THING LEADS TO ANOTHER:** *Trophic Cascades in Terrestrial and Aquatic Ecosystems*

#### By John P. Roche, Senior Scientific Writer with the Hyperpolarized Gas MRI Laboratory, the Director of Science View Productions<sup>™</sup> and Grafton Land Trust Member.

While walking or paddling through nature, it is fun to watch the individual organisms around us. We say things like: Hey, there's a belted kingfisher! That white pine tree is majestic! Isn't that dragonfly a marvel of engineering? Individual species *are* fascinating, but it is also interesting to broaden our frame of reference and consider that each individual species is a part of a complex, interconnected, ecological system. Energy flows from the sun, to the primary producers like phytoplankton and green plants, to primary consumers, up through a web of interactions to the highest predators, and energy from producers and consumers also flows to decomposers such as bacteria and fungi. Interactions between a species on one trophic level with a species on an adjacent level are the most directly observable. We watch a bat eat a mosquito, a woodchuck eat a patch of clover, a sunfish eat a water flea. But the interactions of organisms do not end there. When a predator consumes a prey item, it often affects not only the population of its prey, but also populations on other trophic levels, two, three, or even four levels away! When a predator increases in density, for example, it can decrease the density of its prey, which in turn *increases the density of what the prey eats*. And when a predator decreases in density, it can increase the density of its prey, which in turn *decreases the density of what the prey eats*. This process, which ecologists call a trophic cascade, is shaping the natural world all around us—and has profound implications for how we interpret, and serve as stewards to, nature.

One example of a trophic cascade was seen along the Pacific coast of North America, when sea otters were heavily hunted for their pelts in the early 20th century. Overharvesting dramatically reduced otter populations and brought them to the brink of extinction, and with otters gone, populations of their primary prey, sea urchins, were able to explode in numbers. And with many more sea urchins, the food the sea urchins ate—a kind of macroalgae called kelp—was drastically reduced in density. Subsequently, in areas where sea otter populations have since recovered, predation on urchins increased, urchin grazing on kelp decreased, and kelp beds recovered.

Do trophic cascades affect the ecosystems of central New England, such as temperate forests and fresh-water lakes? The answer to this is not if, but by how much? Many ecologists believe that temperate forests—and some other ecosystems such as grasslands, salt marshes, and tropical forests—are not controlled primarily from above by predators, as much as controlled from below by the plants that are the primary producers. For example, removing a predator such as the grey wolf from a temperate forest does not tend to result in catastrophic overgrazing as was seen in the kelp beds off the Pacific coast. One reason may be that in communities with complex trophic webs, such as forests, when one species is reduced by a cascading trophic interaction, that species may just be replaced in the community by one or more different species. But this does not mean there are no interactions across multiple trophic levels in temperate forests. For example, across much of the northeast, the elimination of many predators has led to precipitous increases in white-tailed deer populations, with subsequent heavy grazing that can result in declines in the abundance and diversity of native plant species.

Temperate lakes are often strongly affected by trophic cascades. One reason may be that many aquatic habitats have simple trophic webs with few alternative consumers, and few alternative primary producers, to help absorb the impact of changes in predator density. A number of studies have found that increases in piscivorous (fish-eating) fish in temperate lakes can lead to decreases



Lake Trout in Lake Erie. Photo by Department of Natural Resources, Ohio

in planktivorous (planktoneating) fish, resulting in increases in zooplankton, and subsequently leading to decreases in phytoplankton —and vice versa.

Why should we care about trophic cascades? What lessons do they have for managers of natural ecosystems, including the temperate forests that are abundant in central

# Once Upon A Time By Michael Urban

Growing up I knew I had it good. Our backyard led straight into eleven acres of pristine conservation land – forest, meadow, swamp. I knew every bush, every rock, every tree. It was the place for my imagination to run unencumbered. One day it was Sherwood Forrest – where my friends and I protected the less fortunate from the demented Lord and his henchmen. The next, it was the Dagobah system from *Star Wars*. Training with Yoda on planet Dagobah was rigorous, but I believe it was crucial in making me the Jedi I am today. When my buddies and I were feeling sentimental, it was the *Princess Bride's* "Thieves Woods", protected by magical and dangerous obstacles, that could only be overcome by a combination of skill, wit, and strength!

Now as an old man raising my own family, I have realized just how good I had it. The reason I was so fortunate is that those imaginary enemies I faced in the forest have seemingly yielded to far more evil forces today – ticks and mosquitoes. As a child, running out the back door to begin my adventures, the only departing message from my mom was to listen for the bell that called us in for dinner. Never did I hear her utter the phrase "Watch out for the deer ticks!" or "Not today Mikey, there are reports of EEE in the neighboring town." Lyme Disease and EEE are serious diseases and we live with their threat for much of the year, but I fear we are at the doorsteps of paranoia. This paranoia makes us skittish about letting the kids roam outdoors and uncomfortable with venturing out ourselves.

We certainly need to take the necessary precautions, but let's step beyond the paranoia, embrace the natural world we are part of, and have faith that the amazing lessons of nature will transcend these fears. We gain so much from the woods – self reliance, curiosity, respect for the earth- and it would be a shame to discard those opportunities. So grab your kids, put on the insect repellent, sunscreen and long sleeves and tuck those socks into pant legs, then get outside. Hike the trails, climb the rocks, listen to the birds, follow tracks and explore. Absorb all that nature has to offer, including Yoda's guidance on how best to use the Force.

New England? One lesson is that manipulations of communities, which are often necessary for conservation or economic purposes, can have unintended consequences two or more trophic levels away (and can therefore be more effective if potential cascading interactions are taken into account). A beautiful example of the unintended consequences that can arise from a trophic cascade was discovered by Bonnie Ellis and colleagues studying the population densities of species in a temperate lake—Flathead Lake in Montana. In the 1960s and 1970s, fisheries biologists introduced a non-native species, the opossum shrimp, to lakes upstream of Flathead Lake with the goal of increasing food for kokanee salmon populations. In the 1980s, opossum shrimp became abundant in Flathead Lake. The kokanee population crashed, and when it did so, many of the bald eagles along Flathead Lake, which fed on kokanee salmon, dispersed away from the area. Why did the kokanee numbers crash? When opossum shrimp arrived, there was much more food available for the lake trout, a dominant fish predator. As the lake trout numbers increased, kokanee were eliminated. The introduction of opossum shrimp also had cascading affects on plankton populations. Opossum shrimp preferentially feed on large zooplankton, which led to a decrease in large zooplankton species. The reduction in large zooplankton, in turn, led to a large bloom of blue-green algae in 1988, and a trend of increased primary productivity from phytoplankton in the lake.

A second lesson trophic cascades offer is that non-native species, which can often explode in number due to a lack of evolved defenses in what they eat, or due to being unpalatable to what might eat them, are of particular concern to ecosystem management because they can trigger disruptive trophic cascades. For example, local invasive species such as purple loosestrife, Asian water chestnut, milfoil, and Asian longhorn beetles have all been highly disruptive to the communities they have colonized.

A third lesson cascades in trophic interactions provide is even more far-reaching. Trophic cascades remind us that ecosystems are far more complex than we have yet fully appreciated, and suggest that the need for further applied research on community interactions is pressing. Hey, there's another belted kingfisher, and it's eating a minnow—what will be the result of *that* interaction?

### **2013 Grafton Land Trust Calendar of Events**

Go to www.graftonland.org for details and updates.

#### MARCH

Coyote Presentation ...... March 1st at 7PM Tufts Agnes Varis Center Auditorium, Funded by a grant from Tufts

Tracking with Paul Wanta ...... March 2nd at 9AM Potter Hill Meadows (Rescheduled from February 17th)

Forbush on North Street

Grafton Cultural Council ...... March 23rd Fine Arts and Music Festival at 11AM



A red-winged blackbird nest with eggs. A true sign of spring! Photo by Troy M. Gipps

#### APRIL

New England Animals .. April 6th at 1:30PM Millbury Street School (Rescheduled from February 9<sup>th</sup>)

Invasive Plants Workshop at Forbush Date to Be Determined

Property Visit......April 7th 10AM-12PM Williams Woods

#### MAY

Canoe/Kayak on the Mighty Quinsigamond River. Date to Be Determined

JUNE Membership BBQ. Date to be determined.

#### OCTOBER Fall Hike

LeClaire/Vacca Memorial ...... October 13th 5k Trail Race Grafton Community Barn

Big Pumpkin Trail Ride...... October 20th Grafton Community Barn

**NOVEMBER** Annual Dinner

DECEMBER Grafton Celebrates The Holidays

#### Visit our website at www.graftonland.org

### GLT Volunteers Get the News Out



Jonathan, Lexie and Brittany, Taylor and Pam (coordinator). Students from the Grafton High School help with the GLT newsletter mailing. Photo by Shawn Langevin

As you read this newsletter, you can thank the GLT's newest volunteers for their hard work in helping us get them mailed to you. Jonathan, Lexie, Brittany and Taylor, along with their coach, Pam, are participants in the School to Work Program at Grafton High School. The program is designed to give students the opportunity to develop vocational skills through volunteering and participating in various internships. So far this year the students in the program have volunteered a total of over 1200 hours to various businesses in Grafton and the surrounding towns. The Grafton Land Trust is grateful for the help of these hard working students!

## **Eastern Coyote Lecture Draws Big Crowd**

By Troy M. Gipps

In a presentation to over 120 people at the Tufts Agnes Varis Auditorium, Dr. Jonathan Way described his decade-long study of the Eastern coyote. This event, which was part of the Grafton Land Trust's sixth annual Roger D. Hohman Lecture Series, was sponsored by a grant from the Tufts University Cummings School of Veterinary Medicine.

Dr. Way discussed the ecology and behavior of Eastern coyotes and detailed the process by which he and his team captured, radio collared and tracked wild covotes in two study locations; towns north of Boston and in Barnstable and surrounding communities on Cape Cod. His research also included the study of

Dr. Jonathan Way holds a sedated coyote after removing it from a box trap, his preferred method of capturing the elusive mammals. Photo credit goes to Eastern Coyote Research.

a captive coyote pack, which he hand-raised and then closely studied in an enclosure at the Stone Zoo in Stoneham, Massachusetts.

He explained that the Eastern coyote, which is the largest coyote in North America, is the product of mating between Eastern red wolves that were not killed off at the turn of the century and colonizing Western coyotes. He argued the term "Coywolf" best describes this highly adaptive, opportunistic predator.

### PROPERTY VISITS

We invite you to get to know our properties by joining us for a Property Visits take place on the first Sunday of every month - so mark your calendar. The hikes are from 10-12, but feel free to come and go as you please.

A property visit entails meeting up at a property, walking the trails, clearing fallen branches, reporting any issues, picking up trash (ugh!), and taking on small projects such as trail marking, rerouting a trail, etc. as needed. Oh yeah, and there will be donuts.

While some of the work during a Property Visit might require some 'heavy lifting' (chain saws - oh yeah!) it will for the most part be light stuff. In other words, it's really just an excuse to visit our properties with friends and make sure things look good!

Join us for our next Property Visit on April 7th at Williams Woods on Brigham Hill Road (note: not Williams Preserve). Parking is available roadside across the street on Rose Lane.



Grafton Land Trust members gathered at one of the largest and oldest black oak trees in Massachusetts, located on Grafton Lions Club property. It is estimated to be over 200 years old. Photo by Troy M. Gipps.

### ADVICE FROM A TREE From "Ten Trees"

-Stand tall and proud. -Go out on a limb. -Remember your roots. -Drink plenty of water. -Be content with your natural beauty. -Enjoy the view.

**SPRING SKIING** WITH SALLY

On the afternoon of March 9th, Grafton Land Trust Vice President Troy Gipps took advantage of spring-like weather and a foot of freshly fallen snow to go cross-country skiing at the Hennessey I property, which is owned by the Town of Grafton. He was retracing his ski tracks along the edge of a field when he had a most unexpected encounter.

"I had just skied past a section of field that was really wet due to snow melt when I noticed a dark object at the bottom of one of my ski tracks," said Gipps. "As I got closer I was amazed to find a spotted salamander standing there in the snow!"

It is not usual for spotted salamanders to become active in the very early spring, "but this little guy seemed to come out of nowhere," said Gipps. "There he was standing at the bottom of a foot-deep ski track that I made only 20 minutes earlier. It was 3:00pm and he was at least 100 feet from cover."

Whether he crawled that distance at the bottom of the ski track, scampered a lesser distance across the snow and fell into the track or somehow borrowed through the snow and dropped into the track, Gipps cannot be sure, but in either case crossing paths with a critter like this while skiing was likely a once in a lifetime experience.

Prior to skiing home, Gipps moved the salamander to the safety of a small intermittent stream from which he will continue his migration to an ancestral vernal pool to mate.













## "Many eyes go through the meadow, but few see the flowers in it." ~ Ralph Waldo Emerson

### The Future of a Precious Meadow

It could be called "Churchill Meadow" -- a lovely four-acre open space just to the right as you hike in to town-owned Great Meadow from George Hill Road. Fred Churchill, among others, saved it from development a number of years ago and kept down the saplings with periodic mowing. When the Churchills moved away from Grafton, the Land Trust decided that the town needed meadow habitat more than woodland and mowed it again this fall as a maintenance gesture. Its future is uncertain, but for the moment it can be enjoyed as a peaceful, remote-feeling open meadow with a gentle woodland border, linked by trails to Great Meadow.

The GLT was touched by this message of appreciation accompanied by a donation: "This contribution is inspired by the mowing of the Churchill meadow off George Hill Road. I often walk there, and I have been dismayed to watch the growth of saplings overtake the open field. The birds and small meadow creatures joined in regretting the passage of the meadow. But lo! in early December, I found once again an open meadow, thanks to interventions by Ed Hazzard, David Nicholson and Jeff Backer who drove the cutting equipment. I would like to make this contribution for reimbursement of the workers on that project."

Thank you to Nancy Wilson for her thoughtful support; to Ed Hazzard, David Nicholson and Jeff backer for preserving this meadow for the near future; and to Nicholas Frank, Shauna Cardenas and Tom and Donna Onacki who deserve credit as the de facto stewards of those trails. There is no doubt that they all "see the flowers" in the meadow.



## Welcome to New Director, Ed Fritz

It is my privilege to serve on the Board of Directors for the Grafton Land Trust. My wife Mary and I have lived in Grafton for the past 18 years. We have 2 sons, Nicholas - currently attending Massachusetts Maritime Academy and Jonathan attending St. John's High School.

Grafton is such a unique town with many ties to the past. Its bucolic feel is what first attracted us here. Over the years, our family has enjoyed many of the open spaces and wooded trails situated throughout town.

I became very interested in joining the GLT Board when I discovered that part of GLT's responsibility is to create and maintain the trails my family has enjoyed so much. While on the Board I will be assisting on the Land Use & Management Committee.





A spotted turtle found in Grafton. Photo by Troy M. Gipps

### By Troy M. Gipps

For creatures without fur or feather, winter is a waiting game. To escape the killing freeze they dig down in the cold dark muck that lies beneath Grafton's wetlands and slip into a deep sleep. Faint evidence of life's rhythmic pulse clings tightly to their core as snow blankets the landscape above. There they lie, motionless, to be awoken only by the gradual warming of spring. One such creature well adapted to survive New England's long winters in this manner is the spotted turtle (Clemmys guttata).

Most people are familiar with the colorful painted turtle, which is commonly seen at local ponds just prior to leaping from its basking perch. The spotted turtle, however, is a shy creature that prefers aquatic environments unfriendly to human foot travel, such as flooded forests, vernal pools, marshes, wet meadows, bogs and woodland streams. These areas, often thick with grass hummocks, brush and deadfall, provide these small turtles with ideal habitat in which to hunt and evade predation. One such location in Grafton that supports a breeding population of spotted turtles is a small wetland complex that lies in the vicinity of Browns Road where it intersects with tracks from the Grafton & Upton Railroad.

The spotted turtle, which measures 3.5 to 5.5 inches

in length, gets its name from the tiny bright yellow spots that cover its smooth black carapace, legs, head and tail. Spotting patterns vary considerably among turtles, which helps to identify individuals. It is interesting to note that spotted salamanders, which also inhabit vernal pools, are also black with bright yellow spots. There may be some evolutionary advantage to this pattern specific to vernal pool environments where sunlight filters down through canopy and illuminates the forest floor in an ever-changing pattern of light and shadow. The spotting pattern also blends in well with duckweed, which is a small floating aquatic plant frequently found in spotted turtle habitat.

Determining the sex of a spotted turtle is quite easy due to variances in the shape of the plastron (bottom shell), as well as eve, chin and beak color. Male turtles have a concave plastron, a brown or black jaw and brown eyes, whereas females have a flat or convex plastron, orange chin, red eyes and a yellow beak.

Spotted turtles reach sexual maturity in eight to ten years and can live to be at least 25 years old. They are, however, highly vulnerable to predation due to their small size and frequent terrestrial wanderings. It is not uncommon to find specimens with tooth marks on their carapace or one or more limbs missing. These turtles are the lucky ones. An encounter with a raccoon, a predator that is particularly adept at preying on this species, is often fatal.

The spotted turtle was originally added to the Massachusetts rare species list because of a lack of documented occurrences. Although recently delisted as a species of special concern, the Massachusetts Natural Heritage and Endangered Species Program believes this species is in need of some conservation attention. All but three species of turtles in Massachusetts (Eastern Painted Turtle, Stinkpot, and Common Snapping Turtle) are protected and cannot be captured and kept. It is still illegal to possess a Spotted Turtle.

The female spotted turtle normally lays three to four eggs each year, and she usually buries them about two inches below the surface of the soil. The eggs typically incubate for 11 weeks before hatching; at which point the newly hatched turtles usually search out habitats of their own. Hatchlings closely resemble adult turtles, but have fewer yellow spots.

The most dangerous time of year for the spotted turtle is shortly after it emerges from its winter hibernation in the very early spring (usually in March). Nearly paralyzed by the icy muck and water, spotted turtles labor to pull themselves up onto grass hummocks where the lay in plain view, exhausted and wholly dependent on the life giving rays of the sun. At this time of year, the passing of a cloud and the path of a predator can determine life or death for these turtles. Once warmed sufficiently, they spend a considerable amount of time in vernal pools where the feed on amphibian eggs, invertebrates and aquatic plants.

The emergence of spotted turtles is one of the earliest signs of spring, but finding one is a challenge for even a seasoned swamp walker. To improve your chances, arm yourself with insulated hip waders, a stout walking stick, a keen eye and a lot of patience. If you are lucky, you will join a short list of Grafton residents who have had the pleasure of meeting this elusive species.

#### By Ed Hazzard

A misty September morning at Churchill Meadow

The snow covered meadow is now free of overgrowth. Photos by Shauna Cardenas



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