



NEWTON CONSERVATORS

AUTUMN ISSUE

NEWSLETTER

Newton's land trust working to preserve open space since 1961

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Are invasive plants worth worrying about?



Fallopia japonica



Alliaria petiolata



Lythrum salicaria



Phragmites australis



Rhamnus cathartica

Ask the frogs.

By Eric Olson, Senior Lecturer in Ecology at Brandeis University

For the past eight years, I have been organizing teams of citizens and students to remove invasive plants from conservation areas in Newton and Waltham. This is true urban ecology, conducted along the well-worn trails of our city parks, usually on sunny Saturdays in the spring. On a typical weed-pull day, scores of people pass by our work sites, walking their dogs or just out for a stroll. Each time, a few stop to ask what we are up to. I enjoy these opportunities to teach, and I find that most people agree that selectively “editing out” non-native plants known to exclude natives from natural habitats is a worthwhile thing to do.

Each year, though, a few challenge the logic. “What about survival of the fittest?” they ask, or “Shouldn’t we just let nature take its course?” I could reply by noting that, should their bodies be invaded by Lyme or some other pathogen, they would certainly not just let nature take its course! The analogy is imperfect, however, since we are working in areas deliberately set aside to be “natural.” Over time, natural communities indeed do change and adapt, and always will.



PHOTO: WIKIPEDIA.ORG

So why fight invasives? It’s not fear of total extinction of native plants that drives me. Even if the lovely streamside plant Cardinal Flower (*Lobelia cardinalis*) is over-run throughout Boston’s suburbs, I know of large populations in the

Adirondacks that are under no immediate threat. And, yes, probably over geological time some native insects will evolve the ability to eat garlic mustard and Japanese knotweed. In the here and now, though, as in over the next several hundred years, I am concerned about a cheapening of our local environment, both at the level of the plant community and higher along the food chain as well.

Recent research highlights the risks certain invasives pose to local food chains, not just to native plants. My favorite example is research done in upstate New York with Green Frogs placed for about a day and a half into laundry baskets. Half of these “frogs in a basket” were set out into knotweed patches, others in nearby wetlands still rich with native plant diversity. In the native plant areas, a variety of bugs found their way through the holes of the baskets, and frogs in those baskets gained weight over the

PHOTOS, TOP LEFT TO RIGHT:
SEAGRANT.PSU.EDU; CALUMETSTEWARD-
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duration of the test. No frogs gained weight in knotweed, though, and most lost weight, i.e., were on their way to starvation by the time the test ended. North American insects simply cannot eat knotweed, so if you ask the frogs, knotweed stands are the equivalent of barren cupboards.

Here are three more examples:

- American Toad tadpoles living in water steeped in the leaves of the wetland **invasive Purple Loosestrife** (*Lythrum salicaria*) suffered higher mortality compared to those grown in native cattail-leaf water. These tests were done in the lab, and all tadpoles were given plenty of food, so the difference was in the water chemistry, not in food. The researchers suspect that Loosestrife tannins are harmful to tadpole gills. Where done: New York State.
- **Invasive Common Reed** (*Phragmites australis*) slowed growth of Wood Frog tadpoles. This work was done in small enclosures in the field, where the researchers found that these reeds reduced the tadpole's favored algae food. They note that slow growth will increase risk of predation and of habitat loss (drying up of the water) for vernal pond frogs. Where done: Quebec, Canada.

- **Common Buckthorn** (*Rhamnus cathartica*), an invasive shrub often found near and even in wetlands, contains the chemical compound emodin, probably as a deterrent to herbivores. Unfortunately, some emodin leaches from the plants into surrounding ponds and swamps, where it proves toxic to amphibian embryos, disrupting their development and even preventing the hatching of eggs. "Levels of emodin in the environment are greatest at leaf out," the researchers note, exactly when amphibians are chorusing and laying eggs. Where done: Chicago area.

These examples should help convince many (but likely not all) "let nature take its course" advocates that invasive plant removal is worthwhile. I do hope that over the millennia nature will respond, and our native amphibians will evolve tolerance for these new varieties of harms. Meanwhile though, in just a geological blink, we humans have brought numerous new plants to North America, and that alone means we have most definitely not let nature be. I'll always stick by my view that we ought to be active stewards, not just passive observers, of the natural habitats that remain. ■

To be added to Eric's Invasive Plant Taskforce email list, send to eolson@brandeis.edu

My Entrance into the World of the Laboratory

By Eliana Gevelber, Student and Conservators' Summer Intern

The overarching goal at Boston University Assistant Professor Robinson Wally Fulweiler's biogeochemistry lab is to see how humans are impacting the coastal waters. More specifically, she, along with a team of researchers, looks at how nitrogen and dissolved greenhouse gases coming from humans affect the surrounding ecosystems. They do this by examining two major sources of nitrogen in the ocean: terrestrial runoff and nitrogen-fixing microbes. Additionally, the lab researchers observe the impacts of excess nitrogen, which causes algal blooms, insufficient oxygen levels and, thus, fish kills. As an intern in Fulweiler's lab this August, I had the opportunity not only to learn more about oceanic biogeochemistry but also to explore what it is like to do scientific research.

Much of what I've done at the lab has been centered around a data-gathering trip the lab members took to the continental slope off the coast of Massachusetts. My job was to help with the "before" and "after" procedures. When they were on the boat, the researchers collected water samples using a rosette of Niskin bottles, a way-cool gadget composed of long tubes,



Rosette of Niskin bottles

each of which is set to open and to collect water at a certain depth, based on water pressure. The water samples were then placed in coolers so that the temperature-sensitive microbes inside weren't affected by the change of location. Small portions of the water samples were removed at regular time intervals and placed in vials to be analyzed for nitrogen and dissolved greenhouse gases such as carbon dioxide and methane. The point of taking samples at different times was to see how the microbe population changed the levels of the various nutrients in the water

through their metabolic processes.

Back at the lab, I helped with the water sampling; the lab members set aside portions of the seawater 24 and 48 hours after it was removed from the ocean. Actually, I only really helped with the sampling at the 48-hour mark. The first day after the trip, I was busy washing all the muddy vials, syringes and water filters from the boat in deionized (DI) water, which is used along with an acid wash to remove potential microbe invaders from the equipment. It's important to remove them because they could be confused

Editor's Note

Last year at this time, an article in this newsletter identified five invasive plants readers are likely to find in their back yards and urged them to remove as many as possible. Invasive plants continue to be a strong concern for many of our members. In this issue, Professor Eric Olson provides a strong argument about why we should continue the fight against invasive plants in our community—and others. Prof. Olson also leads garlic-mustard-pulls for the Conservators during every summer, and those who join in on the work get an extra bonus of his entertaining and informative talks about the natural world around them. (Watch for the listing of those walks next spring, and check the fall walks featured in this issue.) Invasive plants come up once more in the brief article that explains the deleterious effects of Black Swallow-wort, one of those back-yard intruders that were identified last year. Both articles indicate that there's still a lot of pulling to be done.

As announced in the spring, the Conservators' board of directors voted to support two internships with stipends: one for the Director and one for the Student Director of the Environmental Science Program of Newton, which is

part of the Newton Conservation Commission. Director Noah Lerner, a student at Amherst College, and Student Director Eliana Gevelber, a senior at Newton North, present terrific articles insights about the work they did. Reading about what these two students learned and their commitment to the environment will make anyone optimistic about our future. Both young scientists worked with professionals (one of them Eric Olson) who are trying to understand and mitigate the effects that humans (and—as a result—invasive species) have had on the environment.

This issue features many other informative articles, including Pete Gilmore's update on summer birding and President Beth Schroeder's directions for planting trees. Just before this newsletter went to the printer, an e-mail message arrived from a reader in Wisconsin, clearly a response to Pete's birding column. Look for it at the end of his piece. We'd love to hear your thoughts about what you read and your concerns about the environment and the preservation of open space in Newton. Is there something else that we should be covering? Would you like to write an article for us? Please let us know. ■

✎ Beth Wilkinson

with the oceanic microbes that are actually supposed to be measured. By that time it was my second week at the lab, and I had already realized that a large chunk of the time I spent there was to be consumed with washing this or that in DI water. So, it was actually pretty exciting when, on the second day post-trip, I was asked to help with the sampling in "the chamber," named as such because of its heavily insulated walls, which make it easy to replicate the temperature of the deep seawater.

Thinking about the work I've done so far in the Fulweiler lab, I can confidently say that I've learned quite a fair amount. The terrestrial ecologist in me has gained a deeper understanding of nutrient cycling in coastal waters and how to measure it. For example, when taking out vials of seawater at the 48-hour mark, I learned that it is important to kill the bacteria inside the water to ensure that they stop altering the nutrient levels through their metabolism. Working at the lab has reminded me that most science involves some tedium. This exists at least to some extent whether you are an evolutionary biologist catching a species of songbird and painstakingly measuring its beak length or a biogeochemist running test after test from countless little vials of water.

What inspires me is the fact that by obsessively gathering data over a period of time, patterns begin to emerge, and humans who call themselves scientists can attempt to understand the world a little bit better.

A phenomenon I witnessed at the Fulweiler lab was the passing of scientific knowledge down the generations. I experienced it in a small way, of course, but noticed how professor taught graduate student, who taught undergraduate. And all of them taught me. Which reminds me of a quote by one British physicist, Isaac Newton (remember, the apple guy?), which reads: "If I have seen further, it is by standing on the shoulder of giants." (from a letter to Robert Hooke, February 5, 1675). This, I believe, is the perfect image to represent the process of progression in science. As young scientists today, it is our duty and privilege to educate ourselves in the discoveries of our predecessors and to then uncover even more about the mysterious and fascinating universe that we inhabit.

My deepest thanks to the Newton Conservators for sponsoring this enlightening internship in a biogeochemistry research lab. ■

About the Author: Eliana Gevelber, a senior at Newton North, is a passionate student of the natural world. The Newton Conservators supported her internship in a biogeochemistry research lab at Boston University. Eliana served as Student Director at the Newton Environmental Science Program this year. She is a member of Newton North's Envirothon team, which won Massachusetts and represented the state at the North American competition two years in a row. The team proceeded to earn second place among 57 teams representing almost all the US states and Canadian provinces.

A Ticklish Summer Internship

By Noah Lerner, College Student and Conservators' Summer Intern

My internship this summer with the Newton Conservators provided me with the opportunity to participate in ecological research with Eric Olson, a professor at Brandeis, and to do what I love most: spend hours romping around the woods. The research focused on the relationship between populations of deer and populations of deer ticks, the principal vector of *Borrelia burgdorferi*, a

pathogen that causes Lyme disease. Due to an explosion in Lyme disease cases in the past decade, many communities in New England are struggling to come up with strategies to reduce deer-tick populations. Larval deer ticks first feed on mice and squirrels, both of which are carriers of Lyme disease. After this first blood meal, these ticks progress into the nymph stage. Deer are well documented to be the favored blood host for nymph deer ticks (hence the name “deer tick”). Therefore, one such strategy to reduce deer tick populations is to try to reduce local deer populations.

Last year, the town of Weston agreed to allow bow hunters, under strict regulation, to begin to hunt deer. Weston's high deer population poses a threat not only because of their connection with ticks, but also because of their involvement in deer-vehicle collisions. Overgrazing by deer also seriously affects local forest biodiversity and overall forest health.

Working with Professor Olson and one of his undergraduate students, Adam Krebs, I helped to sample over five different sites throughout forests of Weston. The goal of our research is to assess how the tick population varies over the next ten years and to determine a reduction in the deer population due to the deer hunt will actually correspond with a drop in the tick population.

Sampling is done by dragging a white flag along the forest ground in 30-second intervals and counting the number of ticks picked up in each interval. At first, spotting the tiny nymph deer ticks was challenging, but after a several hours, I developed a “search image” and could almost keep up with Professor Olson. It was quite common for me to get 0 ticks, but at times I collected as many as 23 ticks in 30 seconds. This variation is perfectly normal for a forest; we account for this “randomness” by having multiple samplers



PHOTO: DAVID BACKER

each doing up to 30 “drags” of the white flag at one site, twice a month. Once we find the ticks, we use tweezers to grab the ticks and place them in a sealed capsule. (This was a real test of our fine motor skills.) These ticks get frozen and will eventually be sent to a lab where they will be tested to see whether or not they are carriers of Lyme disease.

We probably won't have any conclusive data on

the effect of the deer hunt on the tick population for the next five years or so, but our guess is that the strict regulations of the deer hunt will prevent any substantial drop of the deer population from occurring, and, therefore, we don't expect to see the deer tick population be lowered to a level that is acceptable for human health standards. While I personally have absolutely no interest in hunting, I do think that Weston may need to reconsider its hunting regulations if they are serious about controlling the prevalence of Lyme disease.

Obviously there were some inherent risks of wandering around the forests in search of deer ticks; almost 1 in 5 deer ticks are carriers of Lyme disease. To protect ourselves, we dressed in all white so that the ticks on our clothes would be easier to spot, and we conducted tick checks on a regular basis. But besides the occasional feeling that I had ticks crawling all over my body, I generally found my hours spent walking around the parks of Weston to be a pleasant, even meditative process. Collecting ticks and working with Professor Olson ended up being a truly unique learning experience and a great way to spend a part of the summer, and I am grateful to the Newton Conservators for providing me with this opportunity. ■

About the author: Noah Lerner is a sophomore at Amherst College and intends to major in Biology and Environmental Studies. Noah served as the Director at the Newton Environmental Science Program this year. At Amherst, Noah plays Ultimate Frisbee and has been active participant in his school's coal-divestment movement. Noah is also an avid student of Mandarin, having already lived in China for ten months on a year off. He hopes one day to conduct environmental or ecological research in China.

Plant a Deciduous Shade Tree this Fall

We lose many trees in Newton, whether to old age, storms or new construction. If homeowners would add trees to their properties, we could change that loss to a gain. Waiting for city crews to replace street trees is not enough. Even if the City of Newton had the finances, street trees are tough to get started and to keep alive. Our properties are a better habitat than a small strip of land along the street.

Shade trees often live for decades, some for over a hundred years. Large shade trees planted in the Victorian age are still with us, but their numbers are dwindling. Who doesn't enjoy the sight of a copper beech tree filling the front yard of a Victorian house? While we don't all have room for these monumental trees, we can still add shade trees to our properties. It's not just about increasing our property values. There are many other benefits.

Deciduous trees add beauty by framing your house; they attract birds, and they lower your energy bills by shading your house during hot summer months and allowing sun in to warm your house during winter. Shade trees can keep your home ten degrees cooler in the summer if planted on the west, south or east sides of the house.

Plant trees 10 to 20 feet from the house. Avoid planting large trees under power or telephone lines. Front yards, backyards and property borders are good locations to add shade trees.

Grass and perennials will survive under many types of trees. A maple tree casts dense shade, but dappled light coming through the foliage of an oak tree creates an excellent growing environment for perennials. Our eastern Massachusetts region was originally a woodland environment, which would typically contain maples, birch, ash, hickory and red oak.

Oak trees live for one to two hundred years. **Red oaks**, *Quercus rubra*, and **pin oaks**, *Quercus palustris*, are available in most nurseries. Both trees are hardy native trees. These hardwood trees are slower growing, stronger and less susceptible to damage from ice and snow.

Red oaks grow to be 60-70 feet high and wide. A red oak tree from a nursery with a 1.5-2" diameter trunk costs about \$250. Pin oaks grow to be 60-70 feet high and 25-40 feet wide. Pin oaks are interesting because their bottom branches slant down. A pin oak tree with a 1-1 1/2" inch trunk diameter costs about \$170 at a nursery, while a 2-2 1/2" trunk diameter is about \$300. Hiring a nursery or lawn crew to plant a tree usually costs about 75% of the retail price of the tree.

White oaks, *Quercus alba*, are very slow-growing and not usually available from nurseries. If you find a white oak sapling on your property, try to let it grow where it came up if at all possible. They are difficult to transplant. White oak leaves have rounded lobes, while most other oaks, including red and pin oaks, have pointy lobes.



White Oak – rounded leaf lobes

If you find any oak sapling growing on your property, consider letting it grow there. If a red oak pops up in an inconvenient spot, you can dig it up and move it to a better location. On our property, we moved a red oak to the back corner of our property when it was still small, about 18" high. Now our red oak is about thirty feet high and helping to fill an opening where three large oaks used to stand in the neighbor's yard.

Other deciduous tree options include tulip tree, linden and ginkgo. **Tulip tree**, *Liriodendron tulipifera*, grows 75-90 feet high and 40-50 feet wide. **Linden**, *Tilia cordata*, grows to be 40-50' high and 25-30' wide. **Ginkgo**, *Ginkgo biloba*, grows to be 35-50' high and wide.

In the fall, you can plant balled-and-burlapped or container-grown trees. Save bare-rooted tree planting for spring. In the fall temperatures are cooler; the soil is warmer; and nurseries will be less busy and better able to help you. Many trees will be on sale at nurseries. Finish your planting by mid-October.

Your tree will need to be watered daily for a week and then weekly during the growing season, until it has lost its leaves. Mulching over the root ball will help to conserve water and



Red oak – pointed leaf lobes

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hold in soil temperature, but do not create a mulch volcano: keep mulch away from the tree trunk, and use no more than 2-4" of mulch. Keep grass away from the tree's root ball until the tree is well established. Grass will compete for water and nutrients. Remember a balled-and-burlapped tree may have had its roots reduced by 90% when dug from the field in order to make it available for sale in the nursery.

It is a long-standing tradition to plant a tree in honor of a newborn in the family or in honor of a loved one who is no longer with us. We come and go over the years, but our gardens and homes often remain for another generation to enjoy. This is the continuum of life and nature. Each generation has an opportunity to add beauty to the environment. We lose many trees each year. If we do not plant them now, what will Newton look like in the future? ■

✂ Beth Schroeder, bsw1@comcast.net

Birds of Summer

On August 12th, while walking our new rescue dog for her evening constitutional, we heard a loud beeping call like an exaggerated cartoon Roadrunner "Beep-Beep-Beep" overhead. The sound was the call of our Eastern Nighthawk as it was flying over Upland Road, near Beacon Street. On May 22, a northbound Eastern Nighthawk also first caught our attention by ear as it swooped through the air, beeping loudly, over Allen Road near the intersection of Pine Ridge Road.



PHOTO: SURFBIRDS.COM

Eastern Nighthawks (above) have long, powerful wings with large white markings across each wing, out beyond the elbow. They are in a family of birds known as Caprimulgids, or Goatsuckers. This name probably dates back to a European folk tale about them taking milk from goats.

These birds were once much more numerous in the Newton area. They nested, among other places, on flat gravel roofs. They are naturally ground nesters and so are vulnerable to predation. With the passing of many of these roofs and other changes to our environment, these birds are now only seen as they migrate north in the spring and then south for the winter. During the winter, these birds are in Central and South America. They feed on insects, catching them on the wing in their large mouths.

All through September, these birds will be passing overhead in the evenings, so if you are out for a walk at dusk and are properly defended against mosquitos, listen for them. You will most likely hear them before you see them.

Another noticeable bird in our neighborhood this season is the **Wild Turkey** (top right). In the Newton Highlands neighborhoods, there has been a group of them consisting of



PHOTO: ITONLYCOMESNATURALL.BLOGSPOT.COM

two cooperating hens and a collection of chicks. By now the chicks are getting almost full-sized. We first saw the group in late June, when there were twelve very small chicks. By early July there were only eleven chicks, but that number has been maintained for six weeks now. It is fairly common for an experienced Wild Turkey, Canada Goose or duck hen to assume responsibility for more than her own brood. In this case, the other hen, experienced or not, has stayed the course. The two keep a careful watch over the younger birds. They are often in yards and fields along the Cochituate Aqueduct.

These birds are large enough that it does not behoove us to feed them. Otherwise, they become accustomed to food from humans and can become quite assertive in demanding food from folks who are not comfortable around big birds. The males in particular can be very aggressive during courtship time in the spring. A friend of ours in Needham could not leave her car one morning because a male Wild Turkey began attacking the car. It was up on the hood at one point. She was afraid to get out to go in the house. She just had to wait out the angry assault. There have been neighborhoods where the U. S. Postal Service has stopped delivery of the mail because of aggressive turkeys. So, if our 11 chicks are to do well, we should keep some respect and distance from them.



PHOTO: COMMONS.WIKIMEDIA.ORG

The fall migration is now upon us and continues through October. We will have plenty of wood warblers coming through Newton on their way south. Already, the **American Robins** are flocking up and beginning to move south. The **Baltimore Orioles** are still around but are much less vocal and harder to find in the foliage. They will be leaving us soon for more southern wintering locations. The general early morning songfest has quieted down as the nesting season ends. The first waves of sandpipers and other shorebirds are already past us, to the south. More will keep coming down the shores, with occasional birds like **Spotted** (above) and **Solitary Sandpipers** showing up along the Charles River banks in Newton. As winter approaches, we will begin to look for **Bald Eagles** around the Charles River.

It will be interesting to find out whether the **Blue Jays** and **American Crows** in Newton have developed immunity to the West Nile Virus, which is being heavily reported in the press. The last wave of West Nile Virus devastated the crow and jay populations in our city. Those birds have regenerated but now face the same threat again. They are in much more danger than we are.

There will be several Newton Conservators' bird walks this fall. If you are interested in participating at any level, please join us in exploring the natural world around us. The walks will share bird lore as well as any other interesting sights and sounds that turn up. The fall in New England is a time of change and wonder. Get outside and enjoy our surroundings. ■

✍ Pete Gilmore

Letter to the Editor:

For the first time in my life, I witnessed a **nighthawk** migration on August 23 at dusk. My rough estimate during a 45-minute period is 400 birds. They flew the width of 3-4 city blocks in groups of 4-5 spread out over the city blocks. I live at the crossroads of Beaver Dam and Black Bear Trail in Stevens Point, Wisconsin. It was phenomenal to watch them in their silent travel. I was in awe, especially living in the city and having only limited view of the sky.

—Michelle Laucke

High Tech Calls on Newton's Conservation Areas

Newton Conservators Pilot QR Program

Litterbugs. Invasive weeds. Cell phone users. All are unwelcome despoilers of Newton's natural areas. It may come as a surprise, then, that the Newton Conservators—the citizens' organization that's been advocating for Newton's open spaces since 1961—is now advocating the use of cell phones in some of Newton's most pristine places. But before you rush to chat up your friends about that yellow-rumped warbler you just spotted, a little clarification. The Conservators want you to use your phone silently.

The Conservators are conducting a pilot test of Quick Response, or QR, codes at several of Newton's conservation sites. QR codes—black and white squares that look like miniature pixelated op-art pictures—are a kind of two-dimensional bar code. Smart-phone users simply scan the QR code to be directed to online information about the site.

"The Newton Conservators website has trail maps and other great information about many Conservation Areas in Newton. But few visitors to these areas know that the information is available online," said Conservators' Board member Dan Brody, explaining the Conservators' decision to launch the pilot program. "The new technology of QR codes that smartphones can read made it easy for us to put this information in the hands of visitors."

Permanent QR codes have been attached to signs at the entrance to the Webster Conservation Area, the Norumbega



PHOTO: DAN BRODY

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Park Conservation Area, and the Helen Heyn Riverway Conservation Area. Each QR code is individualized and directs users to site-specific information. For example, a quick scan of the Helen Heyn Riverway QR code brings a visitor to a webpage that provides a trail map, a short history of the site, and information about related walks. This information can be particularly helpful to the individual who is taking an impromptu walk or who has simply stumbled across the site.

“We hope that visitors to one conservation area will be inspired to visit our website to learn about other Newton park and conservation areas and about the work of the Conservators to protect our remaining open spaces,” Brody said. The Conservators will be monitoring QR use, he added, and if interest is sufficient, the program will be expanded to include additional spaces.

Newton’s Parks and Recreation Commissioner Bob DeRubeis was among the very first to enthusiastically endorse the pilot program. “I commend the Newton Conservators in their effort to inform the users of conservation areas through

the use of QR codes,” the Commissioner said. “It will create an environment where up-to-date information is readily available and accessing that information should aid in the education and enjoyment of the many natural resources that the City has to offer.”

DeRubeis also sees a natural interface between the Conservators’ deployment of the QR codes and the City’s planned introduction of QR codes at other recreational areas around Newton.

“One of the areas that we are proposing to use them is on watershed signage that we are proposing at Crystal Lake,” the Commissioner explains. “The QR codes will allow those with the proper apps the ability to access pertinent information right at the site. It will give the user the opportunity to remain current with changes and updates in real time.”

It seems as though it won’t be very long before visitors to all of Newton’s conservation and recreation areas will be encouraged to “hold the phone.” But please remember to only hold it—leave all the chatter to the yellow-rumped warbler! ■

✎ Margaret Doris

Could an Anaerobic Digester be Coming to Newton?

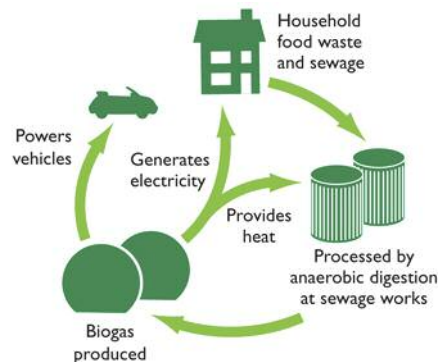
There has been some discussion at City Hall and in the environmental community that Newton could be in the market for an anaerobic digester.

Recently, the City submitted a grant to the MA Department of Environment Protection (MA DEP) for a proposed Curbside Source Separated Organics (SSO) Collection Pilot. The pilot will target 600 households to voluntarily participate in the program. These households will be provided with a curbside organics collection cart and a kitchen scrap bucket. The City will be measuring success using weigh data provided by the organic waste hauler and survey responses from participants.

Anaerobic digestion is the process by which microorganisms break down organic waste into a gas that can be used to produce electricity and thermal energy (heat). The biogas produced can also be converted to compressed natural gas (CNG) and used to fuel vehicles, such as buses or trucks.

This technology can play an important role in diverting some of the organic waste disposed of in landfills across the Commonwealth. Some estimate that food waste accounts for approximately 25 percent of the entire waste stream in Massachusetts, and most of this waste is dumped into landfills, where it rots and produces methane gas—a potent greenhouse gas.

The MA DEP recently promulgated new rules that will prohibit large producers of organic waste (defined as those



Anaerobic digester process.

who generate a ton or more per week) from putting this waste into landfills. This is part of an effort to reduce the need for additional landfill space, which is quickly becoming in short supply in our densely populated state, and would increase the likelihood that Newton would be interested in a digester.

Newton isn’t the only town considering this option. Earlier this spring, Franklin officials drafted a zoning bylaw amendment making it possible for the town to field a request for proposal (RFP) from the State. (However, in June this plan was tabled due to concerns from abutters.) And Lexington, along with the towns of Bourne, Hamilton and New Bedford, has received a grant from the MA DEP to investigate hosting an anaerobic digester in their communities. Besides the environmental benefits, there is the lure of additional revenue from the generation of energy, the sale of valuable compost (which the Newton already does at the Rumford Ave facility), and the savings from reduced tonnage going to incinerators/landfills.

Many details still need to be worked out. Newton would need to investigate the impact of truck traffic in the community, as large tanker trucks that collect the waste haul it to the digester facility. There are also the practical considerations of collecting the several hundred tons of organic waste needed to fuel it. All in all, siting such a facility in Newton would take close collaboration of MA DEP, city officials, abutters, and neighboring communities. ■

✎ Alison Leary

Black Swallow-Wort Found to be Harmful to Monarch Butterflies

In May of 2012, when volunteers for Newton Serves tackled the overgrown area across from the community gardens at Nahanton Park, we found small patches of black swallow-wort (*Cynanchum louiseae*), mainly growing on the fences around the individual gardens. Just one year later, in May of 2013, it was all over that same area. It was hard to find a six-inch patch that didn't contain at least one plant. That is not surprising given that the Natural Resources Conservation Service had found that an infestation in a sunny location can produce up to 2,000 seeds per square meter. Furthermore, black swallow-wort also spreads by rhizomes, and it can tolerate a greater range of light and moisture conditions than most native plants.



PHOTO: AUBREECHEERIE.COM

Monarch butterfly on *Asclepias tuberosa* (butterfly weed).

As if that were not enough reason to want to remove it from the city's open space and our back yards, recently more information has been gathered about the plant's devastating effect on Monarch butterflies. A recent article in the Boston Globe attributed a noticeable drop in the population of the Monarchs to weather patterns and the destruction of the habitat for milkweed, the host plant for Monarch larva. URI professor Dick Casagrande and his graduate students have done studies that show the presence of black swallow-wort plants is another significant factor in the decline of the Monarchs.

Because the black swallow-wort is a distant relative of the Monarch's host plant, milkweed, the female Monarch sometimes is fooled into laying her eggs on the plant. When the larvae hatch, however, they are not fooled, and they do not eat the swallow-wort. Dr. Casagrande and his graduate student Jennifer Dacey noted that all of the larva they studied died after hatching on black swallow-wort plants.

Dr. Casagrande reported, "They stopped eating after a single bite."

Dr. Casagrande's team has identified insect enemies of the invasive plant: two moths that will eat black swallow-wort but not the related milkweed plants or any other native plants. The biologists are working with other experts to devise a plan for releasing the moths in the United States and Canada.

There are, however, steps you can take to help eliminate the swallow-wort and to save the monarchs.

First, survey your yard for black swallow-wort. During the spring and early summer, it can be hard to spot its thin, long vines hiding amongst plants in your gardens, but at this time of year, its distinctive seed pods should be easy to spot.

Also, cultivate milkweed plants in your garden to serve as hosts for the monarch larvae. Of the 100 types of milkweed in North America, approximately 25 of them are good hosts for the monarchs. Included in the list of beneficial milkweeds are four that are common in our area: *Asclepias syriaca*, or common milkweed (which can be seen in fields, on the edges of roads, and even on the edges of parking lots in Newton); *Asclepias incarnata*, or swamp milkweed (which is tall with pretty pink blooms); *Asclepias tuberosa*, or butterfly weed (which is about a foot tall with heads of small bright-orange flowers); and *Asclepias purpurascens*, or purple milkweed (with deep purple, showy flowers). You can learn more about the different species of milkweed and their benefits for Monarchs on the Forestry Service website:

http://www.fs.fed.us/wildflowers/pollinators/monarchbutterfly/habitat/milkweed_list.shtml

✎ Beth Wilkinson

MISSION

Newton Conservators, Inc.

The Newton Conservators promotes the protection and preservation of natural areas, including parks, playgrounds, forests and streams, which are open or may be converted to open space for the enjoyment and benefit of the people of Newton. It further aims to disseminate information about these and other environmental matters.

A primary goal is to foster the acquisition of land, buildings and other facilities to be used for the encouragement of scientific, educational, recreational, literary and other public pursuits that will promote good citizenship and the general welfare of the people of our community.

The Newton Conservators was formed as a not-for-profit organization 52 years ago in June 1961.

The Newton Conservators Newsletter® is published four times each year by the Newton Conservators, Inc., in June, September, December, and March. Deadlines for these issues are the first Friday of each month in which an issue is scheduled to be published.

We welcome material related to our mission from any source. Send proposed articles or letters by email in MS Word or rich text format to bethwilkinson@mac.com. Digitized photographs, maps and diagrams are also welcome.

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Thanks to the following contributors to this edition of the *Newsletter*: Janice Bourque, Dan Brody, Margaret Doris, Eliana Gevelber, Pete Gilmore, Schuyler Larrabee, Alison Leary, Noah Lerner, Eric Olsen, Beth Schroeder, and Beth Wilkinson. As always, thanks to Doug Leith for his excellent proofreading.

Update on Crystal Lake “Working Group” Initiatives

By Crystal Lake Conservancy Co-Presidents Janice Bourque and Schuyler Larrabee

During the past year, a lot of discussion and initiatives have been part of a Working Group led by Bob DeRubeis, Director of Parks & Recreation Department. The Crystal Lake Conservancy (CLC) has been an active member of this group. Last summer's challenging algae bloom, coupled with the results of water sampling done by the City and CLC, made evident that further mitigation techniques and engagement of the watershed residents are crucial in addressing this potentially annual recurring issue.

The Crystal Lake Conservancy has emphasized during these Working Group meetings the need for both short-term and long-term initiatives as well as engagement of the public, particularly watershed residents, to ensure the continued use and health of Crystal Lake.

Here are some of the Working Group's initiatives:

1. Development of short- and long-term plans:

The City of Newton Parks and Recreation Department engaged consultant Larry Beals, a limnologist who has worked closely with CLC, to create a short-term and a long-term plan to treat and prevent further pollution. Mr. Beals is working with the group and the City in exploring a variety of potential treatments and presenting examples of what other communities have used to address similar algae blooms and bacterial infusions.

2. Communication with the public:

The Working Group developed an e-mail listing enabling us to advise residents about issues of concern, such as *being especially careful to use fertilizers that DO NOT contain phosphorus*.

3. Storm drain markings and filters:

In the Spring of 2012, a few volunteers worked together to apply medallions and paint road signage indicating which storm drains flowed into Crystal Lake. This summer, as a further step, the City purchased and installed special storm drain Fabco filters in 27 drains whose contents flow directly into Crystal Lake (there are 49 drains in total). All the other basins do not meet the depth specifications or have an outlet pipe that is too shallow to enable the filter to be installed. The special storm-drain filter's primary purpose is to reduce the nutrient content (phosphorus, nitrates, etc...) of the water from the watershed that flows into the lake. This nutrient content is the largest driver of the algae blooms. The City and CLC will coordinate their water sampling to track levels of nutrients. Maria Rose, City of Newton Environmental Engineer, will conduct road surface and direct outfall flow sampling, and CLC will continue with water sampling from the coves, the bathhouse and center of the lake. The filters may also have a secondary effect of reducing the amount of bacteria running from the watershed into the lake. This secondary effect would be helpful, but the primary use is nutrient reduction. ***It is important to understand that these filters are NOT a complete “fix” but are a constituent PART of solving the Lake's issues.***

4. Watershed signs:

Education of the watershed residents and their visitors is key to reducing the level of pollutants that flow into the storm drains and directly into Crystal Lake. In the near future, every street that is part of the Crystal Lake Watershed will have a colorful sign indicating that one is in the watershed area and indicating various pollutants that should be eliminated or reduced because they directly cause the high levels of nutrients and algae blooms in the Lake. Such pollutants include lawn fertilizers with phosphates and high nitrates, car-washing detergents, dog waste and its bags, excess motor oil, any harsh chemicals, and ice and snow salt. We have pushed for a reduction, or elimination, of salt application to roads in the watershed. ***Watershed residents should be aware that whether the pollutants run inadvertently off their property or are dumped directly into the storm drain, all of these pollutants flow directly into Crystal Lake.*** Filters can improve the situation but ***the REAL solution is reduction of use by watershed residents.***

5. Rain gardens:

The working group has been exploring various natural filtration mechanisms that could be installed by home owners and on City property to further reduce the polluting burden on the Lake. Ed Himlan, Executive Director of the Massachusetts Watershed Coalition, presented examples of various types of rain gardens utilized by other communities during the Crystal Lake Conservancy's Annual Meeting last October. (Visit the CLC website for the rain garden brochure www.crystallakeconservancy.org, or visit www.commonwaters.org).

A rain garden has a bowl shape to collect the rain that runs off from a roof, driveway, parking area or yard. This 6 to 9-inch-deep basin fills with runoff and allows the water to seep into the ground in a few hours. The rain garden plants and soils filter the storm water and cleanse pollutants that could harm water quality. The rain garden is filled back to natural grade with natural and beautiful plants and layers of soil, sand and gravel. Downspouts, driveways and sloping lawns that allow rapid runoff of heavy rains are directed to a rain garden to catch the runoff and to allow a slower drainage into the soil, thus allowing natural filtration of most pollutants. The City is exploring what conservation requirements may be needed for direct lake abutters, the need for a clear permitting process and for examples for any homeowner in or outside the Crystal Lake watershed. Additionally, the working group is looking for potential City property sites in the watershed that might be a good “rain garden” model for the community.

There are other initiatives that are under discussion that could further reduce the impact of pollutants on Crystal Lake. Stay tuned as the watershed signs roll out and further water sampling is done post filter inserts. ■

**Please note walks meet at different times. Some trips are weather dependent.
Please call trip leader if in doubt.**



PHOTO: RICHARD DANCA

Saturday, September 28 at 8:00 AM

Fall Birdwalk at Cold Spring Park with Pete Gilmore

Trip Leader: Pete Gilmore (617-610-2477)

Fall is an excellent time to look for birds. We'll explore the various habitats at Cold Spring Park in search of resident and migrating birds. Parking is available inside the park. Bring binoculars if you have them. Beginners as well as experienced birders are welcome. Boots are recommended. In case of steady rain, rain date is Oct 23. If in doubt, call Trip Leader, Pete Gilmore.

Sunday, September 29 at 8:00 AM

Fall Birdwalk at Nahanton Park with Haynes Miller

Trip Leader: Haynes Miller (617-413-2419)

Nahanton Park offers a mix of woodlands, wetlands, edge habitat, and meadows along the Charles River, making it one of the best birding spots in Newton for fall migrants as well as resident species. Meet at the Nahanton Street entrance off Nahanton St. between the JCC and the Charles. Parking is available inside the park. Bring binoculars if you have them. Beginners as well as experienced birders are welcome. Walking shoes are recommended. Co-sponsored by Friends of Nahanton Park and Newton Conservators. Trip cancelled in steady rain but ok if light rain or drizzle. If in doubt call Trip Leader, Haynes Miller.

Sunday, September 29 at 1:00 PM

The Canoe Trip at Nahanton Park with Bill & Dottie Hagar

Trip Leader: Bill & Dottie Hagar (617-964-2644)

This canoe/kayak trip will start at the Nahanton Park area at 1 pm. This is a beautiful section of the Charles River from which you can go upstream against the current to the far reaches of Needham, Dedham and Wellesley. Interested nature lovers can bring their own canoe or kayak to use or can rent one of them at the canoe/kayak rental stand that is located at Nahanton Park. The area up-stream is a region of significant beauty with almost pristine conditions of local marshes and tree lines. Cutler Marsh is particularly impressive with different patterns of wildlife overlapping the background tree line and marsh views. The trip from Nahanton Canoe/Kayak dock towards Millennium Park goes through several bends in the river where canoes and kayaks glide silently through the isolated wilderness areas of Massachusetts. You will slowly paddle upstream towards the park whilst passing by numerous wonders of nature. The fall is an especially good time to view the massive numbers of turtles along the shore along with other wildlife that have successfully been born to this unique stretch of water. There are numerous fish in this part of the Charles, including pickerel, bass and carp. Pickerel and bass when they are larger are piscivores and have other fish in their diet, but carp even as adults are primarily bottom feeders. You can see the tails of carp out of the water while their head is poking through the mud looking for food. We also will be observing the numerous birds that make their spring/summer/fall homes in this appealing habitat. We will pass by Powell's Island, Millennium Park, and the large Dedham Ditch and then stop for lunch on Cow Island. The trip back will be similar except we will have the current helping to carry canoeist and kayakers back. It is an interesting trip for adults and children that usually is completed within three hours.

Saturday, October 5 at 2:00-5:00 PM

Take a real hike in Newton! Discover the Newton Aqueducts with Henry Finch

Trip leader: Henry Finch (617-964-4488)

This popular 5.7 mile hike follows Newton sections of the Cochituate and Sudbury aqueducts. It is a mostly flat route on trails through woods and parks with about 1 mile of connecting roads. **The hike starts at Newton Centre Playground at the intersection of Centre Street and Tyler Terrace.** It passes through Waban at about 2.4 miles and through Eliot MBTA at 3.9 miles for those who want to shorten the route with a streetcar ride back to Newton Centre. This is a steady, but not fast hike. Participants should be in sufficiently good shape to keep up with the group. Rain does not cancel—lightning does cancel.

Save the Date! Sunday, October 6 starting at 10:00 AM

Tour De Newton Bike Ride

For details, visit: <http://bikenewton.org/services/tour-de-newton-registration/>. Co-sponsored with Bike Newton. Please save the date for a 15- to 20-mile "No-rider-left-behind" tour of Newton's 13 villages.



PHOTO: DAN BRODY



PHOTO: DAN BRODY



PHOTO: HENRY FINCH



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NEWSLETTER

Newton's land trust working to preserve open space since 1961

AUTUMN ISSUE

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New England Wild Flower Society Seed Bank Volunteer Opportunity



Did you know that New England Wild Flower Society maintains a seed bank to conserve New England's flora? Located at their headquarters at Garden in the Woods in Framingham, the New England Wild Flower Society Seed

Bank was established as a tool for plant conservation to ensure the preservation of genetic material for research, education and future species reintroduction in case of catastrophic population loss. Seeds are collected in partnership with New England's state Natural Heritage Programs by staff and volunteers of the New England Plant Conservation Corps Program (NEPCoP). They are looking for dedicated volunteers (age 18+) to help seed bank staff prepare seed collections for long-term storage. Training and materials are provided. If you would like to learn more about New England's flora and seed banking, this is a great project for you.

For more information, please e-mail New England Plant Conservation Coordinator, Erin Schaeffer at: eschaeffer@newenglandwild.org



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