You can make a difference!

Help the BCTrust preserve Boxborough’s undeveloped land to protect our water, trees, plants, wildlife, farm land and for nature-friendly recreation.

Make a tax-deductible contribution online (www.bctrust.org) or by mail to BCTrust: 650 Massachusetts Avenue, Boxborough, MA 01719. The Boxborough Conservation Trust is a 501(c)(3) nonprofit organization. Contributions are fully tax deductible.

As an all-volunteer organization, the Trust relies on the financial support of its members. The BCTrust welcomes everyone to become a member.

Check us out on Facebook and on the web: www.bctrust.org.

CR Monitoring Crew (L to R): Dave Neville (HCT), Tom Bieber, Tom Cotton (HCT), Liz Markiewicz, Alex Kerin and Margo Webber

Margo Webber led the conservation restriction monitoring walk at the Patch Hill Conservation Land in November. The BCTrust and the Harvard Conservation Trust (HCT) co-hold this legal interest on the property, known as the Panek land, and walk it every year to assure consistency with the restriction.

Photo on right: Alex Kerin inspects an interesting, gravestone-like rock.

Printed on partially recycled paper
The Drought of 2016
By Bradford Gray

I noticed in September that the mice had built another nest inside of my lawn mower. That is because I had not used it for the previous three months. Normally, I clean out the nest once in the spring and using the mower over the summer keeps it mouse free. Not this summer. No lawn to mow!

2016 was the driest summer ever in Massachusetts. The National Weather Service records that a total of 3.02 inches of rain fell in June, July, and August, almost a full inch less than the previous record of 3.97 inches set almost fifty years ago, in 1957, and less than one-third of the normal amount for this three-month period. Moreover, the current drought did not begin in 2016 but, rather, goes back to the beginning of 2015, another abnormally dry year. The rainfall deficit in the Greater Boston area is now over 9.5 inches for 2016, and over 18 inches (in some places even more than 20 inches) since the start of 2015. This does not mean that the problem would be solved if we received 18-20 inches of rain in the next three to six months. Annual rainfall in a typical year in Massachusetts is about 43 inches, fairly evenly distributed over a twelve-month period. Thus, we would need 18 to 20 inches in addition to the normal annual amount (i.e., over 60 inches) in order to erase the deficit. Most meteorologists believe this is very unlikely to happen without a massive shift in the jet stream pattern. Add to all of these statistics the record-breaking heat (August 2016 was not only the hottest August ever, but also tied July 2016 as the hottest month ever) and you have a truly extreme climatological event. So should we be concerned? Well, yes, we should. (continued on page 2)

Letter from the President
By Rita Gibes Grossman

Massachusetts is experiencing one of its worst droughts in history. With predictions for warmer temperatures and more frequent droughts, we thought it timely to advocate for water conservation strategies. Brad’s article is filled with helpful advice on how to use less water and, hopefully, reduce waste. Conserved land allows for water recharge by reducing run-off and decreasing the risks of contamination associated with human activities on developed land. Conserving land protects water resources and helps nature to be more resilient in drought.

We have been busy maintaining the trails! Organized by Liz Markiewicz; Ed Whitcomb, Diane Friedman and Doug Barrus joined me for an aggressive cleanup of the easement trail leading to the Beaver Brook Valley Preserve (BBVP). The old wooden boardwalk extending through the common reeds (phragmites) section was cleared and Ed skillfully secured it. Simon Bunyard with the Whitcomb brothers, Ed and Ken, hiked the entire length of the BBVP preserve and installed a new trail sign to clearly mark the BBVP boundary and alert hikers of the Harvard Sportsmen’s Club property line.

Margo Webber coordinated the annual monitoring of the conservation restriction (CR) that is jointly held by the BCTrust and the Harvard Conservation Trust on the Panek land that is part of the Towns Patch Hill Conservation Land. On a cool and damp November Sunday morning, Margo led Liz Markiewicz (Boxborough’s Conservation Commission Land Stewardship Committee), Alex Kerin, Tom Bieber and myself from the BCTrust and Tom Cotton and Dave Neville from the Harvard Conservation Trust on a two-mile hike to assess the property for any intrusions from abutters or inappropriate activities on the land. The CR was put in place on the property by the Panek family before the Town acquired it and it provides another legal layer of permanent protection for conservation.

Thank you to our volunteers, members and supporters. With your donations of time and money, we continue to steward the land and work with landowners to preserve more of our Town’s landscape for the benefit of all.
The Drought of 2016 (continued)

According to the U.S. Drought Monitor website, as of September 1st, 77% of Massachusetts was experiencing severe to extreme drought conditions and more than half of the state’s cities and towns had imposed significant or mandatory water restrictions. But we don’t have to worry here in Boxborough because we are all on private wells, right? Not exactly. In a sense, Boxborough is also dependent on a municipal water supply, only it is in the form of groundwater that resides in aquifers 50 feet or so below the land surface. Although the wells themselves may be “private,” and therefore exempt from mandatory water restrictions, we are all dependent on the water from the same aquifers.

This precious source of clean water, that we tend to take for granted, needs to be protected, both quantitatively and qualitatively. In order to ensure a clean groundwater supply, we must continue to preserve and protect our undeveloped land, particularly our wetlands, and also our uplands that are responsible for groundwater recharge and filtration. Given our total dependence on private wells for clean drinking water, it is absolutely critical that we recognize the important role that these areas play in maintaining our water resources and aquifers. Fortunately, approximately 26% (1,730 acres) of Boxborough’s total land area of 6,656 acres is protected undeveloped land and 16% of the total consists of wetlands (1,064 acres). Now, from a strictly quantitative perspective, consider the following:

- According to the U.S. Department of Agriculture, one inch of rainfall on one acre of land is equal to 28,000 gallons of water.
- One inch of rainfall on Boxborough’s 1,730 acres of protected and undeveloped land equals 48.4 million gallons, 29.8 million gallons of this on wetlands.

This may sound like a lot, but there are several important additional factors:

- According to the U.S. Geological Survey, the average household uses approximately 400 gallons of water per day, or 146,000 gallons per year.
- If so, the total water consumption of Boxborough’s 2,141 households is 308.6 million gallons per year.

- Offsetting this amount of consumption would require more than 10 inches of rainfall on our wetlands.
- And don’t forget that the population of the town is growing (which means more water consumption) while the town’s land area remains constant.

So far, so good. But two additional factors must also be taken into account:

As mentioned above, we are currently facing an 18 to 20 inch rainfall deficit. So the hypothetical 10 inches mentioned would all go towards offsetting consumption and would do nothing to reduce the deficit.

Even more important is the hydrogeological fact that it takes at least many months, and more typically, years, for a drop of rain to infiltrate the land surface until it reaches the groundwater in the aquifers below. Thus, even if we received an abnormally large amount of precipitation in, say, the next year, it would not be immediately available to be pumped out of our wells. In other words, the water we are pumping from our wells now has resided in aquifers for a long time, but due to the current drought, it is not being replenished.

So where does all of this leave us? Short of cloud seeding or performing a ritual ceremonial rain dance, there is not much we can do to change the current weather pattern. However, having once recognized the seriousness of the situation, there are certainly measures we can take to reduce water consumption.

First, we need to rethink our love affair with our lush green lawns. Pumping water directly from our aquifers to water our lawns is a luxury we can no longer afford. Maybe not forever, but at least for now. I let my own lawn go this summer and, of course, by mid-July it was burned to a crisp. It is not dead, though; only dormant. Unlike that molecule of water that takes years to trickle down to the aquifer below, a little rain falling on your lawn is immediately available to your grass, and it will turn green again. If you must water your lawn, do it infrequently—it only needs one inch per week, and a good soaking once a week is more beneficial than frequent light watering. And do it in the early morning—much of the watering at midday simply evaporates.

Second, most water consumption comes from inside your house. The Environmental Protection Agency provides a pie chart on its website with the following breakdown:

- Shower (16%) Install a shower head with a button that allows you to turn the water off while you lather up and turn it back on when you rinse off.
- Faucet (15%) Faucets run at about 2 gallons per minute. Turning off the tap while brushing your teeth can save one person 200 gallons of water per month. Similarly, keep a pitcher of water in the refrigerator instead of running the tap until the water gets cold.
- Clothes washer (21%) Not much you can do about this one other than use the economy settings on the machine when you do a load of laundry.
- Toilet (26%) Not much you can do about this one either except make sure it doesn’t leak. A running toilet can waste 200 gallons of water per day.
- Leaks (13%) A dripping faucet is easy to fix and obviously saves a lot of water over time. A single faucet dripping 10 drops per hour wastes over 500 gallons in a year.
- Other (9%) The EPA doesn’t specify what “other” includes. Maybe filling bird baths, for which I am certainly willing to make an exception.

As I finish writing this article during the first few days of November, it is 60 degrees cooler than those dog days of August. I have a fire in the woodstove and it is actually raining outside. Under these conditions, it is tempting to relax our vigilance, but the drought of 2016 is far from over. The mice in my shed may be the only beneficiaries of all of this; at least they can settle down for a long winter’s nap knowing that I will probably not use my lawn mower again for a long time.
Elizabeth Brook Knoll (311 Whitcomb Road)
By Rita Gibes Grossman

There is a beautiful 65-acre parcel of land that straddles the Harvard/Boxborough boundary and its owners would like to see their land conserved. The owners began working with the Harvard Conservation Trust on preserving their 50 acres in Harvard. Last May, the owners asked the BCTrust to help preserve the 15-acres of their property located in Boxborough. The BCTrust said “yes” when we learned that the Commonwealth’s Natural Heritage and Endangered Species Program has designated this land as a high priority, and, that it is a vital upland for the abutting wetlands and watersheds for water protection.

The owners were not in a position to donate their land and the BCTrust was not in a position to buy it; however, they agreed to sell it to the Town below the appraised market value and the BCTrust worked diligently with the Town’s Conservation Commission and the Town to apply for a state grant in record time to meet the mid-July deadline. The BCTrust also fronted the refundable deposit, and paid for the appraisal needed for both the grant and to negotiate the Purchase and Sale agreement between the Town and the landowners.

Unfortunately, the Town just learned that neither Harvard, nor Boxborough were awarded funding in this year’s extraordinarily competitive grant round for land conservation. Had Boxborough received the grant, the Town would have been reimbursed 56% of the acquisition costs. We are all terribly disappointed, but, the BCTrust will continue to pursue future conservation options.

A conserved Elizabeth Brook Knoll would:
- Protect upland, vital for water recharge for the watersheds that supply the aquifers and abutting wells.
- Provide a beautiful parcel for hiking, snowshoeing, bird watching and passive recreation, especially for Swanson Road residents.
- Preserve linkage for the species that breed in the nearby wetlands and live on the upland, like the threatened Blanding’s Turtle and the at-risk Blue Spotted Salamander.
- Reduce the danger of land and water contaminants from commercial development.

BCTrust President Rita Gibes Grossman recognized by SVT
By Tom Bieber

On the evening of September 15th, the Sudbury Valley Trustees (SVT) held its 2016 Annual Meeting at the Tougas Family Farm in Northborough. Members and guests enjoyed refreshments and took tours of the farm before gathering for the meeting. Mo Tougas, owner of the farm, welcomed everyone and explained how he worked with SVT and the Commonwealth of Massachusetts to permanently restrict a portion of the farm as agricultural land and protect it from future development.

Lisa Vernegaard, SVT’s Executive Director, and staff members gave an overview of the organization’s land protection, stewardship, and outreach successes from the past year. A highlight of the evening was the presentation of SVT’s annual conservation awards. SVT presents these awards to members and colleagues who dedicate themselves to land protection and stewardship throughout the SVT region.

We are so proud of our own Rita Gibes Grossman, president of the Boxborough Conservation Trust (BCTrust), who was presented with the Lewis Conservation Award. Named for SVT co-founder George Lewis, this award recognizes the accomplishments of those who toil to preserve our natural landscapes and encourage others to do the same. Rita is a great asset to the conservation community. In addition to her work on the BCTrust, she serves on the board as clerk of the Massachusetts Land Trust Coalition. She also helped organize an effort to pass the Community Preservation Act in Boxborough and she now serves as clerk of the Community Preservation Committee. Thank you SVT and congratulations Rita!