



Preserving and Protecting Boxborough's Undeveloped Land



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The Boxborough Conservation Trust is an all-volunteer, nonprofit 501(c)(3) land trust, dedicated to preserving and protecting undeveloped land in the Town of Boxborough, Massachusetts for conservation, agriculture, recreation, and other public benefit.

Formed in 1997, the BCTrust assists local land owners explore options for conserving their land and sponsors community events to raise awareness about protecting, enjoying and understanding the Town's natural resources.

Not a member of the BCTrust? Learn more about membership [here](#).

Please note that our mailing address has changed:

Boxborough Conservation Trust
 650 Massachusetts Avenue
 Boxborough, MA 01719

Visit our website! www.bctrust.org

The BCTrust updates its website on a regular basis. Take a look! You'll find:

- Updated information about events
- Trail maps to print before you hike
- Information about the state income tax credit of up to \$50,000
- Links to other conservation websites
- PDF versions of past issues of *Common Ground*



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This holiday season, help preserve Boxborough's natural landscapes, wetlands, forests, and farmland by sending a contribution to:

BCTrust

650 Massachusetts Avenue
 Boxborough, MA 01719

Every tax-deductible donation is greatly appreciated.
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Preserving and Protecting Boxborough's Undeveloped Land

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Preserving and Protecting Boxborough's Undeveloped Land

Climate Change: What Are We Doing About It?

By Bradford Gray

As I work on this article at the end of the first week of November, the temperature is 73° F outside. Unfortunately, I put my storm windows in a week ago. Yes, yes. I know. “One swallow does not a summer make,” as Aristotle said, “nor one fine day.” However, if we look at the long-term data, we find that even though there were fluctuations *within* decades, the average November temperature in Massachusetts has increased .3° F every decade since 1895, a 3.6° increase for the period. According to the National Oceanic and Atmospheric Administration’s (NOAA) 135-year database, 2014 was the warmest year on record since 1880. The average global surface temperature was 58.24° F, surpassing the records set in 2005 and 2007, and making 2014 a full 2° F warmer than the average temperature for the entire 20th century. More recently, NOAA announced that September 2015 was the warmest September on record and, with less than two months to go, 2015 will likely end up being even warmer than 2014. We can continue to debate *why* this trend is occurring, but the facts are the facts. As my experimental psychology professor in college was fond of saying, “The data don’t lie.”

Actually, although there are many complex factors involved, the basic answer to the “why” question is pretty straightforward: increased quantities of greenhouse gases, mainly CO₂, being released into the earth’s atmosphere, thereby creating the so-called greenhouse effect. The debate (if there really *is* any debate anymore), is over the extent to which global warming is anthropogenic (i.e., caused by humans). Although resistance to accepting responsibility for climate change is waning, recent studies by the Pew Research Center indicate that only 65% of Americans believe that climate change is happening at all, and only 40% believe that it is being caused by human activity. By contrast, most of the scientific community—97% of climate scientists and 92% of biophysical scientists—believe that global warming is occurring and that humans are contributing to it.

Whether you believe in climate change, or not, all the scientific data indicate that the planet is definitely warming. What is alarming is the unprecedented *rate* at which this warming has occurred over the past several decades. The signs are unmistakable: the melting of the polar ice caps, the shrinking or disappearance of the glaciers in Europe, prolonged periods of drought leading to devastating forest fires in California and crop failures elsewhere, violent weather in the Midwest, flooding and land erosion on the East Coast, rising sea levels in low-lying areas such as North Carolina’s Outer Banks (where a one-meter rise in the Atlantic is almost certain by 2100), increasing numbers of severe heat waves, and more intense precipitation events.

According to climate model simulations produced by NOAA in collaboration with the National Aeronautics and Space Administration (NASA), the planet’s average temperature could be between 2 and 9.7° F warmer in 2100 than it is today, depending on the choices humans make in the next 85 years. Where we end up in that 2 to 9.7° F range is presented in three scenarios:

- (1) If we do nothing (continue to rely on fossil fuels to supply our energy needs), carbon emissions are predicted to increase from today’s rate of 9 billion metric tons per year to 28 billion tons by 2100.
- (2) If we do something (roughly balance our use of fossil fuels with other, non-carbon-producing sources of energy), we end up in the middle of the range, say 3.85° of global warming by 2100. Scientists have called 3° F the “tipping point,” enough to raise sea levels six meters above current levels.
- (3) If we make a concerted effort to use alternative non-carbon-emitting sources of energy, emissions are predicted to increase from 9 billion tons today to 12 billion tons by 2040, and then gradually decrease to 5 billion tons by 2100.

Of course, even the most optimistic scenario does not eliminate climate change entirely. There are factors beyond

Climate Change *(continued from front page)*

our control such as increases in the world's population and the growth of global economies that will continue to influence our demand for energy. Alternative sources of energy, such as wind or solar, or sustainable and renewable sources, such as ethanol, have the potential to reduce our dependence on fossil fuels, but not to eliminate it entirely. Even if everyone drove an electric car by 2100, that electricity has to be generated from somewhere. Recharging car batteries using solar or wind are certainly possibilities, but currently 40 % of the electricity in the U.S. is generated by burning coal.

While changing human behavior to reduce our dependence on fossil fuels is critically important, new research has emphasized the need for seeking solutions in nature itself: ensuring biodiversity, revitalizing forests, and preserving and protecting other natural environments. Biodiversity strengthens ecosystems and increases their resistance to extreme climate events.

Forests alone, such as the great northern Boreal forest that makes up 29% of the world's forest cover, absorb approximately 16% of fossil fuel emissions. The Environmental Protection Agency (EPA) calculates that a single acre of 50-year-old oak forest sequesters approximately 30,000 pounds (15 tons) of CO₂ per acre per year. It has been estimated that a reversal of current deforestation trends due to drought, fires, development, logging and other causes could allow forests to absorb as much as 30% of global carbon emissions.

In addition to protecting and rejuvenating our forests, freshwater wetland protection and restoration should be another priority. Acting as carbon sinks, wetlands have an enormous capacity to offset greenhouse gas emissions. Globally, wetlands store 300 to 700 billion tons of carbon, roughly equal to the total amount of carbon in the atmosphere.

Fortunately for the planet, the response to the threat of climate change has been large and ongoing, both in the public and private sectors.

Among nonprofits, a large number of studies and reports on climate change have been conducted and released by the Massachusetts Audubon Society, the Nature Conservancy, the National Wildlife Federation, the Sierra Club, and other organizations. A vast amount of information is available on their individual websites.

In the public sector, concern for protecting the environment runs the gamut from the international, such as the upcoming 2015 United Nations Climate Change Conference in

Paris, whose objective is to obtain universal and binding agreement from all participating nations to limit the global increase in temperature to 2° C (3.6° F) above pre-industrial levels, to the local (Boxborough's own 2030 Master Plan). In between are numerous involved agencies on the national (NOAA, NASA, EPA), state (the *Massachusetts Climate Change Adaptation Report*) and regional (the Metropolitan Area Planning Council, the Minuteman Advisory Group on Interlocal Coordination) levels.

All of these organizations and agencies are working very hard to deal with what is termed "climate change mitigation" (what we can do to prevent further climate change) and "climate change resilience" (what we can do to prepare for the degree of climate change we know to be inevitable, regardless of what we do to try to prevent it). A good example is the Metropolitan Area Planning Council (MAPC) which, together with the 13 towns (including Boxborough) that make up the Minuteman Advisory Group on Interlocal Coordination (MAGIC) subregion, is developing a Climate Change Resilience Plan. MAPC will assist MAGIC communities in assessing vulnerabilities from, and developing an action plan for, climate impacts such as increased precipitation, inland flooding, increased heat, and drought.

I had intended to conclude this article with one of those lists like, "25 Ways You Can Reduce Your Carbon Footprint," but due to lack of space, I will mention only two:

(1) Drive less. Eliminate unnecessary trips, carpool, and combine your small errands. Burning one gallon of gas produces 18 pounds of CO₂. If your car gets 20 MPG and you drive 10,000 miles per year, you will produce approximately 4.5 tons of CO₂ annually.

(2) Recycle. 262 million tons of waste are dumped into landfills annually, releasing methane gas into the atmosphere that contributes to climate change even more than CO₂. The EPA estimates that landfills are the third leading cause of methane gas emissions in the U.S. and that methane, although it is released in smaller quantities, is 25 times more damaging to the environment than CO₂. The Boxborough Transfer Station has a very good system for recycling virtually everything but organic waste, which can be added to your garden compost pile.

This article began with a reference to Aristotle so it may as well end with one from the Brothers Grimm. I am referring to that alarmist, Chicken Little, who creates mass hysteria about impending disaster because an acorn falls on her head. Except in the present circumstances, Chicken Little would be worth listening to. What is going on here is the Chicken Little tale in reverse: the sky may not be falling but the climate is most certainly changing.

Shurtleff Woods Trail Blazing



8th Grade Volunteer Trail crew from R.J. Grey Jr. High helped clear the new Shurtleff Woods trail



From left; Dan Hogan, Liz Markiewicz, Rita Gibes Grossman and Will Kerin (rear) work on the new Shurtleff Woods trail

Wild Animal Adventures Afternoon



Ed Laquidara (left) and crew member from Animal Adventures, Bolton, MA shows the group an eagle owl (the largest of the owl species) at the Boxborough Holiday Inn event held on October 25th

Thank you!

The BCTrust is changing the time it publishes the listing of its members. Going forward, the annual listing of members will be in the spring issue of *Common Ground*. Please note that the following members were inadvertently omitted from the list published in the November 2014 issue. Our sincere apologies.

Janet and Jeffrey Glidden
Mike and Cindy Matchett
Joanne Mills

Ann Seymour and Johan Grape
Susan Vine and Joan Blood



Preserving and Protecting Boxborough's Undeveloped Land

New Member Registration Form

The **Boxborough Conservation Trust** is actively seeking new members to join in the effort of preserving and protecting Boxborough's undeveloped land. Anyone may join. Regular (voting) members must be 18 years of age or older and must be residents of the Town of Boxborough. All others are honorary members. Membership is on an annual basis.

There are several giving levels. Please indicate the level of your tax-deductible contribution:

- | | | |
|--|---|---|
| <input type="checkbox"/> \$30 Member | <input type="checkbox"/> \$250 Patron | <input type="checkbox"/> \$2500 Preservationist |
| <input type="checkbox"/> \$60 Family | <input type="checkbox"/> \$500 Sustaining | |
| <input type="checkbox"/> \$100 Associate | <input type="checkbox"/> \$1000 Sponsor | <input type="checkbox"/> \$_____ Other |

Name(s) _____
(please print)

Address _____ (street) (_____) _____ - _____
(telephone)

_____ (town) _____ (state) _____ (zip)

Date ____/____/____ e-mail _____

Please indicate how you would like your name(s) to appear in our membership listings, such as 'The Jones Family,' or 'John and Jane Jones,' or if you prefer, you can just say 'anonymous.'

Membership Listing: _____

Please make your check payable to **The Boxborough Conservation Trust**, and mail it with this form to:

**Treasurer
Boxborough Conservation Trust
1092 Hill Rd
Boxborough, MA 01719**

An acknowledgment of your tax-deductible contribution will be mailed to you. Please contact your employer to see if it may be willing to match your contribution.

Your comments and suggestions would be very much appreciated:

Thank you for your support! You can find BCTrust on the web at www.bctrust.org.
650 Massachusetts Ave. Boxborough, MA 01719 email: president@bctrust.org

Letter from the President

By Rita Gibes Grossman

One of the “hottest” topics is climate change. Yet despite all the research, all the evidence, and the information readily available to all of us, it is still hard to process and visualize what lies ahead. In the past week, I’ve attended workshops and meetings on climate change, all focused on how to define the impact, identify the hazards, and mitigate the consequences anticipated with a warming climate. As a land trust and as a community, we’ve worked to protect our forests, fields, wetlands and farmlands with our time and donations. How will the increasing temperatures and subsequent changes in weather affect our land, air, water and our lives and our investments in the land?

The emerging concept in conservation is that of resilience. What parcels should we prioritize for protection to increase nature’s ability to adapt, and, our ability to mitigate the hazards associated with increasing temperatures, and dramatic shifts in weather patterns? Thus far, research indicates that protecting forests, wetlands and uplands, abutting meadows, and parcels that create connectivity between habitats will assist nature to protect wildlife, and the natural resources we need. Protecting prime agricultural soils to support local food production, combined with sound agricultural conservation practice, assists in climate adaptation according to the American Farmland Trust. With a diverse protected landscape we will be better equipped to respond to the changes in climate.

2015 has been a busy year for BCTrust. Thanks to your support, in addition to purchasing the 13-acre Shurtleff Woods, the BCTrust is working with the Town to permanently conserve a 10-acre, conservation-worthy upland parcel abutting the Indian Meadow conservation land. Simon Bunyard, Christa Collins, director of land protection at Sudbury Valley Trustees, and I hiked the parcel and found much evidence of an active wildlife habitat. We hope to have an update by our next issue.

Thank you to Simon Bunyard for coordinating the Animal Adventures event and, Ruth Zimmerman, Tom and Brigid Bieber and their sons, John and Ted for helping at the event (see photo). Thanks also to State Street Bank for grants enabling land acquisition and programming and to Tom Bieber for taking the helm as the editor of this issue of *Common Ground*. Finally, blazing the new trail at Shurtleff Woods would not have been possible without the help of a team of energetic 8th graders from R.J. Grey JHS (see photo), Simon Bunyard, Alex Kerin and Dan Hogan, Alex’s son Will and Liz Markiewicz who provided the heavy manual labor needed to clear the trail.

Boxborough Conservation Trust Board of Directors

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Common Ground is mailed to all Boxborough residents, free of charge.

Editorial Staff:

Tom Bieber, editor

Bradford Gray, consulting editor



Ed Laquidara of Animal Adventures with a porcupine

The Boxborough Conservation Trust is a 501(c)(3) nonprofit organization. Contributions are fully tax deductible.