Citizens for Lexington Conservation

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Kate Fricker, Editor **April, 2011** **Eileen Entin & Keith Ohmart, Co-Presidents**

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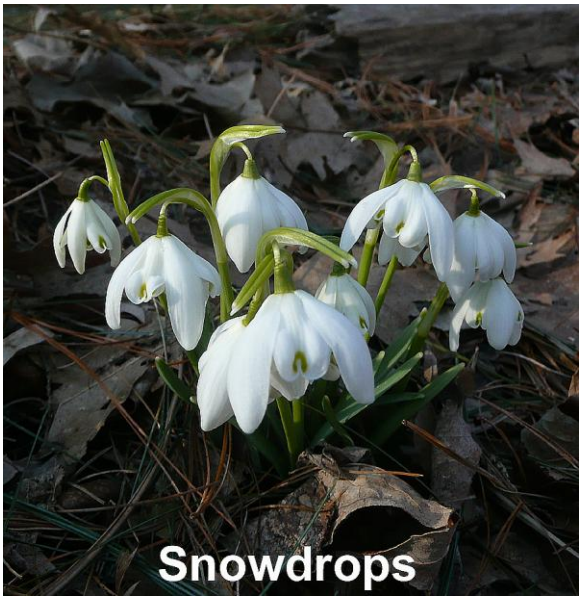


Citizens for Lexington Conservation is a non-profit organization that relies on dues paid by members to cover its expenses. Look at your mailing label to check your membership status. If it says "Dues paid 2011," you are up to date. If it says "Dues paid 2010" (or earlier), then it is time to renew your membership for 2011. If it says "Complimentary Copy," you are receiving a complimentary copy of our newsletter because you are a Town Meeting member or other public official in Lexington. We hope that those who receive complimentary copies will find our organization of value and will become dues-paying members. To join CLC or renew your membership, please send $15.00 to CLC, P.O. Box 292, Lexington, MA 02420-0003.

There is an electronic version of the CLC newsletter, sent as a link to the newsletter by e-mail. The e-mail version of the newsletter has illustrations in color and live links. It also arrives much sooner than the snail mail version, saves paper, and costs CLC about $1 less per copy. If you are currently receiving your newsletter by snail mail, but would like to get it by e-mail, contact Kate Fricker at kfricker@alum.swarthmore.edu.

CLC Publications

Over the years CLC has encouraged members to write guides to the open spaces in Lexington. These guides have been scanned and are available at no charge on our web site, http://www.clclex.org/. You may also use the web site to contact us about conservation-related happenings or sightings of unusual birds and wildlife that we can use on our web site and in our newsletter.

Thank You, Fall Walk Leaders

Many thanks to the leaders of our fall walks: Bobbie Hodson, Keith Ohmart, Paul Knight, and Fran Ludwig.

Anaerobic Power for Lexington?

By Keith Ohmart

Lexington town officials are in the beginning stages of evaluating the installation of an organic waste processing facility at the Hartwell Avenue composting facility that might just make our neighboring communities green with envy. Speakers at the Lexington League of Women Voters First Friday Forum on May 6 will describe the various types of organic waste, how it would be processed, and the benefits for Lexington and the environment if the town were to embark on such a venture.

Invited speakers will include: Robert Beaudoin, Lexington's Superintendent of Environmental Services; Town Engineer John Livsey; Bruce Haskell of the engineering and consulting firm, Camp, Dresser and McKee; as well as a representative from the Mass Department of Environmental Protection.

So mark your calendars now for a first hand opportunity to learn more about this cutting edge technology that offers both environmental and economic benefits that include reducing the amount of solid waste generated by the town and reducing our community's greenhouse gas emissions, while at the same time generating a source of renewable energy. First Friday Forums begin at 9:45 am and are held in the Community Meeting Room on the lower level of the Cary Library, 1874 Massachusetts Avenue. All League Forums are open to the public at no charge.

Citizens for Lexington Conservation Spring Walks 2011

All walks are in Lexington, and are free and open to the public

Saturday, April 30, 1- 3 PM Garlic Mustard Pull
Meet at the bike path entrance on Worthen Road to clear garlic mustard plants from the area. This annual event, effective in early spring, has helped to slow their advance in Lincoln Park. Garlic mustard is an aggressive non-native species that not only crowds out natives, but also releases a chemical that suppresses the growth of native seedlings such as Red Maple. In addition to Garlic Mustard (Alliaria petiolata), a new invasive, Bittercress (Cardamine impatiens), has gained ground in the Boardwalk area.
Leader: Nell Walker (781-862-6943; nelwalk@earthlink.net)

Saturday, April 30, 7 – 8:30 PM Voices of the Night
Meet at the front door of Brookhaven. You can park in the employee parking lot on the right. Be sure to bring flashlights, mosquito repellant, and rain gear (if it's raining). Come learn about the spring chorus of frogs in Lexington. Kate Fricker will show slides and play recordings she has made of frog songs. Afterward, those who wish will follow a trail to a nearby vernal pool in hopes of hearing one or more frog species sing.
Leader: Kate Fricker (781-862-8868; kfricker@alum.swarthmore.edu)

Saturday May 7, 7 – 9 AM Warbler Walk in Lower Vine Brook
Meet at 116 Vine Street; call if you are lost. Check out the spring warbler migration in the Lower Vine Brook conservation area. Warblers are small, beautiful tropical birds that come north to breed. Many different species of warbler stop off in this sheltered area on their way to the forests in northern New England and Canada. Some stay, but as trees leaf they are more difficult to see. In the spring, depending on the weather and the foliage, you can sometimes find a dozen species in a morning. Bring warm clothes, boots if it is wet, binoculars, bird book. No dogs.
Leader: Harry West (617-461-9500 mobile; Hwest@continuuminnovation.com)

Thursday, May 12, 2 - 3:30 PM Pond Exploration at Parker Meadow
Geared for children in grades 3 – 5 accompanied by an adult.
Meet at the Revere St. entrance to Parker Meadow. Parking space is limited there; additional parking is available on neighborhood streets across Revere Street. Join Emily Schadler for a prowl around Parker Meadow to look for signs of beavers, bugs, tadpoles, and toads. We'll dip a net into the water to see what kinds of critters are wriggling around below the surface. Bring rain boots if you have them, and be prepared to get dirty. If you have a small bug box or magnifier, bring it along. A limited number of children can be accommodated on the walk so parents must pre-register their kids. Please contact Jane Warren to pre-register (781-861-7140; warren.a.jane@gmail.com) and she will respond to the parent. Cancelled if raining.
Leader: Emily Schadler, Conservation Assistant.
(781-862-0500 x 240; eschadler@lexingtonma.gov)

Saturday, May 21, 10 – 11:30 AM Exploring the Land Locked Forest
Meet at the parking area kiosk on Turning Mill Rd. (under the power lines across the street from Mountain Rd.). The Land Locked Forest is primarily in the Town of Burlington, but the

only legal access with parking is in Lexington. We might see bluebirds, hawks, turkeys, squirrels, deer, fishers, or coyotes—or signs of them. We are sure to see hazelnuts, cat-tails, ferns, and all sorts of other plants. Come dressed for the weather; bring a water bottle, binoculars, and shoes that can get muddy. The trails are well used, but we will be going up and down hills, mostly through woods. You can go to www.landlockedforest.com to find out more. We will walk rain or shine; thunderstorms or excessively heavy rain will cancel the walk.
Leader: Alex Dohan (781-863-5882; amdohan@gmail.com)

Saturday June 4, 1:30 – 3:30 PM Whipple Hill
Meet at the Whipple Hill parking lot on Winchester Dr. (additional parking across the street). Visit Lexington's highest peak, where clues to the town's geologic history can be seen. Investigate a vernal pool and follow a small stream to Locke Pond. Admire unusual plants and take a "scratch and sniff" tour of some fragrant greenery. The trail is uneven, so wear good walking shoes. With hard rain or lightning, the walk will be held on June 5 at the same time.
Leader: Fran Ludwig (781-861-7231; fludwig12@yahoo.com)

Thursday, June 9, 1:30 to 3 PM Six-Legged Safari at Willard's Woods
For kids in grades K-5 accompanied by an adult.
Meet at the Brent St. entrance to Willard's Woods. Look and listen for insects and other creepy crawlers in field and forest. We will do some sketching of what we find. Equipment will be provided. This is an easy walk. A limited number of children can be accommodated on the walk so parents must pre-register their kids. Please contact Jane Warren to pre-register (781-861-7140; warren.a.jane@gmail.com) and she will respond to the parent. If there is steady rain or lightning, the walk will be held on June 16 at the same time.
Leader: Fran Ludwig (781-861-7231; fludwig12@yahoo.com)

Saturday, June 11, 8 – 10:30 AM Breeding Birds of Arlington Great Meadows
Meet at the parking lot of the Waldorf School at 739 Mass Ave. Significant walking will be involved, some through wetland areas where waterproof footwear might be more comfortable. We will look and listen for this area's breeding birds, both the routine (like orioles) and the less common (like cuckoos). Bring binoculars, although we may hear more than we see. Children accompanied by a responsible adult are welcome. More than light rain will cancel the walk.
Leader: Chris Floyd (781-862-2841; chrisf@mitre.org)

Maps of Lexington conservation lands can be found at
http://www.lexingtonma.gov/conservation/conland.cfm

Web Editor Wanted

CLC is still seeking a volunteer web editor to write and maintain content on our website (www.clclex.org). Minimal technical experience is required; online writing skills are desired. You will partner with the CLC webmaster to keep the site updated with information and news relevant to the CLC mission. This is an opportunity to learn a simple content management system and hone your online writing skills! If you are interested, please contact Chris at hy.ce@comcast.net.

Looking Beyond the "Sigh" List of Invasive Species

By Emily Schadler, Lexington Conservation Assistant

If you are like me, there is a certain list of plant names that invariably triggers a heavy sigh. It goes something like this: Japanese knotweed, Oriental bittersweet, Norway maple, Japanese barberry, burning bush, buckthorn, multi-flora rose, garlic mustard, Phragmites, purple loosestrife, and honeysuckle. For many of us in Lexington, the names of these common invasive species have gained an uncomfortably familiar ring in recent years, and we can give ourselves a pat on the back for our efforts to begin to battle these widespread offenders.

But the true list of invasive species in Massachusetts doesn't stop at the "sigh" list, as you will see from a quick scroll down the 140-plant long Massachusetts Prohibited Plants List (www.mass.gov/agr/farmproducts/prohibitedplantlist.htm). Even as we continue to grapple with the big offenders, it is worth learning to recognize other less ubiquitous invasives as well, for two good reasons: first, some of them are newer and not yet widespread, making them easier to control if we can catch them early; and second, some are invasive in localized patches, even if we don't see them spread all across town.

Mile-a-minute Vine

One of the new invasive species that is stealing the limelight these days is mile-a-minute vine (*Polygonum perfoliatum),* also known as devil's tail or Asiatic tear-thumb. Mile-a-minute is a vine native to eastern Asia, and it was only discovered in Massachusetts in 2006. The State's Introduced Pests Outreach Project has undertaken an effort to locate all mile-a-minute occurrences in Massachusetts in order to eradicate the plant before it becomes widespread. Mile-a-minute vine can be recognized by its perfectly triangular leaves, barbed stems, and clusters of metallic-blue berries. It can grow up to 6 inches per day and quickly covers large areas. For more information about mile-a-minute vine or to report a potential sighting in Massachusetts, visit www.massnrc.org/pests/pestFAQsheets/mileaminute.html.

Another new invasive species to look for – you knew it was coming — is Asian Longhorned Beetle (ALB). While it isn't a plant, this shiny black beetle with bright white spots certainly damages plants, including many of our favorite hardwoods. As a larva, ALB tunnels into trunks and branches, weakening the tree and eventually killing it. ALB was first discovered in the U.S. in New York in 1996 and was identified in Worcester, MA in 2008. A huge eradication effort was started (and continues) in Worcester with a simultaneous effort to train the public to search out ALB. More populations have since been found in Shrewsbury and Jamaica Plain. To learn more about ALB or to report a sighting in Massachusetts, visit: www.massnrc.org/pests/alb/. To report a sighting in Lexington, contact Dave Pinsonneault in the Department of Public Works at 781-274-8300.

Asian Longhorned Beetle

There are also a number of invasive species in Lexington that fall into the category of not-so-new but still not widely recognized, and it is worth becoming familiar with these plants as well. While there isn't space to list them all here, some examples to look for are:

- Black swallow-wort (*Cynanchum louiseae*): Look for this herbaceous vine on the south slope of Belfry Hill (across from the library's exit driveway) or at Tower Park at the top of the sledding slope, mixed in with honeysuckle.
- Porcelain-berry (*Ampelopsis brevipedunculata)*: Heading out of Lexington Center on the Minuteman Bike Path, you will find a hardy patch of this woody vine with Easter-egg colored berries on the right side of the path across from Seasons Four.
- Black Locust (*Robinia pseudoacacia*): This tree hails from the southeastern US and was widely planted for fencepost material, but it has spread wildly from cultivation in the Northeast and is toxic to humans and livestock. A noticeable stand sits at the northeast corner of the intersection of North Street and Lowell Street.
- Dame's Rocket (*Hesperis matronalis*): Caught off guard, you might think this pretty purple and white flower from Europe was some type of phlox, but it has 4 petals, not 5. Look for it growing at the entrance to Hayden Wood off of Valleyfield Street, along the edge of the grass.

You can find many more of our less ubiquitous invasive species in *A Guide to Invasive Plants in Massachusetts* (2006; Massachusetts Division of Fisheries and Wildlife), available for $5 through the Massachusetts Division of Fisheries and Wildlife at: www.mass.gov/dfwele/dfw/nhesp/publications/nhesp_pubs.htm or by perusing the Massachusetts Prohibited Plants list mentioned above. And while seeing just how many there are can be disheartening, take heart in knowing that early detection and management of small populations of invasive species can often prevent more widespread invasions.

Tool Campaign a Success

By Keith Ohmart

CLC is pleased to report that the recent fund raising effort to raise money to purchase tools for the Conservation Stewards was an outstanding success. Our goal was to raise a total of $5000. As of this writing we are thrilled to report that we have achieved this goal with a total of $5,180 received.

This campaign was conducted in cooperation with the Conservation Stewards with a combined mailing to the CLC and Stewards mailing lists. Based on the number of donations, our response rate is close to 20%, which is astounding for a fundraising effort. We indeed have an extremely loyal and supportive membership between our two organizations, for which we are most grateful.

CLC will purchase the tools from a list provided by the Conservation Stewards, and will then loan the tools to the Stewards, who will arrange for their storage and care. When not in use on Lexington projects, this arrangement will allow for the tools to be shared with other conservation organizations from neighboring communities with whom the Conservation Stewards have worked cooperatively over the years. Lexington has benefited enormously from the generosity of the New England Mountain Bike Association, which up until now has been the source for the tools that have allowed for the construction of boardwalks and other trail

improvements throughout the town's conservation parcels. The tools that will now be purchased will allow this favor to be returned in future years.

Building Affordable Housing to Passive House Standards:

Looking at home design in an energy-constrained future

By Nancy Nolan

In the last issue of the CLC newsletter, we read about Net Zero Energy homes built in Townsend, Mass. by Carter Scott of Transformations, Inc. These homes produce as much energy as they consume and Mr. Scott has sold them at market rates. Transformations has also created Zero-Energy Affordable Housing units.

Passive House, Cutaway

Energy prices are rising, and many economists, including Richard Heinberg of the Post Carbon Institute, have concluded that the world has reached Peak Oil, the point in time when the maximum rate of global petroleum extraction is reached, after which the rate of production enters terminal decline. Cheap and accessible oil that we have relied on for many decades may soon be a thing of the past. Political turmoil will only speed the decline of cheap oil.

Communities must gird themselves for energy price shocks. Since Lexington owns and operates affordable housing units, and occasionally builds new affordable homes across town for families with lower than average incomes, it would benefit both the town and the residents if the energy costs could be sharply reduced in the design phase. Retrofitting existing homes for energy efficiency is expensive, messy and time-consuming.

How can meeting passive house standards be accomplished in a New England climate? Well, there is a new home being built in Charlotte, Vermont, that meets Passive House standards. What is Passive House? A Passive House is a well-insulated, virtually air-tight building that is primarily heated by passive solar gain and by internal gains from people, electrical equipment, etc. Energy losses are minimized. Any remaining heat demand is provided by an extremely small source. Avoidance of heat gain through shading and window orientation also helps to limit any cooling load, which is similarly minimized. An energy recovery ventilator provides a constant, balanced fresh air supply. The result is an impressive system that not only saves up to 90% of space heating costs, but also provides a uniquely terrific indoor air quality.

Vermont Passive House, Prefab Module

Saving up to 90% of a home's heating costs would enable the residents to have fewer utility bills every month. If the town pays the utilities, that would result in a net savings for the town.

The home in Vermont will be owned by a single mother and is constructed with prefab modules. The cost of the home was estimated to be $50,000 more to build than a traditional home.

Working with natural resources, free solar energy is captured and applied efficiently, instead of relying predominantly on active (solar PV) systems to bring a building to net-zero energy. High performance triple-glazed windows, super-insulation, an airtight building shell, limitation of thermal bridging and balanced energy recovery ventilation make possible extraordinary reductions in energy use and carbon emission.

Today, many in the building sector have applied this concept to design and build towards a carbon-neutral future. Over the last 10 years more than 15,000 buildings in Europe - from single and multifamily residences, to schools, factories and office buildings - have been designed and built or remodeled to the passive house standard.

The “Stretch” building code recently adopted by Lexington does not go far enough in reaching for a net-zero-energy future. Passive House should be the new goal for all builders. For more information about the Vermont Habitat for Humanity Passive House in Charlotte, Vt., see: http://www.alriti.com/assets/images/presentations/GettingtoPassiveHouseinVT-ACI2010.pdf

Stew Kennedy: Commissioner of the Year

By Keith Ohmart

Lexington’s very own Stew Kennedy was recently named Conservation Commissioner of the Year by the Massachusetts Association of Conservation Commissions (MACC). MACC is the primary resource supporting the work of the state’s municipal Conservation Commissions, and a leader in environmental advocacy and education. Massachusetts has 351 municipalities, each one of which has a Conservation Commission. Lexington’s Commission has seven members, so doing the math this amounts to over 2000 Commissioners state-wide, making this a very special honor indeed.

Stew (center) Accepts Award

Those of us who have the honor of knowing and working with Stew are not surprised at the recognition that has been bestowed upon him. When he is not keeping busy with his duties on the Conservation Commission you will likely find Stew either participating in a Conservation Stewards Directors meeting, a meeting of the Lexington

Bicycle Advisory Committee, or out in the field engaged in either a Conservation Steward or Bicycle Advisory Committee project. And if that isn't enough, during Town Meeting time, Stew is found on the floor of Town Meeting representing the constituents of Precinct 8.

So the next time you see Stew, be sure to congratulate him on earning this very special honor. Lexington is fortunate in having him as a member of our community.

Community Farms, Community Gardens, and Community Supported Agriculture

By Janet Kern

There is a lot of interest in locally grown food and sustainable agriculture these days, but understanding the different "community" options for growing food can be confusing—community garden, community farm, community-supported agriculture—what are the differences?

Let's start with the difference between a "garden" and a "farm." Whereas gardening is generally understood as a personal, recreational activity on a small scale, farming is a larger-scale commercial endeavor, accomplished by a professional farmer.

A **community garden** is an area of land divided into plots that are made available, usually for rent, to individuals in the community who want to do their own gardening. Most of those who take advantage of community garden plots do so because they don't have their own land or land that is suitable or large enough for a garden.

A **community farm** is an area of land that is professionally farmed for the community's benefit. In contrast with a private, for-profit farm, the mission of a community farm is focused on public benefit, not private profit. For this reason, most, if not all, community farms are run by nonprofit organizations.

Community-Supported Agriculture (CSA) is a system in which consumers receive food directly from the farmer who produces it and share in the risk of the harvest by paying in advance for a portion of the farmer's total crop. The consumer purchases a "share" of the CSA farm's produce. Crops that do well will be abundant in the share; crops that do less well will be less abundant. In this way, the farmer is able to rely on a stable income that is not dependent on a particular season's conditions or the success of any particular crop. In return, shareholders usually receive greater value in their box of weekly farm produce than they paid in actual dollars to the farmer.

But there is more to the CSA system than simply food production and weekly shareholder pickups. CSA is also understood to involve production via sustainable methods. CSA members' fruits and vegetables are produced as part of a system that relies on crop rotation and other natural methods to break weed and pest cycles, rather than pesticides. CSA members understand that such sustainable farming methods mean they won't always have an abundance of their favorite crop each week, because variety is essential to the sustainability of the system over the long term. But this is also part of what the consumer is supporting: an

agricultural system with benefits that extend beyond a single season or a single family—they extend into their community's prospects for a sustainable future.

Outside of New England, the term community farm is used interchangeably with CSA farm. However, as different models for community involvement and support of both private and public farms have emerged here in eastern Massachusetts, further important distinctions have evolved.

CSA offers a fair, steady source of income to the farms that embrace it, and for that reason it has become an important mechanism for revitalizing the small family farms that have been so prevalent and important to New England's historic landscape. Many farms that have adopted the CSA model over the last several years have found it to be the source of their survival, as the demand for safe, local food has increased. For this reason, it is difficult to find a small farm in this area that does not have some type of CSA offering. Any small farm's survival is seen as a community benefit in and of itself—keeping good land productive and preserving open space and historic resources. Still, these private CSA farms are not referred to as "community farms." That designation is reserved instead for yet another type of farm that has its roots in Massachusetts—the not-for-profit, public farm.

Some community farms, most notably Gaining Ground in Concord, do not use a CSA model, because they don't sell their produce; instead, they donate all of their produce to localfood relief organizations. These farms are supported by grants and donations, often from the organizations and individuals who also volunteer to work on the farm. Other community farms such as Codman Community Farms in Lincoln raise livestock, grow hay and sell their products through a farm store or farm stand. In Weston, Land's Sake operates a CSA farm as just one part of its mission to connect people to the land.

With the highest concentration of community farms in the United States, eastern Massachusetts boasts a long and varied list of benefits that these farms offer: education, hunger relief, sustainable land management, historic preservation, farmer training, urban youth programs, volunteer service opportunities, and more. The offerings of each community farm reflect the character of each individual town. We at the Lexington Community Farm Coalition are committed to helping our community continue to develop and realize a vision for Lexington's own unique community farm. We invite all to participate by visiting www.lexfarm.org.

Beekeeping Tasks in the Spring

By Elaine Turano

With the coming of Spring, beekeepers get busy. If the bees have survived the winter, the beekeeper is lucky, due to the rising incidence of threats to the health of hive bees. Old time beekeepers tell us it used to be easier to keep bees. There were diseases that came to the New World with the European bees, but not as many as there are today. Today there are many new problems: new diseases, pesticides, and alien species such as hive beetles, wax moths and predators. Colony collapse disorder is the latest and mysterious disease that affects bees. Bees are medicated for

nosema (a protozoan) and bacterial illness, treated for body mites and tracheal mites, and protected from predators. The use of Integrated Pest Management (IPM) is being taught to beekeepers as an environmentally sensitive way of control. A beekeeper from Bedford had a bear tear apart her hives on one occasion. Bears really do like honey and bee larvae. Electric fences are the cure for marauding bears, though in Lexington this is not a threat. Skunks like to eat bees, even though they sting on the way down.

Over the winter, the bees have probably depleted their stores of honey. Sugar water must be made to feed the hive until there is a nectar flow. White sugar is dissolved in warm water in specific proportions and spiked with medication.

The equipment has to be checked and repaired. If the bees have died over the winter, the hive needs to be cleaned of dead bees. One can buy a replacement package of bees with a queen and 3 pounds of worker bees for about $95.00. The wooden hive boxes benefit from a fresh coat of paint. It's also time to scrape the propolis or bee glue from frames and boxes. Bees gather tree resins to make propolis to plug holes and seal cracks.

If all that concern is not enough, consider the phenomenon of swarming, which often happens in the Spring. Swarms occur when the hive becomes crowded and the queen flies off with half the colony. This is a natural response to overcrowding but is a loss for the beekeeper. The old hive may be compromised by leaving a diminished population behind. It's possible to build up a small or weak hive, but it will not produce honey for another year. The lack of a queen will be remedied by the workers who feed the larvae royal jelly, but it's a lot easier to buy a queen of confirmed genetics and health.

The swarms are relatively easy to catch. The bees gather around the queen and find a nice spot to stop. The bees are usually gentle and may be vacuumed up or dumped in a box by cutting off a branch where the bees have rested. This capture is not for the faint of heart though. The swarm can then be installed in a new hive (first come first served and free bees!).

Bloodroot

Once the work of early spring is done it is time to relax a bit and let the warm weather do the rest. In March, skunk cabbage and crocuses are among the first flowering plants to produce pollen. It's always surprising to see the bees' pollen baskets on their legs filled with bright yellow or orange pollen when the land still looks barren. Checking the hive periodically is a good idea for a while now until the hive recovers from the winter. Summer and Fall will present their tasks soon enough, which will be covered in future articles.

Local resources about bees:
The Middlesex County Beekeepers Association www.middlesexbeekeepers.org
The Bee Warehouse in Woburn www.beekeeperswarehouse.com The owner of this warehouse sells beekeeping equipment, local honey, and books about bees.

New England Beekeeping Supplies www.nebees.com.This site has lots of good information. You may also contact me at elaineturano22@gmail.com with your questions.

The Light at the End of the Tunnel

Have you noticed the new streetlights around Lexington?
By Myla Kabat-Zinn

The effort to maintain the peaceful nighttime character of Lexington began 24 years ago! Little did we think it would take this long to have a street lighting system that saved energy and money and rendered colors accurately, so that instead of looking brown, our trees continued to look green in the summer and our snow white in winter. Almost all the new streetlights have been installed. Our street light bill has gone from $521,000 in 1996 to about $140,000 today. On our main streets our Mercury Vapor lamps with no shielding have been replaced by long lived and energy efficient induction lamps in full cut-off fixtures, and on our neighborhood streets, our incandescent lights have been replaced with energy efficient compact fluorescents.

There are some lessons to be gleaned from this marathon effort. Of course the first is not to give up. The second is, when something is offered that looks environmentally positive, look again! Back in 1987, our then lighting company, Boston Edison was offering the town what seemed to be a great "opportunity." We could change our system to High Pressure Sodium Vapor (HPS) streetlights and reduce our energy usage and save money. Alerted to this potential change by an article in the Minuteman, Lexington resident Peter Kovner and I looked at these lights in neighboring towns and saw communities that were over lit with "orange looking" lights that had poor color rendition and glare, resulting in reduced visual acuity. We wanted to find a better quality streetlight. This is the third lesson – look around you! You may notice important things that other people may not see and be able to work to prevent changes that degrade the environment.

So many people gave their help and support to this project over the years, some of whom have since passed away, and many of whom are still very actively involved in town affairs. In 1988 Peter and I took members of the DAC and HDC, the Selectmen and other town officials on a nighttime tour to see what our town might look like if we converted to HPS. In 1989 the Selectmen appointed the Lexington Lighting Options Committee to examine the town's options. A crucial vote in Town Meeting in 1991 continued a moratorium on installing HPS streetlights. With the help of lighting consultant Chris Ripman, the town installed more than 70 test lights of various kinds, including compact fluorescents and induction lamps. With careful study it became clear that the way to save the most money would be for Lexington to own its street lighting system before converting to the better quality, energy efficient streetlights. With the help of Ed Selgrade, Jay Kaufman and Susan Fargo, but most importantly, George Woodbury, then head of our DPW, language was added to the electric utility deregulation bill that gave towns the right to purchase their street lighting systems and maintain their own lights. Because we hadn't converted to HPS, our system was so old and depreciated that George Woodbury and utility expert and Lexington resident, Paul Chernick, were able to negotiate a buyout for $1.00. This would not have been possible if the town had accepted

Boston Edison's initial offer back in 1987 and converted to HPS. Our system would have been too new and too expensive to purchase!

Once we owned our system, we started replacing our neighborhood incandescent lights with compact fluorescents (cfs), using existing fixtures. The cfs we are now installing last 15,000 hours, are 25 watts and give off 1100 lumens of light, a big energy saving from the 100 and 150 watt incandescents we had before.

For streets requiring more light, we compared induction lights and LEDs (light - emitting diodes). Induction lamps were slightly less efficient than LEDs but offered a higher color rendering index than LEDs, a warmer color temperature, less glare, and were half as expensive. With the approval of the Energy Conservation Committee and The Board of Selectmen and under the supervision of DPW Director Bill Hadley, our inefficient mercury vapors (and the few HPS) on our main streets have been replaced with induction lamps that last 80,000 hours. On smaller streets, these lamps are 40 watts. On larger and more traveled streets, the wattages range from 80 to 100 to 150 watts. To prevent glare and light pollution, the new induction lamps are housed in full cutoff fixtures. The Dark Skies Association would be pleased. I hope you are pleased as well.

Meet Lexington's Heath Family

By Jane Warren

The Heath family (Ericaceae) is very large with about 3500 species around the world and 1500 in North America. The diverse plant types include herbs, small and large shrubs, and a few trees. The Plant Materials Guide for Lexington lists 12 species in 8 genera of the Heath family native to Lexington. All flowers in Lexington's Heath family are attractive. They have a single pistil, 4 or 5 petals, and 4 or 5 sepals that form the calyx that envelops and protects the developing flower. The petals of many species are fused. The flowers have shapes described as tubular, urn-shaped, bell-shaped, and bowl-like and are arrayed in various types of clusters. Many species have handsome, thick, glossy, evergreen leaves—others have deciduous leaves, often with pretty colors in fall like red, maroon, or orange. These plants thrive in acidic soils and are intolerant of lime (calcium carbonate). Light levels and other growth conditions for the plants are described below. Many of the Lexington Heath species provide nectar for butterflies, bees, or hummingbirds, and some provide fruit or leaves that birds and mammals eat. Several of the Lexington Heath species serve as larval hosts for specific caterpillars that will develop into butterflies or moths.

Genus Rhododendron

Rosebay (R. maximum) or great laurel is an evergreen shrub that grows about 4 – 15 feet high in the northeast, but can reach 30 – 40 feet. It has bright pink flower buds that develop in June into white or pale pink flowers 1½ inches across. The delicate flowers are in magnificent clusters of 15 to 25 and span 5 to 8 inches. Rosebay likes partial

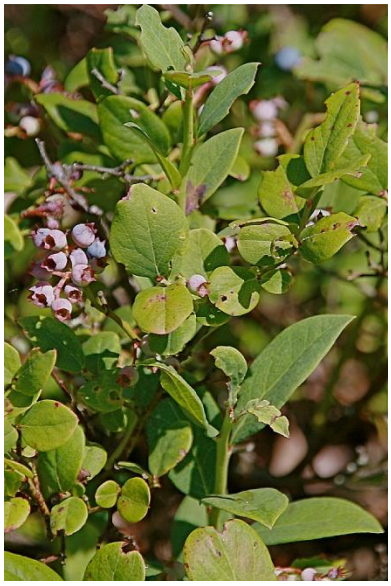
shade and moist, well-drained soil. The flowers attract hummingbirds and butterflies.

Rhodora (R. canadense) is a deciduous azalea that rarely grows more than 4 feet high. The strikingly pretty flowers, 1½ inches across, are rose to purple and less often white. The flowers are in loose clusters. The 3 upper petals are fused together to form a single lobe; the bottom two petals are divided and oblong, thus making an irregularly shaped corolla (ring of petals). Ten large stamens glamorously protrude from the flower. Ralph Waldo Emerson paid homage to this shrub in a poem "The Rhodora" that was later set to music. Rhodoras like sun or partial shade and grow best in wet or moist soil. Though these flowers are not fragrant like other species in this genus, the butterflies still find the nectar.

Swamp azalea (R. viscosum) is a deciduous shrub that grows to 5 - 7 feet in width and height, though it can grow to a height of 15 feet. The sweet-scented flowers have 5 spreading white petals with lavender tubes at the base about 1½ inches long. Reproductive parts, including 5 attractive red stamens, protrude from the flower. The flowers bloom in June and July. Swamp azalea is a wetland shrub that likes moist soil, but tolerates drought. It prefers partial or full shade. Swamp azalea provides nectar for hummingbirds, several species of butterflies, and bees.

Genus Vaccinium

Lowbush blueberry (V. angustifolium) is a deciduous shrub, ½ to 2 feet tall, that spreads by underground stems and forms mats. The small, delicate, white bell-shaped flowers, tinged with pink, are solitary or in small clusters. They bloom in May and June. The fruit is a small blue to black berry that matures in mid-summer. Lowbush blueberries grow in dry, sandy, well-drained soil. **Highbush blueberry** (V. corymbosum) is much taller than lowbush blueberry. The flowers, fruits, and leaves of highbush blueberry are similar to those of lowbush blueberry, but slightly larger. The flower clusters differ from those of lowbush blueberry. Highbush blueberries grow in bogs and swamps, but also in drier areas. Both species like full sun to partial shade. Birds and mammals, including people, relish blueberries. Berries of both blueberry species are eaten by about 20 bird species. Rabbits and deer eat twigs and foliage of highbush blueberries.



Genus Kalmia

Mountain laurel (K. latifolia) is a broadleaf evergreen that grows to 12 – 20 feet tall. The pleated buds are striking—and the delicate light pink flowers with tiny red spots arrayed attractively are exquisite. Five petals form a bowl around the pistil and stamens. The flowers, about 1 inch in diameter in clusters 3 – 6 inches across, bloom in June. Mountain laurels favor partial shade and moist rocky or sandy soils. They attract birds.

Sheep laurel (K. angustifolia) is a mat-forming evergreen shrub growing to 2 – 3 feet tall and often twice as wide. It has small, deep pink or purple, saucer-shaped flowers in dense clusters around the stem, blooming in June or July. Sheep laurel habitats include sandy soil, bog borders, pastures, and wooded stream banks. The light requirement is partial shade. The flowers attract butterflies and birds. This plant is poisonous to sheep and cattle but not deer.

Genus Eubotrys

Swamp doghobble (E. racemosa), also called sweetbells, is a deciduous shrub that grows 5 – 12 feet high and tends to form thickets. The small, delicate, white, bell-shaped flowers have 5 petals and hang in one-sided rows on curved stems 2 – 4 inches long. They bloom in April to May. The natural habitats of swamp doghobble are thickets and swamps; in cultivation it grows well in moist sandy or clay loam in partial shade.

Genus Arctostaphylos

Bearberry (A. uva-ursi) is a woody evergreen shrub 6 – 12 inches high that spreads several feet, making a pretty groundcover. It has small, delicate, white or pink urn-shaped flowers that hang along a stem from short stalks. These flowers emerge in May and June, and the red berry-like fruits form in July and last through March. Bearberry plants grow in rocky or sandy soil in sun, partial shade, or shade. They are drought tolerant. Hummingbirds and butterflies drink nectar from the flowers. More than 30 songbirds, rodents, and bears (if around) eat the fruits.

Genus Epigaea

Trailing arbutus (E. repens), also called mayflower, is the Massachusetts state flower. It forms an evergreen mat about 2 inches tall and spreads with stems of 4 - 6 inches in length. The exquisite trumpet-shaped pale pink flowers, ½ inch across, emerge in dense clusters in April or May. Trailing arbutus grows naturally in moist sandy or rocky woodlands and seems to do well around pine trees. The flowers attract butterflies and are pollinated by flying insects

and ants. People used to dig up these plants because of their beautiful flowers, but now a Massachusetts law protects them.

Genus Gaultheria

Wintergreen (G. procumbens) is a shrub 3 – 5 inches high with dark evergreen foliage. It spreads by long rhizomes in the top layer of soil and forms a groundcover. Small white, urn-shaped flowers that bloom in mid-July hang below the leaves from a common point on short equal-sized stalks like ribs of an umbrella. The fragrant, bright red, round fruits are dry capsules with fleshy covers. They ripen in summer and persist into winter. Wintergreen grows in moist or dry soil in pine or hardwood forests in light to moderate shade. Birds, chipmunks, mice, and deer eat the leaves in winter. Birds and deer eat the fruit. The leaves have a wintergreen fragrance when crushed—and the extract is used to flavor tea, candy, chewing gum, and medicine.

Genus Gaylussacia

Black huckleberry (G. baccata) is a deciduous shrub that grows to 3 feet high. The flowers, which bloom in May or June, are white or greenish red and are arrayed along one side of the stem. Black berry-like fruits emerge in July to August. Huckleberry bushes grow in dry, rocky or sandy soil in open meadows and woods. Several kinds of birds eat the fruit.

Finding These Plants: The Plant Materials Guide for Lexington lists nurseries that carry native plants. Most of the Heath family species can be found fairly easily except rhodora. Garden in the Woods in Framingham should have most of the Rhododendron and Kalmia species as well as the smaller plants, though not at the same time. Weston Nursery in Hopkinton has a plant catalog and availability list on its website (www.westonnurseries.com). Mahoney's in Winchester and Russell's Garden Center in Wayland should have some of the smaller plants.

Additional Information

More references and more information on the plant species and wildlife they attract will be provided later in a longer article on the CLC website. The Plant Materials Guide for Lexington can be downloaded at the CLC website (www.lexingtonma.org/clc/HomePage.htm); paper copies are available at the Conservation Department in the Town Office Building.

Gardening for Hummingbirds

By Barbara Sidley

Ruby throated Hummingbird

One of the many pleasures of a garden is observing the visitors that frequent it, both birds and insects. Of these visitors, one of the most colorful and entertaining is the Ruby-throated Hummingbird. Watching these tiny birds darting from flower to flower with great agility, moving up, down, sideways, and backward, and hovering where there are no perches, is delightful. To fuel this tremendous level of activity, these birds must feed throughout the day, a benefit to those people who wish to observe them. Nectar is an essential part of their diet, supplying carbohydrates for energy. Also important are insects and other invertebrates that offer much needed protein. Both can be provided in yards and gardens quite simply. Of the many possible choices for plantings to supply these needs, a few perennials and annuals are suggested below. It should be noted that nectar feeders may be used as an alternative, or supplemental, source of nectar.

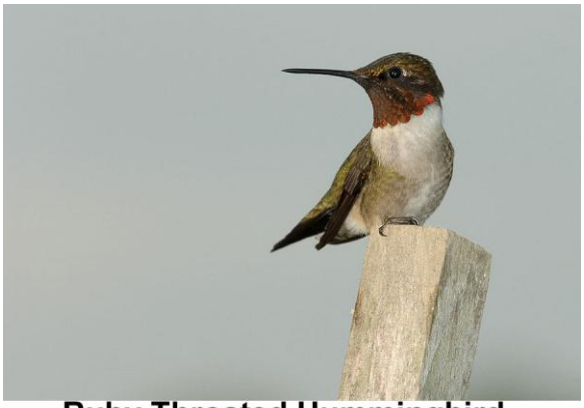
It is not unusual to see hummingbirds in a garden for an occasional visit of a day or two, but by planting different kinds of flowers so that there are blooms throughout the season, visits can be extended over the entire summer. The season begins with the arrival of a few hummingbirds in late April, and they are common by mid- May. Hummers begin their departure in mid-September, with a few remaining into early October.

These birds commonly are attracted to plants producing tubular flowers, primarily red, but also orange and pink. As the birds extract nectar from deep inside the flower, they also collect pollen, thereby serving as effective pollinators. While red flowers remain the primary color preferred by these birds, some blue flowers, among them delphinium, especially blue varieties of ‘D. elatum’, are frequently visited sources of nectar.

The columbine (Aquilegia canadensis) and fringed bleeding heart (Dicentra eximia) are two of the earliest flowering perennials, and they are in bloom at about the time of arrival of the hummingbirds. Columbine cultivars with red or orange flowers are especially attractive to hummers. Both plants grow in rich, moist soil, with partial to full sun. If the bleeding heart is cut back in July, a second bloom period will develop. Coral bells (Heuchera sanguinea) and fire pink (Silene virginica) bloom from spring into summer. Coral bells also grow in rich, moist soil; fire pink needs average, well-drained soil in partial shade. Solomon’s seal (Polygonatum biflorum) blooms in late spring and needs a cool, shady location.

Several perennials attractive to hummingbirds flower from early to late summer. This group includes the cardinal flower (Lobelia cardinalis), beebalm (Monarda didyma), and delphinium (Delphinium cultivars). The cardinal flower needs moist soil in full sun; scarlet varieties are preferable. Bee balm is grown in full or partial sun, with ‘Cambridge Scarlet’ a desirable choice. Delphinium needs rich, alkaline soil, also in sun, and, if cut back after an initial

blooming, re-blooms in the late summer and fall when hummers are still visiting gardens. Scarlet sage (Salvia splendens) is a perennial that blooms from summer into autumn, requiring rich, moist soil in partial sun to shade. The perennial coneflower (Echinacea purpurea) has little nectar but is attractive to insects and therefore frequented by the hummers. It, too, blooms from summer into fall.


Ruby Throated Hummingbird

There are also several annuals that are visited regularly. Butterfly weed (Asclepias tuberosa), red morning glory (Ipomoea coccinea), a vine, and jewelweed (Impatiens capensis) bloom from early to late summer. However, cultivated impatiens plants have less nectar than the wildflowers. Both nasturtiums (Tropaeolum majus) and zinnias (Zinnia elegans) bloom into the fall. 'Dreamland scarlet' is a desirable zinnia cultivar. Zinnias, like Echinaceas, also have little nectar but are attractive to insects and, therefore, to hummingbirds.

It should be noted that poisons and pesticides should not be used in these gardens.

Shrubs and mature trees are also necessary for the hummingbirds, for cover, resting, and nesting needs. Down that is used in the nests is gathered from milkweed, thistles, and mosses. Shallow water, as in a bird bath, is also very helpful to these birds.

We encourage gardeners to think of hummingbirds when planning their gardens. Watching these tiny birds can be very rewarding.

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Northern Yellow-Shafted Flicker