THE NEWSLETTER
The Colebrook Land Conservancy

"In Land We Trust" *Volume 21 Number 1, Spring 2012*

WILD LIFE

Subplots and Microplots

THE PHELPS RESEARCH AREA WAS CREATED TO "LET nature take its course," and it is a prime example of unspoiled second growth forest in Northwestern Connecticut. Covering almost 400 acres, the preserve is adjacent to the Aton forest, effectively tripling the amount of protected open land. The area was last logged in 1912, and at that time was regarded as "the last extensive virgin forest in Connecticut."

George Nichols, after a 1911 inspection of the area, was impressed that the area "had remained particularly unmolested by lumbermen and it also seemed to have been singularly immune from devastation by fire, the greater part of the area not having been burned over for nearly three centuries". Because of the 'immunity' of this virgin forest, the trees he found were of great height and age: their massive boles (trunks, ed.) were from 60 cm to more than a meter in diameter at breast height, and towered upward to 27 to 33 meters." (100 feet.) He found the average age of the mature trees was about 275 years, with a maximum of 350 years of age.

Colebrook, 1911 taken on what is now the Phelps Research Area, before the logging.

Connecticut forests of that time were reportedly 50% chestnuts, which we have lost, but the rest of the species appear to be the same. There are again huge hemlocks in the Phelps property, a few immense red oaks, with a scattering of beech, maple, yellow birch, ash and cherry.

The conservation easement on the Phelps property directs that the land remain untouched, used only by the permission of the conservancy, (where we offer regular guided walks) and for research. Last week we had a visitor from the US Depart of Forestry in the person of Brian Tyrell .

The US Forestry Department has an ongoing monitoring project of the Northeastern forests. In order to continually gauge the health and growth of our forests, plots of 1/6 of an acre for each 16,000 acres, have been identified by random sampling method. They are checked about every five years, as the foresters cover 20% of all the plots annually. The randomly but permanently identified plots may not now be forested, may be disturbed or developed. It is a survey over time, however, so variance helps to build the total picture of what is happening to our woods.

It seems incredible to the observer that a forester can go into this immense forest after 5 years and find the very same individual trees he observed on his last visit. Tyrell brought with him a sheet of white paper with three circles on it, smaller circles within and, presumably, longitude and latitude positions. In this day and age he not unexpectedly has a GPS system. Using that, and a high tech compass (one can hold it in the hand, as usual, or bring it up to the eye and get an exact reading within) he is well equipped to find his target. Plodding mindfully along, with GPS in hand, he came to the designated subplot.

But what of 60 years ago when this monitoring of the forests began and there were no GPS systems? Or what happens now if

Three gashes at the end of 35 Chains

Gash signifying this is one of the trees studied in the sub-plot

the GPS gets wet and no longer functions? How can one find the exact spot?

The tools are compass and "chain" measuring. A chain is a length of 66 feet. One of the first things a student in forestry school does is determine just how many paces one requires to cover 66 feet. In Tyrell's case it is 13 paces; for someone with longer legs, it requires fewer. To reach the Phelps sites, the forester is directed to walk from a known spot in a nearby road for "35 chains" on a certain the compass point. And there, indeed, we find a reassuring mark: three slanted gashes on a tree signifying that one is at the 35 'chains' intersection. Theoretically there is a gash marking every 100 feet. Again following a specified compass bearing we come upon the first of the circles or 'subplots.'. These are identified in two ways: a small wooden dowel inserted into the ground marking the very center of the 24 ft diameter circle, and the presence of a short horizontal gash "at breast height" (4.5 feet) on every tree within 12 feet of the dowel, signifying that the tree is part of the longitudinal study. Tyrell has the "azimuth" or exact GPS location for each tree.

The process of assessing the health and strength of the trees commences: there is a record on every tree within the subplot going back many decades. Tyrell studies each one, estimating the number of board feet per bole, just as George Nichols had estimated the total amount of board feet, or forest wealth, in 1911, following the old approach of measuring a forest for its timber. Tyrell refers to it as "merchantability." Each tree is also measured for specific girth, height (with something that looked like a camcorder) canopy, general health, and then rated each tree along a continuum of numbers, signifying worth. Too many knots, or the presence of rot or ill health would decrease the ranking. He did not note any sign of wooly adelgid infestation on the hemlock trees in the interior of Phelps. Tyrell entered all the information from each identified tree into a data recorder.

To be among the 'countable ' trees, a trunk must be 5 inches in diameter for hardwoods. Tyrell found one "in growth"- a trunk which had now become big enough to be included in the monitoring program. Another small sapling was marked with blue on the last visit, to indicate that he had looked at the tree and determined it was not yet of sufficient trunk size. The Phelps research area contains three subplots, 120 feet apart,wherein Mr. Tyrell performed the same measurements. Within each subplot there is also a "micro plot" of 6ft 8 inches whose center is signified by a metal hoop. The subplot is inspected for every tiny visible shoot or seedling., and the forester must record any changes to the environment such as a new inflow of water or a vernal pool or any new disturbance, man-made or natural.

The Phelps research area does indeed perform as a laboratory forsiviculture research. Long after most of us are gone, the forestry service will be surveying the Phelps research area and because of the easements on the area, that great northern forest will remain unspoiled.

CLC NOTICE

A short annual meeting for the election of Conservancy officers and trustees will be held Sunday, April 15, 9am, at the senior center. All are welcome to join us.

Hope for the Hemlocks


Showing the wooly adelgid

MANY HEMLOCKS IN OUR neighborhood appear to be infested with the wooly adelgid. One can see signs of it along the Colebrook reservoir. The wooly adelgid, as well as the gypsy moth and the emerald ash borer, were all brought here inadvertently from Asia. These "exotic" pests can be treated in an urban setting if pesticide use is allowed, selective pruning employed, or the trees removed altogether, as was done with thousands of elm trees. But such pests are particularly hard to eradicate when they attack trees which are in the open forest. In our large expanses of evergreen forests, control is particularly vexing. Away from human habitation, these pests may gain a strong foothold and thrive for a long time before being detected. In many New England forests there are areas which are hard to reach particularly if one is carrying pruning or cutting equipment. Therefore the use of natural predators is the most promising solution. Where to find such predators? The Connecticut Botanical Society reports:

In the case of the wooly algid, it was deduced that a natural predator might be found in the area from which the wooly algid originated: Japan. Researchers, including Mark McClure of The Connecticut Agricultural Experiment Station, searched the area of the adelgid's origin and found places where it is present but does not appear to do great damage to the hemlock trees. And there he found several types of ladybird-type beetles which appear to control the adelgid. One, the Sasajicymnus tsugae keeps the algid at low levels not by feeding on the algid itself, but eating the cottony coating which protects the algid from harsh winter climes. Without this warm overcoat, the algid cannot survive the winter, therefore the populations of the pest never grow to threatening levels. S.tugae beetles were collected, brought to this country and introduced first into quarantine type facilities, reared to viable population numbers, then released in selected sites and observed to assess both their survivability here and their ability to control our wooly algid population. For both of these observations, the outcomes were positive: the S.tugae lived, proliferated, and appeared to reduce the number of wooly adelgids to such a level that the trees were able to substantially recover with minimal human intervention. And fortunately, too, the ladybird-type beetle did not become a pest itself; it did not feed on other non-target insects. There are now three types of beetles which appear to control the hemlocks pest, and another genus, Laricobius nigrinus which is active in winter and may well control the wooly algid as well. We will wait impatiently for signs of introduction and change here in northwestern Connecticut. Our hemlocks may be reprieved!

Another Reason to Control Japanese Barberry

First introduced in 1875 as a low-maintenance, ornamental shrub, Japanese barberry (Berberis thunbergii) is now invasive in abandoned fields, roadsides and woodlands, where it takes the place of native plants. Sharp spines among the barberry's small leaves discourage deer from browsing, but the abundant supply of bright red berries attracts birds and mice, who help spread the seeds. It turns out that deer ticks also find barberry attractive -- the bushes create a humid environment for them, and their young nymphs can hitch a ride on visiting mice.

According to researchers at the University of Connecticut in Storrs, places where Japanese barberry is abundant have more deer ticks infected with the spirochete that causes Lyme disease. Even if you have only a few barberry shrubs on your property, it's worth eradicating them to prevent the berries from spreading and creating an even larger problem. You can kill very young plants by pulling or digging them up (be sure to remove all the roots from the ground).

Plants too large to pull or dig up (generally 3 feet tall and over) will require multiple treatments to weaken their reserves and finally, kill the roots. One method involves cutting all stems back to ground level or to a height that allows access, then burning the very bottom of the stems with a long-handled propane torch. Obviously, care must be taken not to cause a fire or hurt yourself!

If you don't have such a propane torch, then cut the stems to the ground or as far back as possible using long-handled lopers or a brush saw, and each time the stems resprout, cut them back again. Applying herbicides (triclopyr, glyphosate) to the stem cuts is effective as a secondary treatment as well.
If you don't want to use herbicides, then continue cutting the stems back as long as it takes to kill the plant.

For helpful videos on Japanese barberry control, visit www.youtube.com/bidwellmedia.

Upcoming Events

ANNUAL POT LUCK SUPPER
APRIL 27TH *6pm for Supper, 7pm for Presentation*
at the Colebrook Senior Center, Come hear Mary Tyrrell, Executive Director of Sustainable Forestry at the Yale School of Forestry talk about the studies she has done of forests in the County. Please bring a dish. No charge.

TEA & TREES @ 19 ROCK HALL RD.
JUNE 24TH, *3 to 5 PM, Benefiting the Colebrook Land Conservancy and the Norfolk Land Trust.*
For reservations, call 379 2230.
Rock Hall features one of the largest private collections of specimen trees in New England, a professional arborist will lead a walk through the grounds followed by High Tea.

We lack email addresses for many of you, and if there is an alert we wish to send out, information about upcoming events or other announcements, we have no way on contacting you but snail mail. Please send us your email address: info@colebrooklandconservancy.org.

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The Colebrook Land Conservancy Newsletter is produced in the public's interest. Comments and suggestions for articles are welcome.

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