

dcr

Massachusetts



The newsletter for owners of land protected by a Watershed Preservation Restriction (WPR) held by the Department of Conservation and Recreation (DCR), Division of Water Supply Protection.

Summer 2016

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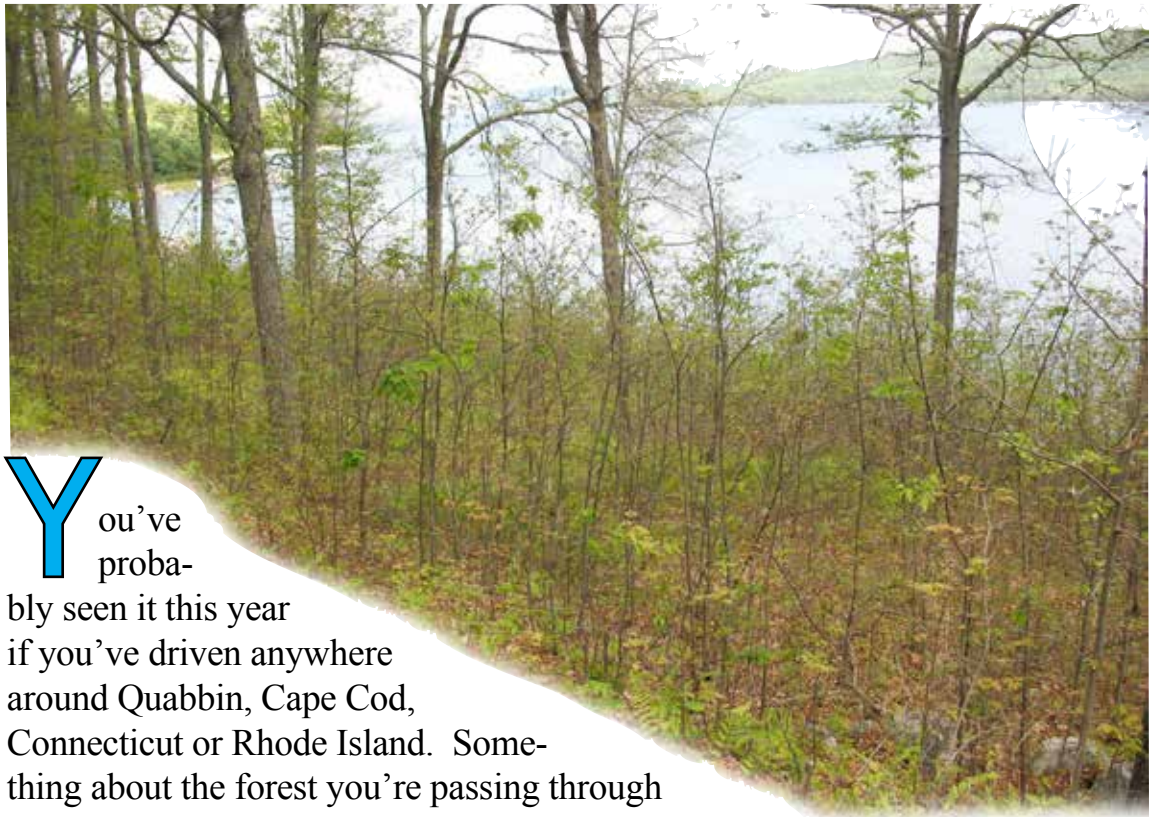
Photo: Jim French

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Watershed Currents

Battle on the Green

The Return of the Gypsy Moth



You've probably seen it this year if you've driven anywhere around Quabbin, Cape Cod, Connecticut or Rhode Island. Something about the forest you're passing through looks a little off. Maybe it's the color of the leaves or maybe it's the light level. In some places you notice that the trees have lost their leaves, or appear dead, but you aren't quite sure. It reminds you of winter, but you realize it's still July. Well, you have probably been seeing damage caused by an introduced pest, the gypsy moth (*Lymantria dispar*).

The larval/caterpillar stage of the gypsy moth causes defoliation (the loss of leaves). Larvae emerge from their eggs in May and either start to feed immediately or hang from a silk thread and allow the wind to carry them to a suitable host tree. They prefer oaks, but will feed on many species of hardwood trees and shrubs, or even conifers if populations are high. As they feed and grow over the next several weeks the caterpillars molt through several stages or "instars", until they finally enter the pupal stage in mid- to late-June. Adult moths will emerge in July, and during an outbreak you may see thousands of tan-colored males flying around

trying to locate the heavy, flightless females. Each female lays 500 to 1,000 eggs on a tree trunk or other surface, all bound together in a silky oval structure about an inch long called a "mass", ready for the long wait through winter until new larvae emerge the next spring.

The gypsy moth was brought to this country from Asia in the 1860s by a researcher in Medford, MA hoping to develop an efficient method for silk production in the West. The experiment failed, but the insect managed to escape to the wild where it quickly naturalized. As populations grew and spread, the state expended

Gypsy Moth, continued on Page 3



The image above shows defoliation due to gypsy moth activity that took place earlier this season on the shoreline of the Quabbin Reservoir. At left is an ever hungry gypsy moth caterpillar.

Photos: Top, Brian Keevan; Left FWS.gov.

Forest Legacy Update

Q2W: the Quabbin to Wachusett

The team effort continues for land preservation

DCR staff are now in the thick of an effort to preserve swaths of woodland extending from the north Quabbin region to the slopes of Wachusett Mountain - resulting in an extraordinary collaboration labeled Q2W.

Late in 2011, land preservationists from regional land trusts and the Department of Conservation and Recreation teamed up to submit a successful application to the US Forest Service's Forest Legacy Program for funds to

protect some 25 tracts of privately held woodland totaling more than 3,000 pristine acres. We happily report that the protection of several of these tracts has been completed to date, with many more still in the works. It is exciting work, and rewarding for landowners and staff alike.

To date, 1,351 acres at a total cost of \$1.67 million have been protected through the Q2W Forest Legacy program.

~ Jim French



Left: A beaver meadow on a still day at the Chimney Hill WPR.

Right: An early spring view of a wooded stream as it threads its way through an old stone wall.

Photos: Jim French



Forest Legacy at Chimney Hill

The Hall family joins the team

The extended Hall family, with land in Petersham, elected to participate in the Q2W initiative. They are among the first property owners to have a Forest Legacy Watershed Preservation Restriction (WPR) placed on much of their acreage. One is struck by the beauty of Rutland Brook, a Quabbin Reservoir tributary, with its rocky cascades and hemlock shaded pools, as it winds through the woodlands of their Chimney Hill Farm. This summer gathering place, with its charming farmhouse and shingled barn at the end of a sugar maple shaded gravel road, has been in the family for more than a century. From their door one can enjoy the scenery of cattle grazing in pastures, with forested hillsides beyond.

Multi-generational land ownership, with its attendant "sense of place", is not unusual in these country towns. We have seen time and again families pulling together to preserve the home place that grandparents bought so long ago. We have also seen such treasures lost – often due to family disputes, financial difficulty, or lack of understanding of the various options landowners have to preserve

their beloved "place." The result is often subdivision, loss of landscape integrity, and the sad specter of physical separation from a source of well being and happy memories.

The Halls would not have this fate for Chimney Hill Farm. Working with the Mount Grace Land Conservation Trust and DCR, they saw an opportunity to place covenants on 586 of their 678 acres through the Q2W Forest Legacy program. The land now subject to the WPR represents most of their forestland, and it will continue to be managed under a Forest Stewardship plan. The funds they received for agreeing to restrict this land in perpetuity will be placed by the family in an endowment for covering long term farm maintenance costs.

The result? More generations of this remarkable family will have Chimney Hill Farm to enjoy, and the legacy of their "place" will be carried forward. In the process, they have contributed greatly to the preservation of working woodlands, with all the amenities that forests provide, within the incomparable North Quabbin region.

~ Jim French

Gypsy Moth- From Page 1

much effort to control this new pest. Archived photos show horse drawn wagons carrying large tanks and pumps, with men spraying trees with fire hoses. Gypsy moths were first found at Wachusett Reservoir in 1910. Perhaps due to the proximity of the water supply, workers located all egg masses each winter and painted them with creosote. In 1916, about 143,000 egg masses were painted in a 2,000 acre area; this work was conducted annually at least into the late 1940s.

Many of us remember the last severe statewide outbreak in 1981. Caterpillars covered trees, streets, and houses, and an estimated 13 million acres were defoliated in the Northeast, leading to oak tree mortality and also conifers like hemlock. Defoliation forces trees to produce new leaves during the summer, and this consumes energy that would otherwise go into growth or defense against other pests and diseases. If you come across a fresh oak stump or log in our area, count back the rings from inside the bark and you'll probably see thin growth rings for 1980 and 1981.

The fungus *Entomophaga maimaiga* was introduced 1910 as one of many potential biological control methods, but was deemed unsuccessful and its existence and effects went unregarded for decades. It was rediscovered in our woods in 1989 and was shown to be acting (along with a native virus) as a significant control on what was developing into another large outbreak of gypsy moths. Excited entomologists went about deliberately spreading this fungus to areas of the country at the leading edge of gypsy moth range expansion, where it helped prevent tree mortality.



E. maimaiga spores will last on trees and in the soil for many years, but require moist conditions for infection during the time that those early instar caterpillars are travelling up and down the trees searching for food. Recent dry conditions in the spring are likely the biggest concern with these latest outbreaks, and entomologists (and foresters) are hoping for a much wetter May in 2017.

Statewide, the gypsy moth has made a strong comeback over the last two years or so, with major defoliation patches concentrated in south central and southeastern Massachusetts. Within the DWSP watershed system, Quabbin has been the only watershed affected so far, with about 4,000 acres damaged in 2015 and about 11,500 acres damaged in 2016. Nearly all of the defoliation has occurred on DWSP-owned land; so far, aerial surveys are indicating that properties with WPRs are not yet being affected, although landowners may be seeing moths and damage not getting noticed from the air. Ware River and Wachusett watersheds have mostly been spared so far, while Sudbury is suffering more from winter moth than from gypsy moth.

Land protection and stewardship is key in the face of these large natural impacts. Large blocks of land offer better diversity of habitat for the many animals that do prey on gypsy moth, offer more chances for reserves of fungus spores to re-inoculate the moth population, and provide a more stable buffer against negative water quality effects should we experience large scale tree mortality.

In addition to the many articles available through news media, you are encouraged to visit <https://ag.umass.edu/fact-sheets/gypsy-moth>

~ Brian Keevan



Left: gypsy moths gather at the base of a tree for mating.

Middle: mature male and female gypsy moths.

Top right: an example of the thinning tree canopy as a result of gypsy moth infestation.

Photos: Brian Keevan

Meet the Staff - Extra

Brian Keevan is a Natural Resource Analyst with the Division of Water Supply's Natural Resources section. Brian has been working for the DCR for twenty-two years, twenty of those as a forester at Wachusett Reservoir. He is typically involved in Land Management Planning and forest vegetation data collection and analysis, as well as a variety of special projects including assessment of this latest gypsy moth infestation. His skills as a naturalist and licensed forester are invaluable to the WPR team.

WPRs you can visit

Tom Swamp at Harvard Forest

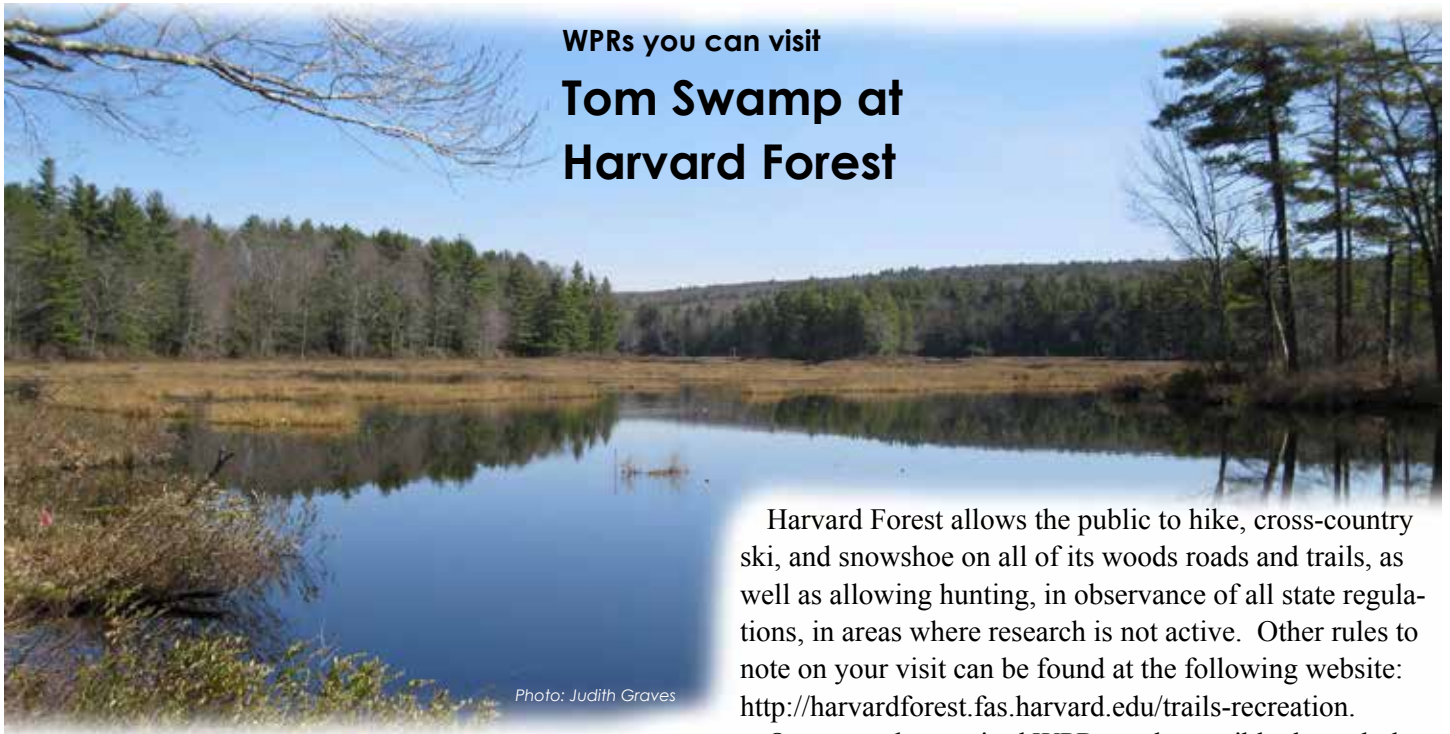


Photo: Judith Graves

The Summer 2015 issue of *Watershed Currents* kicked off a series on WPRs you can visit. There are now four WPRs on Harvard Forest land, all of which are wonderful places to take a hike.

Harvard Forest covers 3,750 acres in Petersham; the WPR holdings encompass 878 of those acres. It is important to note that Harvard University has agreed to placing these conservation covenants on their forest land in recognition of the need to permanently protect and enhance the shrinking New England woodland landscape. Harvard Forest has been in the forefront of calling for landscape preservation efforts in this region, so by placing a WPR on portions of their holdings, they are affirming this stance and setting a positive example for others to follow.

Harvard Forest allows the public to hike, cross-country ski, and snowshoe on all of its woods roads and trails, as well as allowing hunting, in observance of all state regulations, in areas where research is not active. Other rules to note on your visit can be found at the following website: <http://harvardforest.fas.harvard.edu/trails-recreation>.

One recently acquired WPR, made possible through the utilization of Forest Legacy funding (as discussed in the feature article of this issue) includes some exemplary open water, wetland, and upland forest habitat which will delight nature lovers. The “Tom Swamp Tract” WPR is best accessed from a small parking area next to Harvard Pond on the north side of Route 122 in Petersham. A scenic woods road runs northward to Tom Swamp Road, paralleling the Pond, where the daily activities of pond life can be viewed.

Woods road and trail maps are available at Harvard Forest Headquarters located at 324 North Main Street (Route 32) in Petersham, home of the Fisher Museum - another great place to visit where one can see the impressive forestry dioramas that were discussed in the Winter 2013 issue of *Watershed Currents*.

~Caroline Raisler

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