



Eyes on Owls

Saturday, March 14th – Holden Senior Center

Eyes on Owls is a one-hour program about owls and their habitat. Owls are all around us in the central Massachusetts woods, but how many of us have ever seen one? Eyes on Owls will bring several of their birds for us to meet. Their speaker will teach us field marks, signs, and skills to help spot these elusive nocturnal creatures.

Program starts at 11 a.m.; this program is free and open to the public.

This program is supported in part by a grant from the Holden Cultural Council, a local agency which is supported by the Massachusetts Cultural Council, a state agency.



NEW MASSACHUSETTS LAW AWARDS GREATER TAX BENEFITS TO LAND DONORS

Landowners considering donating land for open space will be glad to hear of the recently signed "Land Conservation Incentive" Act, to take effect in 2011. Under this new law, land that has been donated for permanent conservation allows a donor to receive a state tax credit of 50% of the land's value, up to \$50,000. Other rules also apply. To read the full bill, visit www.mass.gov/legis/laws/seslaw08/sl080509.htm.

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the OAK LEAF

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Spring 2009

The Ice Storm of 2008: A Long-Term View

by Erich Mierzejewski

The ice storm that hit central Massachusetts on December 11, 2008 was an unforgettable event.

I awoke that night to the sound of limbs falling from our 200-year-old sugar maples onto our overhead electrical service, tearing the conduit off the wall down to the power meter. I lay awake while still dark outside listening to the sound of the rain and the trees. One after another, in 30- to 60-second intervals: first the gunshot-like snap of an ice-laden limb unable to bend further; then splitting and tearing as the limb pulled loose from the tree; finally, the freed limb falling from the trunk, as it crashed to the ice-covered earth with the sound of glass breaking on a tile floor.

As the sun rose and I peered outside, I was amazed. Such a strikingly foreign place was the backyard, with debris spread across the yard. Such a surreal sight were the impassible street, the broken limbs still hanging precariously, and the few remaining treetops bending under the weight of ice.

What will be the impact?

It wasn't until much later, on one of the many cold, oil-lamp lit nights that I began to ponder the broader scope beyond human impact. What will be the impact to our forests? Are there management practices that should be employed promptly or will the forests heal themselves? How will this affect maple sugaring? Should damaged trees be harvested for timber or firewood before they decompose? And what will happen to the understory flora and wildlife that are part of the forest ecosystem?

Some of these questions answer themselves as we inspect our open spaces. Although trails are often impassable and much of the forests remain uninspected, what is observable brings us some good news; many large tracts were spared traumatic damage. But no place, no parcel, escaped

unharmd, and unfortunately, some tracts of land lay in dramatic contrast to how we left them in the autumn. Those areas that fared worst are at the boundaries of fields where trees tend to grow asymmetrically, steep slopes with loose soils, and areas where bittersweet, grape and ivy vines have added an extra burden. Damage is not limited to just fallen branches, but tree trunks split midway between ground and canopy, forked trees split vertically in two from crotch to root, and entire trees uprooted, roots still holding aloft frozen soil and stones.

So what of the long-term impact? What of the questions that cannot be answered by immediate observation? This ice event is not without precedent. Northern New York, Vermont, New Hampshire and southern Maine were struck by a series of ice events from January 5 to 16, 1998. From these events, an opportunity arose to conduct research on forest rejuvenation and health.

Several agencies and universities have produced a wealth of research on the topic, which may be largely applicable to Central Massachusetts, if similarities can be established. Locally, records show between 1-1/2" and 3-1/2" inches of precipitation over the duration, with reports of ice exceeding 1/2" thick. By comparison, the '98 storm had reports 1-1/2" to 2-3/4" of precipitation over a 3-day period with ice accretion as much as 1 inch.[1][2][3]

Our forests are populated with oaks and maples as the primary hardwoods, with hickory, cherry, beech, birch, and aspen common as well. Mixed among the hardwoods are softwoods like spruce, hemlock, and pine. These species are all well represented in the regions affected by the '98 ice storm. Soil types, geographical and geological properties all show similarities between the regions. If we accept the similarities,



then the research on the '98 storm may become a proxy for our storm.

What can be learned?

A study produced by NEFA [5] of more than 20,000 trees across 17M acres found 4/5th of hardwood trees had lost less than half their crowns. For softwoods, 80% were undamaged and 90% had less lost less than half their crowns, a favorable outcome compared to the hardwoods. The loss of half of a crown is commonly held to be a recoverable condition for a healthy tree, and all trees in this category are expected to do well.

A study prepared by the USDA [4], begun immediately following the '98 ice storm and updated in 2008, provides significant detail on tree response over a longer duration. Five sites were selected across Vermont, New Hampshire and Maine for tag-and-track evaluations of hundreds of trees. Trees were categorized by the degree of damage: (A) less than half of the crown

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Original tree (left), images of 35%, 50% and 80% crown damage, from [9].

lost, (B) half to three quarters lost, and (C) more than three quarters lost.

Four years into the study and the news was promising. Virtually all trees with more than 50% of the crown intact had survived (Group A trees). Group B and C trees fared well also, with 100% surviving, except for small losses among yellow birch, and more significant losses among paper birch. Five years into the study, and the results were similar, with nearly all Group B and C trees surviving, excepting heavy losses to Paper Birches.

Going into the winter, trees have stored energy and leaf buds prepared for spring. In the spring, even damaged trees, if they were healthy in the fall, are prepared to make a strong showing. But with fewer limbs, and fewer leaves, short-term growth is stunted as the tree expends more energy in increasing foliage than girth. The USDA study took basal bore samples of various species, and measured growth rings before and after the ice storm. Group A trees were relatively unaffected, having normal growth within 3 years of the ice storm. However Group B and C trees did not recover as well, having as much as 70% reduction at 3 years, and 50% annual relative growth at 5 years.

Canopy trees were not the only to receive damage. A lower percentage of saplings incurred damage compared to their larger relatives, although damage to saplings was more likely to be severe.[5]

Economic impact

Beyond the health consequences to the trees, the ice storm may inflict economic losses to hobbyists and farmers in industries as broad as maple sugaring, timber production, Christmas tree farms and orchard operations.

In the late winter, at the first thaw-freeze

cycle, maple tree sap beings flowing, and so begins the maple sugaring season. "Sugar maples with crowns completely destroyed this winter are likely to produce sap and are safe to tap this spring as they are likely to die. Trees with extensive but not complete crown loss are at risk, however, and should be tapped lightly, if at all. The stress due to tapping is not from the removal of sap, but in the additional wounding of the tree. Previous tap-holes with good closure are indicators of healthy trees. Allow trees with poor closure of tapholes made in previous years to 'rest'." [7]

The timber quality of damaged trees may be degraded by torn and fallen limbs. Open wounds provides entryways for water, fungi and insects. This invites discoloration and decay of the core, which reduces the quantity and lowers the quality of sawtimber. Branch losses rarely resulted in epicormic branches forming along the trunk, and so had little impact on timber value[4], although it may be advisable to leave mature damaged trees intact to deter epicormic branches on pole timber.[6] From an economic standpoint, damage to tree butt and exposed roots along logging roads can be more detrimental to future harvests than the profit made from salvaged trees.[6]

Positive news

The impact to the trees is the first evidence one might notice, but changes to the trees bring changes to the entire forest; animals and understory plants are influenced. Opportunity abounds for wildlife. Fallen limbs provide easy access to buds and twigs, common winter food for deer, rabbits and field mice. The same limbs also provide cover for small animals against predation from foxes and coyotes.

As tree wounds remain exposed, insects infesting damaged trees provide a ready food source for birds, raccoons, and skunks.

The cavities left behind by rot and insects provide new dwelling spaces for squirrels, woodpeckers, and chickadees, among others. "Trees over 18 inches [diameter at breast height] with broken tops or large broken limbs have a good chance of developing into valuable wildlife cavity trees. This is true for both hardwoods and softwoods." [6]

Where the canopy is opened from ice damage, the forest floor receives more sunlight, encouraging wildflowers, ferns, and berries to flourish, which provide still more food for birds and small animals.[8]

Some questions remain unanswered, and some answers may be personal. Some homeowners may choose to keep damaged trees in the hope that even a slow recovery is preferable to the cost and time consumed with stumping and replanting. Woodlot owners may wait several years before deciding on the merits of a salvage harvest. And some woodland may be left undisturbed by human hand, developing old-growth characteristics.[10]

As spring approaches, remnants of our ice storm, once hidden by our long winter's snow, are revealed again. The debris not yet cleaned up will soon be piled by at the edge of our yards. But the evidence in the forests will remain. The retrospectives on the '98 storm provide a glimpse into our collective woodlands' future. While the damage to our open spaces may look dramatic today, the gradual decomposition of fallen trees, variations in stand maturity, and diversity of habitat may result in a healthier forest over the long term.

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HOLDEN ON TO OPEN SPACE

White Oak has been working closely with the Department of Conservation and Recreation to obtain permission to construct a small parking area to allow access to the Porcupine Hill property. We will provide further updates as we proceed.

Additionally, an exciting partnership between White Oak and the Greater Worcester Land Trust may result in the protection of even more open space in Holden. Stay tuned for more information in future issues of *The Oak Leaf*.



White Oak and the Wolf: “Wild Saturdays” Brings Canis Lupus to Holden

No scary music played. No screams arose from frightened youngsters. After all, this was not the “big, bad wolf” of childhood legend. Danagy is a quiet, gentle wolf who visited the Holden Senior Center on Saturday, January 31, as part of White Oak’s new “Wild Saturdays” educational programming.

Nearly 250 people made up a standing-room-only crowd attending the presentation by Michael LeBlanc of Wolfstalk. He and his family have been raising wolves in Gardner and promoting their cause for over 30 years.

LeBlanc discussed the challenges wolves face in the wild, described their need for protection, and shared numerous humorous stories about raising wolves in his sanctu-

ary. His organization works to restore wolves to their natural place in the ecosystem, through educational programs and by providing a sanctuary for wolves in need.

Children at the event had special front-row seating. Here, they were able to get up close and personal with Danagy and could easily ask questions of LeBlanc. Adults who attended also enjoyed great views of the presentation, with plenty of time for additional interaction afterward. Attendees lingered long after the program finished to find out more about wolves and to learn about becoming members of White Oak.

As part of an intensive drive to recruit new members, White Oak had offered a \$20 special on membership at the wolf program.

This resulted in a number of new memberships, donations, and an increased awareness about the work done by White Oak within the community.

Saturday, March 14 at 11 a.m. will offer another opportunity for special White Oak membership pricing and new educational discoveries, with an “Eyes on Owls” program coming to the Holden Senior Center. Owls are all about us in the central Massachusetts woods, but how many of us have ever seen one? “Eyes on Owls” will bring several of their birds for us to meet, and their speaker will teach us field marks, signs, and skills to help spot these elusive nocturnal creatures. The one-hour event is free and open to the public—but do come early if you want a good seat!

The Ice Storm of 2008

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References

[1] *Historical records report 1.42” precipitation from Dec 11th to the end by comparison, from Jan 7th-9th 1998, Concord, NH had 1.37” and Barre, VT had 2.77”*, <http://www.wunderground.com/history/airport/KORH/2008/11/12/DailyHistory.html>

[2] *The WeatherChannel.com reports 3.33” precipitation on the 11th and 0.20” on the 12th.* <http://www.weather.com/weather/monthly/01522?month=-1>

[3] http://www.hubbardbrook.org/research/longterm/ice_storm/beechn98.htm

[4] *Tree Response Following the 1998 Ice Storm*

[5] *The Northeastern Ice Storm 1998: A Forest Damage Assessment*

[6] *Information Sheet #4: Silvicultural Approaches for Managing Ice-Damaged Stands*

[7] *Information Sheet #2: Will Winter Storm Injury Affect Hardwood Quality and Maple Sap Production*

[8] *Information Sheet #5: Lucky Break for Wildlife*

[9] *Information Sheet #1: How to Determine Percent Live Crown Loss In Hardwoods Before Leaf-Out*

[10] http://www.masswoods.net/pdf/Restoring_Old_Growth_Characteristics.pdf

Further Research

<http://extension.unh.edu/forestry/icestorm.htm>

<http://www.fs.fed.us/na/durham/ice/>

<http://www.vinsweb.org/cbd/ice.html>

http://www.hubbardbrook.org/research/longterm/ice_storm/likens.htm

<http://www.dec.ny.gov/lands/26414.html>

<http://data.nssl.noaa.gov/dataselect/index.html>



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White Oak is a member of the Land Trust Alliance and the Massachusetts Land Trust Coalition.

CAN'T GET ENOUGH OF WHITE OAK AND OUR PROPERTIES?

Volunteer your time to help with events, trail work, and other duties. With the extensive ice storm damage from this winter, we are in need of more volunteers who are handy with a chain saw. Contact us at info@whiteoaktrust.org to join the crew!

Reduce paper and go green by signing up for our email list. You will get regular updates on the latest land conservation news in our community, upcoming events, and volunteer opportunities. Email YOUR email address to info@whiteoaktrust.org to be added to our list. You can opt out at any time.