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The New York Forest Owner
A Publication of The New York Forest Owners Association

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Please address all membership fees and change of address requests to P.O. Box 541, Lima, N.Y. 14485. 1-800-836-3566. Cost of family membership/subscription is $30.

www.nyfoa.org

COVER: Goats were evaluated as a tool to manipulate vegetation on private forest lands. This is one of the many sponsored research programs being conducted by Cornell University’s Agricultural Experiment Station (CUAES). For more information on this program see page 12 for full article. Photograph courtesy of Peter Smallidge.

The New York Forest Owners Association is a 501(c)3 foundation and tax deductible donations to this organization will advance NYFOA’s educational mission.

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From The President

Last June we invited representatives from several other forestry organizations to attend our Board meeting at the Arnot Forest. Our purpose for this invitation was to discuss our top areas of concern and to explore possible working relationships. Representatives from the Adirondack Landowners Association, the Catskill Forest Association, Empire State Forest Products Association, Catskill Forest Association, the Society of American Foresters and from our NYFOA Board found the discussion rewarding and somewhat surprising. Despite the slight differences in our organizations we quickly came to the conclusion that we shared may of the same concerns and that we could be more effective in accomplishing our legislative objectives by working together. The next step is a meeting scheduled for September 21st to discuss the formation of a Forestry Council. This Council could be a forum for all the groups working with private forestland in New York State to develop a joint legislative agenda for the year and implementation strategies. There is power in numbers, especially in Albany. Together the forest owners of New York own about half of the state and produce the raw material for an industry that contributes 3.7 billion dollars to the state’s gross product. If we want to be heard we need to be more organized and we need to use the power of our combined numbers. Property tax reform, 480a revision, selective assessments, the assessment of standing timber and income tax credits will be our suggestions for group consideration. The legislative session in Albany starts in January, let’s get ready.

Our Executive Director search team has reviewed more than forty applications during the month of August and narrowed the field to the top three candidates. We plan to hold additional interviews this month and hope to have selected a new Executive Director by the end of September. We have been very encouraged by the interest in this position and the quality of the candidates. One of the first tasks for our new Executive director will be to visit each of the chapters and identify ways to increase the services available to our members.

It’s starting to look like heating costs could be drastically higher than we anticipated this winter. One positive impact from this will be an economic shift for firewood operations. For the past twenty years I have always considered heating my home with firewood to be a questionable economic venture, but I did it any way. I could justify cutting firewood based on the exercise I received or based on the need to do TSI. Now I wonder if the increased fuel prices will shift the value of firewood enough to change the way we conduct and market low grade harvests or salvage operations. While we may never be as quick to change our pricing as they do at the gas pump, we should give some thought to the implications of increasing fuel costs.

–Alan White
President

Join!

NYFOA is a not-for-profit group of NY State landowners promoting stewardship of private forests for the benefit of current and future generations. Through local chapters and statewide activities, NYFOA helps woodland owners to become responsible stewards and interested publics to appreciate the importance of New York’s forests.

Join NYFOA today and begin to receive its many benefits including: six issues of *The New York Forest Owner*, woodswalks, chapter meetings, and two statewide meetings. Complete and mail this form:

I/We would like to support good forestry and stewardship of New York’s forest lands

( ) I/We own _______ acres of woodland.

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County of Woodlot: _____________
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NYFOA Members Show Your Colors!

We love our colors! People are tickled pink, green with envy, feeling blue, yellow bellied, red blooded Americans, etc. Many of our trees also fall into color descriptions. Considering native and non-native trees that grow in New York State, list as many trees as you can that are “color coded.”

Typical examples could be blue spruce or red maple. Remember, it is cheating to look the trees up in a tree identification book! Rate your knowledge using this appropriate scale. “Color trees” identified:

- 0-6 species = seedlings
- 7-12 species = saplings
- 13-18 species = poles
- 19-24 species = sawtimber
- 25 or more species = giant veneers

Turn to page 19 to see the list that Dan compiled. Good Luck!

–Dan Anderson

Dan Anderson is the recently retired Chairman of our AFC Chapter, and resides in Chautauqua County.

How to (continued from page 5)

- Don’t plant in the fall because winter could bring freezing and thawing of the soil (frost heaving), seedling desiccation, disease problems, wildlife damage, and winter injury.
- Don’t plant when the site is excessively wet or dry, because water-logging or drought stress may jeopardize seedling survival and growth.
- Don’t submerge root systems in buckets of water when preparing to plant. Brief exposure of bare-root seedling roots to direct sunlight can cause dehydration and seedling death.
- Don’t hold the seedling by the roots when planting, but by the shoot top.

This article was adapted from “Improving Hardwood Forests, One Seedling at a Time,” which appeared in the Spring 2004 issue of the North Central Research Station News. The original publication is available online at www.ncrs.fs.fed.us/news/.

The Planting and Care of Fine Hardwood Seedlings publication series is available online at www.agriculture.purdue.edu/fnr/HTIRC/publications.html.

For more information, contact Paula M. Pijut, USDA Forest Service, North Central Research Station Hardwood Tree Improvement and Regeneration Center, Purdue University, Department of Forestry and Natural Resources, 715 West State Street, West Lafayette, Indiana 47907-2061; (765) 496-2162; ppijut@fs.fed.us.

This article appeared in the July 2005 issue of “The Forestry Source” a publication of SAF. It is reprinted with their permission.
HOW TO: Improve Hardwood Forests—
One Seedling at a Time

Of the millions of acres of trees planted in the United States this year, nearly half will be on privately owned lands. How many trees make it to maturity, say experts, will depend on proper planting and early maintenance. This is especially true for hardwoods.

To help landowners improve a young hardwood’s chances of living a long, full life, researchers at the USDA Forest Service’s North Central Research Station, in collaboration with Purdue University’s Hardwood Tree Improvement and Regeneration Center (HTIRC), have released Planting and Care of Fine Hardwood Seedlings, a series of publications created to enhance the prospects for successful hardwood tree establishment.

“Part of improving the future forest is equipping landowners with a scientific approach to planting and caring for young trees,” says Paula Pijut, a plant physiologist with the HTIRC who is coordinating, compiling, and editing the publication series.

To that end, soil scientists Felix Ponder of the USDA Forest Service’s North Central Research Station’s Hardwoods Project and Phillip Pope of the Department of Forestry and Natural Resources at Purdue University offer the following planting tips to improve a hardwood seedling’s chances of survival.

Choose and Prepare a Good Planting Site
- Effective soil depth should exceed 3 feet for most central hardwood species (Editor’s note – New York soils will usually be much less than 3 feet deep). The surface soil layer contains most of the organic matter, nutrient and water uptake, and the greatest microbial activity. Small increases in surface soil thickness can cause large increases in site quality.
- For best root development, choose medium-textured soils (very fine sandy loam, loam, silt loam, and silt), which tend to have adequate available moisture and nutrients, good structure, internal drainage, and aeration.
- The best hardwood sites are north- and east-facing, on gently sloping, concave, or lower slope positions. These tend to have better soil moisture, soil depth, and higher organic matter (Editor’s note – Hardwoods in New York grow well on a wide range of slope conditions).
- A good hardwood site should have good drainage and little or no water saturation.
- Tree performance is best at a soil pH between 6.0 and 7.2. Correct low pH by applying agricultural lime before planting. Use dolomitic lime if the soil is low in magnesium. Once a planting site is ready, Pijut offers the following “dos and don’ts” regarding the planting of hardwood seedlings.

Hardwood Planting Dos
- Plant hardwood tree seedlings in late winter or early spring when the seedlings are dormant and the ground has thawed.
- When choosing bare-root seedlings, look for a shoot height of at least 18 inches and a root collar (the part of the root just belowground level) at least 1/4-inch thick. Make sure roots are healthy looking and well developed, with several lateral roots and a minimum root length of 8–10 inches.
- Plant as soon after delivery as possible. In the interim, cover seedling roots with moist burlap, peat moss, or a similar material to protect them from drying.
- Dig a large enough hole or furrow to accommodate the entire root system.
- Plant the root collar just below the soil surface.
- Place roots straight within the hole, not twisted or bent (Jrooted).
- Pack soil firmly around the seedling to avoid air pockets (this can cause the roots to dry out, causing seedling death).
- Control weeds for the first three to four growing seasons, clearing at least 3–4 feet out from the stem.

Hardwood Planting Don’ts
- Dig shallow holes (less than 12 inches deep).
- Plant seedlings on a slope when there is no run-off point.
- Plant seedlings too deep (more than 12 inches).
- Planting sites are too dry or too wet for the species selected.
- Tree is planted when it is stressed from transplanting.
- Tree is planted too close to another tree or object.

continued on page 4
Landowner questions are addressed by foresters and other natural resources professionals. Landowners should be careful when interpreting answers and applying this general advice to their property because landowner objectives and property conditions will affect specific management options. When in doubt check with your regional DEC office or other service providers. Landowners are also encouraged to be active participants in Cornell Cooperative Extension and NYFOA programs to gain additional, often site-specific, answers to questions. To submit a question, email to Peter Smallidge at pjs23@cornell.edu with an explicit mention of “Ask a Professional.” Additional reading on various topics is available at www.dnr.cornell.edu/ext/forestrypage

**QUESTION:**
I’ve heard conflicting recommendations on whether I should girdle trees. What do I need to consider about girdling?

**ANSWER:**

Girdling trees is the process where you disrupt the living connection between the roots and the leaves, usually by cutting or chopping away the outer bark and the inner bark or cambium. Technically you sever the phloem, or the vascular tissue, that carries the products of photosynthesis from the leaves to the roots. Therefore, girdling starves the roots of the tree and the tree will die over a year or more of time. I have seen girdling accomplished with an axe, a chainsaw, a flame torch, and with herbicides applied to the axe or saw cut or directly to the stem. Your experience with conflicting recommendations to girdle is consistent with the many advantages and disadvantages. On a tree by tree basis, decide if felling or girdling has the greater benefit or the lesser cost. Whether you girdle or fell, you will want to take all reasonable safety precautions and follow the label specifications if you use herbicides.

There are some situations when it may be advantageous to girdle. First, you may want to kill a large tree that is shadowing a group of small trees. Often this large tree is a former pasture or field tree with a large spreading crown. It has no merchantable value, but does have value as a large woody structure if you could leave it standing but reduce its shade impact on the younger surrounding stems. Felling the tree would likely damage many of the smaller stems. In this case, girdling will retain the tree for it’s wildlife value and prevent or reduce the damage to smaller stems when the large tree finally does come down. A second situation might be if the stand is very dense and the crowns are interlocking. Here, trying to fell would be complicated by the support the retained stems give to the cut stems. A felling cut would result in a “hung tree” requiring great work and

Double chainsaw girdle in a red maple
added risk to bring it to the ground. Finally, you may want to leave some trees as dead stems for use by birds, such as wood peckers or birds that require cavities for nesting. Girdling can reduce the competition of the girdled tree with living trees and retain some of its wildlife potential.

The primary disadvantage of girdling is that you are creating a hazard in the woods. When you fell a tree it becomes stable once it hits the ground. A girdled tree will die in place and will fall at some undetermined time. Thus, you would not want to girdle in areas that are used frequently or if you intend to have a commercial harvest in the next 10 to 15 years. In fact, under OSHA (US Dept. of Labor - Occupational Safety and Health Administration) guidelines for loggers [rule 1910.266(h)(1)(vi)], danger trees must be felled in the work area or work must be conducted more than 2 tree lengths away from a danger tree. A woodlot full of recently girdled trees would create a significant and justifiable level of concern among someone working in that area. A second reason not to girdle is because the death of the tree can sometimes extend over several years. If your management objective needs a more timely response, simply girdling may not be sufficient. Further, some tree and some species, like beech and many maples, are notoriously difficult to kill by girdling. They often have an inrolled strip of bark that isn’t affected by the girdle. In these cases, even thorough girdling doesn’t kill the tree for several years. Third, girdling often takes as much time to complete as felling by someone who is skilled with a saw. Fourth, some tree roots will graft underground with neighboring trees. In those cases, if a herbicide is applied to the tree, the herbicide may translocate to the adjacent residual tree with unfortunate results. Finally, dead wood on the ground has as much if not more ecological value as standing dead wood.

An often describe, but I think infrequent event, is the damage created by a tree that was previously girdled. Certainly a dead tree that falls selects a direction based on its own interpretation of the laws of physics; whereas directional felling of live trees can control the location where the stem lands. In my observation, dead trees typically fall in sections or as large pieces rather than as an entire stem. Thus, there is minimal or no damage associated with the gradual break-up of a girdled stem. In some situations, a girdle made by a chainsaw may be deeper than necessary and weaken the strength of the stem. In these cases, the tree is still alive, but destabilized and must endure winds with a full leafy canopy. These trees often fall intact.

To girdle or to fell – that is the question. The answer depends on the use you plan at the location where you are working, your skill with a saw or axe, and the objectives that you have for the stand. Think, be safe, and have fun.

Submitted by Peter Smallidge
NYS Extension Forester and Director of the Cornell University Arnot Teaching and Research Forest.
Each fall we enjoy the beauty of the colors, most of us with little knowledge of why the trees put on such a spectacular display. While we watch with fixed eyes as the green fades to reveal scatterings of brilliant red, orange, purple and yellow on the hillsides, the trees are actually gearing up for winter. Just as we stock up on shovels, warm clothes, sand and salt, the trees are preparing to be dormant for the colder months, to protect themselves from the freezing temperatures. The thin and tender cells in the leaves of deciduous species are not equipped to survive throughout the winter, so the tree sheds them each year. The so-called “evergreen” species that maintain their leaves throughout the winter have adaptations that protect their leaves from frost damage.

How do trees “know” when to change color? Trees sense the changing of seasons by the lengthening of night and cooling of temperatures that occurs in the fall. These conditions trigger activity inside the tree that prepare it for winter dormancy. The colors that we view and the eventual fall of the leaves are a result of these preparations.

From the leafing out in the spring until late summer, trees are using their leaves to make and store sugars through a process called photosynthesis. In this process, energy from the sun is collected by chlorophyll in the leaf cells and used to transform carbon dioxide and water into sugars. Chlorophyll molecules will break down in bright sunlight and is continually replaced in the leaf throughout the summer. In the fall, production of chlorophyll decreases, and the chlorophyll fails to be replaced. It’s at this time that other molecules with different colors that have been masked by chlorophyll’s green-reflection begin to display.

Carotenoids are another major molecule present with chlorophyll throughout the summer. Carotenoids serve as an accessory collector of energy. Carotenoids are more stable than chlorophyll, and will persist in the leaf after chlorophyll has broken down. As a yellow-
reflector, carotenoids produce the yellow color that we see in leaves. Many fruits and vegetables also have carotenoids and they are commonly discussed for their antioxidant properties. However, these properties have not been attributed to fall-colored tree leaves.

Anthocyanin is a red-reflector dissolved in cell sap. It is produced by the sugars and proteins mix within the leaf, and more common as sugar concentrations increase. If the cell sap has a low pH (more acidic) the color appears bright red, while high pH (more basic) cell sap produces a more purple color.

One of the driving forces in determining timing and intensity of fall color is the development of a faint corky layer at the petiole (where the leaf stem connects to the twig) which slowly cuts off nutrient supply to the leaf. This corky layer decreases the amount of chlorophyll and the increases the amount of sugars in the leaf. Eventually a “leaf scar” develops, sealing the twig off from the outside elements and allowing the leaf to detach.

Color intensity is determined by weather conditions during the development of the leaf scar. When the weather is sunny, a higher sugar concentration is present in the leaf because as photosynthesis occurs, the created sugars cannot be transported from the leaf to the twig. When moisture in the air, tree and leaf is high, the water will dilute the sugars being produced. In addition, more intense sun breaks down the existing chlorophyll allowing for other colors to show through. Thus, dry, sunny days improve the color display.

Each fall, the changing of leaf color draws thousands to the Northeast. Now you can appreciate what the trees are really up to as they put on the yearly display of color.

For a report on the yearly foliage display in your area, visit the United States Forest Service at http://www.fs.fed.us/news/fallcolors/.

Shavonne Sargent, Forest Resources Extension Program Assistant, Cornell University, Department of Natural Resources, Ithaca, NY 14853. This article is produced as a joint venture of Cornell and NYFOA to help landowners and the public enjoy the full benefits of forest resources. Additional articles on a range of topics are available through your local office of Cornell University Cooperative Extension or at www.dnr.cornell.edu/ext/forestrypage

What topics would YOU like to see covered in the Forest Owner? Contact the Editor at mmalmshe@syr.edu

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Our approach is broad. Our results are credible. Our commitment is genuine.
Wild Things in Your Woodlands

EASTERN SCREECH-OWL (Otus asio)

The Eastern Screech-Owl is a small, nocturnal, predatory bird, about 8.5 inches in size. The robin-sized owl has short, rounded wings, bright yellow eyes, and a rounded head with visible "ear tufts." The ear tufts, which the bird raises when alarmed, are otherwise inconspicuous. The facial disc is lightly mottled and has a prominent dark rim along the sides. The tail and the flight feathers of the wings are barred. The eastern screech-owl occurs in two color morphs, red and gray. The red color morph is more common near the coast, and the grey color morph is more common in the interior of the state. Male and female screech owls look alike.

In the fall, light and temperature conditions mimic those of spring, and birds and amphibians sometimes begin calling again, a behavior called autumnal recrudescence. At this time, the screech owl’s tremulous call can be heard in a variety of habitats including open woodlands, deciduous forests, parks, farms, riparian areas, swamps, old orchards, small woodlots, and suburban areas. This small owl is an often common, nocturnal bird in much of New York State, though it is uncommon in heavily forested regions, at high elevations, and on Long Island. The screech owl is a year-round resident, spending both the breeding and non-breeding seasons in the same area.

The screech owl nests in natural hollows or cavities in trees, old woodpecker holes, nesting boxes, and occasionally crevices in the sides of buildings. Screech owl pairs may roost together in the same tree cavity during the day throughout the breeding season. While the female is incubating the eggs, the male will bring food to her at night. The nest is usually about five to 20 feet off the ground. The female lays four or five eggs in wood chips, old leaves, and assorted fur and feathers from their prey.

While insects are a major food source in the summer, a hearty fare of small mammals and birds make up a majority of the screech-owl’s winter diet. To survive winter, this species eats quite a bit in the fall to put on fat stores, and may store food in holes.

The best way to create habitat for the eastern screech owl is to maintain large trees with natural holes (cavities), or trees with large woodpecker holes. In areas where such trees are not available, nest boxes designed for screech-owls can be attached to trees in open forests, parks, next to woodland clearings, along forest edges, or along wooded stream edges. The nest box should have a 3-inch round opening and the box should be placed under a tree limb with the opening facing north. Add 2”-3” of wood shavings in the bottom of the nest box and place the box 10 – 30 feet high. For more information on nest boxes visit Cornell Laboratory of Ornithology’s Bird House Network web site at http://www.birds.cornell.edu/birdhouse/bhbasics/placement.html.

Kristi Sullivan coordinates the Conservation Education Program at Cornell’s Arnot Forest. More information on managing habitat for wildlife, as well as upcoming educational programs at the Arnot Forest can be found by visiting the Arnot Conservation Education Program web site at www.dnr.cornell.edu/arnot/acep/
**POSTED SIGN ORDER FORM**

**NYFOA**

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<td>Aluminum (.012 gauge)</td>
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limited number of print copies of “Marketing Special Forest Products in New York State” are available for free, with a $3.00 fee to cover shipping charges. Visit the Marketing Special Forest Products in New York State web site at www.cce.cornell.edu/scnyag/sfpmarketing/ for all downloads and for ordering information. If easier, please call Cornell Cooperative Extension of Schuyler County to request a print version at (607) 535-7161.

This publication is the first version of what will eventually become a more comprehensive manual about marketing special forest products in the Northeast. Suggestions about additional content, resources, worksheets, and contributions can be directed to Jim Ochterski, CCE of Schuyler County, 208 Broadway, Montour Falls, NY 14865, (607) 535-7161 or jao14@cornell.edu

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* Minimum order is 50 signs with additional signs in increments of 25.
** Shipping Costs: 50 signs, $4.50; 75 signs, $4.75; 100 signs, $5.25; 100+ signs, add $.75 for each 50 signs over 100 (150 would cost $5.25 plus $.75 for the additional 50 for a total of $6.00).
When hearing the term “agricultural experiment station” in the New York context, many may understandably call to mind Cornell’s world-class research facility located in Geneva, New York. Indeed, the New York State Agricultural Experiment Station (NYSAES) at Geneva, which opened its doors in 1881, continues to carry out cutting-edge applied research programs that directly impact agriculture and food production across the Empire State, the nation and the globe.

Whether it be through breeding improved apple, grape, or berry cultivars, the development and testing of new plant-based food products, helping to expand the state’s growing estate wine industry, or better ways to manage insect pests with minimal adverse environmental effects, NYSAES, as administered via Cornell’s College of Agriculture and Life Sciences (CALS), is clearly benefiting New York’s agricultural enterprise in many ways.

But lesser heard of and known about is Cornell’s “other” agricultural experiment station, and the investments it makes in the state’s natural and human resources via the research projects it sponsors in and beyond the food and horticulture arena. Indeed, many are surprised to learn that Cornell is parent to two federally-recognized agricultural experiment stations, one of only two states (Connecticut being the other) that has dual experiment station designation from the U.S. Department of Agriculture (USDA).

This other station—the Cornell University Agricultural Experiment Station (CUAES) at the University’s Ithaca campus—sponsors and oversees a portfolio of applied research projects that ranges well beyond the plant crop and food product focus, extending to issues affecting the state’s and nation’s forest and woodland resources as well. Begun with a small private donation in 1879, CUAES is not only a few years older than its better known sister station in Geneva, but its creation also pre-dates federal funding of the national agricultural experiment station system in 1887 under the Hatch Act. Today, CUAES administers some 250 research projects involving over 600 Cornell faculty, researchers, support staff, technicians and students. This enterprise involves allocating approximately $4.3 million of federal (USDA) dollars to Cornell faculty-led research efforts each year.

The mission of CUAES is quite broad. It seeks to promote the discovery, integration, and use of knowledge to build and sustain strong and vibrant communities in New York, the Northeast and the Nation.
That mission means CUAES research should result in findings that are interpreted and extended for greatest societal benefit, and that ensure sustainable agricultural and food systems, renewable natural resources, quality environments, and the development of human capital and communities. Under that “ensuring…..renewable natural resources” program area, CUAES can and does sponsor Cornell faculty research in forest resource science, management, and development.

Some examples of the kinds of forest-related research activities sponsored or supported by CUAES over the last decade or so include the following:

**The Cornell Maple Program (CMP)** has been the beneficiary of several applied research grants from CUAES, all aimed at strengthening CMP’s capacity to provide the maple syrup industry and consumers with sustainable and marketable yields of high quality maple syrup. One supported study sought to characterize the status and trends within state’s maple industry, and to identify and gather the sources of information, educational resources, and cases studies that might prompt innovation within the industry. Results from this effort are currently being transformed into presentations and other educational resources.

Since 2001, CUAES has supported research aimed at increasing the availability of high quality maple seedlings and thus increasing syrup production in the state. It seeks to identify, propagate and improve the cultivation of high sap sugar content maples. A secondary goal of the work is to access the economic viability of maple syrup production from non-industrial woodlot owners and small-scale farmers in the state. The project has resulted in a publication that identifies best cultural conditions for establishment and growth of high sap sugar trees.

A new CUAES-supported project to begin in fall 2005 will attempt to demonstrate how educational efforts and producer collaborations can best be carried out to improve the sustainability of maple sugarbush production. This project, co-sponsored with Cornell Cooperative Extension, will explore and develop predictions on how trees respond to sugarbush thinning, and engage extension educators and industry collaborators in conveying sustainability concepts and optimal management practices to maple syrup producers. Lastly, CUAES has committed

continued on page 14
approximately $100,000 in resources toward maple-related improvements to facilities at Cornell’s Arnot Teaching and Research Forest in Van Etten, NY, and at Cornell’s Uihlein Sugar Maple Field Station in Lake Placid, NY, recognized as the center for sugar maple research and extension for the northeastern US and Canada. This commitment seeks to address needs identified in CMP facility renovation plans.

While much forestry-related research supported by CUAES in New York may seek immediate answers to pressing and practical forest product issues, some investigations seek to understand the broader trends and global factors that effect or govern forest resource health and growth in the Northeast. For example, in recent decades, forest managers in the Northeastern U.S. have been confronted with a host of ecological and human-induced factors affecting the sustainable quality and production of forestry resources. Exotic species invasions, tree mortalities and declines among certain valuable species, and soil and water acidification are among the many issues that need long-term research study on which to base management decisions. Over the last 10 years, a Cornell forest ecologist has used modest federal McIntire-Stennis support provided by CUAES to develop and maintain an infrastructure that allows and enhances long-term investigations of forest environment dynamics in the Northeast. CUAES sponsorship was pivotal in helping to establish permanent research plots at three sites in New York and New Hampshire, which in turn have been used in other studies conducted as part of the National Science Foundation’s (NSF) Long-Term Ecological Research (LTER) Project based at the Hubbard Brook watershed in New Hampshire.

Ginseng is a valuable forest understory herb that achieves some of its best development in NY. CUAES has sponsored research that explores natural ecological relationships and develops techniques to improve the survival and growth of planted seeds and seedlings.
Observations made at the permanent plots regularly result in hypotheses that are then tested as part of the $4.9 million NSF/LTER Project’s research program. These studies have addressed aspects of species invasions, tree growth/death patterns, sugar maple declines, and ecosystem carbon balances, all of which have important public forestry resource, global environmental change, and federal air, water, and soil pollution regulation policy implications.

A host of other projects sponsored by CUAES may help forest managers, owners, users, and scientists better understand a variety of aspects, opportunities and challenges facing forested lands and resources. These include:

- a study designed to improve the accuracy and relevance of benefit-cost analyses and economic valuation of forest ecosystem management approaches and recreational access to forest lands;
- an investigation of how forestry-related NGOs (non-governmental organizations) formed and behave, and how such “associational” groups may contribute to improved forest management and policy decisions;
- an inventory and survey program to detect exotic insect introductions that could prove harmful to Northeastern forests, such as bark beetles and the defoliating insects;
- agroforestry studies aimed at improving the survival, growth and production of ginseng in Northeastern forest and woodland environments;
- a study that explores the development and use of auctions as a means to improve timber management, sales and price expectations;
- studies looking into controlling the American chestnut blight fungus via hypoviral infection;
- a study seeking to identify and generate disease-resistant strains of conifers to improve Christmas tree production with less dependence on pesticide application.

These and others applied research efforts administered by CUAES and supported with federal dollars are helping to improve forest and woodlot management and economies in New York State and the Northeast.

More information about the Cornell University Agricultural Experiment Station can be found at the station’s website (http://cuaes.cornell.edu/CUAESWeb/home.htm). A copy of the station’s 2004 annual report, outlining a more comprehensive picture of CUAES’ portfolio of research project investments, can be viewed and downloaded at http://cuaes.cornell.edu/CUAESAnnRpt0304.pdf. For further information, e-mailed inquiries can be sent to cuaes@cornell.edu.

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Michael P. Voiland, Assistant Director for Research and Extension for the Cornell University Agricultural Experiment Station [CUAES] and also Cornell Cooperative Extension [CCE]. His office is located in Roberts Hall on the Cornell University campus in Ithaca, NY.
An Outburst of Lecanium Scale – a Sticky Business

DOUGLAS C. ALLEN

Insect pests come in many sizes, shapes and colors but few groups are as varied and bizarre in appearance as sucking insects in the family Coccidae (cox-i-dee); known as the soft scales, wax scales and tortoise scales. Several species in this group are serious pests in apple, apricot, and plum orchards, but they also can occur in large numbers on forest and shade trees. This summer the sudden appearance of an unusually widespread outbreak of a lecanium (le-cane-ee-um) scale appeared throughout many areas of the northeast from western Pennsylvania to New England.

Appearance – the identification of soft scales in the genus Parthenolecanium (par-then-oh-le-cane-ee-um) is difficult, and the taxonomy of this group is in need of revision. Therefore, at this time I am not certain which species is involved in the current outbreak. Most likely, however, it is the European fruit lecanium, a species widely distributed throughout the United States and commonly found on a variety of northern hardwoods. It is, in fact, native to North America even though the common name suggests otherwise. Field identification of the European fruit lecanium may be difficult, because the size and color of this species varies depending on its host. As a matter of fact, many of its host-induced forms have been described as separate species! The mature scales I saw this summer were oval (approximately 0.2” long and 0.1” wide), distinctly convex and brown to reddish-brown, with well defined black radiating lines on the back (Fig. 1). The live insect is soft bodied and somewhat plastic, but dead individuals are hard and appear noticeably shriveled, as in Fig. 1. The female is legless and wingless. Males look more like a typical insect but are rarely present in a population.

Life history – the scale overwinters as a young (second stage) nymph beneath bark scales on host trees. In spring the females mature and deposit a large number of eggs beneath their bodies. Eggs hatch in early summer. They give rise to the first nymphal stage which is called a “crawler”, because it is very mobile and is the only stage that possesses functional legs. Crawlers migrate from beneath the females body to leaves, feed for a time and then move back to twigs, settle down, insert their thread-like mouthparts through the bark and establish a permanent feeding site. The white to yellowish-white crawlers are minute and mite-like. Once established on a twig, the insect never moves again until crawlers are produced the following year. During outbreaks, crawlers are produced in very large numbers and, though very small, they may become as much of a nuisance as the “honeydew” produced by feeding scales, because large numbers of them accumulate on the windshields of vehicles parked beneath an infested tree.

Damage – members of the lecanium scale complex are frequent pests of ornamental trees and only rarely cause damage under forested situations. When populations of these sap-sucking insects attain outbreak levels

Figure 1. Close up of the female European fruit lecanium. These specimens died and shriveled shortly after the branch was cut.
on branches and twigs (Fig. 2), however, enough nutrients may be removed to discolor foliage or, in some cases, to cause twig mortality. One unpleasant side effect of an outbreak is the prodigious quantity of “honeydew” excreted by the scales. This mixture of sugar and water coats branches, buildings, roads and vehicles immediately beneath infested trees. In some areas of the northeast this summer, roads that penetrated outbreak areas were actually wet with this material. Also, it was not uncommon to see understory foliage covered with honeydew to the extent that, when held to the light, leaves glistened as if coated with varnish.

Plant sap contains far more water and sugar than is needed by sucking insects. Scales and aphids are able to eliminate excess amounts of these substances through a specialized filter system associated with their gut. This adaptation allows them to concentrate other essential nutrients, such as nitrogen that is normally present in very dilute amounts, before the host sap reaches the midgut or “stomach” where digestion occurs. The ability to sidetrack large amounts of sugar and water directly to the hindgut for excretion prevents the accumulation of too much liquid in the insect’s body cavity and facilitates more efficient digestion. The high concentration of sugar in the honeydew frequently promotes the growth of sooty mold on leaves and branches, which eventually blackens infested parts of plants.

**Management** – typically, coccid populations are kept at low levels by the regulatory action of parasitic wasps that are able to respond very quickly to population increases of the host scale. Many outstanding examples of biological control have occurred with agricultural pests in the family Coccidae.

The cause of our current outbreak in many northern hardwood stands throughout the northeast is unknown, but the region-wide occurrence of this population increase strongly suggests it was precipitated by a period of very suitable climate for the scale. Another possibility, of course, is that climatic conditions at some point adversely affected its complex of natural enemies. Because the European fruit lecanium is usually controlled by its natural enemies, however, it is very likely the latter will quickly rebound and significantly reduce scale populations in the next year or two.

*This is the 81st in the series of articles contributed by Dr. Allen, Professor of Entomology at SUNY-ESF. It is possible to download this collection from the NYS DEC Web page at: http://www.dec.state.ny.us/website/dlf/privland/forprot/health/nyfo/index.html.*

**Figure 2.** A moderately infested sugar maple branch. In some areas, branches were completely coated with these insects.

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We have always been interested in fencing to determine the effects on a forest with the lovable deer present. During 2002 we fenced (eight foot high) a small section – 80' X 30' - of our 275 acre clearcut to determine the effects. This area had practically no vegetation with very little heavily browsed seedlings. This past winter and through the present I have been unable to enter this area due to the tall, tightly spaced growth such as trees, blackberry bushes and other growth that one would expect in a normal forest setting. As you can imagine, the outside of the enclosure is very much passable due to our friends, the deer. Should a seedling branch seep out of the wire enclosure, it is soon eaten.

With the above in mind, we are exploring a larger fencing project. This past spring, we attended a woods walk near Halstead PA (Susquehanna County) at the 2004 Pennsylvania Tree Farmer award winning tree farm. An interesting point that this farmer made was that of all the projects he has completed or attempted, he gets the most satisfaction from his multiple fencing projects. The highlight of the tour was a 14 acre enclosed area with an eight foot woven wire fence. The project was completed two growing seasons ago and when we entered the enclosure, it was too good to be true. Thousands of young seedlings were growing as well as flowers, bushes, plants, etc., that were just not present outside the enclosure. In the enclosure he had left a 20 to 25% canopy opening which allowed for sufficient sunlight and natural seeding to take place.

When we returned home, the wheels really began turning. We always had the idea of additional fencing, but I guess we needed that extra spark to set us in that direction. We immediately began to explore the possibility of a particular 10 to 15 acre parcel to consider fencing. The area has a variety of conifer and hardwoods presently growing there but are of somewhat poor form due to several past high-grading cuts. However, sufficient trees remain that would allow for natural regeneration. The under-story has mostly blackberry, raspberry and some seedlings that the deer population does not favor.

We flagged off the area and will have a fencing contractor evaluate the project in the early part of June. Also, a logger is considering removing the selected trees to allow for the proper canopy opening.

It will be interesting to monitor the site for regeneration as it appears to be an appropriate spot and is south facing. There is very little slope to the area and it would be easily accessible, bound by a field on one side and a pattern of roads on the other three sides.

We are looking forward to adding this project to our multiple other projects for demonstration purposes as well as future woods walks. Keep tuned for further developments.

Edward and Wanda Piestrak resided in Lindley, New York and are members of NYFOA, MFO/COVERTS and Tree Farmer.
Answers to “Show Your Colors” quiz from page 4.

Ash – Black, Blue, Green, Red, White
Beech – Blue
Birch – Grey, White, Yellow
Cedar – Red, White
Cherry – Black
Fir – White
Hawthorn – Scarlet
Locust – Black
Maple – Black, Red, Silver
Mulberry – Red, White
Oak – Black, Scarlet, Red, White
Pine – Red, White, Yellow
Poplar – White
Redbud
Spruce – Black, Blue, Red, White
Walnut – Black, White
Willow – Black

Note: Not all tree books agree on some of these species.

Expanded Forest Owner Field Day
October 8, 2005, Arnot Forest, Van Etten, NY, 9:00 A.M.-4:00 P.M.

The Southern Finger Lakes Chapter of NYFOA is teaming up with Cornell Cooperative Extension and the Arnot Forest Conservation Education Program to present an all-day outdoor forest owner education field event on Saturday, October 8, 2005.

The morning session, "Forestry Basics" starts at 9:00 AM and will cover 3 hours of basic forest management concepts - from achieving sustainable timber to firewood selection to managing trees for wildlife. Participants in the morning session will receive a copy of the new "Enhancing Forest Stewardship" guidebook. The morning session fee is $20 per person.

The afternoon session starts at 1:00 PM and will feature mechanical demonstrations of chainsaw accessories and portable sawmill operation, plus a segment on timber grading in the woods with a professional logger. There is no cost for the afternoon demonstrations, which are underwritten by NYFOA-SFL Chapter.

All sessions take place at Cornell University’s Arnot Forest in Van Etten, NY. Participants should bring their own lunch if staying for the day. Dress to be outside for the day, rain or shine.

Please preregister for either or both morning and afternoon events, so we can have adequate supplies and light refreshments on hand by calling (607) 535-7161 by October 6.

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Keeping Your Chainsaw in Shape

Joe Smith

For your own safety, as well as for the efficiency and longevity of your chainsaw, it is important to follow a regular schedule of inspection and maintenance. Whether you use your saw everyday or only periodically, make a habit of giving it the once-over before putting it to work. In addition to the suggestions below, be sure to read your owner’s manual for settings, mixtures and instructions.

The following items should be checked everytime you use the saw:

Screws, nuts, and bolts – inspect and tighten.

Air filter – clean, or, if necessary, replace. Before removing the filter, clean the outside of the saw and move it to a clean location to avoid introducing contaminants into the carburetor. Bring a new filter with you into the woods, where it is often easier to replace a filter than to clean it.

Chain – sharpen and adjust for proper chain tension. You should be able to pull the chain away from the bar, but not so far as to allow the tangs on the chain to clear the bar.

Bar – inspect for curvature of bends (replace it if it’s not straight), file off any burrs, clean the trough, and make sure that the edges aren’t pinched or spread apart. Turn the bar over regularly. (The brand name will be upside down half the time —but that helps you remember to turn it). Release the chain brake and manually move the chain. It should move freely (use gloves, when handling the chain). Tighten the bar-retaining nuts and check them periodically during operation. Spark arrester: make sure the spark arrester is in place and undamaged.

Chain brake – with the chain brake on you should not be able to manually move the chain. Check again when you start your saw.

Chain catch – inspect for damage and replace if necessary.

Throttle interlock – the saw should not be able to start without the interlock engaged.

Fuel and oil – clean the area around the fuel cap before opening to avoid introducing contaminants. Use the fuel-oil mixture recommended by the manufacturer and never mix more than you’ll use in a 30-day period, and use all the fuel in your can before mixing anymore.

In addition, on a periodic basis, check the following:

Sprocket – clean and inspect the teeth for damage. Replace if they are worn.

Muffler – clean the muffler and exhaust ports, scraping off the black carbon deposits.

Fuel system – clean the fuel tanks once a month by pouring out the fuel and checking for dirt and debris.

Spark plugs – clean and adjust or replace.

Carburetor – a properly adjusted carburetor is essential to safe and productive operation of your saw. During use, evaluate how your saw idles and how it accelerates and retains it stop speed. If the engine is sluggish or cuts out, consult your owner’s manual for settings and adjustments.

Joe Smith is Director of the Forest and Wood Products Institute at Mount Wachusett Community College in Gardner, MA. This article originally appeared in Northern Woodlands and is reprinted with their permission.
Positive Impact Forestry
A Sustainable Approach to Managing Woodlands
Thom J. McEvoy
Foreword by Senator James Jeffords

“This book is a must-have for nearly 10 million small private landowners who own and manage over half of the forests across America. If we are smart and caring stewards, these woods will grow and sustain our surging need for timber, habitat, and clean water while protecting nature’s diversity and providing for our future. This is, indeed, a ‘positive impact.’ In these pages landowners will find the concepts, the skills, and even a sense of purpose for their forestry adventure with sustainable management.”

—KEITH A. ARGOW, President, National Woodland Owners Association

“Like a warm spring breeze over the frozen landscape of traditional forest management, McEvoy presents an enlightened vision of forestry grounded in sound science and seasoned philosophy. An important book, insightful and crisply written, with practical advice to make the vision a reality in the woods.”

—CARL REIDEL, past president, American Forestry Association, professor emeritus of environmental and forest policy, University of Vermont

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The book is a revised, expanded, and updated edition of Legal Aspects of Owning and Managing Woodlands, published in 1998 by Island Press. This edition provides current information on recent changes in property, environmental, and tax laws, while also discussing new directions in forest management. It offers expanded treatment of topics including private property, searching property records, easements, estate planning, timber sale contracts, working with forestry professionals, and how to pass woodlands intact to future generations.

Owning and Managing Forests provides clear and concise descriptions of often-confusing concepts and difficult subjects and describes the many different facets of trusts, changes in forestland taxation methods, and new licensing and certification options. Included, too, is a section on avoiding disputes and how to use alternative dispute resolution methods to avoid costly, troubling, and time-consuming court battles.

October
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Northern White Cedar, or *arborvitae* (meaning “tree of life”), is a medium-sized, slow-growing forest tree rather common in the northeastern part of the state, less frequent in the central and western parts. Dense arborvitae swamps are common in Madison County and northward and eastward. In the Adirondack region it also occurs frequently outside the swamps. The wood is light, soft, brittle, coarse-grained, light yellowish brown in color, and durable in contact with the soil. It is used extensively for fence posts and small poles.

**Bark**—ashy gray to light reddish brown, separating in long, narrow, flat, shreddy strips, often more or less spirally twisted.

**Twigs**—decidedly flattened, arranged in fan-shaped clusters, and not to be confused with the leaves which cover the last season’s growth; with the death of the leaves in the second season, the twigs become reddish brown in color and shiny.

**Winter buds**—extremely minute, almost covered by the scale-like leaves.

**Leaves**—scale like, yellowish green in color, aromatic when crushed, borne in pairs closely overlapping; on leaves of leading shoots, glandular dot conspicuous in center of leaf.

**Fruit**—An oblong, erect cone, 1/2 inch long, reddish brown in color, persists throughout the winter. Cone scales— from 6 to 12, open to the base at maturity in autumn of the first season. Seeds—1/8 inch long, in pairs, nearly surrounded by broad wings.

**Outstanding features**—cones with few scales, dot in center of flat, scale-life leaf.

The name *white cedar* properly belongs to a Coastal Plain tree, *Chamaecyparis thyoides*, closely resembling the *arborvitae*.

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Information originally appears in “Know Your Trees” by J.A. Cope and Fred E. Winch, Jr. and is distributed through Cornell Cooperative Extension. It may also be accessed via their web site at http://bhort.bh.cornell.edu/tree/trees.htm
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Materials submitted for the November/December issue should be sent to Mary Beth Malmsheimer, Editor, The New York Forest Owner, 134 Linclakien Street, Cazenovia, NY 13035, (315) 655-4110 or via e-mail at mmalmshe@syr.edu. Articles, artwork and photos are invited and if requested, are returned after use.

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