



Forest Matters

The stewardship newsletter

Spring 2005
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A Treasure Just Outside Your Back Door

by Michael Majeski

Members of one of the largest segments of the forest landowning community don't consider themselves forest landowners at all—the 6 million people who own 1 to 10 acres of forest land. This rapidly growing group accounts for 60 percent of all family forest landowners nationwide. Despite their small ownerships, these people affect and are affected by the same key forestry issues facing those with larger land holdings: water quality, wildlife habitat, forest health, risk of wildfire, and parcel size and fragmentation. What many owners don't realize, though, is that making small changes and improvements in their own backyards can reap benefits for themselves, for the environment, for wildlife, and for society as a whole.

Backyard Woods is an innovative national program designed to teach and inspire owners of small acreage to better care for their wooded land. Recognizing that wooded land doesn't have to cover hundreds or thousands of acres to provide richness and diversity, the program is based on the premise that smaller acreages can have big impacts, too. Whether landowners want to enhance the scenery surrounding their home, provide ideal habitat for wildlife, or even utilize their land as a source of extra income, the *Backyard Woods* program can help make their dream a reality.

“Your woodlot is, in fact, an historical document which faithfully records your personal philosophy.”

—Aldo Leopold

The key that opens up the world of opportunities for landowners is the full-color guidebook, *Backyard Woods: Bring Your Vision to Life*. The guide contains information on 12 forest management topics, family activities for each topic, and an *In the Forest* sidebar to help perspectives grow from backyard woods to the larger landscape. A Web site links readers to tip sheets for each topic that include specific details for implementation. These materials are brimming with easy-to-use information on how landowners can develop a master plan, protect their property from wildfire, protect clean water, attract wildlife, and much more.

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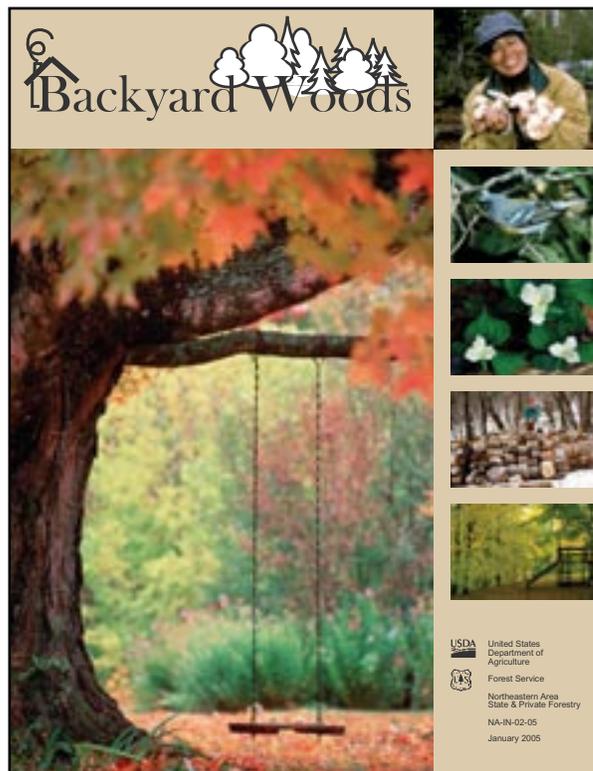
“The USDA Forest Service and our State forestry partners have a long history of providing technical assistance to forest landowners,” said Kathryn Maloney, USDA Forest Service Northeastern Area Director. “*Backyard Woods* is an innovative and cost-efficient way to extend our expertise to an important and growing audience.”

These partnerships are the basis of the *Backyard Woods* program. The National Association of Conservation Districts collaborated with the USDA Forest Service’s Northeastern Area to develop the materials, while the National Arbor Day Foundation is helping promote the program to family forest landowners. *Backyard Woods* will continue to use partnerships to reach its target audience, continually bringing in new public and private partners to reach this ever-growing landowner group.

“The Arbor Day Foundation is excited to help small landowners make the most of their land,” said John Rosenow, President of the National Arbor Day Foundation. “Through its informative guidebook and tip sheets, *Backyard Woods* helps them turn their land into a place of great personal satisfaction and a real benefit to the environment.”

Since the audience for the *Backyard Woods* program is so large and diverse, reaching these forest landowners brings its own set of challenges. Information on the program has already been included in the National Arbor Day Foundation’s newsletter, with a circulation of 800,000. A direct mail campaign will soon address members of the National Association of Conservation Districts. Outreach is also being targeted to State resource professionals so they can share news of the program with their clients. A press release announcing the program was sent to the Nation’s top 100 newspapers, as well as magazines and journals likely to reach the target audience. Future promotions will include radio and television spots, particularly on home and garden shows.

The *Backyard Woods* publication and tip sheets can be ordered or downloaded at <http://www.arborday.org/backyardwoods>. For more information, please contact Michelle Saulnier-Scribner, National Arbor Day Foundation (1-888-448-7337 ext. 214 or mscribner@arborday.org), or Mike Majeski, USDA Forest Service Northeastern Area (651-649-5240 or mmajeski@fs.fed.us).



The *Backyard Woods* publication and tip sheets guide landowners with step-by-step instructions for making a variety of improvements to their woodlots.

Forest Matters: the stewardship newsletter is published semiannually by the USDA Forest Service Northeastern Area Forest Stewardship Program. Its goal is to bring the stewardship message to natural resource professionals, consultant foresters, and private forest landowners in the Northeast and Midwest. If you have any questions, or would like to be added to the hard copy or electronic mailing list, please contact Helen Thompson, USDA Forest Service, P.O. Box 640, Durham, NH 03824, phone: 603-868-7701, fax: 603-868-7604, e-mail: hthompson@fs.fed.us.

Stewardship News

Trees Out of Place: Managing the Reconstituted Forest

by Thomas J. Rawinski

By accident or by design, northeastern forests are increasingly cosmopolitan. The spread of trees beyond their natural range has been truly remarkable, and stewards must decide on an increasingly frequent basis whether to encourage or discourage nonnative trees.

Many factors come into play; these are, after all, value judgments. What is the management objective for the forest? Is a tree species desirable (or undesirable) from a socioeconomic or ecological perspective? Is it highly invasive? Is it likely to spread to a neighboring property? Can it be easily managed or will it persist and interfere with future management at the site? How will management actions affect the larger forest ecosystem?

Central to this management question is an assessment of risk—risk that decisions and management actions might cause more harm than good. In the case of low-value, highly invasive species (e.g., tree-of-heaven, Norway maple), the risk of doing nothing is often unacceptably high, so control measures are initiated. But one could argue that planting black walnut on abandoned farmland in New England—north of its natural range—is a low-risk, high-reward proposition. Similarly, many support the planting of disease-resistant chestnut hybrids as surrogates of the once mighty American chestnut. And most woodlot owners probably value their crabapples as important wildlife food sources; though nonnative, they are not terribly invasive.

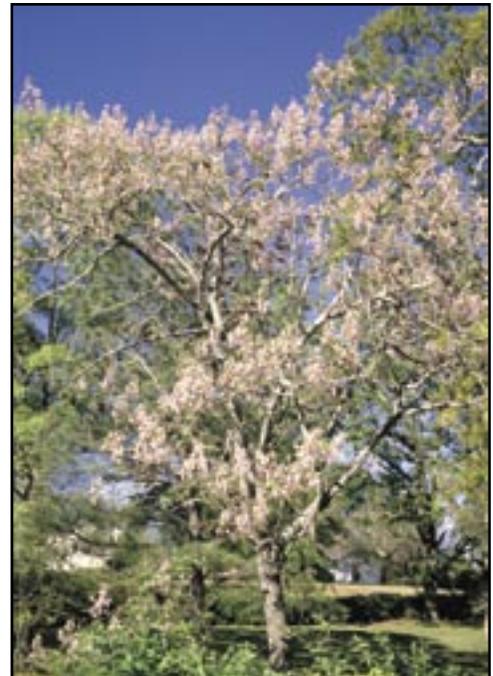
Management decisions can be very difficult. Visitors to a nature preserve in New York adore the beautiful birches that grace the trails, unaware that they are invasive weeping birches from Europe. Should the preserve manager cut them down to help protect the native flora? In the absence of a public education effort, such an action might be ill advised. In the central Appalachians, the princess tree (a.k.a. paulownia) produces an extremely valuable lightweight wood. Should foresters encourage this species for its economic value even though it is an invasive exotic? And finally, consider Cape Cod's lone population of persimmon, located on National Park Service land. Botanical experts aren't sure of its origin. If native, it would be a strong candidate for the State's endangered species list. If introduced, it might someday be eradicated.

Forest fragments found in highly disturbed urban settings are often dominated by nonnative tree species. Except for the nonnatives, though, a "forest" per se might not exist on these sites. Do we risk

destroying the forest to save the few native tree specimens present, or let nature take its course?

Whether we like it or not, nonnative trees are part of our environment. Take the time to think about these species, and do what is best for the health and vitality of your forest and neighboring woodlands.

Editor's Note: Tom Rawinski is a USDA Forest Service botanist based in Durham, NH. He welcomes feedback on invasive plant issues (603-868-7642 or trawinski@fs.fed.us).



In the United States, the princess tree is regarded as both a valuable timber species and an invasive exotic. (photo credit: James H. Miller, USDA Forest Service, <http://www.forestryimages.org>)

Carbon Sequestration and the Forest Landowner

Vehicle emissions and industrial pollution release carbon, methane, nitrous oxide, and other greenhouse gases into the atmosphere. Citizens, companies, and governments take steps to curb emissions, but the overall trend is still up. One might ask, “Can anything be done to pull pollutants back out of the air?” Where carbon is concerned, the answer is “yes” and forests play an important role in the cleanup.

Trees are mostly carbon. They store it as they grow and don’t release it back to the atmosphere unless they burn or until they die and begin to decompose. This storing process is called carbon sequestration. Carbon sequestered in timber stays out of the air for tens or hundreds of years as a tree grows, and stays in the wood once a tree is harvested and turned into boards or other forest products. Policymakers and forest advocates recognize the value of carbon sequestration and are investigating ways to mitigate the impact of emissions through support of forests and woodland owners.

Forest land stores carbon in three primary ways: live biomass, dead and down trees, and soil carbon. If there is value in carbon sequestration, how can woodland owners profit on this value? Under the established principle “if you grow the carbon, you own the carbon,” landowners may have the opportunity in the future to sell “carbon credits.” While there are currently

no carbon credit markets in the United States, the Regional Greenhouse Gas Initiative for the Northeastern States (see <http://www.rggi.org>) is discussing the design of a trading system. Still, there are a number of voluntary activities in which landowners may participate right now to show their interest in carbon management.

Under the Department of Energy’s Voluntary Reporting Program, individuals or entities can report their activities to lessen their emissions or increase sequestration on their land. To see the program guidelines, currently being updated, visit <http://www.pi.energy.gov> and click on the link for “Greenhouse Gas Reporting Guidelines.”

Some States have developed registries for reporting activities. New Hampshire was the first to pass a greenhouse gas registry in 1999, and California has one of the most active registries. New Jersey and Maine have taken the most progressive steps to date, requiring all stationary sources to report direct emissions of carbon dioxide and methane. With this momentum, carbon sequestration looks to be a real part of the future for today’s private landowners and generations to come.

For further information, visit <http://www.nefainfo.org/publications/carbonsequestration.pdf>.

Hot Off the Press!

Profiles From Working Woodlands: Exploring Forest-Based Enterprises in Western Massachusetts—This publication focuses on a series of case studies that explore economic options for sustainably developing small private forest ownerships in the region, following products from the stump through primary and secondary processing to the retail market. Using numerous existing businesses to illustrate the many ways that the forest can support family livelihoods, it discusses the potential for strengthening the local forest economy by adding value to wood, recreation, and understory crops, and marketing this bounty to local niche markets. For ordering information, as well as a free download, visit <http://www.masswoodlandsinstitute.org> or contact the Massachusetts Woodlands Institute, PO Box 301, Montague, MA 01351.

Practical Ecology for Planners, Developers and Citizens—Despite a growing recognition of the value of planning and building with greater ecological sensitivity, many land use professionals lack the tools needed to do so. The authors address this need by introducing and explaining key ecological concepts, making them accessible to readers with little or no scientific background. The book is not so much an appeal to conserve nature as a practical explanation of how to do so in the context of land use planning. It explains how, by paying attention to the ecology of the places they work, land use professionals can create a richer, healthier world for humans and for all living creatures. (Perlman, Dan L.; Milder, Jeffrey C. 2004. Lincoln Institute of Land Policy. 376 p. <http://www.lincolninst.edu/pubs/pub-detail.asp?id=983>.)

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A Legacy of Stewardship—Marsh-Billings-Rockefeller National Historic Park

Marsh-Billings-Rockefeller National Historical Park, located in Woodstock, Vermont, is the only national park to focus on conservation history and the evolving nature of land stewardship in America. Opened in June 1998, Vermont's first national park preserves and interprets the historic Marsh-Billings-Rockefeller property.

The park is named for George Perkins Marsh, one of the Nation's first global environmental thinkers, who grew up on the property, and for Frederick Billings, an early conservationist who established a progressive dairy farm and professionally managed forest on the former Marsh farm. Frederick Billings's granddaughter, Mary French Rockefeller, and her husband, conservationist Laurance S. Rockefeller, sustained Billings's mindful practices in forestry and farming on the property over the latter half of the 20th century.

According to the enabling legislation and the 1999 General Management Plan, the park has clear direction to actively manage the forest as a cultural landscape. Forest management activities thus far have been short term and pragmatic, for example, responding to storm damage or hazardous tree conditions. Now, after completion of key natural and cultural resource studies, the park will release its draft Forest Management Plan and Environmental Assessment for public review in early summer 2005. The draft alternatives range from continuing the short-term management approach to more proactive long-term approaches, each with different perspectives on how the historic character of the forest can be preserved in light of the dynamic nature of ecological change. For more information, visit <http://www.nps.gov/mabi/> or contact Christina Marts at 802-457-3368 x31 or christina_marts@nps.gov.

Maine Approves Liquidation Harvesting Rules

A new set of rules intended to substantially eliminate liquidation harvesting in Maine went into effect on January 2, 2005. The Maine legislature authorized the Department of Conservation to adopt the rules, stating in law that "liquidation harvesting is a serious and direct threat to forest management, forest industries and rural communities over the landscape of Maine. Liquidation harvesting produces significant adverse economic and environmental effects and threatens the health, safety and general welfare of the citizens of the State. Liquidation harvesting is incompatible with responsible forest stewardship and must be substantially eliminated" (12 MRSA § 8866).

The new rules require landowners who want to buy, cut, and sell parcels within 5 years to:

- ⌘ Limit harvesting to 50 percent of the merchantable timber; or
- ⌘ Have a harvest plan signed by a licensed forester; or
- ⌘ Use a logger or forester who has completed an accredited training course.

Legislators also approved a companion bill establishing strict penalties for violators. The rules contain a number of exemptions, and include a hardship option and a variance provision to provide flexibility for landowners and harvesters in unusual situations. For more information, visit <http://www.maineforestservice.org>.

Hot Off the Press! *Continued from page 4*

Landowner's Guide to Wildlife Habitat: Forest Management for the New England Region—This concise introduction to practical forest wildlife habitat management for private landowners offers useful information about plans that can improve forests, enhance production of forest products, increase the diversity of wildlife, and increase enjoyment of forest lands. The authors show how to determine what kinds of habitat will be used by various wildlife species, how to consider land capability and the mixture of habitat features necessary to attract desired species groups, and how to get started changing existing vegetative conditions through thoughtful management. (DeGraaf, Richard M.; Yamasaki, Mariko; Leak, William B.; Lester, Anna M. 2005. University of Vermont Press/University Press of New England. 128 p. <http://www.upne.com/1-58465-467-8.html>.)

Landowner Spotlight

Maine Landowner Goes by the Book

By Roger Monthey

Joe Ware owns about 100 acres of forests, fields, and wetlands near Gardiner, Maine. His goals for the property include generating some timber income and managing for multiple objectives, including wildlife, aesthetics, recreation, and diversity. Joe is fortunate to have some stands with high timber potential, including oak and white pine; open fields for wildlife, recreation, aesthetics, and diversity values; and wetlands, including a blue heron rookery. In conjunction with his forester and his logger, he recently conducted some silvicultural work in his oak-dominated stand. Working with professionals to prevent damage to his residual trees was an important consideration for Joe.

Joe wanted to learn more about the work he had in mind beforehand, so he read the USDA Forest Service publication *Crop Tree Management in Eastern Hardwoods*.¹ He selected his crop trees based on timber, wildlife, and diversity considerations, and marked some of the trees himself.

Timber—Joe selected his timber management crop trees, primarily northern red oak, based on criteria listed in the publication, including dominant/codominant trees with healthy crowns; high quality trees with high butt-log potential and no epicormic branches on the butt log; high-value commercial species with expected longevity of 20+ years; and species well-adapted to the site.

Joe also put in several group selection cuts in his 1/3-acre oak-dominated stand to regenerate more oak or white ash, utilizing another USDA Forest Service publication, *Guidelines for Applying Group Selection Harvesting*.² As recommended, he chose an area with currently low stocking and some advanced regeneration. Research has shown that groups from 1/4 to 2/3 acre usually regenerate a good mixture of intolerants, intermediates, and tolerants.

Wildlife—Some crop trees were selected for wildlife based on the recommended selection criteria, including mast-producing species and cavity trees. Joe selected several large-diameter northern red oaks with large dead branches.

Diversity—Finally, Joe decided to retain some diversity in his oak stand by working with his logger to retain rarer species such as swamp white oak and eastern redcedar.

A member of the Small Woodland Owners Association of Maine (SWOAM), Joe takes pride in proactively managing his woodlot. His multiple interests in forestry and wildlife provide him many opportunities and challenges, now and in the years to come.



Joe Ware displays a protection device to control deer damage in a group selection cut on his woodlot near Gardiner, Maine.

¹Perkey, Arlyn W.; Wilkins, Brenda L.; Smith, H. Clay. 1994. Crop tree management in eastern hardwoods. NA-TP-19-93. Morgantown, WV: U.S. Department of Agriculture, Forest Service, Northeastern Area, State and Private Forestry. 58 p. + app. [http://www.fs.fed.us/na/morgantown/frm/perkey/ctm/ctm_index.html].

²Lamson, Neil I.; Leak, William B. 2000. Guidelines for applying group selection harvesting. NA-TP-02-00. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Area, State and Private Forestry. 8 p. [<http://www.fs.fed.us/na/durham/coopforest/stewardship/text/guidelines.shtml>].

Keeping Up With the Johnsons: A Tale of Forest Stewardship and the Impacts of an Ice Storm

By Roger Monthey and Marc and Holly Johnson

Marc and Holly Johnson own the Winterberry Tree Farm, a beautiful 77-acre woodland in South China, Maine. Marc, a Licensed Professional Forester retired from the Scott Paper/S.D. Warren Company, is also a photographer, wood carver, and craftsman. Holly is an accomplished wildlife artist. In 1999, they were honored as the Kennebec County Outstanding Tree Farmer, as well as State runner-up.

From the mid-1800s to the mid-1900s, their property was primarily used for row crops and pasture. In the 1940s, the farmer stopped tending to the land and it naturally regenerated to forest. After the Johnsons purchased the property in 1986, they utilized Forest Service cost-share funds for activities ranging from site prep and pruning to developing a Forest Stewardship Plan and surveying for rare and endangered plants. In January 1998, the property was hit by the devastating ice storm that struck northern New England and Canada. Marc recalls, "I evaluated 22 woodlots for forest plans after the ice storm and, of those properties, our woodlot and one other were the two most damaged." Since the ice storm, cleaning and salvaging have been the watchword on the Winterberry Tree Farm.

Marc recounts, "The saddest part was seeing the severe damage and loss to quality trees so carefully released by our earlier harvests. Small log trees were responding well to release, but now had to be salvaged. Probably in 20 years, many of these trees would have become excellent veneer. We lost a 14-inch oak with 32 feet of clear bole to a completely shattered top."

Some of the work performed post-ice storm included salvaging ice-damaged timber and hauling it to local mills, along with restoring access trails. Marc says, "[Our logger] was very judicious in not cutting some trees like oak and ash, even with some very poor tops. We were surprised later to see the positive response and believe these trees will survive to grow into veneer." Marc followed up with herbicide treatments to control sprouting of beech and red maple stumps throughout the ice storm salvage cuts. He notes, "In wintertime, the ice storm damage is still starkly evident throughout the lot. Once the leaves return, the woods look much improved and I still find quality stems."



Marc and Holly Johnson have taken steps to help their tree farm recover from the 1998 ice storm.

The Johnsons have utilized some of the timber from their woodlot to furnish their home. Eastern white pine beams add a distinctive rustic look. Flooring, milled by a local woodworker, was made from black cherry, red oak, white ash, and white pine; the color contrasts offer variety and beauty. Some of their interior walls are covered with 150-year-old wide white pine boards previously used as flooring in another building.

Recreational pursuits are also an important activity at Winterberry. Trails are used for cross-country skiing, snowshoeing, birdwatching, hiking, hunting, and simply strolling through the woodlot while reflecting on the dynamics of the forest and its beauty and peace. The Johnsons are passing their love of the forest on to future generations. Holly recalls, "From the time the grandchildren could walk, we would explore the forest, identifying plants, trees, and birds. They each have a special area they call their own. As they grow older, they've witnessed firsthand how the forest has changed with them."

Research

Eastern Wild Turkeys in Connecticut's Urban/Wildland Interface

By Roger Monthey

Residential and commercial development in forests increases fragmentation and parcelization of the forest and the habitat it provides for wildlife. Shelley Spohr, now a wildlife biologist with the Mashantucket Pequot Tribal Nation in Connecticut, attempted to quantify the effects of this activity on nesting success of the eastern wild turkey (*Meleagris gallopavo silvestris* [L.] Vieillot) in Connecticut as part of her master's thesis.¹

Forest lands comprised 67 percent of the study area in southeastern Connecticut and were characterized by small, semi-isolated woodlots dominated by oak/hickory stands with yellow poplar, elm, and red maple. Residential housing lots, generally consisting of a single-family home on 0.5 to 5.0 acres, were interspersed throughout the landscape in addition to other residential and commercial development. Most dominant edge types were transportation rights-of-way and forest-development edges.

Spohr found that nesting success (35 percent) and mortality during the reproductive period (46 percent) were at the low and high extremes, respectively, of ranges previously reported in the Northeast. High rates of predation (largely by mammals such as raccoons, opossum, and fox) on females and nests resulted in rates of nesting success that were lower than rates reported for most neighboring States. Spohr surmised that "Turkey nests in suburban environments may be at increased risk of predation because habitat fragmentation may lead to high densities of nest predators and increased detection of nests" (p. 363).² High predation rates are also due to an increased amount of edges in suburban areas, where turkey nests are more susceptible to predators.

Spohr also made two observations that help to explain why turkeys are able to adapt to human-altered environments and even become a nuisance species in



Eastern wild turkey females and their young may face a higher risk of predation in fragmented areas. (photo credit: William M. Healy, USDA Forest Service)

some locations. First, she observed that nests in forested areas, even though fragmented, were less likely to be destroyed than in open areas such as fields and edges where overhead cover was sparse. Second, nests located in areas with dense ground cover were less likely to be destroyed by predators. Therefore, the selection of nesting habitat by female eastern wild turkeys may help to minimize the influences of fragmentation. However, despite the apparent ability of turkeys to adapt, Spohr maintains that habitat quality for turkeys may be declining in eastern Connecticut because of human encroachment. As forested land shrinks as a result of human development, forest patches decrease in size. Only long-term studies will tell whether incremental increases in forest fragmentation will decrease survival and productivity of turkeys in increasingly suburban and urban environments.

¹Spohr, Shelley M. 2001. Variables influencing nest success of eastern wild turkeys in Connecticut: nesting habitat, home range-scale fragmentation, and nest attentiveness. Orono, ME: University of Maine. 111 p. Master's thesis.

²Spohr, Shelley M.; Servello, Frederick A.; Harrison, Daniel J.; May, Dale W. 2004. Survival and reproduction of female wild turkeys in a suburban environment. *Northeastern Naturalist*. 11(4): 363-374.

A New Image for the Forest: Using Remote Sensing to Map Forest Health

By Alix Contosta, Rich Hallett, and Jen Pontius

USDA Forest Service, Northeastern Research Station

Insect pests such as the hemlock woolly adelgid and emerald ash borer currently pose a serious threat to the health of North American forests. The potential disappearance of hemlock, ash, and other species has inspired land managers to locate the insects, assess the health of host trees, and formulate management plans for addressing the problem. Much of this work involves time-consuming, field-based surveys that neither recognize trees in the earliest stages of decline nor cover large acreages. Fortunately, remote sensing technology can do both. Hyperspectral remote sensing imagery can monitor tree health at the landscape scale. It also has the ability to identify early stages of stress in trees—sometimes even before visual symptoms appear.

What is hyperspectral remote sensing? It is a way to interpret aerial images of forest canopies to predict things like the nitrogen content in leaves, the health status of trees, and the species composition of forests. The way that certain wavelengths of light reflect off the forest canopy provides this information, which can then be used to map foliar chemistry, forest composition, and patterns of decline. Until now, most remote sensing research has been performed by specialists, but that may soon change. Recently, hyperspectral remote sensing imagery has become commercially available, making it more accessible to forest land managers.

Our current work evaluates the efficacy of some of these newly available remote sensing instruments. So far, our research in the Catskill Mountain region of New York State indicates that commercial sensors are able to classify hemlock health (using an 11-class rating scale) at the tree level with an 88-percent degree of accuracy. In order to conduct this research, we compared wavelengths linked to the level of defoliation, crown thickness, and other physiological health indicators with on-the-ground data collected from canopy dominant hemlock stands. In addition, we measured wavelengths of light that correspond to chlorophyll absorption in the forest canopy. As a result, we were able to detect changes in photosynthetic functioning that we

would not have been able to observe from the ground. This kind of information allowed us to identify trees in the earliest stages of decline before symptoms like defoliation had manifested.

We are beginning to use commercially available remote sensing technology to map hardwood health and track the effects of insect infestations like the emerald ash borer and the Asian longhorned beetle. We would like to help land managers use remote sensing for the same purpose. Before managers decide to invest in remote sensing imagery, they should make sure that (1) the technology will meet their management needs; (2) they can find a vendor able to produce and interpret the imagery to the level of accuracy they want; and (3) they can provide vendors with the data necessary to complete the work. Managers who are more interested in areas of severe tree decline can probably rely on conventional monitoring and assessment strategies such as aerial photo interpretation. On the other hand, anyone concerned with early detection of decline and accurate mapping of tree resources should consider using hyperspectral technology.

Once managers have chosen to invest in remote sensing imagery, they should decide on the degree of detail they need. Fine spatial resolution will provide information on individual trees. While more expensive, fine scale images are most useful in an urban environment or for assessing individual tree health problems in a forested landscape. Managers who require health information at the stand level can take advantage of coarser scale imagery, which makes mapping large acreages more affordable. Finally, managers must be able to collect health reference data using conventional forest survey techniques to help calibrate the hyperspectral imagery, and also be able to provide the exact locations of both the area they want mapped and the calibration plots.

Hyperspectral remote sensing has proven to be successful at mapping forest health and promises to be an invaluable tool in tracking some of the most serious health threats our forests face. Please feel free to contact us (603-868-7657 or rhallet@fs.fed.us) for more information on how to implement this exciting technology.

State Roundup

 The Forest Service continues to work with a **forestry/agroforestry working group** in **Maine**, comprised of representatives from the Small Woodland Owners Association of Maine (SWOAM), the USDA Natural Resources Conservation Service, the Maine Forest Service, and the University of Maine Cooperative Extension. The work group received funding from the National Agroforestry Center in Lincoln, Nebraska, to plan for and implement hands-on workshops showcasing business and forest educational opportunities for private forest landowners in Maine. The working group is partnering with local conservation groups (e.g., SWOAM chapters, RC&Ds) in planning three workshops this year in Presque Isle, Calais, and Augusta. Contact Paul Miller of SWOAM at 1-866-845-3047 or paul@swoam.com.

SWOAM is planning a **landowner summit** on October 22, 2005, at the Civic Center in Augusta, **Maine**, and expects one of the largest turnouts ever in the State. The all-day event will focus on issues of interest to landowners—the importance of small ownerships, the challenges facing these ownerships, and providing sources of information to assist landowners. For more information, contact Tom Doak, SWOAM Executive Director, toll free at 1-877-467-9626 (or 207-626-0005) or by e-mail at tom@swoam.com. The agenda will be posted on the SWOAM Web site (<http://www.swoam.com>).

 **Ohio Stewardship Coordinator** Tom Berger recently retired after serving over 30 years with the Ohio Division of Forestry. His successor, **Rich Cappell**, also comes from the Ohio Division of Forestry and is ready to hit the ground running. Rich is a 1972 graduate of the Ohio State University with a major in Forest Industries. He has worked nearly 33 years with the Ohio Division of Forestry—7 years in State forest management and nearly 26 years in service forestry. In 1988, he completed a Masters in Arts with a specialization in Public Administration. You can reach Rich at 614-265-6706 or rich.cappell@dnr.state.oh.us.

 An **invasive plants workshop** entitled, *Forests Out of Balance: The Impact of Invasive Plant Species*, is being offered by the **West Virginia** Division of Forestry on August 22–24, 2005, at the National Conservation Training Center in Shepherdstown, West Virginia. Because invasive plants are a problem in many forests, service foresters and other resource managers need to be able to identify and control them. The workshop will present information on the national strategy and implementation plan for invasive species management; offer instruction on how to control invasive shrubs, trees, vines, and forbs; and allow the attendees to meet with vendors who have been at the forefront of control measures. For more information, visit http://na.fs.fed.us/fhp/invasive_plants.

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Naturalist's Corner

Rattlesnake-like Plants in Your Woodlands

by Roger Monthey and Kenneth R. Dudzik

Secretive and shy, the timber rattlesnake (*Crotalus horridus*) tries to live a quiet life in Northeastern woodlands, away from human disturbances. Its range and numbers have declined drastically since European colonization in America. It is presumed extirpated from 2 of the 20 Northeastern and Midwestern States, and is considered imperiled in 7 of these States.



Encounters with the timber rattlesnake are rare. (photo credit: Jeff Hall, Weyerhaeuser's Cool Springs Environ. Education Center)

pubescens) is doubly devious—the white reticulation on its basal leaves is suggestive of a rattlesnake's scales, while its persistent fruiting spike resembles a rattler's tail.

Rattlesnake manna grass is a native perennial found in swamps, bogs, and wet woods that flowers from July through August. It is a food source for muskrat, white-tailed deer, and waterfowl, and aids in nutrient absorption.

Native Americans used rattlesnake plantain to cure snakebite. Author Huron H. Smith described an experience by early explorer Captain Jonathan Carver, who in 1796 observed members of the Potawatomi Tribe in the Great Lakes Region chewing the plant and applying the juice to snakebites, while swallowing some plant juice.



Early settlers and Native Americans likened the reticulated leaf pattern of the downy rattlesnake plantain to a timber rattlesnake's scale pattern.

Also found in these woods are plants that, with a fertile imagination, somewhat mimic the physical traits of rattlesnakes. The rattlesnake manna grass (*Glyceria canadensis*), for example, sprouts a flowering head that resembles a rattlesnake's tail. The rattlesnake plantain (*Goodyera*



The dried flower clusters of the rattlesnake manna grass (top) and the fruiting capsules of the downy rattlesnake plantain (bottom) resemble a rattler's tail. (photo credits: Kenneth R. Dudzik, USDA Forest Service)

pubescens) is doubly devious—the white reticulation on its basal leaves is suggestive of a rattlesnake's scales, while its persistent fruiting spike resembles a rattler's tail. Other Native American uses of rattlesnake plantain included good-luck charms, a poultice for wounds, and as a wash to alleviate eye infections. Early settlers also used the plant to cure snakebites, but attributed its efficacy to the age-old belief (the Doctrine of Signatures) that everything is created with a sign to indicate its purpose.

Three other species of rattlesnake plantain also occur in our woodlands. The checkered rattlesnake plantain (*Goodyera tessellata*) has duller, less obviously reticulated leaves. The lesser rattlesnake plantain (*Goodyera repens*), as its name implies, is a much smaller, fewer-flowered plant. The western rattlesnake plantain (*Goodyera oblongifolia*), restricted to far north cedar woods, has the largest leaves of all; they are usually white along the midstrip of the leaf blade.

So the next time you are hiking through your woodlands, be on the lookout for these beautiful plants, but take care to avoid a confrontation with their namesake, the elusive timber rattlesnake.



NA-S&PF
USDA Forest Service
271 Mast Road
P.O. Box 640
Durham, NH 03824

