Cornell University
Cooperative Extension
Columbia & Greene Counties

AGROFORESTRY RESOURCE CENTER

YOU AND YOUR FOREST: LETTER 1

Welcome to the first of seven forest-related informational letters. We hope that you find each of the seven segments of the letter series a benefit to you as a forest owner, interested in the future of your forested property. Each of the letter series will build upon the previous issue, so you will move from the basics of a forest to more advanced knowledge of silviculture (the art of cultivating a forest) and forest stewardship. The letters were developed by professionals in the field, such as foresters, conservationists, and Extension educators.

We look forward to having you visit us at Cornell Cooperative Extension's Agroforestry Resource Center in Acra, NY. If you have questions, please feel free to contact us at 518-622-9820 or visit our web site at www.ccecolumbiagreene.com. Here's to our forests!

What is the Agroforestry Resource Center and the Watershed Forestry Program?

Cornell Cooperative Extension's Agroforestry Resource Center (ARC) was established in 2003 to help sustain the vast, privately-held forest resources in the Hudson Valley, Catskill Mountain and surrounding region. Agroforestry is defined as the combination of agriculture and forestry practices that create integrated, diverse, productive, profitable, healthy and sustainable land-use systems and includes sustainable woodlot management as well as the production of ginseng, mushrooms, and other high-value products.

Through a variety of programs and hands on activities we are attempting to counterbalance growing development pressure and forest parcel size reductions by offering land owners economically viable and ecologically sustainable alternatives to help preserve forested land. The ARC includes a diverse and talented group of natural resource educators, an indoor classroom with technology to provide interactive video program capabilities and a 142 acre model forest that supports an outdoor "laboratory" for demonstration, research and hands-on workshops.

Forest landowners vary in their reasons for owning forested property. Some purchase land to generate income from harvesting timber. Other forest owners see their land providing privacy and the opportunity to enjoy nature. Within this group one may be a bird enthusiast, while another hunts wild turkey. In addition, current research shows that forests provide an important beneficial land cover for protecting drinking water at its source, improving air quality and sequestering carbon. Based on this research forestry is deemed a preferred land use in the New York City watershed. Seventy-five percent of this million-acre watershed is owned by private landowners. When these landowners connect their everyday actions with their forests, they become stewards of this precious resource. The Watershed Forestry Program encourages these landowners to actively manage their forests using sustainable, best management practices and offers information and technical assistance to help them reach their goals. The program is administered by the non-profit Watershed Agricultural Council in Walton, NY with funding from the U.S. Forest Service and the NYC Department of Environmental Protection. For more information contact them at 607-865-7790 or visit their web site at www.nycwatershed.org ✦

New York Forests—Historically Speaking

It is sometimes hard to believe that the original forests in New York covered nearly the entire land area of the state, but this was prior to the time of colonial settlement which began around 1625. Over the next one hundred years or so, most of the forested land was cleared for farming and agriculture continued to dominate the landscape. By 1880, this trend left only 25 percent of the land in forest cover. Beginning in the early 1890's, agriculture land use began to decline for a variety of circumstances. Some of the lands were found to be unsuitable for agriculture and other areas were used for development, but whatever the reason, the forests in New York State began to return. Through natural regeneration much of the old farm lands in our region have reverted back to being forest lands. As we fast forward the clock over the next century, we found by the early 1990's, land use for cropland and pasture land covered only 18 percent of the state. Forest land by this same time had increased to 62 percent or approximately 18.6 million acres.

Today in New York State, where agriculture once dominated the land, only 7 counties have greater than 50 percent of its land devoted to agriculture. Twenty-five counties have between fifty and seventy -five percent of their land as forest, and ten counties have greater than seventy -five percent land coverage forested. For example in 1993 the U.S. Forest Service statewide forest inventory reported that Greene, Delaware, Schoharie and Ulster are significantly forested counties, with 79, 72, 67 and 81 percent of their area in forest land, respectively. New York's forests are truly a working resource benefiting each and every resident. Often we forget about the crucial environmental, ecological, and economic roles that the forest performs. They provide watershed protection and hence water quality , a renewable fuel source, wood fiber for many construction and paper products we depend on, conservation of wildlife habitat and biodiversity, & recreation. Forests clean the air we breathe, and they also provide tranquility and scenic beauty that enhances the welfare of humankind. Finally, forests are a legacy we can provide for the continuing benefit of future generations—and that is what forest stewardship is about.✦

Who Owns This Land?

"Today, over 62 percent or over 18.6 million acres of land is forested throughout New York State. Only 18 percent is in agricultural land."

Well, you say that you own forested land…do you really know where your property lines and corners are? Are the boundary lines marked out with signs that are appropriately placed? If a neighbor's back forty was being logged, would there be a clear definition of who owns the trees? If you answer "no" to any of these questions, perhaps your first step should be getting to know your property from one end to the other. More than likely a professional survey has been done of the property at some point in time. However, if you are unable to locate a copy in your files, the first step would be to make a visit to the County Clerk's office where the land is located. Many counties also provide free access to tax maps online. Knowing where your property lines are and finding out more about the property that you own is a great first step. Remember also, a tax map is only a tool, not an accurate survey map. Do not rely on a tax map for precise information. Becoming familiar with your forested land boundaries helps you appreciate and protect it.

Remember an acre of land is 43,560 square feet (or 208.47 ft x 208.47 ft) ✦

What is Forest Ecology?

Forest ecology is the study of life in areas where the main plant species is trees. The word ecology is derived from the ancient Greek word "oikos", meaning a house, and the suffix "ology", which means a "study of". The key concept is to then view the entire forest as a community of plants and animals that exists in the same place and time in the same "house". Therefore, forest ecology deals with practically everything that relates to the plants and animals in the forest lands. From the small microscopic forms of bacteria in the soil, to the interaction of the primary and secondary consumers, through to the mature forest stand, every one of these organisms influence one another to some degree. Learning the key concepts involved in forest ecology will be the building blocks for all future components of understanding forestry.

Across New York State, five different forest types can be determined. The most extensive forest type that can be found in New York is northern hardwood species—sugar maple/beech/yellow birch. Followed by oak/hickory; then spruce/fir; white/red/jack pine; and finally loblolly/shortleaf (pitch) pine forest types. There are nearly 90 different tree species represented throughout the forests of New York State, and of these, 18 species are commercially important as a valuable timber product. These include: balsam fir, eastern hemlock, American beech, sugar maple, red spruce, white spruce, northern white cedar, red maple, eastern white pine, basswood, red oak, white oak, yellow birch, white ash, red pine, black cherry, paper birch, and aspen.

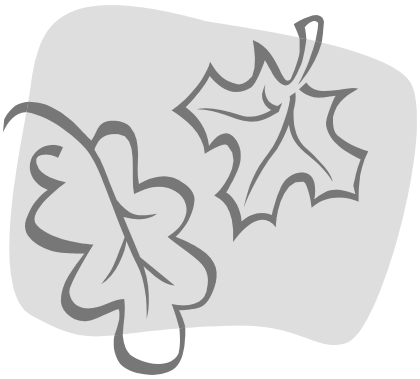
The forest regions and timber types are influenced by a number of factors which includes, soils, slope (how steep the site is), aspect, (the ordinal direction -north, south, east or west), elevation and climatic conditions. These five factors can create great variability within one forest stand of both species and tree growth. Often you might hear a forester refer to the "site index". What they are referring to is the combination of these factors, and how these factors not only affect what tree species may grow on a particular site, but also how fast the tree might grow in order to reach maturity. For example: northeast—facing slopes tend to be cool and moist, and more productive than southwest slopes which tend to be warm and dry. High elevation sites are colder and more exposed than sites on the lower lying areas. Therefore, by just knowing the aspect, slope, and elevation of a site, one can get a good idea about its potential productivity and which species will grow well in that particular location.

Soils within the forest stand are comprised of varying combinations of organic matter, mineral particles, water, and air. Let's take a look at each of the soil ingredients separately.

Organic matter—The best way to think of organic matter, is to compare it to a compost pile. Organic material results from the decomposition of material such as leaves, twigs and animal byproducts. Organic material influences both physical and chemical properties of the soil. For example organic matter helps soils to retain moisture. This is especially important in times of drought.

Mineral content —Mineral content represents not only the chemical properties, but also the physical properties. For example, limestone based soils have the tendency to be more fertile, while soils that are derived from granite will tend to be less fertile. The pH of

What is Forest Ecology? (cont. from page 3)



"Learning the key concepts involved in forest ecology will be the building blocks for all future components of understanding forestry."

the soil is also a measurement of fertility. However, the physical properties will indicate whether the soil is coarse or fine. This will be different depending on the minerals present, but also on the particle size of the soil. Fine soils, often containing clay particles, are generally more productive, but are more vulnerable to be damaged from compaction. Coarser soils, including sandy or gravelly components, generally drain more quickly than fine soils.

When considering the upper layers of soil in an undisturbed forest, the amount of water and air within this zone is of roughly equal volume. The amount of air and water in the soil are both determined and affected by the physical properties of the soil. Roots of all plants need air to breath and water for growth, therefore any activity that compacts the soil will also lower the productivity of the site. This is especially important considering more than half of the fine "feeder" roots of trees within a forest are generally found in the top six inches of soil. This reflects the importance of heavy equipment, such as skidders, being restricted to established trails.

Lastly, the biological properties of the soil refer to the communities of fungi, bacteria, insects and worms that live on all of the organic matter that is produced by the trees within a forest stand. These decomposing organisms are the conduit for nutrients to be recycled throughout the forest floor.

Although all of the previous factors that we have discussed are important to tree growth, the biology of a particular species is just as important. Remember, trees are like all other plants, they need to convert light energy into chemical energy. This process is called photosynthesis. The most important thing to understand about this process is that the faster and more efficiently a tree carries on the process of photosynthesis, the faster a tree will grow. This concept will be even more important as we begin to discuss various forest management practices in a later correspondence.

Trees are mainly made up of four parts: roots, stem, branches, and leaves. Through these four main parts the important processes of tree growth takes place. However, the form of each of these components differ among species. This can also be due to the site conditions or the "site index" where the tree is growing.

Forest ecology is the basis for forestry as a whole. Each correspondence you will receive will further investigate the concepts that we have touched upon in this first issue. ✦

Forest Succession & Tolerance

Forest succession is a complex component of forest ecology that change over time. When the change in the species composition within a forest stand is slow, but continuous, the process is succession. Forest succession can be speeded up, slowed down and controlled through various forest management practices. However, this process can also be altered due to a natural disaster such as a fire, hurricane, disease or flood.

There are various stages to plant succession, but only four or five of them actually apply to forestry. These stages are herbaceous, shrubs, intolerant trees, mid-tolerant trees, and tolerant trees. The double meaning of these stages relate to forestry terms that are often used. Shade intolerant species are pioneer species; the mid-tolerant shade species are the early successional species; and the tolerant shade species are known as the sub-climax or climax species. As a forest stand changes from the pioneer species to the climax species, the intricacy of the ecosystem increases as well. The following are examples of tree species in each of the categories: pioneer species — aspen, paper birch; mid-tolerant species— eastern white pine, red oak, white ash; and climax species— sugar maple, yellow birch, and beech. ✦

Ask yourself "What do I want the forest land that I own to look like in five, ten, or even twenty years from now?"

What Are My Objectives?

So why did I buy the forest land that I now own, or why am I considering to purchase a piece of land? Or maybe I just had the good fortune to inherit forested property. People own wooded areas for many different reasons and each of these provide benefits to the property owner. Was it for wildlife? Was it for the aesthetics of the land? Perhaps if the forest has maple trees it has a potential as a sugar bush to make maple syrup. Selling timber is often the last objective of many forest land owners. Whatever the reason, figuring out your objectives is the first step in determining how your forest land will work for you. Writing down your ownership objectives is an important way to begin this process. Knowing your objectives for your forest land not only provides direction, but will also help simplify the decision making process. These objectives help to assess what you truly value about your forest, and will assist in the success of your management plan. In considering these objectives, not only consider the near future, but also ask what are your needs in five, ten, or twenty years from now. ✦

Where Do I Go For Assistance?

Once you have started thinking about your objectives, the next step would be putting together a list of people that may be able to offer you help. Assistance for forest owners can really be divided into two groups, the technical and non-technical. First, the non-technical assistance is provided through volunteers such as Master Forest Owners (MFOs). An MFO is generally a forest owner who has been trained by Cornell Cooperative Extension. They have an interest and a commitment to help other forest owners to develop their plans. These individuals have a wealth of experience from their own property and those of other forest owners they have met and often can help by sharing ideas or examples. Other non-technical assistance is available through the New York Forest Owners Association (NYFOA). This is a statewide organization of forest owners who are interested in issues related to owning forest land in New York State. There are various local chapters in the region and joining is a great way to network with other individuals who own forests.

Technical assistance is available throughout New York State. For more general information of forest and woodlot management, contact you local office of Cornell Cooperative Extension. Each of the County offices have publications and bulletins with information on a variety of subjects such as tree identification, wildlife habitat improvement, recreational trails, and forest management planning to name a few. If you are interested in aerial photographs, topographic maps or soil surveys, this information is available from the County Soil and Water District offices (SWCD). For professional forestry advice, you should contact your local New York State Department of Environmental Conservation (NYSDEC) office. The DEC has professional foresters who will visit with you on your property for free to discuss your forest stewardship options. The DEC forester will have information on cost-share programs and information regarding the New York Forest Tax Law. To encourage stewardship of private forest lands, the Watershed Forestry Program offers cost-sharing to landowners with parcels of ten acres and above located within the watershed boundaries who currently have no written plan. Finally, if you decide to contact a private forester, the DEC foresters have a list of cooperating consulting foresters which is broken down by county.

Remember, as the forester begins to develop your management plan, you make the final decision on what should happen on your property. The written management plan will offer many benefits, including a statement of your objectives, a description of your property, the condition of the forest, the potential benefits you can expect from your forest, streams and soils, unique and the types of wildlife habitat that exist on the property. The plan will also map out a schedule of activities consistent to your objectives. ✦

Starting Pointers for the Forest Landowner

- There are many reasons why you might want to manage you forest or woodlot. Deliberate planning will help ensure you reach your personal goals.
- There are numerous people, agencies, and publications available to help you begin the management process. There are several free options. Start with a Master Forest Owner volunteer, and then a visit from a DEC professional forester.
- The first step in planning for forest management is to know what you and your spouse and/or partner(s) want from your property. Your objectives are the basis for all future activities on your property. No one can tell you what you should do until they know what you want to accomplish.
- You can start to understand your objectives by asking yourself questions about your property. How did you obtain your property? Why do you own it? What do you like and dislike about various options?
- Trying to think about all your objectives and whether they are compatible can seem like an overwhelming task. Computer software called NED (for North East Decision model) is available through the U.S. Forest Service. You can download a copy at their web page (http://www.fs.fed.us/ne/burlington) or call (802) 951-6771. The free software is Windows compatible.
- A good starting point is to begin knowing your property. Work with the DEC, SWCD, to get aerial photographs, topographic maps, and soils maps of your region. Make sure your property lines are marked using paint blazes, markers, or posted signs.
- Become involved with people in organizations that share your same interests. A Master Forest Owner volunteer can help and is available through your local Cornell Cooperative Extension. You can also contact the New York Forest Owners Association (1–800–836–3566) or check their website at www.nyfoa.org.
- Before you work with a forester or a logger, check their credentials and references. A professional forester is someone having a degree from a professional forestry program at a college or university. Many loggers are demonstrating their professionalism by participating in the New York State "Trained Logger Certification" Program. Both foresters and loggers have many opportunities for continuing education classes. Remember, there are good and bad foresters and loggers—just like any other profession.
- A written management plan offers many benefits. Your management plan should start with a clear statement, that you help develop with your forester, about your management objectives.
- Spend time in the woods, learning about your property. Read material about forest management and become active with other forest owners. This is the fun part… make sure that you enjoy yourself.

Resource: Peter J. Smallidge, State Extension Forester, Department of Natural Resources, Cornell University www.dnr.cornell.edu/ext/forestrypage ✦

Landowners and Your Woods: A Forest Management Primer

Date: Saturday, March 10
Time: 1:00-3:00 p.m.
Presenter: Mary Spring, Certified Forester

Registration Deadline: March 8
Cost: $10.00 per person/ $15.00 per family
Location: Agroforestry Resource Center, Acra 518-622-9820

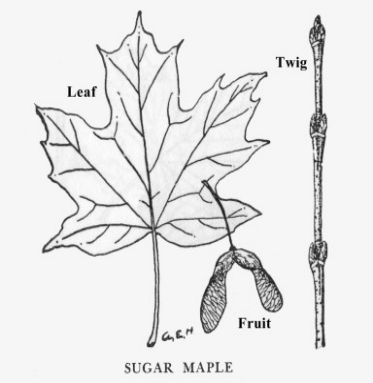
Do you own woods? Do you have woodlands you would like to manage in some way? Do you want to know about the value of trees as timber? Would you like to know about other opportunities your forests provide? Would you like to develop and implement the best long term plan for your woodland? Mary Spring, professional forester, will provide basic concepts of best forestry management practices, and forest management planning as well as the value of working with a forester. You will also get lots of valuable resources to help you after you leave. Come dressed for the weather, as we will have an outdoor component illustrating forestry management strategies.

Did You Know That...

- New York has more forests than any other state in the Northeast. With 18.6 million acres of forestland, that's nearly an acre for each and every New Yorker.
- New York State is 62% forested, an increase of 23% since 1953.
- Private landowners like you control 85% of forest land or about half a million people own 14.4 million acres. The forest industry controls 8%, and public lands account for 7% of the total acreage.
- The average private forest landowner parcel in the Catskill/Hudson Valley region is about 15 acres and shrinking.
- New York's forest are growing over 3 times faster then they are being harvested, cleared for development, lost to insects, disease or blow downs combined —this includes both the increase in volume of established trees and the number of new trees that have become established.
- In New York State, over 1.47 million acres of forest lands are Tree Farms and 2,285 individuals are tree farmers!
- Most people own forest land for a variety of reasons—a haven for wildlife; a shady, restful place; a valuable recreational asset; a timber-producing area, to name a few.
- The forest-based manufacturing industry and forestry and logging provides employment for 57,202 people and generates a payroll of over **$2.1 billion**.
- The annual contribution of forest-based manufacturing and forest-related recreation and tourism to the New York economy is over **$8.8 billion**.

Resource: Empire State Forest Products Association (ESFPA) ,U.S. Forest Service Data & NBS Department of Environmental Conservation ✦

Sugar maple is a magnificent forest tree abundant everywhere in the state outside of Long Island. It is the official state tree of New York. Besides providing beautiful borders to many miles of highway, and hundreds of thousands of gallons of maple syrup from the many thousands of sugar bushes in all parts of the state, it yields a wood of high grade. It is hard, strong, close-grained, and tough, with a fine, satiny surface, and is in great demand for flooring, veneer, interior finish, furniture, shoe lasts, rollers, and as a fuel wood of the best quality.



SUGAR MAPLE

CORNELL COOPERATIVE EXTENSION OF
COLUMBIA AND GREENE COUNTIES
AGROFORESTRY RESOURCE CENTER
& THE WATERSHED FORESTRY PROGRAM OF
THE WATERSHED AGRICULTURAL COUNCIL

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6055 Route 23, Acra, NY 12405
Phone: 518-622-9820
Email: greene@cornell.edu
Web: www.ccecolumbiagreene.com

The Forest Stewardship Self-Study Course is a collaboration among Cornell Cooperative Extension of Columbia and Greene Counties, New York City Department of Environmental Protection, U.S. Department of Agriculture's Forest Service and the Watershed Agricultural Council's Forestry Program.

Many thanks to Greater Adirondack R C & D Council and especially Laurel Gailor of Cornell Cooperative Extension of Warren County for their outline and assistance with the Forestry Letter Series.