VERMONT FORESTRY LETTER SERIES

Volume 3, Issue 1 **www.nvtrcd.org** **February 18, 2011**

Welcome Forestry Enthusiasts!

Welcome to the first of six forestry *informational* letters.

We hope that you find each of the six segments of the letter series a benefit to you. Each letter in the series will build upon the previous issue, so you will move from the basics of forestry to more advanced knowledge of silviculture and forest stewardship. The letters were developed by a professional in the field, such as foresters, conservationists, or wildlife managers.

We are looking forward to meeting each of you **on May 21, 2011 at the field experience day – so please mark your calendars!** The field day location will take place at Trevor Evans' farm in Derby, Vermont. The specifics of our tours will be announced in an upcoming issue. If at any time you have questions, please feel free to contact the author of the individual letter series or the Northern Vermont Resource Conservation & Development (RC&D) Council at 802-828-4595 or email: beth_ann.finlay@vt.usda.gov. Special thanks to Fran Sladyk, consulting forester and the folks at the VT Department of Forests, Parks & Recreation for editing assistance.

Dendrology clue # 1: This tree has a couple of macho common names: Rock and Hard. What is its Latin name?

Did You Know That???

- Vermont is 78% forested, with 4.46 million acres of forest. Orleans and Lamoille Counties are 65% and 80% forested with 579,067 acres of forestland.
- In Vermont, the net growth of trees has exceeded removal since the first inventory in 1948. About twice as much wood has been grown than was cut or otherwise removed. Orleans and Lamoille Counties grows 167,658 cords annually with harvests totaling 127,629 cords.
- Scientists estimate that there are between 24,000 and 43,000 species of higher plants, algae, fungi, lichens, invertebrates and vertebrate animals in Vermont. Nearly half are invertebrates such as insects, crayfish, and mussels.
- Private landowners, such as you, control 80% of forest land in Vermont; business or industry owns 1%; and Local, State, and Federal government owns 19%.
- Private landowners in Vermont own forest land for a variety of reasons. Based on a 2004 U.S. Forest Service survey in New England the reasons given in order of priority are aesthetics, privacy, nature protection, family legacy, other recreation, land investment, hunting and fishing, and timber production.
- The number of non-industrial private landowners in Vermont has increased from an estimated 61,900 in 1983 to approximately 87,000 in 2008 correlated with a decrease in the average size of a parcel of land.
- In Orleans and Lamoille Counties, over 230,040 acres (1,470 separate parcels) of private forestland are enrolled in Vermont's use Value Appraisal tax program and are actively managed under a forest management plan.
- In 2005, the contribution of forest based manufacturing and forest related recreation and tourism to the Vermont economy was 1.5 billion dollars.
- Each 1,000 acres of forestland in Vermont supports 1.4 forest-based manufacturing, forestry, and logging jobs and 1.4 forest related tourism and recreation jobs.
- Vermont is the largest producer of maple syrup in the United States, producing about 37 percent of the total U.S. crop in 2000. Every county in Vermont produces some maple syrup. It is estimated that we have around 2,000 maple producers in the state. In 2000, those producers made an estimated 460,000 gallons of maple syrup, with a value of approximately $13,340,000. Vermont led the U.S. production of maple syrup in 2010 with 890,000 gallons produced from 3,200,000 taps. For a full report go to www.nass.usda.gov/Statistics_by_State/New_England/index.asp

What is Northern Vermont RC & D Council?

Resource Conservation and Development. A non-profit organization and a USDA federal program? Sure enough. RC&D is the name for a program sponsored and supported through the Natural Resources Conservation Service and is also a name for the local organization or RC&D Council that makes certain the RC&D program works on local priorities and projects, this forestry letter series being an example. The Northern Vermont RC&D Council is made of 12 representatives from the area's planning commissions and conservation districts. There are 375 RC&D Councils in America. The Greater Adirondack RC&D, our sister to the west – founded the idea of the forestry letter series and shared it with us, to them we thank.

We also thank the following partners and hosts of this series:
USDA-Natural Resources Conservation Service
VT Department of Forests, Parks, & Recreation (County Foresters)
VT Woodlands Certified Consulting Foresters
Society of American Foresters—Green Mountain Chapter
VT Woodlands Assn/VT Tree Farm
VT Coverts, Inc.
Vermont Land Trust
Lamoille County Planning Commission
Lamoille County Natural Resources Conservation District
Orleans County Natural Resources Conservation District
Northeastern Vermont Development Association

Your first quiz: ↓☺

Dendrology Challenge #1: Dendrology is the botanical study of trees. Each forestry letter will highlight and important Vermont tree by displaying it's leaves, seeds, nuts or silhouette within the issue. Can you guess what tree it is? Why is it important? What benefits does it provide to people, wildlife or the environment? See the clues throughout this letter and the answer on page 8 (no peeking!)

To find out more about RC&D and our other initiatives like the Better Backroads-Clean Water You Can Afford Grant program, the Rural Fire Protection-Dry Hydrant Grant program, the Skidder Bridge Loan and Education program, the Envirothon- Outdoor High School Quiz Bowl program, the Northern Forest Canoe Trail or the Vermont Forests Forever CD-Rom and education kit for 5th and 6th graders, contact us at (802)828-4595 or check out the website at: www.nvtrcd.org Have a great couple of weeks – we will talk to you next issue - #2.

Vermont Forests—Historically Speaking

The original forests of Vermont covered nearly the entire land area of the State prior to the time of colonial settlement which began in earnest around in the early 1700's by English and French settlers. Prior to European settlement, the Native Americans such as the Abenaki in the north and Mohawk to the south were the only inhabitants of Vermont and they saw no need to "claim" the land. Over the next one hundred years as land was claimed by European settlers, most of the forested land was cleared for farming, and agriculture dominated the landscape. By the mid 1800's, only 20 percent of the land was in forest cover, and most of this was forested wetlands, high elevation land, and farm sugarbushes. Beginning in the early 1890's, agriculture land use began to decline. Much of the land had been overgrazed and soils were depleted and eroded, rendering many upland farms unfarmable. Farms were abandoned and the forests in Vermont began to return. Through natural regeneration much of the old farm lands in our region have reverted back to being forest lands. The state now has a forest cover of around 78%, or 4.46 million acres.

The Vermont forest is truly a working resource benefiting each and every resident of the State. Our forests provide watershed protection, wood fiber, conservation of wildlife habitat and biodiversity, recreation, they freshen 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.

Tip #1: Get to Know Your 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?** If a neighbor's back forty was being logged, would there be a clear definition of who owns the trees? If you can answer "no" to any of these questions, maybe then, your first step should be getting to know your property from one end to the other. It is possible that 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 Town Clerk's office of where the land is located. Other sources of property line information includes parcel mapping used by the town lister's. Most towns in Vermont counties have parcel maps which are prepared based on deed information and surveys when available. Knowing where your property lines are, and finding out more about the property that you own is a great first step. Remember, a parcel map is only a tool, not an accurate survey map. Do not rely on the parcel maps for precise information.

What Are Your Forestland Objectives?

There are many reasons that people own woodland. In some cases land is handed down from one generation to another. In other cases people seek specific land for specific purposes including privacy, the desire to live with room to roam, interest in wildlife habitat, real estate investment, and timber management. In most cases the land may be successfully used for all the above purposes, though with different priorities for different people. Whatever the reason, **developing goals and objectives is the first step in figuring out how your forest land will work for you.** Writing down your ownership objectives is a great way to begin this process. Knowing your objectives for your forest land not only provides direction, but will also help to simplify the decision making process. These objectives help to assess what an individual truly values about their forests, and will assist in the success of the management plan. In considering these objectives, not only consider the near future, but also ask what you would like your forest to look like in five, ten, or twenty years from now. Your consulting forester can help articulate these goals so that your woodland can be a source of pleasure and income throughout the years and a better place at the end of your ownership. A forest generation is longer than ours so we need to think like a forest.

Use the space below to list your top 4 forestland objectives.

1. Timber Management: _____

2. Wildlife Management: _____

3. Recreation Management: _____

4. Aesthetics: _____

Dendrology clue #2: This tree is also often confused with an invasive species, Norway _____ , though they are not closely related within the genus. This tree is most easily identified by clear sap in the leaf petiole while the Norway has white sap.

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 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, each and every one of these organisms influences one another to some degree.

To better understand forest ecology in Vermont we may turn to a discussion of Natural Communities. A natural community is an interacting assemblage of organisms, their physical environment, and the natural processes that affect them. An identifiable Natural Community is free from major, recent disturbances from humans, and typically older than 50 years, and past the pioneer stage of succession (see the following discussion). Throughout Vermont, there are thirty-nine Forested Upland Natural Community Types and 19 Forested Wetland Community Types. Forest management may often work to maintain or develop the Natural Community Type that would be found in a particular location. Foresters have found that working with nature rather than against it reaps greater success. Conservation groups are also interested in Natural Communities. Scientists hypothesize that if multiple, viable examples of all natural community types in Vermont are protected, a majority of native species will be protected as well.

Natural Community Types can be lumped into a larger classification of seven Forest Formations. **The three dominant upland forest formations in Vermont include Spruce-Fir Northern Hardwood Forests, Northern Hardwood Forests, and Oak-Pine Northern Hardwood Forests**. The four Forested Wetland Formations include Floodplain forests, Hardwood Swamps, Softwood Swamps, and Vernal Pools and Seeps. Forest Formations and Natural Community Types are formed by the interaction of climate, topography, bedrock, surficial deposits, and hydrology.

The three dominant upland forest formations in Vermont include Spruce-Fir Northern Hardwood Forests, Northern Hardwood Forests, and Oak-Pine Northern Hardwood Forests.

Soils and the bedrock from which they are formed are the foundation and basis for the plants growing on the site, and subsequently the animals that inhabit it. Soils within the forest stand are comprised of varying combinations of organic matter, mineral particles, water, and air. Let's take a quick look at each of the soil ingredients separately. First, organic matter—the best way to think of this material, is to compare it to a compost pile; the decomposition of rotting debris such as leaves and twigs. Organic material influences both physical and chemical properties of the soil. Also remember, that organic matter helps soils to retain moisture. This is especially important in times of drought.

Secondly, the 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 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 are generally more productive, but are quicker to be damaged from compaction. Coarser soils generally don't drain as well, and are more easily eroded.

The amount of air and water in the soil are both affected and determined 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.

Dendrology clue #3: This tree is among the most shade tolerant of large deciduous trees. What is it?

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.** In other words, 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.

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 again, can be due to the site conditions or rather the site index of where the tree is growing.

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

Forest Succession & Tolerance...

Dendrology clue #4: This tree and the sweet product it produces net some $200 million dollars+ annually in Vermont.

This is a component of forest ecology that is very important to the understanding of Vermont's forest, because so much of Vermont's forests are in some stage of succession. **When the change in the species composition within a forest stand is slow, but continuous—this process is called succession.** Forest succession can be speeded up, slowed down, and controlled through various forest management practices. This process can also be altered due to a natural disaster such as a fire, hurricane, disease or flood.

Forest Succession can most easily be understood by starting from a cleared condition. Forest clearing in Vermont has resulted from a history of agricultural use and from clearcuts in the forested landscape. As cleared land reverts to forest, pioneer species are the first to occupy the site. Early successional or Pioneer species are comprised of trees that can only become established in **full sunlight**. These include species such as pin cherry, gray birch, and aspen. These trees are intolerant of shade and do not persist long term in our forests. Mid-tolerant species such as paper birch, yellow birch, red maple, red oak, and white pine often act like early successional species but can persist in the forest for many decades given the right conditions. Late successional or climax forests are comprised of long-lived shade tolerant species such as sugar maple, beech, and hemlock. These climax forests persist over time with little change in species composition. As a forest stand changes from the pioneer species to the climax species, the intricacy of the ecosystem increases as well.

Glossy Buckthorn

Rhamnus frangula

Invasive Species

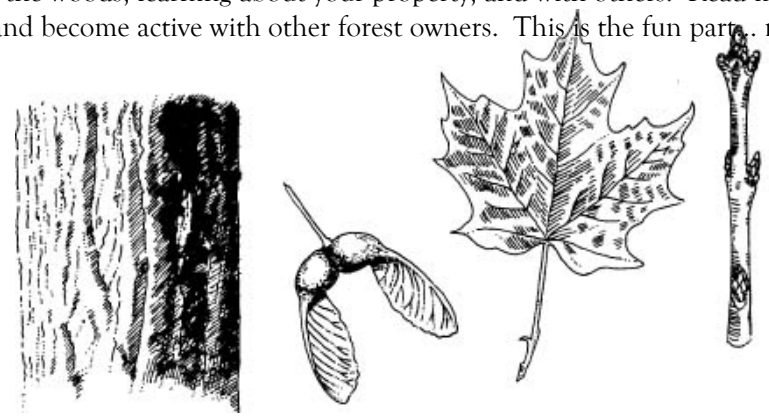
Concern continues to grow about the impact of invasive exotic plants on the regeneration of hardwood trees and the replacement of native fruit bearing shrubs. Wildlife species that have evolved with the native flora rely on both the diversity and timing of this food source availability. Invasive plants limit this diversity. **Key species of concern are glossy buckthorn, exotic and bush honeysuckles and oriental bittersweet, with Norway maple, winged euonymus, garlic mustard, barberry and multiflora rose becoming increasingly noticeable.**

Lamoille county, for example, has been blessed with a lack of invasive species. However, lately a large volume of bush honeysuckle is being found along the route 15 corridor. For Information on this plant (and others) and their chemical and mechanical control go to the Vermont Nature Conservancy's Landowner Guide to Invasive Plant Management: www.nature.org/vermont/weeds or to the Center for Invasive Species & Ecosystem Health at www.bugwood.org

Introduction of exotic insect and disease pests is also of great concern. We know the effects of past introductions such as Dutch Elm Disease, Chestnut Blight, and Butternut canker. Newly introduced pests such as Asian Long Horned Beetle, Emerald Ash Borer and Hemlock Wooly Adelgid could dramatically alter the landscape of Vermont. Pressure from invasive pests is thought to be exacerbated by Global Climate Change.

Starting Pointers for the Forest Landowner…

- ☐ There are many reasons why you might want to manage your 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. Your first contact may be the County Forester. The County Forester can offer advice and lead you to the next step, and refer you to a qualified consulting forester.
- ☐ The first step in planning for forest management is to know what you and you spouse and/or partner (s) want from your property. Your objectives are the basis for all future activities on your property. No one can recommend 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?
- ☐ A good starting point is to begin knowing your property. 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.
- ☐ 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 university. Remember, there are good and bad foresters and loggers—just like with any other profession.
- ☐ A written management plan offers many benefits. Your management plan should start with a clear statement, which you help develop with your forester, about your management objectives.
- ☐ Spend time in the woods, learning about your property, and with others. Read material about forest management and become active with other forest owners. This is the fun part… make sure that you enjoy yourself!



Dendrology clue #5: Human influences such as acid rain, global warming, soil acidification and road salt have contributed to the decline of this tree. What is it?

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. State and federal agencies are available for advice and information for all questions related to your forest and are the avenues for obtaining cost share assistance for a variety of forest management programs. Landowner Associations are a good way to network, meet people of like mind, and attend informational workshops designed for your needs. Conservation organizations also offer informational programs, and can help in long term conservation of your forestland. The forest Consultant is your personal guide to meeting your owner objectives. Developing a long term relationship with a forest management consultant may be the best way to meet your long term goals. Below is a Resource list to help you reach your ownership goals.

Forestry Consultants:

For referrals in your area contact the County Forester (see below)
VT Woodlands Certified Consulting Foresters: see website for list www.vermontwoodlands.org/certified-foresters.asp

Government Offices:

For Info about the Vermont Current Use Program: visit www.vtfpr.org/resource/for_forres_useapp.cfm

or contact Lamoille/Orleans County Forester Ray Toolan (802) 888-5733 raymond.toolan@state.vt.us

Natural Resources Conservation Service: Wildlife Habitat Incentive Program & Environmental Quality Incentives Prog.

Contact Dave Blodgett (Orleans) (802) 334-6090 x25; Corey Brink (Lamoille) (802) 527-1296 x118

www.vt.nrcs.usda.gov/programs

Northeastern Vermont Development Association (802) 748-5181 www.nvda.net

Lamoille County Planning Commission (802) 828-4548 www.lcpcvt.org

Landowner Associations:

Vermont Coverts, Inc.	Lisa Sausville	(802) 388-3880	www.vtcoverts.org
Vermont Woodlands Assoc.	Kathleen Wanner	(802)747-7900	www.vermontwoodlands.org
Vermont Tree Farm	Al Robertson	(802) 626-3590	pfalz@kingcon.com
Vermont Family Forests	David Brynn	(802) 453-7728	www.familyforests.org
Vermont Maple Sugar Makers' Assoc.		(802) 763-7435	www.vermontmaple.org

Conservation Organizations:

Lamoille County Conservation District	(802) 888-9218	www.lcnrcd.com
Orleans County Conservation District	(802) 334-6090 x18	www.vacd.org
Audubon Vermont	(802) 434-3068	www.audubon.org
Keeping Track	(802) 434-7000	www.keepingtrack.org
The Nature Conservancy VT	(802) 229-4425	www.nature.org
Vermont Institute of Natural Science	(802) 359-5000	www.vinsweb.org
NorthWoods Stewardship Center	(802) 723-6551	www.northwoodscenter.org
Vermont Land Trust	(802) 223-5234	www.vlt.org

Land Trust Alliance: see what land trusts are operating in your area: http://findalandtrust.org/states/vermont50

Dendrology clue #6: The wood from this tree is one of the hardest, and is prized for furniture and flooring, including bowling alleys, NBA Basketball courts and along with white ash is used for baseball bats. What is it?

Dendrology clue #7: A research center was established in 1947 devoted exclusively to the study of this tree, its products and is located in Underhill Center, Vermont. What is the tree?

SUGGESTED READING and RESOURCE LIST

Forest Management, Facts and History:

Trees, Truffles, and Beasts: How Forests Function by Chris Maser, James Trappe & Andrew W. Claridge. 2008

Positive Impact Forestry: A Sustainable Approach to Managing Woodlands by Thom McEvoy. Island Press. 2004

Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont, by Elizabeth Thompson and Eric Sorensen. University Press of New England. 2000

Hands on the Land: A History of the Vermont Landscape, by Jan Albers. MIT Press for the Orton Family Foundation. 2000

Introduction to Forest Ecology and Silviculture, by Thom McEvoy. Cornell University. 2000. UVM Extension

Legal Aspects of Owning and Managing Woodlands, by Thom McEvoy. Island Press. 1998. UVM Extension

The Trees in My Forest by Berndt Heinrich. Harper Collins, 1997

Working With Your Woodland: A landowner's Guide, Revised Edition by Mollie Beattie, Lynn Levine, and Charles Thompson. University Press of New England. 1993

Wildlife:

Nature Guide to the Northern Forest: Exploring the Ecology of the Forests of New York, New Hampshire, Vermont and Maine by Peter J. Marchand. 2010

Mammal Tracks and Scat-Life size tracking guide by Lynn Levine and Martha Mitchell. Heartwood press. 2007

Landowners Guide to Wildlife Habitat; Forest Management For the New England Region. by R.M. DeGraaf, M. Yamasaki, W. B. Leak, and A.M. Lester. University press of New England.2005

The Atlas of Reptiles and Amphibians in Vermont, by James Andrews. Storm Geographics. www.middlebury.edu/ herpatlas. 2001

Maine Amphibians and Reptiles, edited by Malcolm Hunter Jr., Aram Calhoun, and Mark McCollough. University of Maine Press. 1999

Tracking and the Art of Seeing: How to Read Animal Tracks and Signs, by Paul Rezendes. Harper Collins, 1999

Dendrology Challenge Answer #1: Sugar Maple, Acer Saccharum. The Sugar Maple is also the state tree of Vermont... sweet! Source for dendrology quiz: wikipedia.org Checkout the Proctor Maple Research Center at: http://www.uvm.edu/~pmrc/

To contact RC&D about this letter or the Forestry Letter Series call 802-828-4595 or beth_ann.finlay@vt.usda.gov.

Coming up in our next issue in the series #2, Non-Timber Forest Products & Forest Enhancement.

The USDA is an equal opportunity provider and employer.