CORNELL COOPERATIVE EXTENSION
HERKIMER COUNTY

HERKIMER OUTDOORS

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GOT TURKEYS?

The New York State Department of Environmental Conservation (DEC) is looking for landowners to help with the first major field assessment of wild turkey management in New York since the 1970s.

In January 2006, DEC partnered with the National Wild Turkey Federation to conduct a four-year study in which wild turkeys are captured and fitted with leg bands. All work is done by DEC personnel on public and private lands from January through March. At the same time, DEC is collecting data on winter turkey flocks across the state to assess feasibility of a long-term population monitoring program. We hope to identify several locations in every county of New York where we can count turkeys each winter to monitor population changes.

Banding Study - DEC seeks landowners in DEC Regions 3 through 9 who would be interested in allowing birds to be trapped on their land, as well as alerting project coordinators when they see turkeys on their property. After turkeys are trapped and banded, they will immediately be released at the same location. The objective of the banding study is to examine hunter harvest rates, turkey survival rates, and harvest reporting rates.

Winter Flock Survey - DEC would appreciate reports from landowners, hunters, bird watchers or others about winter turkey flock locations anywhere in New York State. Observations of turkey flocks (even a few birds) during mid-December through March can be reported to the project coordinator for your region.

If you are interested, please consult the list on page 2 and 3 to Identify the project coordinator for your region. For more information, contact DEC at (518) 402-8886 or by e-mail at fwwildlf@gw.dec.state.ny.us

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Central Office	Michael Schiavone (518) 402-8886 NYSDEC, Bureau of Wildlife 625 Broadway, 5th Floor Albany, NY 12233-4754	Statewide Coordination	

Source: New York State Department of Environmental Conservation (DEC)

A WOODBURNER'S GUIDE

Beech wood fires are bright and clear,
If the logs are kept a year.

Chestnut's only good, they say,
If for long it's laid away.

Birch and fir logs burn too fast,
Blaze up bright and do not last.

Elm wood burns like a churchyard mold,
E'en the very flames are cold.

Poplar gives a bitter smoke,
Fills your eyes and makes you choke.

Apple wood will scent your room
With an incense like perfume.

Oak and maple, if dry and old,
Keep away the winter cold.

But ash wood wet and ash wood dry,
A king shall warm his slippers by.

-Anonymous

SUGAR MAPLE DECLINE ~ A CONTINUING PROBLEM

Since the early 1980s, the progressive deterioration of sugar maple in certain northern hardwood stands throughout the northeastern United States and eastern Canada has been a concern of many forest owners. Even after 25 years of research in both countries, it is difficult to provide an unequivocal explanation for many decline events. The purpose of this article is to briefly summarize our current understanding of maple decline.

What is a decline?

A good working definition of a decline is a disease characterized by the progressive deterioration of tree and stand conditions resulting from a sequence of interacting biotic and/or abiotic events. Decline is a prolonged and gradual process requiring multiple stresses over several years. A true decline eventually results in tree death. Crown dieback and reduced growth for several consecutive years are the most readily recognized symptoms of this disease.

Crown dieback and tree mortality may also result from a single short term stress or simultaneous multiple events such as insect defoliation and drought. The distinction between a "decline" and "dieback" is an important one. The former is a disease, the latter is a symptom that may herald the onset of this disease, or it may merely reflect the temporary stress of a short-term disturbance. Crown dieback is a tree's response to stresses. Whether or not the tree will recover (i.e., in a year or two the tree's crown and growth will return to a "healthy" or "normal" condition) or progressively deteriorate (i.e., decline, depends on whether the disturbance (s) are temporary or prolonged.

The recent bout with forest tent caterpillar (FTC) in the northeast illustrates the two possible outcomes of crown dieback. In many stands in southern St. Lawrence County, for example, sugar maples have been declining for years. In this case, recent heavy or repeated defoliation by FTC accelerated the deterioration of these trees. On the other hand, where defoliation by FTC occurred to vigorous trees in other regions of the state, the end result of this one disturbance was temporary crown dieback . Some tree mortality is likely to occur following an outbreak of most defoliators, even in healthy stands. Trees that experience 30% to 35% dieback from a single stress or disturbance under other wise favorable conditions, however, usually recover and dead twigs and branches will be replaced in their crowns.

There are many causes of maple decline.

The objective of much northern hardwood research in both the United States and Canada over the past 15 to 20 years has been to identify factors that predispose sugar maple to decline. Secondary biotic and abiotic stresses (i.e., agents that are "secondary" in the sense that they require a stressed host in order to come into play) that build on this predisposition are relatively easy to identify; such as, drought, insects and diseases. The predisposing or primary event and the secondary events that follow may vary from one decline to another. In other words, there are thought to be several "maple declines".

For instance, a search for predisposing factors in Vermont associated depletion of calcium and high levels of aluminum in sugar maple foliage, presumably the result of acidic deposition, with deteriorating growth and reduced tree vigor.

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SUGAR MAPLE DECLINE ~ A CONTINUING PROBLEM

Similarly, many other studies in both the United States and Canada point to poor soil nutrition as indicated by decreases in base cations (positively charged elements), such as calcium, magnesium and potassium, and increases in toxic anions (negatively charged elements) like aluminum and manganese.

In a Quebec study, dieback and eventual decline occurred frequently on sites where sugar maple was not able to tolerate poor drainage. Other research in this region associated predisposition with marginal site conditions. For example, sugar maple growing downhill or in depressions (site too moist) or on exceedingly dry sites, such as ridges or other places with relatively thin soil (more susceptible to drought).

Other predisposing events that have been suggested are extreme weather conditions such as excessive root freezing (mortality) during winters with low snow fall. Drought and excessive stand density (competition for water and nutrients) also are thought to play predisposing roles.

Management implications

Clearly, studies to date strongly suggest that predisposition of sugar maple to many declines can be related to an event or events that take place in the soil; predominantly localized nutrient imbalances resulting from soil properties, climate and/or human related activities such as air pollution that results in "acid rain". Unfortunately, the subterranean part of forest ecosystem is very difficult and impractical to deal with from a forest management perspective. Similarly, inherent soil properties and climate are beyond our control. Society has made significant strides, however, in addressing acidic deposition, which is thought to be at the root (no pun intended!) of many maple declines. Hopefully continued efforts on this front will eventually results in a return to more favorable soil conditions.

In the meantime, what can a forest owner do? I would recommend the following:

- When crown dieback first appears, do not be too hasty with the chain saw! Remember dieback is symptom of stress and once certain stresses are removed, sugar maple crowns often return to a healthy condition.

- On the other hand, a chain saw can be the most effective management tool we have when it comes to improving stand conditions. Minimize the completion between trees and enhance the vigor of residual trees by thinning maple stands at the appropriate times during stand development.

- Protect maple foliage from repeated severe insect defoliation, especially when maple is growing on marginal sites.

- Once it is clear dieback is a precursor to a decline (continued crown deterioration, bark sloughing) and the trees will not recover, remove the stand while the stem wood is still of some value.

Source: The New York Forest Owner, November/December 2007.

HEAVY SNOW LOADS

The recent accumulation of snow in many areas throughout New York state has caused some agricultural buildings to fail. Failure can be the result of several items linked to the snow load present on the building. These items include but are not limited to:

- Improper building design
- Actual snow load exceeds design snow load
- Imbalance of snow load on roof
- Failure of one key member causing others to fail as a result of load transfer (domino effect)

Pre-engineered post frame agricultural buildings are designed to withstand a certain level of wind and snow loading and should withstand any snow loads that are below the "design value". For example, if the given snow load is 30lbs. per square foot acting on the building and it was designed for a design load of 40 lbs. per square foot, then there should be no load carrying problem. Unfortunately, there are agricultural buildings out there that have not been designed for any particular loading at all. These building have a much higher probability of failing as a result of the current snow accumulations we are seeing.

So, how do we know if a building is going to fail? For a pre-engineered building, we can check the actual snow load on the building against the design snow load. If the actual load is less than the design load, then failure is not eminent. Table 1 can be used as a guide to estimate the snow load on a barn.

Compare the table value against the design value to see where you stand. The table cannot be used for a non-engineered structure. Wood structures will show stress before they fail unlike metal structures that usually will not. For a wood structure, the following audible and or visual signs may be noticed prior to failure:

- Creaking or moaning in the building
- Bowing of truss bottom chords or web members
- Bowing of rafters or purlins
- Bowing of headers or columns

Table 1. Snow Load Based on Accumulation Depth

Snow Depth on Roof	Dry Snow	In Between Snow	Wet Snow
(Ft.)	(lbs./sq. ft.)		
1	3	12	21
2	6.5	24	42
3	9.5	36	62
4	12.5	48	83
5	15.5	60	104

If these signs are present, consideration may be given to evacuating animals from the barn and it is certainly recommended to evacuate all humans from the structure.

One option commonly considered to relieve loading from the barn is to shovel the roof. Experienced individuals who are properly trained and protected should only do this. Attempting to save a barn is not worth risking lives over. Shoveling the roof without the proper approach may actually cause more damage than good by creating an unbalanced load on the roof.

Source: Dairy & Crops Volume 4, Issue 6

25 FARM FATALITIES REPORTED IN NEW YORK IN 2006

In 2006, there were 25 reported farm fatalities on New York farms. This statistic was compiled through a news clipping service and fatality reports from the New York State Department of Health. The New York Fatality Assessment and Control Evaluation program (FACE) reports that from 1992 to 2004, there were 287 agricultural workers who died on the job or nearly 24 people each year.

Tractor-related incidents were far and away the most common cause of fatalities in 2006.

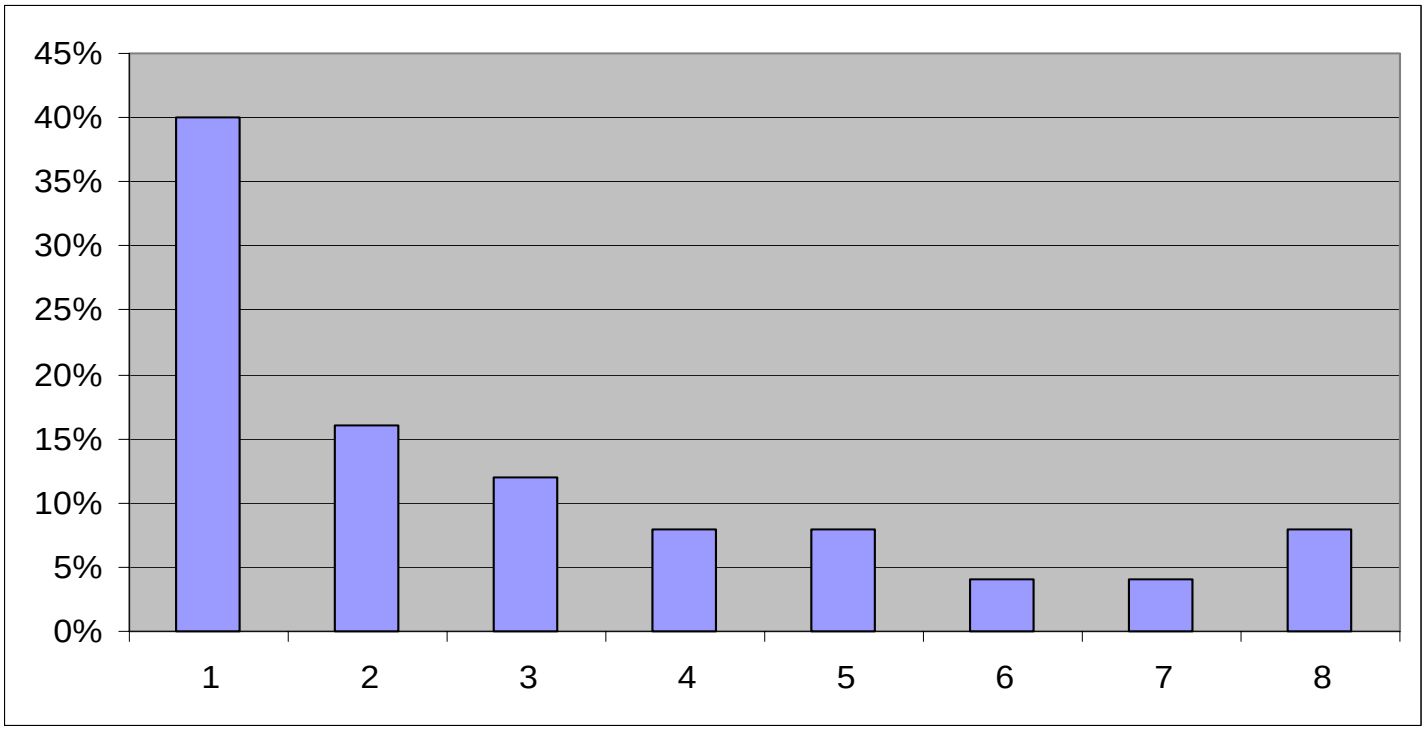
Farm fatality victims' ages ranged from two children who were 4 years old to an 82 year old. The average age of the victims was 46 years of age. There was only one female death, a 4 year old girl who was crushed under a loose gate when a heifer got out of control. The oldest victim, an 82 year old male was killed in a tractor overturn.

Please remember, "It can happen to me, my loved ones, and my employees if I don't do something to prevent it". Work-related injuries and deaths are preventable. If you would like assistance in developing a safety program for your farm, or if you would like an on-farm safety training, please contact Jim Carrabba, Agricultural Safety Specialist at (800) 343-7527 or by e-mail at jcarrabba@nycamh.com.

Source: Healthy Horizons, Winter 2008.

Key

1= Tractor
2= Machinery
3= Animal
4= Tractor/Vehicle collision
5= Structures
6= Motor Vehicle
7= Suicide
8= Unknown



"FROG FRIENDLY FORESTS"

New York forest owners place a high value on the wildlife on their land, with songbirds and game animals like white-tailed deer and wild turkey at the top of the popularity list. Our forests also provide homes for less visible species of wildlife, and among these are the amphibians. Frogs and salamanders are lurking under rocks and rotting logs, breeding in temporary pools, and foraging for food high in your treetops. With a little effort, forest owners can help protect these fascinating creatures and in the process develop a greater appreciation of nature.

Amphibians are commonly associated with wetlands and even small moist microsites, for good reason. Most amphibians spend some of their life in water. Many species, however, spend a good deal of time on land, and a few are totally terrestrial. Red-backed salamanders, perhaps the most abundant vertebrate in most New York forests, live out their complete life cycle on land. Most people are familiar with the piercing springtime calls of the spring peeper, but are they aware that these treefrogs leave their watery haunts after the breeding season and head for the woods. Another amphibian commonly encountered in the forests of New York is the eastern newt. The bright orange-colored juvenile form of this salamander called a red eft lives on land and is easily spotted walking boldly on the forest floor. Even amphibians usually associated with wet habitats like the common green frog use forests. Research conducted in upstate New York showed green frogs often venture considerable distances from their summer habitat to seek out small streams and seeps on forested hillsides for winter hibernation sites.

Amphibians are sensitive to environmental changes, and for some species their populations are on the decline. Forest owners can help protect frogs and salamanders if they learn more about the types of amphibians that live on their property, and find out about their life cycles and habitat needs. To learn what amphibians are likely to live in your woodlot visit bookstores or libraries for identification manuals, use the Internet, and contact local nature centers for programs and information on amphibians. Armed with some knowledge you can start searching for amphibians on your property. Don't expect to find all the amphibians in your woodlot, many salamanders for example are rarely seen outside of their brief breeding season.

After you become familiar with the common amphibians in your area and their habitat preferences you can examine your property to determine how well it meets their needs. One of the easiest ways to help enhance amphibian habitat is to provide plenty of cover. The moist environment in and underneath decaying wood provides excellent cover for a number of salamanders, so leave some downed trees and large limbs behind when harvesting firewood or timber. Rock and brush piles also make good cover for amphibians. Adding logs or limbs to shallow areas of streams and ponds will enhance habitat for both juvenile and adult amphibians.

Avoid disturbing wetlands, streams, springs, seeps, ravines, and rock outcrops because they provide unique habitat for amphibians. Temporary areas of ponded water, also called vernal pools, are especially important because they provide breeding habitat that is free of fish that prey on amphibian eggs and young. Set aside a natural buffer area around these pools so they are protected from timber harvesting and recreational activities. A buffer of 50 to 100 feet wide is often enough to protect a seasonal pool. If you don't have any seasonal pools on your property consider building some.

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Many species of amphibians live in or next to small woodland streams. Set aside a buffer at least 50 feet wide to help maintain the quality of the creeks on your property. When conducting management activities like timber harvesting or trail building use care to minimize damage to streams caused by erosion and siltation. Minimize the number of stream crossings and use proper construction techniques for forest roads and trails. A professional forester or your county Soil and Water Conservation District can help you select best management practices that will help prevent serious problems.

Landowners sometimes inadvertently create hazards for amphibians. Large ruts in haul roads or trails may fill with water to create attractive pools for amphibians. If roads or trails are used by tractors or ATV's during the breeding season these pools become death traps for amphibians. Other hazards include mowing too close to pond edges and removing travel corridors between wetlands and forests.

Managing your forest to protect amphibians can be compatible with many other management objectives including timber harvesting. Just remember to take the habitat and life cycle needs of frogs and salamanders into consideration before you embark on projects that can impact their homes. For additional information on frog and salamander friendly forests visit: http://www.dec.state.ny.us/website/dfwmr/wildlife/herp/index.html http://www.cortland.edu/herp/ http://herpcenter.ipfw.edu

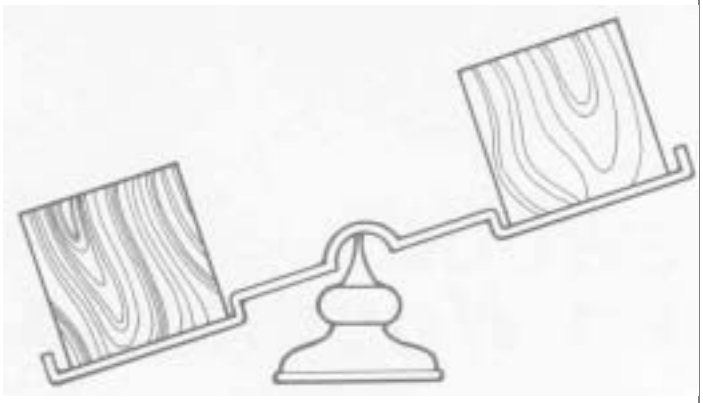
For additional information on forestland activities that will benefit your objectives, visit Cornell's forestry website at www.ForestConnect.info, contact your local office of Cornell University Cooperative Extension, or join the New York Forest Owners Association through their website at www.nyfoa.org.

Source: Kevin Mathers, CCE Broome County; Binghamton, NY

WOOD AS AN ENERGY RESOURCE

Wood is essentially a solid form of solar energy produced by the tree "factory". Leaves enable the tree to convert the sun's energy into chemical form by the process of photosynthesis. As the tree grows, energy is stored in the fiber of the tree. In nature when the tree dies and as the wood decays, this solar energy is slowly released as heat. Burning wood in a stove speeds up this process. The heat is released in a much shorter time and at a more intense level.

All wood will burn, but different woods burn at different rates. Two main factors contributing to wood's heat value are the dryness and the density of the wood. Green wood, that is, wood that has not been seasoned (allowed to dry to 25 percent moisture content), contains much water, which makes it difficult to light and keep burning. Once it does catch fire, it puts out less useful heat because some of the wood's energy must be used to boil off the excess water before the rest of the wood can burn. This lack of air and lack of heat caused by moisture produces a lot of smoke and can create a creosote buildup in the chimney.



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WOOD AS AN ENERGY RESOURCE

Pound for pound, all seasoned wood will give off about the same amount of heat when burned. Each tree species, however, builds its wood differently. Thus the densities of woods vary, and equal volumes of different kinds of wood will have different weights and different heat outputs. For example, a solid cubic foot of dry black locust weighs about 43 pounds, whereas the same volume of dry Douglas fir weighs about 30 pounds. The black locust, being more dense than the Douglas fir, has 13 more pounds worth of energy to burn. As a denser wood, it burns longer, produces more coals, and requires fewer trips to the wood box. (It is worthy to note that individual trees of a same species may vary in specific density, the differences depending on rate of growth.)

Another factor affecting the amount of heat a piece of wood gives off is its oil or resin con-tent. This factor applies mainly to softwoods because hardwoods are not resinous. Any resin or oil that is present causes the wood to burn rapidly and with a high, hot flame. These woods are usually easy to ignite.

Generally speaking, softwoods are not as dense as hardwoods. Being resinous, softwoods are easy to ignite, produce a quick flame and a lot of heat, burn out quickly, and require frequent attention. Hardwoods are generally more difficult to ignite and burn less vigorously with a shorter flame, but last longer and produce more coals than softwoods. An ideal fire can be started with resinous softwood and kept at a slow, heat-producing burn with dense hardwood.

Other characteristics of wood that affect its desirability as firewood include ease of splitting, ease of ignition and burning, extent of smoking, aroma of the smoke, extent of sparking, and coaling qualities. These characteristics are determined by the structure of the wood. Wood with straight grain splits easily; wood with interlocking grain is next to impossible to split. The presence of moisture pockets in a piece of wood decreases the heat value. Wood from a particular pine tree that is more resinous than normal for that species will have a higher than normal heat output. Some wood, such as decaying wood, light-weight wood, or any other wood that you can stick your thumbnail into, is most likely not worth preparing for the amount of heat returned (see table 1 on page 11).

MEASUREMENT UNITS OF FUELWOOD

Fuelwood is measured in various ways. The traditional unit of measure is a standard cord, which is a well-stacked pile of logs 4 feet (1.22 m) wide, 4 feet (1.22 m) high, and 8 feet (2.44 m) long. Including air, the content is 128 cubic feet (3.58 cu m), although the volume of solid wood is only about 80 cubic feet (2.24 cu m), the amount depending on the size and crookedness of the wood pieces. If a cord is cut into shorter lengths and restacked, it will occupy less space because many of the crooks are eliminated. A tree with a base 12-14 inches (30.5-35.6 cm) in diameter will yield about one-half cord.

Wood may be sold by the standard cord or by the face cord. A face cord appears the same as a standard cord - it is 4 feet (1.22 m) high and 8 feet (2.44 m) long , but the log length can be anywhere from 2 feet to 12 inches (0.6-0.3 meters). When sold, the length of the wood must be specified. Approximately 155 pieces of wood are in a face cords. A unit of wood is approximately 1/24 of a standard cord and will fit into a car trunk or a station wagon. See figures on page 12.

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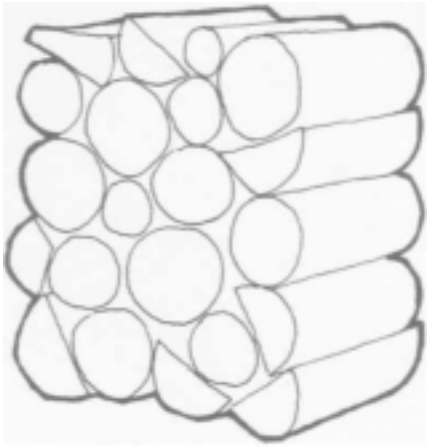
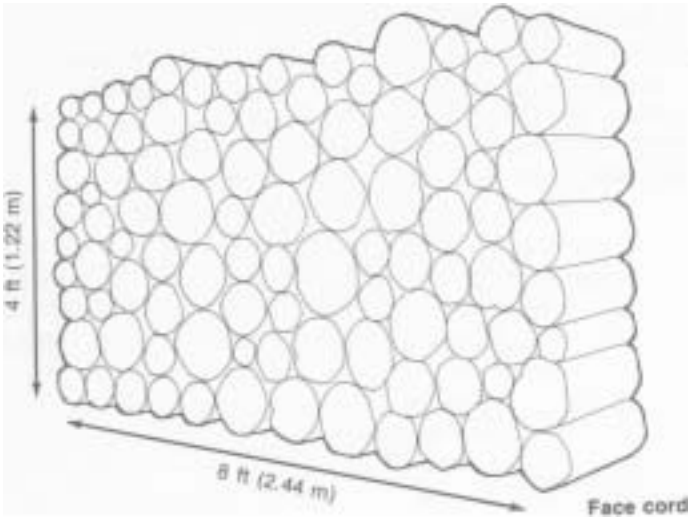
Table 1. Some Commonly Burned Woods

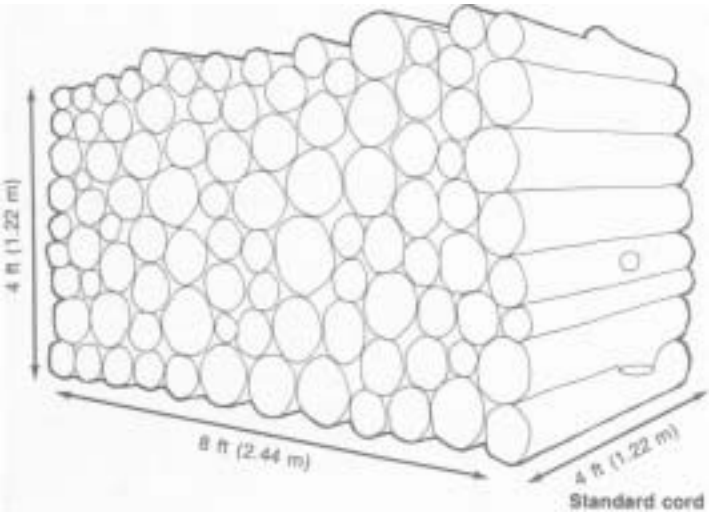
Species	Ease to split	Ease to start	Heavy smoke	Sparks	Heat value	Coaling qualities	Other Characteristics
1 cord = about 1 ton of anthracite coal							
Apple	Tough	Poor	No	Few	Best	Excellent	Good aroma
Beech	Tough	Poor	No	Few	Best	Good	Seasons readily when
Hickory	Fair to tough	Fair	No	Few	Best	Excellent	Green Hickory good for smoking meats
Ironwood	Tough, make sure	Poor	No	Few	Best	Excellent	
White Oak	Tough	Fair	No	Few	Best	Good	
Black	Tough	Poor	No	Few	Best	Excellent	Make good fence post
1 cord = about 9/10 ton of anthracite coal							
Ash	Easy	Fair	No	Few	Average	Good	Best of all wood t burn
White Birch	Fair	Good	No	Moderate	Average	Good	Must be split to avoid
Yellow Birch Fair	Fair	Good	No	Moderate	Average	Good	Must be split to avoid spoilage
Sugar	Fair	Poor	No	Few	Best	Excellent	Excellent fuel; sap used
Red Oak	Fair	Poor	No	Few	Best	Excellent	
1 cord = about 8/10 ton of anthracite coal							
Red Maple	Fair	Fair	No	Few	Average	Excellent	
Tamarack	Easy	Good	Medium	Few	Average	Good	
Willow	Fair	No	Few	Average	Poor		
1 cord = about 6/10 ton of anthracite coal							
Aspen	Easy	Excellent	No	Many	Poor	Poor	Burns quick and hot
White Pine	Easy	Excellent	Medium	Many	Poor	Poor	Good Kindling
Norway	Tough	Good	Yes	Moderate	Poor	Poor	



Unit = 1/24 standard cord



Face Cord



Standard Cord

The heat value of a cord varies with the density and dryness of the wood; but, in general, a standard cord of several seasoned northeastern hardwood tree species has the same heating value as 1 ton of hard coal or 200 gallons of fuel oil. Such a cord, in other words, has approximately a gross value of 28,000,000 B.T.U. (B.T.U. = the amount of energy required to raise the temperature of 1 pound of water by 1 degree Fahrenheit (1 Kilocalorie = the amount of energy required to raise the temperature of 1 kilogram of water by 1 degree Centigrade).

FIREWOOD HARVEST PLAN

If your supply of firewood is in a area where the trees have not been marked for cutting, you should develop a plan for selecting which trees to harvest. Remember that your operation will influence the growth and composition of the future stand. Try to visualize how your cutting will affect the remaining stand of trees. Haphazard cutting can reduce the quality and value of other forest resources such as timer, wildlife, aesthetics, and recreation found in that particular stand. In the past, people have tended to cut the straight, well pruned trees for firewood because these trees split more easily than their crooked, limby neighbors. This practice of high grading has left many wooded areas with a supply of poor quality commercial timber. The increased interest in wood fuel provides an opportunity to correct some of these past mistakes.

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A plan for cutting is important to ensure that the stand is not over cut and to maintain the renewability of our forest resource. The United States is fortunate to have a large amount of forested lands available for wood production, but the amount is limited and even decreasing in some areas. Cutting for firewood should be done in such a way as to ensure reproduction of desired tree species, continued growth of the forest, and minimal environmental disturbance. If properly managed, most of our forested lands are capable of producing 1/2-1 standard cord of firewood per acre yearly forever.

In many other countries not so fortunate as ours, the search for fuelwood has been extreme and has led to destructive deforestation of large areas. When fuelwood is not available, people burn crop residues and animal wastes, which could be used instead to maintain agricultural productivity. The productivity of their land is also lost through erosion caused by the lack of forest protection. Careful planning can avert these extreme problems.

The key to a good firewood harvest plan is to keep in mind what resources the owner desires from his/her woodlot. As you remove trees, you will influence the species, the form, and the spatial arrangement of the remaining vegetation. Good management can enhance the production of such desired forest resources as timer, aesthetics, wildlife, and recreation.

TIMBER

Certain species of trees are commercially more valuable than others. For example, in the Northeast the most valuable species for log production include yellow birch, black cherry, red and white oaks, and hard maple. Black locust, an excellent firewood, may be worth more if sold instead as decay-resistant fence posts. These commercially valuable trees are the species to avoid cutting firewood unless they are deformed or are crowding the forest.

Tree form affects commercial worth. Tall, clean-boled, straight trees make high-quality lumber and should be left to grow. Select among those that are crooked, partially rotten, damaged, or insect-ridden to cut for firewood. Remember as you choose, however, that these trees may be of value in other ways. If they are providing homes and food for birds and other wildlife, or if they have an aesthetic appeal to the owner, you may not wish to remove all of them.

Trees need room to grow at their maximum rates. Northeastern forests are generally stocked with an overabundance of young trees. The results are stands of thin, slow-growing, low-value trees that compete for light, water, and nutrients. Many of these trees will eventually die as they get crowded out. Periodic thinning of young stands permits the more desirable trees to grow rapidly throughout their lives. A greater volume of wood will be produced on larger, high-quality trees in less time than if the stand were not thinned. Your firewood harvest can be the application of thinning.

When deciding which trees to cut for fuelwood, you should mark the trees to be left with flagging or chalk. A general rule of thumb is to select a timber crop tree every 4.5-6.1 meters (15-20 ft). The distance will depend upon the species composition of the forest. Check with your local forester for advice on spacing. The crop tree should be of a valuable species and of good form - straight and tall with relatively small branches. It should be a dominant or codominant tree. A dominant tree has its crown above most of the other trees in the stand. Codominant trees make up the general uppermost crown level of the stand.

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For good growth, the crop tree needs 0.9-1.2 meters (3-4 ft) of open space on at least two sides of its crown. Remove for firewood those trees that are touching the crown of your crop tree. Walk through the stand in systematic parallel lines and mark trees as you go. Because ideal crop trees are not evenly spaced., you will end up with some holes and some areas of crowding. In cases where there are no ideal crop trees nearby, you will have to settle for a second or maybe even third best. An average 6-meter (20ft) spacing will give you about 247 trees/hectare (100 trees/acre).

AESTHETICS

Like beauty, aesthetic quality is in they eye of the beholder. General components of forest aesthetics include species composition, form, and spatial arrangement of vegetation.

Forests are composed of either a single tree species or of a mixture of tree species. The aesthetic appeal of a forest stand is influenced by the physical appearance of the particular tree species within it. For example, a forest of strictly redwoods or whites pines may be breathtaking, whereas a forest of mixed hardwoods is pleasing in its diversity and is striking in the fall.

The form of trees individually or in a stand also has an influence on the aesthetic value of a forest. A massive, gnarls, multiforked wolf tree has a character that may be appealing to some people. Other people may find a stand of straight, tall, uniform trees pleasing to view.

Forests will vary as to how the vegetation is arranged within them. Some forests are even aged, all the trees being of approximately the same height and size. Some forests are many layered, having trees of all sizes. Forest vegetation may be scattered about fairly evenly. More commonly, the vegetation will be grouped, some open spaces being left. Trees may be cut to complement a nice view or may be left to hide an offensive sight. The spatial arrangement of a forest's vegetation will influence the eye of the observer and will affect the aesthetic quality of the forest.

As you remove trees for firewood, you will change the species composition, form, and spatial arrangement of the remaining vegetation. You should, therefore, discuss with the landowner what characteristics make the land aesthetically pleasing to him or her. Your firewood harvest can be designed to enhance these specific qualities.

The neatness of your job also influences the visual beauty of the forest. Branches and other debris can be unsightly if not properly reduced and piled. Using heavy equipment or working on a wet soil can tear up the forest floor and leave an offensive sight. If the firewood operation is done neatly, you will leave a good impression with the landowner and will most likely be welcomed back next time.

WILDLIFE

The creation of diversity is perhaps the most important thing that can be done to enhance the wildlife resource of a forest. The tree species, the form of the trees present, and the pattern of cuts influence diversity. See figure below.

High diversity Low diversity

Continued on page 15

Forest wildlife rely on different tree species to meet their requirements for food. Oaks, beeches, maple, and other mast-producing trees provide food for animals such as turkeys and squirrels. Aspen buds are a favored food of ruffed grouse.

The form of trees also affects the wildlife population of a forest. A stand of trees that is uniform in height and size will attract only a small variety of animals. A multilayered forest will provide many more homes an feeding and singing stations for wildlife. Hole-nesting birds and denning animals find their homes in hollow trees and snags. These types of trees can be left as wild life enhancement.

Size and pattern of cuts influence the number and types of wildlife to be found in a wooded area. A dark, dense forest is often zoologically poor. Cutting fire wood in patches large enough to let sunlight onto the forest floor will encourage the growth of shrubs and forbs favored by deer, bear, and other wildlife.

A firewood-cutting operation can be planned to encourage the specific kinds of animals a wood-lot owner may desire. By creating diversity with your harvest, you can increase the variety and numbers of the general wildlife population found in a woodlot.

RECREATION

Firewood harvest can complement certain types of forest recreation on private properties. Trees for firewood can be removed to create a planned system of trails for hiking, skiing, or running. By cutting trees in a patch, you can provide access to these areas some trees may need to be removed. Be sure to consult with the property owner about the types of creation she or he desires and the location for the activities on the land.

Private forest owners may desire other benefits. They may wish for their woodlot to produce several resources at the same time (multiple-use). some resources are compatible - that is, they can produced on the same piece of land at the same time. Aesthetics and wildlife may, in some circumstances, be considered compatible resources. The diversity that is aesthetically appealing to some persons can also attract a greater variety of birds and other wildlife to the area. On the other hand, some persons prefer the sight of uniform and pruned trees planted in rows. They may find the brush and dead trees left for wildlife to be unappealing. In this case, aesthetics and wildlife are incompatible.

Another incompatible combination might be timer production and wildlife. The multiforked, hollowed trees, which some animals may den in or make nests in , would be the first trees to be removed for strict commercial timber production. Sometimes, incompatible uses can become compatible if modifications are made. If a few snags and den trees are left and (or) wooden nest boxes are provided for the wildlife, timber production can continue, though at a lower rate.

Discuss the compatibility of the resources the owner desires. Consider how you can enhance the production of those resources by a carefully planned firewood cutting operation. Before cutting any wood, get a clear idea of what the owner wants from the woodlot and follow it. Likewise make sure she or he understands exactly when, where, and what you plan to do. A written agreement is always better than a verbal verification.

Source: Wanda Richberger and Ronald A. Howard, Jr. New York State College of Agriculture and Life Sciences. A Statutory College of the State University, at Cornell University

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