

New York

Forest Owner

January - February 1978



Balsam Oil

THE NEW YORK FOREST OWNERS ASSOCIATION

Wood Heat Boom Boosting Trailer Rentals

from the Utica
Observer-Dispatch

Portland, Maine (AP)—The growing popularity of wood heat is leaving its mark on a seemingly unrelated business—trailer rentals.

Companies such as U-Haul, Taylor Rental and Handyman Equipment Rental say many customers have been renting small open-topped trailers this fall to haul newly purchased firewood to their homes.

By traveling 20 miles and picking up their own wood, customers can save about \$30 a cord. Wood sellers in the Portland area have been charging about \$70 for a cord of dry, split hardwood.

The rental agents say most customers are renting small trailers, which require at least two trips to move a full cord of wood. A cord of seasoned maple weighs about 4,000 pounds.

In the Lewiston area, so many people are hauling firewood that two rental agencies reported that their trailers were booked solid for two successive weekends.

An agency in Biddeford said some people are even renting trucks to haul wood, and that most of the activity takes place on weekends.

Wood heat has become increasingly popular in Maine, where many homeowners have purchased cast iron stoves in an attempt to beat the high cost of heating oil.

CHRISTMAS TREE GROWERS WINTER MEETING

The New York Christmas Tree Growers Ass'n. winter meeting was held Friday, January 6, in Marshall Hall at the College of Environmental Science and Forestry in Syracuse. Some of the topics selected were *Pests in Christmas Tree Plantations* by Dr. George Hudler, Professor at Cornell University. He also gave a report on the *Scleroderris Canker Outbreak assisted by Dr. Wayne Sinclair, Cornell University; Dr. Larry Abrahamson, College of Environmental Science and Forestry, Syracuse, NY; Rural Lane, Director of Div. of Plant Industry, Dept. of Agriculture and Markets, and Paul Manion, College of Environmental Science and Forestry, Syracuse. In the evening there was a Seminar on Marketing of Christmas Trees: retailing and wholesaling, The Legal Aspects of Land Management; by Dr. Allen Horn of the College of Environmental Science and Forestry. Dr. Claude Heit, retired seed specialist, from Geneva Experimental Station in Geneva, New York and Mr. Guy Cockburn Outstanding Christmas Tree Grower from Garrison, New York spoke on Seed Sources. Soil Testing and Fertilization by Prof. Earl Stone, retired professor from Cornell University, and Weed Control Practices On A Christmas Tree by Dr. Savel Silverborg, Retired Professor from the Forestry College in Syracuse.*

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C. Eugene Tarnsworth

Message from the President

As we end 1977 and begin 1978, the New York Forest Owners Association begins preparations for the April annual meeting. We will elect a new group of directors in the interval preceding our meeting, and those elected will undertake their duties at that time. The search for qualified candidates is now underway. We are particularly interested in finding candidates from among our membership who are not presently directors and who have not previously served as directors. If any member of our association is interested in becoming a candidate for director, we would like to learn about it. It is entirely appropriate to send us your own name, and we will respond with additional information.

During the past year, the Board of Directors has reviewed our system of by-laws. Bob Sand has served as chairman of an *ad hoc* committee to edit them into a more compact form. One section (Trust Property Management Board) has been

significantly revised to express the scope and objectives of the Association in this new area of activity, but the remainder of the by-laws are essentially unchanged. The amended by-laws will be voted on at the annual meeting in April. A copy of the revised by-laws is provided in this issue of the "Forest Owner." Please review it and be prepared to vote at the meeting.

A rather new project is being undertaken in the interest of providing more complete information to our members and to other forest land owners. Responding to stimulation by Wallace Wood, an Association member who lives in Rochester, we held a meeting to determine whether a forest owner workshop could productively be held in Rochester in April 1978. Representatives of the Cooperative Extension Office in Rochester, the State Extension Forester, the Department of Environmental Conservation, the Forest Practice Board, the Applied Forest Research Institute of the College of Environmental Science and Forestry, and the NYFOA met in Rochester in late November and are proceeding with tentative plans for a workshop in Rochester on April 1, 1978. As plans develop, details will be sent out to our members who live within a reasonable travel distance. We have sponsored meetings of various types previously, and we hope to be instrumental in encouraging other activities that would be of interest and benefit for our members. If any of our readers have suggestions of additional ways your Association could serve forest owners more effectively, we would be pleased to have them.

DEER BROWSING DAMAGE CONTROL

by Robert Shay
Environmental Ed. Center
Sommerville, N.J.

Is this year for the deer? The foundation plantings around your home may be discussing this question quaking with apprehension and fear. An all too common occurrence in Somerset, Morris, and Hunterdon counties has been the increasing incidence of deer marauding shrubbery. This situation is especially acute in the fringes of the Great Swamp where several hundred deer are hemmed by suburbia in an area less than twenty square miles. Since the food supply in this area often becomes depleted to the point where effort exceeds caloric reward, deer herds turn to the "easy pickens" of lush, well maintained landscape plantings.

Besides reduction of the deer herd by selective hunting or chemically through birth control what options are open to the homeowner anxious to protect his expensive, aesthetic plantings? One can always screen off a tree with six to eight foot wire farm fencing tri-cornered placed roughly three feet beyond the drip line. Certain plants can be wrapped in burlap which then has the dual purpose of windburn protection. Other plants tolerant against windburn can be surrounded with hardware cloth or chicken wire. Snow fencing, old shutters and a host of other homemade barriers protect against deer and snow-ice damage.

A relatively recent approach to discourage deer "shrub predation" is employing chemicals. Deer repellent chemicals can be purchased from hardware stores or farmer cooperatives and are moderately successful, though fairly fre-

quent applications are necessary making this method of treatment somewhat expensive. Another product which is not a deer repellent is antidessicant spray which in actuality deposits a very thin plastic-like layer over plant surfaces which retard moisture loss. This product is used for newly transplanted shrubs and for winter protection for plants especially susceptible to windburn like broadleaved and regular evergreens. Deer are especially repulsed by antidessicant because the material covering the plants accumulate in their mouth making for unpleasant eating. Whether this is actually the case or not, the end result is the same, plants sprayed with antidessicant spray are virtually left alone.

Planting varieties not as attractive to the Virginia whitetailed deer pallate is also a method of discouraging deer. Species of yew, juniper, and dogwoods are subjected to severe browsing and should be protected. Fruit trees, especially apple seem choice delicacies for deer. With some modest preparations many of your specimen plants can be saved defacement. Often small trees once protected for several years grow above the deer browse lines and no longer need protection. They made it!

DUES

DUES ARE DUE in March. Statements will be mailed in February. Your check made out to N.Y. Forest Owners Assoc. will be your receipt unless you include with your payment a SASE.

Oil from Balsam Fir

by William W. Ballagh, Lowville, NY

Oil from balsam fir has long been used in medicines, perfumes, microscope slides, varnishes, etc. It is a mixture of essential oils.

Synthetic mixtures, chemically equal, might cost one-tenth as much but lack the physical properties. A drop of balsam oil will hold the same essence for hours.

Combining balsam oil harvest with Christmas tree and pulp production offers a good chance to improve the economics of land ownership.

We visited some of the several oil extracting stills across northern New York, New England and Canada. They are small family-sized units operated occasionally as time and convenience calls. A farm family may use a neighbor's still or may draw the boughs up to 50 miles. Rentals, where charged, are \$10.00 to \$20.00 per batch of one to three tons. A still owner may be a commission buyer for a jobber.

White cedar oil and balsam oil are the usual products of these stills. Cedar oil at the time of our visits sold f.o.b. from \$7.00 to \$12.00 per pound with balsam oil about two-thirds as much. There seems to be very little market for oils of spruce, hemlock or pine boughs.

The history and use of these oils form an interesting story that we must forbear here.

Balsam oil is gathered by steam stripping from the needles and boughs of the tree. A thicker sticky mass called balsam gum is usually gathered by puncturing and draining blisters in the bark of the tree trunk. By steam extraction gum yields 20% to 80% oil.

We made rough estimates of the

time used by all members of some families cutting boughs and processing them through stills. Returns for labor centered near 50 to 75 cents per hour with no allowance for use of farm tractors, wagons and trucks. No charge is made to a neighbor who cuts boughs to clear pastures or clean up behind fence post or pulp cutting. Therefore, we set out to find efficiencies that could make the operation commercially attractive and yield a return to the woodland owner.

We used an electric hot plate and a twenty quart pressure cooker rigged with a copper tube in a pail of water cooled by a garden hose to run tests on ten pound samples of balsam fir. We also set up a 5-foot by 6-foot retort with a boiler for steam and water from a pond for cooling a condenser to run 2 ton batches. The steam from the pressure cooker goes through the condensing coil into a burette where we measure water drawn off the bottom and measure oil on top of the water. In the large retort, steam from the boiler comes up through the boughs and down through the condenser to a separating vat. Water runs out the bottom of this vat with oil drawn or skimmed off the top.

Records were made of many samples tested from different parts of trees, different aged trees, different growing conditions and different handling methods. Various harvesting methods were tried and imagined. The psychological attitude of farmers, loggers and pulpers towards handling methods was appraised. The many variations encountered would require much more research to meet scientifically acceptable conclusions. More

important is the preliminary conclusions indicated for an economic enlargement of the business. For lack of space here we will skip the details that formulated these conclusions, use average or representative figures, and grant that any variable circumstance could have a corresponding influence on the results.

Results

Tips of the last three years' growth on young vigorous balsam trees yield about 1.5% oil. From these same boughs the growth 4 to 7 years before, still carrying some needles, grosses weight one third as much as the 3 year tips, and yields 40% as much per pound. The bark, with no needles, from stems and the bole up to 3 inches diameter has a gross weight nearly one third of the 3 year tips and yields 20% as much oil per pound. Stripped wood has no measurable oil. Young trees in shade and crowded conditions yield considerably less oil.

Tops out of 50 to 70 foot trees that are dense and bushy yield only 50 to 60% as much oil per pound as young trees. This is growth that is biologically capable of producing seed cones and pollen where young tree growth cannot. A biochemist might explain why this lower oil percent occurs.

The percent oil in balsam is higher in the fall and winter than in the early spring to summer.

When cut trees and boughs dry openly the percent water content drops faster than the oil content. However, boughs piled in dense bundles or chipped into a heap start to heat and lose oil more rapidly than water.



Visitors inspect the condensing unit of a balsam still. Part of the retort for steaming boughs shows on the right.

Boughs must be packed uniformly in the retort so steam will not channel up through. Increased amount of steam hastens oil extraction but more pressure or heat does not have much effect except as it might involve more steam.

Boughs harvested to pencil size and smaller twigs pack well in the retort especially with a little steam while treading in. Time required for this type of harvesting is sometimes reduced by putting finger size and larger stems through a silage cutter. Broken and twisted cutters testify the machines were not made for this use.

We rented a chipper to chip and blow boughs into the retort. This works very well and would facilitate a mechanical unloader in place of the hand fork.

Chipping large stems and tree boles up to 4 inch diameter offers a quicker way to bring boughs out of the woods than fiddling with small tips. The extra weight of these larger stems directly reduces the yield per pound but the volume is only a little more than tips alone.

Ideal handling could be chipper loading of trucks for long transport but fermentation immediately starts in

chipped boughs so it should be done just before steaming.

Tree tops and boughs pushed into piles by skidders become too entangled to be handled afterwards. Because of soft and rough ground in balsam tracts there are very few large operations where other equipment can follow a skidder to salvage boughs. Balsam trees will not drag far without losing the boughs. Short of expensive redesigning of a skidder it seems practical to hand bale tree tops and boughs in large slings that can be dragged out of the woods and loaded on trucks. In small woodlots and farms, where wagons or sleighs can be used, tree tops and 50 pound bundles of boughs can be loaded by hand.

The value of balsam growth per year per acre is less for oil than for Christmas trees. Utilization for oil offers a chance to salvage 25 cents or more per culled tree at the roadside. The value of one acre of annual growth of balsam boughs for oil piled at the roadside far exceeds the value of equivalent growth for pulp piled at roadside. Many years growth can be accumulated in standing pulp. Relatively few years growth can be accumulated in boughs for oil.

Investment in an efficient plant could involve one to four hundred thousand dollars. At present oil prices this would be profitable if we paid pulp growth rate value for balsam boughs, \$2.00 per hour for family labor and a modest allowance for tractors and wagons. Getting an adequate supply from families that have access to balsam for this size plant might be difficult in competition with current social programs and incomes.

Commercial pulpers could supply an adequate flow of boughs for winter months and perhaps more if we can perfect the handling methods so as to budget \$4.00 to \$6.00 per hour for labor. This is a dream not yet accomplished.

Market demand can be expanded where commercial users can be assured that a continuing supply will be available for a product they would develop. Shrewd bargaining can probably raise price a little to close the commercial pulper's cost gap and to stir more enthusiasm in family labor.

Mr. Ballagh can be contacted at 7717 West State St., Lowville, NY 13367.

SELECTION

CUTTING—

A PAN

by Robert R. Morrow

Department of
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Individual or single tree selection is a popular method for harvesting trees. Many people are more concerned with the aesthetic aspects of forest harvest than sustained yield of a renewable resource. To them, selection is the antithesis of clearcut; therefore, it must be good. Environmentalists have gained favorable status for selection methods in National Forest legislation. Service foresters have often espoused selection cutting as best for the owners of small woodlands, citing arguments that are seldom valid today. Even unscrupulous loggers find selection harvest suitable. What other method can be so easily interpreted to permit taking the biggest, best, and most profitable trees while leaving the junk for another generation?

Selection harvest is viewed with favor by many different people for various reasons. But is it really a panacea?

Management Systems and Harvesting Methods

Sustained yield is a central objective in the management of most forests. It is obtainable by either even-age or all-age management systems.

Even-age forests contain stands with trees of nearly the same age (within 20 years) and crown level. There should be a series of stands, ranging in age from new seedlings to mature trees. Harvesting and regeneration of the oldest stand causes it to become the youngest. Suitable thinning of the other stands encourages growth into larger size classes. Thus distribution of tree sizes and ages is achieved, allowing sustained yield. Even-age manage-

ment has fallen into some disfavor because of large-area clearcuts that have not always provided enough age class representation or suitable regeneration. Faulty application of a management system should not be mistaken for a faulty system.

In all-age forests a single stand should contain trees of all ages, ranging from seedlings to mature trees. This ideal rarely occurs and usually only a few age classes are found in any stand. Therefore all-age management is often called uneven-age management. Harvesting the few big and mature trees is equivalent to the retirement of top executives from a corporation. Theoretically middle executives move to the top and junior executives replace them. At the other end the youngest stock boy may be promoted and a new one hired. Unfortunately it doesn't quite work this way, as many people are not sufficiently well-trained, tolerant, or competitive to be promoted. As we shall see, it is very often the same with trees.

Harvesting and regeneration are the keys to sustained yield by either even- or all-age management. Typical harvest and regeneration methods can be briefly summarized, as follows:

Individual tree selection—Individual or adjacent trees harvested, leaving very small openings. Useful only for long-lived, tolerant trees that can reproduce and grow in considerable shade.

Group selection—Groups of trees harvested, creating openings often ranging from 0.1 to 0.5 acre. Useful for several intolerant species, if openings are sufficiently large, as well as for tolerants.

Shelterwood—Two or three harvest stages, thus: (1) A preparatory cut to open the stand and encourage advanced

reproduction, (2) A shelterwood cut, often leaving about half the crown canopy (usually the bigger trees) to provide more seed and protection from frost, wind, sun, etc., and (3) Removal of residuals. Useful for most species and exposed sites. Harvesting residuals while minimizing damage to new stand can be a problem.

Seed tree—Often about 20 seed trees per acre are left to provide regeneration. Especially useful in pine stands with insufficient initial reproduction.

Clearcut—All trees removed and replaced by natural or planted regeneration. Especially useful for the more intolerant species, over-mature stands, and stands with a great deal of cull resulting from previous "high grading" or disease. Patch (as little as 0.5 acre in size) and strip clearcuts commonly are preferable to large-area clearcuts.

Note that the principal difference between these methods is in the openness of the stand following harvest. All-age management requires species tolerant of shade and is promoted by individual tree selection. Even-age management is applicable to all species and is promoted by shelterwood, seed tree and clearcut methods. Group selection is often associated with all-age management, but can be used to promote even-aged groups of intolerant as well as tolerant trees within forest stands.

Problems with Individual Tree Selection

The first problem with the individual tree selection method is that it has only limited applicability. *Its success requires tolerant species.* This excludes many of our most valuable eastern hardwoods - white ash, tulip poplar, black cherry, basswood, birches, oaks,

CEA FOR NORTHEASTERN FORESTS?



and so on. Numerous long term experiments show that sustained application of selection cutting reduces the number of these intolerant species and leads to a more simple forest of maple, beech, and sometimes hemlock.

The *second* problem is more subtle and less well known. Roach has pointed out that harvesting the few mature trees is not enough to make the selection method work. It is also necessary to thin in *all* the lower age classes - including small poles and saplings. Of course this has not been done; it is too expensive. With increasing labor costs, the Scandinavians and others have largely given up the individual tree selection method because *it is too costly*.

Sugar maple is one of the most prominent as well as one of the most tolerant trees in the eastern forest. It is able to live in the shade, but does not continue to grow there. It is commonplace to see thousands of seedlings, a foot or so tall, existing for decades without significant growth in unthinned stands. Saplings often become suppressed, making only enough photosynthate to cover the cost of respiration. Taller trees become deformed or flat-topped as they are unable to grow into unthinned canopies. After a selection harvest, these old, slow, and sometimes deformed trees are poor candidates for succeeding crops.

Even the very tolerant hemlock has difficulty growing in its own shade. Younger age classes seldom occur under hemlock overstories, except under conditions of ecological disturbance or mortality. Unfortunately, beech and hop hornbeam, usually undesirable species, appear to be most capable of succeeding where the individual tree selection method is applied without suitable thinning in the lower age classes. Examples of their

success are too commonplace. Presence of abundant deer, which prefer more valuable species for browsing, enhances the growth of beech and hornbeam.

The *third* problem with individual tree selection relates to the kinds of forests now available. Many northeastern hardwood forests are a result of very heavy cutting, including clear-cutting, for sawlogs, charcoal, or other products late in the last century. Thus they are already essentially even-aged stands, or sometimes two- or three-aged where unmerchantable beech or other undesirables were left. The continued imposition of individual tree selection harvests on those even-aged stands amounts to little more than "high-grading," and will eventually greatly reduce the sustained yield of quality wood.

Getting Back to the Middle of the Road

Recent debates about American forestry have featured two grossly divergent harvest methods - clear cuts and selection cuts. The middle road has been nearly forgotten. Research is somewhat limited, but the evidence suggests that group selection, shelterwood, and patch or even strip clearcut harvests deserve more trial and use, especially in the Northeast. They certainly offer more flexibility in obtaining most forest objectives.

There will be some additional costs. Group selection is not well-suited to the record-keeping needs of large industrial forests. But, if applied with imagination, it can achieve many satisfactions for the owners of small forests who own 60 percent of this country's forest land. Residual harvest in shelterwoods is costly, but it can be accomplished with some of the smaller skidding equipment while leaving most of the new stand intact. Patch clearcuts are adaptable to bigger firms as

well as small. Size and shape of openings can be adjusted to fit the purposes. Small openings or strip cuts may be more suitable for wildlife habitat. Large openings may reduce harvest costs as well as the proportion of edge trees whose value may be reduced by epicormic branching.

In northeastern hardwood forests, abundant deer pose a regeneration problem regardless of the harvest method. One solution is to make an adequate thinning (similar to the preparatory cut in a shelterwood) several years ahead of maturity to stimulate suitable reproduction prior to harvest. Where deer are abundant or browse is inadequate, suitable reproduction means an adequate number of desirable stems with terminal shoots above browse level.

For most species, seedling reproduction is preferred over sprouts. Pre-harvest thinning can promote germination and growth of seedlings. To avoid sprouting from cut stumps, they can be sprayed with kerosene or fuel oils.

Compartment and Even-Age Management

Of course group selection, shelterwood, and patch clearcut methods promote even-age growth. But this need not mean large areas of forest with little diversity. In an earlier paper, I argued for a return to forest management based on the use of relatively small compartments or management units. The use of small compartments encourages establishment of forest priorities, integration of multiple uses, work planning and motivation, and more diversity over all of the forest. The use of group selection, shelterwood, and/or patch clearcut harvest methods fits appropriately into the compartment system and is workable for the owners of small 40 acre woodlots as well as those with larger forests.

Energy Conservation Tied to Forests

by J.P. Lassoie Cornell University

Throughout the United States we are being faced with periodic energy shortages and escalating fuel costs. We are slowly realizing that our fossil fuel resources are limited and that alternatives must be considered. Though not an alternative, energy conservation has long been seen as a means of slowing the consumption of nonrenewable natural resources such as coal, oil, and natural gas.

Since the days before Gifford Pinchot, the first chief of the U.S. Forest Service, the practice of conservation has also been advocated for our forest, one of our few *renewable* natural resources. Even though forests are a very important economic, aesthetic, and ecologic resource, they are constantly being subjected to various pressures as our population and economy continue to grow. These pressures undermine the natural functioning of forest ecosystems.

The continuing loss of functioning forest ecosystems and the energy crisis are inseparably linked together. Hence, the conservation of natural fossil fuels is closely related to the conservation of natural ecosystems, as was recently stated by F.H. Bormann of Yale University's School of Forestry and Environmental Studies, in the December 1976 issue of *BioScience*.

Important Resource

With the increased interest in solar energy research, it is ironic that we often forget that nature provides us with a means to collect and store solar energy—photosynthesis. In this biochemical process, water and carbon dioxide combine to form high energy sugar compounds, thus "storing" a portion of the sunlight energy necessary to drive this reaction. All higher animal life is dependent upon

the ability of green plants to store solar energy.

Photosynthesis is relatively inefficient as less than 1 per cent of the solar energy is actually captured. However, the total amount on an area basis is very significant. For example, a hectare (2.47 acres) of northeastern deciduous forest annually converts the equivalent of about 14 times the amount of electrical energy used by an average American household in 1 year! Only recently of this stored energy by burning firewood; the rest ends up as valuable wood products or is left in the forest to decompose.

Forests are important to the economic and social well-being opportunities that they provide. In addition, wood products, either fiber or chemical derivatives, are used throughout society. These products are especially valuable, because wood is a renewable natural resource that is produced with relatively little pollution compared to its non-renewable substitutes. Revenues from wood and its products account annually for about 2 per cent of the gross national product.

The ecological and environmental functions of natural forest ecosystems are extremely complicated and often are neglected for their economic functions. This is unfortunate as forests exercise considerable control over regional and local patterns of climate, hydrology, circulation of nutrients, erosion, and the cleansing functions of air and water; as well as over the status of streams, lakes, and underground water supplies (see figure).

Pressures on Forests

Though the value of forest ecosystems is readily identified, they are under increasing pressure from current land use decisions associated with

our technological-industrial-urban development. At best, these pressures result in ecological functioning of the forest ecosystem; at worst, their complete destruction. Pressures on the land surface arise from a combination of urbanization and transportation, mismanagement, and air pollution.

Annually, urbanization and transportation needs convert 740,000 acres of rural land for other uses. Such conversion primarily occurs peripheral to expanding urban centers where a variety of environmental stresses associated with industries, homes, highways, and related activities radiate outward into surrounding forest lands.

Mismanagement of our natural resources has characterized the development of the United States. Forests have been no exception. The progressive exploitation of this valuable resource marked the march of American frontiersmen from the Atlantic Seaboard to the Pacific Coast. Even today, many forests are inappropriately managed and harvested resulting in long-term degradation of the forest's potential. This is indeed unfortunate as ecologically and economically sound management techniques are currently available that do not cause significant damage to the forest ecosystem, while still providing an adequate supply of timber and wood products forever.

Air pollution is a newly recognized pressure on the forest ecosystem and is one that is complex and difficult to adequately assess. The northeastern portion of the United States is potentially very susceptible to air pollution damage, owing to its particular regional weather patterns and large metropolitan centers.

In some areas of North America, air pollution has been so severe that entire ecosystems have been destroyed. In other areas, only pollution-sensitive

plants are lost, and a change in the vegetation comprising a forest ecosystem occurs. The ecological impact of such a shift in species composition on total ecosystem functioning is difficult to document and is as yet undetermined. In addition, more subtle effects, such as reduced growth, reproductive potentials, and deco osition rates; and increased insect and disease susceptibility are even more difficult to assess. However, these effects are potentially the most dangerous in the long run.

Inseparable Link

As forests are destroyed, or radically modified, their economic, social, and ecological functions are similarly lost or reduced. In order to maintain the same quality of life, these functions must then be replaced by extensive and continuing investments of fossil fuel energy. Replacements must be found for wood products, erosion controls must be built, reservoirs enlarged, air and water pollution technology improved, flood control works improved, air conditioning increased, and new recreational facilities must be provided.

These substitutions represent an extreme tax burden and a constant drain on the world's energy supplies. The greater demand for these resources in turn causes further pressure on the remaining forest ecosystems, which results in still more consumption of fossil energy to replace lost natural ecosystem functions.

An active energy conservation program in the United States serves 2 main purposes. First, there are the benefits associated with slowing the consumption of non-renewable energy sources. This is not a solution to our long-term energy needs, but such measures can buy the time necessary for the development of ecologically sound alternatives. Equally important is that the wise use of these resources helps to conserve natural forest ecosystems with their numerous human benefits.

Since they are inseparably linked, the conservation of both our fossil fuels and our forest ecosystems need to be considered together. Action in concert with the development of new energy technologies, such as solar power will help provide an amenable quality of life in the future.

Devices to Protect Seedlings from Deer Browsing

by David A. Marquis

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*from Forest Service
Research Note
NE-243—1977*

Severe browsing of tree seedlings by whitetailed deer has resulted in complete regeneration failures in many sections of Pennsylvania, and planting of areas that fail to regenerate naturally is futile unless the planted seedlings are protected against browsing. One promising way to protect both natural and planted seedlings is to place plastic or wire-mesh tubes around the seedlings to protect their terminal leaders until they grow above the reach of deer.

Trials of various types of individual protection devices conducted over the past 5 years have shown that cost and effectiveness vary greatly. This report describes the results obtained with various devices and makes recommendations on their use.

Conclusions and Recommendations

These studies and trials have shown that several types of wire or plastic tubes can be erected around tree seedlings to protect them from deer browsing. In terms of cost and effectiveness, the two most promising devices are a 4- to 6-inch diameter plastic tube with small mesh and a 12-inch diameter tube constructed of chicken wire. Both types need to be at least 5 feet tall to provide adequate protection in areas of heavy browsing pressure, such as exist throughout Pennsylvania. The plastic protectors

are more expensive than those made of wire, but are somewhat quicker to fabricate, and they offer the added advantage of protection against rodents.

Efforts are now underway by the U.S. Forest Service and the plastic manufacturers to develop a plastic protector that would be more easily supported and would be less expensive than present tube-stake combinations.

The minimum number of seedlings that must be grown above deer browsing height is probably somewhere between 100 and 200 per acre. If an entire regeneration area were to receive protective devices, the total cost would run between \$115 and \$230 per acre for chicken-wire protectors plus planting costs if natural seedlings were not present. This cost is high; but until some cheaper method is found, the use of protective devices seems necessary on some areas if they are to remain in forest production. The use of individual protective devices is usually cheaper than protecting the entire area with a deer-proof fence.

Use of currently available natural regeneration guidelines could reduce the number of regeneration failures to a minimum. But even in areas classified as successfully regenerated, heavy deer browsing frequently creates pockets where stocking is inadequate. These nonstocked areas can reduce yields by important amounts, and the selective use of seedling protectors in such areas could bring the entire area to full stocking. Protectors also provide an opportunity to improve species composition by ensuring protection of species that are preferentially browsed (such as red maple and yellow-poplar), or—if combined with planting—of introducing genetically-improved stock or species now absent from that site.

My Woodlot in Jefferson County

by *Al Roberts, Jr.*

I was a youngish forester working in Lowville in 1953. I had a wife and three children, age one to four years old. (and unknown to me at the time, three more to come). As far as I could see, providing a college education for the kids on a forester's salary was out of the question. So I decided, unilaterally, (my wife said I was nuts) to make my fortune growing Christmas trees. I located a 127 acre abandoned farm on Tug Hill, borrowed \$150 from my New York State Retirement and was in business. Yes' \$150 was the full purchase price.

What I had bought, according to the Town Assessors on grievance day, was one of the best farms in the Township. But it really wasn't. It hadn't been farmed in at least ten years, and had gone through a sale for unpaid taxes. Town, County and school taxes amounted to fifteen dollars a year, which wasn't much, but it was ten percent of the purchase price. It was assessed for \$1800., which the assessors on my plea reduced to \$1200. Within a year or two the County had a County-wide reassessment and my farm received an assessment of \$300. There were no buildings. There were twenty-five acres of woods, twenty-five acres of swamp and alder and sixty-seven acres for my little money-making Christmas trees.

For the next few years I planted ten thousand trees a year. And every time I sank the mattock in the ground I said to myself, there goes another dollar for Margaret, Liz and Vicki's education. Well, as any of you who have ever been in the Christmas tree business can suspect, it never happened. By 1964 I had planted 68,000 trees and in 1959 I had been transferred to Cortland, 100 miles from the trees.

Meanwhile, way in the back corner of the property was the twenty-five acres of mistreated Northern hardwoods, mostly beech and maple. Almost as an afterthought I went through the routine of doing thinning and cull removal over a period of four years, with the encouragement and

help of the A.C.P. program. Also, in response to the request of the neighboring owner I built or rebuilt 30 chains (1980 ft.) of fence.

Three years after planting the first Scotch pine they needed shearing. The first year or two wasn't bad. But by 1959 they were out of control, especially since by then I lived 100 miles from the trees. I didn't have money to hire help, so for a few years my wife and I farmed out the kids with their Grandparents, and we camped out on the lot for a week and sheared. We sheared ten hours a day rain or shine, but could never get all the work done. Between inadequate shearing and snow breakage, our total sales over a period of several years was only about two thousand trees. The education fund got nothing as we immediately spent all the money received on Christmas presents for our ever growing family.

So now we have sixty-seven acres of plantations. The white spruce and balsam look nice and by the time I am eighty years old there may be some pulp to cut. At today's prices each tree will be worth about twenty-five cents. The Scotch pine embarrasses me every time I walk through it. Clay soils and

Tug Hill snows have devastated it into bent and crooked monsters. How could I, a forester, be responsible for such a mess? My wife was right. I was nuts.

I was a failure in my original intentions. But wait a minute. Things happened that I had never thought or even dreamed would happen. Let's look at some of them:—First, over the years I have come to truly love the place. And though I can't say the same for my dear, faithful, hard shearing wife, I really have enjoyed the hours of work and eager anticipation I have spent there. Second, last year to even my surprise I sold \$2200 worth of sawtimber stumpage out of the worthless twenty-five acres of woodlands I had treated twenty years ago, and the woods is still in better shape than it was when I bought it. Third, the taxes are still less than a dollar an acre, and the property is under the old Fisher Tax Law. And fourth, and wonder of wonders, my \$150 property is now worth at least \$25,000 and represents a very cheap life insurance policy for my wife and kids.

Incidentally, the kids have gotten their college education without the Christmas trees.

Sawlog Price and Market Report

by *A. W. Roberts, Jr.*
Committee on Natural Resources & Land Use

The demand for hardwood sawtimber at the present time is excellent. At least in the Central New York area the demand seems to be considerably above the amount immediately available. At least two of the large buyers I know are cutting timber within a week or two of buying it. This is in contrast to the usual situation of having timber bought a year ahead of when it will be cut.

In two recent sales I have made for owners the price of the hard maple, cherry and ash have exceeded \$125 per thousand board feet, Doyle rule. Prices

vary considerably from region to region within the State, and of course they also vary from woodlot to woodlot depending on quality, accessibility and the manner in which the timber is sold. The best way to obtain full value for timber is to sell it by competitive bidding.

The foreseeable future seems to indicate continued high demand and perhaps price increases. But if members have been thinking about selling some mature timber, now is the time to sell it.

The Editor of the Forest Owner and the Committee on Natural Resources and Land Use would welcome members' questions on this subject.

Are You **HAPPY**

with Your **Woodlot?**

YOUR THOUGHTS PLEASE...

by Richard V. Lea
Woods Walk Committee

As Chairman of the Woods Walk Committee, I have been pondering the best way to be of service. I re-read a number of back issues of the Forest Owner and the satisfaction received from woodland ownership is very apparent. It seems to be that it might be interesting to determine the variety of reasons why members of NYFOA enjoy woodland ownership.

I know each of us was asked to fill out a questionnaire when we joined NYFOA, but viewpoints change over time. Jim Lassoie made reference to the range of responses to that questionnaire in his article in the May-June Forest Owner as to who we are. I'd like to obtain a short statement in the owner's words on why you own your woodland, together with the size of the woodland ownership involved. Even if you own no land and Jim Lassoie indicates that 15% of NYFOA members in this group own no land, an expression of the reason for belonging to NYFOA will be helpful. I'll assemble the replies and report back to you all at a later date.

A better understanding of why our members hold forest land would be most helpful to the Association, particularly the officers and committee chairmen, in planning activities. They cannot wait for guidance from the membership, however, but must carry out their assigned tasks.

For example, in planning for the 1978 year, it was suggested that the Woods Walks be scheduled in different parts of the State so members could attend without extensive travel. The question of timing can be important as well - Spring, Summer, Fall, Winter - which is more desirable? If there is enough interest, several could be planned in each area to provide for local interest. Walks could be scheduled in the

Adirondacks, the Hudson Valley or Niagara Frontier if so desired. Another suggestion was to provide an occasional Woods Walk on an interesting public or large private forest for variety. All it takes is an expression of interest. So while you are writing about your own land to me, I'd appreciate it if you would also state your wishes on the Woods Walks program.

Next I'd like to talk about the mechanics of a Woods Walk. If you haven't been on one, I'm sure you've read about how pleasant they are. Putting one on is not difficult. It's like having a group of friends drop in, only easier. Sure - a bit of planning is necessary - when, where, how to get there, where to park, weather problems, and similar logistical items should be thought about to make things easier. The itinerary is your choice of course, but make it easy on yourself so you enjoy it as much as your company. The Woods Walks Committee can provide you with a simple checklist and help in the planning if desired. Think about putting one on in your woodlot, and if you are at all interested, please let me know while you have pen in hand for the above.

To sum up this rambling request, your thoughts on these three items would be greatly appreciated by the Woods Walks Committee and, I'm sure, the NYFOA.

1. Reasons and satisfactions received from forest land ownership.
2. Location and types of Woods Walks of interest.
3. Your interest in having a Woods Walk on your woodlot.

Your reply to the last two items by the end of January will give our Committee a chance to plan while the snow is deep. So send your notes to my address as shown on the masthead of the Forest Owner and earn the thanks from all our members as well as mine.

FEEDBACK

Mr. Howard O. Ward
St. John Associates
1117 Front Street
Binghamton, New York 13905

Dear Howard:

I read with a great deal of interest the article *Forestry Beginnings in the Southern Tier of New York State* which appeared in the November-December issue of *New York Forest Owner*.

It was a very fine article, and I enjoyed reading it. I plan to pass my issue on to our middle school principal and hope that he will refer your article to 7th grade students who are studying New York State history.

Best wishes for a happy and healthy holiday season.

Sincerely yours,
Norman J. Sweeney
Superintendent of Schools
Chenango Forks Central Schools
Chenango Forks, NY

Woods Talks

by A. W. Roberts, Jr.
Committee on Natural
Resources & Land Use

One of the ways the Forest Owners Assn. serves its members is by providing a means of exchanging ideas, views and information among the members. One of the means for doing this is Woods Walks, where one owner invites all interested members to come to his woods and walk through it with him and talk about it.

But most members are limited by time and distance (and perhaps inertia) from participating. Perhaps the next best thing would be for an owner to write an article for publication in the "Forest Owner" telling about his woods (we could call it a woods talk) and then all the members could read about it.

To see how this idea goes over I have submitted a story about my first woods ownership to perhaps act as a guide, inspiration or challenge to other owners to contribute. We urge anyone to share his pleasures of ownership with the rest of us by sending an article to the Editor: - Mr. James Briggs.



James N. Briggs, Editor
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204 Varian Rd., Peekskill, N.Y. 10566

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