

Woodlot Thinning to Achieve Landowner's Goals

Peter J. Smallidge, NY State Extension Forester, Cornell University – Department of Natural Resources, Ithaca, NY 14853

www.forestconnect.info

[January 29, 2003]

From the Series: "*Looking Into Your Woodlot*" - Short Articles on Woodlot Management. More complete information is available from the author(s), your county office of Cornell Cooperative Extension, or by contacting your local NYS Department of Environmental Conservation for forestry assistance. This series is a cooperative effort between Cornell Cooperative Extension and the New York Forest Owners Association. Reproduction of intact articles is granted for non-profit educational purposes.

Private forest landowners love their forests and woodlands and often have a long-term vision for their property. Sometimes the love for the forest seems incompatible with cutting trees or logging, a much-maligned activity. However, in many circumstances, a landowner's vision and goal is best achieved through the judicious and well-guided cutting of trees. Thinning trees from your woodland is a process of cutting low vigor or undesired trees. Thinning may well serve the landowner's interests because it can enhance the growth of the desired species and trees and generally improve the health, vigor, and quality of the residual forest. Thinning differs from the non-sustainable practice of selective cutting where the big trees are cut to let the little ones grow. Thinning also differs from regeneration cuttings that establish the next forest through natural reproduction of seedlings from desired species.

Call (and Think) Before You Cut

Landowners should heed the adage "haste makes waste" when they consider cutting trees. All trees are not created equal, and the selection of trees as the winners and the losers during a cutting operation depends on the vision you have for your woodlot. A stewardship plan for your property will guide you and the foresters and loggers you hire when it's time to start cutting trees. The stewardship plan, prepared for free by your local DEC forester, describes your vision for your property, the types of forests you have, the quality of the soils, the wildlife that might exist, a schedule of activities, and outlines these features on a variety of useful maps. In anticipation of working with a forester to prepare a stewardship plan, you and anyone else who has a vested interest in the property should think about your vision(s), your motivation for obtaining and retaining the property, what you like and dislike, and those areas you would like to see changed. Ask yourself if there are barriers to fully enjoying your property. What resources do you have to invest, such as time on weekends, a tractor or ATV, chainsaw, money to hire assistance, local youth groups looking for conservation projects, etc. If you would like some guided assistance in thinking about these questions or tips on landowner educational materials, contact a Master Forest Owner volunteer through your county's CCE office for a free visit or see who's in your county from the MFO web site www.dnr.cornell.edu/ext/mfo. So, before you begin cutting, think about your vision and call for assistance.

Improvement Cutting

Improvement cuts, which include thinning, are done for several possible reasons: (1) to change the mixture of species in the woods by removing undesirable species; (2) to change how your forest looks, for example you might wish to remove saplings in an area to improve visibility; (3) to improve forest health by removing diseased, insect infested or dying trees; or (4) to improve growth and reduce competition by freeing the crowns of desired trees. Think of your forest like your garden. Your garden produces crops such as flowers for butterflies or tomatoes or carrots for human consumption. If your gardening objective is butterflies you favor certain species that you likely wouldn't favor if your gardening objective was vegetables. Your garden is most productive and healthy when you ensure that each plant has plenty of sunlight and that heavily diseased plants are removed. You tend or culture your garden by weeding and thinning long before you expect to produce a crop. If you pick your crop early, for example when your beefsteak tomatoes are the size of golf balls, you miss out on the quality and quantity you would receive if you waited until the tomatoes matured. Forests are similar to gardens because they are groups of plants that grow in soil, require sunlight and nutrients, and produce things (like beauty, wildlife habitat, and timber) that we want.

Improvement cuts fall into a category of forest management known as intermediate cutting, or cutting that occurs during the middle stages of a forest's development with the purpose of improving and shaping the current forest. In contrast, regeneration cutting practices are designed to produce the next forest and applied when the forest or groups of trees are mature. Because many NY forests developed on abandoned agricultural land or as the result of previous heavy cutting, trees in our forests are often all about the same age even-though they may be of different sizes. The variation you see in tree diameters results from differences in the growth potential of one species versus another and the competitive struggle for sunlight and soil resources among trees. For example, black cherry and eastern white pine can grow very fast and need full sunlight while American beech, sugar maple, and eastern hemlock can survive in shade and often grow more slowly. You can shape the future of the forest if you allow full sunlight to the crowns of certain species and trees by cutting adjacent trees that create shade. The destiny of your woodlot, and thus the trees you cut or retain, should depend on whether you want to someday produce wildlife food crops (like acorns or cherries), timber, aesthetic vistas, or some combination of these goals. What you want to produce determines the species you should favor versus the species to cut.

Selecting the specific trees to cut can be difficult. The specific trees to remove depend on your objectives, but might include diseased trees, trees of poor form, trees with weak wood, or trees that block a view. It's always a good idea to speak with a DEC forester or a forester from the DEC list of *Cooperating Foresters* for assistance. Explain your objectives, review your stewardship plan and have them help you select some trees for removal. If you have a large woodlot and the trees are of moderate size (maybe 8 to 12 inches in diameter) then you might be able to sell some for firewood. Otherwise, you'll need to either hire a logger to complete the work or complete the work yourself with a chainsaw or by girdling the trees. If you sell firewood (or trade trees in your woodlot in return for firewood) be certain you contact a forester, as there are potential and serious legal and financial pitfalls to be aware of and to avoid.

The cutting part of the improvement might be with a chain saw, or it might be by girdling the tree with a hand axe or chemical agents. Using a chain saw requires special skills and training, but can provide the benefit of firewood. Girdling doesn't require as much equipment and simply means that you take a hatchet or axe and frill around a tree enough to shave the bark and inner wood in a complete circle. You can also girdle a tree with a chain saw. Girdling breaks the connection the tree crown has with the roots, and eventually kills the tree. Effective girdles don't need to be very deep, but some species like beech and red maple may not die as quickly as desired with girdling. Girdling also leaves behind a standing dead tree; so don't use this practice in areas you or other people frequent because of the potential hazards. You can hasten the process by applying an appropriate herbicide into the frill. Whether chain saw, axe, or herbicide you are using a tool that deserves respect so be careful.

Crop Tree Management

Crop tree management is a type of improvement cutting that focuses on "crop" trees, or trees to leave until you are ready to regenerate the next forest. Anyone who has thinned a carrot patch to encourage growth can understand crop tree management. The concept is actually fairly simple whether applied in a garden or woodlot, but the process requires some time and effort to achieve the optimal result. This is a good strategy for landowners interested in playing an active role in the management of their property, but requires some work.

Crop tree management (CTM) is a useful management strategy especially for the private forest landowner who has: more than a passing interest in their woodlands, the ability to identify trees by species, clearly stated objectives, spent some time talking with a forester, and a desire to become more integral to managing his or her land. CTM is a nice because you can try it in a small area and see if you like it before you start working on more acreage. CTM differs from improvement cutting by focusing more on the trees you leave than on the trees to remove. Both are suitable in certain situations.

The exciting part of crop tree management is that you, the landowner, can define the criteria for your crop trees. In one part of your woodlot, perhaps where you like to watch squirrels and turkeys, you might select crop tree criteria to favor tree species that produce fruits (called mast) these wildlife eat. So, you might favor species such as black cherry, oaks, walnut, and hickory. In another part of your woodlot where the ground is more fertile you might set criteria for timber production and favor black cherry, oak, sugar maple, and white ash. In addition to wildlife and timber, other criteria might include aesthetics (fall color, unique shape, unusual species, etc.) or water quality.

Carrying out crop tree management is straight forward, but again requires some time and effort to learn these new skills. First, you should walk through a small section of your woodlot several times getting a feel for the trees you have to work with. Then, select trees that meet your criteria. Try to select the trees with healthy crowns with full or nearly full exposure to sunlight. You might use plastic flagging tape to mark the trees whose crowns touch or come close to your crop tree. Your goal is to free the crop tree crown on all four sides so it is free to grow. Use a different color flagging for the trees to be removed. Do this over an acre (one acre is a square with sides that are 209 feet long) with a goal to select between 50 to 75 crop trees in woodlots with semi-mature trees (10 to 14 inches), and more trees in forests having smaller trees. If the amount of flagging looks like more cutting or girdling than you are comfortable with then reduce cutting by selecting fewer crop trees or by freeing some crop trees on only two sides. If two or three crop trees are growing together you can think of them as a group and thin around the group.

The end result of crop tree management will be crop trees that have the best chance to grow because of reduced competition from neighbors. Your crop trees will have the best chance for good health, seed production, and foliage development. Also, if you cut the neighboring trees rather than girdle them then you will have some firewood in the process as well. Some forest owners are using the cut trees as a substrate to grow gourmet mushrooms for personal use or to sell in local markets.

Want more information?

Improvement cutting and crop tree management are tried and true strategies that can benefit forest owners whose objectives support the need to cut trees. However, as previously mentioned, don't confuse this with selective cutting where the biggest trees are cut to "let the little ones grow". For assistance with improvement cutting or information on woodlot management, you should call your county office of Cornell Cooperative Extension or call the local NYS-DEC Forestry office. Ask about the CCE publications on woodlot management. The US Forest Service crop tree management guide is available at <www.fs.fed.us/na/morgantown/frm/perkey/ctm/ctm_index.html>. To view different ways to thin your woodlot, and especially what the forest looks like you can tour virtual woodlots at Cornell University's Arnot Forest <www.dnr.cornell.edu/arnot> or Penn State University at <www.virtualforest.psu.edu>.