North Central Forest Experiment Station 7.01

CENTRAL HARDWOOD NOTES

Economic Considerations Of Managing Stands

Managing central hardwood stands involves making choices. Each year landowners face at least three alternatives for managing a stand: (1) allow it to grow undisturbed, (2) undertake a partial or complete commercial harvest, or (3) culture the timber crop through a precommercial investment. Each activity affects long-term monetary returns. The "best" choice in a given year depends on your goal as a landowner, stand characteristics, and local markets. Understanding the economic elements of managing stands can help you make good choices and improve the productivity of your forest land.

Clarify Your Goals

Landowner goals may limit management alternatives. To some private landowners, esthetic or recreation goals are often more important than strict profits. Clearcutting, prescribed fire, or chemical treatments may not be acceptable, even though they may increase timber income. Such owners may not necessarily disregard the financial benefits of timber management, but are willing to forego some potential timber income to achieve other objectives. The key is to identify management practices that harmonize with your goals for generating both income and other benefits from your land.

Know Your Markets

Species composition, average tree size, and local product markets may also define options in the near future. For example, management options in sapling stands include "do nothing" or a precommercial treatment. With no merchantable products, commercial harvests are not possible. Where there are pulpwood markets, the landowner can wait a few years for a commercial thinning and avoid a cash investment for precommercial thinning. Getting to know your stand and local markets makes economical management choices easier.

Think Crop Trees

Commercial hardwood trees are assets you should deliberately manage. As trees mature, increases in d.b.h., merchantable height, and grade determine future tree value. Like other assets, some trees increase in value faster than others. Those that offer the highest potential rate of return are your crop trees, the money-makers that determine future income from your stand.

With each thinning or partial harvest, provide proper growing space for the best available crop trees in the residual stand. The best crop trees in your stand depend on your markets. Favor high-value species, and individual trees with potential increases in grade and merchantable height. Crop trees should be grown to at least 16 inches d.b.h. to allow the butt log to qualify for grade 1, the most valuable saw log grade. Although species groups differ, most central hardwood species earn competitive rates of return up to 22 inches d.b.h. Focus on crop trees for both even-age and uneven-age practices.

Plan Your Road System

Well-planned roads are a strong foundation for economical timber management. They permit access for all management including harvesting and protection. Topographic and geologic features, as well as location of existing roads, determine the most desirable location of new access roads. This is why for either even-age or uneven-age management in a particular stand, there is only one "best" road location. Get advice on proper road location (see Note 11.03 Forest Access Roads). Advice may cost you a little money, but poor roads cost you much more in the long run.

Road construction is the most costly of all timber management activities. If roads are poorly located, additional roads may be needed in later harvests to correct problems. Good planning usually reduces total road length and grade, which in turn reduces the cost of post-logging activities such as seeding and installing water breaks. Well-located roads also provide more reliable access between harvests for other management activities like firewood sales and recreation. All these factors lead to a more useful forest and higher future timber income.

Sell When Prices Are High

Timing is the key to profitable timber management. Become familiar with stumpage price trends in local markets. Management plans should be flexible so that commercial thinnings or regeneration harvests can be conducted when markets are favorable. Sticking to a rigid harvesting schedule can drastically reduce timber income if stumpage prices are down when the planned harvest date arrives. Hardwood sawtimber, like other cash crops, should be sold when prices are high. It's just good business to keep abreast of local stumpage prices, even though no harvests are planned for the current year.

When it's time to sell, shop around. Competition helps increase stumpage income. Don't sell to the first bidder. Chances are you'll get a higher price if several buyers make offers. For many private woodland owners, consulting a professional forester can result in higher timber income. Consultants assist with overall management planning and use their knowledge of local wood product markets to help clients get a fair price.

Even-age Versus Uneven-age Management

Management systems affect the timing and amount of your timber income. Generally, even-age management promotes high-value intolerant species and offers a sizeable revenue at final harvest. After clearcutting, however, timber sales are not possible for 40 to 60 years until volume accumulates for a first commercial thinning in the new stand. Uneven-age management promotes tolerant species, provides smaller revenues at regular intervals, and maintains a continuous forest cover which provides many land-use alternatives.

For initial harvest operations in unroaded stands, stumpage prices are reduced to compensate the logger for constructing permanent haul roads. If the initial harvest is a clearcut, road costs are spread over total merchantable stand volume. If the initial harvest is a thinning or selection cut, only a portion of stand volume bears the cost of roads. As a result, initial partial harvests in some unroaded areas can result in nearly break-even or deficit sales where roads cost more than the value of the timber harvested. In later harvests, however, road costs are greatly reduced, and stumpage returns are generally higher than for initial harvests.

Once roads are in place, logging costs for selection harvests and clearcutting are similar. Selection harvests remove trees throughout a range of diameter classes, and clearcutting includes numerous small stems in addition to the larger mature trees. Although clearcutting removes much more volume per acre, average d.b.h. of harvest trees is about the same for both systems and resulting logging costs are comparable. However, selection harvests involve additional costs of marking trees to be cut in each sale. Thinnings or shelterwood cuts in even-aged stands involve similar but less frequent costs.

Logging costs and product values influence commercial harvest schedules. In mountainous terrain, where logging is costly, minimum sale volumes may be 5,000 to 6,000 board feet of sawtimber per acre. In more gentle terrain, several cords of pulpwood may constitute a commercial operation. Minimum sale volumes, in turn, determine when commercial thinnings are possible in even-age stands or the interval between harvests in uneven-age stands. In uneven-age stands, harvests should remove no more than periodic growth to ensure sustained yield. As a result, cutting cycle length depends on how long it takes to accumulate the minimum sale volume. In most of the central hardwood region, practical cycles for partial cuts are 10 to 20 years.

Uneven-age management favors the regeneration of tolerant hardwood species, such as sugar maple, red maple, and American beech. Generally, most commercial tolerant species have lower market values than intolerant species regenerated by even-age practices. Also, tolerant species usually have slower growth rates and less volume per tree than intolerant species. During conversion to uneven-age management, some valuable intolerant trees may remain in the residual stand for several cutting periods. When these trees are removed in later harvests, they are gradually replaced by less valuable tolerant species. Higher volume removals and longer cutting cycles could result in some intolerant species reproduction. However, repeated partial harvests will lead to a stand in which tolerant species make up 60 to 75 percent or more of the growing stock.

Partial harvest practices produce multi-age stands that provide landowners with a variety of land use alternatives. The continuous forest cover preserves recreation and esthetic attributes. Periodic road activity provides ready access to the property which facilitates non-timber uses. And the residual stand enhances the marketability of the forest property if the landowner decides to sell the land in the future. In addition, the residual timber alone serves as a marketable asset if the landowner later converts to a single-age stand by clearcutting.

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