

THE REALITIES of TIMBER HARVESTING

Forests Require Active Management

Timber harvesting is an essential part of silviculture. Silviculture is the art, science and practice of establishing, managing and reproducing forests. In fact, harvesting makes the forest healthier by removing older or diseased trees and promoting new tree growth. Because they are composed of a variety of living organisms, forests are dynamic. Without intervention – natural and human – hardwood forests will decline or decay. They literally cannot be "preserved."



Pennsylvania's Forests Renew Themselves Naturally

Many people believe you must replant after harvest to renew the forest. That is not the case with Pennsylvania hardwoods. Hardwood forests are very productive and regenerate naturally. Naturally regenerated hardwood trees are healthier and more competitive than artificially regenerated, or planted, hardwood trees. All of today's 17 million-acre forest base has regenerated naturally. Replanting is seldom necessary, and the best new growth will come from naturally dispersed seeds, stumps or root sprouts.

Forest Management Benefits the Ecosystem

Forest management helps ensure that whenever we influence the forest ecosystem, our actions are not detrimental to the forest's long-term health and environmental quality. Since forest ecosystems are dynamic, the best management strategies work with, rather than against, natural changes.

Silviculture involves tending forests and establishing new ones. It is the theory and practice of controlling species composition, growth and regeneration by following principles of ecology and economics to reach management objectives.

There are several methods of harvesting that can be used depending on the goals for the harvest and for the future of the forestland.

How Forests are Managed

Silvicultural Methods:

Intermediate Cutting

Intermediate cutting is done to enhance growing conditions, e.g., reduce pests, improve quality of trees or promote species. Types include:

- Cleaning or weeding to favor a species during the sapling stage.
- Thinning to increase growing space and sunlight, to reduce competition, and to produce an immediate financial return.
- Improvement cutting to remove undesirable, e.g. crooked or diseased, trees.
- Regeneration cutting to develop a clearing where new trees can regenerate from seeds, seedlings, and/or sprouts.

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Even-aged Management

A forest stand is even-aged when all of the trees are approximately the same age, generally because of their simultaneous regeneration, which means they will decline at about the same time. This is the case in most of Pennsylvania forests. These stands may be managed through three regeneration methods:



- clear-cut – to harvest trees larger than 2 inches dbh (diameter at breast height). This works best to restore shade intolerant species and creates wildlife habitat. It is the simplest system, yet the least aesthetically pleasing, although modern techniques may be used to adjust areas to blend with the landscape.
- seed-tree – a form of clear-cut which leaves seed producing trees on each stand.
- shelterwood – two or three partial cuttings at 5 or 10 year intervals, with the early cut perhaps involving 60 percent of the trees to allow sun to reach the forest floor. Trees left to shelter saplings are later cut. This system is often used to favor shade-tolerant species.

Regeneration cutting an area, usually done in patches of an acre to 10 acres, may be less aesthetically pleasing in the short term, but is most effective in enhancing the natural establishment of a new forest.

Uneven-aged management

This process involves frequent cutting to maintain a mix of tree sizes, ages and classes. It may approximate the natural tree loss during forest progression, which usually shifts species toward shade tolerant and less-preferred varieties.

This selection method of harvesting involves simultaneous regeneration and intermediate cuts in a complicated system so that the total volume removed does not exceed the growth, usually during 5-10 year cycles. This involves single-tree or group selection designed to remove trees of high and low quality among all diameter and species classes.

Non-Silvicultural Methods:

These processes, which are not generally recommended for long-term sustainability, include:

- High-grading, or taking the largest and most commercially valuable trees, without regard to site regeneration, generally diminishes the long term value and diversity of a forest.
- Diameter limit cutting is a form of high grading that harvests all trees above a limit, e.g. 12-14 inches dbh. While it may generate the highest initial financial return, this system usually negatively affects future value.

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Government Oversight

In Pennsylvania, timber harvesting activities are subject to various forms of state regulation.

Earth disturbance activities during a harvest, any stream crossing or bridge construction or construction in wetlands are all subject to state oversight. Pennsylvania's Nonpoint Source Management Program under the federal Clean Water Act has regulations requiring erosion and sedimentation control plans for timber harvesting and governs activities occurring in or around the state's waterways. The program, administered by the state Department of Environmental Protection, identifies Best Management Practices-based programs like the Sustainable Forestry Initiative as the preferred means to conduct silvicultural operations.

Road and highway activities are governed by PennDOT, local municipalities, state and local police, and the Public Utility Commission.

Special wildlife concerns are regulated by the state's Department of Conservation and Natural Resources, Fish & Boat Commission and Game Commission and the U.S. Fish & Wildlife Service.