Finger Lakes National Forest

Timber Management

Definitions and Frequently Asked Questions

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United States Department of Agriculture

Forest Service

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Definitions:

Even-age Management – The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. Managed even-aged forests are characterized by a distribution of stands of varying ages and tree sizes throughout the forest area. Cutting methods that develop and maintain even-aged stands are clearcutting, shelterwood, delayed shelterwood, and seed tree. This type of management favors species that are shade intolerant (trees that need a lot of sunlight) like aspen, oak, locust.

> **Clearcutting** – A cut which removes all trees from a designated area at one time, for the purpose of creating a new evenaged stand.
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> **Seed tree** – A series of two or three cuttings which open the stand and stimulate natural reproduction by leaving some large high quality trees to produce seed. A two cutting series has a seed cut and a removal cut, while a three cutting series has a preparatory cut, a seed cut and a removal cut. The removal cut removes all of the remaining seed trees. This creates a new even-aged stand.
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> **Shelterwood** – a series of two or three cuttings which open the stand and stimulate natural reproduction by leaving some large trees for slight shade and protection to aid in natural regeneration. Shelterwood cuts generally leave more trees than seed tree cuts. A two cutting series has a seed cut and a removal cut, while a three cutting series has a preparatory cut, a seed cut and a removal cut. The removal cut removes all of the remaining trees, usually within 10 years. This creates a new even-aged stand.
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> **Delayed Shelterwood** – This is the same as a shelterwood cut, however the trees that are left to provide shelter are smaller and the removal cut generally occurs 20 or more years after the initial harvest.

Uneven-age Management – The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes to provide a sustained yield of forest products. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection. This type of management favors species that are shade tolerant (trees that need to be in shade) like maple and hemlock.

Single tree selection – The removal of trees individually in a scattered pattern, from an area. Trees are chosen to meet a predetermined goal of size distribution and species composition.

Group selection – The removal of small groups of trees to meet a predetermined goal of size, distribution and species.

Intermediate cutting – Any removal of trees from a stand between the time of formation and the harvest cutting undertaken to improve the growth and/or species composition (normally done as a commercial venture).

Salvage cutting – The removal of dead, dying and damaged trees a natural disaster such as fire, insect or disease attack, wind or ice storm to utilize the wood before it rots and to prevent the spread of insects or disease.

Thinning – Removing some of the trees in a dense immature stand primarily to improve the growth rate and form of the remaining trees.

Cultural operations – Treatments (usually non-commercial) made to assist or complete the establishment of regeneration or promote the development of existing stands.

Timber Stand Improvement (TSI) – Activities conducted in young stands of timber to improve growth rate and form of the remaining trees. Cleaning or weeding is also done to regulate the composition of a young stand by eliminating some trees and encouraging others, and also freeing seedlings or saplings from competition with ground vegetation, vines, and shrubs.

Site preparation – Activity intended to make conditions favorable for planting or the establishment of natural regeneration.

Frequently Asked Questions:

Why is there a Timber Management Program on National Forest System Lands?

Let's begin with a quick overview of history: When the first federal forest reserves were put into place in 1891, enormous quantities of wood were needed by the American public for heating, cooking, ironmaking, transportation, and agricultural fencing. Entire forests were commercially harvested with no effort to reforest cutover lands.

Laws were passed, such as the Homestead Act of 1862, the Mining Act of 1872, and the Timber and Stone Law of 1878, that encouraged intensive mining and forestry and

the disposal of public domain. When the standing timber dwindled in one area, loggers simply moved to another. The settlers who followed ignited the brush and trees to establish homesteads, sometimes causing enormous firestorms that consumed hundreds of thousands of acres and destroyed entire towns.

In response to the practice of "cut-and-run" forestry in the Great Lakes and Eastern United States, the degradation of water quality, and the spread of massive wildfires, people started to question the notion that the Nation's natural resources were inexhaustible. In 1864, George Perkins Marsh pointed out the adverse effects that land clearing had on watersheds. In 1883, Nathaniel S. Shaler warned that unless forests were protected on the headwaters of the Ohio River, tremendous Mississippi floods would result.

Congress acted by setting aside the first forest reserves in 1891. The primary intent of the Creative Act of 1891 was to protect water quality and quantity on forest reserves. The Organic Act of 1897 mandated protection for these areas to "protect the forests," secure "favorable conditions of water flows," and "furnish a continuous supply of timber." By 1900, many Americans had begun to view the forests as a limited resource that should be managed scientifically to yield products and services without destroying the resource.

In 1905, President Theodore Roosevelt transferred the forest reserves from the Department of the Interior to the Department of Agriculture for management by the Forest Service. Gifford Pinchot, its first Chief, was a dynamic advocate of "conservation as wise use." Under his leadership, the Forest Service adopted the philosophy—still in place today—that current use of the land should protect its productivity and ability to serve future generations. His dictum "the greatest use of the greatest number in the long run" continues to shape Forest Service multiple-use policy.

- **1960: The Multiple-Use Sustained-Yield Act** confirmed the principle that all forest uses are of equal importance and should not damage the ability of the land to serve future generations;
- **1970: The National Environmental Policy Act** required assessments of the environmental impacts of proposed Federal activities;
- **1972: The Clean Water Act** protected the quality of the Nation's water supplies;
- **1973: The Endangered Species Act** protected rare, threatened, and endangered animal and plant species;
- **1976: The National Forest Management Act** required intensive long-range planning for each national forest, with opportunities for public participation.

Timber management, then, is that part of the overall management of the National Forests that deals with forest health, wildlife habitat, water quality, roads and trail systems and sustainable production of wood products**. Timber harvesting is one of the multiple-uses that the U.S. Forest Service, by law, is responsible for implementing.**

Why does a small National Forest in New York harvest timber?

The mission of the U.S. Forest Service and the Finger Lakes National Forest is simple. Specifically:

> **USDA Forest Service Mission:**
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> "…to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations."
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> **Finger Lakes National Forest Mission:**
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> "…to sustain, protect and enhance forest ecosystems…"

Timber harvesting is **one** tool we use to carry out these two missions. Timber cutting is done to achieve management objectives that are spelled out in the ***Finger Lakes National Forest Land and Resource Management Plan*** and is done in a way that protects the environment.

Cutting timber maintains and enhances vegetative diversity (different ages and types of trees), species diversity (different kinds of animals and plants associated with those tree communities) and wildlife habitat addressing animal needs—food, water, nesting, and hiding places. Timber harvesting improves the health and condition of the forest ecosystem by removing diseased and poor quality trees. It also produces continuous high quality sawtimber, pulpwood and fuelwood. Timber harvesting helps create and maintain scenic vistas as well as enhance recreational experiences like hunting and camping.

Anyone who works in a garden, prunes trees and shrubs in their backyard knows that with that kind of care, plants thrive. The same thing happens in forests: with timber harvesting, foresters can direct where the sun hits the forest floor and help new trees to grow. They can create and maintain habitats for different types of animals by using the best harvesting techniques to achieve planned objectives. They can improve the health of a forest that is infected with a pest by taking out sick trees.

How is the decision to harvest timber made?

First of all, the Forest Plan outlines what future vegetative conditions each area of the Forest should contain, it also outlines areas where timber harvesting is an appropriate tool to achieve those vegetative conditions. Then, inventories are done to determine

the condition, size, age, and quality of the trees in a given area. After the inventory data is gathered, a group of specialists develop a set of objectives for a particular area. A few examples of these objectives include, enhancing wildlife habitat, conversion of conifer plantations to native hard woods, creating an area with larger higher quality trees.

Then, a silviculturist, a scientist specializing in how trees grow, develops a detailed silvicultural prescription to meet the objectives created by the specialists for the particular stand of trees. A stand of trees is an area with similar tree species and characteristics usually around 1 to 40 acres. In other words, the silviculturist, guided by the Forest Plan, inventory data, and specific objectives develops a timber management plan to achieve a certain vegetative condition in a particular area of the Forest.

At this point, various experts like wildlife biologists, botanists, recreation planners, hydrologists, archeologists, foresters, engineers, as well as others conduct a detailed environmental analysis. Furthermore, public involvement is started to solicit comments on the project as well as to explain the objectives of the project.

After the environmental analysis is completed the boundary of the timber management sale and each tree to be cut or left is marked. Potential loggers are then shown the area and all of the stipulations outlined in the environmental analysis that need to be followed are explained. Stipulations for timber harvesting on National Forest Land tend to be more strict than stipulations on private land and deal with the amount and height of branches, when to harvest, where and how to locate logging roads, and measures to rehabilitate logging roads and landings after the harvest. Loggers use all of this information to bid on the right to harvest the trees. The bidding process is competitive.

Once a logger is awarded the contract, they are allowed to start harvesting trees. A timber sale administrator from the Forest Service is involved with the day to day operations of the logger in order to assure that all of the stipulations in the contract are followed. They are also on hand to help with any unexpected problems that may arise. The timber sale is not complete until the timber sale administrator signs the contract stating that all stipulations were followed and the job was completed in a satisfactory manner. After the sale, monitoring is done to ensure that stipulations outlined in the environmental analysis are working to achieve the objectives of the project.

What harvesting methods are used on the Finger Lakes National Forest?

We use the same or similar harvesting methods common throughout New York and New England. These include both **even-aged and uneven-aged systems** to meet resource objectives spelled out in the ***Finger Lakes National Forest Land and Resource Management Plan.***

Even-aged Systems

For example, Management Area (MA) 3.1 (a management area is like a zone in a city plan) makes up about 41% of the Forest. Even-aged methods, like shelterwood cuts, are favored in that MA. Habitat diversity is provided by having a mix of stands (group of trees) made up of various ages and species spread throughout the area. In this MA we also thin (remove some trees) stands about every 20 years, starting about 50 years of age.

When these trees grow to about 100 years old, and after analyzing the condition of wildlife habitat and other resources, we consider a final harvest of the entire stand at one time, which will prompt the growth of a new stand of trees. The new seedlings start growing at the same time and are even in size and development, hence the term "even-aged stand."

The shelterwood (and clearcut system) system creates a new stand of trees that are intolerant of shade (aspen, paper birch) or partially intolerant of shade (yellow birch, oak) that could not grow under a shaded canopy of larger trees. This is sometimes referred to as early successional habitat, and it is critical to the existence of some species of wildlife. There are many standards and guidelines to follow and apply when any of these systems are used.

Uneven-aged Systems

In uneven-aged management, we utilize the selection system. In this system, a diversity of multi-aged trees of various sizes is provided within the stand itself. Selection cutting normally involves cutting and removing single trees (single-tree selection) or small groups of trees (group tree selection) throughout the stand and favors growing trees that can tolerate shade, like beech and sugar maple.

Selection cutting is used where we need to maintain a forest with a closed canopy and large openings would not meet visual quality, wildife, and recreation objectives. The Forest Plan outlines about 2% of the Forest for uneven-aged management. Trees are perpetually grown on the site and the whole stand is never cut down at one time.

Does the Finger Lakes National Forest use clearcutting?

The Finger Lakes National Forest uses very little clearcutting and generally in areas of just a few acres. Clearcutting is one of several management tools-or forestry techniques-that achieves very specific resource conditions or results in a forest. We use clearcutting only for very specific objectives, some of which include: salvaging trees damaged by insects or disease or to stop the spread of the insects or disease; improving the conditions of stands that have a high risk of dying in the next ten years; regenerating aspen which is uncommon on the Forest and valued for wildlife habitat and

vegetative diversity; converting softwood (conifer) stands to native hardwoods; and creating vistas and parking areas to enhance public use and enjoyment of the National Forest.

How are soil, water and wildlife protected during timber sale operations?

We protect these resources through project planning, design, implementation and monitoring. Although there is a small staff stationed on the Finger Lakes National Forest, resource managers stationed on the Green Mountain National Forest help with the resource protection on all of our proposed projects. These resource managers include foresters, soil specialists, wildlife biologists, ecologists, fisheries biologists, botanists, water quality specialists, landscape architects, archaeologists, recreation planners, and engineers.

All projects are reviewed to insure that our actions work toward meeting the ***Finger Lakes National Forest Land and Resource Management Plan*** goals and objectives. This is done according to the existing "zoning" of the forest into Management Areas (MA's). Only projects compatible with the zoning and spirit of the Management Area are selected.

Our resource managers then direct field checks to identify protection zones for streams; identify where crossings and bridges go and where wet soils should be avoided. They limit skid trails from being located on steep ground.

We require timber purchasers to follow a sale contract with specific clauses and operating requirement regarding actions needed to protect soil and water. We have timber sale administrators who visit the sale areas to assure compliance. We monitor fish and water conditions before and after a sale. We require seeding; liming and fertilization of disturbed soils on log landings, steep slopes and near stream crossings.

How does timber harvesting help wildlife?

Timber harvesting allows land managers to more quickly create wildlife habitat—a job that nature might take years to do. Forestry and wildlife science has researched and documented the habitat that almost every species of wildlife needs to survive. Some wildlife, including bird species like deep forest; others like edges of forests, and others like open areas.

In nature, for example, openings will be created by storm blowdowns, ice storms, and fires. Many species of wildlife and birds thrive on openings for several years until they are overgrown again. A land manager can recreate some of what nature does much faster and achieve similar results in establishing habitat.

Timber sales using evenage techniques create early successional habitat that is used by wildlife for food, cover and nesting. Since animals like Neotropical songbirds, rabbits, grouse, voles and snakes favor some of these areas, they become preferred places where creatures like goshawks can find prey.

How are wildlife, rare plants and other species protected during timber sale operations?

Our wildlife biologists and technicians conduct surveys and inventories of animal habitat and serve on the teams developing project proposals. We also have trained botanists on our teams that conduct surveys for rare plants, consider any potential effects the project may have on them, and determine needed protection and monitoring.

We look at the current conditions of the forest and compare them to a "desired future condition" in the ***Finger Lakes National Forest Land and Resource Management Plan***. By working toward a desired future condition we determine if our project proposals can create and maintain specific habitat.

Do you have to plant trees after a timber sale?

Because most of the Finger Lakes National Forest is made up of hardwoods, we don't need to plant trees very often. Hardwoods — including maple, birch, oaks— in this region grow into new stands of trees when we create the right conditions by utilizing the right kind of harvest system.

Is the timber program important to the economy of communities surrounding the National Forest?

On all National Forests, another valid reason to have a timber program is for socio-economic reasons. Multi-national corporations seldom contract for the Finger Lakes National Forest timber sales. Local people who make their living as loggers, sawyers, contractors and craftspeople do.

National Forest timber is used in a variety of wood products and provides revenues, employment opportunities, income and taxes. Because timber is a commodity, a fair-market price is charged to purchasers. A portion of that fee is shared with local government where public lands are located. Another portion may be withheld by the

Forest Service to help reforest the cut area or supplement fisheries, recreation or wildlife work in the sale area.