

Growing & Harvesting Timber

Introduction

If you are interested in generating supplemental income from your property's natural resources, it may be worth considering growing and harvesting timber. In addition to the financial benefits, timber harvesting is a tool that can be used to make a variety of improvements to the woods in your backyard. For instance, a small harvest could be used to create scenic vistas or forest openings for wildlife. Furthermore, the income generated through timber harvests can be used to complete a variety of projects or to help pay your property taxes. In short, growing and harvesting timber can be a good complement to the other activities you are pursuing on your property.

Tools for Your Timber Resource

Harvesting timber is one of many tools in a forester's toolbox. Tree planting, precommercial thinning, and pruning can also be used to increase the health and productivity of your woodland. A licensed forester can help you decide which practices are best to meet your goals and can help arrange a contractor to perform the recommended work. Although these practices require a financial investment, you can greatly reduce the cost by doing the work yourself. The following is a brief overview of planting, precommercial thinning, and pruning:

- 🍁 **Planting.** You can plant trees in old fields, forest openings, or recently harvested timber stands. It is usually best to plant native species that are a good match for the soil and level of shade.
- 🍁 **Precommercial thinning.** You can help a young forest grow better by removing some of the trees. Essentially, the best or most desirable trees are given more room to grow. The trees that are cut down are generally left in the woods to decompose because they are too small to sell.
- 🍁 **Pruning.** You can often improve the quality and health of your trees by removing some of the lower branches. However, pruning must be done properly to avoid causing injury to your trees. See the following

section “Pruning to Increase Value” for guidance on proper pruning techniques.

If you’re interested in growing timber, sources of information and assistance abound. A good first step is to call your local MFS District Forester (see the back cover). The primary job of District Foresters is to assist landowners in making informed decisions about their woodland. The MFS also publishes a list of private foresters who can help you with all aspects of forest management. This list is available at https://www.maine.gov/dacf/mfs/policy_management/wwi/stew_foresters_web.pdf.

Pruning to Increase Value

Pruning is an easy and effective way to improve the woods in your backyard. To maximize your success, follow the guidelines in this section.

Reasons to Prune

Pruning is the practice of removing unwanted branches from living trees. You might prune to make a tree safer, to improve the health or appearance of a tree, or to increase a tree’s commercial value. In this section, we will focus on pruning trees to improve your financial results from an eventual timber sale.

Economic Benefits of Pruning

Pruning can increase the commercial value of your **crop trees** by increasing the volume of clear lumber. Because clear lumber generally commands a premium over knotty lumber, pruning makes good economic sense for many woodland owners growing timber. In fact, past studies on eastern white pine in Maine have found that the value of pruned trees were 13.5% greater than the value of unpruned trees (see MFS “Information Sheet 2: Pruning Your Forest Trees” at https://www.maine.gov/dacf/mfs/publications/information_sheets.html). That’s good news for the engaged woodland owner that is willing to invest some time and effort to improve future timber sale returns.

When to Prune

Dead branches can be pruned any time of the year, but live branches should be removed when trees are dormant in the fall and winter. This timing is particularly important for hardwood species. In terms of tree age, it is best

to begin pruning when trees are young and the branches are small. This allows each tree to produce the most knot-free wood and clear lumber. Further, removing small branches is healthier for trees than removing large limbs.

How to Prune

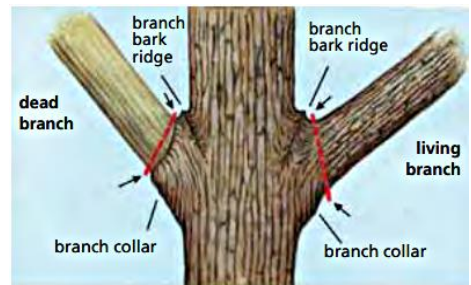
The following suggestions will help you get the most from pruning your trees:

Tree Selection

- ❁ Selecting and marking the trees prior to pruning will save you time and labor. This can be done by you or your forester.
- ❁ Prune only trees with healthy crowns that receive direct sunlight. Where necessary, remove competing vegetation in close proximity to the trees you intend to prune.
- ❁ Focus your pruning on high-valued species with straight trunks. Do not prune trees with trunk damage, forks, or large-diameter branches.
- ❁ In some timber stands, you may prune up to 150 trees per acre. However, you may also decide to prune a much smaller number.

Proper Pruning Method

- ❁ First, make an undercut to prevent the bark from tearing. Next, safely remove the branch by making your second cut farther from the stem (see diagram C).
- ❁ Last, cut along the outside ridge of the **branch collar** (the slightly raised ridge surrounding the union of the branch and the stem). Cut as close as possible without damaging the collar. Cutting into the branch collar will cause unnecessary injury to the main stem of the tree.
- ❁ The technique for pruning softwood species like white spruce is slightly different than



A. Targeting the cut



B. Cutting a small branch

C. Cutting a larger branch

Pruning. Source: USDA

the technique for pruning hardwood species like sugar maple. Both techniques can be found in the USDA booklet, “How to Prune Trees,” at <https://www.fs.usda.gov/treearch/pubs/12602>.

Pruning Height

- ❁ Trees grown for timber should be pruned to a height of either 17 feet (one 16-foot log and a 1-foot stump) or 25 feet (two 12-foot logs and a 1-foot stump). This usually requires removing branches in increments over time.
- ❁ Don't remove more than one-third of the live crown. For example, if the live crown is 15 feet high, don't remove more than 5 feet of the live branches.
- ❁ The pruning of individual trees may be done over many years to achieve the desired pruned height, while maintaining two-thirds live crown.
- ❁ Branches rubbing the main stem should be removed whenever possible.

Pruning Equipment

- ❁ Purchase high-quality pruning tools from a forestry supply company or reputable garden center.
- ❁ Use a short-handle pruning saw or pruning shears for lower branches.
- ❁ Use a pole pruning saw for branches higher than five or six feet.
- ❁ Never prune with an axe.

Record Keeping

- ❁ Because pruning can add value to your trees, it is a good idea to keep records of their location and the date of pruning.
- ❁ Good records can help you negotiate a fair price for your timber when it is time to sell.
- ❁ Notarized pruning records can be entered into the local registry of deeds miscellaneous book. This can be a great benefit to your heirs and should be carefully considered in the legacy planning process.

For general guidance on pruning, you should consider contacting your local MFS District Forester. If you would like a detailed pruning plan with instructions, use the Stewardship Forester list at https://www.maine.gov/dacf/mfs/policy_management/wwi/stew_foresters_web.pdf to locate a consulting forester.

Harvest Planning Considerations

There are many things to consider when planning a timber harvest on your property. Three of the most important considerations include wood markets, access to your property and timber, and type of harvesting equipment. In this section, we will discuss integrating these factors into the planning process for timber harvests.

Wood Markets

Because the markets for timber products are constantly changing, we recommend working with a licensed forester to get the best financial outcome. Sometimes it is advisable to wait for prices to improve for certain forest products before implementing a harvest. A forester can help you make that determination. Keep in mind, no one has a crystal ball to predict what forest products will be valuable in the future. Therefore, maintaining a healthy and diverse forest is important to financial success. Having a mixture of different tree species of various ages, across your property, can be a good hedge in times of changing or volatile markets.

Access to Timber

Woodland access roads are typically necessary to implement timber harvests and many other forestry practices. In terms of harvesting, access roads are needed for timber to be loaded onto trucks for delivery to mills across the state. If an old road exists on your property, it might be improved to meet the current standards for logging and trucking. Don't get too concerned with road-building costs until you consider your payment options and the type of road you will need for your harvest. You should also consider that your timber harvest income should more than cover any road-building costs. It is a good idea to discuss this with your forester and logger ahead of time.



Access road. Source: Dan Jacobs

The two most common ways for landowners to pay for access roads are through upfront payments directly to construction contractors or by accepting somewhat lower **stumpage** prices. Stumpage is a forestry term that means the income landowners receive from selling timber. Accepting a lower price for your timber may be the least painful way to pay for road work. This concept will be discussed again later in this chapter.

There are two basic types of roads and two basic levels of road work that may be used to provide access to your property. The two types are winter roads and all-season roads. Winter roads require the least amount of construction work and rely on frozen ground to support trucks and logging equipment. In contrast, all-season roads require the greatest amount of work and have the highest cost. All-season roads are built to a high standard and can serve as year-round access to your property. The two basic levels of road work are new construction and upgrading existing roads. This is like the difference between building a new house or renovating an old house. Be aware that sometimes old roads are in very poor condition and may be very costly to improve for logging.



Winter road. Source: Dan Jacobs

A professional forester can help you determine the type of access road that is necessary to implement your forestry practices and provide you with options to pay for the work. Your forester can also help you make certain that water quality and other non-timber resources are protected during and after construction. As mentioned earlier in this publication, the techniques

used to keep soil in place and minimize the concentrated flow of water on roads and trails are called BMPs. For woodland access roads, BMPs form a system that works to protect water quality and sensitive natural features. Keep in mind that BMPs can also protect your road investment and help your road last for years to come. For more information on BMPs, see the MFS publication *Best Management Practices for Forestry* (listed on page ii).

Harvesting Equipment

The type of harvesting equipment used on your property is a very important consideration. In many situations, a logger that uses a chainsaw and cable skidder is a good fit for your harvest. These types of loggers are generally referred to as conventional loggers. The cable skidders (or tractors) they employ are designed to drag the cut trees and logs out of the woods and to the access road. Conventional loggers are often a good choice for smaller properties with a limited amount of space to operate multiple pieces of heavy equipment.



Cable skidder. Photo: Dan Jacobs

For larger ownerships, a mechanical harvesting system may be the most efficient option. These systems take several forms and often include technologically advanced equipment that harvests timber at a rapid rate. Because these systems employ multiple pieces of large equipment, they generally need more room to operate. As with many aspects of timber harvesting, it is a good idea to speak with your forester about the type of logging equipment best suited to your harvest and your property.



Forwarder. Photo: Dan Jacobs

Types of Timber Products

Dozens of commercially valuable tree species grow in Maine. They are used to manufacture wood and paper products that are sold both locally and around the world. Some of the products made from trees harvested in Maine include toothpicks, lumber, paper, and shingles. If you own more than a couple acres of forestland in Maine, you may be able to harvest forest products now or sometime in the future. That said, it is important to have realistic expectations for your property.



Log pile. Photo: Dan Jacobs

A professional forester can assess your woods and determine which species will grow best. The type of soils (or site quality) across your woodland has an enormous impact on which tree species you can grow and what timber products you can produce. Fertile ridges are often well suited to growing northern hardwoods that may eventually yield valuable sawlogs. In contrast, low-lying areas may be best for growing species such as spruce and fir. When large enough, trees of these species may be sold to mills that produce lumber used in home construction. If you have an interest in growing and harvesting timber, it is a good idea to favor species with the greatest economic potential that are also a good fit for the soils found on your property. To get an idea of the prices being paid for various species and products, check out the most recent MFS Stumpage Report for your county at https://www.maine.gov/dacf/mfs/publications/annual_reports.html#stumpage.

What is Stumpage?

Stumpage, or the income landowners receive from selling timber, is typically paid to the landowner in increments as timber is cut and sold to mills. The amount of income a woodlot can generate is difficult to estimate, because so many factors influence stumpage prices and harvest volumes.

The following is a short list of factors that influence stumpage prices and/or timber sale income:

- 🍁 **Species harvested.** Some species are more valuable than others.
- 🍁 **Harvest volume.** Logging equipment is very expensive to move and large harvest volumes help offset logging costs.
- 🍁 **Size of trees.** It takes many small trees to equal the volume of wood in a large tree. In short, harvesting small trees is usually costlier.
- 🍁 **Tree/log quality.** The highest-quality trees usually produce the most valuable products.
- 🍁 **Logging terrain.** Steep, wet, or rocky terrain can make harvesting difficult and increase logging costs.



Sawmill sign. Photo: Dan Jacobs

- ❁ **Distance to public roads.** Private logging roads can be expensive to build, maintain, and plow.
- ❁ **Equipment.** Operating costs vary with the type of harvesting equipment a logger uses and/or owns.
- ❁ **Time of year.** Logging costs and the prices mills pay for wood often change from season to season.
- ❁ **Landowner needs or special requirements.** Constraints on harvest activities that impede production can increase logging costs. An example of a landowner constraint is the requirement to leave skid trails free of slash or logging residues.
- ❁ **Market demand.** Mills may lower prices when there is a surplus of wood.
- ❁ **Distance to market.** Sometimes mills will pay more for wood that is hauled longer distances.
- ❁ **Involvement of a licensed forester.** There are several ways that a forester can charge for timber sale administration services. A common approach is to charge a small percentage of the stumpage paid to landowners. This directly reduces timber sale income.
- ❁ **Landowner knowledge of market value.** Knowledge is the key to success. Landowners should have an understanding of current stumpage prices prior to negotiating with a logger.
- ❁ **Type of harvest (i.e., partial or clearcut).** Cutting all of the trees in an area (clearcutting) is more efficient than leaving a percentage of healthy, undamaged trees (partial harvest). In short, partial harvests can increase logging costs.
- ❁ **Regulatory constraints.** Complying with regulations can be challenging and may reduce harvest volumes. Highly regulated areas may have increased logging costs and reduced stumpage prices.

As you can see, there are many factors that influence stumpage prices. A key point to stress is that increased logging costs typically reduce stumpage prices and timber sale income. If you do a little research and work with reputable professionals, you will be very likely to achieve good financial results.

Working with a Professional Forester

The MFS recommends that landowners work with a licensed forester to help plan and administer timber harvests. Selecting a forester with good references can help you avoid many problems and ensure that your harvest

goes well. The Stewardship Forester list at https://www.maine.gov/dacf/mfs/policy_management/wwi/stew_foresters_web.pdf provides contact information for many professional foresters across the state.

If you decide to harvest timber, review the following checklist to ensure you are on the right path:

- ❁ Select a licensed forester to plan and oversee the timber harvest. A licensed forester can help with the remaining items on this checklist.
- ❁ Choose a logger after checking references and professional credentials.
- ❁ Address landowner liability and workers' compensation insurance with your forester and logger.
- ❁ Make certain abutting landowners agree with the location of your boundary line. In addition, properly mark your boundary line prior to harvesting timber.
- ❁ Have a general understanding of the forestry regulations and review the MFS publication *The Forestry Rules of Maine* (see page iii).
- ❁ Notify your neighbors about the harvest. This can help you maintain good relationships with abutting landowners.
- ❁ Have a written contract signed by all parties involved in the harvest. Contract basics can be found on page 118 of *The Forestry Rules of Maine*. Further, sample contracts are available from organizations such as Maine Woodland Owners (see Primary Resources, page 5).

Property Tax Programs

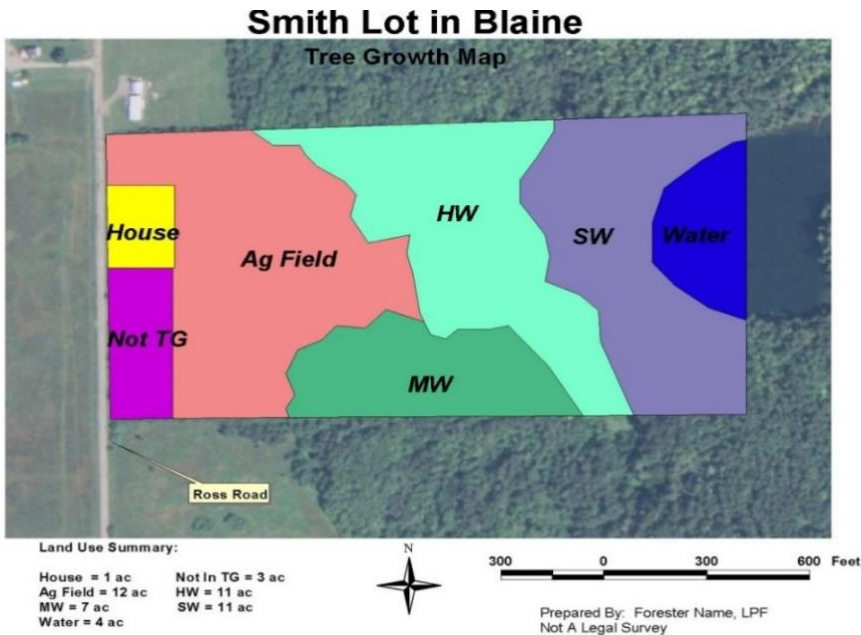
Maine's "current use" property tax programs, which offer landowners a reduction in their assessed value, include Tree Growth, Open Space, Farmland, and Working Waterfront. The two programs most applicable to woodland owners are Tree Growth and Open Space, but woodland owners interested in actively managing their forest resources most often choose Tree Growth.

Although the Tree Growth program can significantly reduce property taxes on woodland, landowners must meet eligibility criteria to enroll their property. In addition, they must meet certain requirements to keep land enrolled in the program over time.

Two of the most important eligibility requirements include a minimum acreage and a current forest management plan. Tree Growth has a ten-acre minimum to enroll, and the land must be forested. In addition, all enrolled acres must be included in an up-to-date written forest management plan

prepared by a licensed forester. The plan, which includes a stand-type map for the property, must be kept current and updated every ten years.

Because the intent of Tree Growth is to promote active forest management, landowners cannot leave enrolled woodlands idle or treat them as nature preserves. Land thus classified must undergo forest management and the eventual harvest of forest products.



Tree growth map sample. Source: MFS

If you're interested in managing your woods for the production of forest products, such as firewood or maple syrup, Tree Growth may be a good fit for you. Consider your reduced property taxes under Tree Growth as a small reward for good forest management and for supporting Maine's forest economy. For additional information, refer to MFS "Information Sheet 17: The Maine Tree Growth Tax Law" at https://www.maine.gov/dacf/mfs/publications/information_sheets.html.

You may also contact the Property Tax Division at the Maine Bureau of Revenue Services at 207-624-5608 or <https://www.maine.gov/revenue/propertytax/homepage.html>.

To begin the process of enrolling your forestland in Tree Growth, contact a licensed forester. The Stewardship Forester map on the MFS website provides contact information for many professional foresters across the state: https://www.maine.gov/dacf/mfs/policy_management/stewardship_foresters.html.

Do You Know?

#5. The name of Maine's deepest lake?

Answer on page 120

Backyard Family Activity #7: Assessing Timber Potential



The various trees that make up your woods may yield valuable forest products now or in the future. Some of the timber products derived from trees include lumber, paper, and tool handles. Sawlogs, used for lumber, come from higher-quality trees that are free from rot and excessive branches. In contrast, pulpwood, that is used to produce paper, may come from much lower-quality trees. This activity will give you a glimpse at the timber production potential of your woods.

Getting Ready

Before starting the activity become familiar with the book the *Forest Trees of Maine* (see page iii). This book contains descriptions of all the trees native to Maine. It also has a list of the forest products that each species has the potential to produce. It will probably be easier to complete this activity in the summer or early fall when the hardwood species still have leaves. When you are trying to identify a tree, assess individual tree parts and match them to the images and descriptions in the book. In the summer, you will have leaves and needles, bark, twigs, and cones and seeds to use for identification. If you are extremely motivated to complete this activity, try using the summer or winter keys on pages 10 and 12 of the *Forest Trees of Maine*. Don't forget to keep this activity fun!

Items Needed

- A copy of the *Forest Trees of Maine* (see page iii)
- A roll of blue flagging (available at most hardware stores)
- The Master Map from “Backyard Family Activity #1: Scouting Your Land” (page 24)
- A compass as used in “Backyard Family Activity #4: Using a Compass” (page 64)

The Activity

In this activity you will walk through your woods, identify trees by species, and assess the trees you find for timber products. This activity requires that you have completed “Backyard Family Activity #1: Scouting Your Land” and “Backyard Family Activity #4: Using a Compass.”

Timeframe

One to two hours.

Steps

1. As in “Backyard Family Activity #1: Scouting Your Land,” you will walk through your woods and stop periodically to gather information. Decide how many stops you’ll make, based on the size of your woods. It might be a good idea to set a goal of making at least 10 stops. If your property is 300 feet long, you may want to stop every 20 steps to gather information. If it’s 10 acres, stop every 200 steps so that you can finish the activity in an hour or so.
2. Upon arriving at each stop, mark your location in the woods using blue flagging. Then mark your location on the Master Map from “Backyard Family Activity #1.” Tying a piece of blue flagging to a small tree or shrub will make it easier to identify the location where you stopped. You will be stepping away from this point to assess a tree.
3. Select the tree closest to your stopping location that lies along your line of travel. The tree can be any size but should be at least five feet tall.
4. Use the *Forest Trees of Maine* to identify the tree by **species**. If you know it is a birch, but are unsure which species, then indicate birch on your Master Map. However, it is best to identify the exact species (such a yellow birch). Don’t be afraid to make an educated guess.
5. Record the **size** of the tree under the species. You can use the categories small, medium, and large. Grabbing the stem of a small tree, your fingers will touch. If you hug a medium sized tree, your hands will touch. You will not be able to touch your hands when you hug a large tree.
6. Use the *Forest Trees of Maine* to determine which **forest products** a tree might yield. The uses for every tree are provided at the end of each species description. Write the potential products on your map under the species and size.

7. Once you have made all your stops and recorded all the suggested information, it is time to assess your map. Look at the species you found and the timber products that may be produced. Your large trees may have valuable products now. In contrast, it may be many years before your small trees are large enough to contain any forest products.

Example 1: You make ten stops and find many small sugar maple and yellow birch trees. From this you may conclude that it will be many years before you can harvest timber from your property. With good management and time, you may eventually have sawlogs to sell.

Example 2: You make five stops and find large fir and spruce at each. This leads you to believe that you have valuable timber that is ready to harvest.

8. Hopefully, this was a fun exercise that made you think about forest products. It was also a good introduction to using the *Forest Trees of Maine* to identify different tree species. **This activity was not intended to provide an accurate inventory or the basis for forest management.** If you are really interested in growing and harvesting timber, you should work with a licensed forester. Information about licensed foresters is provided in the next chapter, “From Great Ideas to Action.”



**Mondo ash tree in Yarmouth, Maine.
Photo: Jan Santerre**