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Managing White Pine Stands In Maine

A Landowner's Guide

Maine Forest Service, DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY,
22 State House Station, Augusta, ME 04333

Eastern White Pine is one of Maine's most important tree species. Managing your woods for white pine can provide you and your family lifelong benefits; from excellent financial returns to aesthetic beauty, wildlife habit and recreational opportunities. White pine forests contribute to both woodland owners and Maine's economic wellbeing. Maine holds the distinction of being the number one white pine lumber producing state in the nation. In 2009, Maine sawmills processed 204 million board feet of quality white pine lumber, approximately a third of Maine's total output. Landowners received \$31 million dollars in stumpage value from harvesting white pine, substantially contributing to Maine's Gross Domestic Product (GDP), while providing well paying jobs for Mainers. In grades 1, 2, & 3, white pine was 16% of all sawlog volume and 27% of all softwood sawlog inventories. No wonder white pine is the official state tree for Maine.

Although opinions on climate change and effect on Maine's forests vary, there is general agreement that Maine's forests have always been influenced by a changing climate. According to George Jacobson, Maine's state climatologist, the projected rise in temperature will result in changes in the species composition of Maine's forests as well as a longer growing season. These trends could result in the white pine range expanding northward and experiencing increased growth - making white pine an ideal species for active management

Getting Started

How you manage your woods depends on your vision and goals. For example, stands can be managed for timber production or other forest products, wildlife habitat, esthetics, water protection, backyard landscaping, or a combination of values. Whatever your goals, initial assistance on managing your white pine forest is available, free of charge, from the Maine Forest Service (MFS). Meeting with a MFS District Forester to walk your land and talk about your goals is an ideal way to get started. District Foresters can answer your questions about your woods, and help you make choices about managing your land and trees. We can help - whether you're just getting started, or have been managing your woodland for years. To locate the District Forester for your area, please visit <http://www.maine.gov/doc/mfs/fpm/ff/foresters.htm>



Maine is known as the "Pine Tree State" and the Eastern white pine is the official tree of the State of Maine.



White Pine Characteristics

White pine grows in all localities in the state in a wide range of situations, including heavy wet soils and sandy upland soils, but develops best on fertile, well-drained soils. On sandy soil it often becomes established in pure or nearly pure stands. The tree grows rapidly both in height and diameter, making an average growth in height of 1 foot or more each year. When growing in the open, the young tree is symmetrical and conical in outline. In the forest, a white pine tree has a narrow head; and the trunk is commonly free of live branches for a considerable portion of its length. The branches are horizontal and in regular spirals, or whorls, usually of 5 each. Very old trees often become quite irregular and picturesque.

Timber Production

Managed stands of white pine can produce high quality sawlogs and pulpwood. From a timber standpoint, the goal is to produce trees with long, straight, branch-free stems, which are further manufactured into highly valued wood

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products such as clear knot-free boards, furniture stock and interior trim and molding. To encourage trees to compete for light and grow tall, rather than to branch at lower levels, stands of white pine should be prudently thinned every 10 to 15 years as the trees grow to marketable size. Care should be taken not to open the stand too rapidly because white pines are susceptible to ice damage. Periodic pruning of lower limbs on future crop trees produces the clear knot-free logs most highly valued by mills.

Managing an Existing Stand

White pine is moderately tolerant of shade and grows best in stands of similarly aged trees or other situations with limited shade. In the seedling stage, white pine is susceptible to competition because its growth in height is slow compared to many other species. If white pine survives to the sapling stage, its ability to compete is greatly improved.

Thinning is not needed in the youngest stands of pure or almost pure white pine, those averaging 1 to 5 inches diameter at breast height (DBH) – the standardized method foresters use in measuring tree diameter. However, releasing pine seedlings or young saplings from hardwood competition, especially where the hardwood is overtopping the pine, is often recommended. Releasing around 150 of the best future crop trees per acre from this competition is optimum. A release operation may need repeating if the site is rich and the hardwood competition severe. Getting advice from a Maine licensed forester can be very helpful in identifying the best future crop trees.

If your stand is a plantation with trees in distinct rows, a systematic approach is often recommended for the first thinning. This usually means removing every third row. If this sort of thinning will not lower stocking to the appropriate level, landowners may want to selectively cut some additional trees in the "leave" rows. However, a general cutting of 30 to 50 percent of the trees in all rows may be a more appropriate type of thinning. This is especially true if your stand exhibits considerable variability in size, as white pine often will. Selective cutting of poorly formed trees is also better if your stand has a fair amount of weevil damage. Selective cutting with an eye towards stand improvement allows you to keep the best stems and remove the smaller and/or poorer formed stems. Removing the worst tree first is typically best for subsequent thinnings, as the trees get bigger and the spaces between trees gets wider. If your first thinning is delayed much beyond age 20, you may want to mark less heavily than every third row. Heavy thinnings in older stands increase the potential loss from snow loads and/or windthrow. Again, advice from a licensed forester, often in the form of marking trees to cut before harvesting operations begin, is often beneficial.

Harvesting Mature Stands

Determining "maturity" (also known as "rotation age") for managed white pine stands varies depending upon the productivity of your site and your management goals. It may be as short as 60 years or as long as 150 years. Shorter rotations are typically recommended for very dry (poor) soils or where high return on investment is the primary goal. Longer rotations are more appropriate for moist/nutrient-rich soils and where high rates of return are less critical. Of course, rates of return can be significantly improved if you follow a program of frequent thinnings that produce salable products. Because of this variability in the rotation lengths for pine stands, getting professional advice from a licensed forester about the appropriate timing for harvesting is very important.



Eastern white pine grows on a variety of sites with many other trees species. It often grows naturally in old fields along with other pioneer species, such as aspen and white birch.

For more information, please contact:

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