



FOREST MANAGEMENT PLAN

THOMPSON WOODLOT

Forest Grove, Lincoln County, Maine
Map 12, lot 15

Ron and Mary Thompson
509 Maple Rd.
Forest Grove, ME 04333

Prepared by:
Harold Burnett, LF 993
January 13, 2012

*This plan meets specifications for:
Maine Tree Growth Tax Law and American Forest Foundation's Tree Farm classification*

MANAGEMENT OBJECTIVES

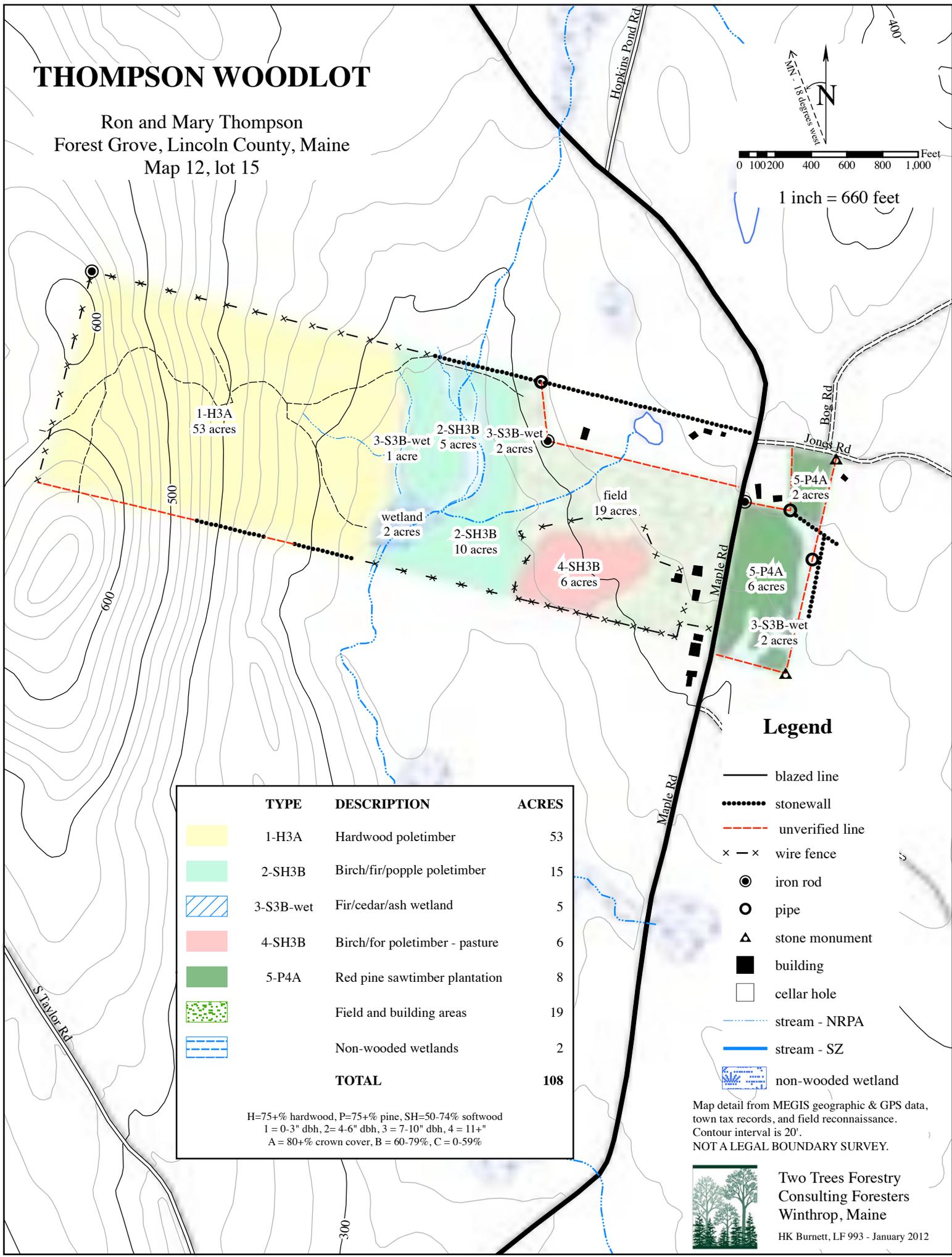
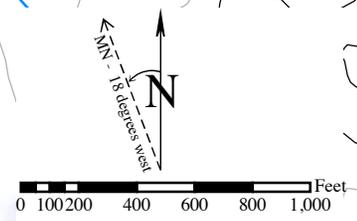
The Thompsons acquired their land in 1987, expect to retain it for many years, and hope that it will stay in the family. Ron and Mary live on the property, routinely walk the land, raise cattle, and selectively harvest firewood and sawtimber for personal use. Ron will continue to harvest, with his oxen, for their personal needs but would like assistance with any commercial timber sales. They would like to manage the woodlot in a way that enhances its timber values and protects its health and the local water quality. They want to maintain low ownership costs and thus plan to enroll some of their land in Maine's Tree Growth Tax Law; they understand that the production of forest products will be an important priority. In addition they would like to convert most of the area across from their house back to an agricultural use. Esthetic values are very important, though they don't feel that harvesting will interfere with this.

BACKGROUND

The 108±-acre Thompson woodlot straddles the Maple Road, about one-quarter of a mile south of its intersection with the Hopkins Pond Road, in Forest Grove, Maine. The property is essentially rectangular, nearly 4,300 feet long and 1,200 feet wide, excepting a few abutting houselots, and extends westward up to the top of the ridge that runs to Bald Mountain. Beavers have dammed the lot's primary stream and created an open wetland near the lot's southern boundary. The terrain is distinctly varied with steep ground rising from the beaver flowage up to the Bald Mountain ridge, whereas most other areas are relatively flat. Underlying soils are generally quite productive and moderately well drained. Red pine, oak, and scattered hemlock sawtimber and oak, maple, birch, and fir poletimber now dominate the woodlot. Timber volumes likely total 120,000 to 180,000 board feet of sawtimber and 1,400 to 1,800 cords of pulpwood, likely worth \$40,000 to \$60,000.

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 Forest Grove, Lincoln County, Maine
 Map 12, lot 15



TYPE	DESCRIPTION	ACRES
	1-H3A Hardwood poletimber	53
	2-SH3B Birch/fir/popple poletimber	15
	3-S3B-wet Fir/cedar/ash wetland	5
	4-SH3B Birch/for poletimber - pasture	6
	5-P4A Red pine sawtimber plantation	8
	Field and building areas	19
	Non-wooded wetlands	2
TOTAL		108

H=75+% hardwood, P=75+% pine, SH=50-74% softwood
 1 = 0-3" dbh, 2 = 4-6" dbh, 3 = 7-10" dbh, 4 = 11+"
 A = 80+% crown cover, B = 60-79%, C = 0-59%

Legend

-  blazed line
-  stonewall
-  unverified line
-  wire fence
-  iron rod
-  pipe
-  stone monument
-  building
-  cellar hole
-  stream - NRPA
-  stream - SZ
-  non-wooded wetland

Map detail from MEGIS geographic & GPS data, town tax records, and field reconnaissance. Contour interval is 20'. NOT A LEGAL BOUNDARY SURVEY.



Two Trees Forestry
 Consulting Foresters
 Winthrop, Maine
 HK Burnett, LF 993 - January 2012

Historic access to the lots has occurred from the Maple Road. West of the road trucks have entered the woods from the northwestern corner of the field to a small yard, just west of the brook. East of the Maple Road the former agricultural land can be accessed from both the Bean and Short Meadow Roads, though the small yard across from the house remains the best entrance point. The woodlot's length creates long skidding distances, and steep western terrain challenges operability, though elsewhere the gentle slopes allow quite good operability.

Robert Somerfield, of Auburn, surveyed the property and placed pins in most corners. Connecting lines are generally visible as stonewalls and/or wirefences, though the southern boundary is quite indistinct near the top of the ridge and I couldn't find the pin the southwestern corner. Forest Grove currently assesses taxes on 108 acres, which correlates well with physical evidence and Somerfield's work. The farm and woodlands are currently enrolled in Maine's Farmland property tax program.

The relatively small property provides limited but high quality habitat for a variety of wildlife species. Deer, beaver, porcupine, fox, and a multitude of birds were seen or evidenced on the property. Critical habitat elements such as fresh water, softwood cover, and numerous nut-bearing oak and beech trees are found throughout the lot. Maine's Dept. of Inland Fisheries and Wildlife has identified the red pine plantation and adjoining land as potentially as essential or critical deer wintering habitat, though its biologists haven't determined its actual level of use. However, with the recent cutting and houselot development in that area, it is unlikely that deer utilize the area to a greater extent than other areas nearby.

SOIL AND FOREST RESOURCES

The property was divided into two geographic units:

- upper slopes—deep, moderately well drained, and highly productive Paxton and Hollis fine sandy loam soils, which formed in glacial till. These soils are well suited to growing sugar maple, white ash, hemlock, beech, and red oak. Sections of steep ground complicate operability in a few places.
- lower slopes and flat areas—deep, moderately well drained, and highly productive Scio and Woodbridge fine sandy loams, which formed in glacial till. Though these soils are often interspersed with small streams and wetruns the upland areas are excellent sites and well suited to sugar maple, white ash, yellow birch, and hemlock. If wetruns can be avoided, there are no management limitations to these areas.

For management purposes, the woodlot was split into five stands.

Stand 1 – Hardwood poletimber (H3A - 53 acres). Most of the lot's western half is dominated by eight to 12" diameter and 60' to 70' tall oak, sugar maple, red maple, popple, white birch, beech, and yellow birch poletimber, along with scattered hemlock sawtimber and poles. Most of the stand likely originated following a 1940 - 1950 harvest, with most of what remained then having been harvested during the 1970s and/or 1980s. Patches of the resulting 2" to 4" hardwood saplings are scattered throughout. Most of the hardwoods are straight and small limbed, with excellent potential for improved value. The hemlock are of similar form, but often a bit smaller. Current stocking levels are quite high, likely averaging 120 to 140 square feet of basal area per acre. Timber volumes likely total 1,000 to 2,000 board feet of sawtimber and 18 to 22 cords of pulpwood per acre.

Stand 2 – Birch, fir, and popple poletimber (SH3B - 15 acres). Between the fields and the westernmost wetrun, rolling terrain supports a varied stand of six to 12" diameter and 40' to 60' tall popple and fir poletimber, along with scattered hemlock, white pine, and white birch sawtimber; birch, ash, and maple saplings are scattered throughout as well. The stand likely originated on abandoned agricultural ground during the 1960s. Ron has selectively harvested portions of this area and developed a network of trails. Some of the fir and virtually all of the popple are nearing maturity. Current stocking levels vary but likely average 50 to 70 ft. sq. of basal area per acre. Timber volumes likely total less than 1,000 board feet of sawtimber and 12 to 18 cords of pulpwood per acre.

Stand 3 – Fir, cedar, and ash poletimber - wet (S3B-wet - 5 acres). Two stream corridors, one on either side of the Maple Road, are flat, narrow, and wet. Productivity is low, though the area does support eight to 12" and 50' to 60' tall cedar, fir, and brown ash poletimber. Eastern sections are quite open, having not been planted to red pine, like neighboring areas, or those that were planted failed to thrive. Timber quality is generally low. Current stocking levels likely average 80 to 100 square feet of basal area per acre. Timber volumes likely total less than 1,000 board feet of sawtimber and 10 to 15 cords of pulpwood per acre.

Stand 4 – Birch and fir poletimber - pasture (SH3B - 6 acres). Closest to the house and surrounded by barbed wire, cattle graze through a varied stand of six to 12" diameter and 40' to 60' tall popple and fir poletimber, along with fir and scattered white pine sawtimber; birch, pine, and fir saplings are scattered throughout. The stand likely originated on abandoned agricultural ground during the 1960s; Ron has selectively harvested portions of this area. As some portions of the stand are quite open, current stocking levels vary but likely average 40 to 60 sq. ft. of basal area per acre. Timber volumes likely total less than 1,000 board feet of sawtimber and 12 to 18 cords of pulpwood per acre.

Stand 5 – Red pine sawtimber plantation (P4A - 8 acres). Across from the house a nearly pure stand of 10" to 14" diameter and 70' tall red pine sawtimber is growing on old agricultural land. The stand was planted during the early 1960s; Ron has selectively harvested most of the area, leaving what is now a relatively uniformly stocked stand with 120 to 160 sq. ft. of basal area per acre. Isolated white pine and red maples are growing there as well. Though height growth appears to be at least modest, diameter growth has failed to improve despite Ron's thinning work. The stand exhibits no signs of root rot or other pathogens. Timber volumes likely total 7,000 to 10,000 board feet of sawtimber/poles and 15 to 20 cords of pulpwood per acre.

LAWS IMPACTING FOREST MANAGEMENT ON PROPERTY

- **Shoreland zoning** – Areas within 250’ of the lot’s primary wetland are designated as a shoreland district. Within that area loggers may not remove more than 40% of the timber during any 10-year period. Ron should confer with the code enforcement officer before harvesting within that zone. Other restrictions apply, though none significantly limit management options.
- **Natural Resources Protection Act (NRPA)** – NRPA regulates disturbing soil adjacent to water bodies, including all seasonal brooks including all well defined channels with exposed mineral soil, including streams with only seasonal water flows. The law requires that concerted efforts must be made to ensure that soils don't wash into the brooks. Working within guidelines described in the Maine Forest Service's Best Management Practices for Forestry should ensure compliance. Permitted activities may require permit-by-rule (PBR) or full permitting.
- **Protection and Improvement of Water Law** – The law regulates activities, which discharge or may potentially discharge materials (pollutants) into water bodies. In forestry context the law addresses pollutants originating from non-point sources and addresses the impact, not the location, of an activity.
- **Erosion and Sedimentation Control Law** – The Law requires that measures be taken to prevent unreasonable erosion of soil or sediment beyond the site or into a protected natural resource, such as a river, stream, brook, lake, pond, or wetland. Erosion control measures must be installed before the activity begins, be maintained, kept in place and functional until the site is permanently stabilized.
- **Forest Practices Act** – FPA mandates adequate regeneration must be present within five years of any harvest, establishes rules relating the planning requirements, size, and spacing of clearcuts, and outlaws liquidation harvesting. All landowners must notify the Maine Forest Service prior to harvesting and then report volume and price information for any year in which harvesting occurred.

SHORT TERM MANAGEMENT RECOMMENDATIONS

The woodlot should be managed in a way that improves the quality of the growth stock over the long term, while protecting water and soil quality in and around the numerous wetlands and providing a steady flow of firewood and personal-use sawtimber. Elsewhere the plantation should be converted to agricultural land.

The top ownership priority should be to maintain boundary markings around the perimeter, especially along the western and southern lines. The northern boundary has been somewhat recently blazed and is quite visible, though elsewhere lines are quite indistinct. Contractors could blaze the lines for \$700 to \$900 per mile, though Ron may be able to do it also. Lines should be maintained at about 10-year intervals.

Given that Ron and Mary want to reduce annual property taxes they will likely enroll the wooded areas west of the farm under Maine's Tree Growth Tax Law, prior to April 1, 2012. Once enrolled, they will be required to follow a few rules or risk losing the preferential tax status and becoming liable for a financial penalty. With this plan complete and a TGTL application submitted to the assessor, they will be under no obligation to Forest Grove until 2022. At which point, if the land is to remain in TGTL, they will be asked to contract with a forester to certify that the general intent of this plan was followed and to create a new plan. However, if their goals change prior to the anniversary date, they are expected to amend the plan to reflect the new direction and management intent.

For the most part the woodlot is growing well and healthy. However, despite the good soils across from the house, it appears that growth within the red pine plantation has slowed since the 1990s; even pines released of competition have failed to increase significantly in diameter. Fortunately, some of the trees have reached their optimal value and Ron is interested in converting the stand back to farmland. Elsewhere, but notably around the brook (stand 2-SH3B) Ron has been removing low-grade hardwood and fir, though more remains to be done. Thus the priority over the next 10 years will be to convert the pine stand and finish removing mature popple and fir from near the brooks.

Converting the pine plantation can occur in either of several ways, all at once or incrementally. A commercial logging contractor could liquidate the stand at one time, or Ron could pick away at it over time. At this point Utility Pole Buyers appears to offer the best opportunity for Ron to maximize his return from the conversion; they will pick up and buy poles as small as 12" diameter (38"+ circumference), 6' from the ground. In addition they also buy red pine as 30' long piling stock with a minimum 10" diameter (32"+ circumference), 6' from the ground. If Ron is interested, a pole buyer will mark the desired length of each pole-tree to be cut, and once cut, yarded, and assembled in the yard UPB will pick up and pay for the wood in the yard. Piling stock sells roadside for about \$160/MBF, with poles earning about \$225/MBF. Tops and smaller trees, not meeting these specifications, would be saleable as pulpwood, if not sawlogs. Ron would have to cut 5,000 to 7,000 board feet of pole and/or piling stock at a time to fill each UPB truck. A contractor could also clear and chip the plantation. Such work would likely remove 50,000 to 70,000 board feet, 50 to 100 cords of pulpwood, and 500± tons of biomass worth \$7,000 to \$10,000 of stumpage.

If Ron opts to continue working in the areas where he has been I suggest that he remove the same type and size of timber that he has. He has a good eye for what has little potential to improve. From the field to the westernmost stream all popple should be removed along with mature fir, rough quality red maple, and any trees competing with developing sugar maple, red oak, or white ash saplings and poletimber. Though all trees cut can be burned as firewood, I can help arrange trucking if Ron prefers to sell the popple and fir as pulpwood.

Once that area is finished, the task becomes a bit more difficult, because the oxen will have to skid longer distances and operate on steeper terrain. However, some of the best timber stand improvement opportunities lie on the flanks of Bald Mountain. There most of the best oaks, maples, and ash are 60' to 70' tall, but only six to 12" in diameter. The tall, straight stems will increase in value considerably with greater diameter, though adding increment will require that competing trees be removed so that the better trees' crowns can expand. Ron should therefore focus his attention on accessible areas where he can release these best trees. Though the hillside stand supports popple, the popple aren't as mature as those closer to the brook; the hillside popple are still quite vigorous and not often competing with better quality stems. I recommend enabling those popple to become larger (waiting perhaps until 2020 or so) before striving to liquidate it.

In thinning around the best trees Ron should first identify which trees he wants to release. These should generally be tall and straight red oak, sugar maple, and white ash trees with few, if any, limbs on the stems' lower 30'. Such trees should be released on two "sides". When picturing a tree's generally round crown from below or above, each pie-shaped crown should be figuratively divided into four pieces or quadrants. Then, at least two of those "sides" should be released of competition, so that the desired crowns may expand into the unoccupied space. Preferably low grade trees should be removed, with quality neighboring trees retained. In a uniformly stocked stand residual trees will likely be spaced at about 20' from one another. In areas where mid-canopy hemlock are present, they can generally be ignored and left to grow, as they grow well in the shade and are only valuable once they attain sawlog size. If these instructions are unclear, or Ron would like some better explanation or illustration, I would be happy to mark patches of timber to give him some idea of what I intend. Needless to say he will be my best guide in showing what he considers to be accessible terrain for his draft animals.

Nonetheless, cutting his annual firewood needs of 10 to 12 cords will likely cover about an acre each year, so cutting the entire 53-acre hillside stand is unrealistic for Ron. However, starting in about 2020, areas where Ron didn't get to or is unable to enter should be commercially thinned. In all likelihood updating this plan in 2022, will better predict the probability and economics of such a harvest.

There should be no need to update this plan prior to 2022, unless a natural disturbance intervenes or the landowner's objectives change significantly.

**MANAGEMENT PRIORITIES
2012 - 2022**

year	location	activity	net income/cost
2012	perimeter	Locate, blaze, and paint southern and western boundaries	(\$600 - \$800) ¹
2012-22	1-H3A, 2-SH3B 5-P4A	Continue timber stand improvements Liquidate plantation	firewood \$7,000 - \$10,000
2022	all	Certify Tree Growth compliance; update plan	?

¹ Such work may be completed by family members at less cost.

GLOSSARY

- Clearcutting - cutting of all trees within a defined area (generally greater than 1 acre)
- Commercial harvest - a timber stand improvement or harvest operation that results in a net landowner income
- Cord - wood measurement statistic; 128 cubic feet, or a pile of wood four feet high, four feet wide, and eight feet long
- DBH - tree measurement; diameter at breast height (4.5 feet above ground)
- Decadent - overmature trees that are deteriorating in wood quality
- Mature - condition of optimal tree value, after tree vigor and growth have slowed, yet before the onset of decay
- MBF - log measurement statistic; one thousand board feet. One board foot equals a board one inch thick by 12 inches square
- Operability - ease with which logging machinery could work a site; often limited by rockiness, steep slopes, wetness, etc.
- Pre-commercial - a timber stand improvement practice that is a cost, where trees to be cut are frequently too small to be saleable
- Poletimber - tree between five inches and 9.9 inches DBH
- Regenerate - to establish a new stand of tree seedlings
- Regeneration - seedlings of commercial tree species
- Sawtimber - logs favored for lumber; generally eight to 16 feet long, straight, with small end diameter greater than eight to 10 inches
- Seedling - tree greater than six inches tall but less than one inch DBH
- Snag - standing dead and/or dying tree. Important habitat element for numerous wildlife species
- Stand - a homogeneous unit of forestland, delineated because it supports trees of common species, age, potential, etc.
- Stocking - stand measurement relative to the optimal number of trees that a unit of forestland could grow

FURTHER SOURCES OF ASSISTANCE

1. Two Trees Forestry: We can mark trees to harvest, select competent loggers, ensure a favorable timber sale contract and best market prices, and oversee harvests to meet landowners' objectives. We also maintain boundary lines and administer Federal cost-share programs. Please contact us for further assistance. P.O. Box 356 Winthrop, ME 04364. (207) 377-7196 or www.twotreesforestry.com
2. Maine Forest Service: A good source of educational material. Taxation and utilization specialists are also on staff.
State House Station 22, Augusta, ME 04330. (207) 287-2791 or www.state.me.us/doc/mfs/
3. USDA-NRCS and Farm Service Agency: Information and applications for Federal forestry cost-sharing programs, such as erosion control, road and trail repairs, tree planting, timber stand improvement, and management planning.
21 Enterprise Drive, Suite 1, Augusta, ME 04330. 207-622-7847 or www.me.nrcs.usda.gov
4. Small Woodland Owners Association of Maine (SWOAM): Publish a monthly newsletter on local forestry concerns and organize educational field days regularly throughout the state.
P.O. Box 926 Augusta, ME 04330. (207) 626-0005 or www.swoam.org