FOREST MANAGEMENT PLAN UPDATE
(Woodland Resource Action Plan)

for

John Spadola and Nancy Glassman
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Tax Map 5, Lot 66
63 acres (49 wooded acres)

located at 642 Lincolnville Ave. (Rt. 173)
Searsmont, Waldo County, Maine

Prepared by:

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LPF #3206

February 19, 2019

This plan meets specifications for filing under Maine's Tree Growth Tax Law, and 2016 standards for the Maine Forest Service's WoodsWISE cost-share program. The planning period for this plan is 10 years and its renew date is Feb. 19, 2029.

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INTRODUCTION

This serves as a 10-year update of a forest management plan prepared by Mid-Maine Forestry (Mitch Kihn, forester) in September, 2008 for property of John Spadola and Nancy Glassman, in Searsmont, Maine. It will review the old plan, note any changes in the forest, and present management options for different areas and a schedule of activities for the next 10-year planning period. Forest management is a long-term endeavor. As time passes and the recommendations are implemented, this plan will need updating. This will allow incorporation of changes arising from human and natural, non-human influences.

The plan begins with a statement of objectives and a summary schedule of activities for the next 10 years. It then provides an overview of the woodlot regarding its history, topography, soils, timber and wildlife resources. Legal restrictions, if any, on management activities are mentioned, as well as market conditions. Accompanied with a map, forest stands are described in more detail and specific management recommendations are presented. The plan concludes with a glossary of forestry terms and a listing of sources of further assistance.

MANAGEMENT OBJECTIVES

The forest will be managed primarily to grow trees for commercial harvest according to the Maine Tree Growth Tax Law requirements for commercial use. The utilization of the timber resource for both income and personal use while maintaining a healthy, aesthetic forest is the most important objective. Providing wildlife habitat and protecting the soil and water resources are also important. Any harvesting should improve the growth, health, and density of the forest while maintaining a pleasing appearance.

In 1998 the Spadola/Glassman forest was certified under the internationally recognized Forest Stewardship Council (FSC) standards through the Resource Manager program of Scientific Certification Systems (SCS) (with Mid-Maine Forestry as the Resource Manager). This certification recognizes forest management practices that effectively sustain timber resources while maintaining the ecological viability of the forest and benefiting the surrounding community. In the long run, products from this forest can be sold as "green certified", hopefully commanding higher prices as green markets develop.

PROPERTY DESCRIPTION AND LAND USE HISTORY

The Spadola/Glassman property is located on the north side of Lincolnville Ave. (Route 173), 4 miles east of Searsmont village and 4 miles west of Lincolnville Center. The property lies on the north slope of Levenseler Mountain. An old town road (Donnell Rd.) forms the northern boundary, with a fork bisecting the property. It is 63 acres, of which 49 acres are forested. Non-wooded areas include a one-acre wetland, a one-acre housesite and 12 acres of field. The house is in the south corner at the end of a 1/3-mile long driveway that runs along the west side of the property. The lot was acquired by the Mr. Spadola in 1976.

As with most woodland in this area of Maine, the ownership was most likely farmland (mostly as pasture) in the 19th century, as is evidenced by the stone walls and sections of barbed wire fencing. The upper field had been a blueberry field about 40 years ago. Some big white pine trees off the middle old road were cut without the owner's permission in the mid-1990s. It halted when discovered. A whole-tree harvest took place in 1998, which included clearing the upper field of young trees. No additional harvesting has occurred since.

SCHEDULE OF ACTIVITIES

SUMMARY OF MANAGEMENT PRIORITIES
2019 – 2029

Year	Stand	Activity	Extent	Estimated Income/(cost)
2019-24		Blaze & paint southern boundary lines	5,100'	($305)
2024-28	1	Possible Selection harvest, if an interested logger is found; 10 mbf & 130 cords	20 ac.	$2,900
2019-28	All	Maintain woods roads and trails, as desired		(-)
2028	All	Update management plan	49 ac.	(?)

TOPOGRAPHY AND ACCESSIBILITY

For a depiction of the lot's topography see the Location & Topographic map on page 2a. The property generally slopes moderately to the north. Two small streams flowing north have resulted in side slopes in the east and west directions. The driveway, field and house are all on a dry ridge, as are the middle old road and the eastern corner of the property. Elevation ranges from about 610' in the southern corner behind the house to 374' in the northern corner, along the highway. Beavers have dammed the eastern flowage where it crosses the northern road, flooding several hundred feet of road and creating a one-acre pond. The western stream feeds into a small swamp adjacent to the same northern road.

Access into the property is from Route 173, on the west, via either the driveway or Donnell Rd. (depending on its legal status and ownership). The driveway is connected to the field, which provided an excellent area for the wood yard during the 1998 harvest. Donnell's right fork provides excellent access through the middle and eastern parts of the property. The beaver pond and adjacent wet area blocks access along the northern road.

SOILS

Most of the property is underlain with Peru soil. It is moderately well drained and very stony. With a moderately deep hardpan that is impermeable to water, it has a seasonal high water table. The well drained and very stony Marlow soil is on the upper and mid-slope below the house. Brayton soil is in the area of the beaver impoundment; it is poorly drained with a perched water table near the surface for most of the year. All of these soils are good to excellent for growing trees. The wet Brayton has a severe equipment limitation and wind-throw hazard as well as a high risk of seedlings mortality. The steeper slope ia a moderate equipment limitation.

BOUNDARIES

The boundaries of the property are very evident in the field, though they are not blazed. Stone walls delineate the entire south side and Donnell Rd. forms the northern boundary. Lincolnville Ave. is the boundary for a short distance in the north corner.

Property boundary lines should always be permanently delineated, especially before any cutting occurs. Ideally, the line is cleared for unobstructed viewing and boundary trees are painted and/or blazed (scarred with an ax). All boundary lines should be inspected, re-blazed and repainted every ten years to preserve current boundary evidence and to protect against timber trespass.

TIMBER RESOURCE

For purposes of accurately describing the forest and setting management priorities, different forest types and stands were identified. These are found in the Stand Description section and on the Property Map. No formal timber inventory was taken - only a general assessment of the forest condition with spot measurements of stocking using a 15 BAF prism. Forests cover 49 acres of the property. Covering 30 acres, the Hardwood type accounts for most of the woodland (61%). The Oak-Hardwood sub-type contains >50% red oak. The remaining 19 acres is Mixedwood. For commercial size trees (6"+ dbh) across the entire woodlot, red oak and red maple are the most common species. Other associates include white pine, yellow birch, hemlock, white birch and spruce, with lesser amounts of fir, sugar maple, white ash, beech, aspen and hophornbeam.

Timber types are further identified based on dominant canopy height and canopy closure, resulting in four stands. The woodland is mostly composed of mature sawtimber and poles. Saplings/sprouts exist where released by either the previous cut or by natural mortality. A few large residual pasture trees, mostly maple or oak, are still in the woods and serve as legacy trees with useful for wildlife. Canopy heights are moderate to tall. Stocking is adequate or very near the optimal level. Most of the property has been harvested in 1998. Most stands have full canopy closure, except for stand 2, which is a bit more open.

The distribution of volume through the property is variable. The highest volume per acre is in the hemlock-dominated sawtimber stand (#4). The total standing volume of wood is estimated to be 198,000 board feet and 1,080 cords of pulp/firewood. This is equivalent to an average volume of 4,000 board feet and 21¾ cords per acre. Sawtimber volume is dominated by the softwoods. Oak and pine are the leading sawtimber trees. Hardwoods make up ¾ of the pulpwood volume. Sawlogs comprise a high percentage of the total wood volume. It can be sustained over time if the good quality small sawtimber is allowed to continue to grow rather than get cut prematurely. The value of the current wood inventory is estimated to be $37,000, or $755/acre, which is above average. This is lower than 2008, due to the significant drop in the softwood pulp market.

Tree quality, defined as trees with the potential to become sawtimber, is above average of the typical woodlot. There are many healthy, nice looking trees, particularly oaks and some pines and spruce. The last harvest removed a lot of poor quality wood. The few remaining firs are considered unacceptable growing stock. Some trees (notably white birch, aspen and spruce) are either still standing as culls, or have recently died and remain as snags or have fallen over, adding coarse woody debris to the forest floor. Some white birch and red maple are in decline. Some of the trees are designated as pulp due only to its small size and is actually good quality growing stock. Through a program of cutting the poor quality individuals and favoring the better trees, overall tree quality can be improved over time.

The last harvest has given growth rates a boost, but now, 20 years on, it has abated to a more average 0.4 cord per acre per year. This will allow a sustainable harvest level of 19½ cords per year for the 49 acres. For a 20-year cutting cycle, this comes to 392 cords or 8 cords per acre). This is only a property-wide total. Due to variability of age, structure and stocking of the forest types, harvest levels will vary among stands. Some may not be cut at all, while others may possibly experience a heavy regeneration cut.

The density of the regeneration depends on light/shade conditions and wetness on the forest floor. Due to the 1998 harvest and the resulting opening up of the canopy, 20-year old saplings and sprouts are abundant. It includes all the overstory trees. It is most exciting to see the many oak and pine seedlings and saplings. Younger regeneration is dominated by the shade tolerant spruce, fir and beech. Shrubs include, low bush and high bush blueberry, hazelnut, witch hazel, arrowwood and maple leaf viburnums, striped maple, ground juniper, spirea and poison ivy. Raspberry and blackberry are getting shaded out and are less common.

FOREST HEALTH ASSESSMENT

Of current concern is the observation of defoliation last year in many of the oak crowns. This can likely be the work of brown tail moth and should be monitored. Besides the damage it does to the trees, the moth's hairs cause severe rash on human skin and is considered a health hazard. Searsmont is rated "moderate" in its risk of exposure to this destructive and nuisance moth. Otherwise, there are no significant insect or diseases. The property contains a normal amount of natural mortality, a result of poor productivity/vitality and rates

of growth. Dead trees are present, both standing and down. Trees that are of poor quality often contain any one of many fungal infections which slowly rot the trees' wood. This is sometimes caused by overcrowding, which limits tree growth and vigor and makes them more susceptible to fungal infection. There has been no storm damage or presence of any invasive plants.

WILDLIFE

The property provides several different habitat types for wildlife. The most interesting critical habitat element is the beaver impoundment and surrounding wetland. There are two small streams flowing through the property and a small swamp. In addition to beavers, the open water and swampy ground are good habitats for ducks and woodcocks. Fresh water is a critical habitat element for all animals. It serves as good habitat for waterfowl, amphibians and reptiles such as salamanders, frogs and turtles. Woodland adjacent to the steams and wetlands are *riparian forests*. They serve several ecological functions: minimize downstream flooding, filtering runoff and protecting water quality, maintaining cool water temperatures for fish, adding biomass for the bottom of the aquatic food chain, and provide logs that create fish and invertebrate cover and substrate for aquatic algae. Riparian forests typically support more animals than areas further away from water, including (in more substantial wetlands) tree-nesting waterfowl (such as wood duck, merganser, common goldeneye and bufflehead) and water-based animals (such as beaver, otter, mink and moose). Large pines near open water are nesting and loafing sites for bald eagle and osprey. Upland mammals use this area as travel corridors, denning and feeding zones. When harvesting, soil disturbance and sediment runoff should be avoided. A shaded canopy with >70% crown closure should be left within 75' of the seasonal streams.

Other wildlife habitat features include softwood canopy, small semi-open areas, large den (live hollow) trees, snags (standing dead) trees and the field. The small openings and woodland edges present a mix of habitat for both food and cover for animals such as deer, moose, partridge, fox and rabbit. Food for animals is provided through seeds of the softwoods, foliage, buds of the aspens and the fruit of hazelnut. Deer sign is common throughout the property. But extensive areas of thick overstory softwoods cover is lacking in order to serve as good potential winter yarding areas for deer.

During any cutting, certain trees should be retained to benefit wildlife, even though they may not have sawtimber value. These include den trees (cavity trees) and snags, which should not be cut unless they pose a safety hazard during logging. There are many representatives of both such trees in the woodlot. Recommendations vary as to how many trees per acre should be left. According to *Biodiversity in the Forests of Maine: Guidelines for Land Management*, recommended practices include retaining a minimum of four wildlife (den or snag) trees per acre, with one exceeding 24" in diameter and three exceeding 14". They do not need to be evenly distributed, but may be clumped into areas such as along rock walls, field edges or swamp. In addition to existing wildlife trees, potential future ones should be identified and allowed to grow old and die. Leaving downed woody material (blowdowns) on site is important as well for micro-site habitats for small animals and nutrient recycling.

Open areas resulting from patch cuts are valuable for increasing browse, as well as providing abundant cover and nesting sites for some animals. Seeding landings and roads after use will improve forage opportunities. Native wildlife trees and shrubs such as mountain ash, highbush cranberry, hawthorne, serviceberry, apples, cherries or staghorn sumac could be planted in openings. Cutting should avoid sensitive habitats and be timed to minimize disruption of important nesting and young rearing seasons in Spring and early Summer. Harvesting will help maintain age and structural diversity within the forest ecosystem.

Any recommended cutting should avoid sensitive habitats and be timed to minimize disruption of important nesting and young rearing seasons in Spring and early Summer. Harvesting will help maintain age and structural diversity within the forest ecosystem.

The property contains no significant wildlife habitat as identified and mapped by the Maine Department of Inland Fisheries and Wildlife (IF&W). The Maine Natural Areas Program (MNAP) reports no documentation for this site to contain rare, threatened and/or endangered plants or animals, or rare and/or exemplary natural communities. No evidence of threatened or endangered plants or animals was noted during the field work. Should such plants or animals be discovered, appropriate measures should be adopted to ensure protection of their habitat. The presence of wild brook trout is unknown. It is not habitat for lynx. The parcel does not intersect with MNAP land trust focus area and has not been targeted by MNAP for inventory.

The property lies within an area identified as critical Atlantic Salmon habitat. Private landowners have the primary responsibility to avoid "taking" (harm, harass, kill, modify/destroy habitats, etc.) of threatened and endangered species. However, protecting water quality though appropriate BMPs and other laws will likely be sufficient to avoid the occurrence of a "taking" of salmon. This designation may have an impact if federal cost-share is sought, such as through NRCS. Activities requiring federal permits may require additional review by USFWS. See the fact sheet in the Appendix for more information. You can also contact US Fish and Wildlife Service Biologist Wende Mahaney at 866-3344, ext. 118 or http://www.fws.gov/mainefieldoffice/Atlantic_salmon.html.

RECREATION, AESTHETICS AND CULTURAL FEATURES

Recreational pursuits by the owners include walking or skiing the driveway, fields and old town roads, as well as the skid roads through the woods. The property is used as a location for painting. The owners do not hunt on the property but neither is it posted. A deer stand is set up in the east part of the property, 200' from Donnell Rd. and 200' south of the beaver pond. The old roads are often used by other people by common consent and custom.

Both the scenic view from the house and the immediate woodland environment are aesthetically important to the landowners. The Maine Historic Preservation Commission reports that no prehistoric archeological sites are known and none are expected. There are also no known historic archaeological sites and none are expected. Additionally, the property contains no historic building.

LONG TERM RESOURCE CONSIDERATONS

For further information on the topics below, one can also contact the local MFS District Forester. For Waldo County, this is Morton Moesswilde, whose office is at 536 Waldoboro Rd., Jefferson, ME 04348, email is morten.moesswilde@maine.gov and cell phone is 441-2895.

Forest health - Balanced amounts of dead, down and dying wood are actually a beneficial part of a healthy functioning forest. However, severe weather, insects and diseases or other disturbances sometimes create an imbalance and become a barrier to realizing your goals and objectives. For more information, contact the MFS Division of Forest Health and Monitoring visit http://www.maine.gov/dacf/mfs/forest_health/index/htm or 207-287-2431.

Biodiversity - Forested landscapes are homes for more than just trees. No one parcel can provide habitat for all species. However, maintaining or improving existing woodland communities is a desirable goal. Elements of ecological structure such as snags, downed woody material, cavity trees, etc. can enhance biodiversity and a variety of wildlife habitat. For more information, contact the Maine Natural Areas Program at 207-287-8044 or visit http://www.maine.gov/dacf/mnap/index/html.

Wetlands - Both forested wetlands and other kinds such as open marshes, bogs or beaver ponds provide habitat , flood control and scenic beauty. For more information, see the book *Natural Landscapes of Maine*, available from the Maine Natural Areas Program, 207-287-8044 or http://www.maine.gov/dacf/mnap/index.html.

Fish & wildlife - As part of managing according to Stewardship Principles, maintaining a healthy functioning forest will contribute to maintaining healthy wildlife habitat and fisheries. For more information, contact the Department of Inland Fisheries and Wildlife at 207-287-8000 or visit www.maine.gov/ifw.

Soil & water quality protection - Activities in the woods that involve roads, log landings and yarding or recreational trails can sometimes contribute to rutting, soil movement and pollution of the watershed. Improperly conducted logging operations can also cause damage. Use of appropriate Best Management Practices (BMPs) greatly reduces this risk. For more information, see the booklet entitled *Best Management Practices for Water Quality,* available at http://www.maine.gov/dacf/mfs/publications/handbooks_guides/bmp_manual.html or from the MFS by calling 1-800-367-0223.

Recreation - Maine's Landowner Liability Law gives landowners a high degree of protection when other people use their land. It is a good idea for users to get landowner permission before engaging in recreational activities such as hunting, hiking or ATV or snowmobile use on someone else's land. For more information, contact the Department of Inland Fisheries and Wildlife at 207-287-8000 or www.maine.gov.ifw and click on the Quick Link for the Landowner Relations Program/Outdoor Partners.

Aesthetic quality - Maintaining the beauty of your woodlands may be of high importance to

you, as it is for many landowners, especially near dwellings, along trails and special area. Stewardship can include activities undertaken to create or protect aesthetic quality. In addition, the visual impact of forestry activities such as timber harvesting can communicate a lot about stewardship. Efforts to maintain a harmonious woodland appearance usually pay off in a greater acceptance of silvicultural practices. For more information on logging aesthetics, contact the Sustainable Forestry Initiative at 207-622-9288 or www.sfimaine.org.

Protection from pests - There are many species of invasive plants and insects, both native and exotic, which can affect your woodland and possibly get in the way of meeting your goals and objectives. Monitoring for early detection can reduce negative impacts and reduce the costs of control. For more information, contact the MFS Division of Forest Health and Monitoring at http://www.maine.gov/dacf/mfs/forest_health/index.htm or 207-287-2431.

Protection from fire - Wildfire is rare in Maine, but can be quite devastating when it occurs. There is a lot you can do to reduce the risk of a wildfire on your woodlot and near your home. For more information on how you can make your home "Firewise," call the Division of Forest Protection at 207-287-4990 or visit http://www.maineforestservice.gov. Be careful with all outdoor fires and observe all the open burning laws. If you see a wildfire or smell smoke during a high fire danger day, call 911 or the MFS at 1-800-750-9777.

Historical, cultural & archaeological sites - Stone walls and old cellar holes or foundations are often found in woodlands, as remnants of previous settlement and agriculture. High and dry areas near water bodies may have been pre-historic Native American dwelling sites. Most properly conducted forest management activities will not harm these resources. Construction of roads, trails or landings, however, could potentially disturb significant sites. For more information, contact the Maine Historic Preservation Commission (MHPC) at 207-287-2132 or visit http://www.maine.gov/mhpc or your local historic commission/society. Tree Farmers are strongly encouraged to contact the MHPC to meet current Tree Farm Standards.

Forests of Recognized Importance (FORI) - FORI are globally, nationally and regionally significant large landscape areas of exceptional ecological, social, cultural or biological values. These forests are evaluated at the landscape level rather than the stand level and are recognized for a combination of unique values rather than a single attribute. There is no state or federal government regulation of FORI on private lands.

There is no central clearinghouse for information on FORI. However, in Maine the best resources are the Maine Natural Areas Program and the Maine Historic Preservation Commission. If you are interested in finding out more, a location map can be sent to either of the agencies to get information related to FORI in your area. Tree Farmers are strongly encouraged to contact both of these agencies to meet current Tree Farm Standards. Most FORI in the U.S. have already been identified and protected by state or federal governments or have been put under a conservation easement by an environmental nonprofit organization. After careful consideration and research, the Maine Tree Farm Committee has determined that NO Forests of Recognized Importance (FORI) currently exist in the state of Maine.

Carbon sequestration - As climate change increases the likelihood of severe weather events, the migration of both beneficial and invasive species and new risks to forest health

and productivity, good woodland stewardship is the key to preparedness. Living trees take carbon from the atmosphere and store it in wood fiber. Wood products continue to keep carbon out of the atmosphere. For more information, go to the Climate Smart Land Network at http://climatesmartnetwork.org. Among the many benefits provided by forests, removing carbon from the atmosphere and storing it in trees may have increasing significance in the years to come. For more information, visit www.maine.gov/doc/mfs/mfs/topics/carbon.

Monitoring - Woodland owners are encouraged to stay engaged with their woodlands. This can take the form of regularly scheduled boundary line maintenance, recreational activities such as hunting or hiking, or following up after completing silvicultural activities to check results. Keeping in touch with your land can help prevent theft or trespass. It can also be rewarding on many levels. Consider keeping a photographic record of the changes your woods go through before, during and after harvests and other management activities. One way to do this is with a picture post. For more information, visit www.picturepost.nh.edu.

Woodland legacy planning information - Your land is part of your legacy. Planning for the future of your woods after you are no longer involved is an important part of good stewardship. Woodland legacy planning could, if fact, be the most important step you take as a landowner – not just for your own benefit but for the benefit of your family, your community and, of course, for the land itself. Who will own your land and how will it be used? What will your legacy be?

For more information from the U.S. Forest Service about conservation-based legacy planning, go to www.na.fed.us/stewardship/estate/estate.sthml. You may also want to visit the Small Woodland Owners Association of Maine's website at http://www.swoam.org/LandownerResources.aspx and click on the "Succession Planning" link. The Maine Coast Heritage Trust also has "Conservation Options" information listed at http://www.mcht.org/land_protection/conservation_options.html.

LEGAL RESTRICTIONS

Deed restrictions and easements - Deed restrictions are encumbrances on the property and/or specific uses that are recorded at the county Registry of Deeds. Easements may include legally conveyed conservation/land use restrictions, utility lines, public rights of way, and the like. The property is not subject to deed restrictions or easements.

Water bodies and water quality - Protection of water bodies and water quality occurs through different rules that vary with location and type of activity. Water bodies typically include saltwater, lakes, ponds, rivers, streams and non-forested wetlands. The rules highlighted below regulate timber harvesting and related activities within/near water bodies.

As of Oct. 15, 2012, Searsmont has accepted the *Statewide Standards for Timber Harvesting and Related Activities in Shoreland Areas* (**MFS Rules Chapter 21** – found at http://www.maine.gov/dacf/mfs/publications/rules_and_regs/chap_21_rules_effective_01012016.pdf).). These standards are administered by Maine Forest Service's district forester rather than the town's Code Enforcement Officer. Harvesting is still allowed with Shoreland Areas but with the same restrictions as with the former Shoreland Zone - harvested volume is limited to no more than 40% of the total timber volume within the Area in any 10-year period OR a residual stand must contain a basal area of at least 60 ft^2/acre of woody vegetation 1"+ dbh, of which 40 ft^2/acre is 4.5"+ dbh. A well-distributed stand of trees must remain, with canopy openings no larger than 250 ft^2 within the first 75'. Farther than 100', cleared openings must not be >14,000 ft^2. Harvesting activity must not result in ground disturbance. Slash is not allowed to be higher than 4' nor within 50' of the water. The property contains no mapped Shoreland Area, but the beaver pond probably qualifies for protection. The seasonal stream banks also need to be not disturbed.

Natural Resources Protection Act (NRPA) - The NRPA regulates work in and adjacent (within 75') to lakes, streams, freshwater wetlands and tidal wetlands (as well as in elevations greater than 2,700'). Activities regulated include disturbing soil, placing fill and building permanent structures in or adjacent to these areas. A permit is required from the Maine Forest Service (MFS) for such common work as:

- Road building, excavating, filling, or otherwise disturbing the soil within 75' of lakes, rivers, streams and wetlands,
- Building new bridges, fords or installing culverts for road or trail crossings,
- Building or placing permanent structures in, on or over lakes, rivers, streams and wetlands

Exempt activities include:

- Temporary structures, such as a road crossing using a temporary bridge, that are in place less than 7 months in a protected resource is exempt. However, it is not exempt if fill is used.
- Repair, maintenance or replacement of an existing culvert, provided any replacement is not more than 25% longer than that being replaced and not longer than 75'. Erosion control must be used and fish passage may not be blocked.
- Forest management, including associated road construction or maintenance, in or adjacent to forested wetlands as long as it:
  1) meets minimum stocking requirements under the Forest Practices Act;
  2) meets "permit-by-rule" standards for road cLooknering of a stream, or for soil disturbance adjacent to great pond, river or stream and DEP is notified prior to starting the work;
  3) the area is not a forested wetland mapped as a significant wildlife habitat; and
  4) the road construction is not used to access development, but is primarily used for forest management activities.

Two permitting programs exist under the NRPA. "Permit-by-rule" is the simpler procedure and covers most minor activities, such as installing bridges and culverts in rivers and streams or disturbing soil 25-75' from a waterbody or wetland, and maintenance and repair of structures. It requires a 1-page notice to the MFS and following applicable construction and erosion control standards. A full MFS permitting process covers activities with greater potential impacts than those under permit-by-rule.

Best Management Practices - BMPs should be utilized appropriately to comply with these regulations. During a harvest operation, procedures outlined in the Maine Forest Service's *Best Management Practices for Forestry: Protecting Maine's Water Quality* (2004) should be followed regarding working in and around wetlands and streams. It can be found at: http://www.maine.gov/dacf/mfs/publications/handbooks_guides/bmp_manual.html. This will allow the landowner to comply with the Protection and Improvement of Waters Law (sections 413 & 417). Specifically, this law prohibits causing erosion of soil into water bodies and disposing of slash in streams, lakes and tidal waters. For road construction, compliance of the Erosion and Sedimentation Control Law is necessary, which regulates activities involving filling, displacing or exposing soil. Specifically, erosion control practices (such as hay bales, sift fence and hay mulch) are properly installed and maintained whenever filling or soil disturbance occurs.

Forest Operations Notification (FON) and Landowner Report: MFS Rules Chapter 26 - These rules require that landowners notify the Maine Forest Service of planned timber harvesting. The notification forms are available at most town offices and the ME Forest Service at no charge. Before any commercial harvesting occurs, landowners (or their agent) must file a FON with the Maine Forest Service. It is valid for up to two years and is not a permit. Each FON has a unique six-digit number, which is used to track wood transport and marketing. Year-end Landowner Reports of harvested wood volumes and stumpage prices are a part of this requirement. They are sent to the landowner or agent in December and must be filed with the MFS by the following January 31. A FON & Landowner Report will be required for the timber harvesting recommended in this Plan.

Clearcutting: MFS Rules Chapter 20 - These rules regulate the establishment, arrangement and regeneration of clearcuts for landowners who own >100 acres statewide. Clearcuts are harvests that leave an area 5 acres or greater with less than a minimum stocking of trees. Harvest plans must be submitted to the Maine Forest Service for proposed clearcuts >20 acres. A copy of the Rules can be found at http://www.maine.gov/dacf/mfs/publications/rules_and_regs/chap_20_rules_05012014.pdf. This management plan does not recommend any harvest activities that would result in clearcuts under the Chapter 20 definitions.

Liquidation Harvesting (LQH): MFS Rules Chapter 23 - This rule regulates timber harvesting on land sold or offered for sale within five years of purchase. No LQH is recommended in this Plan. The complete MFS Chapter 23 Rules may be found at http://www.maine.gov/dacf/mfs/publications/rules_and_regs/chap_23_rules.pdf.

Local ordinances - A number of municipalities have adopted ordinances (other than Shoreland Zoning) that affect timber harvesting. It is a good idea to check with town officials before proceeding with timber harvesting. At this time, there are no local ordinances regulating forest management activities on the property. Regulations can change, however, and it is the responsibility of the woodland owner to comply with the regulations in effect at the time any forest management activities are conducted. The landowner should engage a consulting forester to oversee the implantation of these activities as appropriate to ensure compliance.

Additional restrictions - All boundary lines within 200' of cutting must be clearly marked. All slash from a harvest must be removed at least 25' from adjoining properties if they pose a fire hazard.

TREE GROWTH TAX AND OPEN SPACE LAWS

The woodland has been in the Tree Growth Tax Law since 1998. This state-wide law is a "current-use" property tax program, administered by the local assessor. Valuation of land classified as "forest" is based on its ability to grow timber instead of so-called "highest and best use." The primary landowner goal for the classified forest acres under this plan is to grow trees to be harvested for commercial use. This plan includes activities to regenerate, improve and harvest a standing crop of timber.

The Maine Forest Service determines the per acre valuations each year by Timber Type and by County. Enrollment requires a long-term commitment to forest management, and penalties exist for withdrawal for the program. To stay in compliance, commercial activity will need to be performed as outlined in the plan and is the responsibility of the landowner to implement. Enrollment in the program may result in significant savings in the annual property tax bill. For more information about the Tree Growth Tax Law, go to http://www.maine.gov/revenue/forms/property/pubs/bull19text.htm.

The law does not apply to non-forested acres, to forested areas not used primarily for timber production (such as the house, yard and driveway) or to forested areas not capable of commercial tree growth (such as the swamps). Based on 2018 valuations for Waldo County, the 48 acres of eligible woodland would be valued as follows:

		acres	valuation per acre	total assessment
Woodland:				
	Hardwoods	29	$263	$7,627
	Mixed wood	19	$408	7,752
	sub-total:	48		$15,379
Non-Eligible Areas:				
	Wetland	1		
	Fields	12		
	Forest Not Classified	1		
	Housesite	1		
	sub-total:	15	set by the town	?
Total Acreage:		63 acres		

An alternative to Tree Growth is the Open Space tax program. This allows a 20% reduction off the standard assessment value. Additional restrictive options allow further assessment reductions. Acquiring a Conservation Easement with a Land Trust allows an additional 30% reduction. A "Forever Wild" option will give an additional 20% for a total of 70% reduction. An additional 25% will also be granted if public access is allowed, for a potential reduction of 95%. A "managed forest" option will allow a 10% reduction. For this, a forest management plan must be prepared and updated every 10 years and it must be followed by the landowner. This is similar to the Tree Growth program except that the primary management objective need not be growing trees for commercial forest products.

MARKETS

Wood markets fluctuate in price, product specifications, and demand. Current market conditions should be assessed as part of any timber harvesting activity. All wood greater than 5" dbh is useable by wood-processing mills. With the closure of the four paper mills that rely on softwood pulp in the last two years, however, the entire softwood pulp market is currently depressed and the ability to sell softwood pulp stumpage is very difficult. The value of spruce-fir pulpwood has been down for a few years and now faces an even more depressed future. Both hardwood and softwood pulp are used by Verso Co. in Jay and by SAPPI in Hinckley. The market for hardwood pulp and firewood is stronger, but even that has softened since last year. The hardwood would best be used for firewood. With the closure of the Emery plant and reduced demand for wood chip generated electricity, the market for wood chips is significantly down. Robbins Lumber in Searsmont is building such a facility and will create a local market for chips.

Except for oak, sawlog prices have rebounded since the2007-08 recession. A few sawmills are on the mid-coast area. The largest is Robbins Lumber in Searsmont. It specializes in sawing pine but also buys and resells other species. Other mills that process pine logs include Hammond Lumber in Belgrade and Irving in Dixfield. N.C. Hunt, in Jefferson is a good market for the low-grade pine and low-valued hemlock. For hardwoods, logs are often sold to wood brokerage companies such Premium in Whitefield, Medomak River Lumber in Union, Kennebec Lumber in Pittston or Bessey wood yard in Waldo. Hardwood can be sold as 4' bolts (down to 8" diameter) to pallet mills. Oak boltwood offers 3 times the price for this size wood than if sold for firewood.

COMMERCIAL HARVESTS OF WOOD PRODUCTS

Properly done, commercial harvests are one part of an environmentally sound, multiple-use forest management system. Through cutting, a forester manipulates the vegetative structure within a forest stand to attain stated objectives. The long-term goal is production of oak veneer and sawlogs as well as grade pine and spruce logs. Timber can still be grown and harvested while enhancing wildlife habitat and recreational opportunities. Typically, low quality and unhealthy trees and/or mature individuals are chosen for removal. This allows for faster growth to occur in the more valuable, vigorous, immature trees. It also favors the

release or establishment of natural regeneration of desired species. The regeneration is part of the property's long-term potential. Thus, proper harvesting not only generates immediate income for the owner, but, over time, can also improve the health and quality of the timber and wildlife resources of the property.

Commercial harvesting should be conducted on a marked tree or species designation basis and under the supervision of a professional forester. This will ensure that the selection of trees for cutting is in the best short- and long-term interest of the owner, and leaves a desirable residual stocking of trees. In addition, the forester supervises harvesting operations to ensure proper utilization, minimal felling and skidding damage to residual trees, and to help assure accurate payment for harvested wood products.

To realize the best price for the marked trees, sales should be conducted on a competitive bid basis or by direct negotiation with reputable contractors. The timing of specific sales is dependent on economic and silvicultural considerations, as well as seasonal ground conditions. To prevent rutting and preserve the integrity of the soil's organic mat, any harvesting should be done when ground is frozen so that it is stable enough to hold up heavy machinery. The use of a forwarder, usually in combination with a cut-to-length system is recommended for its ability to drive the wood out to the landing instead of dragging it.

Recreational and aesthetic concerns and wildlife needs should be given appropriate emphasis during timber marking and while supervising harvesting jobs. Yards and skid roads should be located to minimize soil erosion and visual impact, as well as to improve interior access. Cutting along existing roads, trails, streams and vistas may need to be modified to maintain an aesthetically pleasing appearance. Appropriate numbers of wildlife trees and other critical areas should be left to provide both cover and food.

STAND DESCRIPTIONS AND RECOMMENDATIONS

INTRODUCTION

Five forest types have been identified on the property (denoted by a number), adding up to 49 acres. They range in size from 1 to 20 acres. The shapes of the old stands are basically the same, with just minor tweaking of boundaries.

Three factors determine forest type of the stands: 1) the dominant tree species or species group in the canopy; 2) canopy height; and 3) canopy density (also referred to as crown closure). Determination of dominance is based on basal area, not the raw number of trees or wood volume. Basal area expresses the amount of growing space a species is utilizing in the stand. The three broad timber types are Hardwood, Softwood and Mixedwood (where neither hardwood nor softwood is >25% of the basal area). Average tree diameter is that of only the canopy trees (the "featured" stand). The stocking level, too, is determined by the basal area per acre, # trees per acre and average tree diameter of only the canopy trees (the "featured" stand). Therefore, the suppressed trees in the understory are excluded, usually the saplings less than 5" in diameter (except for when saplings are part of the featured stand). However, it is the total basal area in the pie chart depicting species as percentages of basal

area. Recommended stocking levels are from various pamphlets issued by Forest Experiment Stations of the US Forest Service. They represent the minimum density for maximum growth and wood production. They are not necessarily the ideal levels if stand objectives are other than rapid timber production.

Canopy height is classified into three levels: 1 = low = <30'; 2 = moderate = 30-60'; and 3 = high >60'. Canopy density also comes in three levels: A = high = >70% crown closure; B = moderate = 40-70%; and C = low = 10-40%. An area with less than 10% crown closure is not considered a forested stand. Growth rate is expressed as volume per acre per year. Volumes are expressed as board feet for sawtimber stands or as cords for poletimber stands. The standard conversion between board feet and cords is 1,000 board feet (1 mbf) = 2 cords. All numbers are estimates, so the "about" qualifier will not be used.

Recommended stocking levels are from various pamphlets issued by Forest Experiment Stations of the US Forest Service. They represent the minimum density for full site utilization and maximum growth and wood production and varies among timber type groups and are referred to as the "B" line. It is a basal area of 70 ft^2/acre for Hardwood, 100 ft^2/acre for Mixedwood and Managed White Pine, and 120 ft^2/acre for Softwood. They are not necessarily the ideal levels if stand objectives are other than rapid timber production. Minimum stocking of a stand for it to still be considered worthwhile for management and before being considered understocked are 20 ft^2/acre lower, namely 50, 80 and 100 ft^2/acre, respectively. This is the "C" line. It takes about 10 years for stands at the "C" line to reach the "B" line.

LONG-TERM GOALS

The primary goal for the property is to maintain a fully stocked forest that is productive and healthy with undamaged crop trees at or approaching optimum size. Individual stands will differ from another in their structural characteristics based on timber harvesting history and species composition. Strive to grow big trees (20"+ diameters) and maintain long individual tree rotation ages (>100 years). Favor the more commercially valuable species of red oak, white pine and spruce when possible. Weed out low value species, such as fir and aspen, as well as trees of unacceptable form or health, such as red maple or declining ash or birch. A cutting cycle of 20 years is appropriate.

Improve wildlife habitat, which may include releasing mast-bearing crop trees, retaining snags and den trees, maintaining a dense softwood canopy, creating patches of early succession vegetation or creating brush piles or putting up bird boxes. Dead trees ought to be left in the forest, both as upright snags and downed stems, to serve the important ecological function of nutrient recycling and wildlife habitat.

Maintain a protective buffer within 75' of the wetlands and streams in which crown cover is kept above 70%. This will protect water quality, stream temperature and aquatic habitat, and serve a travel corridor for wildlife sensitive to even minor disturbances. Temporary stream crossings for harvests should be minimal and done when the ground is frozen.

STAND 1 - OAK-HARDWOOD POLE/SAWTIMBER (OH-2/3-A) 20 acres

Stand 1 is on the slope immediately east of the fields and house. It is easily accessible from the fields and contains several skid roads. It is moderately steep below the house, becoming gentle in the northern half of the stand. The soil is well drained in the southern 2/3 and moderately well drained in the northern 1/3. It is very stony. A seasonal stream flows along its southeast side. Site quality for both white pine and red oak is excellent. Operability with machines is good, although a bit more challenging on the steeper slope. A selection harvest took place in 1998.

With most of the growing space taken up by red oak, this is considered an oak-hardwood stand. Other common species include yellow and white birch, and red maple. Less common trees are spruce, ash, aspen and white pine. The canopy is a mix of poles and sawtimber, with patches of saplings/sprouts in some small canopy gaps. A few big (~40" in diameter) old pasture oaks and sugar maples still hang on in the south half. With a basal area of 100 ft^2/acre, stocking is adequate. This is a 15% increase over what it was in 2008. Canopy height is medium to tall and crown closure is full but with some canopy gaps (formed by either harvesting or natural mortality).

Tree quality is very good, especially some of the oaks. Other oaks, however, have poorer form, with forked stems, large branches and/or butt seams. Some birches are declining and have some crown dieback. Snags and deadfall of birch, aspen and spruce are common. The big old pasture trees are poor quality wolf trees, interfering with younger tree growth but their hollow cavities are useful for wildlife. They are declining and dying over time. Of current concern is the observation of defoliation last year in many of the oak crowns. This can likely be the work of brown tail moth and should be monitored. The growth rate is good at 1/3 cord per acre per year. Volume per acre is average, with 4 mbf of sawtimber and 22 cords of pulp. Sawtimber volume comprises a high proportion of the total volume of commercial wood. It is mostly oak, with some pine, yellow and white birch, red maple and spruce. Regeneration is abundant, including beech, aspen and maple sprouts, plus some oak, spruce and fir. As the trees have grown, the rasp- and blackberries have diminished.

RECOMMENDATIONS

The long-term objective is timber production, maintaining wildlife habitat and recreation. Maintain an uneven-aged structure utilizing a selection system of harvesting. Stocking goal should be 70 ft^2/acre of basal area. Favor oak for both its commercial and wildlife value.

Although stocking is higher than the recommended level, it is not by all that much. Priority for a harvest is still only moderate. It can be harvested for a modest volume, but probably not attractive for a commercial logger. An estimated yield is 10 mbf and 120 cords, worth $2,000. Otherwise, let grow for another 10 years and then reinspect. At that point, stocking would likely be 120 ft^2/acre of basal area and the stand would be ready for another

harvest. Continue to cut domestic firewood (~3 cords/year) near the field edges, as desired.

STAND 2 - HARDWOOD POLETIMBER (H-2/3-B) 9 acres

Stand 2 is extends from the middle wall to Donnell Rd. east of the beaver pond. It is best accessed from the road that branches off Donnell Rd. along the middle ridge. Slopes are moderate on the sides of the ridge and gentler near the beaver pond. Seasonal streams flow northward on both the west and east sides of the stand. The soil is mostly moderately well drained and very stony. Near the beaver pond it is somewhat poorly drained. Site quality both white pine and red oak is excellent. Operability with machines is good, but limited to dry or frozen ground conditions due to seasonal wetness. Several skid roads remain from the 1998 harvest (where most of the thick fir and aspen were cut).

Stand 2 contains a variety of hardwoods. Oak is no longer dominant and red maple is the most common species. Others include white birch, beech, sugar maple, white ash, yellow birch, oak, aspen, spruce, white pine, hemlock and cedar. The canopy is mostly poletimber. Trees range up to 30" in diameter but are mostly 14" or less. With a basal area of 80 ft^2/acre, stocking is adequate though lower than stand 1. This is 13% more than what it was in 2008. Canopy height is medium to tall and crown closure is still only moderate.

Tree quality is fair to good. There are still some poorly formed hardwoods. Some birch and maple are declining. There are several snags and broken stems. The harvest has given the growth rate a boost to ½ cord per acre per year. Volume per acre is average, with 2 mbf of sawtimber and 20 cords of pulp. The sawtimber percentage is average. It is distributed among oak, pine, spruce, white birch and red maple. Regeneration is abundant and includes all the overstory species. Shrubs include raspberry, blueberry, striped maple and spirea.

RECOMMENDATIONS

The long-term objective is timber production without compromising wildlife habitat and the integrity of the adjacent wetland. Maintain a variety of species in an uneven-aged structure utilizing a selection system of harvesting. Stocking goal should be 70 ft^2/acre of basal area.

With current stocking only a little bit higher than the recommended level, priority for a harvest is still low. Let grow for another 10 years and then reinspect. At that point, stocking is expected to be 100 ft^2/acre of basal area and may be able to be combined with other stands for another harvest.

STAND 3 - MIXEDWOOD POLE/SAWTIMBER (M-2/3-A) 11 acres

Stand 3 straddles the middle ridge and stretches between the beaver pond and stand 1. It is adjacent to Donnell Rd. and is accessible from it and the fork that follows the ridge. A seasonal stream flows northward along its west side. Slopes are moderate and gentle on the east side of the ridge road. The soil is moderately well drained and is seasonally wet. Site quality is excellent for both white pine and red oak. Operability is excellent, except in the wetness of the stream. Several skid roads are in place from the 1998 harvest.

With nearly an even split between hard- and softwood, stand 3 is a mixed stand. The two most common tree species are white pine (mostly a sawtimber grove along the middle road in the north end) and red maple. Associates include oak on the upper slope, spruce, yellow birch, ash and white birch plus small amounts hemlock and cedar along the stream. Most of the fir was either harvested or has died. Trees range up to 30" in diameter but are mostly 16" or less. It has a mix of poles and sawtimber. With a basal area of 110 ft^2/acre, stocking is a little above the recommended level. This is 16% more than what it was in 2008. Canopy height is medium to tall. Crown closure is full with some small canopy openings. Little, if any, cutting occurred along the stream, which has denser tree cover than the rest of the stand.

With most of the poorly formed trees harvested, quality is good, especially the spruce. A few snags and deadfall are present. Growth rate is average at 0.4 cord per acre per year. Volume per acre is also average, with 4 mbf of sawtimber and 25 cords of pulp. The sawtimber (mostly pine) percentage is above average. Regeneration is abundant and mostly fir and spruce. Shrubs include striped maple, witch hazel and hazelnut.

RECOMMENDATIONS

The long-term objective is timber production, as well as recreation and protection of the stream and wetland. Maintain a variety of species in an uneven-aged structure utilizing a selection system of harvesting. Stocking goal should be 100 ft^2/acre of basal area.

With current stocking only a little bit higher than the recommended level, priority for a harvest is still low. Let grow for another 10 years and then reinspect. At that point, stocking is expected to be 130 ft^2/acre of basal area and may be able to be combined with other stands for another harvest.

STAND 4 - MIXEDWOOD SAWTIMBER (M-3-A) 8 acres

Stand 4 is in the east corner of the property. Although it is adjacent to Donnell Rd., the beaver pond blocks access. It is accessible from the middle ridge road via a skid road through stand 2. Slopes are mostly moderate, but are steeper on the knoll in the very far corner. A seasonal stream flows north through the middle of the stand. The soil is moderately well drained and is seasonally wet. It is drier and well drained on top of the knoll. Site quality is excellent for both white pine and red oak. Operability is excellent, except in the wetness of the stream. Several skid roads are in place. A selection harvest took place in 1998.

Stand 4 is a mixed stand dominated by hemlock. Associates include red maple, spruce, oak and aspen plus small amounts of yellow and white birch, pine and beech. Trees range up to 20" and are mostly sawtimber. With a basal area of 115 ft^2/acre, stocking is a the recommended level. Current stocking has remained the same as what it was in 2008. Canopy height is tall and crown closure is full. Little cutting occurred along the stream, which has denser tree cover than the rest of the stand.

Except for an occasional poorly formed hardwood, tree quality is very good. Several snags are present. Growth rate is average at 0.4 cord per acre per year. Volume per acre is average, with 7 mbf of sawtimber and 21 cords of pulp. The sawtimber (mostly hemlock) is a high percentage of the total volume. Regeneration is abundant and includes all the overstory species as well as fir. Shrubs include striped maple and witch hazel.

The relatively high hemlock density and crown cover makes this area a potential deer yard. It's also a different and attractive section of the woodlot.

RECOMMENDATIONS

The long-term objective is timber production, as well as wildlife habitat and protection of the stream. Maintain a variety of species in an uneven-aged structure utilizing a selection system of harvesting. With the hemlock >30% of stocking, aim for a stocking of 120 ft^2/acre of basal area.

With current stocking near the recommended level, priority for a harvest is low. Let grow for 10 years and then reinspect. Stocking would then likely be 135 ft^2/acre of basal area and may be high enough for another harvest.

STAND 5 - HARDWOOD SAPLINGS (H-1/2-A) 1 acre

Stand 5 is a newly designated area of young woods along the east side of the upper field. The area had been part of an old blueberry field growing back to trees that was clear-cut in the 1998 harvest. Most of it had been kept open by bush hogging, except this lower area that has grown back again to trees. It is easily accessible from the field. It is moderately sloping on well drained soil with excellent site quality. Machine operability is very good. It is not enrolled in Tree Growth.

This hardwood stand contains mostly aspen with a mix of white birch and oak. The stand is young and was recently open land 20-40 years ago. Trees are a mostly saplings and sprouts with light scattering of larger stems. With a basal area of 85 ft^2/acre (ranging 60-135 ft^2/acre), stocking is adequate. Canopy height is short to moderate and crown closure is full

Tree quality for sawtimber production is poor to fair. The short-lived aspen is considered a weed and most sprouts are unacceptable growing stock. The growth rate is average, at ¼ cord per acre per year. Wood volume per acre is low, with 10 cords of pulpwood and no sawtimber. Shrubs include blueberry, ground juniper and occasional raspberry. The prevalence of aspen creates good habitat for partridge.

RECOMMENDATIONS

The long-term objective is wildlife habitat, recreation/aesthetics and personal firewood procurement. A stocking goal is not relevant. Continue to bush-hog certain areas, maintain trails and harvest firewood, as desired

CONCLUSIONS

The property has excellent long-term potential for timber production and aesthetic enjoyment as well as containing a variety of wildlife habitats. The existing network of skid trails has increased the recreational potential in the woodlot, although they have grown in with young trees. The wetland and streams are sensitive areas for both soil/water conservation as well as wildlife habitat.

The chart at the beginning of the plan lists activities in selected stands that could be performed over the next 10 years. This is a guide and is flexible regarding cutting intensity and operational timing. Harvesting should be done by a reliable logger sensitive to the landowners' aesthetic and environmental concerns. The proposed estimated harvest volume in stand 1 (140 cord-equivalents) represents 10% of the total wood inventory.

GLOSSARY

Acre – A unit of land 43,560 square feet in area. If square-shaped, each side would be 208.5'.

Basal Area (BA) – a) of a tree: the cross-sectional area of the trunk at 4.5' above the ground; b) per acre: the sum of the basal areas of all the trees on an acre; a measure of tree density of a forest stand, expressed as square feet per acre, expressing the growing space taken up by the trees.

Blaze – To scar a tree by removing a spot of bark with an ax, making a semi-permanent mark. Commonly painted to indicate boundary lines.

Board Foot – A unit for measuring wood volume in a tree, log, or cut lumber. It is the volume of wood in a board 1' by 1' by 1", equaling 144 cubic inches. The more common unit for forestry use is 1,000 board feet, abbreviated as mbf. 1 mbf = 2 cords.

Browse – Leaves, buds and woody stems used as food by woodland mammals such as deer, moose and snowshoe hare.

Buffer strip – Vegetation left along a stream, lake or wetland to protect aquatic habitat and water quality. Buffer strips filter sediment, debris and pollution, provide food, maintain cool water temperatures and increase diversity in the landscape.

Canopy – The top leafy layer of a forest, formed collectively by tree crowns.

Clearcut – A forest harvest practice in which all, or nearly all, trees are removed in a stand. It is used for maximum income or the regeneration of shade-intolerant tree species.

Commercial Harvest – A harvest operation that results in net landowner income. Harvests control the growth of stands through adjustments in stand density.

Cord – A measure of wood products 4' high, 4' wide and 8' long, equaling 128 cubic feet. It is the equivalent of 85 cubic feet of solid wood.

Crop tree – Trees chosen within a stand to live their full commercial lives, usually the highest quality and value of all the trees. Harvests or thinnings remove trees that compete with the crop trees.

Cull – A tree that has no current or potential market value.

DBH – Tree diameter at breast height, measured at 4.5' above the ground.

Den Tree – A tree with a cavity used by wildlife.

Even-aged – A stand of trees of the same age class (within 15-20 years of each other).

Forest management – The application of sound forestry principles and practices to achieve certain stated objectives.

Growing stock, Acceptable – Trees capable of producing at least one 12' sawlog now or in the future.

Habitat – The ecosystem in which a particular wildlife species or group is commonly found.

Hardpan – A compact layer of soil that is impermeable to water and restricts soil drainage and rooting depth. Its depth below the soil surface is a significant influence on the site's quality.

Highgrading – Selective removal of the most economically valuable trees without regards to improving the residual forest for future value.

Improvement cut – Cutting in a stand to improve composition and quality by removing less desirable trees

Mast – Nuts, seeds or fruits produced by woody plants and consumed by wildlife.

Maturity, biological – The age range in which abundant seed is produced, typically starting at about 40 years of age.

Maturity, financial – The condition of optimal tree value.

Merchantable – Any forest product that can be harvested and sold, including portions of trees.

Operability – Ease with which logging machinery could work a site. Limitations include excessive rockiness, steep slopes, or wetness

Overmature – The age range during which significant physical decline occurs

Overstory removal – Removing the overstory trees releasing established regeneration.

Overtopped/Suppressed tree – A tree whose crown is entirely below the general level of the crown cover, receiving no direct light either from above or from the sides.

Pioneers – Trees that are quick to seed or sprout in abandoned fields.

Pasture pine – A pine that had grown out in the open in its early life, thus having grown and retained large lower limbs. It has a wide full crown, exhibiting a lazy growth pattern of spreading out rather than being forced to grow tall and thin. It typically has multiple stems, a result of the white pine weevil having eaten the leading bud and causing lateral buds to develop into the leading stem. It usually has little commercial value – maybe some short and/or low-grade logs and pulpwood.

Poles – Trees between 5" and 9" dbh.

Pruning – Removal of tree limbs, branches or tops to improve tree form, shape or health and increase quality or growth.

Quality (of a tree) – Expressed relative to a tree's potential to become a high-value product

Regeneration – Seedlings or sprouts of commercial tree species, or artificially by planting.

Residual Stand – Those trees remaining uncut following a harvest operation.

Riparian – The forest edge along rivers and streams and around lakes, Lakes and wetlands.

Saplings – Trees between 1" and 4" dbh.

Sawtimber – Trees larger than 10" dbh for softwood and 12" dbh for hardwoods and contain log quality wood. Logs are 8 - 16' long and straight and can be sawn into lumber.

Seedlings – Trees less than 1" dbh or 3' high.

Seed Tree Harvest – An even-aged management system in which a most trees are cut but a few scattered mature trees are left as sources of seed to establish a new forest.

Selection Harvest – The removal of individual or small groups of trees at regular intervals to maintain an uneven-aged stand. Used as a management tool to ensure continuous establishment of regeneration of species that do not require full sunlight to grow well.

Shelterwood Harvest – An even-aged management system involving 2 or more cuts and in which the new age class of trees develops beneath the partial shade of residual trees.

Slash – The tops, branches and nonmerchantable parts of trees left on the ground after log-

ging, pruning or brush cutting.

Silviculture – The art and science of controlling the establishment, growth, composition, health and quality of forests. It entails the manipulation of forest vegetation in stands and across landscapes to meet the needs and values of particular landowners as well as society on a sustainable basis.

Snags – Dead standing trees, often with tops broken off, which serve as home, forage site, perches or lookouts for wildlife.

Structure (of a forest) – The physical arrangement of a forest's vegetation.

Stand – A contiguous, homogenous unit of forestland, delineated because it supports trees of common species, size, age, potential, etc.

Stocking – The number and density of trees in a forest stand, compared to the optimum it could support.

Stumpage – The value of standing, uncut trees.

Timber stand Improvement (TSI) – An activity which improves the value of a stand for producing quality wood products; this includes pre- or non-commercial thinning, weeding, pruning and/or crop tree release

Thinning – Removal of some trees to reduce density in an even-aged stand, primarily to improve growth and enhance forest health.

Type – A unit of forestland, which may be composed of one or more individual stands which are homogenous but geographically separate

Uneven-aged – A stand of trees of 3 or more age classes

Weeding – The removal of poor quality or low value trees, as well as those that are diseased or damaged.

Wildlife Habitat – An area in which a wildlife species can satisfy its particular requirements of the four components of habitat – food, water, cover and space.

Wolf Tree – A tree with a very large crown, limby and poorly formed, with little commercial value. It has same function as a snag, except that it is still alive and possibly producing mast.

Wood Yard – A place where merchantable wood harvested from the forest is brought and assembled for loading onto trucks for mill delivery.

ADDITIONAL SOURCES OF ASSISTANCE

1) Mid-Maine Forestry (MMF): We can assist with all phases of implementation of this forest management plan, including marking trees for harvest, selection of competent loggers, and harvest administration and supervision. We also maintain boundary lines, administer forestry cost-share programs, as well as supervise TSI, tree planting, trail building, and wildlife habitat enhancement practices. Please contact us for further assistance.

2) Maine Forest Service (MFS): A good source of educational material and information, including taxation and utilization expertise, as well as cost-share programs.
State House Station #22, Augusta, ME 04330. 1-800-367-0223 (in Maine) or 1-207-287-2791. Website: http://www.state.me.us/doc/mfs/mfshome.htm.

3) University of Maine Cooperative Extension (UMCE): A good source of educational materials and information. Website: www.umaine.edu/umext/forestry/.

4) Maine Woodland Owners (formerly SWOAM): A statewide non-profit organization that promotes long-term management of private woodland. It publishes a monthly newsletter and sponsors educational programs on forest management and ownership.
SWOAM, P.O. Box 926, Augusta, ME 04330. 1-207-626-0005. www.swoam.org.

5) Natural Resources Conservation Service (NRCS): Information on, and technical assistance with, conservation and erosion control practices, as well as applications for Federal forestry cost-share programs. Aerial photographs.
Ron Desrosiers, District Conservationist; <ron.desrosiers@usda.gov>
NRCS, USDA, Belfast Field Office; 46 Little River Dr., Belfast, ME 04915. Tel. (207) 338-1964, X3.

6) Waldo County Soil and Water Conservation District (SWCD): Advice and educational outreach about conservation issues.
46 Little River Dr., Belfast, ME 04915. (207) 338-1964
Kym Sanderson, administrator. <kym.sanderson@me.nacdnet.net>

7) Coastal Mountains Land Trust (CMLT): a local non-profit organization dedicated to "establish a system of conservation lands with easements and preserves that permanently protect biological diversity, scenic landscapes, and agricultural, forest and water resources, to promote awareness of the value of land conservation, and to provide opportunities for the public to enjoy and experience natural lands."
Ian Stewart, Executive Director. Jackie Stratton, Stewardship Project Manager.
101 Mt. Battie St., Camden, ME 04843. 236-7091.
Website: www.coastalmountains.org.