

FOREST STEWARDSHIP PLAN

for the

Town of Hebron

Town Forest Property

on

Groton Road

Hebron, NH

Grafton County



Prepared by:

Jon Martin, NHLPF #375

FORECO LLC

PO Box 597

Rumney, NH 03266

(603) 786-9544

foreco@roadrunner.com

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INTRODUCTION

This forest stewardship plan is prepared to NH Current Use Assessment (Documented Stewardship category) and NH Tree Farm standards. The property is owned by the Town of Hebron and is overseen by the select board. It is located in Hebron and has frontage on Spectacle Pond and the Cockermouth River. Topography on the property is extremely varied with areas that have gentle slopes to areas that are very steep and rocky with large boulders and ledge outcrops.

Much of the property has been harvested over the years with the most recent occurring during the late 1970's or early 1980's. During the harvest it appears that a light thinning was performed removing a mix of sawlogs and pulp.

LANDOWNER GOALS AND OBJECTIVES

The landowner's goals and objectives for the property emphasize wildlife habitat management and protection, scenic beauty, recreation and long term forest management. Income from timber sales is of some importance to the landowner and they would like it to offset some costs of ownership and management as well as to implement wildlife habitat improvements. It is the Town of Hebron's select board's desire that the property be managed in accordance with recognized silvicultural guidelines as well as NH Best Management Practices in accordance with this stewardship plan.

PLANNING PROCESS

FORECO performed a timber inventory, measuring 57 sample plots across the property using a 15 basal area factor prism. The plots were located on transect lines that were laid out using a hand held compass and string box, and a map of the property including physical features and boundary evidence was developed, the finished version of which is included in this plan. Trees 4 inches and larger in diameter at breast height (DBH or 4.5 feet above ground) were measured at each sample plot to determine stocking (density), species and timber volumes by forest product. This data was processed using the MULTICRUISE timber inventory program to produce the timber data presented later in this plan.

The cruise and map were created prior to the purchase of the property as part of an appraisal for the town. FORECO, LLC was hired by the select board after the town purchased the property to draft a forest stewardship plan and to formulate a schedule of operations for timber harvesting, forestry based property maintenance and wildlife habitat improvement.

HISTORY

This property is typical of most tracts in this region. A large portion of the property was likely cleared for agricultural use by the early settlers. The steeper, rocky areas were probably used as pasture land for livestock such as cattle, horses and sheep, while the more arable and gently sloped soils were likely used to cultivate hay

and other crops. Slowly, the fields of New Hampshire were abandoned beginning in the mid 1800's when many changes were occurring in American history. Many inhabitants of New Hampshire left the state to farm the deeper soils of the Midwest and many families lost the labor needed to run their farms during the Civil War. Whole families left to begin new lives in the cities during the industrial revolution. The least productive land that was furthest from the dwellings was abandoned first. Gradually, as agriculture continued to decline, additional acreage was abandoned closer and closer to the farm buildings.

The Town of Hebron acquired the property in 2007 as a town forest. Stonewalls and barbed wire fence make up portions of the boundary in the southern half of the property indicating that this area was more intensely used for agriculture. There is still a 7 acre field located at the southern end of the property near the Cockermouth River that is actively hayed and was more than likely utilized for many years as part of a nearby dairy farm. Stone walls indicate that it is very likely that the inhabitants of the nearby farms grew potatoes in the fields as there are many potato sized rocks in the walls and stone dumps on the edges of the fields. Much of the northern boundary of the property is not made up of stone walls or barbed wire fence which indicates that it may have been part of a larger property at one time or was too steep and rocky to have organized pastures on it and likely the livestock were allowed to roam free. The property is made up of different lots that were acquired by the previous owner over a 30 to 40 year period. The previous owner acquired parcels as they came up for sale from different landowners and the lots ranged in size from over 150 acres in size to as small as 35 acres. More recently there were some scattered light harvests on the property during the 1970's and 1980's and as a result of this minimal harvesting many portions of the property are still well stocked with mature and overmature timber.

ACCESS

Forest management harvesting activities require a system of "skid" trails, a "log landing" or "yard", and driveway access to a main road. Trees are cut in the woods and moved by forwarders, skidders, horses, dozers, etc. on skid trails to the log landing. The trees are then cut up and sorted by forest product (typically veneer, sawlogs, pulpwood, firewood, chipwood) and loaded onto trucks for hauling and delivery to mills. The system of main skid trails is normally located based upon topography and the minimization of stream crossings for water quality protection. In general, due to the physical capabilities of logging equipment, a downhill skid to the landing is preferred. The log landing must be large enough to accommodate the sorting equipment, piled forest products awaiting shipment, the entry and positioning of log trucks, and an area to dispose of waste wood. The most economical access system minimizes the combination of skidding distance, driveway length, and driveway and landing construction costs.

During previous operations, wood was trucked across the bridge over the Cockermouth River and landings were likely located in the field adjacent to the river and on a flat area also called a bench that is near Spectacle Pond. The access road that leads to Spectacle Pond is in disrepair and will need extensive work done to improve drainage as well as installing bridges. During the cruise and subsequent field visits a dozed skid trail known as the "Adams Log Road" was observed. This road provides access as a main go up trail for timber harvesting operations in Stand 2 and could also be used as a hiking trail during times when harvesting is not being conducted. It is important to remember that this road is the only access to the back of the property and should not be dedicated only to hiking but must be used as a multipurpose trail. A better solution might be to

delineate a dedicated hiking trail that would run parallel to this main skid trail. Also in previous harvesting operations the western portion of the property was accessed via a bulldozed trail that crossed the Cockermouth River and climbed up the eastern portion of Stand 8. This trail would need to be redirected and a connector would need to be constructed parallel to the river as it is no longer possible to cross the river at the original crossing location due to water quality issues.

WILDLIFE RESOURCES

A wide variety of wildlife species inhabit the forests of New Hampshire. Each species has its own habitat requirements, which often change from season to season or during different portions of its life cycle. Thus, no area of forest can support all native wildlife species at all times. Large mammals such as bear, moose and deer require large areas of habitat, each with its own needs for food and shelter. Smaller species usually require smaller habitat areas, but likewise often need a variety of habitats within that area to support its needs. Migratory birds are here for only part of the year, but also have specific needs. One goal of wildlife habitat management is to provide as many varied habitats and food sources as possible for the greatest number of species. Any forest habitat change or manipulation may be beneficial for some species, while being detrimental to others, at least for some time period until the forest or fields change or grow.

This property has many types of special wildlife habitats. These include marshy wetlands, wet soils, vernal pools, multiple brooks, ledges, rock outcrops, dry ridges, mast areas, softwood cover areas and open/grassy vegetation (fields and landings). Many different animal signs were observed during the cruise including ruffed grouse, whitetail deer, moose, snowshoe hare, bear, owls, small rodents and many song birds.

There are numerous wild apple trees near the field and river and these trees are extremely valuable for wildlife. Apples are one of the most important sources of food for wildlife from deer and bear to turkey and small rodents. It is important to remember this during any activity that is performed on the property. They should be protected during any timber harvesting and should be maintained by keeping them released from overstory trees and should be pruned on a two to four year rotation.

The seven acre field that is adjacent to the river is being maintained as an open, grassy habitat through mowing/brush hogging. Mowing in the field should take place after August 1st so that any ground nesting birds are not disturbed while they hatch and raise their young. This field is also likely being used as a singing ground for woodcock in the spring. It is important to maintain this opening to encourage this to continue by keeping the opening the same size and removing some of the larger trees on the edge of the opening to give the woodcock enough room to perform their courtship flights. The opening should be as twice as wide as the nearest trees are tall ex: if the nearby white pines are 100' tall the opening should be a minimum of 200' wide. This gives the male woodcock enough room to make their spiral flight without fear of hitting any nearby trees. To further encourage woodcock, areas should be targeted to do small (1-3 acre) wildlife cuts that contain enough commercial timber to potentially pay for stumping them. These cuts should be placed in areas that can be easily accessed during the summer months. They should be mowed every five to ten years to keep them in an early sucessional forest type consisting of white birch and aspen. The mowing work can be performed with a "brontosaurus," ASV (rubber tracked skidsteer), or similar mulching machine if the mowing schedule is at 5-

10 year intervals. Another important technique for woodcock habitat is to occasionally “skuff” or scarify the ground with the mower or tractor bucket to expose some patches of soil.

It is recommended to keep log landings open for wildlife habitat diversity, as well as to control woody vegetation for future landing use. Brush hogging the landing every 2 to 3 years would accomplish this goal.

No threatened or endangered plant or animal species were observed near this property during a NH Natural Heritage Bureau database check. If desired, a field check may be performed by the NH Natural Heritage Bureau for a fee (if staff are available) or by a contracted naturalist or an organization such as the Wildflower Society.

WATER RESOURCES

Sedimentation from soil erosion can cover and kill small water organisms and eggs, as well as deplete dissolved oxygen needed for aquatic life. Management activities should follow the "NH Best Management Practices for Erosion Control". Skid trail stream crossings should be kept to a minimum, and proper crossing structures used. Logging on frozen or snow covered ground also minimizes ground disturbance and possible soil erosion (but sometimes may not meet silvicultural needs for seed germination on disturbed soil). Skid trails should be located to maintain an acceptable buffer or filter zone along streams, wetlands and vernal pools. Skid trails and landings should be waterbarred or smoothed and critical areas seeded after use to stabilize the surface and prevent erosion. Federal cost share funds are sometimes available to perform this work.

There are several water resources within the property. The largest wetlands complex is the Cockermouth River with over 5,000 feet of frontage on the river. This is a very important area to protect. Generous buffers should be left during any harvesting activities in the stands adjacent to the river. There is an area at the very southeastern end of the property that is a floodplain forest type which no harvesting is recommended as it is a unique area that is prone to frequent flooding in the spring of the year. Another large wetlands complex is Spectacle Pond. The property has scattered frontage on the pond but any timber harvesting and recreational activity can heavily affect the water quality of the pond. It is important to do proper erosion control on both hiking trails and logging trails that are upslope from the pond. There is a 5 acre forested wetland that is located at the southeastern end of the property. It is adjacent to the main access road and drains across the road. There is another swamp located at the northern end of the property and is 4 acres. Outflow from this wetland is west onto the SPNHF Cockermouth Forest. There is also a small remote pond that is located at the northeastern portion of the lot. It is roughly a ¼ acre in size, is very remote and picturesque. There is a good sized brook that runs from the northern end of the property into the 5 acre beaver swamp that is located on the eastern boundary then flows east off the property.

SOIL RESOURCES

Individual soil specifications and descriptions can be found in the stand descriptions. This property has several different soil types that affect the type of vegetation that grows and when certain management activities

can take place. In general, the soils are well drained with some exceptions near the multiple wetland complexes. There are many areas that have steep slopes with exposed ledge outcrops.

CULTURAL RESOURCES

This property appears to have been used for agriculture for a short time and more than likely for sheep farming during the big wool boom of the 1800's. There are stone walls and barbed wire fence that make up some of the property lines indicating that the property was used for grazing. Stonewalls should be protected during any timber harvesting activities. Trees should not be cut on or next to walls nor should trees be dropped across walls as this will damage them as well. More recently the property has been used for hay production in the fields and on the upper elevations the primary focus has been on timber production and recreation. There were no old foundations or cellar holes observed during the cruise that would indicate the property contained a homestead, but such sites should be protected if ever found.

RECREATION

The property will be open to the public for recreation including hunting, walking, hiking, watching wildlife, cross country skiing, snow shoeing and there is a major snowmobile trail corridor that crosses the property at the southern end. Developing and maintaining recreational opportunities is an ownership objective. All terrain or four wheel drive vehicles are not allowed on the property, so hunters, especially those after moose, must be aware of where they are and sometimes be prepared for a long drag or backpack if they have a successful hunt.

There are a number of potential hiking trail locations that can provide opportunities for a perimeter trail with the possibility of some internal connecting loops. This is shown on an enclosed map, and will no doubt be "fine tuned" via consultation with the select board and more extensive reconnaissance of the topography. Such a trail system provides a variety of choices for length of hike and gentle or steep topography. The loop trail should incorporate the many spectacular ledge top vistas that this property has to offer as well as the water resources that are found throughout the lot. Spectacle Pond and the Cockermouth River both offer great opportunities for water recreation from swimming and boating to fishing. Spectacle Pond offers wonderful opportunities for winter recreation such as skating, ice fishing, cross country skiing and ice boating.

There are some obstacles to creating a perimeter trail through the property. There are areas of ledge, steep drop offs and cliffs that are dangerous and must be avoided. In addition to the difficult terrain there are some wetland complexes. With careful planning and on the ground evaluations the obstacles can be avoided or minimized to not only reduce costs to the town but to also maximize use by the public. There are two options for crossing the two large brooks that are found on the lot. One option would be to build log truck bridges for vehicular access. The other option is to build foot bridges to cross the brooks using debarked hemlock log stringers that have been cut flat on the top to provide a level surface for decking. Construction would be simple and could be done without any disturbance to State jurisdictional wetlands. The bridge could be constructed during a timber harvest using the logging equipment (preferably a feller-buncher) to place the headers and log stringers in place over the brook. Planking could then be nailed in place on the stringers to provide a simple but effective and long lasting foot bridge. Locations of these bridges should be further scoped

out to best decide on a spot that reduces the chance of the bridges interfering with future timber harvesting operations.

Potential vista locations are shown on the map, which could be hand cut or opened as part of a timber harvesting operation. The best spots are on the eastern and western boundaries which will open up impressive views of Mt Cardigan to the southwest and Newfound Lake to the south. After any view opening is cut, periodic hand cutting of the vegetation will be necessary to maintain the view, or herbicides could also be used. Periodic maintenance of trails is also needed to prevent or reduce erosion, mainly in the form of water bars and also with hand loppers to keep vegetation from growing into the trail. It is also a good idea to have a volunteer go through the trails network every spring to clean up any winter storm damage in the form of dead fall trees or wind shorn trees.

AESTHETICS

Some forest management activities, primarily timber harvesting, can be disruptive and unsightly for a period of time, even when done to the highest quality. However, lopping the tops of trees and limbs low to the ground during harvesting operations softens the visual unsightliness of slash and accelerates the decay process, as the material is closer to the ground moisture and fungi. Biomass or whole tree harvesting removes much of the unsightly slash from the forest floor. Biomass harvesting could be possible on this property, if the road and landing system can support it. With any harvesting method, slash heights can be limited by contract to a specified height above the ground. Contract provisions may also require removal of slash accumulations from skid trails to be used for recreational purposes. Post-harvest erosion control practices could also utilize a bulldozer or hand methods to reduce these slash accumulations, as well as aid in the cleanup and seeding of main skid trails and landings.

The select board has expressed a high priority on preserving aesthetics and scenic beauty on the property. They have also expressed a desire to have any future harvests done utilizing whole tree harvesting and chipping to minimize slash residue in skid trails.

ECOSYSTEM MANAGEMENT/ADJACENT PROPERTIES

The term “ecosystem management” generally includes the following principles: the maintenance of native ecosystem types and ecological processes through natural or human means; the maintenance of viable populations of native flora and fauna and their habitats; to sustain the evolutionary potential of species and ecosystems; to sustain soil productivity and water quality to support the above; and to accommodate human use as part of the ecosystem. From a timber management standpoint, another principle includes the production of forest products in a sustainable manner over the long term. These principles encourage forest managers to look beyond the boundaries of an individual property, to look at the "big picture" of an ecosystem at the landscape level, and to try to coordinate management activities over greater land areas.

Hebron is in an area of the state which is mostly forested. Most of the development, both residential and commercial, is located close to roads leaving large areas of open forestland undeveloped. Except for somewhat recent smaller lot development along Groton Road and the small camp lots along the shore of Spectacle Pond,

the immediate abutting landowners have contiguous holdings ranging from 30 acres to 500 or more acres. Of particular importance, especially for wildlife habitat, is the 1,000 + acres of Society for the Protection of NH Forests land as well as the 1,000+ acres owned by Green Acre Woodlands that abut the property to the north and are being managed for sustainable forestry and will keep wildlife habitat needs in mind during any harvesting activities. While there are no cross boundary management agreements in place, the landowners and forest management professionals involved often communicate with each other on common management goals and interests.

As this property straddles a ridge it provides a very important wildlife corridor that begins at the Cockermouth River and runs up the ridge along the brook to the top of Mount Crosby. It is important to keep this in mind while conducting any timber harvesting or recreational activities that a buffer in the hemlock along the brook is very important for cover and travel for wildlife.

BOUNDARIES

The boundaries on this property are in various states of recognition. Some are easily recognized as they have been brushed, blazed and painted by abutters while other areas are in very poor shape and are in immediate need of maintenance. The boundaries that are in common with the Society for the Protection of NH Forests, Green Acre Woodlands, Inc., the Brittelli Family and the Connor Family are the most recognizable. The boundaries around the small camp out lots on Spectacle Pond are in very poor shape with many of the lines having no evidence. Much of the western boundary is also very difficult to locate with old blazes and scattered flagging the only evidence found.

It is recommended to perform maintenance on all the boundary lines needing it in the form of brushing, blazing and painting. Once this has been done, maintenance should be performed every 10 to 15 years to keep brush from growing into the lines, and to repaint so that the lines are readily seen by anyone approaching them.

Well maintained boundaries not only aid the landowner, forester and logger in restricting management activities to the intended property, they guard against intentional or unintentional encroachment or trespass by adjacent owners. It is important to be careful when laying out hiking trails that they are not confused with boundaries and that the colors used to delineate trails and boundaries are different.

FOREST & TIMBER TAXATION

Timber Yield Tax - The town assesses a timber yield tax of 10 percent of the stumpage value of timber harvested during a tax year (April 1 to March 31). An Intent to Cut must be filed prior to harvesting, and a Report of Cut is filed after harvesting is completed. The town Selectmen or Assessors establish an assessment rate for each species/product, and a tax bill is issued by the town Tax Collector. The purchaser of stumpage, typically the logger or sawmill, is responsible for the payment of timber tax on publicly owned land.

Easements - For land protection purposes, a conservation easement deeds the development rights on a specified property to a third party (usually a non-profit conservation organization, land trust, or government

entity). Such easements can be sold or donated. If an appraisal is done to establish the value of a donated easement, this amount may be deducted as a charitable contribution on federal income taxes. These easements can be tailored to meet the needs of each individual and property, and usually require a boundary survey, and legal and professional land protection consultation. A copy of the Conservation Easement that the Society for the Protection of New Hampshire Forests has on the property has been included in the appendix.

FOREST STAND TYPE DESCRIPTIONS AND PRESCRIPTIONS

The following section describes in detail the current status and recommended management activities for each forest stand. Explanations for common forestry terminology can be found in the Glossary. The following page presents a graphic depiction of the general silvicultural prescriptions described below.

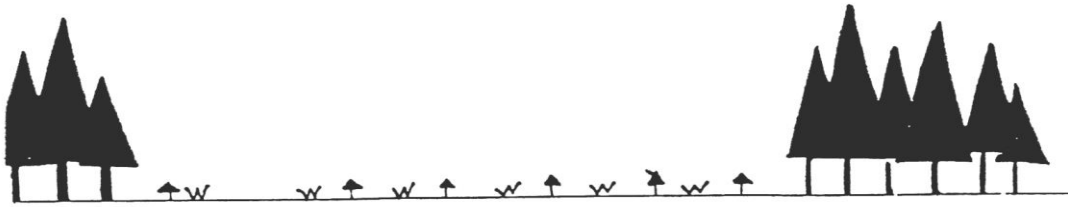
Stand prescriptions may contain the following silvicultural prescriptions:

The first three prescriptions allow regeneration to develop without being damaged by subsequent harvesting operations:

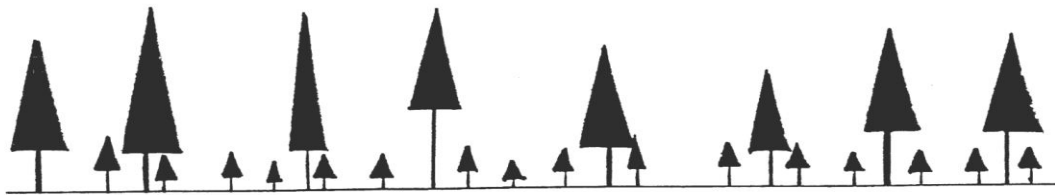
- * **Group Selection** - The removal of groups of trees, in groups ranging from (small) 30' to 50' in diameter to (large) about 2 acres. This is used in stands with groups or a high percentage of mature or low quality trees where clearcutting is not an option. The objective is to regenerate the stand, usually for shade tolerant species such as sugar maple, yellow birch and white ash. It may also be used as a technique in fostering unevenaged stands.
- * **Patch Clearcutting** - The removal of all trees on areas larger than group selections, but smaller than the whole stand. Size generally ranges from 2 acres up to 5 acres and is usually spread evenly through the stand. This is also used in stands that are basically mature or contain a very high percentage of low quality trees. The objective is regeneration, usually for shade intolerant species, under a modified form of evenaged management. It is sometimes used as an alternative to stand clearcutting for wildlife or aesthetic reasons.
- * **Stand Clearcutting** - The removal of all or the majority of trees of an entire forest stand. As above, the objective is regeneration of a mature or low quality stand under evenaged management.
- * **Shelterwood & Seed Tree** - The removal of all trees except a scattering of seed and shade trees of desirable species. Shelterwood leaves a higher number of overstory trees, sometimes favoring more shade tolerant species. Seed Tree leaves less overstory trees, favoring shade intolerant species. The objective is regeneration under evenaged management. After successful regeneration, the overstory trees are removed. Protection of regeneration during overstory removal can be difficult.
- * **Single Tree Selection** - The removal of individual trees in a stand with a goal of unevenaged management. The improvement of stand quality and growth is a goal by removing low quality and mature trees and reducing competition to result in a relatively even-spaced stand. A goal is also to create or leave a certain distribution of trees in each diameter class. To achieve the latter, some low quality or mature trees may need to be left.
- * **Thinning** - The removal of a certain percentage of the total number of trees in a stand, to leave a relatively even-spaced stocking of trees. Removals average around 30% of the stocking. Used in immature, evenaged stands, the goal is to increase growth by reducing competition, and increase quality by removing the lowest quality and mature trees.

HARVESTING METHODS

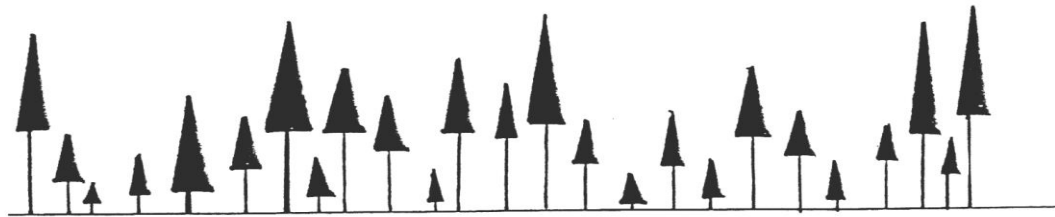
Clearcut



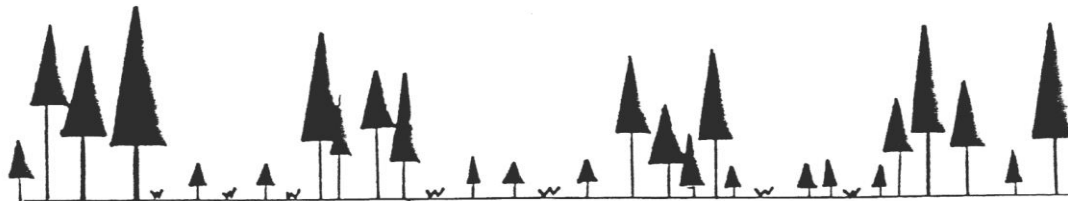
Shelterwood



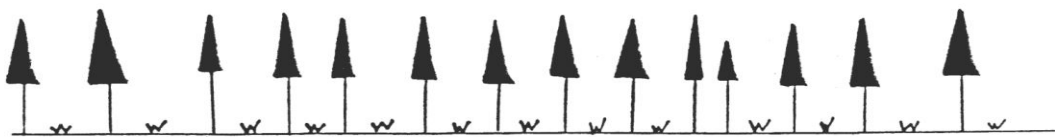
Single-Tree Selection



Group Selection

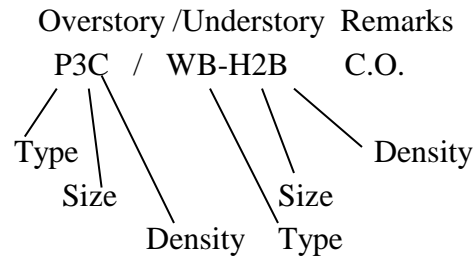


Thinning



TIMBER STAND DESIGNATIONS

Stand designations are made up of several parts depending on the situation. All parts are shown in the example below. The understory and remarks sections are sometimes omitted.



The first part before a slash is the overstory designation; the second part is the understory designation.

TYPE DESIGNATIONS:

- Wp, P Pine
- H Mixed Hardwood species
- M Mixed Hardwood and Softwood species
- S Softwood species

Particular species may also be listed. See Species Abbreviations and map legend.

SIZE DESIGNATIONS (based on average stand diameter):

- 1 Sapling size $\leq 4"$ DBH
- 2 Pole size $> 4" \leq 10"$ DBH
- 3 Sawlog size $> 10"$ DBH

DENSITY DESIGNATIONS:

- A Overstocked
- B Adequately stocked
- C Understocked

Remarks usually refer to past harvesting done, if any. In the above example, C.O. stands for Cutover.

ACREAGE SUMMARY

FOREST LAND:

<u>Stand Number</u>	<u>Forest Type</u>	<u>Acres</u>
1	Ro,Be,H2-3A/H1B	20.5
2	Be, H2-3A/H1A	121.0
3	Hm,H2-3A/H,S1C	18.5
4	Hm,Wp,H2-3A/H,S1C	8.0
5	H, Yb2-3B/H1A	4.5
6	Ro,H2-3A/H1B	11.0
7	S,H2-3A/H1B	15.0
8	Ro,Be,H2-3A/H1B	35.5
Total Commercial Forest Land		234.0

NON-FOREST LAND:

Wetlands	6.0
Open/Field	7.2
Non-Commercial	187.0
Floodplain Forest	18.8
Total Non-Forest Land	219.0

TOTAL PROPERTY: 453.0

STAND DESCRIPTIONS AND PRESCRIPTIONS

STAND 1 – RO,BE,H2-3A/H1B

This 20.5 acre red oak, beech and hardwood stand is located on the western boundary north of Spectacle Pond. Topography ranges from moderate to steep slopes with areas of many surface rocks. The stand does not appear to have been logged during the most recent harvest. Subsequently it is comprised of sawlog sized red maple in areas that are more poorly drained and in the areas that are better drained the stand is heavier to red oak, beech and yellow birch. It is overstocked at 95 ft² of basal area with red oak comprising 40% of the basal area followed by beech at 29%, red maple 13%, yellow birch 8% and white birch and hemlock making up the remainder. Timber volumes average 5,000 board feet of sawlogs and 8 cords of pulpwood per acre. In much of the stand the regeneration is dominated by beech and striped maple due to the crown damage during the 1998 ice storm. The soils in this stand are moderately well drained to well drained and there are few drainages running through it.

This stand should be harvested in 2010-2014 as it has not been treated in many years. This stand would benefit from a shelterwood harvest to regenerate red oak and yellow birch. The basal area should be reduced to between 30 and 50 with a focus on removing the beech and red maple and the poorest quality red oak and yellow birch. The existing beech and moose maple regeneration should be discouraged and either run over or cut as part of the timber sale. With the combination of wet soils in the depressions and dry soils that are found on the ridges, harvesting work should be performed during a dry summer to prep a seed bed which encourages red oak regeneration. Access to this stand is going to be difficult as it slopes off to the west and would require an uphill pull with limited possibilities to access a landing on the property. Ideally the harvesting should be done in conjunction with a harvest on the abutter to the west or if this is not possible then during a harvest in Stand 2. This stand should be reassessed in 15-20 years after the completion of the upcoming harvest.

The predominant soil found is Becket/Monadnock 703D that is moderately steep and very stoney. In the important forest soil groups guide (see Appendix) this soil is classified as IB. It tends to be a moderate to well drained soil favoring successional hardwoods such as red oak, beech, white ash, yellow birch and sugar maple. However, it is also suited to growing hemlock, balsam fir and red spruce. This soil is moderately prone to windthrow and this should be taken into account when prescribing future treatments. The prolific rocks in this stand and damp soils in portions of adjacent stands could limit harvesting activities to dry summer or to winter/frozen conditions.

STAND 2 – BE, H2-3A/H1A

This overstocked stand runs from north to south in the center of the property. It is 121 acres and the overstory is made up of small to mid-sized hardwood sawlogs with some very scattered hemlock. The understory is overstocked with sapling to pole-sized hardwoods and pockets of red spruce. There are areas that are more poorly drained that have a heavier stocking of red maple and white ash. While other areas that are better drained are mostly beech, red oak yellow birch, sugar maple, white ash, red maple, beech and moose maple. It is overstocked at 116ft² of basal area with beech comprising 35% of the basal area followed by red oak at 18%, red maple 17%, hemlock 9%, yellow birch 8% and sugar maple, white birch and white ash making up the remainder. Timber volumes average 5,000 board feet of sawlogs and 14 cords of pulpwood per acre.

Understory regeneration is comprised of predominantly beech with some scattered hemlock and spruce. This is also a result of the 1998 ice storm which let in small amounts of light encouraging shade tolerant species to regenerate. There are seeps, several small drainages as well as a major drainage and a few small wetlands throughout the stand. There is no dedicated landing nearby which would service this stand. The old road to Spectacle Pond runs through this stand and is in need of repair. Two bridges will need to be constructed for either skidding or for trucking. Truck bridges will be more expensive but will last longer and will be better for water quality as they will be permanent bridges while skidder bridges will need to be removed at the completion of any harvest activity. Bridge locations should be assessed to ascertain whether or not a full wetlands permit is needed or if a forestry notification will be sufficient. The road is in need of extensive upgrading to utilize it as a truck haul road. It is recommended to upgrade the road as it will greatly decrease the skidding distance and logging costs as well as providing recreational access to the center of the property for many people. This stand has moderate to steep slopes, has a moderate logging chance and could be harvested in a dry summer or winter conditions.

This stand should be harvested in 2010-2014 using a mosaic of 2-5 acre patch cuts treating roughly one third to half of the stand. The harvest should be timed to coincide with harvests on adjacent stands. The patch cuts should focus on removing the trees that received the most severe ice damage during the 1998 ice storm. The goal is to regenerate the stand with three entries using the patch cut treatment with a focus on regenerating red oak, yellow birch, white ash, sugar maple and red maple. Patch cuts serve many purposes with the most valuable being regenerating high quality hardwood species while also providing important wildlife habitat for many different species for many years. While laying out the patches it is best to maintain 300-500 foot spacing between them and it is also important to retain crop trees on the edge of the cuts to supply seed to the newly opened site. This stand should be harvested in conjunction with harvest work in other stands. The patch cuts should be done utilizing whole tree harvesting techniques but it is not necessary. Whole tree harvesting tends to generate the greatest amount of soil scarification in patch cuts which prepares a seed bed for the new forest. A buffer should be left along any of the brooks that are found in this stand to protect riparian habitat and to provide a travel corridor for wildlife. This stand should be re-assessed in 15-20 years to do additional patch cuts.

The predominant soil found in this stand is Becket/Lyman 710D that is hilly and very stoney. It makes up the northern two thirds of the stand. In the important forest soil groups guide (see Appendix) this soil is classified as IIA. It tends to be a moderate to well drained soil favoring successional hardwoods such as beech, white ash, yellow birch and sugar maple. However, it is also suited to growing pine, balsam fir and red spruce. This sometimes moderately drained soil is prone to windthrow and this should be taken into account when prescribing future treatments. The prolific rocks and steep slopes limit harvesting activities to dry summer or to winter/frozen conditions. Erosion control is necessary to minimize erosion at the completion of any timber harvest. The other predominant soil found in this stand is Becket/Tunbridge 709D that is moderately steep and very stoney. In the important forest soil groups guide (see Appendix) this soil is classified as IB. It tends to be a moderate to well drained soil favoring successional hardwoods such as beech, white ash, yellow birch and sugar maple. This soil is moderately prone to windthrow. The prolific rocks in this stand and damp soils in portions of adjacent stands conditions limit harvesting activities to dry summer or to winter/frozen conditions.

STAND 3 – HM,H2-3A/H,S1C

This overstocked hemlock-hardwood stand is made up of three small stands located in the center of the property. The largest component of the stand is 10 acres while the other two are 6 acres and 2.5 acres with a total area of 18.5 acres. The basal area is 167 ft² and is comprised of hemlock 52%, red oak 16%, red maple 15%, and beech, yellow birch and white birch comprising the remainder. Timber volumes average 10,000 board feet of sawlogs and 15.4 cords of pulpwood per acre. The understory is very sparse and is a mix of hardwoods and softwoods, mostly beech, hemlock and moose maple. Soils in this stand are moderately well drained to well drained with areas that are rocky. Slopes on this stand are moderate to somewhat steep and there is a fair to good logging chance. During the cruise there were several locations that deer, moose and snowshoe hare sign were observed.

This stand is important for wildlife habitat as it is a mature hemlock-hardwood stand. Management in this stand should focus on maintaining the hemlock overstory while encouraging hemlock and hardwoods to regenerate. Any harvest activity should use a light touch focusing on removing overmature hemlock and poor quality hardwoods. It is important to leave most of the hemlock overstory intact to continue to act as a deer wintering yard but to remove enough of the overstory to regenerate hemlock and hardwood. Ideally the stand should be left with 70% crown closure of which 50% should be softwood. If possible the harvest should be done during late summer or early fall with dry conditions and should be done using either a whole tree chipping operation or a cut to length operation to minimize damage to residual trees during felling. The harvest should be done in conjunction with harvests in adjacent stands and should be done in 2010-2014. Upon the completion of this sale the next harvest should be done in 15-20 years.

The predominant soil type found in this stand is Becket/Lyman 710D that is hilly and very stoney. In the important forest soil groups guide (see Appendix) this soil is classified as IIA. It tends to be a moderate to well drained soil favoring successional hardwoods such as beech, white ash, yellow birch and sugar maple. However, it is also suited to growing white pine, hemlock, balsam fir and red spruce. This sometimes moderately drained soil is prone to windthrow. The prolific rocks and steep slopes limit harvesting activities to dry summer or to winter/frozen conditions. Erosion control is necessary to minimize erosion at the completion of any timber harvest.

STAND 4 – HM,WP,H2-3A/H,S1C

This over-stocked hemlock-white pine-hardwood stand is located along the eastern boundary line and is eight acres. The basal area is 170 ft² and is comprised of hemlock 56%, white pine 18%, red oak 12%, and red maple, yellow birch, white ash and spruce comprising the remainder. Timber volumes average 11,000 board feet of sawlogs and 14.5 cords of pulpwood per acre. The understory is very sparse and is a mix of hardwoods and softwoods, mostly beech, hemlock and balsam fir. Soils in this stand are moderately well drained to very well drained with areas that are rocky. Slopes on this stand are moderate to somewhat steep and there is a fair to good logging chance. During the cruise and the more recent walk through there were several locations that deer and moose sign were observed this includes many beds and large quantities of scat.

This stand is important for wildlife habitat as it is a mature hemlock-white pine-hardwood stand. Management in this stand should be focused on maintaining the hemlock overstory while encouraging hemlock and hardwoods to regenerate. Any harvest should focus on removing overmature white pine and poor quality

hardwoods. It is important to leave hemlock in the overstory to promote this stand as a deer wintering yard but to remove enough of the overstory to regenerate hemlock and hardwood. The harvest should be done during late summer or early fall and should be done using either a whole tree chipping operation or a cut to length operation to minimize damage to residual trees during felling. The harvest should be done in conjunction with harvests in adjacent stands and should be done in 2010-2014. Upon the completion of this sale the next harvest should be done in 15-20 years.

The predominant soil found in this stand is Becket/Tunbridge 709D that is moderately steep and very stoney. In the important forest soil groups guide (see Appendix) this soil is classified as IB. It tends to be a moderate to well drained soil favoring successional hardwoods such as beech, white ash, yellow birch and sugar maple. However, it is also suited to growing white pine, hemlock, balsam fir and red spruce. This soil is moderately prone to windthrow. The prolific rocks in this stand and damp soils in portions of adjacent stands conditions limit harvesting activities to dry summer or to winter/frozen conditions.

STAND 5 – H, YB2-3B/H1A

This adequately stocked stand is located in the southern portion of the property. It is 4.5 acres and the overstory is made up of medium to large sawlog sized trees with some very scattered hemlock. Areas that are poorly drained have a heavier stocking of red maple. While areas that are better drained are mostly yellow birch, sugar maple, and red maple. It is adequately stocked at 135 ft² of basal area with yellow birch and red maple comprising 33% of the basal area followed by sugar maple and hemlock at 17% making up the remainder. Timber volumes average 4,500 board feet of sawlogs and 17 cords of pulpwood per acre. Understory regeneration is comprised of predominantly hemlock with some scattered beech. The old road to Spectacle Pond runs through this stand and it is also adjacent to a large wetlands complex. During any harvesting a 50 foot harvesting buffer should be left adjacent to the wetland. This allows for only removing 50% or less of the basal area inside the buffer to maintain as much shade on the wetland as possible. Timber harvested from this stand could be skidded to a newly constructed landing located in Stand 2 or south to a landing adjacent to the fields. This stand has moderate slopes, has a moderate logging chance and could be harvested in very dry summer or frozen winter conditions.

The prescription for this stand should be to harvest a small patch cut of 2-3 acres treating roughly half of the stand in 2010-2014. The patch cut should focus on removing the mature and poor quality trees that received the most severe ice damage during the 1998 ice storm. The goal is to regenerate the stand with two entries using the patch cut treatment with a focus on regenerating red oak, yellow birch, white ash, sugar maple and red maple. Patch cuts serve many purposes with the most obvious being regenerating high quality hardwood species while also providing valuable wildlife habitat for many different species for many years. It is important to retain crop trees on the edge of patch cuts to supply seed to the newly opened site. This stand should be harvested in conjunction with harvest work in Stands 2, 3 and 4. The patch cut should be done utilizing whole tree harvesting techniques but it is not necessary. Whole tree harvesting will generate the greatest amount of scarification in the patch cuts which prepares a seed bed for the new forest. A buffer should be left along the large wetland found adjacent to this stand to protect riparian habitat and to provide a travel corridor for wildlife. This stand should be re-assessed in 20-30 years to do an additional patch cut.

The most predominant soil found in this stand is Skerry/Tunbridge 724B that is undulating and very stoney. In the important forest soil groups guide (see Appendix) this soil is classified as IB. It tends to be a moderate

to well drained soil favoring successional hardwoods such as beech, white ash, yellow birch and sugar maple. This sometimes moderately drained soil is susceptible to windthrow. The prolific rocks and wetter soils limit harvesting activities to dry summer or to winter/frozen conditions.

STAND 6 – RO,H2-3A/H1B

This 11 acre red oak, beech and softwood stand is located at the southern end of the property between the 7 acre field and non commercial ledges. Topography is steep with many surface rocks. The stand does not appear to have been treated during the most recent harvest. Subsequently it is comprised of sawlog sized red oak, beech, sugar maple and white pine. It is overstocked at 120 ft² of basal area with red oak and beech comprising 33% of the basal area followed by sugar maple at 17% and white pine and hemlock making up the remainder. Timber volumes average 7,000 board feet of sawlogs and 9 cords of pulpwood per acre. In much of the stand the regeneration is dominated by hemlock and beech. The soils in this stand are moderately well drained to well drained.

This stand could be harvested in conjunction with Stands 5, 7 and 8 in 2010-2014. This stand should have a light thinning done and the basal area should be reduced by between 15 and 30 focusing on removing the poor quality beech and red maple and the overmature red oak and yellow birch. Aesthetics are very important in this stand as it is very close to the fields and the main access road. Silviculture may not be as important as maintaining a visual buffer in this stand and tree marking should take this into account. With the soils that are found throughout this property harvesting work should be performed on dry ground conditions if possible to scarify a seed bed to encourage red oak regeneration. This stand should be reassessed in 15-20 years after the completion of the upcoming harvest.

The predominant soil found in this stand is Becket/Tunbridge 709D that is hilly and very stoney. In the important forest soil groups guide (see Appendix) this soil is classified as IB. It tends to be a moderate to well drained soil favoring successional hardwoods such as red oak, beech, white ash, yellow birch and sugar maple.

However, it is also suited to growing pine, balsam fir and red spruce. This sometimes moderately drained soil is prone to windthrow. The prolific rocks limit harvesting activities to very dry summer or to winter/frozen conditions.

STAND 7 – S,H2-3A/H1B

This 15 acre softwood-hardwood stand is located at the southwestern end of the property. Topography is moderate and is located adjacent to a non-commercial area made up of steep drop offs and ledge outcrops. The stand does not appear to have been treated during the most recent harvest. Subsequently it is comprised of sawlog sized red maple in areas that are more poorly drained and in the areas that are better drained the stand is heavier to white pine, hemlock and red oak. It is overstocked at 116 ft² of basal area with red oak comprising 35% of the basal area followed by hemlock and white pine both at 23%, red maple 13% and white birch and spruce making up the remainder. Timber volumes average 6,500 board feet of sawlogs and 10 cords of pulpwood per acre. In much of the stand the regeneration is dominated by beech and hemlock. The soils in this stand are well drained to very well drained and have very few drainages running through them.

This stand should be harvested in 2010-2014 as it has not been treated in many years. This stand would benefit from 2-3 acre patch cuts to regenerate red oak and yellow birch. This harvest should cover 20-30% of

the stand and the patches should be focused in areas that have poor quality and overmature stems. The existing beech and moose maple regeneration should be discouraged and either run over or cut as part of the timber sale. With the soils that are found throughout this property harvesting work should be performed on dry ground conditions if possible to prep a seed bed to encourage red oak regeneration. Access to this stand is going to be difficult as it slopes off to the west and would require an uphill pull with limited possibilities to access a landing on the property. The harvesting should also be done in conjunction with either a harvest on the abutter to the west and during a harvest in Stand 8. This stand should be reassessed in 15-20 years after the completion of an upcoming harvest.

The predominant soil found in this stand is Tunbridge/Lyman/Rock Outcrop 61E that is hilly and very stoney. In the important forest soil groups guide (see Appendix) this soil is classified as IIA. It tends to be a moderate to well drained soil favoring successional hardwoods such as beech, white ash, yellow birch and sugar maple. However, it is also suited to growing white pine, hemlock, balsam fir and red spruce. This sometimes moderately drained soil is prone to windthrow. The prolific rocks and steep slopes limit harvesting activities to dry summer or to winter/frozen conditions. Erosion control is necessary to minimize erosion at the completion of any timber harvest.

STAND 8 – RO,BE,H2-3A/H1B

This 35.5 acre red oak, white pine and hardwood stand is located at the southwestern end of the property. Topography is moderate to moderately steep and is located adjacent to the Cockermouth River and the southwestern boundary. The stand does not appear to have been treated during the most recent harvest. Subsequently it is comprised of sawlog sized red maple in areas that are more poorly drained and in the areas that are better drained the stand is heavier to red oak, white pine, beech, white birch, with some scattered red spruce and red pine. It is overstocked at 141 ft² of basal area with red oak comprising 51% of the basal area followed by white pine both at 23%, red maple 11% with beech, white birch, red spruce and red pine making up the remainder. Timber volumes average 9,000 board feet of sawlogs and 11 cords of pulpwood per acre. In much of the stand the regeneration is dominated by beech and hemlock. The soils in this stand are moderately drained to well drained and have few drainages running through them.

This stand could be harvested in 2010-2014 as it has not been treated in many years. This stand would benefit from 2-5 acre patch cuts to regenerate red oak and white pine. This harvest should cover 20-30% of the stand and the patches should be focused in areas that have poor quality and overmature stems. The existing beech and moose maple regeneration should be discouraged and either run over or cut as part of the timber sale. With the soils that are found throughout this property harvesting work should be performed on dry ground conditions if possible to scarify the seed bed for red oak regeneration. Access to this stand could be difficult as it slopes off to the south and west and could require an uphill pull with limited possibilities to access a landing on the property. The harvesting should also be done in conjunction with either a harvest on the abutter to the west as well as a harvest in Stand 7. Further access investigation is required for both Stand 7 and Stand 8. This stand should be reassessed in 15-20 years after the completion of the upcoming harvest.

In the eastern portion of this stand the predominant soil found is Tunbridge/Lyman/ RockOutcrop 61E that is hilly and very stoney. In the important forest soil groups guide (see Appendix) this soil is classified as IIA. It tends to be a moderate to well drained soil favoring successional hardwoods such as beech, white ash, yellow birch and sugar maple. However, it is also suited to growing white pine, hemlock, balsam fir and red spruce.

This sometimes moderately drained soil is prone to windthrow. The prolific rocks and steep slopes limit harvesting activities to dry summer or to winter/frozen conditions. Erosion control is necessary to minimize erosion at the completion of any timber harvest. The other predominant soil found in this stand is Adams Loamy Sand 36E that is moderately steep. It is found in the western portion of this stand and makes up roughly half of the stand. In the important forest soil groups guide (see Appendix) this soil is classified as IIA. It tends to be an excessively drained soil favoring softwoods such as white pine, red pine and hemlock. However, it is also suited to growing sugar maple, white ash, yellow birch and beech. This excessively drained soil can be prone to windthrow. The dry soil conditions do not limit harvesting activities to any time of the year but care should be taken to do erosion control after the completion of any harvest.

ESTIMATED TOTAL TIMBER VOLUMES AND VALUES

From data collected during the field cruise and information calculated from that data, two summaries of the timber volumes and values for this woodlot were prepared. Each summary lists the timber volumes and value by species and forest product for the area cruised.

The first summary, Estimated Total Timber Volumes and Values, represents the total of all standing growing stock on the woodlot. It is an estimate of the current market stumpage value of the total volumes. It is a useful guide in measuring the investment potential and resale value of the timber on a tract of land. This value reflects only the current market conditions, which may fluctuate widely over time. This fluctuation can occur for a single species or product, or for the market as a whole, much as the stock market fluctuates. The timber values are derived from items such as mill delivered prices, and logging and trucking costs.

ESTIMATED FIRST HARVEST TIMBER VOLUMES AND VALUES

Based on the total volumes in each stand and a tally made during the field cruise of trees which are recommended for harvest, an estimate was developed of the volumes to be harvested if the recommendations for each stand in this plan were followed. These volumes represent only the first harvest entry, and not volumes from future harvests. The values are based on current market conditions, which may change by the time any harvesting is performed. These values do not include (unless otherwise indicated) deductions for expenses such as timber yield taxes, road and landing construction, or professional forest management fees. The first harvests may be accomplished at one time, or in several operations over a number of years if desired, providing that smaller operations are economically feasible.

MANAGEMENT ACTIVITY TIME SCHEDULE

2010	Field mowing - delay until after August 1 st .
2011	Apple Tree Pruning & Release (Spring)
2011-2013	Reconstruct truck road & install two bridges and culverts Construct landing in Stand 2 Town driveway permits and DES wetland permits for both Boundary Maintenance
2011 – 2013	Stands 2-6 Group Selection and Single Tree Selection
2012	Field mowing - delay until after August 1 st . Assess Stands 7 & 8 for access and harvest potential.
2013	Apple Tree Pruning & Release (Spring)
2014	Field mowing - delay until after August 1 st .
2016 – 2022	Field mowing - delay until after August 1 st . Apple Tree Pruning & Release (Spring)
2025 – 2030	Stands 2-6 check for treatment needs Boundary Maintenance
2030 – 2040	Stands 7 & 8 check for treatment needs

PERIODIC/ONGOING:

Field mowing - haying can be every year but delay until August 1st
Brushhog log landing

APPENDIX

PHOTOGRAPHS



PHOTO 1 MAIN BROOK RUNNING THROUGH PROPERTY



PHOTO 2 LEDGE OUTCROP - CHARACTERISTIC OF OTHER AREAS OF THE PROPERTY



PHOTO 3 VISTA AREA OF MOUNT CARDIGAN FROM A POTENTIAL SHORT HIKING LOOP AT THE SOUTHERN END OF THE PROPERTY



PHOTO 4 VIEW OF MOUNT CARDIGAN FROM THE NORTHWESTERN PORTION OF THE PROPERTY



PHOTO 5 VIEW OF TENNEY MOUNTAIN FROM REMOTE POND



PHOTO 6 VIEW OF TENNEY RIDGE WITH PLYMOUTH MOUNTAIN IN BACKGROUND



PHOTO 7 ICE DAMAGE IN STAND 2



PHOTO 8 NEWFOUND LAKE FROM CENTER OF STAND 2; POTENTIAL VISTA; NOTE ICE DAMAGE



PHOTO 9 NON-COMMERCIAL SPRUCE STAND AT HEIGHT OF PROPERTY (NORTH END)



PHOTO 10 VIEW OF NEWFOUND LAKE FROM EASTERN CORNER OF PROPERTY ON
CONNOR/BRITELLI/HEBRON TOWN FOREST PROPERTY LINE



PHOTO 11 BEAR CLAWED BEECH IN STAND 7; IMPORTANT FOR WILDLIFE AS MAST TREE



PHOTO 12 BEAR TEETH MARKS ON A BALSAM FIR



PHOTO 13 SMALL REMOTE POND ADJACENT TO GREEN ACRE WOODLANDS' BOUNDARY AT
NORTHERN END OF PROPERTY

EASEMENT

LANDOWNER GOAL ASSESSMENT FORM

SOIL TYPE & GROUP DESCRIPTIONS

ORGANIZATION REFERENCES

GLOSSARY

GLOSSARY

ACCESS: The place or ability to enter a woodlot from an existing public road.

BASAL AREA: The cross-sectional area of a tree at 4½ feet above the ground, usually measured in square feet.

BLAZE: An ax mark on a tree denoting a boundary line.

BIOMASS: Commonly refers to the entire mass of living tree material above stumpage height.

BOARD FEET: A measure of wood by volume. One board foot is the volume of wood equal to a piece 12 inches long by 12 inches wide by one inch thick. Many “log rules” are available for converting raw material to board foot units. Log rules are closely linked with the local forest industries and vary with geographical areas. The “International ¼ inch Log Rule” is commonly used in most areas of the Northeast. Board feet per acre (BF/A) is a measure of tree density in a forest stand.

BOLTWOOD: Wood which is used for turning stock and for the eventual manufacture of countless small items, such as buttons, golf tees, dowels and wooden toys. Boltwood mills buy the raw material in four-foot lengths (bolts) and/or log length form.

CAPITAL GAINS: Increase in value over time of an asset. For tax purposes, it is the sale price of an eligible asset less its cost.

CORD: The standard cord of wood is an imaginary rack, or stack of wood, measuring 4 feet by 4 feet by 8 feet and containing 128 cubic feet of wood, bark and voids. Tables are available for estimating the number of cords represented by standing trees. Cords per acres (CDS/A) is a measure of density in a forest stand.

DBH (Diameter at Breast Height): The average diameter of a standing tree, measured outside the bark, at a point 4½ feet above the ground.

DEFECT: Internal rot, knots, or other defects in a live tree. The extent of unseen defect can be estimated from the history of a stand and from evidence of external damage from ice, wind, fire, insects, logging operations, etc.

DEPLETION ALLOWANCE: A tax benefit derived from “depleting” timber harvested as defined by the Internal Revenue Service.

FIREWOOD: Similar to pulpwood in that it is wood, not fit for higher uses such as sawlogs and veneer but it is used for heat production rather than paper production.

FLAGGING: The practice of hanging plastic ribbon as temporary markers in the woods for such things as boundary location and skid trail layout.

GROWTH: The amount of fiber added to a tree over a period of time. Usually expressed in cubic feet per acre per year or board feet per acre per year.

HARDWOOD: Hardwood trees are generally of the broad leaved species, also known as “deciduous” trees. Some more economically important hardwood species are maples, birches, ashes, and beech.

INACCESSIBLE: Describes land which cannot be logged at the present time because there is no economical way to get the timber out.

LOGGING COSTS: Include cost of cutting and yarding, trucking, internal road construction, and agent’s fees.

MANAGEMENT PLAN: A document which analyzes the forest on a woodlot and makes suggestions for future activities thereon.

MATURE: Describes a tree which is at its peak as far as biological or economic conditions are concerned.

MBF: Thousand board feet (see “board feet”).

MEAN STAND DIAMETER: The average diameter of a group of trees measured at diameter breast height (DBH).

MERCHANTABLE HEIGHT: The height of a tree where the merchantable portion of it ends. Usually at about 4" - 6 " in diameter.

MIXED WOOD: Describes a stand condition where both softwood and hardwood are present in significant amounts.

MULTIPLE USE: Concurrent use of the forest resources for more than one goal such as timber production, wildlife habitat, watershed management, etc.

NON-COMMERCIAL: A stand which is not able to be operated economically either due to terrain or size and value of the timber present.

OPEN AREA: Unforested land, typically hayfield, built up areas, or overgrown fields.

OPERABLE: Before a stand of timber can be logged (operated) on a commercial basis, it must have some minimum volume of timber. Just as markets vary from one geographical area to another, so does the minimum volume required to operate a stand profitably.

OVERMATURE: A condition in which a tree or stand is past its peak of either economic value or biological growth.

POINT SAMPLING: Statistical approach determining volumes in a forest. Commonly done with a prism at point randomly selected on a grid network spread out all over the property.

PRISM: In forestry, a prism is a calibrated wedge of glass which deflects light rays at a specific offset angle. In conducting a timber cruise, trees seen through the prism from fixed points are measured and are easily converted to “per acre” figures.

PULPWOOD: Wood or trees used to make pulp, from which paper products are manufactured. Trees of poor form and/or quality (rough and rotten), and of small size, are commonly tallied as pulpwood during at timber cruise.

SAWLOG: The portion of wood cut from a tree which will yield timbers, lumber, railroad ties and other products which can be sawn with conventional sawmill equipment.

SELECTIVE HARVESTING: The process of choosing some trees to cut over others based on such criteria as species, age, quality, location, health, etc., with the owner’s long term goals for management in mind.

SILVICULTURE: The practice of growing trees.

SITE INDEX: A measure of the ability of an area to grow timber.

SITE CLASS: Stands fit into size classes based on the size of trees which occupy them.

Sawlog - A live tree which measures over 10 inches in diameter 4½ feet from the ground.

Pole - A live tree which measures between 4 and 10 inches in diameter 4½ feet from the ground.

Sapling - A live tree taller than 4½ feet but less than 4 inches in diameter 4½ feet from the ground.

Seedling - A live tree less than 4½ feet tall.

SOFTWOOD: A class of tree species retaining their needles year round, also known as Conifers such as pine, hemlock, and spruce.

SOIL SUITABILITY: The general quality of the soil to provide a good medium for the growth of timber products.

SOIL TYPE: A general description of depth and water content of soil.

STAND: A group or area of trees or forest having similar characteristics and requiring similar management practices.

STEMS: A term used to describe individual trees usually in the phrase “stems per acres.”

STOCKING: The amount, usually in trees and less frequently in basal area or volume per acre of a stand.

Overstocked - A stand condition where there are too many trees present to maximize growth and yield.

Adequately Stocked - A favorable stand condition where growth and yield are in near optimum levels.

Understocked - A stand condition where yield is lessened because all growing space is not adequately utilized.

STUMPAGE VALUE: The value of the standing tree. It consists of the mill price (M) paid for the logs, less the total logging costs (L) for cutting the timber and trucking the wood to the mill. Stumpage value is crucial to the forest owner; it represents his profit on timber sales to the mill, and may be determined by using the formula: $S = M - L$.

TIE AND PALLET: Logs that are too rough, short, small or crooked to be marketed as high quality sawlogs, but which can be sawn into railroad ties or pallet stock.

TIMBER CRUISE: A “cruise,” or initial timber appraisal, is an inspection of a forest tract, conducted in order to determine the species composition, volume and value of timber of the tract. Other considerations during a cruise include site characteristics, reproduction and growth capacities of the species on the tract, operability, and the availability of markets.

TIMBER LIQUIDATION VALUE: The timber liquidation value (TLV) of a forest is the value of all the standing trees in operable stands. The value depends upon many variables, including logging costs and delivered mill prices, and may change from month to month.

TIMBER TYPE LINE: A boundary between two different stands of trees.

TRUCKING: Moving logs or other wood products from the landing area to the mill. One of the costs of logging.

VENEER: Veneer logs are turned on a lathe to produce thin sheets of wood to be used in the production of veneer, plywood and paneling. Veneer logs are usually the highest quality logs produced in a logging operation.

VOLUME: A quantitative measure of the amount of wood in a tree, stand, or woodlot usually expressed in board feet, cords, tons, or cubic feet.

WETLAND: Area of property which has surface water or high water table and is not able to economically grow trees.

WHOLE TREE CHIPS: Wood fiber produced when the remains of a tree are ground up after logs and pulp have been removed.

YARDING: The transport of logs or whole trees from the stump to yard, where wood is sorted. Yarding is usually done with rubber-tired “skidders,” with tractors or with horses.