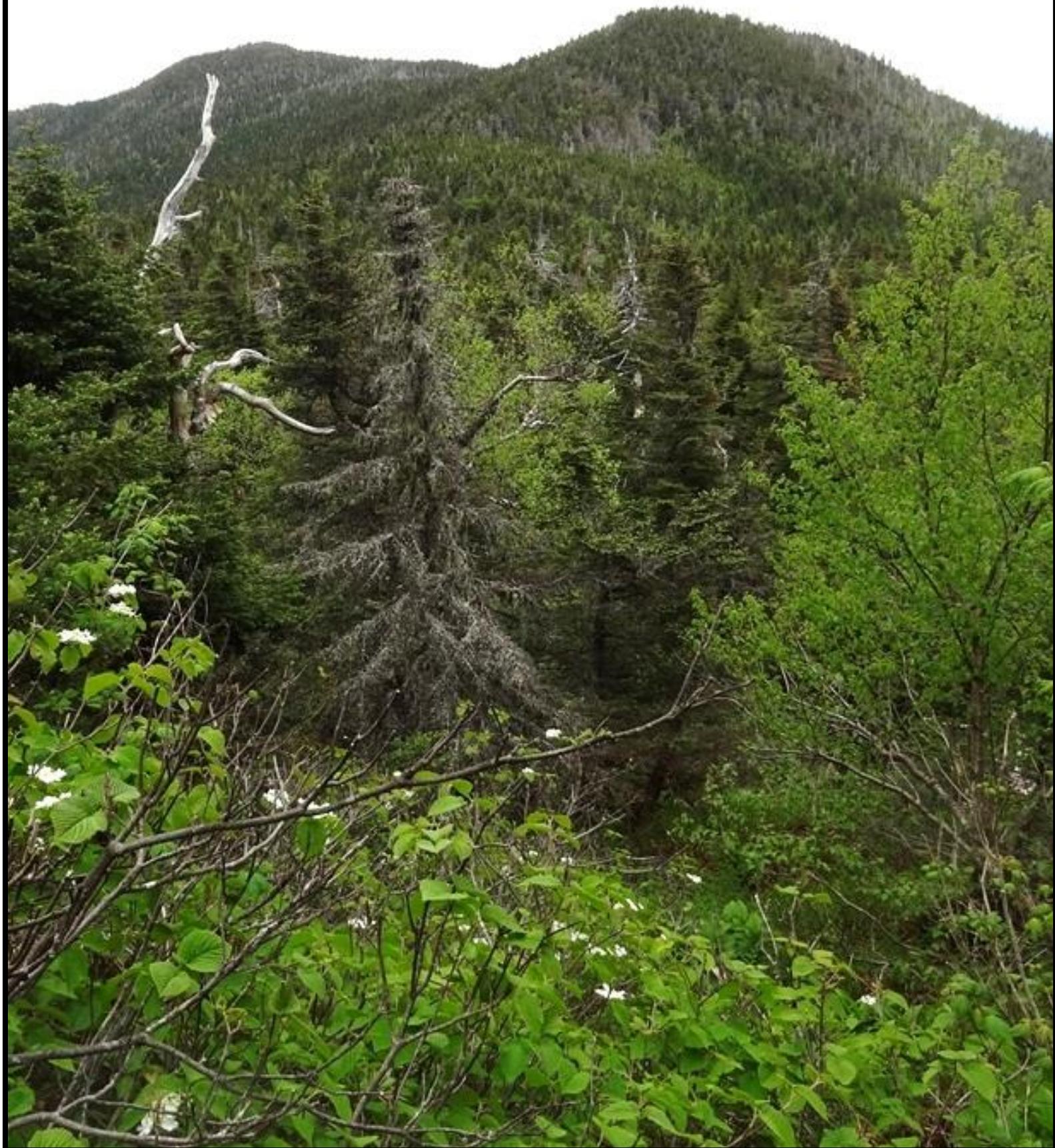


USE VALUE APPRAISAL CONSERVATION MANAGEMENT PLAN

Atlas Timber Tract
Jay (1,025 acres) and Richford (85 acres)
Green Mountain Club, Inc.
For the 10 years beginning April 1, 2017

PREPARED BY:

Harris Roen, Liscenced Forester [#148.0122043](#)
Long Meadow Resource Management
46 Scarff Ave, Burlington, VT 05401
(802) 658-2368 LM@roen.net



Cover photo: View of North Jay Peak from Doll Peak

USE VALUE APPRAISAL
CONSERVATION MANAGEMENT PLAN
FOR

Green Mountain Club, Inc.

Atlas Timber Tract, 1,110 acres

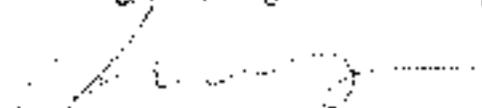
Jay (1,025 acres) and Richford (85 acres)

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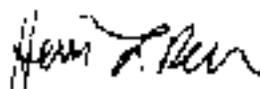
PREPARED BY: *Harris Roen, Vermont Licensed Forester #1490122041*
Long Meadow Resource Management
46 Scarff Ave, Burlington, VT 05401
(802) 658 2568, LMR@roen.net

I (we) certify that my (our) forest land, exclusive of any housesite or other developed portion, is at least 25 acres in size and is under active long-term forest management for the purpose of growing and harvesting repeated forest crops in accordance with minimum acceptable standards for forest management. These management standards include following the practices outlined in the Acceptable Management Practices rules updated in 2016 in order to control stream siltation and soil erosion.

By signing below, I understand I am signing my forest management plan and by doing so I agree to manage according to the current approved plan.

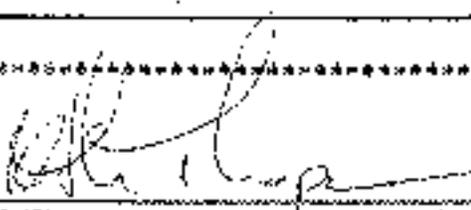


Mike DeBorja, Executive Director
Green Mountain Club
Date 12/17/16



Harris Roen, Consulting Forester

Date 12/19/2016

Approved for Use Value Appraisal by 

Keith Thompson, Vermont Forest, Parks and Rec. Date 1/24/16
Private Lands Program Manager

TABLE OF CONTENTS

I. PROPERTY INFORMATION.....	2
II. PARCEL RESOURCE INFORMATION.....	4
OVERVIEW.....	4
CONSERVATION EASEMENT.....	4
HISTORY.....	5
SOILS AND GEOLOGY.....	5
NATURAL RESOURCES.....	7
RECREATIONAL RESOURCES.....	8
PROPERTY BOUNDARIES.....	8
INVENTORY METHODS.....	8
III. MANAGEMENT GOALS AND OBJECTIVES.....	10
FOREST MANAGEMENT GUIDELINES.....	10
RECREATION MANAGEMENT GUIDELINES.....	11
IV. STAND DESCRIPTIONS & TREATMENT PLAN.....	12
STAND 1.....	12
STAND 2.....	14
STAND 3.....	16
STAND 4.....	18
V. MANAGEMENT SCHEDULE.....	20
VI. REFERENCES.....	21
VII. DEFINITIONS.....	22

APPENDIX A – SOIL FACT SHEETS

APPENDIX B – BASELINE DOCUMENTATION

APPENDIX C – FOREST BIRD HABITAT ASSESSMENT

APPENDIX D – UVA MAPS

Town: Richford

Orthophoto #: 148272, 148268

SPAN 516-162-11122

1 Total Grand List acres in parcel	85.00
2 Actual acres to be excluded as measured on orthophoto	0.00
3 Acres to be enrolled (line 1 minus line 2)	85.00
4 Acres to be enrolled according to map calculations	78.40
5 Factor to prorate (adjust) acres (line 3 divided by 4)	1.084

Area	Type (crop/pasture)	Map Acres (measured)	x	Factor	=	Prorated Acres	
						<1 Mi	>1 Mi
Active ag							
Open/Idle ag							
		Subtotal =			Subtotal =	0.00	0.00
Productive Forest Land							
	(forest type)						
Stand	2	Montain spruce/fir	78.40	1.0842		0.00	85.00
Stand							
Stand							
		Subtotal =	78.40		Subtotal =	0.00	85.00
Non-productive Land/Site IV (determined by the 20% rule) (wetland/ledge/non-recreational pond < 20 acres)							
Stand						0.00	0.00
		Subtotal =	0.00		Subtotal =	0.00	0.00

II. PARCEL RESOURCE INFORMATION

OVERVIEW

This +/- 1,110 acre forested upland property runs along the spine of the northern Green Mountains. 1,025 are in the town of Jay in Orleans County, and 85 acres are in Richford in Franklin County. The property is located on both sides of Route 105, about mid way between Richford

and Troy. The property traverses on and near the ridge top starting from Doll Peak in the south, over North Jay Peak, Burnt Mountain and across Route 105 to the north. The land is entirely forested.



Figure 1. View of North Jay Peak from Doll Peak

The highest point on the property is on North Jay Peak at 3,438', which is on the southern part of the properties' long northwest boundary. The lowest part is around 1,640', at the drainage that flows into Lucas Brook along the same northwest boundary. About 381 acres, or a third of the property, is above 2,500' in elevation.

Approximately 5.5 miles of Long Trail (LT) traverse across this property and abutting lands, starting from Doll Peak and going north. Of that, approximately 3 miles of the LT lies within the property boundaries. The only structure that exists on the holding is Shooting Star Shelter.

CONSERVATION EASEMENT

The Green Mountain Club (GMC) owns the land in fee, with a conservation easement granted to the State of Vermont (see Appendix, *Baseline Documentation Report*). The Nature Conservancy (TNC) conveyed the land to GMC in 1991. A more complete summary of restricted and permitted uses are outlined in the *Baseline Documentation Report*. Some restricted uses that relate to property management are:

- a) Restricted to educational, scientific, non-commercial recreation, forestry and open space purposes only
- b) No building or structures except as specifically permitted

- c) No removal or cutting of trees within a 400 “primary protection zone” centered on the LT and access trails. An additional 300-foot “secondary protection zone” may be cut only with permission of the State of Vermont.
- d) Skidding or hauling of logs is not permitted on or across the LT without prior written approval from the State of Vermont.

Some of the permitted uses outlined in the easement include:

- a) Walking, snowshoeing, cross-country skiing, hunting and fishing
- b) Maple sugaring
- c) Maintain and/or relocate views from overlooks
- d) Maintain and/or relocate trail and shelters
- e) Establish and maintain trailhead parking along Route 105
- f) Timber Harvest outside protection zones

HISTORY

Most of the lower slopes have been historically logged over the past century, including the area north of Route 105. It is possible that some of the high ridgeline areas of the property have never been logged, due to steep terrain, remoteness and low timber quality.

The property has a long history of pedestrian recreational use, with hikers enjoying the LT for the past century. Accordingly, trail construction and maintenance activities have been carried out on the LT over this time.

SOILS AND GEOLOGY

The primary bedrock is a Hazens Notch Formation (CZhn), an albite gneiss common to northern Vermont (Figure 2). Significantly, there are mapped occurrences of two categories of ultramafic rocks on or nearby the property. The first is talc-carbonate and steatite (CZutc), and the

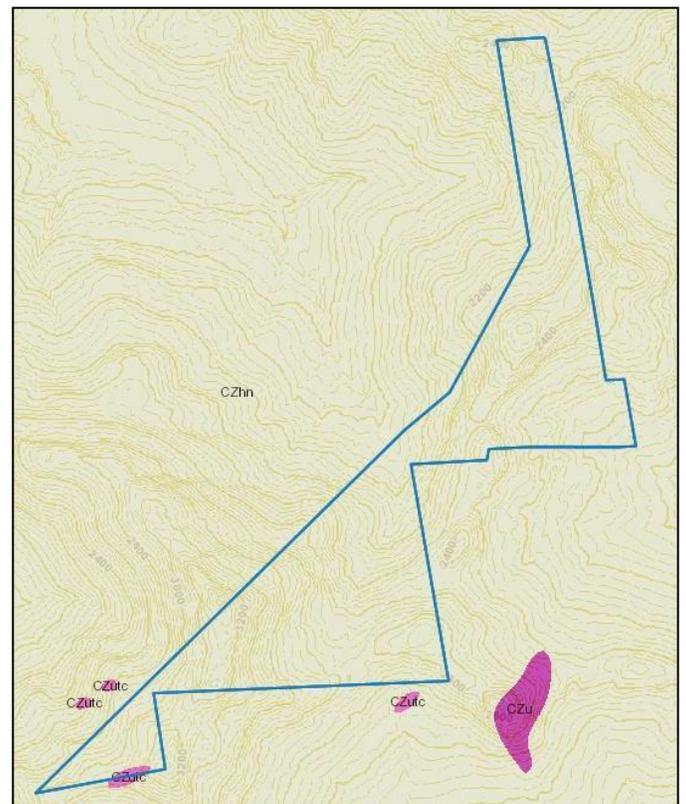


Figure 2. Surface geology map

second is a serpentine dunite and peridotite (CZu).

This type of ultramafic substrate can support a serpentine habitat made up of mineral-rich but shallow soil, predisposing the area to rare plant species such as *Adiantum viridimontanum*. It should be noted that the source data for these outcrops were mapped at a relatively small scale, so it is likely that more outcrops exist in surrounding locations.

An assessment of serpentine outcrop communities was conducted for GMC in the spring of 2010. Though small pieces of ultramafic bedrock were found during the assessment, no outcrop big enough to host a significant natural community were observed. The assessment concluded that a more detailed survey might find ultramafic communities.

Most of the soils on the site are glacial till in origin (Figure 3). The largest type is Hogback-Rawsonville complex (112E and 112D), covering about two-thirds of the property. These loamy tills have a low forest productivity rating. About 70% of soils on the site have an erosion hazard rating of severe or very severe.

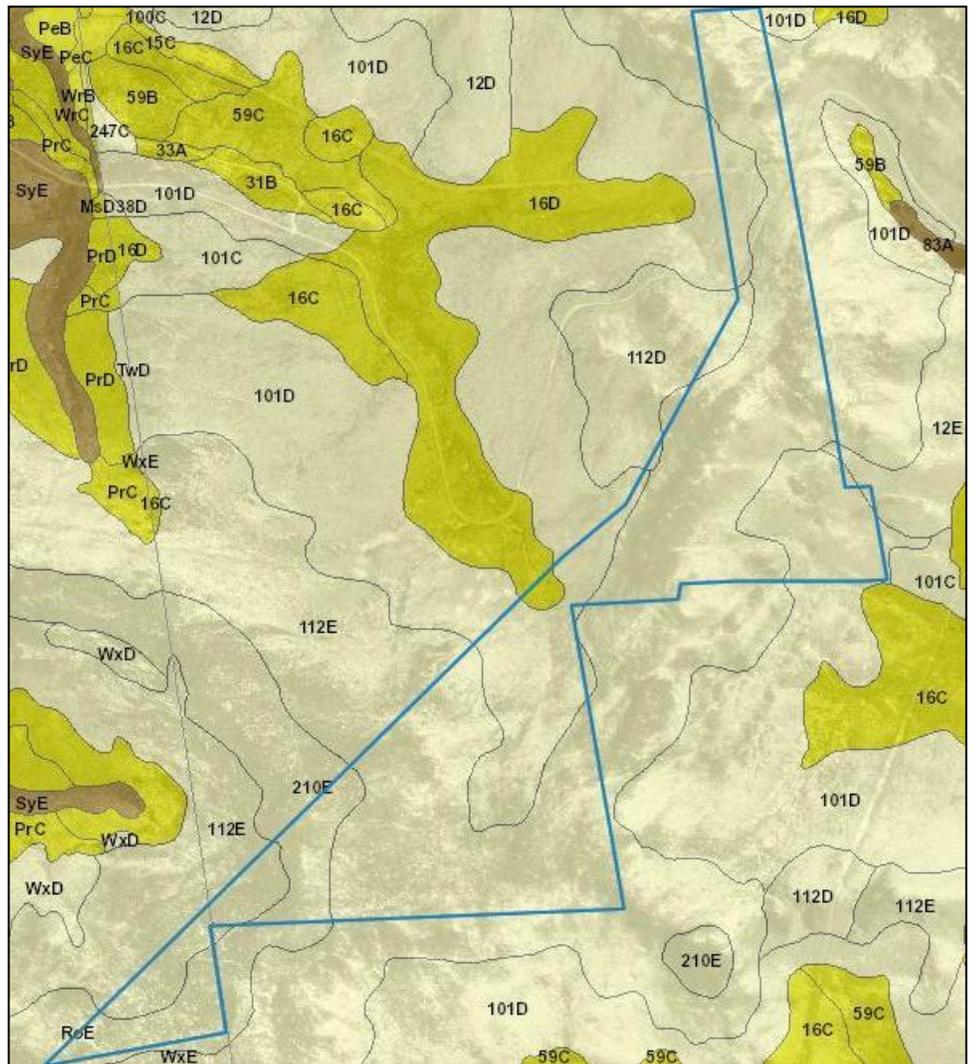


Figure 3. Soils map

NATURAL RESOURCES

Virtually 100% of this property is forested. There are some areas where the canopy is more open than others are, particularly where logging, blowdowns or decline has occurred.

The highest point of land is the 3,408-foot summit of North Jay Peak. This remote prominence is one of the highest trailless summits in Vermont. The other summits above 3,000 feet in elevation on the property are Doll Peak, and an unnamed ridge top to the west. Most of the property is steeply sloped, with long, consistent grades up to and above 40%. The area north of Route 105 is gentler, with slopes averaging 10%. There is also a large flat to gently sloped basin (+/- 75 acres) in the eastern corner of the property (Figure 4).

The land is entirely within the Lake Champlain watershed. It is a primary upland headwater source that feeds several smaller watersheds, all of which eventually flow into Lake Champlain. The eastern facing slopes drain into Crook Brook and Jay Branch, which flows into the Missisquoi River on the US side before it flows into Canada. A small area that drains to the north of Route 105 feeds Leavitt Brook that flows into the Missisquoi River in Canada, then back into the United States. The western facing slopes drain into Lucas Brook, Mountain Brook and Stanhope Brook, all of which merge at Stevens Mills into the Missisquoi River and flow entirely in the US to Missisquoi Bay in Lake Champlain.

An important natural community on the property is contained in Stand 2. This large Montane Spruce-Fir Forest is part of a 2,200-acre significant natural community mapped by the Vermont Fish and Wildlife Natural Heritage Inventory Program. It is considered an excellent example (Element Occurrence A) ranked as uncommon but not rare (S3). This sizable, uninterrupted occurrence starts around Belvidere Mountain in Lowell and continues north up through this holding.

Stocking density is low on most of the property, except for some dense areas of advance spruce/fir regeneration. Basal areas range from 30 to 70 square feet/acre, the highest overall basal area in Stand 4.

Equipment access for resource management is limited south of Route 105, and is only available by crossing abutting properties. North of Route 105, there is a well-maintained access road leaving from the trailhead parking area. Any areas of the property above 2,500 feet in elevation would require an Act 250 permit prior to logging activities.

The property has excellent wildlife potential due to its large size, proximity to significant tracts of uninterrupted forest and water resources. It is situated in an area adjacent to large, upper elevation forested tracts mixed with open agricultural lands in the basins, which creates a healthy diversity of habitat types.

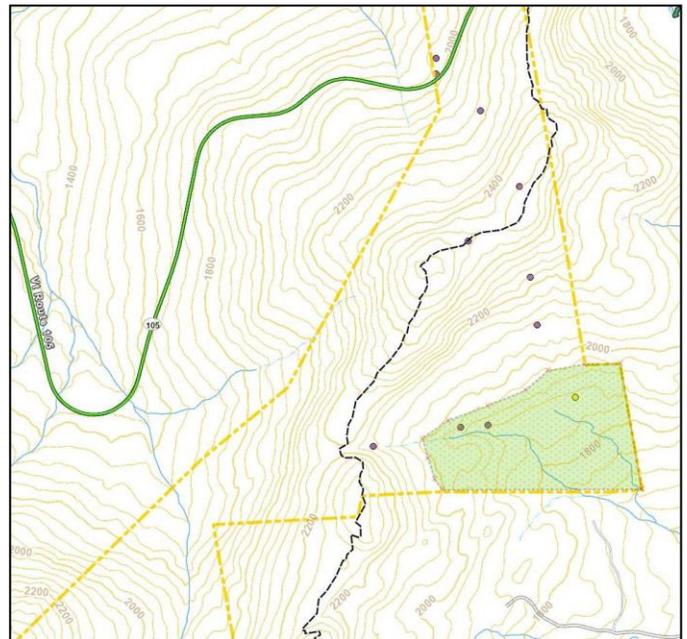


Figure 4. Large flat to gently sloping basin (shaded area)

RECREATIONAL RESOURCES

Approximately three miles of the LT are located on the property as it winds its way north from Doll Peak to Route 105, crossing several summits and ridge tops along the way. The spectacular views, remoteness of the ridge tops, and dense, Montane Spruce/Fir Forest makes for exceptional hiking opportunities. This section of the LT is largely in its original location since construction almost 100 years ago.

Shooting Star Shelter, located at 2,260 feet in elevation, is the only structure on the property. It is a three sided lean-to maintained by GMC's Northern Frontier section. The Long Trail Patrol originally built the shelter in 1934. The current structure was rebuilt in 2001 after being destroyed by heavy snow the previous winter. The shelter is located 0.6 miles south of Burnt Mountain.

PROPERTY BOUNDARIES

Most property boundaries segments have been recently maintained and are in good condition, delineated with either painted blazes, tags, or both (Figure 5). There are some areas in the southwestern part of the property, particularly in and around the Richford portion, that are various states of maintenance and still need work.

INVENTORY METHODS

The inventory for the property was carried out on June 2nd and June 9th, 2016. Field personnel were: Harris Roen, Licensed Forester; Mollie Klepack Flanigan, GMC Stewardship Coordinator; Steve Hagenbuch, VT Audubon Conservation Biologist; and Shawn Byrns, GMC Conservation Stewardship Intern. Field reconnaissance data was taken along two transects, with about 20 plots taken in all (Figure 6).

Stand data collected consisted of: Year of origin; site index; elevation; aspect; slope; slope shape; vigor; basal area; forest type; height to canopy; roaded; accessibility; operability; riparian %; wetland %; adj. to water; seep; stream; temp. pond; perm. pond; logs in water; high perch; low perch; soft mast; hard mast; loose soil; rock pile; rock crevice; cave; live cavity; dead cavity.

Plot data tallied included: Canopy closure %; midstory closure %; midstory type (c/d/m); riparian; shrub layer cover %; average height of shrub layer; seedlings, sapling; wetland vegetation; regeneration of sprout origin %; moss cover %; litter cover %; rock cover %; inhibiting fern cov-



Figure 5. Recently blazed property boundary

er %; other fern cover %; grass & sedge cover %; wetness inhib. regen; rockiness inhib. regen; riparian plot; residual tree; stocked w/ hi. val. regen; stocked w/ comm. regen; deciduous shrubs; coniferous shrubs; ericaceous shrubs; wetland shrubs; wetland ground vegetation.

UVA maps and field maps were created with QGIS and Vermont ANR Atlas.

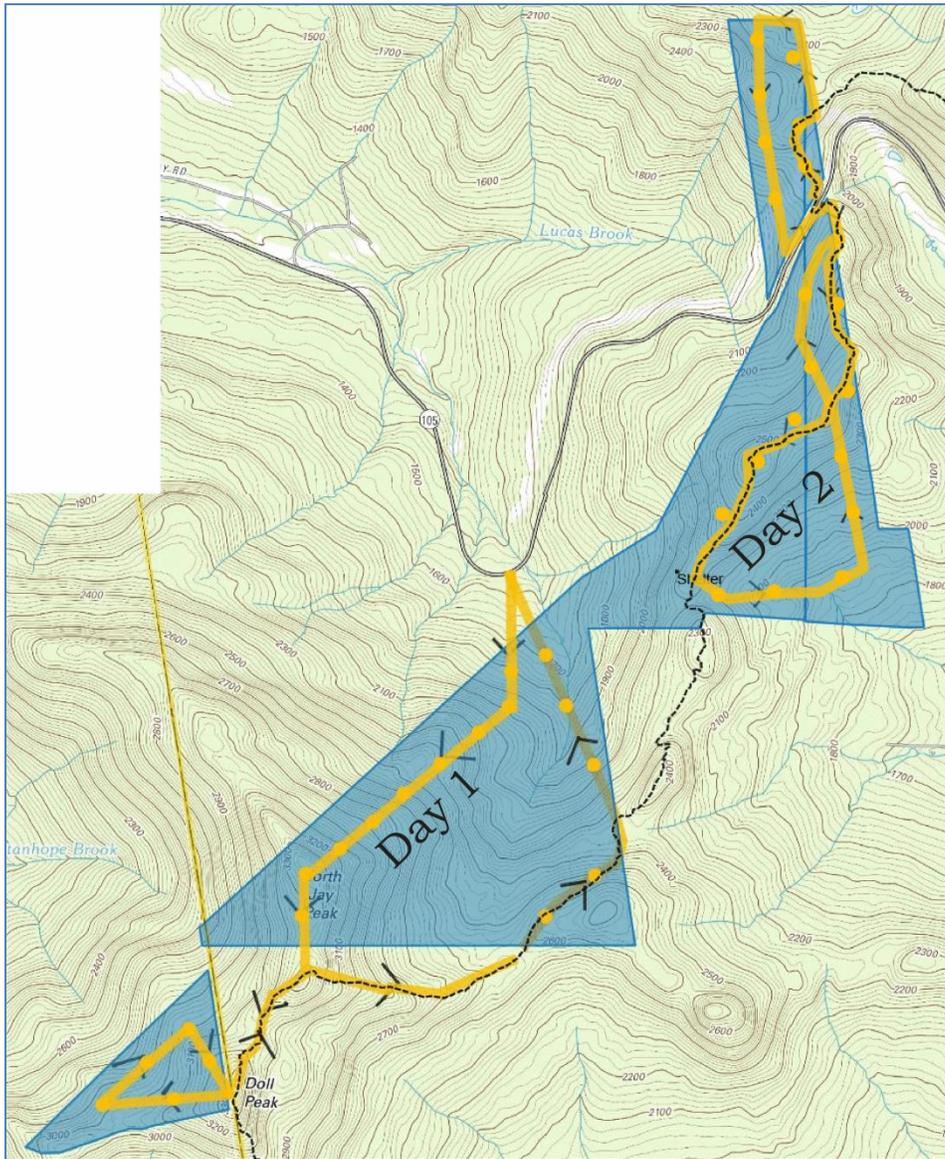


Figure 6. Inventory transects

III. MANAGEMENT GOALS AND OBJECTIVES

This Conservation Management Plan is being submitted as a 10-year update for the Vermont Use Value Appraisal program. Continued enrollment of this property in the Conservation Category will allow GMC to manage areas where the primary goal is conservation of fragile areas and significant wildlife habitat, particularly the upper elevations of the property. The Club will also have the flexibility to conduct forestry operations where appropriate in order to enhance conservation values, support the local economy and generate income for conservation programs.

1. Primary Management Goals:
 - a) Protection and enhancement of the recreational experience of users of the Long Trail System, in a manner consistent with the Long Trail Management Plan.
 - b) Conservation, protection and enhancement of significant natural resources and natural communities.
2. Secondary Management Goals
 - a) Enhancement of native wildlife and avian habitat.

FOREST MANAGEMENT GUIDELINES

For the ten-year time frame of this management plan, timber harvesting activities will not occur. This is due to the high elevations involved, the degraded condition of the forest from past harvests, and sensitive ecological areas. The following vegetative management is planned:

1. Retention of visual and scenic vistas of unfragmented forest as seen from Doll Peak and other viewpoints. Vista clearing will be done according to GMC's Long Trail System Management plan. The relative importance of each scenic resource will be identified, as well as whether or not active measures are needed to keep the site open. A maintenance schedule and plan for each opening will be incorporated into the trail assessment.
2. Vegetation management activities should harmonize with the character of the trail in that area. Vegetation will be cut on an as needed basis, generally every three years, to keep already established vistas open. Cutting will include removing young growth that grows up into the vista, as well as branch pruning of taller trees. Low growing shrubs will be retained and encouraged, since they will retard establishment of trees growing up into the vista.

If timber harvesting activities are recommended in the future, conditions established in the conservation easement, such as harvest buffers around the LT, are to be followed. Additionally, the following management guidelines are required:

1. Acceptable Management Practices will be followed in all timber management (VT Dept. For. Parks & Rec., 2016).
2. 200-foot no cut buffer from Shooting Star shelter, including outhouse and water source, except for trail management, safety, emergency or forest health purposes.
3. 50-foot low-cut buffer zone around any other water bodies including ponds, wetlands, springs and seeps.
4. In areas that are restricted by wet soil conditions, harvesting should occur only in winter after freeze-up.
5. Completely remove tops and slash within sight of hiking trails.
6. Use existing woods road whenever possible in order to limit construction of new skid/haul roads.
7. Precautions to ensure public safety will be taken when landing and processing logs at the trailhead parking area. For example, processing should only occur on weekdays.

RECREATION MANAGEMENT GUIDELINES

The Long Trail System, including the LT, side trails and shelter, shall be managed in accordance with the Long Trail System Management Plan (March 2002). In keeping with the goals of continuing to offer high quality pedestrian recreation on the property, the following guidelines should be used:

- a) Keep the property open for pedestrian recreation including, hiking, snowshoeing, backcountry skiing, hunting, fishing, photography, etc.
- b) Prohibit motorized recreation and limit motorized access and use for management and emergency purposes only.
- c) Prohibit mountain bikes and horses, due to rugged terrain and fragile trails.
- d) Maintain and enhance the Long Trail System.
- e) Plow the road and trailhead parking area to accommodate the increasing winter use of the trails.
- f) Maintain and replace, if necessary, Shooting Star Shelter in its present location.
- g) No new trail construction above 2,500 feet, except for relocations of the existing trails.

IV. STAND DESCRIPTIONS & TREATMENT PLAN

STAND 1

CURRENT CONDITIONS:

This 100-acre stand is located north of Route 105. It is primarily a northern hardwood forest, and contains some small patches of softwoods. Most all of the trees in this are small, as the forest is regenerating from a heavy cut that occurred 30 or 40 years ago.

Natural communities found in the stand include Montane Yellow Birch-Red Spruce Forest that blends into Northern Hardwood Forest. There are also some areas of Rich Northern Hardwood Forest.

Access: This is the only area of the property with decent timber access, as Vermont Peak Properties maintains a silvicultural right-of-way through the western side of the stand. The Long trail runs nearby the southern half of the access road.

Wildlife: Two features stand out in relation to wildlife habitat in this area. First, there are small patches that were mostly by blowdown in areas recovering from previous logging (Figure 7). The openings help to enhance vertical structure to the benefit of interior, mature forest nesting species. Second, there are several areas of rugged rock outcrops, creating denning areas in their resulting caves.

In addition to these features, the stand contains other beneficial wildlife habitat characteristics, including plenty of mast trees, and both live and dead trees that contain nesting cavities (including one large snag measuring 31" d.b.h.). Heavy browse was noted near the top of the hill in the north-central part of the stand. Bear scat was found in the northern part of the stand.

Forest Structure: For the most part this even-aged hardwood stand has come back after a heavy cut. Overstory trees are mostly pole-sized, with the occasional scattered larger trees



Figure 7. Product forest opening with good vertical structure



Figure 8. Advanced hardwood regeneration

that were missed in the previous harvest. Basal areas range from 80 to 110 sq. ft/ac. Though trees are small overall, the stand is adequately stocked at the B level for northern Hardwoods.

Stand Description: Overstory tree species are primarily sugar maple, yellow birch, white birch and American beech. Associated species include balsam fir and red spruce. The shrub layer contains striped maple, mountain ash, hobblebush and mountain maple. A few areas of the stand are steep, with slopes greater than 35%.

Stand Health: No undue health issues are evident at this time.

Regeneration and herbaceous layer: Regeneration is generally well established throughout the stand, and is in advanced stages in some areas (Figure 8). Regeneration species include sugar maple and beech. Herbaceous species found include rich site indicators such as trillium and blue cohosh.

DESIRED FUTURE CONDITION:

Protection and management of the Long Trail System for pedestrian recreational use is a high priority in this area.

Long Range Silvicultural Objectives: Trees in Stand 1 should be allowed to grow and fill in from previous harvests. The stand has commercial potential due to the good access and proximity to a favorable landing location. Future forest management may be carried out in the next management plan cycle, with a focus on sustained production of high quality hardwoods as compatible with recreation and wildlife. This will be determined upon an inventory and assessment at that time.

Management Recommendations: Perform trail maintenance and scenic vista management. Otherwise, allow the stand to grow and fill in over the next 10-year period.

STAND 2

CURRENT CONDITIONS:

Stand 2 is a 348 acre area in the southern part of the property that contains a Montane spruce/fir forest. The stand includes several summits, and a little less than a mile of the LT. Virtually all of this stand is above 2,500 feet in elevation, requiring an Act 250 permit for any logging activity.

Access: This area has extremely limited access to any kind of mechanized equipment due to its steep terrain and remote location.

Wildlife: Montane spruce/fir forests are noted for nesting bird species that prefer a high elevation, dense softwood stand. These include Bicknell's thrush, blackpoll warbler, olive-sided flycatcher, and Swainson's thrush.

It is interesting to note that moose scat was found just below the summit of North Jay Peak, at around 3,360 feet in elevation.



Figure 9. Thick fir understory

Forest Structure: Trees in this area can be very slow growing, due to harsh ridge top weather conditions and underdeveloped soils. One small tree, measuring only 2.5 inches diameter, was determined to be 42 years old.

It is notable that much of this stand is being regenerated. Over the past several decades, there was a serious decline and mortality of overstory trees in this region. Much of this was considered a result of acid deposition, exacerbated by events such as the ice storm of 1998 and a heavy late snowfall in 2005. Many areas now, however, are becoming re-established with viable seedlings and saplings (Figure 9).

Stand Description: Tree species are predominantly balsam fir, red spruce and white birch. Other species include mountain ash, yellow birch and striped maple. There are some remnant larger hardwoods, up to 24 inches d.b.h., in the lower, more protected parts of the stand. Many of these take on an open-grown form. The summits are covered by small, tight stands of spruce/fir growth, with trees reaching 50 feet in height. Basal areas are variable, ranging from about 30 feet/acre in revegetating openings, to 210 feet/acre in dense areas of the stand.

There are a large number of dead trees per acre as a result of the spruce/fir decline. These dead snags are useful for wildlife, and most are in the 6 to 12 inch d.b.h. size class.

The eastern parts of the stand, as well as the southwestern corner, are areas where ultramafic geological formations have been mapped. These areas have potential to support unique habitats that may contain threatened or rare species. An investigation was done in 2010 to document the

presence of ultramaphic outcrops. Though no outcrops were found that were large enough to support a rare natural community, exposed ultramaphic rocks were found, most notably along the LT.

Stand Health: White birch decline was noted in the higher elevation portions of the stand. Mortality is extensive in some areas, which is likely a result of the trees aging beyond their maturity.

Regeneration and herbaceous layer: Regeneration is very good overall, with large areas of dense spruce and fir seedlings.

DESIRED FUTURE CONDITION:

There are two primary goals in this stand. First is protection of the montane spruce/fir natural area. Second is management of the LT for pedestrian recreational use.

Long Range Silvicultural Objectives: As much as possible, allow this area in its natural state

Management Recommendations: Perform maintenance on the LT to manage erosion and maintain scenic vistas. If significant natural communities are found associated with ultramaphic formations, take measures to protect that resource. This may include trail relocation if communities become established along the LT.

STAND 3

CURRENT CONDITIONS:

Stand 3 is a 164-acre mixedwood stand that runs along the ridge top just south of where the LT crosses Route 105. The LT crosses in and out of the stand several times, but overall about a mile and a quarter is within the stand. This stand contains the Shooting Star shelter.

Access: Equipment access to this area is limited due to its steep terrain and thin, fragile ridge top soils.

Wildlife: A large flock of cedar waxwings was present during the inventory (Figure 11).

Forest Structure: This is a variable mixedwood stand, with higher elevations trending to more softwood, and slopes having more hardwood components. The forest structure is similar to the mountain spruce/fir found in Stand 2, but is not as good a representation. This is due to a lower density of spruce and fir, and due to the lower elevation. Some of the flatter areas of the stand contains small to medium size seeps (Figure 10).

Stand Description: Tree species are primarily red spruce, basam fir, white birch. Other species include sugar maple, yellow birch, American beech and mountain ash.

Lower parts of the stand on the slopes going up to the ridgeline have trees that are 6 to 18 inches d.b.h., and up to 65 feet high. Basal areas range from 60 to 80 square feet per acre.

In higher parts of the stand near the ridge top, the forest tends to be denser, but the trees are smaller. Trees range from 6 to 12 inches d.b.h., and reach about 35 feet in height. Basal areas range from 80 to 130 square feet/acre.

Stand Health: No undue health issues are evident at this time.

Regeneration and herbaceous layer: Regeneration is adequate throughout the stand, mostly in the sapling size class. The only areas regenerating is lacking are patches that have a dense softwood cover. Regeneration species include red spruce, balsam fir, beech, sugar maple. There are areas contain a shrub layer of hobblebush. Some small wet areas contain wetland vegetation such as false hellebore.



Figure 10. False hellebore

DESIRED FUTURE CONDITION:

Long Range Silvicultural Objectives: Allow stand to grow and fill in. Monitor for any threats due to disease, invasive species and/or large natural disturbances. Protect important wildlife habitat.

Management Recommendations: Maintain LT and Shooting Star shelter to encourage a high-quality backcountry experience with minimal resource impact.

Monitor stand periodically for any changes in vegetation or wildlife conditions. Reassess stand in 10 years to monitor forest health, threats, etc.



Figure 11. Part of a large flock of cedar waxwings

STAND 4

CURRENT CONDITIONS:

This 498-acre mixedwood stand is in the central part of the property. It is comprised of the slopes coming off the high ridge running through the property.

The northwest facing slopes that were harvested roughly 40-50 years ago, so have better established forests. The steep southeastern facing slope on the flanks of Burnt Mountain, and the flatter areas southeast of those slopes, were harvested more recently (Figure 12).

The lower elevation of the eastern part of the stand forms a large, wet basin, which is flat to gently sloped. There are numerous wetland communities present there, which possibly include either a Black Spruce Swamp or a Black Spruce Woodland Bog. There is also a Boreal Talus Woodland in the southern part of the stand (the area separated by Stand 2).

Access: The eastern-most part of Stand 4, in the north-central part of the property, has old skid roads that provide access from the abutting properties to the east and south. It is likely that these old roads tie into Stevens Mill Road to the south, or possibly Amos Road to the east.

Wildlife: Large amounts of moose browse were seen in this stand.

Forest Structure: Forests on the western facing slopes contain larger, more established trees that are forming a forest approaching the early stages of maturity. The more recent harvests that occurred on the eastern-facing slopes have created younger stands, with a more open crown structure.

Stand Description: This stand is essentially a northern hardwood forest, with some large areas of spruce and fir inclusions. Northern hardwood species that are present include yellow birch, white birch, sugar maple, striped maple and American beech. There is a shrub layer in some areas that contain mountain ash, mountain maple and hobble bush.



Figure 12. Advanced northern hardwood regeneration as a result of recent harvests

Basal areas range from 80 to 130 square feet/acre in the more established stands on the northwest facing slope, with tree diameters between 10 and 24 inches d.b.h. The lower you go down this slope in this area, the better the vigor is.

The younger forests to the east have diameters in the 4 to 16 inch d.b.h range, with basal areas averaging around 60 square feet/acre.

The flat basin in the eastern part of the stand, at about 1,875 elevation, has smaller trees. Growth here is limited by wet soils. More investigation is needed, but some parts of this basin have features associated with a Black Spruce Swamp natural area, or a Black Spruce Woodland Bog natural area (Figure 13). Both are considered rare in Vermont (S2).

Stand Health: In the higher part of the stand, there are areas with a large amount of standing dead hardwood snags. Some red spruce sapling mortality was also noted on the southeast facing slope of Burnt Mountain.

Regeneration and herbaceous layer: Regeneration is variable but mostly well stocked throughout the stand. Species include beech, sugar maple, white birch, balsam fir and red spruce.



Figure 13. Potential black spruce swamp

DESIRED FUTURE CONDITION:

Long Range Silvicultural Objectives: In areas where access is viable, manage for high quality hardwood and softwood sawlog production, with associated firewood, pulp and trail building materials.

Management Recommendations: Perform a full forest inventory at the next 10-year management cycle to assess the viability of commercial thinning. Perform a more detailed natural community assessment in the eastern basin to determine the presence of any rare natural communities.

V. MANAGEMENT SCHEDULE

Treatment Year	Stand #	Management Activity	Silvicultural Guide or Tech. Reference, Prescription # or Letter, if appropriate
2026	1, 4	Perform a full forest inventory to assess resource conditions and potential timber harvest.	
2026	2, 3	Perform reconnaissance inventory to assess resource conditions.	
Ongoing	All	Annual property monitoring; Long Trail maintenance.	

VI. REFERENCES

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VII. DEFINITIONS

Acceptable growing stock A growing tree capable of producing at least one 8 foot log in the butt or bottom section of the bole.

Basal area The cross sectional area of the base of any object. In forestry it means the cross sectional area of a tree at a point 4.5 feet above the ground line expressed in square feet. The sum of all the basal areas of all the trees on an acre is a measure of the density of the population of trees growing on the acre and is useful for making forest management decisions.

A helpful way to think of basal area is to imagine all the trees on an acre cut off with 4.5 foot stumps. Basal area on the acre could then be measured by measuring and totaling the cross sectional area of all the stumps.

Board foot A unit of measure of wood 1" thick, and 1 foot on each side.

Bole The stem or trunk of a tree, usually thought of as being that part without limbs, the merchantable part of the stem, the bottom part of the stem.

Canker An imperfection on the trunk, limb or twig of a tree caused by an organism that kills a part of the tree's tissue. Canker causing organisms sometimes exist in some sort of a balance with the host, never killing enough tissue to cause death. Cankers tend to weaken trees at the points where they are growing causing the tree to eventually break.

Cord A unit of measure of wood that is equivalent to a pile of round wood 4 feet wide, 8 feet long and 4 feet high. Contains 128 cubic feet of wood and space.

Crown Refers to that part of the tree consisting of limbs, branches, twigs and leaves. In other words, the top of the tree.

Cull Refers to a tree having no commercial value, usually from having rot, holes, large knots or from being crooked rather than from being too small or of an unmerchantable species. It is important to note that a cull, though having no commercial value may have wildlife, aesthetic or other value.

DBH stands for diameter breast high. Always taken as 4.5 feet above the ground.

Defect An imperfection in a tree making it less desirable for some purpose. The term is commonly used to refer to some imperfection that will reduce the value of a tree or log for a product, resulting in reduced monetary value.

Den tree A tree that has a hole in its stem that can be used as shelter by wildlife such as birds and small mammals.

Mast tree Mast = nut. A mast tree is a nut bearing tree such as oak, beech, etc.

MBF One thousand board feet.

Pole or poletimber A young tree or stand of young trees between 3.5 inches and 10 inches in diameter at a point 4.5 feet above the ground.

Q value The quotient between numbers of trees in successively smaller d.b.h. classes.

Relative density A measure of tree crowding that accounts both for the size of each tree and the amount of space typically occupied by a tree of that size and species. A relative density of 100 percent implies that the growing space is fully occupied

Sapling A young tree that has grown beyond the seedling stage. When a tree has grown to a diameter of 3.5 inches in diameter at a point 4.5 feet above the ground it is no longer a sapling, having become a small pole.

Seedling A baby plant. In forestry the term usually used to refer to young trees that have grown beyond the stage where they have just emerged from the soil up to the point that they become saplings. See sapling.

Selection harvest A method of harvesting whereby individual trees are selected for harvest. A characteristic is that the form and appearance of the forest is maintained and the site is not exposed to sunlight and weathering. This scheme favors tree species which tolerate shading such as maple and basswood. It also benefits certain wildlife species.

Silviculture Stands for forest (silva) + culture = forest culture. Defined by Webster as the art of producing and caring for a forest.

Site index A measure of the productive quality of an area where trees grow. Site index is based on the height of dominant and co-dominant trees at age 50. That is to say, if the average height of dominant and co-dominant trees on a site was 70 feet at age 50, 70 would be the site index. Graphs are developed to enable determination of site index over a range of tree ages.

Snag A snag is a dead tree, commonly a tall, limbless tree left after a logging operation. Though of little or no commercial value, they can be very valuable wildlife resources.

Stand A group of standing trees is referred to as a stand. One stand will usually have characteristics that will distinguish it from other stands. Differences could be species, average diameter, density and location.

Stumpage The value of standing timber. Also, the timber itself or the right to cut it.

Unacceptable growing stock A growing tree not capable of producing at least an 8 foot sawlog in the butt or bottom section of the bole.

TSI stands for timber stand improvement. It is any cultural practice carried out on a tree or group of trees that is designed to improve them for any purpose. The term is commonly used to refer to practices designed to help trees grow faster and develop more valuable products than if left alone.

Volume Refers to the amount of wood in a tree or log. Expressed as board feet, cubic feet, cords or other measure.