



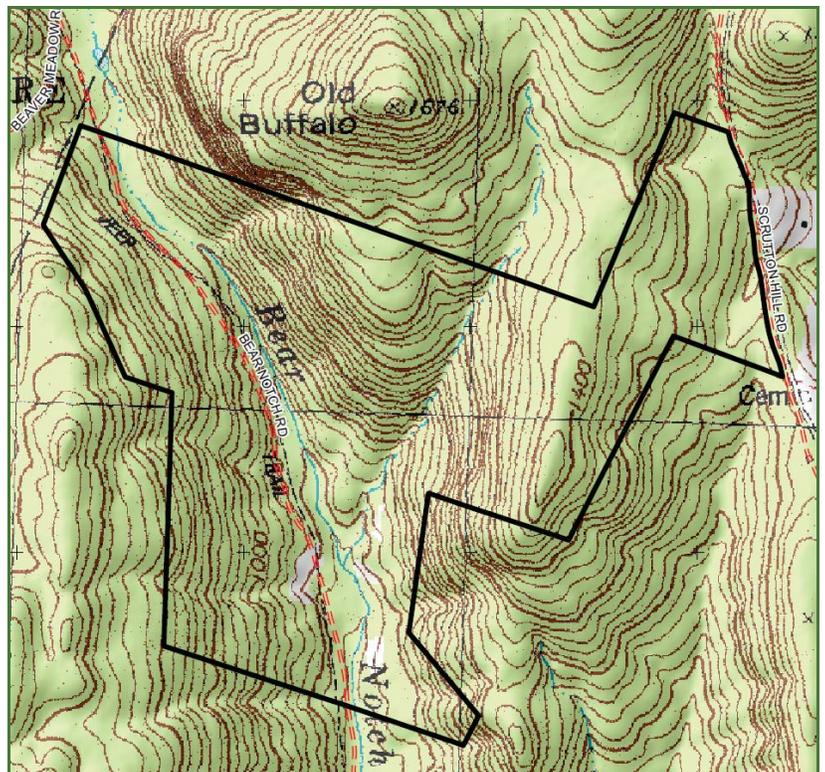
# FOREST STEWARDSHIP COUNCIL AND USE VALUE APPRAISAL FOREST MANAGEMENT PLAN

Laurent and Christine Visconti

West Fairlee, Orange County, Vermont

264 Acres

January 2020



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## SUMMARY INFORMATION

### PURCHASE

West Fairlee

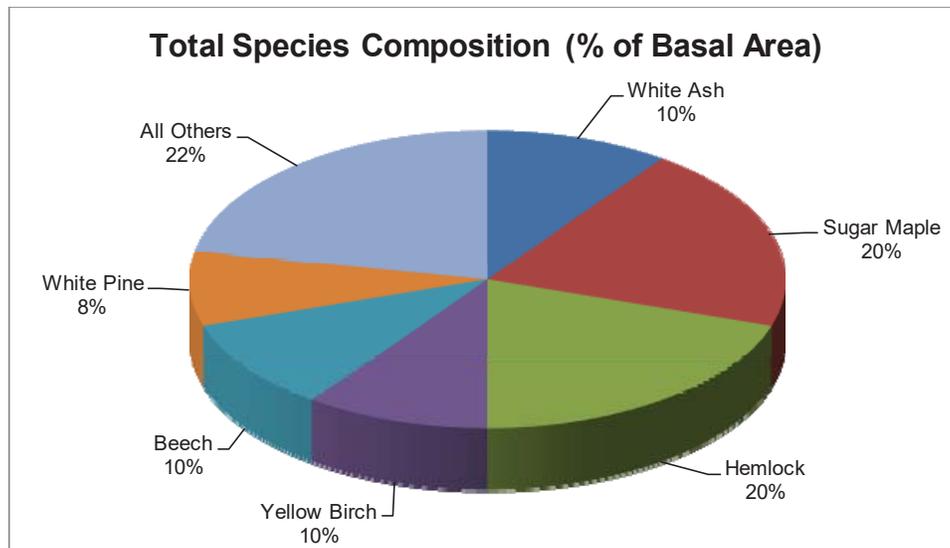
February 16, 2017

Town of West Fairlee, Book 56, Page 138

### LAND

Commercial Forestland	255.4	(95%)
Non-Productive Forestland	9.0	( 3%)
Other Non-Forest	<u>5.3</u>	( 2%)
Total Acres	269.7	

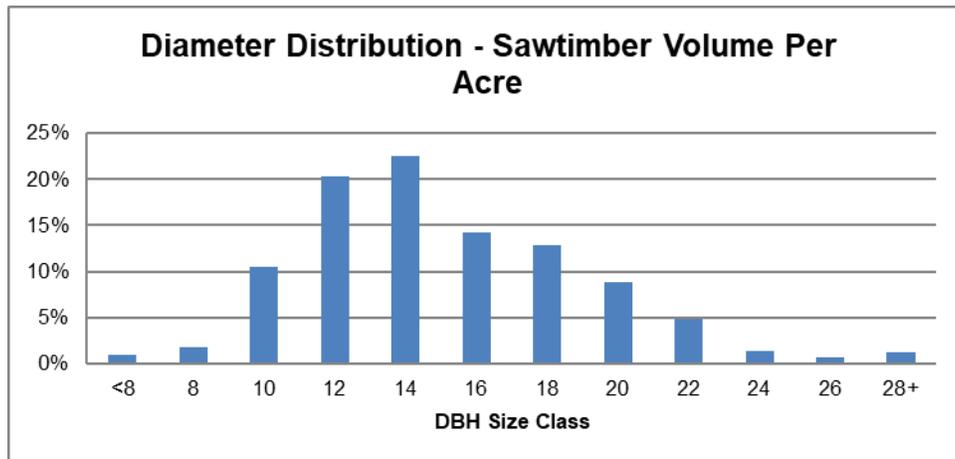
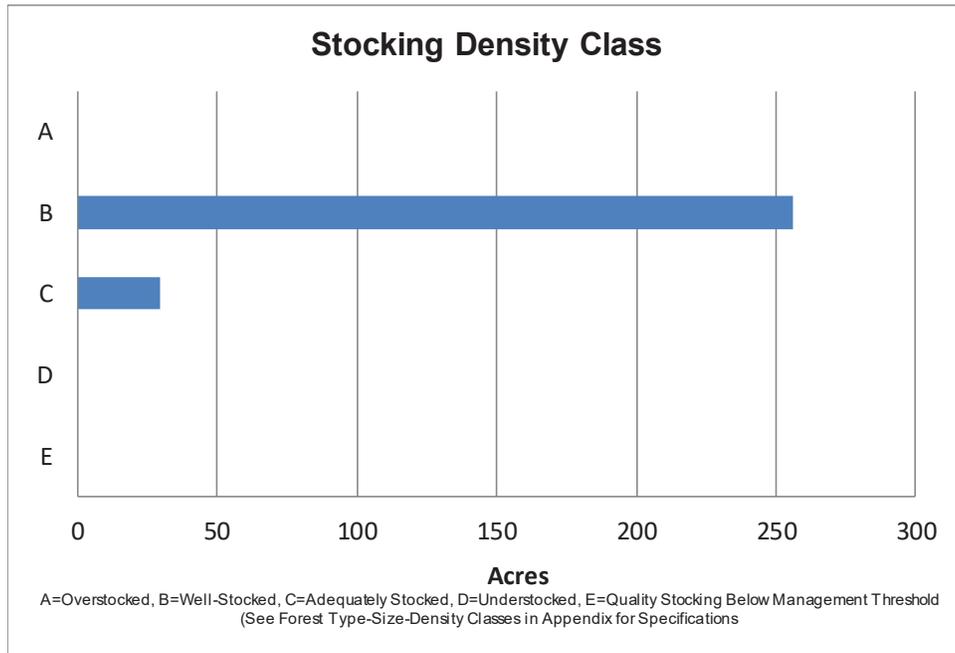
### TIMBER



Inventory completed 2016/2019.

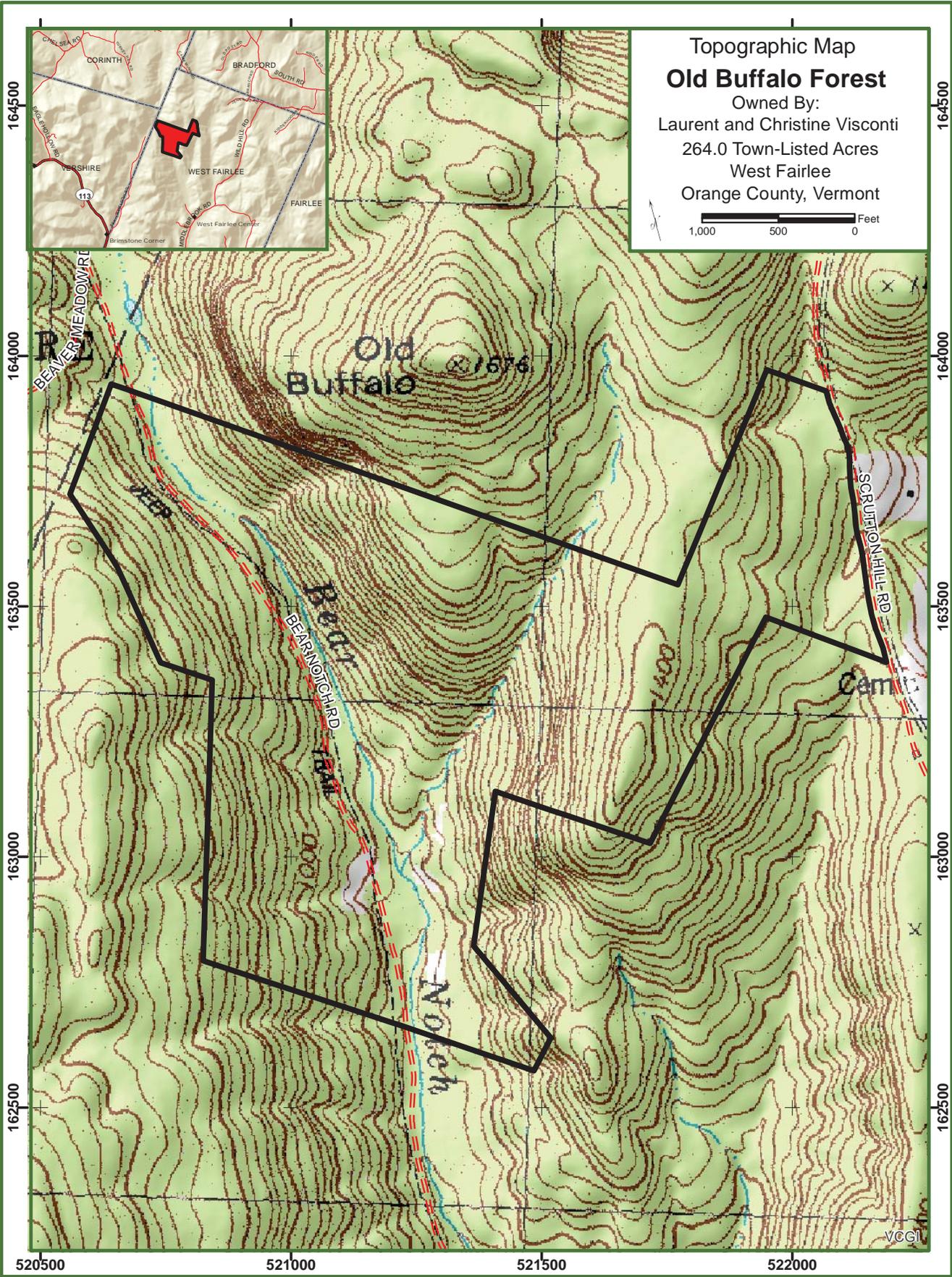
Sawtimber Volume	1,407 MBF	(5.5 MBF per acre)
Cordwood Volume	4,355 Cds	(17.1 Cds per acre)
Total Volume	7,169 Cds	(28.1 Cds per acre)

**FOREST STRUCTURE**



**10-YEAR PROGRAM SUMMARY**

Silviculture:	Area to be thinned	60 acres
	Area to be regenerated	0 acres
	Area managed by uneven-age	13 acres
	Sawtimber to be cut	76 MBF
	Cordwood to be cut	330 Cords
Roads:	New Construction	0.0 Miles
	Upgrade Existing Roads	2.0 Miles
Boundaries:	Routine Maintenance	0.0 Miles



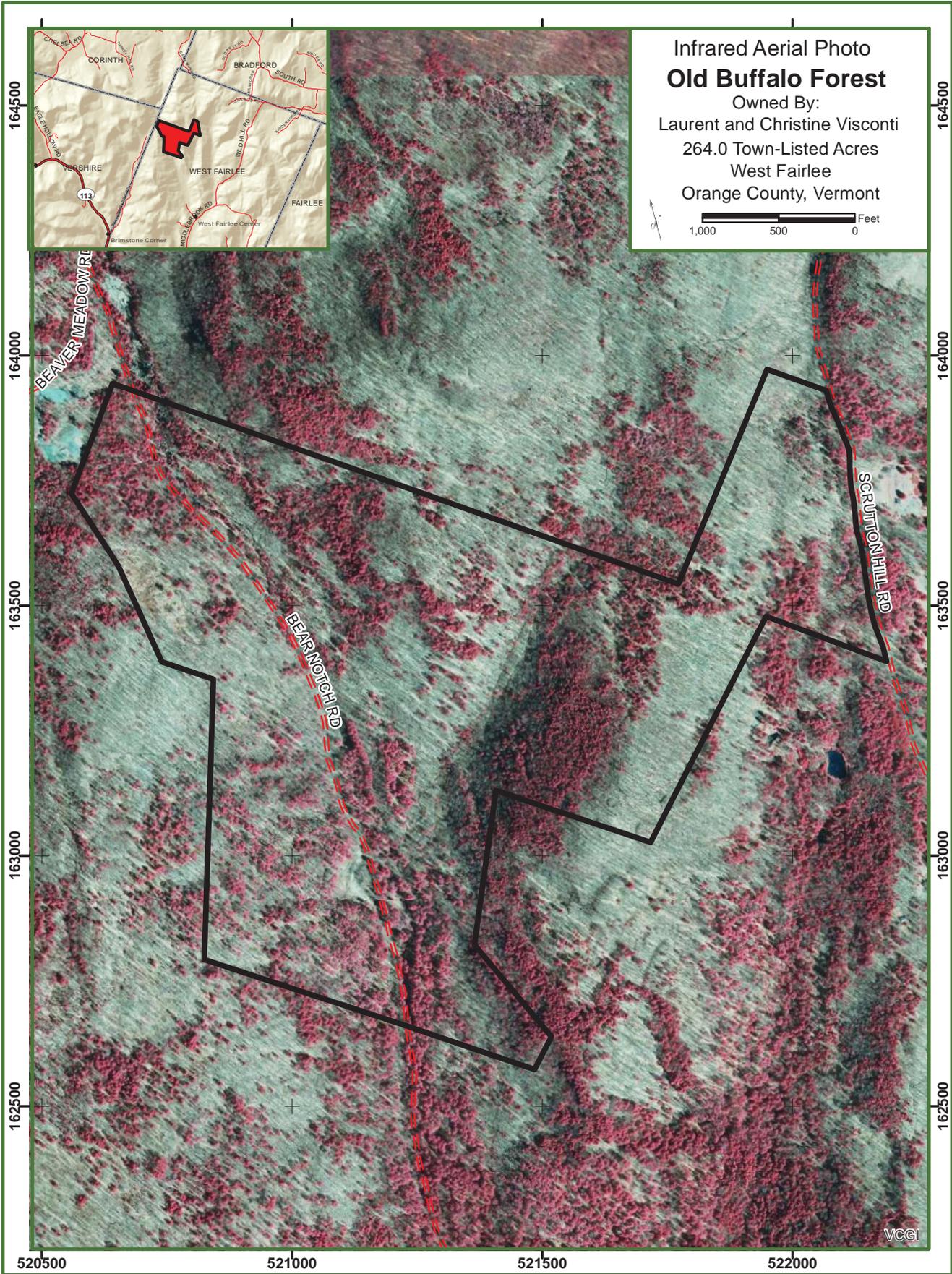
Topographic Map  
**Old Buffalo Forest**  
Owned By:  
Laurent and Christine Visconti  
264.0 Town-Listed Acres  
West Fairlee  
Orange County, Vermont



164500  
164000  
163500  
163000  
162500  
52050 521000 521500 522000

164500  
164000  
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## **INTRODUCTION AND GENERAL DESCRIPTION**

The forests of the northeastern USA are capable of producing some of the finest quality hardwood timber in the world. Naturally biodiverse and resilient, these forests are truly renewable and well suited to intensive use. As deforestation of tropical forests continues, and remaining public timber reserves are protected, properly managed and privately held timberland will be increasingly important in providing timber resources to the growing world population.

Financial returns from timberland investment result from physical growth, management, historical price appreciation and purchase strategy. For the private investor, timberland investment often provides returns beyond financial needs, as a managed forest can enhance wildlife, protect water quality and provide the investor with immeasurable personal satisfaction and enjoyment.

Timberland ownership is a long-term investment based on the physical growth of trees. It is characteristically low risk, offers a hedge against inflation, and provides diversification potential to investment portfolios. Although generally perceived to be illiquid, this is related to the maturity of the standing timber, and liquidity increases as the forest matures. Initially, timberland investment is one of appreciation of the asset value as the timber grows, followed by realization of cash yield as the timber is harvested.

### ***OWNERSHIP OBJECTIVES***

Old Buffalo Forest is an investment based on long-term capital timber asset appreciation. Capital growth is accomplished through the physical growth of timber and by the movement of trees into higher-value market categories. Management of the forest will maximize the rate of value appreciation and internal rate of return by controlling the health, structure and composition of the developing timber asset.

The main goal of forest management during this current 10-year investment period will be to continue the work of previous harvests to develop uneven-aged stand structure by group selection harvests and to improve quality through free thinnings. Additionally, in stands where white ash is a significant component, the risk of loss due to emerald ash borer, a non-native and damaging insect pest, will be assessed and appropriate actions taken. Recently treated stands will be allowed to develop without further harvesting

In addition to commercial forestry objectives, management goals include maintaining and improving overall forest health and sustainability, protecting cultural and community resources, and providing economic and recreational benefit to the local communities. Planning shall consider the impacts of forest management on public resources such as air, water, and naturally-occurring foods.

### ***FSC CERTIFIED RESOURCE MANAGER COMMITMENT***

F&W Forestry is a Forest Stewardship Council (FSC) Certified Resource Manager. The owners of Old Buffalo Forest have made the commitment to be included in a pool of

certified properties covered by our certification. As such, we are committed to following the FSC's Principles and Criteria in the management of Old Buffalo Forest.

Reference is also made to the F&W Forestry FSC Certification Policies and Procedures, which are integral to the management of all properties within the F&W Forestry group certification, and is considered a component of this management plan.

## **LOCATION**

The property is located in the central Vermont town of West Fairlee in Orange County. The Connecticut River is located approximately 5 miles to the east. White River Junction, where two primary highways (Interstates 89 and 91) meet, is located about 25 miles south. The property lies within the watershed of the Waits River.

## **HISTORY**

The region was first occupied by Native American hunting/gathering/fishing communities. European trappers likely entered the area in the early 1700s. Settlement by Europeans occurred from the mid-1700s to the mid-1800s. The town was chartered as part of New Hampshire in 1761.

At first, land was cleared primarily for subsistence farms. Through the late 1700s and early 1800s, as industry developed, transportation of logs, sawmill facilities and lumber distribution expanded. The logging industry of the day centered on the white pine and hardwood resources. The logging industry increased dramatically due to the development of railroads, greatly improving transportation of lumber, and creating demand for timbers and firewood.

By the mid-1800s, sheep farming emerged as the dominant agricultural pursuit, and more land was cleared. At this time, 75% or more of the region was open land, either clearcut, pasture or crop land.

In 1888, the town was described as follows:

*WEST FAIRLEE, a post village in the southwestern part of the town, contains three stores, one furniture and undertaking establishment, one church, one hotel, two carriage shops, one blacksmith shop, a saw-mill, livery stable, and 300 inhabitants. (1888 Gazetteer of Orange County)*

During the late 1800s, several factors contributed to a reversal of the trends of land clearing, increased cultivation, and associated development. New access to urban markets resulted in a shift in Vermont from sheep to dairy farming. The railroads and Erie Canal provided inexpensive transportation to the fertile plains of the Midwest and great forests of the West. As settlers migrated west, the hill farms of northern New England were abandoned.

In the late 1800s and early 1900s, most of the upper slopes of Old Buffalo Forest were newly abandoned farmland with invading forest, or heavily harvested slopes used as

sheep pasture. Agriculture appears to have held on until later in the 20<sup>th</sup> century in the lower elevations in the western portion of the property.

It also appears that the stream draining Bear Notch was dammed and a mill was built on the site, perhaps during the 1800s.

Much of the current forest was farmed by the Ball family during this time. Several cellar holes near Bear Notch Road may be part of this farm. The Ball farm was sold in the 1950s, and, in 1988, the Poll family purchased the land. It stayed in that family ownership until 2017, when acquired by the current owners.

Harvesting occurred on the forest in 2001 to 2003, and this operation was an improvement thinning, with a few small group selections. The forest was re-inventoried in 2009 after the growing season to develop the previous plan. Recently, harvesting occurred on both sides of Bear Notch Road in 2013, and on the east side of Scrutton Hill road in 2018. The forest was inventoried in 2016, and stands harvested in 2018 were re-inventoried in December 2019, for this management plan. The forest was re-inventoried in 2018 and early 2019 to develop the current plan.

#### *Historical Conditions of the Forest Community*

A general comparison of Old Buffalo Forest now to the likely pre-European settlement forest indicates that general pre-settlement forest conditions would likely have been largely late successional, with major disturbances occurring at long intervals. Species composition has shifted, with beech declining from perhaps 30% of the forest to its current 10% of basal area. Spruce has likely also declined from perhaps 20% to its current 2%. Hemlock stocking has also likely declined, although it is currently 20% of the forest. White pine, red oak, and red and sugar maple are likely more common now. These trends reflect research conducted by Cogbill et al, and published in 2002 in the Journal of Biogeography.<sup>1</sup>

#### **LAND USES AND TRENDS IN THE LANDSCAPE**

In the vicinity of Old Buffalo Forest, the general regional trend in ownership and land use patterns, at a landscape level, is toward parcelization and development of land for residential use, especially along Class 3 town roads. While this trend is not proceeding rapidly, large parcels are rare, and subdivision of larger parcels into smaller parcels occurs regularly. As these trends occur, practicing productive forest management meets new challenges, especially from neighbors unacquainted with a working landscape, and from increasing tax burdens.

Despite the residential uses, most of the surrounding landscape is used as private non-industrial forestland. To the north, there are large blocks of public forest in Vermont State Forest lands and the Green Mountains National Forest

Old Buffalo Forest is surrounded by medium-sized forest ownerships, many of which are used as productive forestlands. Lots used for camps are common as well.

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<sup>1</sup> Cogbill et al. The Forests of Pre-settlement New England. USA. Journal of Biogeography 2002.

## **TENURE AND INDIGENOUS RIGHTS**

Old Buffalo Forest is owned in fee by Laurent and Christine Visconti. Their ownership is documented in the deeds listed under “Purchase” in the *Summary Information* section of this management plan above.

A review of the ownership records has indicated no indigenous rights associated with Old Buffalo Forest. Four tribes of Abenaki people are recognized by the State of Vermont. None of these four have activity or known claims to lands in the West Fairlee area. The Vermont Council on Native American Affairs was contacted to determine if other Native American groups could have activity or claims in this area or know of significant sites. No response has yet been received at the time of this document. In the event that future research suggests that there are indigenous rights to the property, those legal or customary rights will be identified and communicated to the owner. Forest management will not threaten or diminish these rights and all sites of significance will be recognized and protected by the forest manager.

## **USE AND ACCESS RIGHTS HELD BY OTHER PARTIES**

There is only one known instance of significant use-rights of others associated with Old Buffalo Forest: a public town road right-of-way (ROW) for Bear Notch Road passes through the forest. Forest management will be conducted such that these, and any other identified rights, are respected. Any rights known are housed in F&W Forestry’s files and GIS project for the forest.

## **AESTHETICS**

The aesthetic value of Old Buffalo Forest is recognized as a social value, particularly along Bear Notch Road and Scrutton Hill Road. Mostly because the vicinity is forested, there are no known other locations from which the property is visible and prominent. If the property is visible from other locations, the view would be composed of largely continuous forest canopy, but in which the careful observer may discern differences in forest density due to management.

For the most part, the public will not see signs of timber management on this forest. Roadside landings are used on Bear Notch Road and Scrutton Hill Road, but these are lightly travelled Class 4 town roads. Also, timber harvest is reasonably common in the landscape.

Forest management activities will consider the impact on the social aesthetic value as part of the pre-activity planning process. Examples of strategies to manage the aesthetic value include the use of visual buffers, limits on harvest unit size, and retention of trees when these activities are complimentary with the ownership and silvicultural objectives of the activity. These strategies may take precedent over management objectives in situations of unique aesthetic value or extreme aesthetic impact (such as near waterfalls and other highly aesthetic features.)

## **STAKEHOLDER CONSULTATION PROCESS**

In advance of any timber harvest, a signed posting describing the planned activity will be made on the site. Key stakeholders will be notified by mail or email of the activity to include a letter describing the activity and a map showing the planned site. Key stakeholders will include easement holders, active mineral or gas owners, regulatory agencies, and other relevant parties. Further, in the event that there are aesthetic, cultural, historical, wildlife, riparian, soil or other resources of such unique nature that they are not adequately protected by current F&W Forestry policies, specific experts will be consulted in order to protect the unique resource.

## **ROADS AND INTERNAL ACCESS**

External access to the property is provided by two public roads that are classified as Class 4 Town Roads (public rights-of-way, but only minimally maintained by the town).

Bear Notch Road is an unmaintained public road and provides external access to the majority of the property. This road extends north through the property and connects to Beaver Meadow Road, which then runs south to Vermont Route 113. However, the northern portion of Bear Notch Road is very rough, and this route is not generally used to access the property.

To the south, Bear Notch Road will need some upgrading to allow log trucks to access the property. Erosion and misuse by local traffic have degraded this portion of the road, but upgrades will be fairly simple. A four-wheel-drive vehicle is necessary to access the property in its current condition. A few culverts and loads of gravel may be needed at the time of the next harvest to make the road passable for log trucks. If work is done in the winter months, less gravel will be needed as the road can be frozen.

Scrutton Hill Road lies to the east of the property and serves as the property boundary along Stands 9 and 10. This road is in good condition, as it was recently upgraded by the owner. Scrutton Hill Road can now be traveled by vehicles with decent clearance and two or four-wheel drive during dry seasons.

## **BOUNDARIES**

All boundaries were maintained with red boundary paint in approximately 2011, and are currently in good condition.

## **RECREATION**

Currently, the property is open to the public for outdoor recreation by foot. Traditional recreational activities continuing today include hunting, hiking, and nature observation.

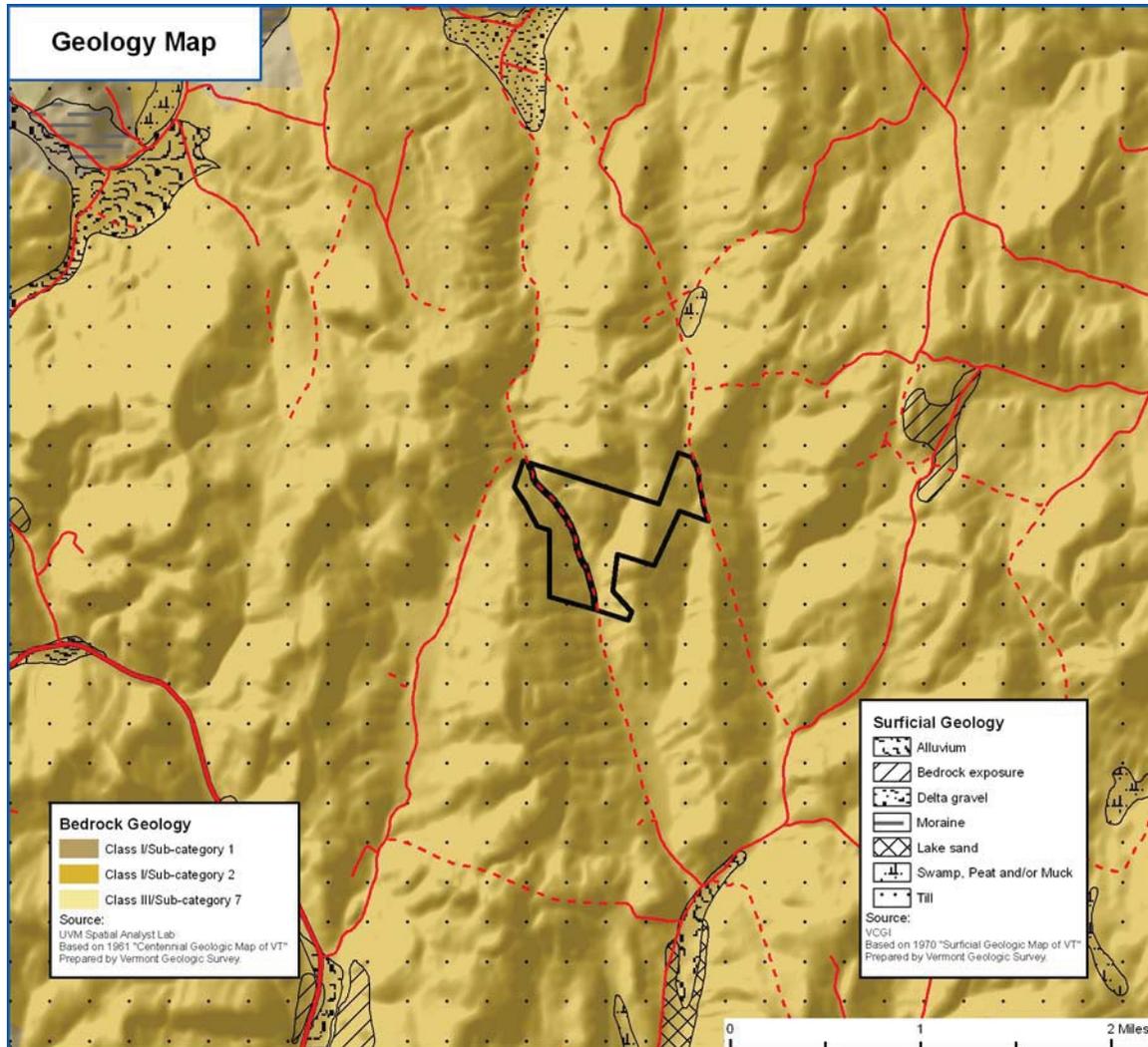
Bear Notch Road is used as a public snowmobile trail in the winter, and as a public ATV trail in the summer. The owner of Old Buffalo Forest has no control over this public use of public roads.

Old Buffalo Forest is not currently leased for exclusive recreation. When asked, F&W Forestry provides permission for hunting, and similar uses, under a Land Use License system. These are private recreation uses.

Each subsequent management plan to this one will note whether recreational pursuits on Old Buffalo Forest have changed measurably.

## PHYSICAL FEATURES OF THE FOREST

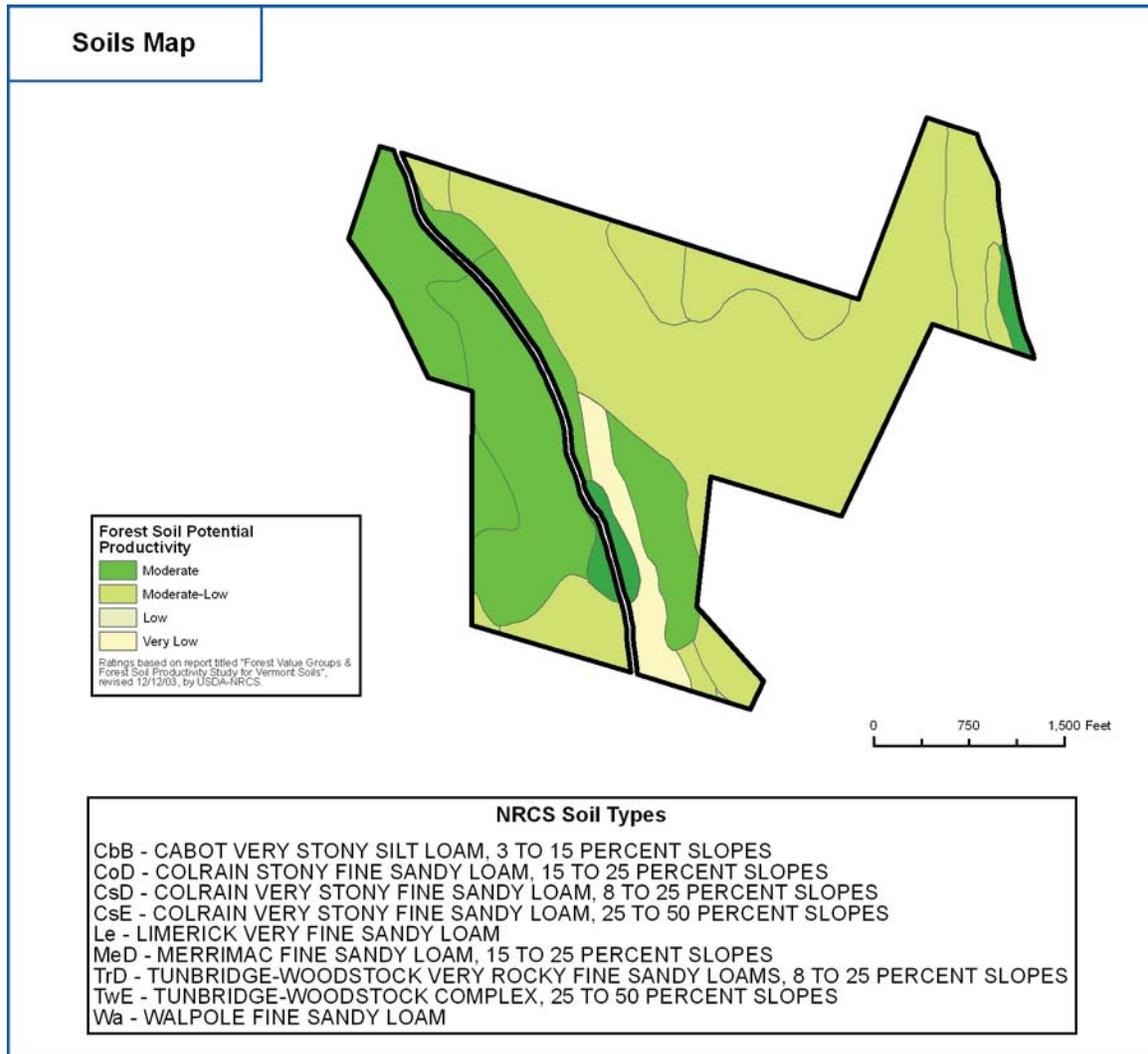
### GEOLOGY



About 11,000 years ago, the last glacier retreated from the region. Soils formed since then are dominated by glacial till. This variable unstratified glacial debris is distributed in a blanket of varying thickness across the region.

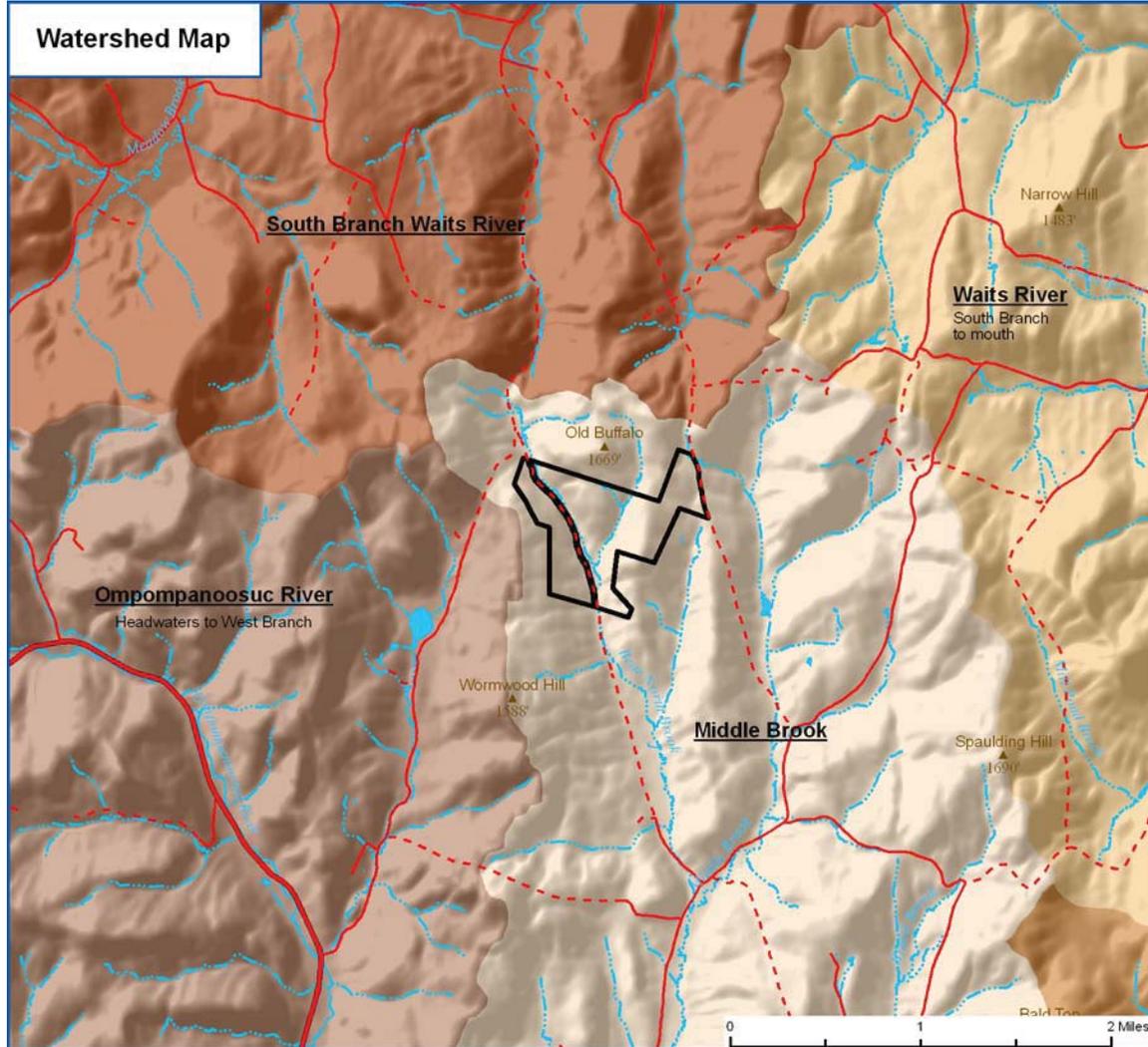
Surficial geology of Old Buffalo Forest is characterized by glacial tills mantling the bedrock and reflecting the topography of the underlying bedrock surface. Tills are thicker in the valleys and thinner in the uplands. On many exposed uplands, postglacial erosion has left only rubble and scattered boulders on bedrock.

## SOILS



To determine erodibility, origin, drainage class, depth, permeability, likelihood of sand and gravel deposits, etc., refer to the Orange County Soil Fact Sheets, available for each soil type from Natural Resources Conservation Service (NRCS) or F&W Forestry.

## WATERSHEDS



Old Buffalo Forest lies within the watershed of the Middle Brook. Bear Notch Brook, its tributaries, and several small streams drain the property to the south into Middle Brook, which flows south and joins the Ompompanoosuc River in the town of Thetford. The Ompompanoosuc River continues south and joins the Connecticut River in the town of Norwich. The Connecticut River flows south to the Atlantic Ocean.

Stream gradients on Old Buffalo Forest are moderate. Maximum stream flows occur in March and April with the annual snowmelt. Extreme peak flows can happen at any time of year, typically with hurricane-related intense rainfall and heavy rain events on top of substantial snowpack. Minimum monthly stream flows occur in August, September and October.

Forest management on Old Buffalo Forest should have no negative effect on water quality in the downstream waters. Precautions and Best Management Practices will be followed to prevent negative effects.

Timber harvest and removal may cause risks to surface waters (most notably sediment and temperature) if precautions are not taken. Key point sources for sedimentation are stream crossings on skid trails, and waterbars, ditching and stream crossings on the access roads.

To address sedimentation at stream crossings on skid trails, Vermont Acceptable Management Practices (AMPs) and F&W Forestry's Water Quality Policies will be followed in the construction and use of most skid trails on the tract. Trails through the eastern part of Stand 3 lie very close to a stream and have previously been used by operations administered by F&W Forestry only with consultation with the State of Vermont's water quality forester. This pattern will be followed in future harvests.

The truck access routes consist of Class 4 town roads. Vermont AMPs and F&W Forestry's policies will be followed if F&W administers road projects on these access routes. We suggest that the owners of Old Buffalo Forest work with the municipalities, when possible, to reduce the risk of sedimentation. The owners of Old Buffalo Forest have no control over the municipalities' maintenance of the roads, or over the public's use of these sections of road.

The risk of elevated temperatures in surface waters (Bear Notch Brook and others) will be addressed by compliance with Vermont's AMPs and Fountains Forestry's Water Quality Policies as they relate to stream management zones.

### **CULTURAL ARTIFACTS**

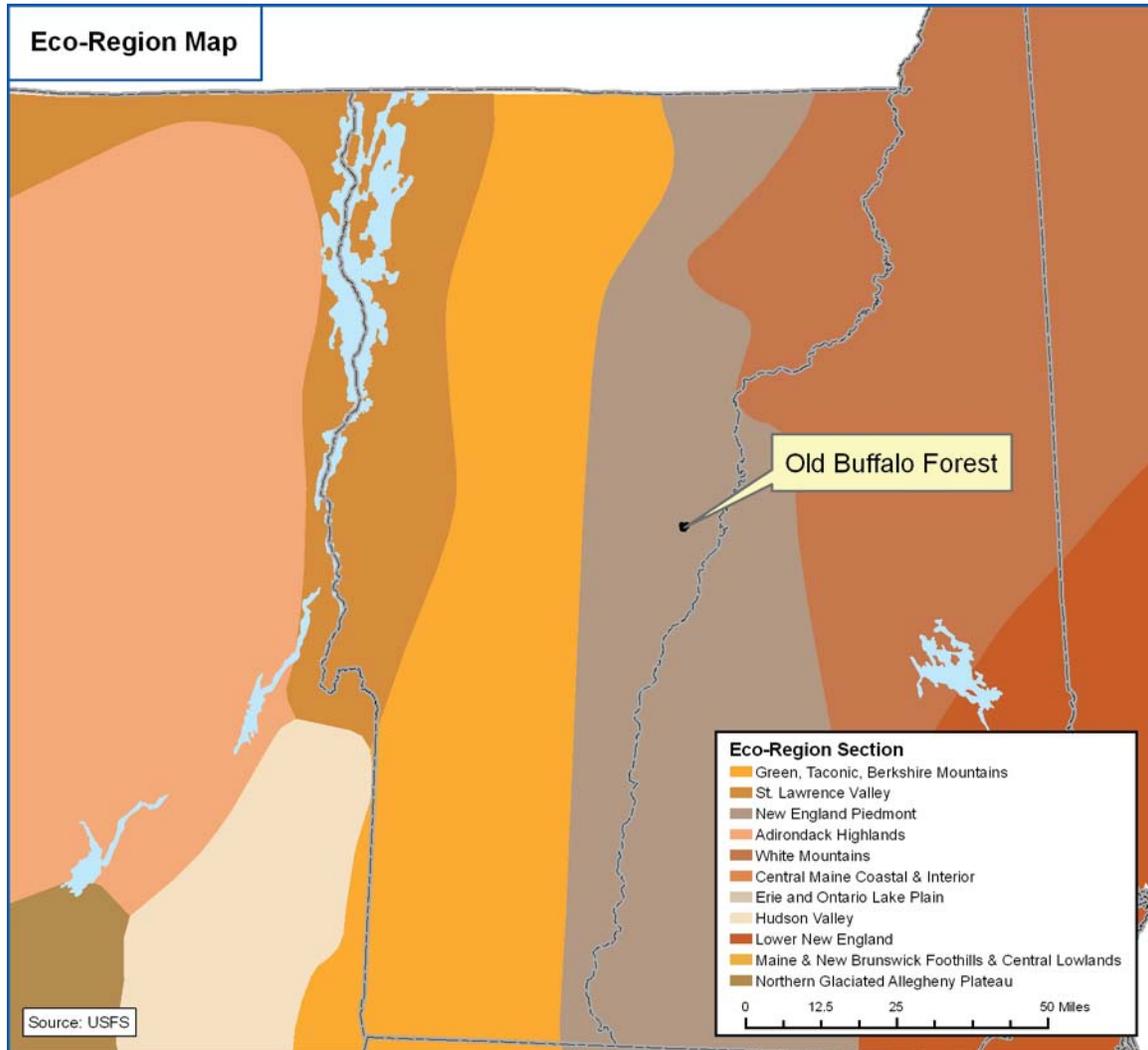
Cultural resources include the artifacts and evidence of human activity on the land. In New England, significant cultural resources are often the remains of abandoned dwellings and former agricultural use of the land. On Old Buffalo Forest, cultural resources include, at least, stone walls, a cellar hole, an historic bridge abutment, and what appears to be a mill water impoundment. Several of these have been mapped with GPS, and additional locations will be mapped as they are encountered. The State of Vermont Division of Historic Preservation has no record of cultural sites on or near the property.

Significant cultural resources will be avoided and protected during forestry activities. In general, protection of these features and sites may involve the following:

- Minimizing or avoiding crossings of stone walls, or using crossings which have previously breached and degraded the wall;
- Avoiding disturbance of large stone piles;
- Delineation of the immediate vicinity of foundations and sugar houses as machine exclusion areas;
- Operating equipment in the vicinity of significant sites during periods of frozen ground and/or deep snow cover.

## BIOLOGICAL FEATURES OF THE FOREST

### ECOLOGICAL REGIONS



According to *Ecoregions and Subregions of the United States (Lower 48)* by R. G. Bailey and the USGS, Old Buffalo Forest lies within the New England Piedmont section of the Coniferous Forest-Alpine Meadow Province. Many of the characteristics of the New England Piedmont are found throughout this management plan in the discussions of geology, soils, disturbance regimes, wildlife and forestland classifications. The only additional feature to address is climate. The climate of the New England Piedmont includes 35" to 48" of melted precipitation annually, including 64" to 96" of snow. Average annual temperature is 40° to 45° Fahrenheit. The growing season is typically 110 to 160 days.

## **REGIONAL FORESTLAND CLASSIFICATION**

According to the book, "Forest Cover Types of the United States and Canada", published by the Society of American Foresters in 1980, the property is composed mostly of the beech-birch-maple type, as classified by the US Forest Service's Renewable Resources Evaluation Group. This is not surprising, as much of northern New England is occupied by this type. As the name implies, beech-birch-maple types normally contain stocking of beech, sugar maple and yellow birch, along with common associates such as red maple, hemlock, white ash, basswood, white pine, red spruce, balsam fir, black cherry and red oak. Sugar maple is the unifying species, with increasing beech stocking on drier sites. Wetter sites will be occupied by increasing stocking of red maple, yellow birch and hemlock. Early succession species in this forest type will include white birch, aspen and pin cherry

## **DISTURBANCE REGIMES**

This area of New England occupies the lower end on a regional disturbance gradient ranging from relatively frequent occurrence of fire and hurricane winds in southern New England and New England coastal areas to a very low incidence of disturbance in more northern inland sites. The percentage of land in forest continues to increase over time. The composition of the current forest on a landscape scale is heavily influenced by agriculture dating from the colonial period and subsequent farm abandonment from about 1870, as well as by selective logging of certain species, particularly conifers. Although regionally the distributions of modern and pre-settlement forest types match well, 250 years of land use activity has affected forest structure and composition across the landscape. Insect and disease disturbances have resulted from spruce budworm, periodic birch and sugar maple defoliators, periodic hemlock looper, ash dieback and butternut canker. At higher elevations, spruce decline is related to severe winter damage and soil cation depletion.

Forests are naturally replaced when overstory trees die, providing sunlight to the forest floor and enabling new trees to germinate and grow. Overstory trees die in many ways. Individual trees will ultimately die of old age in the absence of other factors. In the region around Old Buffalo Forest, natural disturbances have occurred in events as small as the death of single trees to as large as stand-replacing events. Fires, both from lightning and man, have had a major influence on the forest for many centuries. Wind events, typically associated with thunderstorms or hurricanes, can simply knock trees down or damage them enough to make them more susceptible to insects, disease and fire. Other weather events include snow, spring frost and damage from ice. In general, the larger, stand-replacing events happen at less frequent intervals.

The most recent major regional disturbance occurred in early January 1998. A massive ice storm spread across the northeastern US and southeastern Canada. The multi-day event was the worst ice storm to cover the region in decades. In the mountainous areas of Vermont, damage tended to be influenced by elevation, with most severe damage occurring above 1,800' above sea level (ASL). On Old Buffalo Forest, the damage was minimal due to the lower (under 1,600' ASL) elevation of the property.

Biotic disturbances can also be single-tree or stand-replacing events. In the early twentieth century, chestnut blight eliminated the American chestnut from the landscape. During the past several decades, the gypsy moth has become an increasingly threat. Beech bark disease continues to reduce the health and vigor of American beech region-wide. Other insects attack individual stems as they become stressed, damaged or otherwise weakened. Deer and moose have a very large impact on reproducing stands in many parts of the eastern forest. Deer browse is a significant influence on regeneration in some stands on Old Buffalo Forest.

Currently, no pests or pathogens were noted to be significantly affecting the forest. Periodic monitoring will occur to identify any significant threats. A serious forest pest and significant threat to white ash – emerald ash borer – is present in the region. This is a non-native insect and has been shown to cause significant losses to white ash, where outbreaks occur. The closest known outbreak is about 10 miles from Old Buffalo Forest.

Another disturbance which can potentially result in a long-term disruption to an ecosystem such as the forest is the spread of colonies of invasive exotic species. Such species can displace native species and occupy sites indefinitely. F&W Forestry has recognized the threat posed by invasive exotic species and has developed a policy of recording and monitoring the location of each occurrence, evaluating control options and implementing controls if economically feasible. See F&W Forestry FSC Certification Policies and Procedures Manual for further details

On Old Buffalo Forest, there are no known instances of invasive exotic species of plants.

### **REGULATION, LONG-TERM YIELD AND GROWTH**

Regulation in forestry is control over the structure of the forest to meet the owner's objectives for yield. In this case, the yield objective is to release capital through the harvest of high-quality, mature sawlogs. The level of intermediate harvest activity should be timed to keep stocking levels and growth at their optimum, so that the time to final harvest and financial maturity is reached as quickly as possible.

The distribution of age and size classes throughout the forest has a direct impact on the continuity of yields. If there is equal representation of the various age and size classes, yields will flow steadily as that portion of the forest reaching maturity stays constant through time. If the distribution of age and size classes within the forest is skewed, yields will vary through time accordingly. This is the case with Old Buffalo Forest. Age and size classes are skewed toward middle age or older trees (50-80 years old) in the large pole/small sawtimber size categories (7.5"-13.5" DBH). While the health and sustainability of Old Buffalo Forest are not dependent upon the resulting pattern of yield, there are management implications, and forest structure and diversity implications, of the current age and size distribution.

The regulatory goal is to minimize the time required to reach financial maturity while maintaining individual tree quality and to encourage structural diversity within the larger landscape.

Old Buffalo Forest is a diverse forest resulting from forest establishment on previously cleared lands and various harvests. Stands were generally established in the first half of

the 20<sup>th</sup> century. In general, the property can be considered even-aged, and stands in most cases are dominated by trees that are 60 to 100 years old, and 0 to 30 years from financial maturity.

Financial maturity is usually defined in terms of tree size, rather than actual age, and is the point at which the majority of trees in a stand are of sufficient size to meet the specifications of the highest value product they are capable of producing. White pine stands and most hardwood stands are considered mature when the average diameter of the crop trees is 18" at breast height. For stands of softwood other than white pine, where little grade increment occurs after reaching sawtimber size, 14" or less is considered financially mature, subject to variations between softwood species. Years required to reach financial maturity for any forest is then a function of the growth rates of the individual species, the growing conditions required to maximize that rate while maintaining quality, and the current tree size.

Recent harvesting has also affected the age class distribution, and new age classes have developed. This has occurred within individual stands, as partial cutting has harvested some older trees and allowed for the establishment of pockets of regeneration

This trend will continue during the current management period with the regeneration and development of a new age class through group selections. Overall, about 4% of the productive forestland will be regenerated through uneven-aged management (group selections within stands managed by uneven-aged techniques).

While this management plan was not developed with a particular total yield goal, the proposed harvest has been compared to an estimate of growth, based on regional (Vermont) growth rates calculated from USDA Forest Inventory and Analysis (FIA) data. A conservative growth estimate was applied to the inventory data for this property and resulted in a total 10-year growth of approximately 1,522 cords. The total proposed harvest amounts to approximately 483 cords, or approximately 32% of growth for the period.

The productive forestland of Old Buffalo Forest is composed of 57% northern hardwood stands and 43% mixedwood stands. Based on the current age structure overall, approximately 20% of the forest will be financially mature within approximately 20 years, an additional 75% is expected to mature within 30 to 50 years, and the remainder will reach maturity within 80 to 100 years.

Income from harvest activity on Old Buffalo Forest will be moderate during the current management period. Yields are expected to be fairly consistent over time, with modest harvesting expected in each 10 year planning period for the foreseeable future.

#### *Growth/Sustained Yield Harvest Calculation*

An assessment of growth of Old Buffalo Forest (included below) suggests that the total 10-year volume growth is 1,520 cords, with annual sawtimber growth of 35 MBF and annual pulpwood growth of 83 cords. The total 10-year harvest for Old Buffalo Forest for the period 2019-2029 is 482 cords, much less than total growth over the period. When viewed as a 10-year rolling cumulative harvest total, including the currently prescribed harvests, the total harvest is about 98% of growth. The 2019 stocking level is about 28.1 cords, well above the regional average.

Growth estimates are based on FIA data for plots in the following counties: Washington, Lamoille, Orange, Orleans and Windsor. Growth calculations are summarized below:

## Old Buffalo Forest

### Timber Growth Analysis

January 2020 270 Acres  
255 Commercial Acres

Species	Volume	Growth Rate	Annual Growth
	MBF/CD	% per year	MBF/CD
<b>Sawtimber - MBF (International 1/4")</b>			
Sugar Maple	290.396	2.4%	7
White Pine	247.687	2.8%	7
White Ash	209.351	2.4%	5
Red Oak	108.322	2.4%	3
Hemlock	172.3	2.3%	4
Spruce/Fir	65.582	2.2%	1
Yellow Birch	149.105	2.4%	4
Red Maple	115.429	2.6%	3
Paper Birch	39.869	2.0%	1
Black Cherry	3.467	2.4%	0
Beech	5.568	2.0%	0
<b>Pulpwood - Cords</b>			
Hardwoods	3182	2.0%	64
Hemlock	807	1.5%	12
White Pine	327	2.0%	7
Spruce	39	1.5%	1
<b>Sawtimber Total (MBF)</b>	<b>1,407</b>	<b>2.5%</b>	<b>35</b>
<b>Cordwood Total (Cords)</b>	<b>4,355</b>	<b>1.9%</b>	<b>83</b>
<b>Total Volume (Cords)</b>	<b>7,169</b>	<b>2.1%</b>	<b>152</b>

Growth rates based upon analysis of FIA remeasurement data for Washington, OrleansLamoille, Windsor, and Orange Counties in Vermont.

Note: Composite rates were developed for hardwood and softwood growing stock and sawtimber. Composite rates were used for:

- Composite products such as HW pulpwood
- Any species with less than 500 samples in the selected dataset
- Any species which appears to reflect an unusual mortality event in the data set (for instance, a species with negative growth)

## **WILDLIFE**

Many game and non-game wildlife species occur in northern New England. Game and fur-bearing species include snowshoe hare, red squirrel, fisher, pine martin, mink, otter, moose, deer, coyote, bob cat and beaver. Black bears are also present. Small mammals inhabiting forested portions of northern New England include the red-tailed bat, flying squirrel, smoky shrew and meadow vole, among others. Turkey and ruffed grouse are the main game birds. Songbirds include many species of warblers, Gray jay, dark-eyed junco, pileated woodpecker, red-eyed vireo and rufous-sided towhee. Raptors include the red-tailed hawk and great horned owl. Reptiles include the northern water snake, ribbon snake, garter snake, spotted turtle and wood turtle. Common salamanders include the spotted salamander and redback salamander. Common frog species include the bullfrog, green frog and grey tree frog.

The State of Vermont has laws, and the enforcement agencies necessary, to control inappropriate hunting, fishing, trapping and collecting. On annual site visits, foresters purposely look for timber trespass and inappropriate overuse, in addition to observing the general health and productivity of the forest. Trapping is permitted only under a license with landowner permission. Combined with reports from interested neighbors about untoward activities, the forest is reasonably well protected from excessive hunting, fishing, trapping and collecting.

### *Riparian Corridors and Other Wildlife Travel Corridors*

Several streams and ridges provide potential riparian and travel corridors through Old Buffalo Forest. F&W Forestry is not aware of any specific areas used repeatedly by wildlife as travel corridors on the tract. Should we become aware of such corridors, they will be addressed in management as appropriate.

The forest lies in a large block of relatively contiguous forest, surrounded by development in West Fairlee, Vershire, Corinth and Bradford. As Old Buffalo Forest is a central and intact large forest within this block, it provides good opportunity for connectivity through the block.

### *Diversity of Habitats*

As described above, there are a number of prominent wildlife habitats on Old Buffalo Forest. However, much of the forest is composed of mid-successional large poletimber and small sawtimber hardwoods in medium-sized acreages. These unfragmented forests are important to forest interior specialists, primarily neotropical migratory birds, that depend on these areas. Due to the general maturity and even-aged structure of Old Buffalo Forest, there are relatively few pure early successional stands. Such stands are important for early successional specialists such as grouse, woodcock and deer that need the browse and cover provided in these forests. Although there are some attributes of the early successional forest in two-aged and uneven-aged stands, there will be a modest increase in early successional habitat during the next management period when group selection harvests will be taking place.

There are few fully-mature forest habitats on Old Buffalo Forest, but, as mentioned elsewhere in this plan, the public lands in the area will certainly provide habitat for

mature forest specialists that require shade, cavity trees and down woody debris encountered in these forests.

The forest is a component of the uplands east of the Connecticut River Valley. As such, it is a significant link in the habitat connectivity in this landscape.

#### *Habitat for Species with Large Home Ranges*

Old Buffalo Forest lies within an area which is a large forest block surrounded by moderately developed residential and farmlands. The forest is therefore imbedded in a large block of habitat suitable for species such as moose and bear which have large home ranges.

#### *Habitats for Species Effected by Forest Fragmentation:*

The risk of forest fragmentation within this area is currently low. F&W Forestry's management is not expected to negatively impact habitat for species with large home ranges or contribute to forest fragmentation and is expected to maintain and enhance habitat and connectivity currently available.

#### *Rare, Threatened and Endangered Species:*

According to data layers and information provided by the Non-Game and Natural Heritage Program of the Vermont Department of Fish and Wildlife, there are no records of rare, threatened or endangered species within the bounds of Old Buffalo Forest.

### **SIGNIFICANT NATURAL COMMUNITIES**

No significant natural communities have been mapped by the State of Vermont, Non-Game and Natural Heritage Program, on the property.

The State of Vermont has identified an area of deer winter habitat well to the west of the forest. This deer yard does not extend onto Old Buffalo Forest.

There are no high conservation value forests (HCVF) on Old Buffalo Forest as defined by Criterion 6.1, 6.2, Principle 9 and Appendix C of the FSC-US Northeast Standards.

### **INVASIVE SPECIES**

No invasive exotic plant species have been found on Old Buffalo Forest.

### **REPRESENTATIVE SAMPLE AREAS**

A key ecological component of the landscape is the diversity of ecosystems that are important in maintaining vegetative variety, sufficient wildlife habitats, and other ecological functions. The key forested ecological systems (as defined by F&W Forestry's *Guide to Determining Ecological Systems from Fountain Forestry Cover*

Types) on Old Buffalo Forest are Laurentian Acadian Northern Hardwood Forest Matrix, and Laurentian Acadian Pine Hemlock-Hardwood Forest Matrix.

These key ecosystems are also found in the region surrounding Old Buffalo Forest, and they are well-represented in the landscape. Representative samples may be found in public and conserved lands, in permanent protection, in their natural state on such lands as wilderness areas in the Green and White Mountains National Forests.

## MANAGEMENT

### **SILVICULTURE**

Most of Old Buffalo Forest has received moderate harvesting during the last 10 years. Many stands were thinned or received a shelterwood harvest during this period. The majority of the stands are characterized by maturing timber and average to above average stocking levels. Average total volume across the entire property is now about 28 cords per acre, well above the regional average for stands of similar species composition.

A moderate level of harvesting is prescribed for Old Buffalo Forest. Treatments include thinnings and group selection harvests under an uneven-aged management system.

### **SUSTAINING FOREST HEALTH AND PRODUCTIVITY**

As a company, F&W Forestry believes that it has a professional and ethical obligation to recommend and implement forest practices that assure that the long-term health and productivity of the forests it manages are sustained. Maintaining the integrity of forest ecosystems, promoting biodiversity and forest productivity, and protecting critical habitat are all aspects of forest management that must be considered to assure forest health is maintained over the long term. Forest practices must also consider the larger landscape in which the forest ownership is located, and employ management within the context of the regional ecosystem.

Although in most cases ownership investment objectives, timber production and protecting forest health are entirely compatible and often synonymous, situations may arise where they are not. In these situations, F&W Forestry has an obligation to advise owners against activities that are detrimental to forest health and to recommend alternatives. F&W also has an obligation to owners to advise on the financial impact to the investment of protecting forest health and sustainability.

To be sustainable, forest management must assure that future generations are not more limited in resource use options than present conditions allow. The following management principles are endorsed by F&W Forestry to assure this objective is met.

1. *Regeneration* - All harvest systems and final harvest cuts, except those where a change of land use is planned, are designed to provide for acceptable regeneration of a healthy new stand. As the investment time horizon for most owners often does not extend to a second rotation, any direct expenditure in the regeneration process or indirect cost caused by adjusting final harvest to accommodate regeneration is recognized as a stewardship cost of sustaining forest health.
2. *Genetic Quality* - Tree quality and health are controlled not only by environmental factors but also genetic factors. Management decisions are therefore designed to favor vigorous, superior quality stems over lesser quality stems to assure that genetic quality is maintained. Cutting that removes only the highest quality stems for

short-term financial gain, leaving a residual stand with reduced long-term potential, is strongly discouraged.

3. *Biodiversity* - Most forests in the eastern hardwood region are naturally biodiverse, with a healthy mix of tree species, plants and habitat types occurring in fairly homogeneous stands. While management is generally designed to make specific stands more homogeneous in pursuit of productivity and quality, biodiversity is carefully maintained within the stand and, on a forest wide level, enhanced through regulation of the overall forest structure. Conversion of existing healthy natural stands to plantations is discouraged. Where biologically and economically appropriate, management may recommend maintaining ecological reserves where portions of the forest are allowed to reach biological maturity rather than financial maturity to further enhance biodiversity. Each subsequent management plan to this one will note whether diversity is dramatically reduced, similar or dramatically enhanced from this management plan's base line as indicated by number of species present, size class distribution, stand size, stocking, etc.

4. *Wetlands, Streams, and Soil Erosion* - All logging and road construction activities are conducted to have no permanent adverse impact on water quality and wetlands. Most states have established "Best Management Practices" (BMPs) as guidelines or regulations for protecting streams and wetlands, and preventing soil erosion. Standards required by F&W Forestry routinely exceed state BMPs. Documented post-harvest inspections note adherence to BMPs and the quality of protection of soil and water resources.

5. *Wildlife* - Planning of forest practices and timber harvesting will include consideration of impact on wildlife populations. Where no specific ownership goal exists concerning wildlife species, and there are no endangered or otherwise regulated wildlife populations, management objectives will be to protect and preserve any critical habitat areas, to encourage a diversity of habitat conditions that allow a diversity of wildlife species to thrive, and to control populations where appropriate to assure the carrying capacity of the forest is not exceeded and overall forest health is maintained.

6. *Cultural Resources* - Forest practices must be considered in the context of the local community and the social values the forest provides. Aesthetic impact on the surrounding community must be considered in planning forest practices. Historical public use and access to the forest, where not in conflict with management activities and landowner objectives, and when not creating undue liability exposure, should be allowed to continue. Historical sites, such as abandoned settlements, mill sites, graveyards and cellar holes should be identified and protected as appropriate. Local contractors, mills and other businesses should be employed where appropriate. Each subsequent management plan to this one will note whether recorded historical and cultural resources were adequately or inadequately protected.

7. *Diversity of Successional Stages* – It is the policy of F&W Forestry to manage the ownerships within the certification pool for a diversity of successional stages. The objective is to create a balance of such conditions across landscapes, ownerships and within individual forests. Ownership patterns in the landscape directly around Old Buffalo Forest are mostly a mosaic of small and medium sized private ownerships in the immediate vicinity, with the large blocks of publicly owned or

conservation land within 50 miles. These ownerships include the Green Mountain National Forest, the White Mountain National Forest and the Bradford Town Forest.

The local ownership pattern lends itself towards a diversity of successional stages as each landowner tends to manage their property individually. However, trends of human disturbance such as agricultural abandonment, control of wildfires and harvest practices have resulted in a landscape dominated by young forests in an early- to mid-successional stage. Old growth forests are quite rare and natural early successional communities under-represented. Old Buffalo Forest also reflects these trends. It is a middle-aged forest with most stands estimated to be between 60 and 80 years old, and approximately 20 to 35 years from maturity. There are no old-growth or late successional stands on the forest, although Stream Management Zones (SMZs) may, over time, function in that respect.

Early successional communities will develop on Old Buffalo Forest, and on neighboring lands, as a result of regeneration harvesting operations. These stands will regenerate naturally. Early successional stands will also develop from stand-wide regeneration harvests which will ultimately occur within all forest types not lying within Stream Management Zones. These management activities will provide conditions in which early successional species compete well.

### **WATER QUALITY PROTECTION**

Typically, if water quality degradation occurs on a harvesting operation, it is likely to occur as a result of sedimentation from roads, skid trails or landings. Another more minor, but still important, detriment to water quality is an increase in temperature.

F&W Forestry has a water quality protection policy and water quality protection guidelines that depend on the type of stream or water body. The overriding goal is to keep sediment out of the water and maintain water temperature. Please contact F&W Forestry for specific water quality protection measures.

The streams which flow through Old Buffalo Forest will require delineation of SMZs and the construction of crossings in compliance with F&W Forestry's water quality protection policy. Generally, the existing brook crossings on haul roads were constructed in compliance with Vermont's Acceptable Management Practices at the time. However, all haul road stream crossings will be evaluated when used, and will be re-constructed when necessary to provide adequate protection.

### **HARVEST OPERATIONS**

Logging is not unduly limited over most of the forest, although some of the wetter soils will need to be operated under frozen conditions. Slopes steepen at high elevations and there are small areas delineated as non-commercial due to a combination of steep slopes and exposed bedrock.

Harvesting will be accomplished either by a mechanized operation or hand crews. A typical mechanized operation currently utilizes a feller buncher and grapple skidders to extract the timber. The trees are usually processed on the landing with the aid of a

loader/slasher. Hand crews typically fell the trees using a chain saw. The trees are removed from the woods using a cable skidder. Landing work is often similar to the mechanized operation, but may include product separation with a person using a chain saw. Other harvesting techniques and equipment will be used as developed over time and as appropriate to the site.

By its nature, timber harvesting is a disruptive process. Silvicultural operations may be intended to mimic a natural disturbance such as windthrow or fire. Therefore, reduction of canopy density, overstory removal and ground scarification are intended to have significant environmental impacts. Harvest operations are designed to effectively create the desired conditions of density, species composition and ground disturbance, while minimizing detrimental environmental impacts, such as erosion and sedimentation. It is acknowledged that, while these detrimental impacts can be significantly reduced, they cannot be completely eliminated in all situations.

### **MARKETS**

Markets for most products are currently available within reasonable trucking distances of Old Buffalo Forest. Low-grade markets include local firewood markets, biomass chips delivered to electrical generation in Berlin, New Hampshire, and roundwood pulpwood to mills in Maine and Canada. Sawlog markets include local mills for hardwood and pine logs, and regional mills for spruce/fir sawlogs. Veneer logs are usually sold to regional markets.

### **ROAD CONSTRUCTION AND MAINTENANCE**

No road construction is planned for Old Buffalo Forest during this planning period. Maintenance requirements during the period are expected to be minimal, but, as the main access routes are public roads, and are not maintained by the town, it is reasonable to expect a modest road maintenance project at some point during the period.

### **BOUNDARY MAINTENANCE**

No boundary maintenance is scheduled for the property during the 10-year management period.

Forest Management Plan

**Laurent and Christine Visconti  
Old Buffalo Forest**

264 Town-Listed Acres  
West Fairlee, Orange County, Vermont  
January 2020

Orthophoto Base Map: 172160  
Town Parcel Number: 10311.  
SPAN Number: 714-227-10311  
Grand List Description: 264 ACRES

**I have reviewed and approved this management plan and related maps, and I authorize submission of both to the State of Vermont to meet the requirements of the Use Value Appraisal program. I affirm that the forest described herein is under active management in accordance with acceptable standards for forest management. These management standards include the practices outlined in the booklet, “Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont” in order to control stream siltation and soil erosion.**

_____ Laurent Visconti 645 Janelle PL NW Bainbridge Island, WA 98110	_____ Date	_____ Christine Visconti	_____ Date
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**Prepared by:**

_____ Andrew Carlo Vermont Licensed Forester: #148.0122250 (Exp 9-30-20) F&W Forestry Services, Inc. 79 River Street Suite 301 Montpelier, VT 05602	_____ Date
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**Approved by:**

_____ Orange County Forester	_____ Date
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**ACTIVITY SUMMARY**

**Use Value Appraisal Activities**

Stand	Forest Type	Acres	Scheduled Activity	Year	Priority
Stand 1	Mixed Composition MW4B	12.8	Group Selection	2023	2
Stand 3	Northern Hardwood NH3B	59.3	Light Thin and Salv.	2023	2
Stand 4	Mixed Composition MW3-4BC	52.4	No Activity		
Stand 5	Northern Hardwood NH3B	48.8	Thin	2023	1
Stand 6	Mixed Composition MW3B	33.2	No Activity		
Stand 8	Northern Hardwood NH4B	19.3	No Activity		
Stand 9	Mixed Composition MW4C	11.7	No Activity		
Stand 10	Northern Hardwood NH3C	17.9	No Activity		
			Forest Review	2025	2
			Plan Update	2030	1

**Recommendations**

- Monitor for presence of invasive species.
- Monitor condition of Bear Notch Road and Scrutton Hill Road

**FSC Activities**

Year	Type	Activity
2020		Develop Management Plan Annual Inspection
2021		Annual Inspection
2022		Annual Inspection
2023		Annual Inspection and Timber Harvest
2024		Annual Inspection and PHM
2025		Annual Inspection
2026		Annual Inspection
2027		Annual Inspection
2028		Annual Inspection and PHM
2029		Annual Inspection and Inventory
2030		Develop Management Plan Annual Inspection

**USE VALUE APPRAISAL PROGRAM ENROLLMENT BRANDON**

**Stand Acreage Summary**

<u>Area</u>	<u>Type</u>	<u>Map Acres</u>
Productive Forestland		
Stand 1	Mixed Composition MW4B	12.8
Stand 3	Northern Hardwood NH3B	59.3
Stand 4	Mixed Composition MW3-4BC	52.4
Stand 5	Northern Hardwood NH3B	48.8
Stand 6	Mixed Composition MW3B	33.2
Stand 8	Northern Hardwood NH4B	19.3
Stand 9	Mixed Composition MW4C	11.7
Stand 10	Northern Hardwood NH3C	17.9
Open/Idle (Including Landings)		2.6
Agriculture		0.0
Non-Productive Forestland		
Wetland		1.1
Ledge		5.3
Road		5.3
Excluded From UVA		0.0
<b>Total Map Measured Acres:</b>		<b>269.7</b>

**Chart of Acreage Adjustments**

Town listed acres in parcel	264.00
Actual acres to be excluded as measured on orthophoto	0.0
Acres to be entered	264.0
Acres to be entered according to map measurements	269.7
Factor to prorate acres	0.98

**UVA Summary**

	<u>Map Acres</u>	<u>Factor</u>	<u>Prorated Acres</u>
Productive Forestland	255.4	0.98	250.0
Open/Idle	2.6	0.98	2.5
Agriculture	0.0	0.98	0.0
Non-Productive Forestland	11.7	0.98	11.5
Total UVA Enrolled Acres	269.7		264.0
Excluded Acres	0.0		0.0
<b>Total Map Measured Acres:</b>	<b>269.7</b>	<b>Grand List:</b>	<b>264.00</b>

## MAPS

Your forest is depicted on several maps on the following pages. These maps should be used together with the information presented in the *General Description* and *Stand Description* sections, for a better understanding of your forest.

Maps are a fundamental part of forest management. Landowners and foresters use maps to plan and administer forest management such as harvesting and thinning operations, invasive species control, protection of streams and other sensitive sites, and boundary maintenance. Reasonable accuracy in mapping is important for the success of projects, so we ask your assistance and agreement in confirming that the maps in this plan meet this standard.

The Use Value Appraisal Program requires maps to be drawn to detailed specifications. There is no requirement that maps be drawn with the precision of a boundary survey, but we strive to make them as precise and accurate as possible.

F&W Forestry has used the best available information to map your forest, and the property boundaries, features, and areas excluded from the Use Value Appraisal Program (if applicable).

However, there may be information about property boundaries and/or the Use Value Appraisal Program exclusions which were not available to us while preparing this plan.

**Please review the map carefully, and if you notice anything about the map which conflicts with your understanding of the property, or its enrollment in Use Value Appraisal, let us know as soon as possible. We will correct the map immediately.**

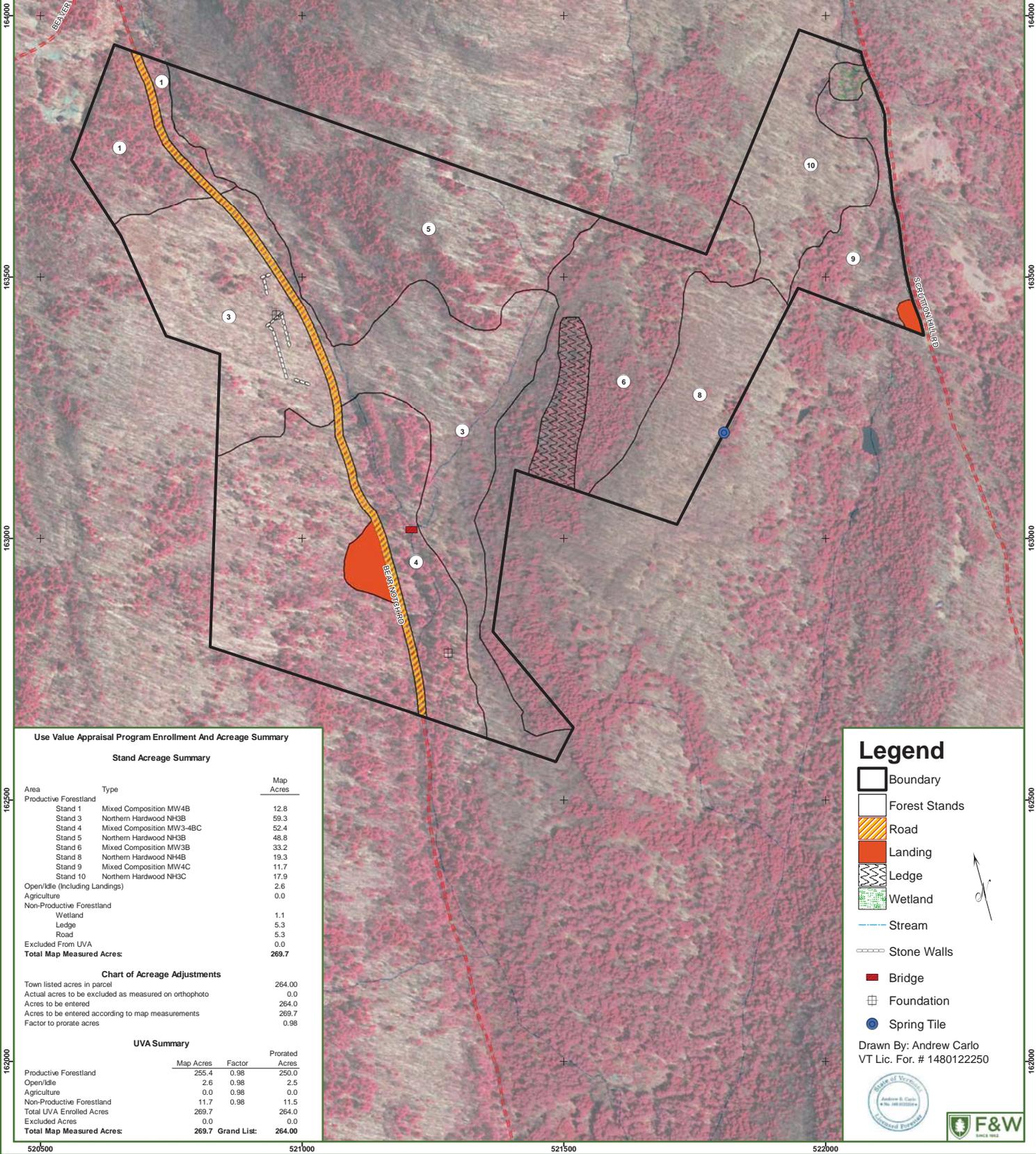
Your acceptance of the plan, and your authorization to submit the plan to the Use Value Appraisal Program, indicates your agreement that the map generally conforms to your understanding of the property boundaries and other features.

Included are:

- A Forest Type Map of the property drawn to a scale of 1:5000 (1" = 417'). This map shows property and forest stand boundaries, roads, trails, streams, and many other internal features.
- A Topographic Map, which depicts the property while showing the topography of the local area. (Included in the FSC Plan)
- A Vermont Infrared Orthophotograph, which is a scale-corrected composite of aerial photographs. (Included in the FSC Plan)

The maps used in this plan are based on Vermont Orthophotographs (aerial photo), Leicester tax maps, an unrecorded survey map of the Butterfield parcels, a boundary sketch of the A Johnson parcel, and field evidence.

Forest Stand Map  
**Old Buffalo Forest**  
 Owned by: Laurent and Christine Visconti  
 264.0 Town-Listed Acres, West Fairlee  
 SPAN: 714-227-11311  
 Orange County, Vermont  
 Orthophoto #: 172160  
 Series 5000  
 January 2020



**Use Value Appraisal Program Enrollment And Acreage Summary**

**Stand Acreage Summary**

Area	Type	Map Acres
<b>Productive Forestland</b>		
Stand 1	Mixed Composition MW4B	12.8
Stand 3	Northern Hardwood NH3B	59.3
Stand 4	Mixed Composition MW3-4BC	52.4
Stand 5	Northern Hardwood NH3B	46.6
Stand 6	Mixed Composition MW3B	33.2
Stand 8	Northern Hardwood NH4B	19.3
Stand 9	Mixed Composition MW4C	11.7
Stand 10	Northern Hardwood NH3C	17.9
<b>Open/Idle (Including Landings)</b>		
Agriculture		0.0
<b>Non-Productive Forestland</b>		
Wetland		1.1
Ledge		5.3
Road		5.3
Excluded From UVA		0.0
<b>Total Map Measured Acres:</b>		<b>269.7</b>

**Chart of Acreage Adjustments**

Town listed acres in parcel	264.00
Actual acres to be excluded as measured on orthophoto	0.0
Acres to be entered	264.0
Acres to be entered according to map measurements	269.7
Factor to prorate acres	0.98

**UVA Summary**

	Map Acres	Factor	Prorated Acres
Productive Forestland	255.4	0.98	250.0
Open/Idle	2.6	0.98	2.5
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Non-Productive Forestland	11.7	0.98	11.5
<b>Total UVA Enrolled Acres</b>	<b>269.7</b>		<b>264.0</b>
Excluded Acres	0.0		0.0
<b>Total Map Measured Acres:</b>	<b>269.7</b>	<b>Grand List:</b>	<b>264.0</b>

**Legend**

- Boundary
- Forest Stands
- Road
- Landing
- Ledge
- Wetland
- Stream
- Stone Walls
- Bridge
- Foundation
- Spring Tile

Drawn By: Andrew Carlo  
 VT Lic. For. # 1480122250



## PREFACE

### STATEMENT OF PURPOSE

Forest Management is the practical application of silvicultural principles to the growth, harvest, regeneration and conservation of forests in order to maintain healthy forests and to meet the specific objectives of the landowner.<sup>2</sup>

This Forest Management Plan is intended to be a fundamental tool to the practice of forest management. The purpose of this Forest Management Plan is to:

- note the landowner's objectives, priorities and special concerns;
- present a description of the current state of the forest;
- propose a schedule of activities which will allow the landowner to achieve his or her objectives;
- fulfill the requirements of Vermont's Use Value Appraisal Program;
- serve as an educational tool with which the landowner's awareness of the forest, and understanding of its management, may be enhanced.

### KEY CONCEPTS

A basic structure of the plan is the concept of a forest stand. A forest stand is an area that is relatively homogeneous in species composition, tree height, density, and site characteristics. The State of Vermont defines a stand as "A group or groups of trees sufficiently uniform in age class distribution, composition and structure, and growing on a site of sufficient uniform quality, to be a distinguishable unit".

Stands occur as a result of site conditions, topography, and past history and use. A stand is a basic unit of forest management and is often identified by one or more dominant species in the stand and the size of the trees present, for example, "sawlog size northern hardwoods". "Sawlog size" refers to trees over 11" in diameter, with diameter measured 4.5' above the ground, a measurement referred to as "diameter at breast height" (DBH). "Northern hardwoods" refers to a commonly occurring association of species including American beech, sugar maple, and yellow birch.

With the use of aerial photography and topographic maps, the forester maps the stands following the field inventory process. Appropriate sampling techniques are applied and field measurements are made to determine basal area, stocking density, timber volume, and other characteristics of the stand. Stand measurements are made based on representative sampling. Data are collected at numerous locations within a property, usually by a method called variable radius plot sampling. By this method, the image of a tree, when viewed through a calibrated wedge-shaped piece of glass called a prism, allows the forester to select trees to be included in a sample which will be used to represent the stand. Data are typically processed by a computer program which calculates stocking, timber volume, and species composition.

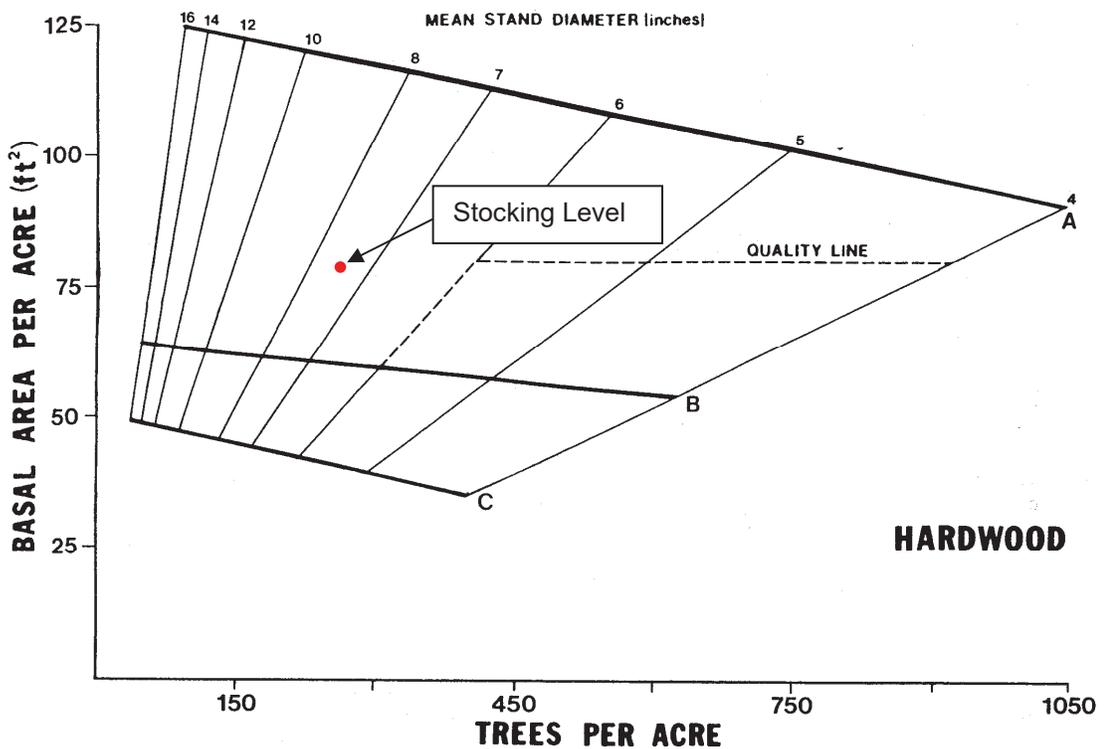
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<sup>2</sup> State of Vermont, Department of Forests, Parks, and Recreation, Forest Management Plan Standards

Basal area is a critical forest measurement. It refers to the cross-sectional surface of the tree stem and is measured in square feet (ft<sup>2</sup>). For example, a 14" DBH tree has a basal area of 1.07 ft<sup>2</sup> and an 8" tree has a basal area of 0.35 ft<sup>2</sup>. Most often used on a per acre basis, basal area is an index to stand density. If the stand basal area is low, it means that the site can support more and/or larger trees than it currently does. Conversely, a high-density stand contains more trees than is optimal for vigorous growth. The term "stocking" is used to describe the density of a stand given its age and species composition. A stand may be "understocked", "adequately stocked", "fully stocked", "overstocked", etc.

Basal area figures for an adequately stocked stand will vary by stand type. For example, conifers typically grow well in denser clusters due to their narrow conical growing space. As a result, one could expect a fully stocked softwood stand to have a higher basal area than a fully stocked hardwood stand.

Stocking Guides are a graphical representation of the stocking of a stand. Stocking guides have been developed for most major forest types (white pine, northern hardwoods, spruce/fir, etc.) The stocking guide is a basic tool that the forester uses to describe and prescribe management for a stand. An example of a stocking guide is given below:



The stocking guide describes stand density by a point which defines values along the three scales of the guide: *Basal Area* along the vertical access, *Trees per Acre* along the horizontal axis, and *Mean Stand Diameter* along the diagonal axis at the top of the graph. In the example above, the point describes a northern hardwood stand with a

basal area of 77 ft<sup>2</sup> per acre, 275 trees per acre and a mean stand diameter of about 7.5”.

The stocking guide also defines three stocking levels for the forest type, which are shown as the three lines ending with an A, B, or C at their right end. These lines represent the following stocking levels:

A Line: This is considered full stocking (the average density of undisturbed stands).

B Line: This is considered the minimum density for maximizing growth while maintaining quality.

C Line: This is considered the minimum stocking of a "manageable" stand.

*Volume figures* are an estimate of the number of board feet of sawlogs and cords of pulpwood contained in a stand. Sawlog specifications are determined by the market, but are, in general, logs sufficiently free of rot and other defects to be sawn into lumber. Pulp (used for making paper) and firewood volumes are found in both large trees of sufficiently poor quality that they are not considered sawlogs and in pole-size trees. When quality is poor, a tree may be a prime candidate for removal in a thinning operation. If sufficient quantities are present, markets exist, and access is reasonable, poor quality trees may be sold for pulp or firewood.

## INTRODUCTION TO FOREST MANAGEMENT

### IMPLEMENTING OWNERSHIP OBJECTIVES

The management objectives, or goals, of the owner are of the highest importance in the creation of a Forest Management Plan. These objectives should express a landowner's vision for the development of the forest and its resources. They should also reflect the biological capabilities and limitations of the forest. Management objectives may be either general or specific, but they should be realistic and suggest certain courses of action.

Management objectives are often compatible with one another. For instance, a healthy, vigorous forest is usually an aesthetically appealing one. Harvesting techniques can create small openings which will enhance wildlife habitat. Cutting for firewood can remove poor quality trees and allow more growing space for the better-quality stems.

However, in certain cases, management objectives are mutually exclusive. For example, sugarbush management is not conducive to producing quality sawlogs as the bole of a good "sugar" tree is limby and supports a long, wide crown. Short-term economic goals may be incompatible with long-term development of the timber resource.

Landowners should become aware of the interrelationship of management objectives. The managing forester may help landowners to evaluate their objectives, steering them toward realistic objectives or away from unrealistic or conflicting ones.

While many different landowner objectives may be achieved through active forest management, production of high-quality forest products shall be the primary focus of management efforts on all properties enrolled in Vermont's Use Value Appraisal Program.<sup>3</sup>

Many factors - biological, natural, and economic - interact to create constraints on the feasibility of forestry activities. The constant fluctuation of these factors may occasionally require that the plan be amended. Barring major disruptions, however, management consistency and continuity are vital

Biological factors may include the ability or inability of forest vegetation to grow on various soils, the presence or absence of insects or disease, the silvics or ecology of individual tree species, occurrence of wildlife species and their populations, and more.

Natural factors include occurrences such as fire, windstorms, ice storms, and weather that prohibit the use of machinery.

Economic factors, including market conditions, current technology, and economies of scale, all play a role in determining what forest practices are the most appropriate.

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<sup>3</sup> State of Vermont, Department of Forests, Parks, and Recreation, Forest Management Plan Standards

Forest management is, by nature, a long-term practice as trees are long-lived organisms. It is not uncommon for the intended effects of management activities to be expected to be years or decades in the future. Management directed toward desirable results often requires substantial initial investments of time, effort, and capital. It may also require that short-term opportunities be foregone to reap long-term benefits. While the merits of long-term versus short-term management can be argued, it is generally agreed that productivity is optimized under long-term management. It has also been demonstrated that professional planning and supervision of forest management increases economic returns while protecting or enhancing amenities. Professional forest management does this in the short-term as well as over the long-term. While savings from the Use Value Appraisal (UVA) Program are substantial and do provide an incentive for sound forest management, they should not be the sole reason for following recommendations contained in this plan. Rather, management recommendations are based on many factors that optimize economic and biological potentials for the good of the landowner and improvement of the resources.

Because physical and biological factors may affect a forest at any time, and because technology and markets are always changing, it is important to periodically reassess the management plan. The Vermont UVA Program recognizes this need and mandates that plans be updated every ten years. It is prudent to check on the physical condition of the forest and the appropriateness of the plan at least every five years.

## SILVICULTURE

Silviculture has been defined by the US Forest Service as the “art, science and practice of establishing, tending, and reproducing forest stands with desired characteristics.”

Forest stands and forest management may be described as “even-age” or “uneven-age”. Within each category, various silvicultural strategies are appropriate. Stands with one or two distinct age classes are even-aged and stands with three or more age classes are uneven-aged. Management which tends one age class through its life span to maturity, harvest and regeneration, is considered even-age. Management which tends a variety of different age classes within a single stand is considered uneven-age management. A forester prescribes management based on the landowner’s objectives and the condition of the forest. It is possible to manage some stands on a forest with even-age techniques and other stands with uneven-age techniques.

*Even-age management* consists of a variety of techniques which tend a crop of trees of approximately the same age and, when mature, regenerates the stand to desirable species. These techniques include precommercial and intermediate thinnings in immature stands, and shelterwood, strip cutting, patch cutting, and clearcutting to regenerate mature stands.

*Uneven-age management* consists of techniques which tend and manipulate several different age classes within the same stand. A stand might contain seedlings, saplings, small poles, and sawtimber, either individually or in small groups of trees. In most cases, uneven-age management will manipulate these age classes to allocate an equal amount of growing space to each age class. A measurement called the Q factor describes the proportional amounts of small trees and large trees in an uneven-age stand. Uneven age techniques include both single-tree and group selection harvests.

Group selections are a regeneration technique. This type of management (once fully implemented) will allow a harvest every 15-20 years and assures that there is always tree cover on all acres.

In general, uneven-age management tends to appeal to owners of small private forests because it is perceived to be less aesthetically disruptive. However, even-age techniques may be more appropriate in some situations: in existing even-age stands, on poor sites, in areas prone to wind damage, or in low quality stands. In addition, even-age management can be implemented with a high degree of attention to aesthetic objectives. Even-age stands may be converted to a balanced uneven-age stand structure, but this may take several cutting cycles (30-45 years or longer).

## USE VALUE APPRAISAL

Vermont's Use Value Appraisal (UVA), or "Current Use", program is a state program providing abatement of local property taxes in exchange for a commitment by the landowner to manage his or her land for productive forestry and/or agriculture.

The program is available to owners of eligible parcels (25 acres or greater, though 2 acres surrounding dwellings are ineligible). The Current Use Advisory Board sets a taxable value, for local property tax purposes for each tax year (April 1 through March 31). For the 2019 tax year, these values are \$145 per acre for forestland and \$362 per acre for agricultural land.

The program also places a lien in the town records, assessing a "land use change tax", or penalty, if the property, or portions of it, are developed or removed from the program. "Development" is defined in three ways: subdividing the property into unenrollable lots, constructing houses or other non-agricultural structures, or harvesting timber in a way which is in conflict with the plan. The penalty is currently 10% of the fair market value of the developed land. Fair market value is interpreted to be the town's assessed value of the developed property.

The program requires that a Forest Management Plan be prepared, approved by the County Forester, and updated every 10 years. As landowners' objectives change, and as unexpected events occur, amendments to the Management Plan are acceptable, once approved by the County Forester. The landowner must also submit a Forest Management Activity Report (FMAR) to the County Forester (in years in which any forestry activity occurs on the land) and allow State inspections of the land to insure compliance.

The landowner is responsible for implementing the activities in the Forest Management Plan as approved by the County Forester. If, upon inspection by the County Forester, it is determined that stands are cut contrary to the management plan, the property may be removed from the program for a period of five tax years and the "land use change tax" may be assessed. If a landowner fails to make a prescribed harvest within the allowed period (three years on either side of the scheduled date), an amendment must be submitted or an extra year may be granted. If the activity is not completed within the one-year extension, the property may be removed from the program for at least one year. It is strongly recommended that a forester administers the implementation of the Management Plan. For additional information, see *Use Value Appraisal of Forestland in*

*Vermont*, published by the Vermont Department of Forests, Parks, and Recreation, and available from F&W Forestry, or call Vermont Property Valuation and Review at (802) 828-5861.

## WATER QUALITY PROTECTION

The State of Vermont seeks to improve the quality of its waters and protect them from risks such as sedimentation and other pollution. Typically, if water quality degradation occurs on a harvesting operation, it is likely to occur as a result of sedimentation from roads, skid trails, or landings. Another detriment to water quality is an increase in temperature which can disrupt the biology of a stream or other water body. Vermont has developed a set of *Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont (AMP's)* to protect the waters of the state from these risks.

The AMP's are enforced by the state and have the force of law. Penalties can be costly if there is a discharge of sediment into a stream and AMP's were not in place. Violations of the AMP's also jeopardize enrollment in the Use Value Appraisal Program. Use Value Appraisal rules state "It is the obligation of the landowner to ensure that significant soil erosion and/or stream sedimentation does not occur on any lands enrolled in the Use Value Appraisal program". Appropriate preventative soil erosion and stream pollution control practices, as outlined in the publication entitled *Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont* or a successor publication, shall be employed to the maximum practicable extent on all enrolled parcels.

F&W Forestry has a water quality protection policy and water quality protection guidelines that provide our foresters with the field tools to designate stream types and to protect them through the appropriate design of skid trails and truck roads. F&W's policies and guidelines allow for the delineation of Stream Management Zones (SMZ's), or buffers, that are in compliance with, and often exceed the requirements of AMP's.

## GENERAL DESCRIPTION OF THE FOREST

### OWNERSHIP OBJECTIVES

The management of Old Buffalo Forest will be guided by the following objectives:

- to produce high-quality forest products;
- to maintain a healthy and productive forest;
- to be a good land steward;
- to maintain the aesthetic quality of the forest;
- to maintain the recreational resources of the forest;
- to maintain and enhance the wildlife habitat on the property.

### LOCATION, ACREAGE & USE VALUE APPRAISAL ENROLLMENT

The forest consists of 264 town-listed acres of wooded land in the town of West Fairlee, Orange County, Vermont. The property is located in central Vermont with the Connecticut River approximately 5 miles to the east. White River Junction, where two primary highways (Interstates 89 and 91) meet, is located about 25 miles south. The property lies within the watershed of the Waits River.

This forest was previously owned by the Poll family, and was acquired by the Viscontis on February 16, 2017. It was enrolled in Vermont's Use Value Appraisal (UVA), or "Current Use", program by the Poll family, and the Viscontis have continued that enrollment. The entirety of the forest is enrolled in the Current Use program with no exclusions. UVA enrollment resulted in a tax savings of **\$1,638** for the 2019 tax year.

The Current Use program requires the landowner to have and follow a Forest Management Plan. The plan is to be updated on a 10-year cycle. Under the Poll family's ownership, the parcel's management plan was last updated in 2010. Future updates to this management plan will be due by April 1, 2020, 2030, etc.

### LAND FEATURES

Old Buffalo property lies on moderate to steep topography in the low foothills just west of the Connecticut River Valley. The property lies within the Northern Vermont Piedmont Biophysical Region of Vermont.

The topography of the property is dominated by a central stream in a deep notch, Bear Notch, with hills on both sides. The hill to the west is unnamed and the hill to the east, whose summit is just to the north of the property, is called Old Buffalo.

Generally, the area has productive, well-drained soils which are well-suited to the species present. Most of the forest is occupied by the following soil types: Tunbridge-Woodstock complex, Colrain, and Cabot.

Throughout most of the forest, the soils and sites are well-suited to timber production and healthy forests. The best sites are on concave mid-slopes, which support hardwood stands dominated by sugar maple and white ash.

The poorest soils are found near the tops of ridges and on steep slopes, and wherever the soil is shallow over bedrock. On these sites, the soils are acidic and excessively drained. Windthrow is a hazard. Management activities which leave individual trees exposed to strong winds should be avoided when possible. These soils support mixedwood stands with hemlock and a poor-quality hardwood component.

Aspect is highly variable, with aspects in all directions present on the property.

Elevation ranges from about 880' above sea level (ASL) where the stream of Bear Notch exits the property to the south, to about 1,400' ASL along the northern boundary. A USGS topographical map, with the property boundary delineated on it, can be found in the *Maps* section of this management plan.

## FOREST DESCRIPTION & HISTORY

Old Buffalo Forest is a northern hardwood and mixedwood forest, dominated by the following species: sugar maple (20% of the basal area), eastern hemlock (20%), white ash (10%) and yellow birch (10%). Other northern hardwoods, white pine, red oak, red spruce and balsam fir are present in minor amounts.

As a whole, Old Buffalo Forest is currently adequately stocked and in good condition. Overall basal area is 98 ft<sup>2</sup> per acre, with 62 ft<sup>2</sup> of acceptable growing stock. Management is prescribed in this plan to allow for the development of the existing timber crop through thinning of high-quality immature stands and regeneration of portions of stands by group selections. Several stands will be allowed to grow, either because they were recently harvested or because they are immature.

The region was first occupied by Native American hunting/gathering/fishing communities. European trappers likely entered the area in the early 1700s. Settlement by Europeans occurred from the mid-1700s to the mid-1800s. The town was chartered as part of New Hampshire in 1761.

At first, land was cleared primarily for subsistence farms. Through the late 1700s and early 1800s, as industry developed, transportation of logs, sawmill facilities and lumber distribution expanded. The logging industry of the day centered on white pine and hardwood resources. The logging industry increased dramatically due to the development of railroads, greatly improving transportation of lumber, and creating demand for timbers and firewood.

By the mid-1800s, sheep farming emerged as the dominant agricultural pursuit, and more land was cleared. At this time, 75% or more of the region was open land, either clearcut, pasture or crop land.

During the late 1800s, several factors contributed to a reversal of the trends of land clearing, increased cultivation, and associated development. New access to urban markets resulted in a shift in Vermont from sheep to dairy farming. The railroads and

Erie Canal provided inexpensive transportation to the fertile plains of the Midwest and great forests of the West. As settlers migrated west, the hill farms of northern New England were abandoned.

In the late 1800s and early 1900s, most of the upper slopes of Old Buffalo Forest were newly abandoned farmland with invading forest, or heavily harvested slopes used as sheep pasture. Agriculture appears to have held on until later in the 20<sup>th</sup> century in the lower elevations in the western portion of the property.

It also appears that the stream draining Bear Notch was dammed and a mill was built on the site, perhaps during the 1800s.

Much of the current forest was farmed by the Ball family during this time. Several cellar holes near Bear Notch Road may be part of this farm. The Ball farm was sold in the 1950s, and in 1988, the Poll family purchased the land. It stayed in that family ownership until 2017, when it was acquired by the current owners.

Harvesting occurred on the forest in 2001 to 2003, and this operation was an improvement thinning, with a few small group selections. The forest was re-inventoried in 2009 after the growing season to develop the current plan. Recently, harvesting occurred on both sides of Bear Notch Road in 2013, and on the west side of Scrutton Hill Road in 2018. The forest was inventoried in 2016, and stands harvested in 2018 were re-inventoried in December 2019, for this management plan.

## CULTURAL RESOURCES

Cultural resources include the artifacts and evidence of human activity on the land. In New England, significant cultural resources are often the remains of abandoned dwellings and former agricultural use of the land. On Old Buffalo Forest, cultural resources include, at least, stone walls, a cellar hole, an historic bridge abutment, and what appears to be a mill water impoundment. Several of these have been mapped with GPS, and additional locations will be mapped as they are encountered. The State of Vermont Division of Historic Preservation has no record of cultural sites on or near the property.

Significant cultural resources will be avoided and protected during forestry activities. In general, protection of these features and sites may involve the following:

- Minimizing or avoiding crossings of stone walls, or using crossings which have previously breached and degraded the wall;
- Avoiding disturbance of large stone piles;
- Delineation of the immediate vicinity of foundations and sugar houses as machine exclusion areas;
- Operating equipment in the vicinity of significant sites during periods of frozen ground and/or deep snow cover.

## ROADS, INTERNAL ACCESS & MAINTENANCE NEEDS

Old Buffalo Forest has access along Bear Notch Road and Scrutton Hill Road. Both of these roads are unmaintained public rights-of-way. A landing on Bear Notch Road serves the entire western and central portion of the property. A landing on Scrutton Hill Road serves the eastern section.

Skid trails provide access to most of the forestland, and all existing skid trails are in good condition. Some portions of Stands 3, 5 and 6 are on very steep slopes and some additional trail construction may be necessary to access all areas, if necessary.

All previously-used skid trails were restored to a stable and well-drained condition after the recent harvests. There is no access maintenance needed in the near future. As mentioned previously, it is reasonable to expect modest road maintenance expenses related to the two access roads, due to their public use.

## BOUNDARY LINES & MAINTENANCE NEEDS

All external property lines were painted in 2011 and should not require additional maintenance for the current management period.

Knowing the location of a forest is a fundamental step to forest management. Boundaries serve to protect landowners on both sides of the line. Mutual agreement regarding the location of the lines, and clear marking, will prevent misunderstandings and conflict between neighbors.

Boundary lines may deteriorate beyond recognition if not maintained. Some states require that boundary lines be located and marked, and/or receive periodic maintenance, before timber is harvested. Vermont requires that the boundaries of any harvest area be clearly marked on the ground.

Boundary lines are typically marked with axe blazes on trees. Blazes are coated with durable paint to ensure visibility. Only a licensed surveyor can create or monument a line, but a landowner may maintain monumentation once it has been established, including clearing brush and re-painting blazes.

It is recommended that the condition of boundary lines be assessed every 5 years. Blazed and painted lines will likely need maintenance every 10 to 15 years. Blazes may survive longer in a mature and undisturbed forest, but may be difficult to locate after just 10 years in a young forest (where the trees are growing vigorously) or when there has been significant management activity.

## INVASIVE SPECIES & MANAGEMENT NEEDS

Invasive plant species have the potential to alter the character and biodiversity of a forest. If left unchecked, invasive species can out-compete and crowd out native species through the formation of dense thickets, and they may interfere with future attempts to establish desirable regeneration.

No non-native invasive plant species have been identified on the forest.

## RARE, THREATENED OR ENDANGERED SPECIES

According to information provided by the Non-Game and Natural Heritage Program of the Vermont Department of Fish and Wildlife, no records of rare, threatened or endangered species or critical natural communities occur within Old Buffalo Forest.

## RIPARIAN AREAS, STREAMS & WETLANDS

Riparian areas and streams will be protected by implementation of water quality protection policies and Vermont's Acceptable Management Practices.

Riparian habitat serves as a travel corridor and water supply for numerous species and provides a food source for predators of amphibians, invertebrates and fish. Standing dead trees, or "snags", in the surrounding area provide perches for predators and critical nesting sites for birds and small mammals. Riparian areas are sensitive to disturbances created by harvesting equipment and can easily be degraded if not adequately protected.

## RECREATION & AESTHETIC VALUES

For many landowners, the appearance of their forest is an important aspect of forest management and forest ownership. In some cases, the aesthetics of the forest contribute substantially to the owners' enjoyment of their land. Careful planning and implementation of projects can make a positive impact on aesthetics. For instance, landing and trail restoration (after harvesting is complete) is usually an important aspect of managing aesthetics. The type of harvest, the distribution of residual trees, and how branches and other slash are treated all contribute to the appearance of a harvest, and are often key points for harvest planning.

Other practices which may have an impact on aesthetics include the following: Interesting natural features (such as unusually large or unique trees or shrubs, waterfalls, or cultural resources) can be preserved in their natural state, and views to those features can be opened through harvesting. Trails may be located so as to allow viewing of these areas without negatively impacting them. Consideration may also be given to the view of the property from a distance, and harvesting may be modified to avoid or mitigate any adverse impacts at the landscape scale.

**STAND DESCRIPTIONS & MANAGEMENT PRESCRIPTIONS**

**STAND 1**

**12.8 ACRES (by map measurement)**

**TYPE**

Mixedwood Sawtimber MW4B

**SAMPLING METHOD**

Variable Radius (prism) Sampling: BAF 15

Number of Plots for this Stand: 3

Data Collected: 2016

**STAND DATA**

Natural Community Designation: Hemlock-Northern Hardwood Forest

Quadratic Stand Diameter: 11.8"

Total Basal Area/Acre (BA): 120 ft<sup>2</sup>

Acceptable Growing Stock Basal Area/Acre: 75 ft<sup>2</sup>

Current Volume/Acre: 5.9 MBF/21.3 Cords

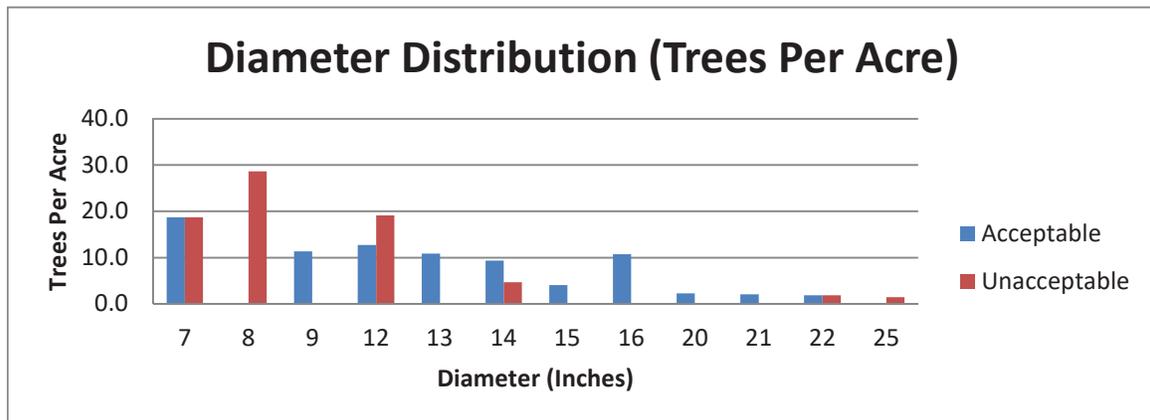
**MANAGEMENT**

Age Class Distribution: Uneven

Target Age Class Distribution: Uneven

Desired Diameters: HK-16". WB-14", RM/SM-18"

Cutting Cycle: 20 years



Insects or Disease: None noted

Desired Products: High-quality sawtimber

Access Distance (to likely landing location): 3,000'

**SITE CHARACTERISTICS**

Site Class: 2 (field verification)

Soil Type: Colrain very stony, fine sandy loams

**MANAGEMENT STRATEGY**

This stand will be managed for high-quality timber production, aesthetics and wildlife habitat. Over the long term, the stand will be managed to develop a balanced uneven-aged stand structure by group selection harvest.

**STAND DESCRIPTION**

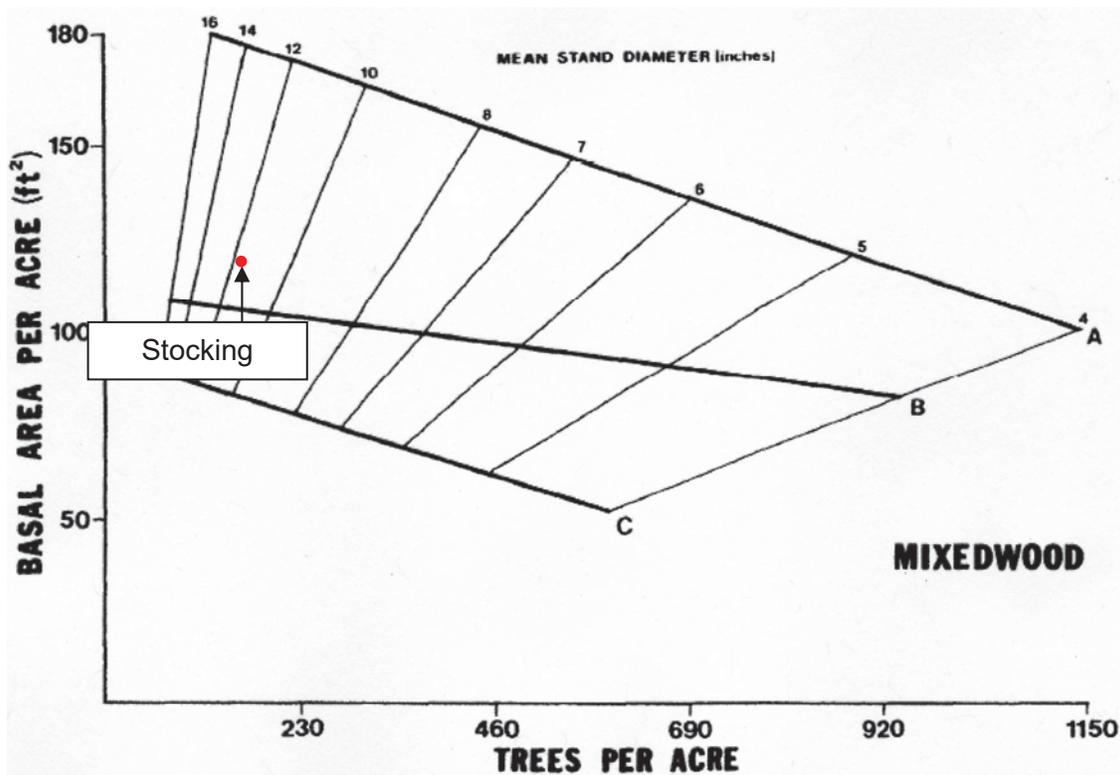
This stand is dominated by eastern hemlock (42% of the basal area), white birch (21%) and red maple (17%). Other northern hardwoods are present as minor associates. This is an adequately-stocked, sawtimber-sized stand.

**HISTORY & MONITORING**

The stand has been forested for a considerable time, although it is likely it was used for some agricultural purpose, such as wooded pasture, in the 1800s. The stand was not treated in the most recent harvesting in the area (2013) and it is likely that the last harvest was in 2001. The stand has not received post-harvest monitoring.

**STOCKING**

Total stocking (the “crowdedness” of the trees) is above the B line of the Mixedwood Stocking Guide. Stocking of only those trees which will produce sawlogs (acceptable growing stock) is at the C Line. This density is in the optimum range for individual tree and stand growth (the trees are well spaced to efficiently use the resources of the site). At this density, the growth rate of the dominant trees is good, that of the intermediate trees is fair and mortality due to crowding is low to moderate. The stocking level is displayed graphically on the Stocking Guide below.



Source: Leak, Solomon and DeBald, Silvicultural Guide for Northern Hardwood Types in the Northeast (revised), USDA Forest Service Research Paper NE-603, 1987

### **REGENERATION**

Advanced seedling and sapling regeneration is variable in this stand. Sapling-sized regeneration is present in some areas. Beech and red spruce are the most commonly regenerating species. The regeneration is present at a stocking of less than 400 stems per acre and is inadequate to reproduce the stand.

### **FOREST HEALTH**

No signs of insect or disease damage were noted in this stand.

### **INVASIVE SPECIES**

No invasive species were noted in this stand.

### **HABITAT**

There are no mapped habitats classified as “significant” by the State of Vermont within this stand.

### **ACCESS & OPERABILITY**

Access to the stand will occur from the landing on Bear Notch Road. The skidding route will follow Bear Notch Road and then pass through Stand 3. Operability is fair, with small streams and some areas of steep slopes, especially near the road.

### **SCHEDULED TREATMENT**

This stand should receive a harvest by group selections to begin the process of establishing a balanced uneven-aged stand structure. Groups of approximately one-acre should be established where timber is mature or low-quality. The entire harvest should consist of about three groups. Between the groups only very light improvement thinning should occur, maintaining a basal area of at least 100 ft<sup>2</sup> per acre. Species targeted for removal in the thinning should include hemlock and UGS of all species present. Species targeted for retention include sugar maple and yellow birch.

**STAND 3**

**59.3 ACRES (by map measurement)**

**TYPE**

Northern Hardwood Poles and Sawtimber NH3B

**SAMPLING METHOD**

Variable Radius (prism) Sampling: BAF 15

Number of Plots for this Stand: 12

Data Collected: 2016

**STAND DATA**

Natural Community Designation: Northern Hardwood Forest

Quadratic Stand Diameter: 9.7”

Total Basal Area/Acre (BA): 90 ft<sup>2</sup>

Acceptable Growing Stock Basal Area/Acre: 52 ft<sup>2</sup>

Current Volume/Acre: 4.6 MBF/16.4 Cords

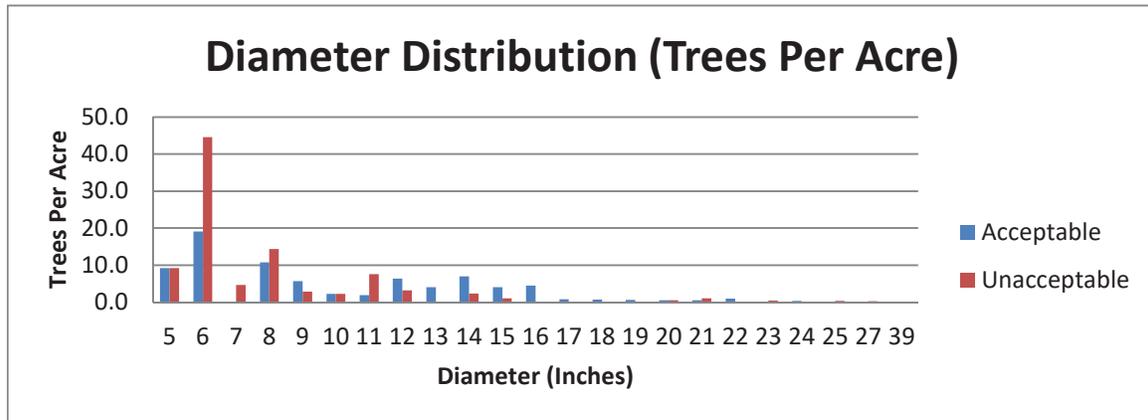
**MANAGEMENT**

Age Class Distribution: Uneven

Target Age Class Distribution: Uneven

Desired Diameters: SM-18”, WA-12”, RM-16”

Cutting Cycle: 20 years



Insects or Disease: None noted

Desired Products: High-quality sawtimber

Access Distance (to likely landing location): 1,000’-3,000’

**SITE CHARACTERISTICS**

Site Class: 2 (field verification)

Soil Type: Colrain very stony, fine sandy loams and Tunbridge-Woodstock Complex

**MANAGEMENT STRATEGY**

This stand will be managed for high-quality timber production, aesthetics and wildlife habitat. Over the long term, the stand will be managed to develop a balanced uneven-aged stand structure by group selection harvest.

**STAND DESCRIPTION**

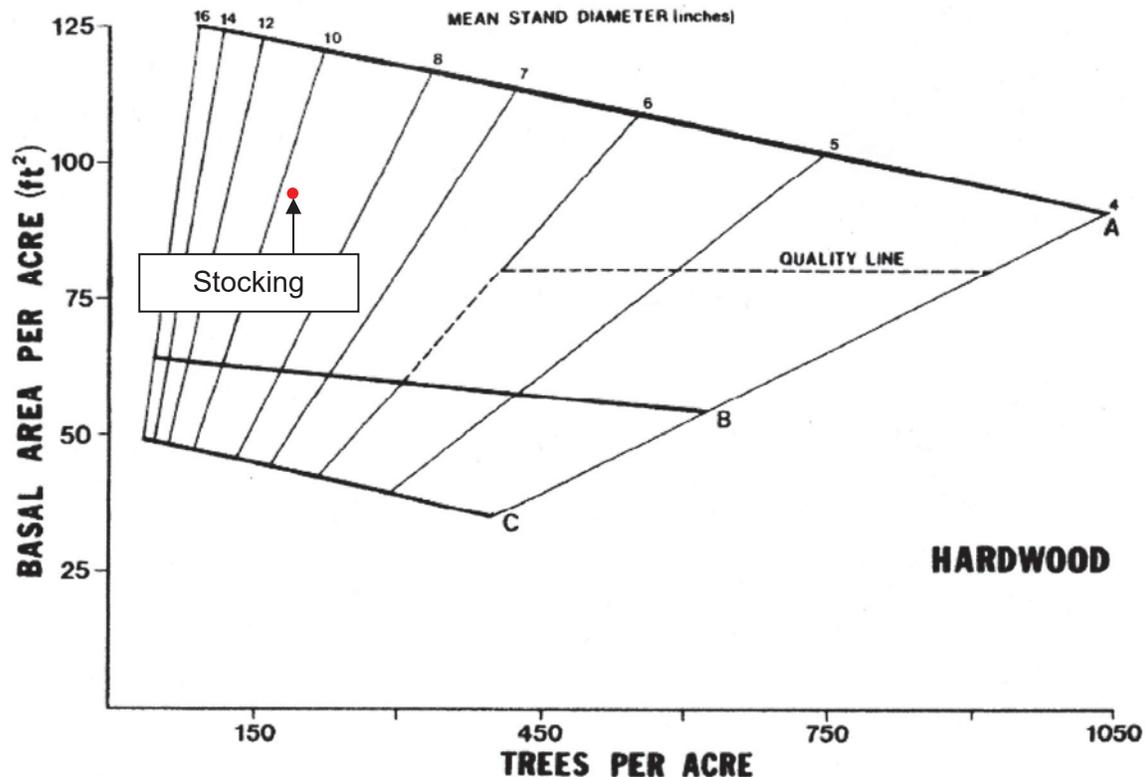
This stand is dominated by sugar maple (29% of the basal area), American beech (15%) and yellow birch (15%). Other northern hardwoods, red oak and white pine are present as minor associates. This is an adequately-stocked, pole and sawtimber-sized stand.

**HISTORY & MONITORING**

The stand has been forested for a considerable time, although it is likely it was used for some agricultural purpose, such as wooded pasture, in the 1800s. The western portion of the stand was treated in the most recent harvesting in the area (2013) and the eastern portion was last treated in 2001. Both operations were thinnings. The stand has been monitored several times to assess post-harvest conditions, and the stand has been found to be responding well to the thinnings and trails were found to be stable.

**STOCKING**

Total stocking (the “crowdedness” of the trees) is above the B line of the Northern Hardwood Stocking Guide. Stocking of only those trees which will produce sawlogs (acceptable growing stock) is at the C Line. This density is in the optimum range for individual tree and stand growth (the trees are well spaced to efficiently use the resources of the site). At this density, the growth rate of the dominant trees is good, that of the intermediate trees is fair and mortality due to crowding is low to moderate. The stocking level is displayed graphically on the Stocking Guide below.



Source: Leak, Solomon and DeBald, Silvicultural Guide for Northern Hardwood Types in the Northeast (revised), USDA Forest Service Research Paper NE-603, 1987

### **REGENERATION**

Advanced seedling and sapling regeneration is variable in this stand. Sapling-sized regeneration is present in some areas. Beech and sugar maple are the most commonly regenerating species. The regeneration is present at a stocking of less than 400 stems per acre and is inadequate to reproduce the stand.

### **FOREST HEALTH**

No signs of insect or disease damage were noted in this stand.

### **INVASIVE SPECIES**

No invasive species were noted in this stand.

### **HABITAT**

There are no mapped habitats classified as “significant” by the State of Vermont within this stand.

### **ACCESS & OPERABILITY**

Access to the stand will occur from the landing on Bear Notch Road. The skidding route for the eastern section will involve a skidder bridge stream crossing. Operability is fair, with small streams and some areas of steep slopes, especially near the road.

### **SCHEDULED TREATMENT**

This stand should be allowed to grow for the current management period. However, as Stands 1 and 5 will be accessed through this stand during the current management period, this access will provide the opportunity for light improvement work along the access trails. Therefore, a prescription of a light free thinning is applied to this stand, maintaining a basal area of at least 75 square feet per acre. Species targeted for removal in the thinning should include white ash, beech and UGS of all species present. Species targeted for retention include sugar maple and yellow birch.

### **SPECIAL CONSIDERATIONS**

A cellar hole, stone walls, and other indications of a farm site are found on the western portion of the stand. These should be protected during harvesting.

**STAND 4**  
**52.4 ACRES (by map measurement)**

**TYPE**

Mixedwood (WP) Poles and Sawtimber MW3-4B

**SAMPLING METHOD**

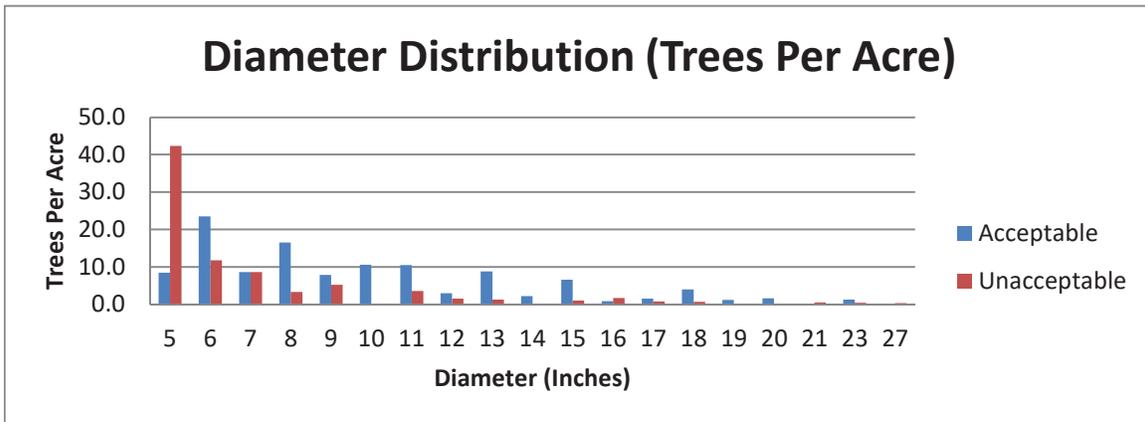
Variable Radius (prism) Sampling: BAF 15  
 Number of Plots for this Stand: 13  
 Data Collected: 2016

**STAND DATA**

Natural Community Designation: White Pine-Northern Hardwood Forest  
 Quadratic Stand Diameter: 9.5”  
 Total Basal Area/Acre (BA): 98 ft<sup>2</sup>  
 Acceptable Growing Stock Basal Area/Acre: 70 ft<sup>2</sup>  
 Current Volume/Acre: 6.7 MBF/16.2 Cords

**MANAGEMENT**

Age Class Distribution: Uneven  
 Target Age Class Distribution: Uneven  
 Cutting Cycle: 15 years  
 Desired Diameters: WP-22”, SM-20”



Insects or Disease: None noted  
 Desired Products: High-quality sawtimber  
 Access Distance (to likely landing location): 0-1,000'

**SITE CHARACTERISTICS**

Site Class: 2 (field verification)  
 Soil Type: Colrain very stony, fine sandy loams, Tunbridge-Woodstock, and Limerick

**MANAGEMENT STRATEGY**

This stand will be managed for high-quality timber production, aesthetics and wildlife habitat. Over the long term, the stand will be managed to develop a balanced uneven-aged stand structure.

**STAND DESCRIPTION**

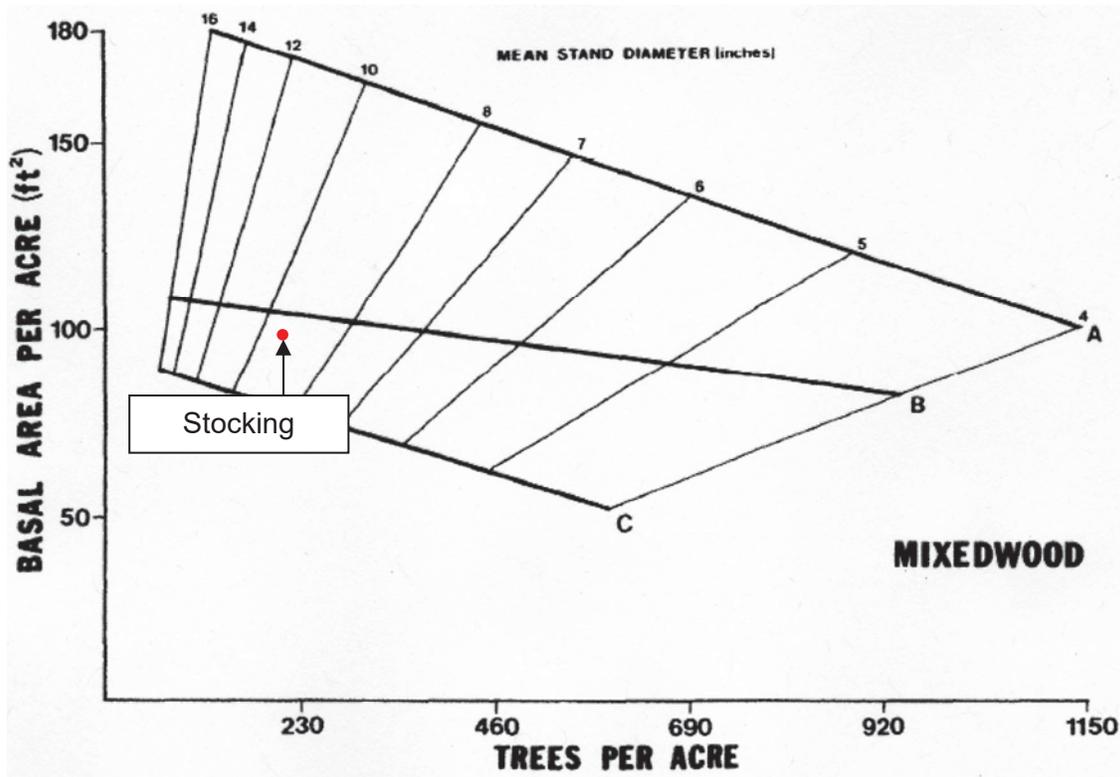
This stand is dominated by white pine (28% of the basal area), sugar maple (18%), white ash (13%) and American beech (8%). Other northern hardwoods, red spruce, balsam fir and red oak are present as minor associates. This is an adequately-stocked, sawtimber-sized stand.

**HISTORY & MONITORING**

The stand has been forested for a considerable time, although it was likely used for some agricultural purpose, such as wooded pasture, in the 1800s. The stand was treated by a partial harvest in 2013. The stand received post-harvest monitoring in 2014 and 2018, and was found to be responding well to the harvest with trails in stable condition.

**STOCKING**

Total stocking (the “crowdedness” of the trees) is just below the B line of the Mixedwood Stocking Guide. Stocking of only those trees which will produce sawlogs (acceptable growing stock) is at the C Line. This density is in the optimum range for individual tree and stand growth (the trees are well spaced to efficiently use the resources of the site). At this density, the growth rate of the dominant trees is good, that of the intermediate trees is fair and mortality due to crowding is low to moderate. The stocking level is displayed graphically on the Stocking Guide below.



Source: Leak, Solomon and DeBald, Silvicultural Guide for Northern Hardwood Types in the Northeast (revised), USDA Forest Service Research Paper NE-603, 1987

### **REGENERATION**

Regeneration was inventoried in 2018. Advanced seedling and sapling regeneration is variable in this stand. Sapling size regeneration is present in some areas. White pine, red oak, white ash and beech are the most commonly regenerating species. The regeneration is present at a stocking of more than 1,500 stems per acre and is approaching adequacy to regenerate the stand. A low stocking of raspberries and non-commercial species are also present.

### **FOREST HEALTH**

No signs of insect or disease damage were noted in this stand.

### **INVASIVE SPECIES**

No invasive species were noted in this stand.

### **HABITAT**

There are no mapped habitats classified as “significant” by the State of Vermont within this stand.

### **ACCESS & OPERABILITY**

Access to the stand will occur from the landing on Bear Notch Road. The skidding route will follow established trails on both sides of the road and stream. Operability is good, with some areas of steep slopes on the western portion of the stand.

### **SCHEDULED TREATMENT**

The stand should be allowed to grow for this management period.

### **SPECIAL CONSIDERATIONS**

There are stone bridge abutments, the remains of a dam and a building foundation, which all appear to be related to an old mill site. These should all be protected during operations.

**STAND 5**

**48.8 ACRES (by map measurement)**

**TYPE**

Northern Hardwood (With HK) Poles and Sawtimber NH3B

**SAMPLING METHOD**

Variable Radius (prism) Sampling: BAF 15

Number of Plots for this Stand: 12

Data Collected: 2016

**STAND DATA**

Natural Community Designation: Northern Hardwood Forest

Quadratic Stand Diameter: 9.3"

Total Basal Area/Acre (BA): 120 ft<sup>2</sup>

Acceptable Growing Stock Basal Area/Acre: 67 ft<sup>2</sup>

Current Volume/Acre: 4.3 MBF/23.1 Cords

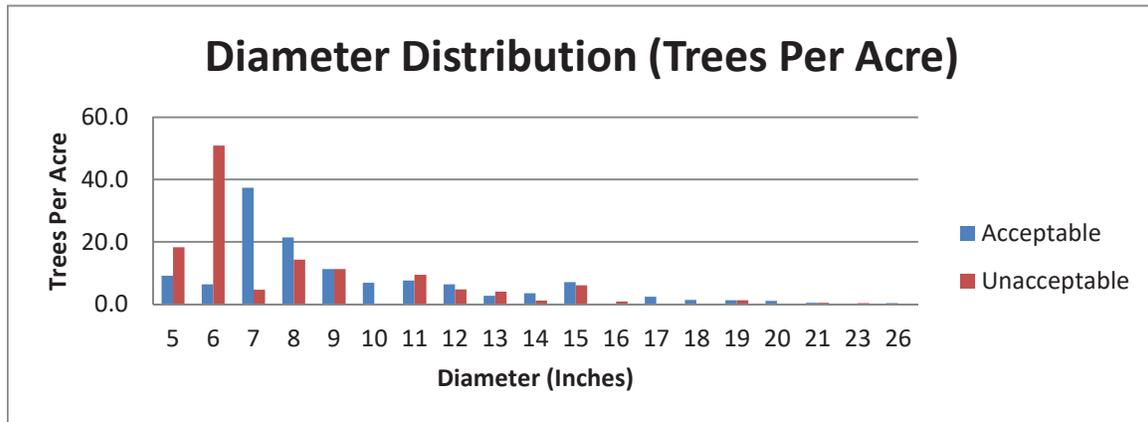
**MANAGEMENT**

Age Class Distribution: Uneven

Target Age Class Distribution: Uneven

Desired Diameters: SM-18", WA-12", RM-16", HK-14

Cutting Cycle: 20 years



Insects or Disease: None noted

Desired Products: High-quality sawtimber

Access Distance (to likely landing location): 1,500'-3,000'

**SITE CHARACTERISTICS**

Site Class: 2 (field verification)

Soil Type: Tunbridge-Woodstock Complex

**MANAGEMENT STRATEGY**

This stand will be managed for high-quality timber production, aesthetics and wildlife habitat. Over the long term, the stand will be managed to develop a balanced uneven-aged stand structure by single tree and group selection harvest.

**STAND DESCRIPTION**

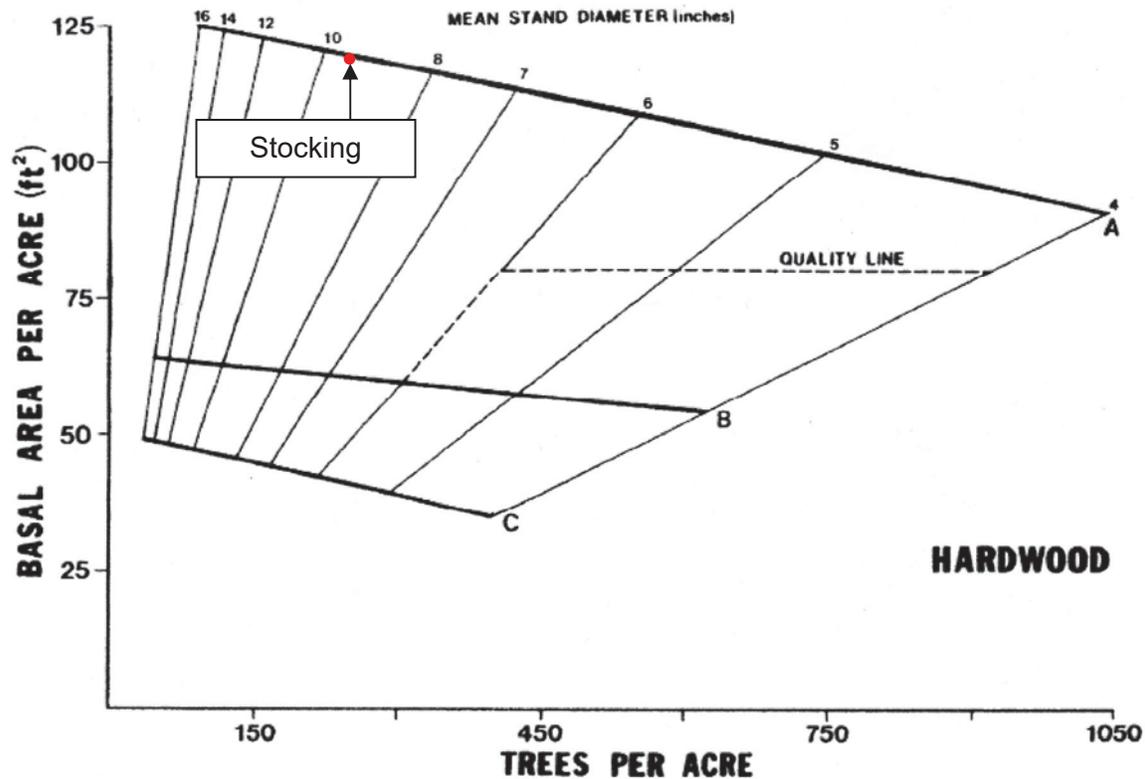
This stand is dominated by eastern hemlock (27% of the basal area), white ash (21%), American beech (13%) and sugar maple (13%). Other northern hardwoods, red oak and red spruce are present as minor associates. This is an adequately-stocked, pole and sawtimber-sized stand.

**HISTORY & MONITORING**

The stand has been forested for a considerable time, although it is likely it was used for some agricultural purpose, such as wooded pasture, in the 1800s. The stand was last treated in 2001 in a thinning operation. The stand has been monitored several times to assess post-harvest conditions, and the stand has been found to be responding well to the thinnings and trails were found to be stable.

**STOCKING**

Total stocking (the “crowdedness” of the trees) is at the A line of the Northern Hardwood Stocking Guide. Stocking of only those trees which will produce sawlogs (acceptable growing stock) is at the B Line. This density is above the optimum range for individual tree and stand growth (the trees are too closely spaced to efficiently use the resources of the site). At this density, the growth rate of the dominant trees is fair, that of the intermediate trees is fair to poor and mortality due to crowding is moderate. The stocking level is displayed graphically on the Stocking Guide below.



Source: Leak, Solomon and DeBald, Silvicultural Guide for Northern Hardwood Types in the Northeast (revised), USDA Forest Service Research Paper NE-603, 1987

### **REGENERATION**

Advanced seedling and sapling regeneration is variable in this stand. Sapling-sized regeneration is present in some areas. Beech and red spruce are the most commonly regenerating species. The regeneration is present at a stocking of less than 400 stems per acre and is inadequate to reproduce the stand.

### **FOREST HEALTH**

No signs of insect or disease damage were noted in this stand.

### **INVASIVE SPECIES**

No invasive species were noted in this stand.

### **HABITAT**

There are no mapped habitats classified as “significant” by the State of Vermont within this stand.

### **ACCESS & OPERABILITY**

Access to the stand will occur from the landing on Bear Notch Road. The skidding route is through Stand 3 and will involve a skidder bridge stream crossing. Operability is fair, with some areas of steep slopes, although trails run along benches in most areas.

### **SCHEDULED TREATMENT**

The stand should receive a harvest by individual tree and group selection. Groups should be about ½ to 1-acre in size and should be placed where they will harvest unacceptable growing stock or mature or at-risk trees. The harvest should consist of about 10 groups. Between the groups, a free thinning should occur to improve quality, harvest UGS and harvest at-risk trees. Species targeted for removal in the thinning will include white ash, beech and UGS of all species present. Species targeted for retention include sugar maple, red oak and yellow birch.

**STAND 6**

**33.2 ACRES (by map measurement)**

**TYPE**

Mixedwood (Hemlock) Poles and Sawtimber MW3B

**SAMPLING METHOD**

Variable Radius (prism) Sampling: BAF 15

Number of Plots for this Stand: 8

Data Collected: 2016

**STAND DATA**

Natural Community Designation: Hemlock-Northern Hardwood Forest

Quadratic Stand Diameter: 9.8"

Total Basal Area/Acre (BA): 114 ft<sup>2</sup>

Acceptable Growing Stock Basal Area/Acre: 66 ft<sup>2</sup>

Current Volume/Acre: 6.0 MBF/18.8 Cords

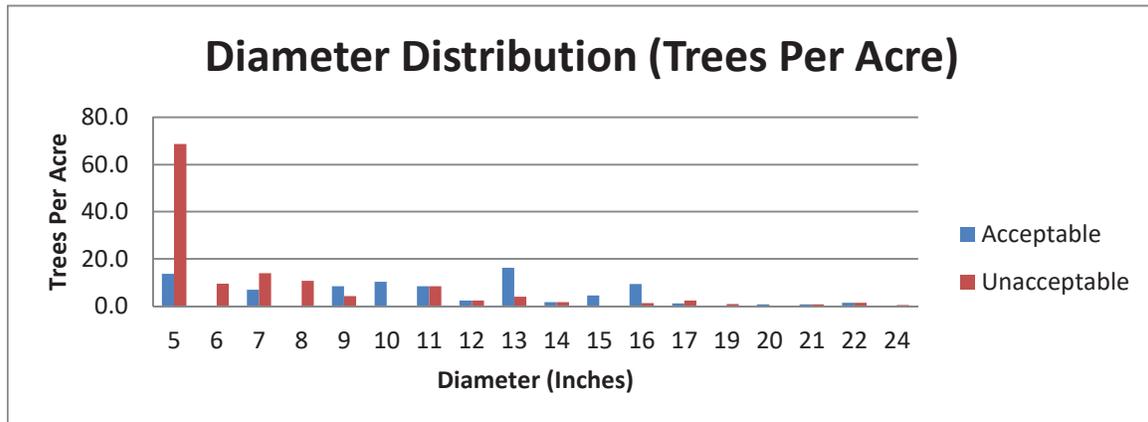
**MANAGEMENT**

Age Class Distribution: Uneven

Target Age Class Distribution: Uneven

Cutting Cycle: 20 years

Desired Diameters: HK-16", SM-20"



Insects or Disease: None noted

Desired Products: High-quality sawtimber

Access Distance (to likely landing location): 500-2,500'

**SITE CHARACTERISTICS**

Site Class: 2 (field verification)

Soil Type: Tunbridge-Woodstock Complex, Cabot very stony silt loam

**MANAGEMENT STRATEGY**

This stand will be managed for high-quality timber production, aesthetics and wildlife habitat. Over the long term, the stand will be managed to develop a balanced uneven-aged stand structure.

**STAND DESCRIPTION**

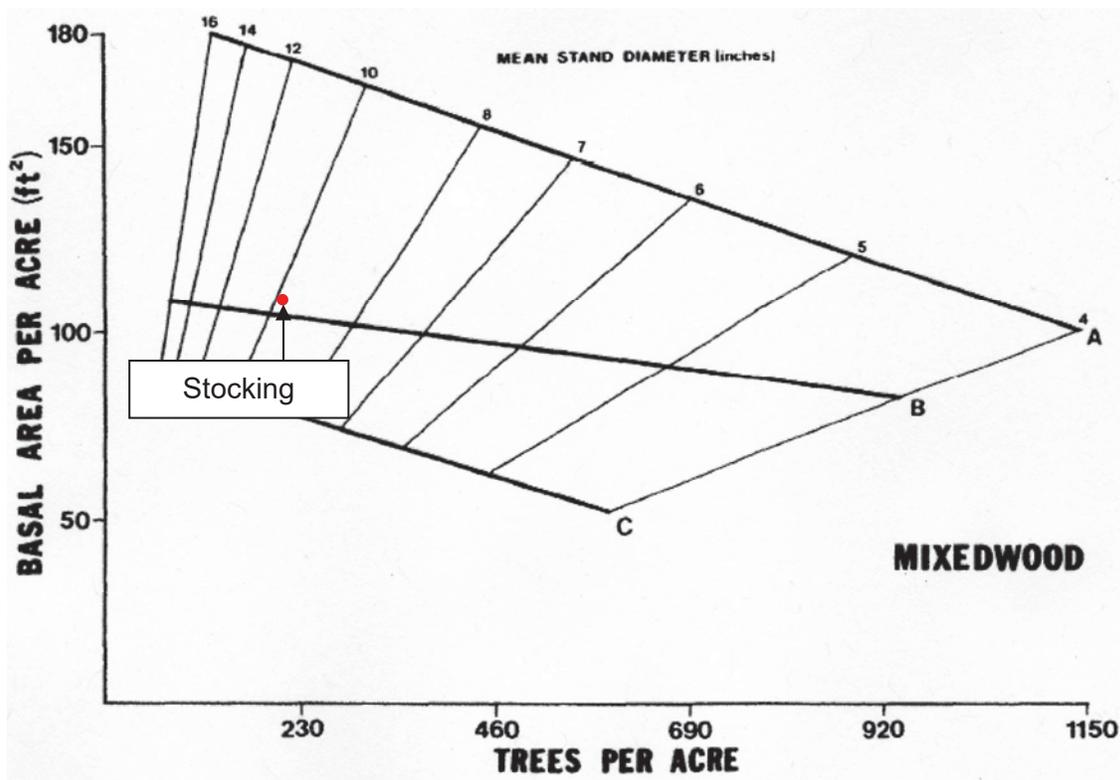
This stand is dominated by eastern hemlock (51% of the basal area), sugar maple (18%), red maple (11%) and American beech (8%). Other northern hardwoods and red oak are present as minor associates. This is an adequately-stocked, sawtimber-sized stand.

**HISTORY & MONITORING**

The stand has been forested for a considerable time. It was likely never cleared for agriculture, but may have been used as wooded sheep pasture at some point. The stand was treated by a partial harvest in 2001. The stand received post-harvest monitoring in 2003 and 2006, and was found to be responding well to the harvest with trails in stable condition.

**STOCKING**

Total stocking (the “crowdedness” of the trees) is just above the B line of the Mixedwood Stocking Guide. Stocking of only those trees which will produce sawlogs (acceptable growing stock) is at the C Line. This density is in the optimum range for individual tree and stand growth (the trees are well spaced to efficiently use the resources of the site). At this density, the growth rate of the dominant trees is good, that of the intermediate trees is fair and mortality due to crowding is low to moderate. The stocking level is displayed graphically on the Stocking Guide below.



Source: Leak, Solomon and DeBald, Silvicultural Guide for Northern Hardwood Types in the Northeast (revised), USDA Forest Service Research Paper NE-603, 1987

**REGENERATION**

Advanced seedling and sapling regeneration is variable in this stand. Sapling-sized regeneration is present in some areas. Red spruce and beech are the most commonly regenerating species. The regeneration is inadequate to reproduce the stand.

**FOREST HEALTH**

No signs of insect or disease damage were noted in this stand.

**INVASIVE SPECIES**

No invasive species were noted in this stand.

**HABITAT**

There are no mapped habitats classified as “significant” by the State of Vermont within this stand.

**ACCESS & OPERABILITY**

Access to the stand will occur from the landing on Bear Notch Road. The skidding route will follow established trails. Operability is fair, but is poor in the southern end of the stand where slopes are steep.

**SCHEDULED TREATMENT**

The stand should be allowed to grow for this management period.

**STAND 8**

**19.3 ACRES (by map measurement)**

**TYPE**

Northern Hardwood Poles and Sawtimber NH4B

**SAMPLING METHOD**

Variable Radius (prism) Sampling: BAF 15

Number of Plots for this Stand: 5

Data Collected: December 2019

**STAND DATA**

Natural Community Designation: Northern Hardwood Forest

Quadratic Stand Diameter: 10.9"

Total Basal Area/Acre (BA): 81 ft<sup>2</sup>

Acceptable Growing Stock Basal Area/Acre: 66 ft<sup>2</sup>

Current Volume/Acre: 7.1 MBF/12.4 Cords

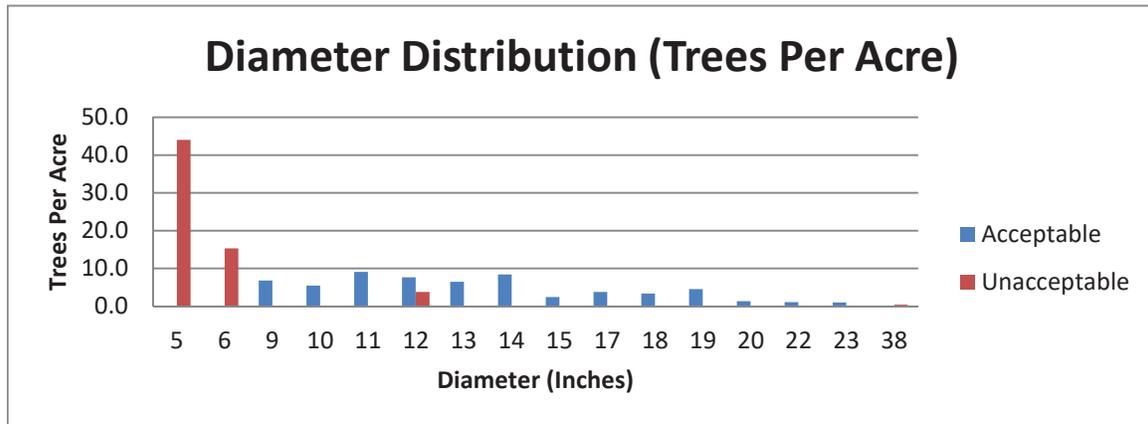
**MANAGEMENT**

Age Class Distribution: Uneven

Target Age Class Distribution: Uneven

Desired Diameters: SM-20", RO-20", HK-14

Cutting Cycle: 20 years



Insects or Disease: None noted

Desired Products: High-quality sawtimber

Access Distance (to likely landing location): 1,000'-3,000'

**SITE CHARACTERISTICS**

Site Class: 2 (field verification)

Soil Type: Tunbridge-Woodstock Complex

**MANAGEMENT STRATEGY**

This stand will be managed for high-quality timber production, aesthetics and wildlife habitat. Over the long term, the stand will be managed to develop a balanced uneven-aged stand structure by single tree and group selection harvest.

**STAND DESCRIPTION**

This stand is dominated by sugar maple (48% of the basal area), red oak (22%), eastern hemlock (15%) and hop hornbeam (7%). Other northern hardwoods are present as minor associates. This is an adequately-stocked, pole and sawtimber-sized stand.

**HISTORY & MONITORING**

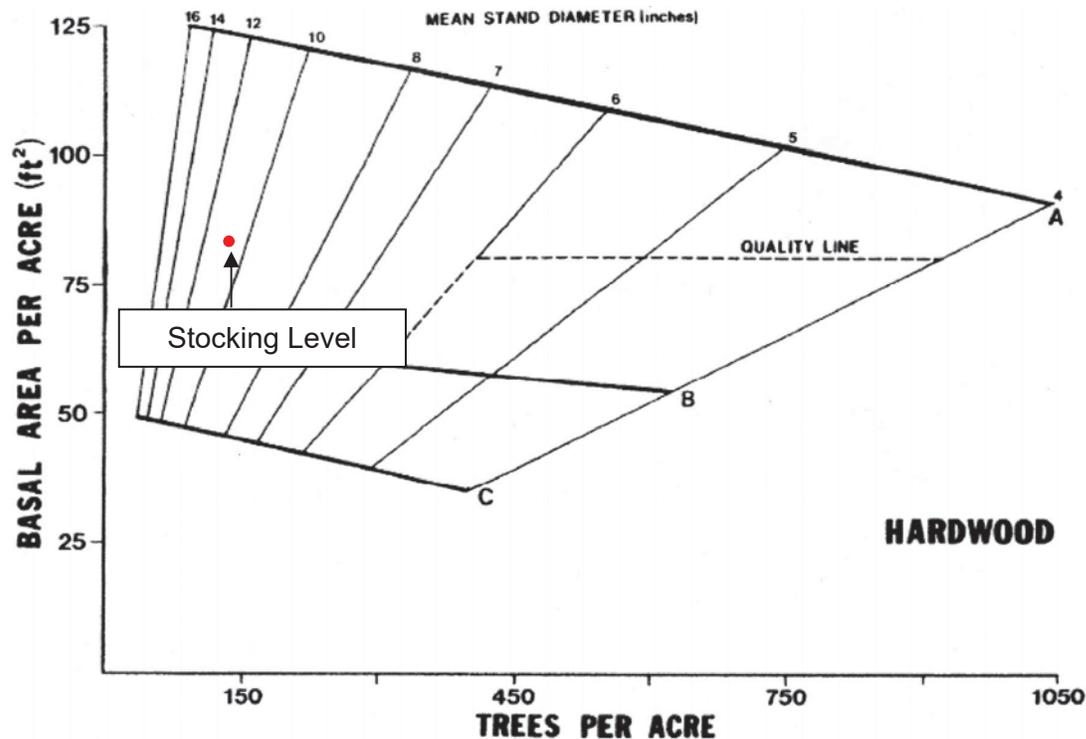
The stand has been forested for a considerable time, although it is likely it was used for some agricultural purpose, such as wooded pasture, in the 1800s. The stand was last treated in 2018 in a thinning operation. The stand received a post-harvest inspection in 2019 and is responding well to the thinnings. Trails were found to be stable.

**REGENERATION**

Advanced seedling and sapling regeneration is variable in this stand. Sapling-sized regeneration is present in some areas. Beech is the most commonly regenerating species, at a stocking of about 800 stems per acre. Commercial northern hardwood species are present at a stocking of about 700 stems per acre.

**STOCKING**

Total stocking (the “crowdedness” of the trees) is above the B line of the Northern Hardwood Stocking Guide. Stocking of only those trees which will produce sawlogs (acceptable growing stock) is at the B Line. This density is in the optimum range for individual tree and stand growth (the trees are well spaced to efficiently use the resources of the site). At this density, the growth rate of the dominant trees is good, that of the intermediate trees is fair and mortality due to crowding is low. The stocking level is displayed graphically on the Stocking Guide below.



Source: Leak, Solomon and DeBald, Silvicultural Guide for Northern Hardwood Types in the Northeast (revised), USDA Forest Service Research Paper NE-603, 1987

**FOREST HEALTH**

No signs of insect or disease damage were noted in this stand.

**INVASIVE SPECIES**

No invasive species were noted in this stand.

**HABITAT**

There are no mapped habitats classified as “significant” by the State of Vermont within this stand.

**ACCESS & OPERABILITY**

Access to the stand will occur from the landing on Scrutton Hill Road. Operability is good.

**SCHEDULED TREATMENT**

The stand should be allowed to grow for this management period.

**STAND 9**  
**11.7 ACRES (by map measurement)**

**TYPE**

Mixedwood (WP) Poles and Sawtimber MW4C

**SAMPLING METHOD**

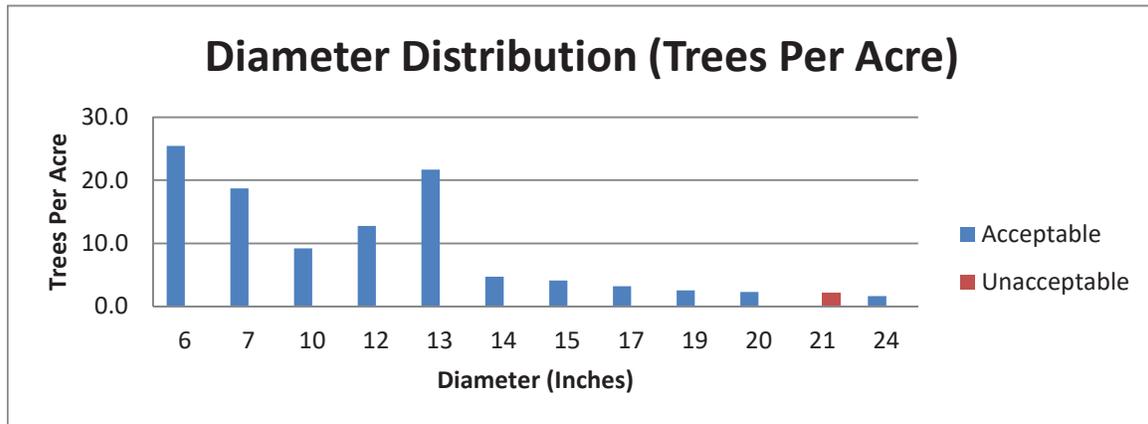
Variable Radius (prism) Sampling: BAF 15  
 Number of Plots for this Stand: 3  
 Data Collected: December 2019

**STAND DATA**

Natural Community Designation: White Pine-Northern Hardwood Forest  
 Quadratic Stand Diameter: 11.6”  
 Total Basal Area/Acre (BA): 80 ft<sup>2</sup>  
 Acceptable Growing Stock Basal Area/Acre: 75 ft<sup>2</sup>  
 Current Volume/Acre: 8.2 MBF/13.5 Cords

**MANAGEMENT**

Age Class Distribution: Uneven  
 Target Age Class Distribution: Uneven  
 Cutting Cycle: 15 years  
 Desired Diameters: WP-22”, RO-20”



Insects or Disease: None noted  
 Desired Products: High-quality sawtimber  
 Access Distance (to likely landing location): 0-1,500’

**SITE CHARACTERISTICS**

Site Class: 2 (field verification)  
 Soil Type: Tunbridge-Woodstock complex, Cabot and Colrain.

**MANAGEMENT STRATEGY**

This stand will be managed for high-quality timber production, aesthetics and wildlife habitat. Over the long term, the stand will be managed to develop a balanced uneven-aged stand structure.

**STAND DESCRIPTION**

This stand is dominated by white pine (56% of the basal area), red maple (19%), red oak (13%) and red spruce (13%). This is an adequately-stocked, sawtimber-sized stand.

**HISTORY & MONITORING**

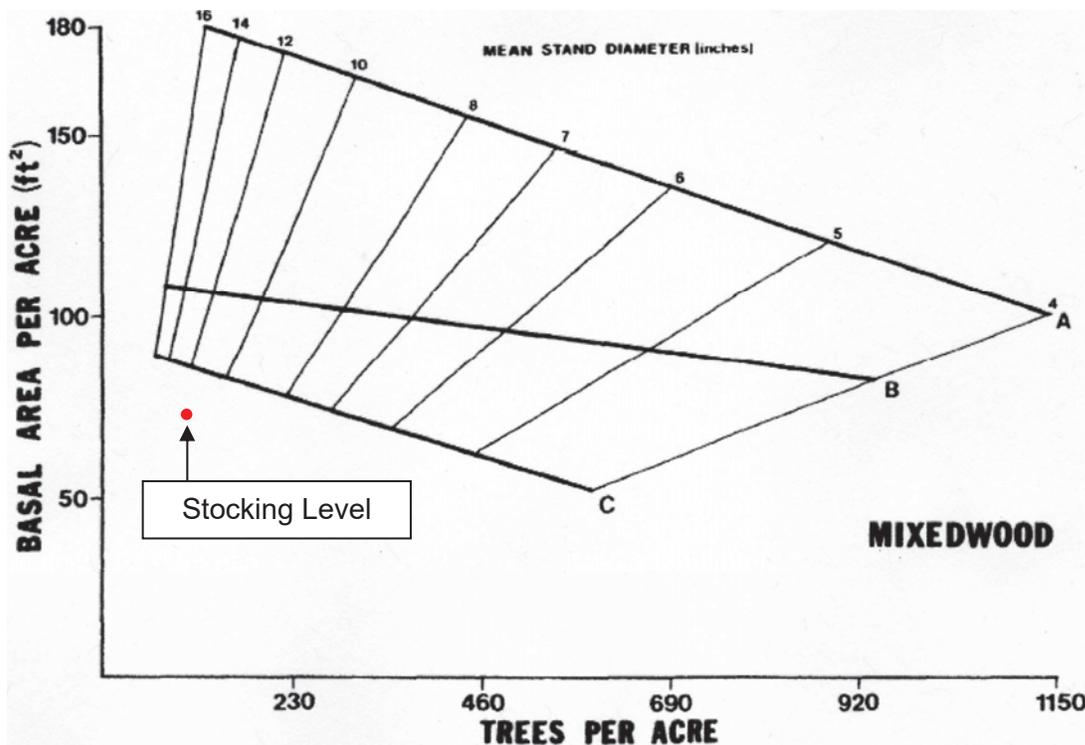
The stand was likely used for some agricultural purpose, such as wooded pasture, in the 1800s or early 1900s. The stand was treated by a partial harvest in 2018. The stand received post-harvest monitoring in 2019, and was found to be responding well to the harvest with trails in stable condition.

**REGENERATION**

Advanced seedling and sapling regeneration is variable in this stand. Sapling-sized regeneration is present in some areas. Red spruce is the most commonly regenerating species. The regeneration is present at a stocking of more than 1,500 stems per acre and is approaching adequacy to regenerate the stand. Non-commercial species are also present at a stocking of about 800 stems per acre.

**STOCKING**

Total stocking (the “crowdedness” of the trees) is just below the C line of the Mixedwood Stocking Guide. Stocking of only those trees which will produce sawlogs (acceptable growing stock) is below the C Line. This density is in the optimum range for individual tree and stand growth (the trees are well spaced to efficiently use the resources of the site). At this density, the growth rate of the dominant trees is good, that of the intermediate trees is fair and mortality due to crowding is low to moderate. The stocking level is displayed graphically on the Stocking Guide below.



Source: Leak, Solomon and DeBald, *Silvicultural Guide for Northern Hardwood Types in the Northeast* (revised), USDA Forest Service Research Paper NE-603, 1987

**FOREST HEALTH**

No signs of insect or disease damage were noted in this stand.

**INVASIVE SPECIES**

No invasive species were noted in this stand.

**HABITAT**

There are no mapped habitats classified as “significant” by the State of Vermont within this stand.

**ACCESS & OPERABILITY**

Access to the stand will occur from the landing on Scrutton Hill Road. The skidding route will follow established trails. There are some areas of poor drainage but otherwise operability is good.

**SCHEDULED TREATMENT**

The stand should be allowed to grow for this management period.

**SPECIAL CONSIDERATIONS**

There is a small wooded wetland at the northern end of this stand.

**STAND 10**  
**17.9 ACRES (by map measurement)**

**TYPE**

Northern Hardwood Poles NH3C

**SAMPLING METHOD**

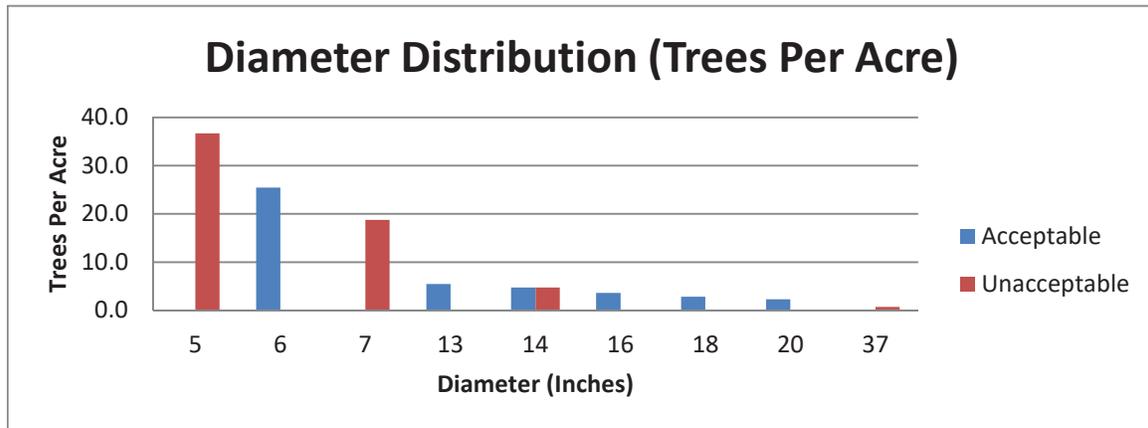
Variable Radius (prism) Sampling: BAF 15  
 Number of Plots for this Stand: 3  
 Data Collected: December 2019

**STAND DATA**

Natural Community Designation: Northern Hardwood Forest  
 Quadratic Stand Diameter: 9.3”  
 Total Basal Area/Acre (BA): 50 ft<sup>2</sup>  
 Acceptable Growing Stock Basal Area/Acre: 30 ft<sup>2</sup>  
 Current Volume/Acre: 3.5 MBF/7.5 Cords

**MANAGEMENT**

Age Class Distribution: Uneven  
 Target Age Class Distribution: Uneven  
 Desired Diameters: SM-18”, YB-18”, RO-18”  
 Cutting Cycle: 20 years



Insects or Disease: None noted  
 Desired Products: High-quality sawtimber  
 Access Distance (to likely landing location): 500’-1,500’

**SITE CHARACTERISTICS**

Site Class: 2 (field verification)  
 Soil Type: Tunbridge-Woodstock Complex

**MANAGEMENT STRATEGY**

This stand will be managed for high-quality timber production, aesthetics and wildlife habitat. Over the long term, the stand will be managed to develop a balanced uneven-aged stand structure by single tree and group selection harvest.

**STAND DESCRIPTION**

This stand is dominated by yellow birch (40% of the basal area), sugar maple (40%), red maple (10%) and red oak (10%). This is an adequately-stocked, pole and sawtimber-sized stand.

**HISTORY & MONITORING**

The stand was likely used as pasture up until the early 1900s. The stand was last treated in 2018 in a thinning operation. The stand received a post-harvest inspection in 2019 and is responding well to the thinnings. Trails were found to be stable.

**FOREST HEALTH**

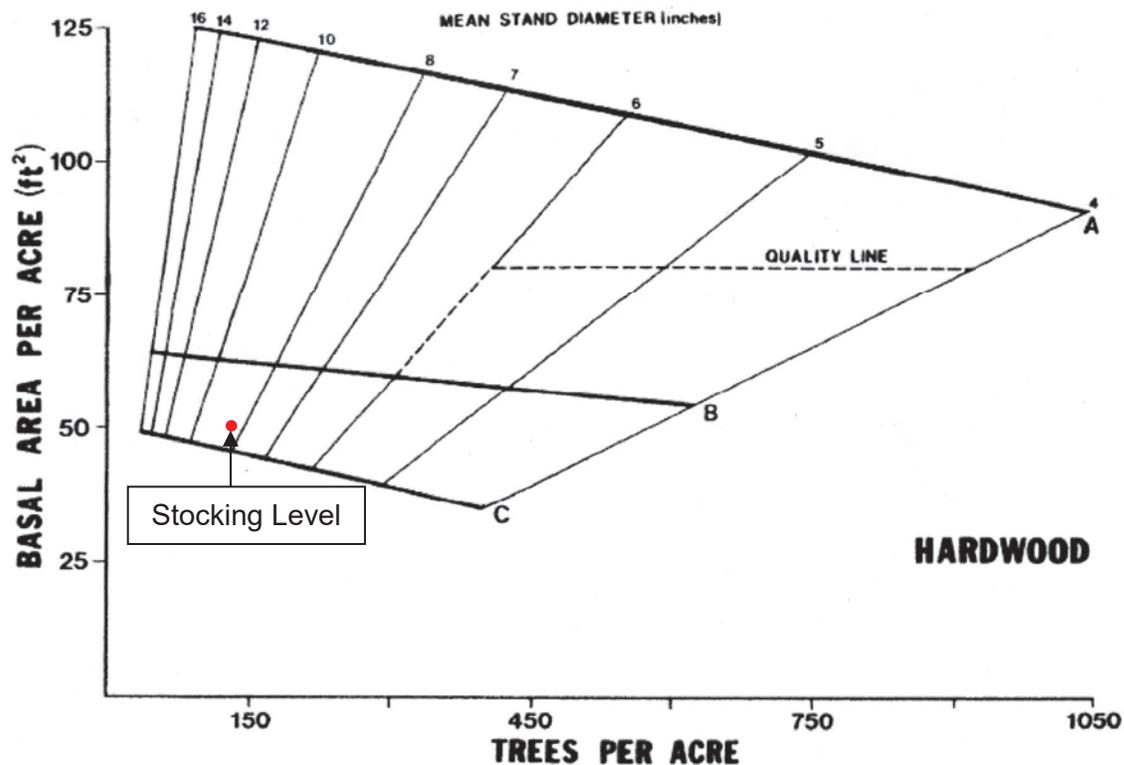
No signs of insect or disease damage were noted in this stand.

**INVASIVE SPECIES**

No invasive species were noted in this stand.

**STOCKING**

Total stocking (the “crowdedness” of the trees) is above the C line of the Northern Hardwood Stocking Guide. Stocking of only those trees which will produce sawlogs (acceptable growing stock) is below the C Line. This density is in the optimum range for individual tree and stand growth (the trees are well spaced to efficiently use the resources of the site). At this density, the growth rate of the dominant trees is good, that of the intermediate trees is fair and mortality due to crowding is low. The stocking level is displayed graphically on the Stocking Guide below.



Source: Leak, Solomon and DeBald, Silvicultural Guide for Northern Hardwood Types in the Northeast (revised), USDA Forest Service Research Paper NE-603, 1987

**REGENERATION**

Advanced seedling and sapling regeneration is present in a light distribution in this stand. Red spruce is the most commonly regenerating species, at a stocking of about 200 stems per acre. Non-commercial species are present at a stocking of about 300 stems per acre.

**HABITAT**

There are no mapped habitats classified as “significant” by the State of Vermont within this stand.

**ACCESS & OPERABILITY**

Access to the stand will occur from the landing on Scrutton Hill Road. Operability is good.

**SCHEDULED TREATMENT**

The stand should be allowed to grow for this management period.

**SPECIAL CONSIDERATIONS**

There is a small wooded wetland at the northern end of this stand.

## APPENDIX

### **FOREST TYPE-SIZE-DENSITY CLASSES**

#### **Forest Type**

Four major forest types are recognized, each with a number of subtypes.

#### *Northern Hardwood Types*

- NH    northern hardwood types contain at least 65% of their total basal area in sugar maple, red maple, American beech, yellow birch, paper birch, sweet birch, white ash, basswood, black cherry, aspen and eastern hemlock. Black cherry and white ash represent less than 25% of the total, oak species represent less than 25% of the total and no single species represents more than 50% of the total.
  
- H      Pioneer hardwood types are northern hardwoods where paper birch, white ash, aspen, red maple and sugar maple represent more than 65% of the total basal area.
  
- NO    northern oak types are northern hardwoods which contain at least 25% of their basal area in red oak, but less than 25% in black cherry or white ash.
  
- AB    aspen-birch types are northern hardwoods that contain at least 65% of their basal area in paper birch, quaking aspen, big-tooth aspen or balsam poplar.
  
- BE    beech types are northern hardwoods that contain at least 50% of their basal area in American beech.
  
- SM    sugar maple types are northern hardwoods that contain at least 50% of their basal area in sugar maple.
  
- RM    red maple types are northern hardwoods that contain at least 50% of their basal area in red maple.
  
- BC    black cherry types are northern hardwoods that contain at least 50% of their basal area in black cherry.

#### *Oak Types*

- OH    oak-hickory types contain at least 65% of their basal area in any oak species.
  
- OT    oak-northern hardwood transition types contain at least 65% of their basal area in northern hardwood or oak-hickory species and at least 25% in species of each of these types, but less than 65% of either.

### Softwood Types

- SW Softwood types contain at least 65% of their total basal area in hemlock, spruce, fir, pine, larch or cedar, but do not qualify for any of the subordinate softwood types.
- SF spruce-fir types are softwood types that contain at least 65% of their basal area in any spruce or balsam fir.
- PI pine types are softwood types that contain at least 65% of their basal area in white or red pine.
- CS cedar types are softwood types that contain at least 50% of their basal area in northern white cedar.
- HK hemlock types are softwood types that contain at least 50% of their basal area in eastern hemlock.

### Mixed Types

- MW mixedwood types contain at least 65% of their basal area in either softwood or northern hardwood species and at least 25% in species of each of these types, but less than 65% of either.
- PO pine-oak types contain at least 65% of their basal area in either pine or oak species and at least 25% of each species group, but less than 65% of either.

### Size

Size classes are based upon the average stand diameter. Quadratic diameter (QD) of all trees 1.0" dbh and larger is used for this determination.

- 1 sapling stands have a QD of less than 4.5". Sapling stands are too small to have any operable cut, even if the biggest trees are selected for cutting.
- 2 small pole stands have a QD between 4.5" and 7.5". Small pole stands may support a merchantable cut, but merchantable cuts in such stands result in highgrading. It is usually best to avoid cutting in these stands unless it is precommercial thinning.
- 3 large pole stands have a QD between 7.5" and 10.5". Large pole stands are suitable for a first commercial thinning if there is a pulpwood market. Most of the trees cut will be pulpwood, with very little sawtimber.
- 4 small sawtimber stands have a QD between 10.5" and 13.5". Small sawtimber stands will usually support commercial thinning with at least a modest amount of sawtimber.

- 5 medium sawtimber stands have a QD between 13.5” and 16.5”. Medium sawtimber stands are very near the end of the rotation. Such stands are usually suitable for a commercial thinning or a thin-harvest cut. There are good sawtimber volumes available and a thinning that won't high-grade the stand may be possible even if pulp markets are limited.
- 6 large sawtimber stands have a QD greater than 16.5”. Large sawtimber stands are usually mature, or very near to maturity, and should be harvested within 5 to 10 years. Such stands usually have a medial diameter in the merchantable sizes only of 18” or more.

## Density

Density classes are determined from the stocking guide appropriate to each forest type, or from a universal relative density guide, like the one in the inventory processor SILVAH. Classes that correspond to silvicultural prescriptions are:

- A density at or above the A line stocking level. Such stands are at or near the maximum density possible and should be highest priority for partial cutting.
- B density below the A line and at or above the B line stocking level. Such stands are above the optimum density for best growth and should be thinned if the volumes available will permit a commercial sale. Urgency of cutting is less than A density stands.
- C density below the B line and at or above the C line stocking level. . Such stands are in the optimum density range for growth of high quality sawtimber and veneer, and do not need partial cutting.
- D density below the C line but acceptable growing stock (AGS) basal area at or above 35 square feet per acre. Such stands are understocked, but still contain enough good quality stems to warrant continued management. No partial cutting is needed; time required to accumulate enough volume to warrant partial cutting will exceed 20 years.
- E AGS basal area below 35 square feet per acre. Such stands do not contain enough good quality stems to warrant continued management; they should be harvested and a new stand regenerated on the site.

## **METHOD OF ESTIMATE**

### **Sampling**

Old Buffalo Forest is approximately 255.4 acres of productive forestland and 269.7 acres in total, by GIS measurement. For this inventory, 60 inventory plots were defined on the productive forestland, and data collected in 2016. In 2018, harvesting occurred in a limited area near Scrutton Hill Road. In December 2019, 11 plots were remeasured, in the harvest area, and the original data were replaced with 2019 data in the data set, for these 11 plots. No harvesting has occurred since the inventory, and no growth was applied to the data.

- a. Inventory Personnel: The cruisers on this project were F&W Forestry staff Colby Martel and Andy Carlo.
- b. Plot Monumentation: To facilitate check-cruising, all plots were monumented at plot center with a flag hung at eye level, and another on a stick stuck into the ground at plot center. The flag at eye level includes the following information: FFI, Cruiser Initials, Date, and Plot Number.
- c. Procedures: Procedures for the cruise were defined in a Cruise Specification Memo, prepared in advance of the field work and reviewed by the cruisers. In general, the cruise procedure involved Variable Radius Plot Sampling with a 15-factor prism. All products in each “In” tree were called in 8-foot sections from the stump to the limit of merchantability (a 5” top unless otherwise defined for the tree by the cruiser). Diameters were recorded to the nearest inch, using a diameter tape. Regeneration was tallied in a fixed radius plot around the overstory plot-center. The regeneration procedure involves a call of acceptable/unacceptable stocking of regeneration based on criteria developed for the SILVAH program. All data were collected on paper cards. Additional details of the inventory procedures may be found in the Cruise Specification Memo available from F&W Forestry.
- d. Product Specifications: Please refer to the following Product Specification chart.
- e. Processing: Overstory data were processed with Two Dog, using form-class based volume tables to calculate volumes. Form class by species was determined from regional standards.

### **ACREAGE RECONCILIATION**

Old Buffalo Forest was surveyed in 1989 for the previous owner by Blake Thomsen, a licensed surveyor from Chelsea, Vermont. Surveyed acreage was calculated to be 264 acres, which included the footprint of Bear Notch Road. F&W Forestry has managed this property for over 30 years and has collected GPS points on all boundaries. We believe the total acreage to be approximately 270 acres (269.7 GIS calculated acreage).

**PRODUCT SPECIFICATIONS**

**OVERSTORY TALLY CODES - Multicruise cruise  
1" Size Classes (e.g. 9.51" to 10.50" = 10" size class)**

**SPECIES**

Code	Species	Code	Species	Code	SPECIES
1	White Pine	11	Beech	21	Other Pine
2	Red Pine	12	Red Oak	22	Butternut
3	Spruce	13	NC Hdwds.	23	
4	Fir	14	White Ash	24	
5	Hemlock	15	Aspen	25	
6	Other Sftwd.	16	Black Cherry	26	
7	Sugar Maple	17	Black Birch	27	
8	Red Maple	18	Basswood	28	
9	White Birch	19	Other Hwd.	29	
10	Yellow Birch	20	Tamarack	30	

**QUALITY**

Code	Description
1	<b>AGS</b> – commercial species that has or has the potential to produce a Grade #2 sawlog or better and will survive for at least 15 years.
2	<b>UGS</b> - Live trees of any size that do not qualify as AGS. Includes live culls.

**PRODUCT SPECIFICATIONS**

Code	Product	Species	Min. DBH*	Min. Top (IB)	Min. Length	Description
9	Veneer	Hardwood	14"	12"	8 feet	4 sides clear w/ <b>no</b> defects or rot, Straight & sound
2	Sawlogs	Hardwood	11"	10"	8 feet	2 sides clear, Straight & sound
		Spruce/Fir	7"	5"	14 feet (tally as 16)	Straight & sound
		Pine, Hem. & other Sftwd.	10"	8"	14 feet (tally as 16)	Free of excessive (>3") knots Straight & sound
4	Pallet logs	Hardwood (no aspen)	11"	10"	8 feet	<2 sides clear & sound or otherwise not meeting Gr. 2 spec.
		Sugar Maple	10"	8"	8 feet	Excessive large knots or otherwise not meeting above specs.
		W. Pine	10"	8"	8 feet	
6	Pulpwood	All	6"	5"	16 feet	Less than above sawlog specs.
8	Cull	All	6"			Over 50% rot or void in bole

**HEIGHTS RECORDED IN # OF 8' STICKS.**

**\*MIN DBH REFERS TO THE SIZE CLASS**

## MAJOR NEW ENGLAND TREE SPECIES

### HARDWOODS

#### **Aspens** (*Populus spp.*)

Often called "popple", these are fast growing, light demanding trees with a light soft timber that can be cut into very thin sheets without splintering. Used in fruit and vegetable baskets and some joinery. Price is usually low, although occasional sales of large trees can receive good prices.

#### **Basswood** (*Tilia americana*)

Found throughout New England in small quantities. A light, fairly soft wood, popular with carvers and for engraving blocks, while the veneer is often used in small amounts as cross-banding to contrast with darker woods. Price level is fair.

#### **American beech** (*Fagus grandifolia*)

Common throughout New England. A timber that works well and finds uses in furniture and tool making, although it is not durable outdoors. Unfortunately, however, beech bark disease normally attacks this tree when it is of small to medium sawlog size, and therefore the removal of this species is favored. Prices are usually low.

#### **Black cherry** (*Prunus serotina*)

Locally distributed in New England, but more common in Pennsylvania to West Virginia. A light, strong, fine grained hardwood used for quality furniture and engraving blocks. Has good to excellent price.

#### **Butternut** (*Juglans cinerea*)

A minor component of the entire northeastern forest. A member of the walnut family and not unlike it in uses, although lighter in color. Price range is good.

#### **Hickory** (*Carya spp.*)

A number of species of nut-bearing trees with ash-like leaves. The logs have a white sapwood and red-brown heartwood. It is a very tough, hard, heavy, resilient wood which is used for tool handles, sporting goods, wheel spokes and ladder rungs, while green hickory chips are used to flavor meat in smoking and barbecuing. Price range, however, is usually low to medium.

#### **Red maple** (*Acer rubrum*)

Common on wetter lands in the northern hardwood mixture. Softer and less strong than sugar maple, it has a low hardwood price.

#### **Red oak** (*Quercus rubra*)

Common in the Champlain and Connecticut River Valleys of Vermont, southern New Hampshire and all states further south in the Appalachian chain. A very attractive grain and easy working characteristics make this timber popular for furniture and other quality hardwood applications where appearance is important. Has a good to excellent hardwood price.

**Sugar maple** (*Acer saccharum*)

The prime component of the northern hardwoods forest type, and very common in New England. A very hard wood, known as Hard or Rock Maple, that works well and is used in furniture, flooring, turnery and kitchenware. Has a very good hardwood price and figured grain can make it more valuable.

**White ash** (*Fraxinus americana*)

Exists as small proportion of many forests on the east coast and occupies moist fertile sites. Used in furniture, sporting goods and tool handles. Price range is good to very good.

**White birch** (*Betula papyrifera*)

A major component of the northern boreal forest, it is a less common associate of the northern hardwoods. A rapid growing tree, it is used for a variety of turned goods, furniture and cabinets. Price range is average to good.

**White oak** (*Quercus alba*)

Common in the Appalachians from Connecticut south. An attractive, durable wood, highly prized for furniture and in the manufacture of water-tight casks. Achieves good hardwood prices.

**Yellow birch** (*Betula alleghaniensis*)

A common secondary component of the Northern Hardwood forest type. It makes attractive turned goods and is used in furniture and house fittings such as doors. Price range is average to good. A less common close relative, Black Birch (*Betula lenta*), is very similar in use and price.

## SOFTWOODS

**Balsam fir** (*Abies balsamea*)

A major softwood component of the Boreal Forest, it is a common associate of the northern hardwoods. This short-lived, rapid growing tree is used for general construction and pulp. Achieves low to average price for sawlogs and has a good pulpwood price.

**Eastern hemlock** (*Tsuga canadensis*)

A common associate of the northern hardwoods, it has limited use in general construction, boxes, crates and landscaping ties. Has a low price.

**Red spruce** (*Picea rubens*)

A northeastern conifer commonly found throughout the northern hardwood mixture. Used for structural timber, pulpwood and musical instruments. Achieves an average price.

**Eastern white pine** (*Pinus strobus*)

A five-needled pine that grows rapidly throughout the northeast. Its timber is used for building and is popular stained dark for the manufacture of pine furniture. Fetches an average hardwood price.

**GLOSSARY OF FORESTRY TERMS COMMON IN THE  
NORTHEASTERN UNITED STATES**

<b>AGS</b>	Acceptable Growing Stock. Trees that are either quality sawlogs or have the potential to grow into quality sawlogs (grade 2 or better).
<b>Advance Growth</b>	Young trees that have become established naturally before regeneration cuttings are begun or a clearcutting is made.
<b>Basal Area</b>	The area of the cross-section of a tree, inclusive of bark, at breast height (4.5' or 1.37 m above ground) most commonly expressed as square feet per acre (ft <sup>2</sup> /acre) or square meters per hectare (m <sup>2</sup> /hec). For a stand, basal area is computed from all living trees.
<b>Biomass</b>	The total quantity, at a given time, of living organisms of one or more species, usually expressed in weight per unit area.
<b>Board Foot</b>	A piece of lumber 1" thick, 12" wide and 12" long or its equivalent. It is used as a volume measure of sawlogs and is commonly expressed by the thousand (MBF).
<b>Cleaning</b>	Elimination or suppression of competing vegetation from stands not past the sapling stage (2"-4" or 5-10 cm) in diameter as measured 4.5' or 1.37 m above ground. Specifically, removal of (a) weeds, climbers, or sod-forming grasses, as in plantations or (b) trees of similar age and of less desirable species or form than crop trees which they are, or may soon be, overtopping.
<b>Clearcutting</b>	The cutting method that describes the silvicultural system in which the old crop is cleared over a considerable area at one time. Regeneration then occurs from a) natural seeding from adjacent stands, b) seed contained in the slash or logging debris, c) advance growth or d) planting or direct seeding. An even-aged forest usually results.
<b>Climax Forest</b>	A plant community that represents, for its locality and its environment, the culminating stage of a natural succession. When the culminating stage is influenced by topography, it is termed a topographic climax and when maintained by regular fires, it is termed a fire climax.
<b>Co-dominant</b>	A tree with its crown in the upper forest canopy but less free than the dominant trees and freer and taller than the intermediates and suppressed trees. A crown class.

<b>Coppice</b>	A regeneration method in which standing trees are cut and subsequent crops originate mainly from adventitious or dormant buds on living stumps; but also as suckers from roots and rhizomes.
<b>Cord</b>	A pile of 4' pieces of wood, 4' high and 8' long, occupying 128 cubic feet (ft <sup>3</sup> ) of space. Solid wood volume of a cord is approximately 85 ft <sup>3</sup> , but can vary significantly. It is used as a volume measure of pulpwood, firewood and boltwood. The cord is sometimes defined by its weight equivalent. This, however, is not standardized and varies by species and by mill. The green (fresh cut) weight of a cord of hardwood is commonly 5000 lbs.
<b>Crop Tree</b>	A tree that forms, or is selected to form, a component of the final crop, specifically, one selected to be carried through to maturity. Also known as a final crop or growing stock tree.
<b>Crown Class</b>	Any class into which trees of a stand may be divided based on their crown development and crown position relative to crowns of adjacent trees. Commonly used crown classes are dominant, co-dominant, intermediate and suppressed.
<b>Crown Thinning</b>	A thinning that favors the most promising (not necessarily the dominant) stems, with due regard to even distribution over the stand, by removing those trees that interfere with them; also called thinning from above.
<b>DBH</b>	Tree diameter at breast height (4.5' or 1.37 m above ground).
<b>Dominant</b>	A tree with its largely free-growing crown in the upper most layers of the forest canopy. A crown class.
<b>Even-Age</b>	The condition of a forest or stand composed of trees having no, or relatively small, differences in age, although differences of as much as 30% are admissible in rotations greater than 100 years of age.
<b>Even-Age Management</b>	The application of a combination of actions that results in the creation of stands in which trees of essentially the same age grow together. The difference in age between trees forming the main canopy level of a stand usually does not exceed 20% of the age of the stand at maturity. Regeneration in a particular stand is obtained during a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Cutting methods producing even-age stands are clearcut, shelterwood, or seed-tree.

<b>Group Selection</b>	The cutting method which describes the silvicultural system in which trees are removed periodically in small groups resulting in openings that do not exceed an acre or two in size. This leads to the formation of an uneven-aged stand in the form of a mosaic of age-class groups in the same forest.
<b>Improvement Cutting</b>	The elimination or suppression of less valuable trees in favor of more valuable trees, typically in a mixed, uneven-age forest.
<b>Individual Tree Selection</b>	The cutting method that describes the silvicultural system in which trees are removed individually, here and there, each cutting cycle over an entire forest or stand. The resultant stand usually regenerates naturally and becomes all-aged.
<b>Intermediate</b>	A tree of the middle canopy, dominated by others in the dominant and co-dominant crown classes. A crown class.
<b>Intermediate Cutting</b>	Any removal of trees from a stand between the time of its formation or establishment and the harvest cut. Generally taken to include cleaning, thinning, liberation and improvement cuttings, increment felling and sometimes even salvage and sanitation cuttings.
<b>Intolerant</b>	Trees unable to survive or grow satisfactorily under specific conditions, most commonly used with respect to their sensitivity to shade, but also to conditions such as wind, drought, salt and flooding.
<b>Low Thinning</b>	A thinning that favors the dominants or selected dominants more or less evenly distributed over the stand by removing a varying proportion of the other trees. Also called a thinning from below.
<b>Overstory</b>	The trees in a forest of more than one story that form the upper or uppermost canopy layer.
<b>Preparatory Cutting</b>	The removal of trees near the end of a rotation, which permanently opens the canopy and enables the crowns of seed bearers to enlarge, to improve conditions of seed production and natural regeneration. Typically done in the shelterwood system.
<b>Regeneration</b>	The reproduction of tree crop, whether by natural or artificial means. Also the young crop itself, which commonly is referred to as reproduction.
<b>Regeneration Cutting</b>	Any removal of trees intended to assist regeneration already present or to make regeneration possible.

<b>Release</b>	Freeing a tree or group of trees from competition by cutting or otherwise eliminating growth that is overtopping or closely surrounding them.
<b>Relative Density</b>	A measure of stand density that takes into account variations in growing space requirements of different species and tree sizes within a stand. Usually expressed as a percentage of average maximum density.
<b>Salvage Cutting</b>	The exploitation of trees that are dead, dying or deteriorating, because they are over mature or have been damaged by fire, wind, insect, fungi or other injurious agents, before their timber becomes worthless.
<b>Sanitation Cutting</b>	The removal of dead, damaged, or susceptible trees, done primarily to prevent the spread of pests or pathogens and so promote forest hygiene.
<b>Scarification</b>	Loosening of the topsoil of open areas, or breaking up the forest floor, in preparation for regenerating by direct seeding or natural seed fall.
<b>Seed Cutting</b>	Removal of trees in a mature stand to effect permanent openings in the canopy (if not done in preparatory cutting) and thereby provide conditions for securing regeneration from the seed of trees retained for this purpose. Also the first of the shelterwood cuttings.
<b>Seed-Tree</b>	The cutting method that describes the silvicultural system in which the dominant feature is the removal of all trees in one cut except for a small number of seedbearers left singly or in small groups, usually 8-10 per acre (20-25 per hectare). The seed trees generally are harvested when regeneration is established. An even-aged stand results.
<b>Shelterwood</b>	The cutting method that describes the silvicultural system in which, in order to provide a source of seed and/or protection for regeneration, the old crop (the shelterwood) is removed in two or more successive shelterwood cuttings. The first cutting is ordinarily the seed cutting and the last is the final cutting. Any intervening cutting is termed removal cutting. An even-age stand results.
<b>Site</b>	An area, considered in terms of its environment, determined by the type and quality of the vegetation it can carry.
<b>Site Index</b>	A measure of site class based upon the height of the dominant trees in a stand at an arbitrarily chosen age,

most commonly at 50 years in the East and 100 years in the West.

<b>Stand</b>	A community of naturally or artificially established trees of any age, sufficiently uniform in composition, constitution, age, spatial arrangement or condition to be distinguishable from adjacent communities, thereby forming a silvicultural or management entity.
<b>Stand Density</b>	A quantitative measure of the degree of crowding of stems within a stand. Usually expressed in number of stems, basal area or crown closure.
<b>Stocking</b>	<p>A relative term to describe the adequacy of a given stand density in meeting management objectives. Three levels of stocking are generally recognized:</p> <ol style="list-style-type: none"><li>1. <i>"A" level stocking</i> - The maximum stocking a stand can carry without overcrowding and the resultant loss of growth. Stands with stocking above this level are overstocked.</li><li>2. <i>"B" level stocking</i> - The minimum stocking a stand can carry and fully utilize the site. Stands with stocking below the "B" level are understocked.</li><li>3. <i>"C" level stocking</i> - Stands that will require 10 years or less of growth to reach "B" level stocking. These stands are considered potentially adequately stocked.</li></ol>
<b>Structure</b>	Of a forest, crop or stand, the distribution and representation of age and/or size (particularly diameter) classes and of crown and other tree classes.
<b>Succession</b>	The gradual supplanting of one community of plants by another.
<b>Suppressed</b>	One of the four main crown classes. Very slowly growing trees with crowns in the lower layer of the canopy and leading shoots not free. Suppressed trees are subordinate to dominant, co-dominant and intermediates in the crown canopy.
<b>Thinning</b>	A treatment made in an immature stand, primarily to maintain or accelerate diameter increment and also to improve the average form of the remaining trees without permanently breaking the canopy. An intermediate cutting.
<b>Type</b>	An aggregate of similar stands grouped together to improve statistical analysis and simplify management.

<b>UGS</b>	Unacceptable Growing Stock. Sound trees that either do not have the potential to make quality sawlogs, or that have some damage, disease or other condition that make them a poor risk to survive for future management.
<b>Understory</b>	Trees and woody species growing under an overstory.
<b>Uneven-Age</b>	The condition of a forest, crop, or stand composed of intermingling trees that differ markedly in age. In practice, a minimum age difference of 25% of the length of the rotation usually is used.
<b>Uneven-Age Management</b>	The application of a combination of actions needed to simultaneously maintain continuous high-forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes. Cutting methods that develop and maintain uneven-age stands are single-tree selection and group selection.
<b>Yield</b>	The amount of forest product that may be harvested periodically from a specified area over a stated period in accordance with the objectives of management.

Definitions contained in this glossary are based on those that appear in the December 1983 edition of *Silvicultural Systems for the Major Forest Types of the United States*, published by the United States Forest Service, United States Department of Agriculture. In instances where definitions were not available or were not appropriate in the Forest Service publication, composites were prepared from other sources or new definitions developed.

## **LANDOWNER FORESTRY RESOURCES**

### **FORESTER**

*F&W Forestry Services, Inc.:* [www.fwforestry.com](http://www.fwforestry.com)

F&W Forestry offers its expertise in the areas of forest management, forestland sales, appraisals, and related forestry services.

### **FORESTLAND MARKETING**

*Fountains Land, Inc.:* [www.fountainsland.com](http://www.fountainsland.com)

Fountains Land specializes in the sale of forestland and rural estates.

### **BOOKS & MAGAZINES**

*Working with your Woodland* by Molly Beattie, Charles Thompson, and Lynn Levine.  
University of New England Press.  
A landowner guide to forest management.

*Northern Woodlands:* [www.northernwoodlands.org](http://www.northernwoodlands.org)

A quarterly magazine devoted to natural resource and forest management issues in New England and New York.

*A Landowner's Guide to Wildlife Habitat Forest Management for the New England Region* by Richard DeGraff, Mariko Yamasaki, William Leak, Anna Lester.  
University of Vermont Press.

### **STATE & FEDERAL SERVICES**

*Forest Landowner's Guide to Internet Resources:* <http://na.fs.fed.us/pubs/misc/flg/>

This is a guide, written by the US Forest Service of the Department of Agriculture, to all sorts of online resources related to forestry.

#### *State Extension Services*

Each state has an extension service, usually based at the state university, which offers practical help with all aspects of land management.

VT <http://stumpage.uvm.edu/>

NH <http://extension.unh.edu/>

ME <http://extension.umaine.edu/>

#### *State Forestry Departments*

VT Division of Forestry: [www.vtfpr.org/html/forestry.cfm](http://www.vtfpr.org/html/forestry.cfm)

NH Division of Forests & Lands:

[www.dred.state.nh.us/divisions/forestandlands/](http://www.dred.state.nh.us/divisions/forestandlands/)

ME Forest Service: [www.maine.gov/doc/mfs](http://www.maine.gov/doc/mfs)

#### *State Links*

[http://www.vtfpr.org/resource/for\\_forres\\_useapp.cfm](http://www.vtfpr.org/resource/for_forres_useapp.cfm)

VT FPR Division of Forestry Use Value Appraisal Program and 2010 Manual

[http://maps.vermont.gov/imf/sites/VCGI\\_basemap/jsp/launch.jsp](http://maps.vermont.gov/imf/sites/VCGI_basemap/jsp/launch.jsp)

VT Interactive Map Viewer – View and Create Digital Maps with Aerial Photography

## CERTIFYING AGENCIES

*Rainforest Alliance:* <https://www.rainforest-alliance.org/>

“The Rainforest Alliance’s ambitious mission is to conserve biodiversity and ensure sustainable livelihoods by transforming land-use practices, business practices, and consumer behavior.”

*Forest Stewardship Council:* [www.fsc.org](http://www.fsc.org)

“FSC is an independent, membership-based organization that brings people together to promote responsible management of the world’s forests through developing standards, a certification system, and trademark recognition.” \*  
F&W Forestry Services, Inc. is a FSC certified Resource Manager.

## PRIVATE ORGANIZATIONS

*Private Landowner Network:* [www.privatelandownernetwork.org](http://www.privatelandownernetwork.org)

“The Private Landowner Network (PLN) provides a centralized repository of information and resources for landowners and their service providers.” \*

*New Hampshire Timberland Owners Association:* [www.nhtoa.org](http://www.nhtoa.org)

“The New Hampshire Timberland Owners Association is a nonprofit organization of forest owners and users working together to promote better forest management and a healthy wood products industry.” \*

*Small Woodland Owners Association of Maine:* [www.swoam.org](http://www.swoam.org)

“The Small Woodland Owners Association of Maine (SWOAM) promotes the stewardship of privately owned forestland.”

## MAPPING

*Historic Topographical Maps:* <http://docs.unh.edu/nhtopos/nhtopos.htm>

A site for historic topographical maps provided by the University of New Hampshire.

*Satellite/Aerial Imagery:* <http://earth.google.com>

Google Earth is a free software that allows users to view satellite images for nearly any point on the Earth’s surface from many different angles.

*Soil Mapping:* <http://websoilsurvey.nrcs.usda.gov>

“Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world. The site is updated and maintained online as the single authoritative source of soil survey information.”

<http://websoilsurvey.nrcs.usda.gov/app/>

Create soil maps, interpretations, and more.

**USE VALUE APPRAISAL PARCEL DATA ENTRY FORM**

new  update<sup>1</sup>  amendment<sup>2</sup>  change of ownership

**\*\*\*FP&R COUNTY FORESTER USE ONLY\*\*\***

Parcel ID For Data Entry (by state) # \_\_\_\_\_, \_\_\_\_\_ — \_\_\_\_\_ Year of Entry \_\_\_\_\_  
 Year of Plan \_\_\_\_\_ Year of Last Inspection \_\_\_\_\_

- 1) Landowner Name (last name, first name) Visconti, Laurent and Christine
- 2) Landowner Address (Street, PO Box) 645 Janelle PL NW  
 (Town) Bainbridge Island (State) WA (Zip Code) 98110  
 Phone Number \_\_\_\_\_ Email Address laurent\_visconti@outlook.com
- 3) Town That Parcel Is In West Fairlee 4) Total Forestry Acres in Parcel 261.5 (Grand list acreage, minus active agricultural and open land and exclusions)
- 5) Plan Preparer (last name, first name) F&W Forestry Services, Inc. 6) Previous Owner (last name, first name) \_\_\_\_\_
- 7) SPAN 714-227-10311
- 8) Stand information (this information is for data entry only and does not override what is in actual plan):

Stand #	Acres	Even-aged Uneven-aged (existing)	Predominant Site Class (I, II, III or IV)	Stand Type	Quadratic M.S.D.	Total BA	AGS BA	Management Activities	Treatment Year
1	12.5	2	2	11	11.8	120	75	8	2023
3	58	2	2	06	9.7	90	52	9	2023
4	51.3	2	2	11	9.5	98	70	12	-
5	47.8	2	2	06	9.3	120	67	2	2023
6	32.5	2	2	11	9.8	114	66	12	-
8	18.9	2	2	06	10.9	81	66	12	-
9	11.5	2	2	11	11.6	80	75	12	-
10	17.5	2	2	06	9.3	50	30	12	-

<sup>1</sup> Update of an existing plan that includes all new stand descriptive data required every 10 years at minimum.

<sup>2</sup> Change to an approved existing plan does not change the 10-year cycle of the existing plan. If this form is filed with an amendment, indicate the amended information in the appropriate stand, and write an explanation in section 12. Amendments must be signed by the landowner(s).

9) No activity – (identify stand # and reasons) Stands 4, 6, 8, 9 and 10 should be allowed to grow and increase in volume during this management period.

10) Management Activities – other (identify stand #) \_\_\_\_\_

11) Stand Types – other (identify stand #) \_\_\_\_\_

12) Amended prescriptions – (identify stand #) \_\_\_\_\_

STAND TYPES	CODE #
aspen and/or white birch	01
white pine, red oak	02
white pine	13
hemlock	04
sugar maple	05
beech, birch, sugar maple	06
beech, red maple	07
spruce	08
spruce/fir	09
pioneer species	10
mixed wood (25%-65% softwood)	11
other (identify other in section 11)	12
ESTA	13
open	14
significant wildlife habitat	15
special places and sensitive sites	16
miscellaneous	17

MANAGEMENT ACTIVITY CODES (if one of the following choices reasonably describes the planned management activity, use it. If not, use #12 other and describe the management activity in Section 10. Note these descriptions are for choosing codes only; they are not the silvicultural standards).

1. Non-commercial forest stand improvement

EVEN-AGED MANAGEMENT

2. Intermediate thinning

3. Shelterwood cut

4. Overstory removal cut

5. Clearcut

6. Progressive clearcutting

UNEVEN-AGED MANAGEMENT

7. Single Tree Selection

8. Group Selection

MISCELLANEOUS CHOICES

9. Salvage cut

10. Sugarbush management

11. Species conversion

12. No Activity

13. Other

14. Crop Tree Release

15. Invasive Species Control