

FOREST MANAGEMENT PLAN
FOR THE
TUNBRIDGE MUNICIPAL FOREST

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Approved by the Tunbridge Selectboard May, 2011

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DREW ROAD LOT

97.2 ACRES

December 2010

Overview

Property Location

Drew Road, just outside the village of Tunbridge

Biophysical Region

Southern Vermont Piedmont

Conservation Easement

No conservation easement is in place for this property.

Ownership History

The parcel is a combination of two parcels. The original parcel was 78 acres, but had no direct access to a town road. The second parcel was purchased in 1998, consists of 22.2 acres and provides access to Drew Road.

The original ~75 acre parcel was purchased by the Village Improvement Society, primarily to develop a number of springs on the property in order to supply water to residents and businesses in Tunbridge Village (aka Market Village). Many of the homes and businesses in the Village subsequently drilled wells, and the Village Improvement Society eventually perceived that the property might serve additional purposes; somewhere around 1970 the land and all financial assets of the Village Improvement Society were deeded to the Town of Tunbridge in hopes that it might become a resource for a broad range of purposes including timber, wildlife habitat, picnicking and other recreational opportunities and aesthetic values.

An abutting 22.2 acre parcel with road frontage on Drew Rd. was up for sale in 1998 at the time a timber harvest was being conducted on the Town Garage Lot. At the recommendation of the County Forester, the Tunbridge selectboard warned an article for the March 1999 Town Meeting requesting approval from Tunbridge voters to purchase the lot that now affords road access to the former 75 acre parcel from Drew Road. Voters approved the purchase, bringing the acreage of the Drew Lot of the Tunbridge Town Forest to approximately 97.2 acres.

Management History

Access improvements were made to the lower portion of the property in 2000 and were paid for with proceeds from the timber sale on the Town Garage lot. Just under \$4,000 was spent for landing improvements, including significant drainage work, and to construct or improve approximately ½ mile trail.

Following the access improvements, a timber sale was conducted under the supervision of the Orange County Forester during 2001-2002, on approximately 60 acres. The logger was Calvin Johnson of Chelsea. Wood was bunched with a cable skidder and small dozer and brought to the landing with a forwarder. The total harvest consisted of 114.62 mbf of sawlogs and 643.3 cords of pulpwood and firewood and generated \$15,052 in revenue for the town. During the course of the sale, approximately 1,000 feet of new trail was constructed and two additional culverts were installed.

When the covered bridge in Tunbridge village was destroyed, large white pines were harvested from this property and new timbers were cut to reconstruct the bridge.

Landowner Objectives

The principal goal is to establish and maintain a healthy forest of native tree species with a complex stand structure, both vertically and horizontally. This will involve protection of sensitive sites, retention and accumulation of organic matter on the forest floor and the sustainable harvest of high quality forest products. It is expected that this management strategy will result in enhanced ecological function, periodic revenue from the sale of high quality forest products, improved wildlife habitat, a well maintained multi-purpose trail system for use by the people of Tunbridge and the visiting public.

In all areas, established springs that are protected by deed, or that are still in use, will be identified and protected from damage during any management activity. Those springs that are not protected by deed and that are no longer used, shall be returned to as natural a condition as possible. A bit of local research may be required here. All cultural/historic resources, such as stone walls or building foundations, will be protected during management activities.

Access

There is a single access road that enters the municipal forest from Drew Road and ends at the old home site, which is now used as a parking area and periodically as a log landing. A single main trail runs up out of the landing area for a short distance until it forks. The left fork continues up the hill to the south. The right fork goes to the west and forks again with the left path forming a loop with the previously mentioned trail and the right fork continuing off the property. There are at least two other foot trails that enter the property, one from Tunbridge village, and the other from a small pullout near the base of Drew Road. All the trails are in acceptable condition, but additional drainage work is recommended in a few locations, as is annual, or bi-annual, mowing in late summer to keep the trails open for recreational use. Any mowing on this property should be coordinated with similar mowing on the Town Garage lot.

Recreation/Aesthetics

The extensive trail system provides internal access for walking, snowshoeing, skiing, horseback riding and periodic timber harvesting. Many neighbors and other community members use the property for hunting and non-motorized recreation. It will be necessary to improve and maintain the drainage on the trails to prevent erosion, and then to mow the landing and trails every year or two to keep them open for public use.

Cultural/Historic Resources

Numerous sections of stonewall are located along portions of the property boundary and here and there within the property. There are two stone foundations. One is located on the landing, and due to space limitations was buried, **intact**, with sand. The second is uphill on the original ownership, along the left fork of the main trail and remains undisturbed.

Rare, Threatened and Endangered Species

There are no mapped significant natural communities or rare, threatened and endangered species on this property. There is however, a small patch of large hemlock trees along the eastern border that may be unusual. Large, apparently quite old trees, dominate this area, and it shall be reserved from active management and allowed to continue to develop naturally.

Wildlife Habitat

Vermont Fish & Wildlife has all of stand 2 mapped as deer wintering area. No significant seasonal bear habitat is known to exist on, or immediately adjacent to, this property.

Streams and Significant Wetlands

Several small streams, and small areas of wet soil, are found on the property. Equipment use and timber harvesting activities will be minimized within 50 feet of existing streams or wet areas, in order to maintain crown closure and protect sensitive soils.

Resource Concerns

There are two principal resource concerns on this property. First, there is minor erosion on certain trails that should be addressed with improved drainage. Second, is the presence of moderately well-established populations of invasive, exotic plant species, including shrub Honeysuckle and Japanese Barberry. Some plants were pulled during 2010 by the two foresters doing the inventory and subsequently by volunteers during a work day, but a more systematic control effort needs to be implemented as soon as possible.

An additional concern on both the Drew and Town Garage Lots is a relatively low level of regeneration of higher-value trees in all stands. The understory inventory was dominated by eastern hophornbeam and beech in all stands, with striped maple and white ash common, and a significant leatherwood component in the Town Garage Lot (Fig. 1). This species composition is likely related to the deer population and may be influenced by silvicultural practices if desired.

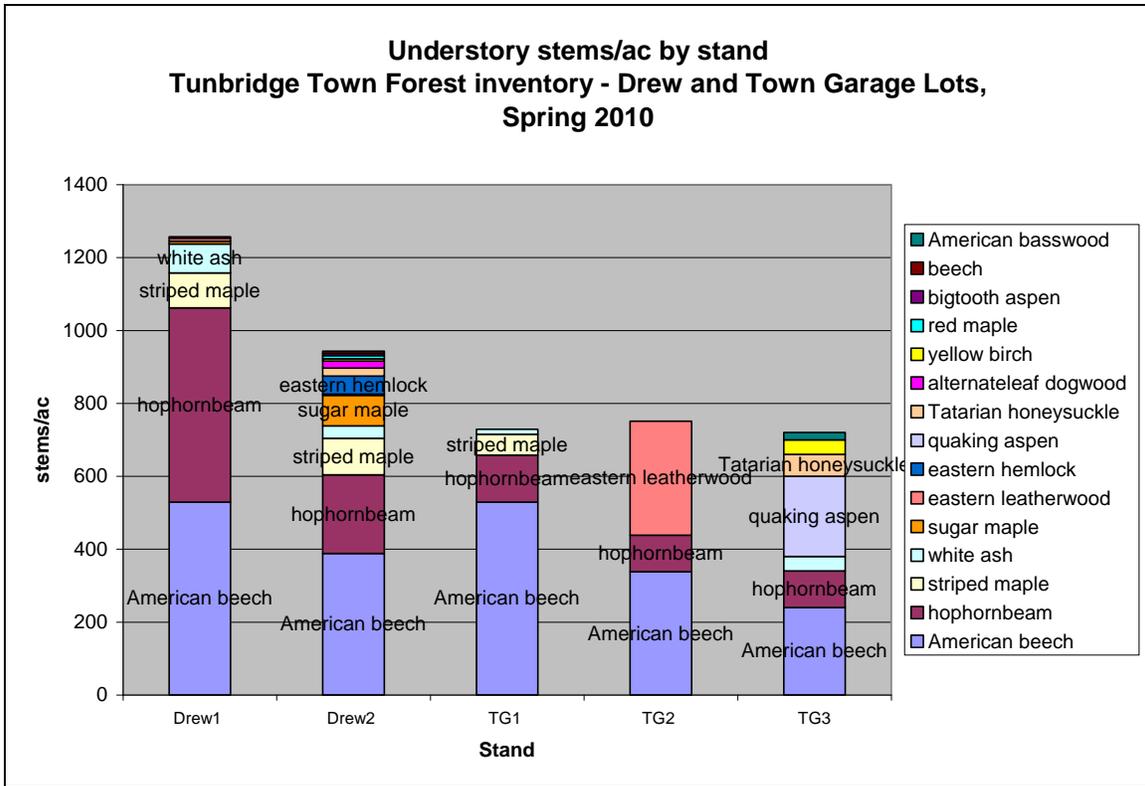


Figure 1. Understory regeneration in all Tunbridge Town Forest stands inventoried in spring 2010. Regeneration was generally higher on the Drew Lot, but there was a relatively low level of regeneration of higher-value trees in all stands.

Drew Lot Stand 1 - Northern Hardwood

Acres

39.9 ac. (adjusted to grand list acreage)

Natural Community

Northern Hardwood Forest, Rich Northern Hardwood Forest

Species Composition

Sugar Maple (68%), White Ash (15%), with associated Red Maple, Hemlock, Yellow Birch, Eastern Hophornbeam, Basswood, White Pine, Paper Birch and Butternut

Sampling Information

23 variable radius sample plots were measured with a 20 BAF prism, 5/26/10 and 5/27/10

Total Basal Area

118 sq.ft./ac

Acceptable Growing Stock Basal Area

97 sq.ft./ac.

Mean Stand Diameter

10.8 inches

Trees/Acre

187

Snag Basal Area

10 sq.ft./ac.

Cavity Basal Area

1 sq.ft./ac.

Basal Area Variation

- 6 sample points had 80 sq.ft./ac. or less (no treatment necessary at this time).
- 10 sample points had BA of 100-120 (recommend BA reduction to 80).
- 7 sample points had BA 140-220 (recommend BA reduction to 80-100).

Soils

A combination of Tunbridge-Woodstock complex , and Pomfret very stony loamy fine sand. The Tunbridge-Woodstock series are very productive soils that are bedrock controlled, with the Tunbridge series being 20-40 inches to bedrock and the Woodstock series being 10-20 inches to bedrock. In this stand, Tunbridge soils dominate. Pomfret soils are also productive forest soils that are bedrock controlled, but they tend to be deeper and more excessively drained than those of the Tunbridge series. Pomfret soils occur on convex hillsides, are 30-60 inches deep to bedrock, are stony, with medium fertility and where deepest, are somewhat excessively drained.

Vertical/Horizontal Structure

Stand structure is relatively uniform and generally consists of a minimum of two, and sometimes three, distinct age and size classes in all areas. The dominant structural characteristic is the presence of 10-18 inch diameter sugar maple and white ash with good stem quality (Fig. 2). Sugar maple and white ash in these diameter classes represent 64% of total basal area and 77% of acceptable growing stock basal area. In most areas there are also scattered, large, open-grown sugar maples and American beech that will be left as Legacy trees. Regeneration is present in some areas and nearly absent in others. The species composition of the understory is dramatically different than the overstory and where present, is dominated by eastern hophornbeam, beech, white ash and striped maple (Fig. 1).

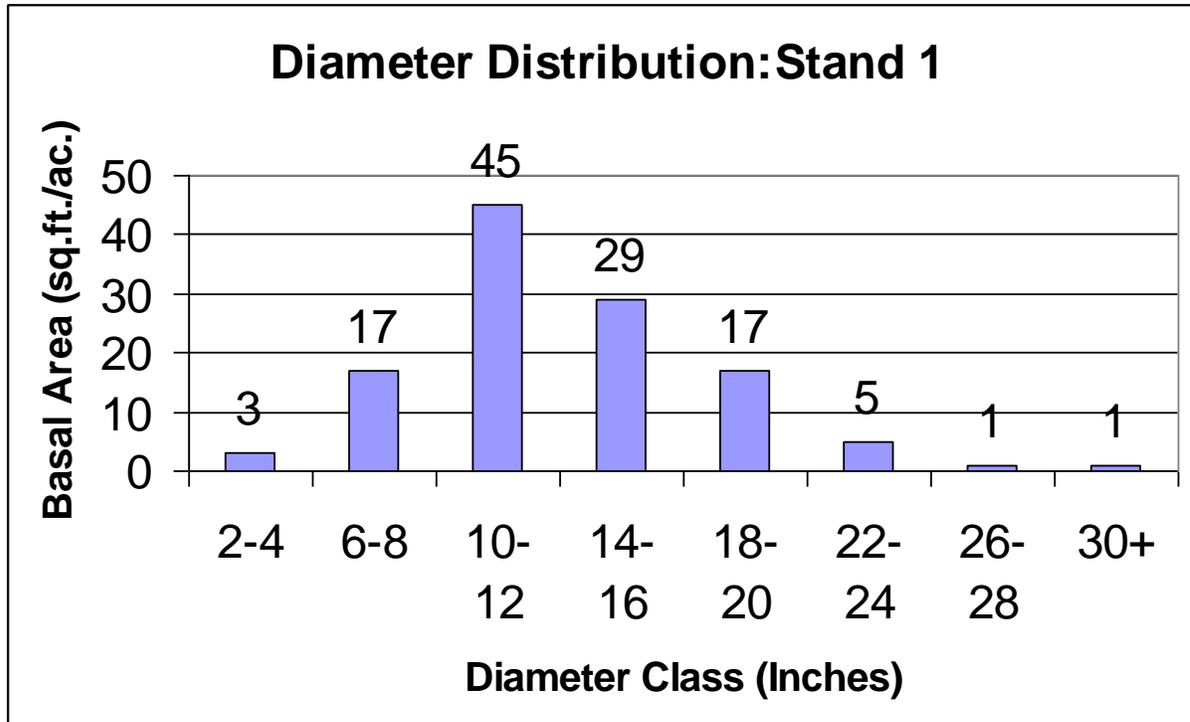


Figure 2. Overstory basal area distribution by diameter class, Drew Lot Northern Hardwoods stand 2010 inventory.

Forest Health

Overall stand health is good. This stand was heavily overstocked prior to the timber harvest of 2001-02. Residual basal area following that sale was higher than the norm for the area, but most trees had relatively small live crowns, so higher stocking was left to provide structural support, and trees have responded to release. Historic porcupine damage has been noted on sugar maple and American beech near the steep slope that forms the border with stand 2.

Invasive Plants

Shrub Honeysuckle and Japanese Barberry are established at low levels in this stand.

Ground cover

Sixty three species were observed in 23 plots, including a number of spring ephemerals that are popular with wildflower enthusiasts. None of the 63 species repeated in all plots, consistent with a relatively high level of diversity. Litter cover averaged 53%, and there was not a significant presence of ferns suspected to inhibit tree regeneration.

Wildlife Habitat

Greater structural complexity will benefit wildlife in this stand. Leave large live and dead trees for structure and as present or future cavity trees. Leave butternut and beech where reasonably healthy.

Silvicultural System

The stand is presently transitioning to an uneven-aged structure, and will continue to be managed using uneven-age techniques generally following the guidelines of Natural Dynamics Silviculture. Most management will use individual tree selection, but if larger openings are ultimately created they will be limited to ¼ to ½ acre in size. This is slightly larger than the natural maximum gap size for this forest type, but it is believed that heavy browse pressure from an unnaturally high deer population will force the creation of these slightly larger openings in order to adequately establish species other than eastern hophornbeam, beech and striped maple.

Longterm Objective

Manage to perpetuate a healthy forest and maintain ecological integrity, with the secondary objectives being the production of high-quality hardwood sawlogs and veneer, wildlife habitat improvement and enhanced recreational opportunities. Utilize conservative uneven-age management techniques to maintain relatively high stocking levels but be prepared to employ group selection if necessary to obtain adequate sugar maple and white ash regeneration. Use a 20-year cutting cycle after this next entry, with diameter objectives of 20-22 inches for the best quality sugar maple, 18-20 inches for white ash and 16-18 inches for other species.

Scheduled Treatment

2011: Systematic control of all invasive, exotic plants.

2011-2015: Individual Tree Selection, with target residual BA 80-100 sq.ft./ac..

Maintain individual trees from all diameter classes in the stand including snag and cavity trees and reserve healthy butternut and healthy, large, beech from harvest.

Drew Lot Stand 2 – Mixedwood

Acres

68.6 ac. (adjusted to grand list acreage)

Natural Community

Hemlock-Northern Hardwood Forest, Hemlock Forest, Northern Hardwood Forest

Species Composition

Hemlock (44%), Sugar Maple (19%), White Pine (14%), Red Maple (6%), Yellow Birch (5%), White Ash (4%), with associated Paper Birch, American Beech, Eastern Hophornbeam, Basswood, Red Oak, Basswood, Black Cherry, Aspen and Elm

Sampling Information

32 variable radius sample plots were measured with a 20 BAF prism, 5/26/10 and 5/27/10

Total Basal Area

148 sq.ft./ac.

Acceptable Growing Stock Basal Area

93 sq.ft./ac.

Mean Stand Diameter

12.4 inches

Trees/Acre

177

Snag Basal Area

8 sq.ft./ac.

Cavity Basal Area

6 sq.ft./ac.

Basal Area Variation

- 6 sample points had 80 sq.ft./ac. or less (no treatment necessary at this time).
- 9 sample points had BA of 100-120 sq.ft./ac.
- 13 sample points had BA 140-200 sq.ft./ac.
- 4 sample points had BA 220-300 sq.ft./ac.

Soils

A combination of Tunbridge-Woodstock complex, Pomfret very stony loamy fine sand and Buckland very stony loam are found here. The Tunbridge-Woodstock series are very productive soils that are bedrock controlled, with the Tunbridge series being 20-40 inches to bedrock and the Woodstock series being 10-20 inches to bedrock. In this stand, Tunbridge soils dominate. Pomfret soils are also productive forest soils that are bedrock controlled, but they tend to be deeper and more excessively drained than those of the Tunbridge series. Pomfret soils occur on convex hillsides, are 30-60 inches deep to

bedrock, are stony, with medium fertility and where deepest, are somewhat excessively drained. Buckland soils have a shallow compacted layer, generally at 1.5-2 feet, that perches water. These soils are generally fertile, but can be seasonally wet.

Vertical/Horizontal Structure

Stand structure is highly variable, with relatively complex horizontal structure (Fig. 3). There is a small area of very large, old hemlocks on a steep slope. Other areas consist of a mix of either hemlock or white pine with an assortment of northern hardwoods or aspen. In most areas, both hardwoods and softwoods are present. In some areas there are two distinct age classes, and in other areas there are three age classes. More of this stand is either steep or wet than is the case with stand 1, and in these areas hemlock dominates. In most areas there are scattered, large hemlocks, white pine, sugar maple or American beech that will be left as Legacy trees. Regeneration is present in some areas and nearly absent in others. Sugar maple, eastern hophornbeam and striped maple are most common.

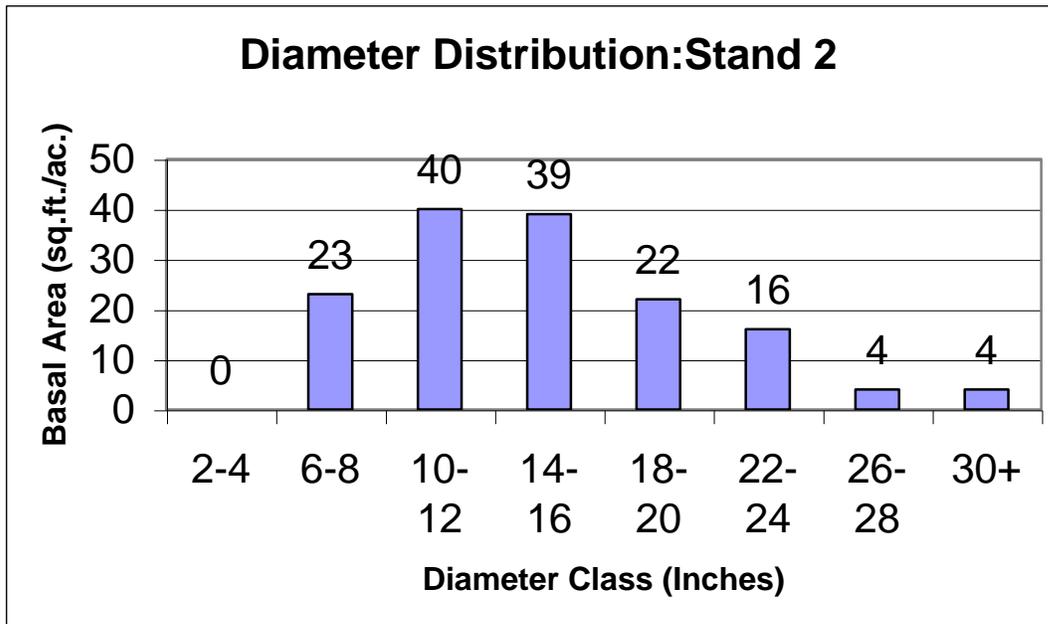


Figure 3. Overstory basal area distribution by diameter class, Drew Lot Mixedwood stand, 2010 inventory.

Forest Health

Overall stand health is good, but there has been some minor, weather-related damage since the last treatment. Historic porcupine damage has been noted on sugar maple and hemlock trees near the steep slope that forms the border with stand 1.

Invasive Plants

Shrub Honeysuckle and Japanese Barberry are established at low to moderate levels in this stand.

Ground cover

Seventy two species were observed in 32 plots in Stand 2. None of the 72 species repeated in all plots, consistent with a relatively high level of diversity. Litter cover averaged 52%, and there was not a significant presence of ferns suspected to inhibit tree regeneration.

Wildlife Habitat

This area is mapped as deer wintering area by the Vermont Department of Fish & Wildlife and it does appear to be functioning as such. Young hemlocks display evidence of winter barking and hardwood seedlings of preferred species, such as sugar maple, are heavily browsed. Greater structural complexity will benefit wildlife in this stand. Leave large living and dead trees for structure and as present or future cavity trees. Leave butternut and beech where reasonably healthy. Maintain snag and cavity trees where they do not present safety issues. Where aspen is present, implement group selection with residuals to regenerate the aspen for grouse habitat, while leaving some standing aspen for woodpeckers.

Silvicultural System

The stand is presently transitioning to an uneven-aged structure, and will continue to be managed using uneven-age techniques generally following the guidelines of Natural Dynamics Silviculture. Most management will use individual tree selection, but if larger openings are ultimately created they will be limited to ¼ to ½ acre in size. This is slightly larger than the natural maximum gap size for this forest type, but it is believed that heavy browse pressure from an unnaturally high deer population may force the creation of these slightly larger openings in order to adequately establish species other than eastern hophornbeam, beech and striped maple.

Longterm Objective

Manage to perpetuate a healthy mixed hardwood/softwood mixedwood forest and maintain ecological integrity, with the secondary objectives being the production of high-quality hardwood sawlogs and veneer, white pine sawlogs, wildlife habitat improvement and enhanced recreational opportunities. Utilize conservative uneven-age management techniques to maintain relatively high stocking levels but be prepared to employ group selection if necessary to obtain adequate sugar maple and white ash regeneration. Use a 20-year cutting cycle after this next entry, with diameter objectives of 20-22 inches for the best quality sugar maple and white pine, 18-20 inches for hemlock and white ash and 16-18 inches for other species.

Scheduled Treatment

2011: Systematic control of all invasive, exotic plants.

2011-2015: Individual Tree Selection, with target residual BA 80-100 sq.ft./ac. in white pine/hardwood areas and 100-120 sq.ft./ac. in hemlock /hardwood areas. Maintain individual trees from all diameter classes in the stand including snag and cavity trees.

Summary of Scheduled Treatments – Drew Lot

2011: Treat invasive plants throughout the property. High priority.

2011-2015: Stand 1: Individual Tree Selection with residual BA of 80-100 sq.ft./ac.

Stand 2: Individual Tree Selection with residual BA of 80-120 sq.ft./ac.

TOWN GARAGE LOT

51.0 ACRES

December 2010

Overview

Property Location

Recreation Road, with restricted access through town sand pit.

Biophysical Region

Southern Vermont Piedmont

Conservation Easement

No conservation easement is in place for this property.

Ownership History

The parcel is ~ 51 acres. The back (upslope) is woodland, while the front is an active sandpit used by the town. The property was purchased from xxxx in xxxx, and was surveyed by R.A. Sawyer in 1969.

Management History

A timber sale was conducted under the supervision of the Orange County Forester during 1999-2000, on approximately 30 acres. The logger was Gordon Barnaby of Tunbridge. Wood was pulled downhill with a small bulldozer to a landing located on the gentle terrain above the sandpit. The total harvest consisted of 15.390 mbf of sawlogs and 193.8 cords of pulpwood or firewood and generated \$4,078 in revenue for the town. Much of this revenue was used to improve access on the Drew Road parcel, which then allowed a timber sale to take place there. During the course of the timber sale on the Town Garage lot, approximately 2,000 feet of new trail was constructed that tied together two previously separate trails into a single loop trail.

Landowner Objectives

The principal goal is to establish and maintain a healthy forest of native tree species with a complex stand structure, both vertically and horizontally. This will involve protection of sensitive sites, retention and accumulation of organic matter on the forest floor and the sustainable harvest of high quality forest products. It is expected that this management strategy will result in enhanced ecological function, periodic revenue from the sale of high quality forest products, improved wildlife habitat, a well maintained multi-purpose trail system for use by the people of Tunbridge, and the visiting public.

Access

There is a single, restricted access road that enters the municipal forest from Recreation Road through the town sandpit. This road leads uphill to a small landing in an open area on gentle terrain above the sandpit. From the landing a single trail leads uphill into the forest and almost immediately forks into the two branches of a loop trail that provides internal access to most of the property. This loop trail is in acceptable condition, but a small amount of erosion was noted on the left fork that needs to be dealt with soon. It may be possible to do necessary repairs to existing waterbars by hand with a shovel. Following this minor additional drainage work, it is recommended that the trail and landing be mowed every year or two to keep the trail open for recreational use.

Recreation/Aesthetics

The loop trail provides internal access for walking, snowshoeing, skiing, horseback riding and periodic timber harvesting. It may be desirable at some point in the future to construct a foot path from the loop trail down to the ball field.

Cultural/Historic Resources

Numerous sections of stonewall are located along portions of the property boundary and there is a row of stone posts along the boundary line north of the landing, just above the sand pit. There are no foundations on the property.

Rare, Threatened and Endangered Species

There are no mapped significant natural communities or rare, threatened and endangered species on this property.

Wildlife Habitat

Vermont Fish & Wildlife has mapped most of this forest as deer wintering area. No significant seasonal bear habitat is known to exist on, or immediately adjacent to, this property.

Streams and Significant Wetlands

No significant streams or areas of wet soil are found on this parcel.

Resource Concerns

There are two principal resource concerns on this property. First, there is minor erosion on the loop trail that should be addressed by repairing existing waterbars. Second, is the presence of moderately well-established populations of invasive, exotic plant species, including shrub Honeysuckle and Japanese Barberry. This infestation is found mostly in and around the open land near the landing and in Stand 3. A systematic control effort will need to be implemented as soon as possible.

As with the Drew Lot, an additional concern is a relatively low level of regeneration of higher-value trees in all stands (see Fig. 1 and accompanying text in Drew Lot Resource Concerns).

Town Garage Lot Stand 1 - Northern Hardwood

Acres

14.6 ac. (adjusted to grand list acreage)

Natural Community

Rich Northern Hardwood Forest, Northern Hardwood Forest

Species Composition

Sugar Maple (59%), White Ash (10%), American Beech (10%) Hemlock (8%), Red Maple (5%), Basswood (5%) and Yellow Birch (3%)

Sampling Information

7 variable radius sample plots were measured with a 20 BAF prism on 6/14/10

Total Basal Area

111 sq.ft./ac.

Acceptable Growing Stock Basal Area

68 sq.ft./ac.

Mean Stand Diameter

12.7 inches

Trees/Acre

126

Snag Basal Area

14 sq.ft./ac.

Cavity Basal Area

6 sq.ft./ac.

Basal Area Variation

- 1 sample points had 60 sq.ft./ac. (no treatment necessary at this time).
- 5 sample points had BA of 100-120 (recommend BA reduction to 80).
- 1 sample points had BA 160 (recommend BA reduction to 80-100).

Soils

A combination of Tunbridge-Woodstock complex, and Pomfret very stony loamy fine sand. The Tunbridge-Woodstock series are very productive soils that are bedrock controlled, with the Tunbridge series being 20-40 inches to bedrock and the Woodstock

series being 10-20 inches to bedrock. In this stand, Tunbridge soils dominate. Pomfret soils are also productive forest soils that are bedrock controlled, but they tend to be deeper and more excessively drained than those of the Tunbridge series. Pomfret soils occur on convex hillsides, are 30-60 inches deep to bedrock, are stony, with medium fertility and where deepest, are somewhat excessively drained.

Vertical/Horizontal Structure

Stand structure is relatively uniform and generally consists of one or two distinct age classes (Fig 4). The dominant structural characteristic is the presence of well-formed sugar maple in the larger diameter classes. Sugar maple of acceptable sawlog quality, and 14 inches in diameter or greater, makes up 71% of the total acceptable growing stock. In some areas there are also scattered, large sugar maples or hemlocks present. Regeneration is present in some areas and nearly absent in others. The species composition of the understory is dramatically different than the overstory and where present, is dominated by eastern hophornbeam and beech.

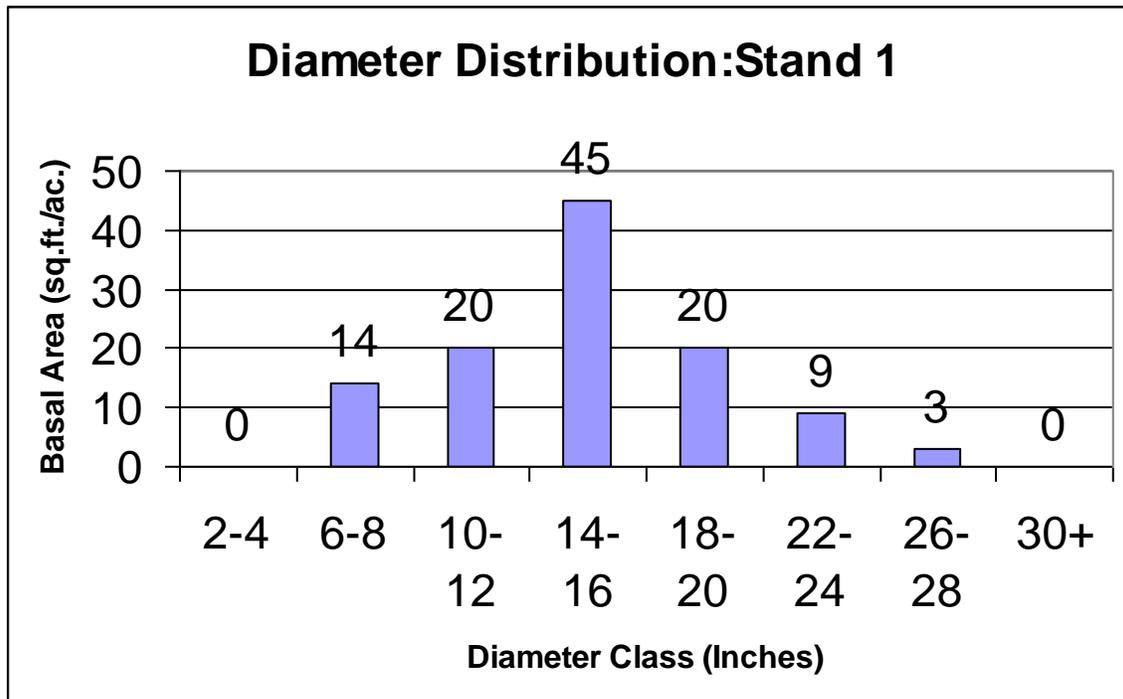


Figure 4. Overstory basal area distribution by diameter class, Town Garage Lot Northern Hardwoods stand, 2010 inventory.

Forest Health

Overall stand health is good.

Invasive Plants

Shrub Honeysuckle and Japanese Barberry are established at low levels in this stand.

Ground cover

Thirty species were observed in 7 plots, including a few spring ephemerals. None of the 30 species repeated in all plots, consistent with a relatively high level of diversity. Litter cover averaged 66%, and a low level of hayscented fern (which has the potential to inhibit tree regeneration when dense cover is present) was noted.

Wildlife Habitat

This area is mapped as deer wintering area by the Vermont Department of Fish & Wildlife. Since most of the stand is actually hardwood, this may be a mapping error. Greater structural complexity will benefit wildlife in this stand. Leave large live and dead trees for structure and as present or future cavity trees. Reserve butternut and large beech from harvest where they appear reasonably healthy.

Silvicultural System

The stand is presently transitioning to an uneven-aged structure, and will continue to be managed using uneven-age techniques generally following the guidelines of Natural Dynamics Silviculture. Most management will use individual tree selection, but if larger openings are ultimately created they will be limited to ¼ to ½ acre in size. This is slightly larger than the natural maximum gap size for this forest type, but it is believed that heavy browse pressure from an unnaturally high deer population will force the creation of these slightly larger openings in order to adequately establish species other than eastern hophornbeam, beech and striped maple.

Longterm Objective

Manage to perpetuate a healthy forest and maintain ecological integrity, with the secondary objectives being the production of high-quality hardwood sawlogs and veneer, wildlife habitat improvement and enhanced recreational opportunities. Utilize conservative uneven-age management techniques to maintain relatively high stocking levels but be prepared to employ group selection if necessary to obtain adequate sugar maple and white ash regeneration. Use a 20-year cutting cycle after this next entry, with diameter objectives of 20-22 inches for the best quality sugar maple, 18-20 inches for white ash and 16-18 inches for other species.

Scheduled Treatment

2011: Systematic control of all invasive, exotic plants.

2015-2020: Individual Tree Selection, with target residual BA 80-100 sq.ft./ac.

Maintain individual trees from all diameter classes in the stand including snag and cavity trees.

Town Garage Lot Stand 2 - Mixedwood

Acres

14.0 ac. (adjusted to grand list acreage)

Natural Community

Hemlock-Northern Hardwood Forest

Species Composition

Hemlock (42%), Sugar Maple (32%), Yellow Birch (10%), American Beech (8%) with associated Basswood, Red Maple and White Ash

Sampling Information

8 variable radius sample plots were measured with a 20 BAF prism on 6/4/10

Total Basal Area

130 sq.ft./ac.

Acceptable Growing Stock Basal Area

62 sq.ft./ac.

Mean Stand Diameter

11.1 inches

Trees/Acre

192

Snag Basal Area

3 sq.ft./ac.

Cavity Basal Area

3 sq.ft./ac.

Basal Area Variation

- 3 sample points had BA of less than or equal to 80 sq.ft./ac. (no immediate treatment recommended)

- 3 sample points had BA 120-140 (recommend BA reduction to 80-100).

- 2 sample points had BA 200-240 (recommend BA reduction to 100-120).

Soils

Soils are a combination of Tunbridge-Woodstock complex, and Pomfret very stony loamy fine sand. The Tunbridge-Woodstock series are very productive soils that are bedrock controlled, with the Tunbridge series being 20-40 inches to bedrock and the Woodstock series being 10-20 inches to bedrock. In this stand, Tunbridge soils dominate. Pomfret soils are also productive forest soils that are bedrock controlled, but they tend to be deeper and more excessively drained than those of the Tunbridge series. Pomfret soils occur on convex hillsides, are 30-60 inches deep to bedrock, are stony, with medium fertility and where deepest, are somewhat excessively drained.

Vertical/Horizontal Structure

Stand structure is fairly uniform and generally consists of one or two distinct age classes (Fig. 5). Most trees are between 6 inches and 20 inches in diameter with only 5% of tallied trees greater than 20 inches or less than 6 inches in diameter. The largest trees are widely scattered sugar maple and hemlock. In some areas there is a well developed shrub layer of leatherwood 5-8 feet tall. Regeneration is not well established.

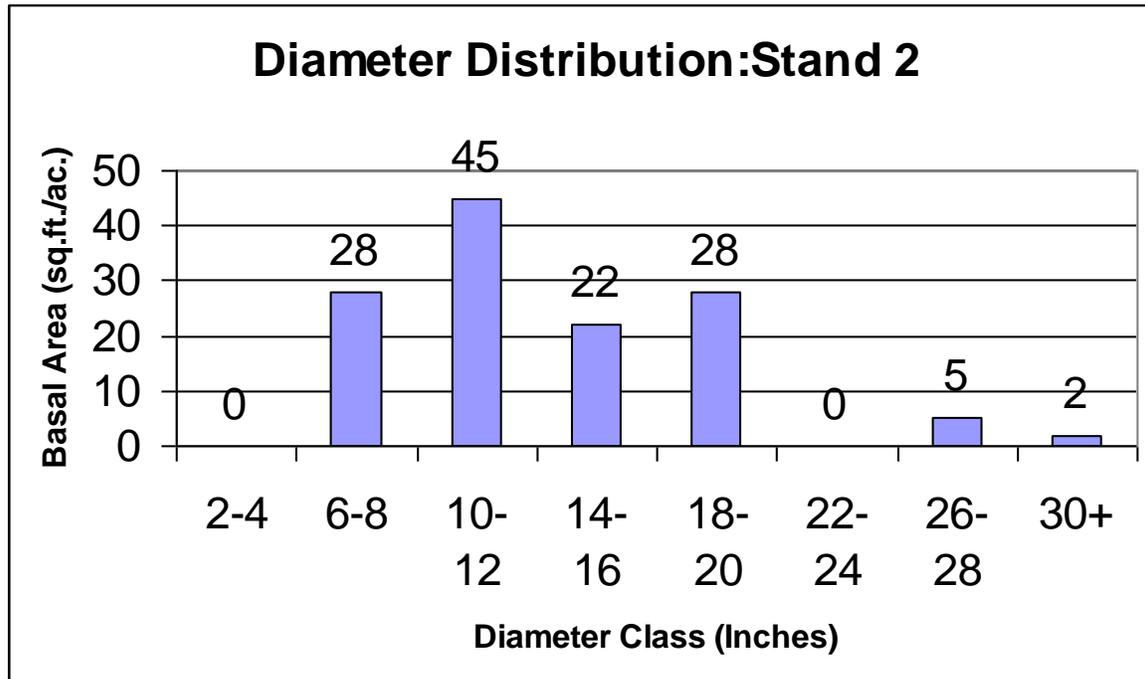


Figure 5. Overstory basal area distribution by diameter class, Town Garage Lot Mixedwood stand, 2010 inventory.

Forest Health

Overall stand health is good but there has been some recent weather-related breakage.

Invasive Plants

Shrub Honeysuckle and Japanese Barberry are established at low levels in this stand.

Ground cover

Thirty-two species were observed in 8 plots, with only a few spring ephemerals noted. None of the 32 species repeated in all plots, consistent with a relatively high level of diversity (particularly given the presence of a number of hemlock areas, which generally have a lower level of ground cover diversity). Litter cover averaged 69%, and no ferns suspected to inhibit tree regeneration were observed in the plots.

Wildlife Habitat

This area is mapped as deer wintering area by the Vermont Department of Fish & Wildlife and it does appear to be functioning as such. Greater structural complexity will

benefit wildlife in this stand. Leave large live and dead trees for structure and as present or future cavity trees. Reserve butternut and large beech from harvest where they appear reasonably healthy.

Silvicultural System

The stand is presently transitioning to an uneven-aged structure, and will continue to be managed using uneven-age techniques generally following the guidelines of Natural Dynamics Silviculture. Most management will use individual tree and small group selection, to promote the regeneration of shade tolerant species.

Longterm Objective

Manage to perpetuate a healthy forest and maintain ecological integrity, with the secondary objectives being the production of high-quality hardwood sawlogs and veneer, wildlife habitat improvement and enhanced recreational opportunities. Utilize conservative uneven-age management techniques to maintain relatively high stocking levels but be prepared to employ group selection if necessary to obtain adequate sugar maple and white ash regeneration. Use a 20-year cutting cycle after this next entry, with diameter objectives of 20-22 inches for the best quality sugar maple, 18-20 inches for hemlock and white ash and 16-18 inches for other species.

Scheduled Treatment

2011: Systematic control of all invasive, exotic plants.

2015-2020: Individual Tree and small Group Selection, with target residual BA 80-120 sq.ft./ac.. One or two groups, up to approximately 1/10 acre in size, will be located in areas of mature trees, low quality or poor health. Between groups, release crop trees and maintain individual trees from all diameter classes in the stand, including snag and cavity trees.

Town Garage Lot Stand 3 - Pasture White Pine

Acres

9.3 ac. (adjusted to grand list acreage)

Natural Community

White Pine-Northern Hardwood Forest

Species Composition

White Pine (63%), Black Cherry (19%), Yellow Birch (6%), Red Maple (6%), Elm (6%)

Sampling Information

5 variable radius sample plots were measured with a 20 BAF prism on 6/4/10

Total Basal Area

64 sq.ft./ac.

Acceptable Growing Stock Basal Area

38 sq.ft./ac.

Mean Stand Diameter

5.2 inches

Trees/Acre

431

Snag Basal Area

Not tallied

Cavity Basal Area

Not tallied.

Soils

This area appears to be mapped as Hartland very fine, sandy loam, which is a deep, well-drained, coarse-textured soil with bedrock greater than 5 feet deep. The present sand pit appears to be located on a deposit of Windsor loamy fine sand and the exact break between the two is unclear. Apparently the Windsor soil type is suitable for mining sand and the Hartland soil type is marginal at best, due to an abundance of fines. Both soil types are capable of producing excellent quality white pine.

Ground cover

Thirty-three species were observed in 5 plots; no spring ephemerals noted. None of the 33 species repeated in all plots, consistent with a relatively high level of diversity despite the dominance of grasses and goldenrods in several areas. Litter cover averaged only 36%, in large part due to the grass and goldenrod cover noted. No ferns suspected to inhibit tree regeneration were observed in the plots.

Stand Condition

Poor quality, large, open-grown white pine trees over dense understory of mixed hardwood regeneration and shrub honeysuckle. Approximately half the trees are technically, acceptable growing stock, but only just barely (Fig. 6). Those trees with sawlogs, generally have one, short, rough log. This stand is situated on alluvial material that is gradually being mined for sand, and that may be its future.

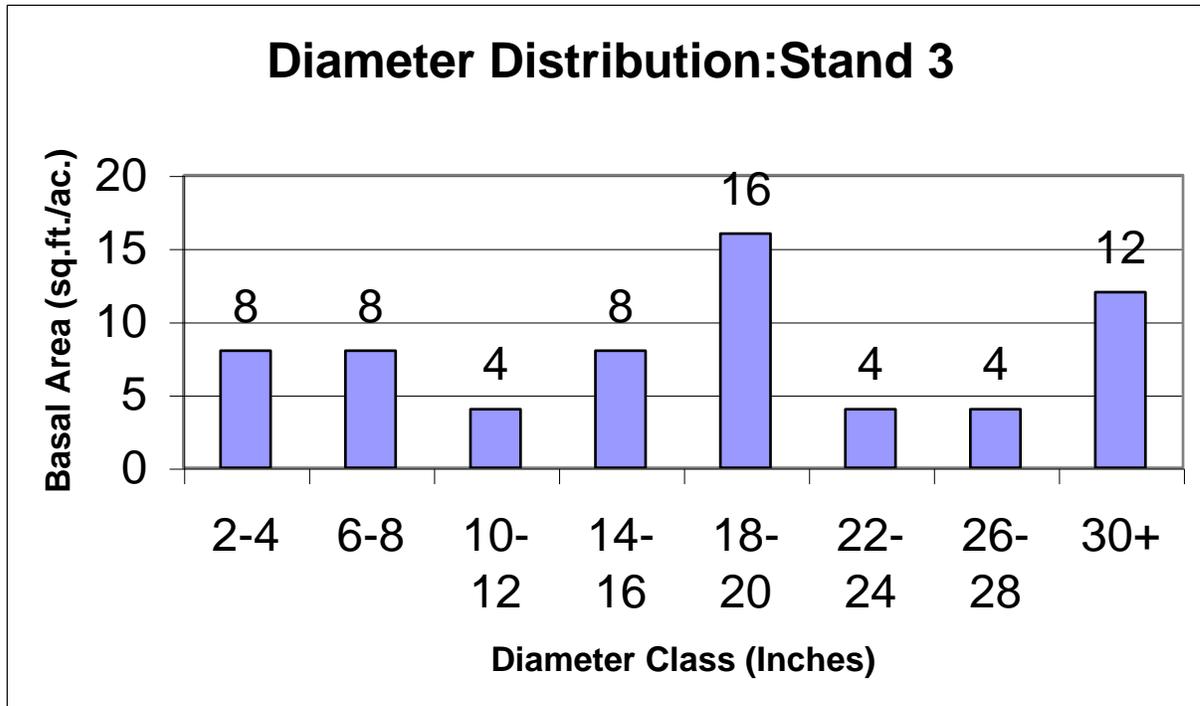


Figure 6. Overstory basal area distribution by diameter class, Town Garage Lot Pasture White Pine stand, 2010 inventory.

Scheduled Treatment

2011: Systematic control of invasive, exotic shrubs.

2015-2020: Clearcut to allow access for mining sand if that is what the town decides is appropriate, or to regenerate the stand if the sand pit is not to be expanded. Either way, the present stand is of very low quality, and the site can produce something better. There are stone posts along the northern boundary that should be salvaged for historical purposes if this area is ultimately incorporated into existing sand and gravel operations on this and the abutting parcel. Since this area currently provides the only potential vehicle access to the forested portion of the property, it is recommended that provision for long-term access be considered, if and when the sand pit is expanded.

Summary of Scheduled Treatments – Town Garage Lot

2011: Treat invasive plants throughout the property. High Priority.

Stabilize erosion on the loop trail by repairing existing waterbars.

2015-2020: Stand 1: Individual Tree Selection with residual BA of 80-100 sq.ft./ac.

Stand 2: Individual Tree and small Group Selection cutting with residual BA of 80-120 sq.ft./ac.

Stand 3: Clearcut