Siemeze Forest Management Plan

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Location

The Siemeze forest is easily accessible by means of two boundary roads. To the north by Middle Branch Road and to the south by class VI Lull Road Extension off Route 77. There is a parking area within a previous log landing off Middle Branch road. Access to the interior of the parcel from this point is along a steep uphill grade as well as old skid trails. From Lull Road Extension there is a skid trail that provides more level grade access.

Description

The Siemeze Forest is an 85-acre parcel with topography that trends downhill from south to north. At the northern end of this property the middle branch of the Piscataquog river lies across Middle Branch Road. There is a very small portion of the property that lies across Middle Branch Road with around 100 feet of river frontage. It should be noted that there will be no forestry operations within this very small portion of the property. The Siemeze Forest contains a wealth of diverse tree species, animal habitat, terrain and wetland areas. As a result of a large-scale bio-mass cut in 2014, the majority of the old skid trails are now teeming with early successional plants including raspberries, black berry, and birch species providing thick cover for small mammals and many birds. Evidence of deer and bear browsing of these plants can be seen throughout the property. There are two wetland areas within the property, one within the eastern side, encompassing just over 5 acres. Within these wetland areas there are groves of young aspen along the edges of the water and many dead standing snags providing habitat and feeding areas for owls, woodpeckers and other birds. The other wetland is located along the southern boundary along Lull Road Extension. This area has been dammed by beavers and the drainage from Still Pond from the south currently floods Lull Road Extension. There are 4 distinct forest types within this property; Eastern white pine stands, upland oak/pine stands, a mixed soft/hardwood stand and a mixed hardwood stand. There are no recreational trails on this property, though hunting and other recreational activities are allowed like all town forest properties. Camping, campfires and motorized wheeled vehicles are prohibited.

History

The town of New Boston assumed ownership of what is now Siemeze Forest between 1949-1950 as a result of unpaid taxes. At that time there were 3 separate parcels that made up what is now Siemeze Forest. Deeds of town record indicate that in 1949 the following parcels were taken; Dunbar land consisting of 1 acre, Norris land consisting of 20 acres and Dodge pasture consisting of 60 acres. Stone walls running the length of most of the boundaries and evidence of old barbed wire fencing indicate former agricultural land use in congruence with much of New England history. Logging history for the property is noted as follows; in 1978, 236,000 feet of Eastern white pine was harvested from the western portion of the property. In 1999, a harvest of 105,700 board feet of Eastern white pine and 100 cords of firewood, mostly red maple. In 2014, a large-scale bio-mass cut yielded the following: 401,850 board feet of Eastern white pine, 62.47 tons of pulp wood, and 516.23 tons of wood chips. In July of 2021, two cellar holes were located along the southern boundary stone wall. Investigation of previous ownership is currently underway. Updates to the plan regarding these cellar holes will be made as needed. In July of 2021, two colonial period cellar holes were located along Lull Road Extension. The identity of the historical owners is currently unknown. The cellar holes will be actively protected and unaltered.

Piscataquog Land Conservancy Conservation Easement

In April of 2021, a conservation easement was placed on the Siemeze forest. The Piscataquog Land Conservancy is the holder of the easement. Together with the PLC, the NBFC will work to preserve the soil and water quality, forest and wildlife diversity and habitat, natural communities, historical and scenic qualities that exist on the property. The conservation easement ensures that the property is protected in perpetuity by utilizing the most up to date best management practices for all forestry and recreational related activity.

NBFC Goals and Implementation

The New Boston Forestry Committee has developed this plan to manage the Siemeze Forest as an area to promote a high-quality sustainable forest, wildlife habitat and protection of two small wetland areas within the property. Careful consideration to methodology of timber harvest and silvicultural practices to reduce soil erosion and runoff to the Middle Branch Piscataquog River is of special concern. The Siemeze Forest contains much seedling regeneration and thus harvesting/TSI (Timber Stand Improvement) must be completed with caution as to not damage regeneration and retained growing stock. NBFC will conduct management activities in compliance with all applicable NH Forest Laws, RSA-79 (Timber Tax Law), RSA 227-J (Timber Harvesting Law), RSA 482-A (Dredge and Fill in Wetlands) and RSA 483-B (Comprehensive Shoreline Protection). Maintaining an uneven-aged forest will better poise the NBFC to navigate changing markets by promoting diversity within the forest and stands. All work conducted on the Siemeze Forest will be planned by the NBFC, Hillsborough County Forester and a licensed forester as needed. Publications such as “Good Forestry in the Granite State: Forestry Management for NH” (NHDRED, Dec. 2010), and “New Hampshire Best Management Practices for Erosion Control On Timber Harvesting Operations” (Division of Forests & Lands, & University of NH Cooperative Extension. Dec, 2016). “Uneven-Aged Management of Northern Hardwoods in New England” (Leak, W. and Filip, S. USDA Forest Service Research Paper NH-332, 1975) will be consulted as well.

The use of bio-mass or whole tree harvesting is not recommended by the NBFC. Exceptions to this recommendation are damages by natural events such as severe windthrow and the potential for infestation of Eastern hemlock by the Hemlock Wooly Adelgid and/or Elongate Hemlock Scale. Bio-mass harvesting may be the best solution for managing these pests as no natural remedies exist to date. Following the no pesticide recommendation on town forest lands, the NBFC will refer to “Managing Hemlock in Northern New England Forests Threatened by Wooly Adelgid and Elongate Hemlock Scale” (USDA Forest Service, 2015), and the following outlined recommendations; 1*. Do Nothing – wait and let nature rule*. This may not be the best approach, as the potential for spread of the pest exists. 2. *Cut trees – brush may be chipped and covered or piled and burned*. This will require many volunteers. 3. *Biomass cut where the entire tree is chipped and blown into an enclosed trailer, then transported to an incinerator*. This is likely the best solution. 4. Timing of the operation is August- March. See section in “Recommendations” further along in this management plan.

The NBFC will protect the wetland areas within the Siemeze Forest as follows. A recommended buffer of 100 feet shall be maintained around the wetland area to promote wildlife habitat and reduce soil erosion. The location of the wetlands in the Siemeze Forest present no need for the wetlands to be disturbed or crossed by harvesting equipment. Skid trails shall be planned to avoid these areas. There are laws protecting wetland areas in NH, such as RSA-227-J, RSA 483-A, RSA 227-J-9.

Soils

The Siemeze Forest contains the soil types listed below. Soil information was obtained from the USDA Soil Conservation Service Manual, Hillsborough County, NH, eastern part, in conjunction with the USDA Forest Service online publications. Site index values range from 0-100.

CmC – Canton 8-15 % slopes, very stony. Windthrow and seedling mortality slight. Site index for White Pine- 58, Red oak- 52, Red pine- 73, red maple- 55, sugar maple-55. Trees to manage – Black oak, Eastern hemlock, Eastern white pine, Northern red oak, Red maple, Sugar maple, White oak

CnD – Canton 15-35 % slopes, very stony. Windthrow and seedling mortality slight. Site index for White Pine- 58, Red oak- 52, Red pine- 73, red maple- 55, sugar maple-55. Trees to manage – Black oak, Eastern hemlock, Eastern white pine, Northern red oak, Red maple, Sugar maple, White oak

CsC – Chatfield-Hollis complex, 8-15% slopes, rocky. Windthrow hazard slight, seedling mortality moderate.

Chatfield – Site index for Northern red oak- 70, Sugar maple- 65, White ash- 70. Trees to manage- Eastern white pine, Hemlock, Red oak, Norway spruce, Red pine, White oak.

Hollis – Site index for Eastern White pine- 55, Red oak- 47, Sugar maple- 56. Trees to manage- Eastern white pine.

HsB – Hinckley loamy sand 3-8 % slopes. Windthrow hazard slight, seedling mortality severe. Site index for White pine- 61, Red oak- 49, Pitch pine- 60, Red pine- 54. Trees to manage – Black oak, Eastern white pine

LvA – Leicester-Walpole complex stony, 0-3 % slopes. Windthrow hazard severe, seedling mortality severe.

Leicester – Site index for White pine- 69, Red oak-56, Red maple-70. Trees to manage – Eastern hemlock, Eastern white pine

Walpole – Site index for White pine- 68, Eastern hemlock- 54, Red maple- 75, White Ash- 61. Trees to manage – Eastern white cedar, Eastern white pine

StA – Scituate stony fine sandy loam, 0-3% slopes. Windthrow hazard moderate, seedling mortality low. Site index for Eastern white pine- 65, Red oak- 61, Red pine- 70. Trees to manage- Eastern white pine, White spruce.

Wetlands

The wetlands found in the Siemeze Forest are classified as freshwater forested/shrub wetlands. As outlined above, these wetlands will be protected by a 100-foot buffer zone to promote wildlife habitat and prevent soil erosion in these areas. The interior wetland contains a mixture of dead standing snags, red maple and various herbaceous plants and grasses mixed with young tree saplings all of which are critical components of wildlife ecosystems. There is standing water approximately 1 to 2 feet deep near the middle of this 5-acre area. Trees that are dead standing as a result of the standing water are of great value to birds of prey for habitat and hunting. The smaller wetland area is located along the southern boundary along Lull Road Extension and is less than 1 acre in size. This area is an extension of Still Pond which is to the south. Beavers have dammed the stream bed to the north of still pond and thus ponding has occurred from the stream bed outward. This area is much different than the interior wetland. The edge of the wetland is lined with taller white pine and red maple trees and is free of dead standing trees within the water. Herbaceous plants and grasses are found along the class VI Lull Road Extension.

The northern boundary of the Siemeze Forest is located along Middle branch Road across from the Middle Branch Piscataquog river, as well as an area of 3.5 acres with river frontage. The area with direct river frontage on the north side of Middle Branch Road will be left to nature and forestry operations will not disturb this area. Harvesting operations must be carefully planned to reduce soil erosion and the northern portion of the property slopes severely downhill toward the river. Examples of careful planning include but are not limited to planning future harvests in the winter months when there is sufficient snow cover to protect the soil. Layout of skid trails along the severe slopes will require a design that limits machinery from tracking directly up and down hill to reduce erosion potential. Another example would include leaving small tree branches as slash, piled along skid roads providing additional barriers to soil erosion. Most of the Siemeze Forest is subject to the Shoreland Water Quality Protection Act (SWQPA). A copy of this document is provided in the appendices section of the management plan. Refer to the wetland map obtained from the NH DES that shows the area that is subject to the SWQPA, which can also be found in the appendices of this plan.

Wetlands within the Siemeze Forest should be protected to achieve diversity in wildlife species among amphibians, birds, mammals and reptiles. The use of uneven-aged forest management will allow for an uninterrupted habitat along and within wetlands located here. Selective harvest and patch cutting of the forest allows for the preservation of different age classes of tree species, meaning not all of the mature trees should be cut at one time, thus opening new space for early successional species on a regular rotation.

Invasive Plants

At the time of writing, there are no noted invasive plant species within the property. Due to the nature of the current condition within the Siemeze Forest the potential for invasive plant species establishment remains high. This is due to the dispersal of seeds by wildlife and proximity to roads and other properties that contain invasive species. Secondarily, the open canopy and forest floor conditions found throughout the Siemeze Forest could allow for vigorous establishment. For these reasons it will be imperative that monitoring of the forest takes place on a regular basis. This monitoring could easily be done while setting up and monitoring sample plots for Hemlock Wooly Adelgid.

Natural Communities

After review of the book, “The Nature of New Hampshire” by Dean Sperduto and Ben Kimball, 2011, the predominant natural community is Hemlock-Beech-Oak-Pine (S5 ranking) Secure: Demonstrably common, widespread, and abundant. The wetland areas are identified as Red Maple *Sphagnum* Basin swamps (S4 Ranking) Apparently Secure: Uncommon but not rare; some cause for long term concern due to declines or other factors (Sperduto, Pg. 309).

Hemlock Wooly Adelgid



[This Photo](https://en.wikipedia.org/wiki/Hemlock_woolly_adelgid) by Unknown Author is licensed under [CC BY-SA](https://creativecommons.org/licenses/by-sa/3.0/)

<https://upload>.wikimedia.org/ikipedia/commons/thumb/a/a0/Adelges\_tsugae\_3225077.jpg/1200px-Adelges\_tsugae\_3225077.jpg

Elongate Hemlock Scale



[This Photo](http://www.forestryimages.org/browse/detail.cfm?imgnum=1122009) by Unknown Author is licensed under [CC BY](https://creativecommons.org/licenses/by/3.0/)

<https://bugwoodcloud>.org/images/768x512/1122009.jpg

Monitoring for these pests is outlined in the forest management activity schedule on page 13. Use of the research paper, “Managing Hemlock in Northern New England Forests Threatened by Hemlock Wooly Adelgid and Elongate Hemlock Scale” (USDA Forest Service, 2015) shall be consulted for appropriate action.

Wildlife

A lengthy list of wildlife species can be expected to be found within and near the Siemeze Forest property. The wetland in the interior of the property is sure to attract a wealth of amphibians, birds, mammals and reptiles. Deer browse is evident on many of the young red maple sprouts as well as white oak saplings. Raspberry plants certainly attract many birds and evidence of deer and bear activity can be found throughout the property. There are currently no man-made wildlife nesting structures or evidence thereof. Beaver activity is noted in the smaller wetland area along the southern boundary along Lull Road Extension however beaver activity was not of note in the interior wetland area to date.

Wildlife is dependent on the forest for various foods and shelter. Mature oak trees provide wildlife with hard mast (acorns), while wild raspberries provide soft mast. These food sources are used by a variety of birds and mammals, small and large. Due to the variety of tree species and age classes found in the Siemeze Forest, an abundance of wildlife can be expected to make shelter or be found within the property. Thick early successional plants such as raspberry and birch stems make great ground cover for many birds and small mammals. Dead standing trees provide perches and cavities for which birds will use to hunt and nest. Large spreading *Quercus alba* (white oak) can be found in a few places across the property. These trees are old and degrading but serve as nesting and denning sites. There are no established recreational trails on the Siemeze property currently. If trails are to be established, they are to be constructed an appropriate distance away from these large trees to limit dangerous conditions.

Please review the Dirt to Trees to Wildlife report and the National Heritage Bureau Report found in the appendices near the end of this management plan.

A picture containing tree, outdoor, plant

Description automatically generated

Example of a large white oak found in the Siemeze forest.

Management of Forest Stands and Basal Area Estimations

The Siemeze Forest will be managed using an uneven age approach. Uneven-aged forests contain three or more age classes, promoting diversity among tree and wildlife species. This is achieved by selective patch cutting of the forest. This method allows for the preservation of different age classes of tree species such as seedlings, saplings, pole size and saw timber. By maintaining these different age classes regeneration of desired tree species can be more successful. Examples include mature trees providing seed for regeneration as well as a degree of protection to younger trees from severe wind and other weather-related disturbances such as heavy rain or snow.

Due to the large-scale logging operation in 2014, the Siemeze Forest contains minimal marketable timber currently, but it is certainly a host of vigorous regeneration of generally marketable species, namely white pine and red oak. For this reason, sample plots were set up and cruised with a Relaskop hand -held prism to estimate basal area of the trees located within the Siemeze forest. Basal area is a figure used in addition to average tree diameter to aid in the determination of timing a timber harvest. Because the basal area figures are quite below stocking guides for New Hampshire, individual tree diameters were not recorded at this time. Residual basal area, meaning post-harvest, guides from the publication Good Forestry in the Granite State: Forestry Management for NH (NHDRED, Dec. 2010) regarding uneven-aged management are as follows; Hardwood stand 70-80 Sq. Ft./acre, Mixed wood stand 70-100 Sq. Ft/acre, and softwood stand 70-120 Sq. Ft./acre. Harvesting is recommended when the basal area is at least 30 Sq. Ft. above the residual basal area guides. The current basal area values as a result of the harvest completed in late 2014 are still well below residual basal area guides and need time and careful TSI (Timber stand improvement) work to achieve target basal area and tree diameters. Good Forestry in the Granite State also reports that Eastern white pine growth rates can range from 1.5-3.5 Sq. Ft./acre annually, Red oak – 1.0-2.5 Sq. Ft./acre, Northern hardwoods – 1.0-2.2 Sq. Ft./acre and hemlock – 2.0-2.7 Sq. Ft./acre. Thinning of stands may need to occur to provide optimal growth conditions and higher quality timber. Growth rate ranges and estimates are not to be considered a definitive measure. Growth rates are correlated with soil site index, soil conditions such as depth, moisture and composition as well as the growing site itself. Because of this, interval monitoring and TSI work are crucial to managing the Siemeze Forest for timber.

Across all stands of the Siemeze Forest there are suitable seed trees that remain. There is considerable regeneration across all stands of Eastern white pine and red/white oak, however this regeneration is typically occurring in the skid trails from previous harvest activity and not on the forest floor at this time. TSI work can be done in the coming years to aid in successful regeneration of these marketable tree species. Use of a brush saw to cut down American beech saplings as well as other non-commercially marketable species such as striped maple is the easiest and most direct way to prevent the valuable regeneration from being shaded out by the fast-growing beech tree. These saplings can simply be cut and laid on the forest floor. The main reason for removing beech trees is beech bark disease. This complex disease makes the American beech tree less commercially valuable and renders much of its value in firewood. An exception to this practice is to leave mature American beech trees that show resistance to this disease. There a several American beech trees located in stand 5 that are exception examples of resistance. These examples should be left for the purpose of regeneration of the American beech tree by vegetative (seed) means and as legacy trees.

The Siemeze Forest would be best suited for Shelterwood silviculture systems. In meeting the goals of maintaining an un-even aged forest, a three-step system should be utilized. This system consists of; 1, pre-commercial thinning. 2, a seed cut. 3, overstory removal. When applied, shelterwood systems ensure that there are cohorts of seedling, sapling, pole, and mature trees left in the forest.

All stands in the Siemeze Forest should be monitored for Hemlock Wooly Adelgid and Elongate Hemlock Scale pests. These pests damage Eastern Hemlock trees to a point of needing to salvage cut as Hemlock trees that are dead standing hold no marketable value. More information regarding Hemlock pest monitoring is described on page 13 of the management plan. Other pests and diseases to monitor are pine scale, beech bark disease, and defoliating insects such as the forest tent caterpillar and gypsy moth. Defoliating insects in the northeast can have dramatic impacts on a variety of tree species and the effects can be long lasting. Sugar maple is noted across several sample plots within the Siemeze Forest and should be monitored for Asian Long-horned Beetle and Sugar Maple Borer insects.

The Siemeze Forest contains some unique features and components. In the northwest corner of stand 3 bordering the interior wetland is a patch of heavy *Populus grandidentata*. Big tooth aspen is a pioneer species establishing after many types of disturbances. Along with raspberries, birches and ironwood, this area is an early successional community that is excellent wildlife habitat. This area will be left to nature to take its course.

There are two colonial period cellar holes that were located along the stone wall southern boundary near Lull Road Extension. These cellar holes will be protected from alteration with a 25-foot buffer zone from the edge of each. No forestry activity shall damage this area. The historical family or families have not yet been identified, and this information was passed along to the New Boston Historical Society. Updates to historical ownership will be made as they become available.

Stand Management Recommendations and Basal Area

All stands in the Siemeze Forest should be monitored on a five-year interval to determine health of the stands. This monitoring will help determine timing of thinning and harvest operations as well as forest pest activity. Monitoring all stands on a five-year interval will promote higher quality timber over the years. This is achieved by thinning pole size stems to increase growing space and increasing light saturation to regeneration below. Most trees within Siemeze Forest fall in the following size categories; seedling (0”-1” diameter), sapling (1”-4” diameter) and pole (5”-11” diameter).

Basal area, among other forest inventory calculations, should be obtained through a formal cruise of the entire property around the year 2041, Because no large scale harvesting activity will take place for some time, with the exception of stand 1. Obtaining inventory information at this later date will help fine tune the timing of thinning and harvesting operations.

As with beech bark disease limiting commercial value of the American beech tree, considerations should be made regarding hemlock wooly adelgid and the hemlock trees on the property. If under the course of monitoring for this pest the infestation becomes overwhelming, a salvage cut of hemlock could be done across the property. After such, performing further TSI by weeding out hemlock seedlings could increase growing space for marketable species such as Eastern white pine and red oak.

Stand 1 – 14.6 acres. Located along the western boundary and Lull Road Extension to the south. Contains sample points 1,2,3,4,7,8. Mixed Northern hardwoods stand. Strong regeneration of sugar maple throughout stand. Soils – CmC, CnD. Canton series soils 8-15% and 15-35% slopes, respectively.

Current basal area; White pine – 66 sq.ft., red maple – 34 sq.ft., black birch – 20 sq.ft., hemlock – 20 sq.ft.

Prescription – This stand is to be managed for Northern hardwoods with a concentration on sugar maple. At time of writing (July 2021), white pine in this stand should be harvested to allow the vigorous and abundant advanced regeneration of red and sugar maple to be released. Ideal harvesting is to remove all but two (2) dominant white pine trees per acre. Ideally, white pine trees that are left in the stand should be an equal number of high-quality pole size and weevil damaged trees. White pine trees with weevil damage are not genetically inferior and are an excellent seed source for future regeneration. Leaving a mixture of weevil damaged trees and pole sized white pines will aid in regeneration of the species and provide addition timber in the future alongside northern hardwood species. Timing of overstory pine harvesting between 2021-2024. Rotation length of the next harvest is extremely varied and depends on environmental factors and site conditions. A likely scenario would estimate the next operation of thinning maple trees in this stand in roughly forty (40 years, 2051).

White pine target basal area should be 20 square feet per acre post-harvest.

Stand 2 – 17.5 Acres. Located along Lull Road Extension to the South extending north to the interior of the property. Soils; CsC – Chatfield-Hollis complex, 8-15% slopes. CnD – Canton, 15-35% slopes. CmC – Canton, 8-15% slopes. Contains sample points 5,6,9,10,11,12,15,16,21.

Prescription – In 20 to 30 years, remove 30% merchantable overstory timber, both hard and soft woods, leaving 1 to 2 seed sources of pine and oak while also leaving a mixture of hard and soft wood understory components. A shelterwood system would best be applied in this stand. Shelterwood silviculture systems aid in the regeneration of both white pine and red oak species, both valuable economic and ecologic trees. A shelterwood system contains a three-step (pre-commercial thinning, seed cut, overstory removal), management approach, which results in multi-aged forests. The first step, precommercial thinning, is unnecessary at this time due to the large-scale harvest that took place in 2014. Proposed schedule for shelterwood system implementation – In 20-30 years, perform a seed cut, leaving only 1 to 2 seed sources of white pine and red oak per acre. 20-30 years later, perform an overstory removal, releasing advanced regeneration at that point. Repeat this process for the stand. Typical rotation length can be a range from 80-100 years.

Stand 3 – 16.7 Acres. Located along Lull Road Extension and the eastern boundary, extending to the interior of the property to including the wetland area. Soils; CsC – Chatfield-Hollis complex, 8-15% slopes. CnD – Canton, 15-35% slopes. StA – Scituate, 0-3% slopes (wetland area). CmC – Canton. 8-15% slopes. Contains sample points 17,18,19,22,23,24,25.

Prescription – Shelterwood system similarly to stand 2 and 5. In 5-10 years perform a pre-commercial thinning of white pine regeneration. In 20-30 years perform a seed cut, removing 30 % of the overstory white pine and red oak components, leaving 1 to 2 seed sources per acre. 20-30 years later, perform an overstory removal, releasing advanced regeneration at that point. Determine the more abundant regeneration. If site conditions favor white pine or red oak strongly, focus the shelterwood system on the stronger component. If mixed, continue this process for the stand.

Stand 4 – 6.1 Acres. Located along the northern boundary with abutting property owners to the north. Contains sample plots 13,14,20. Mixed Hardwood stand, soils; CnD – Canton, 15-35% slopes. CmC – Canton, 8-15% slopes.

Black birch – 80 Sq. Ft. White ash – 40 Sq. Ft. Red maple – 30 Sq. Ft. Red oak 20 Sq. Ft. White pine, Hemlock, Black ash, Sugar maple and Bigtooth aspen each – 10 Sq. Ft. most trees in this stand are pole size.

Prescription – This stand is on a severe north facing slope with topography becoming less severe to the southern portion. Canton series soils prefer Eastern white pine, red oak, red and sugar maple. The current composition of this stand is of mixed hardwoods. Regeneration noted is oak, maple and hemlock. The topography and buffer zone along a seasonal stream makes access to this stand very limited. This area should be left as a natural buffer to the wetlands and other forest stands.

Stand 5 – 30.4 Acres. Located Along the eastern boundary and Middle Branch Road. Soils; CmC – Canton, 8-15% slopes. CnD – Canton, 15-35% slopes. Very small portions in the extreme north east boundary of LvA – Leicester-Walpole complex, 0-3% slopes, and HsB – Hinckley, 3-8% slopes. Contains sample points 26 through 41.

Prescription – In 20 to 30 years, remove 30% merchantable overstory timber, both hard and soft woods, leaving 1 to 2 seed sources of pine and oak while also leaving a mixture of hard and soft wood understory components. A shelterwood system would best be applied in this stand. Shelterwood silviculture systems aid in the regeneration of both white pine and red oak species, both valuable economic and ecologic trees. A shelterwood system contains a three-step (pre-commercial thinning, seed cut, overstory removal), management approach, which results in multi-aged forests. The first step, precommercial thinning, is unnecessary at this time due to the large-scale harvest that took place in 2014. Proposed schedule for shelterwood system implementation – In 20-30 years, perform a seed cut, leaving only 1 to 2 seed sources of white pine and red oak per acre. 20-30 years later, perform an overstory removal, releasing advanced regeneration at that point. Repeat this process for the stand. Typical rotation length can be a range from 80-100 years.

Forest Management Schedule

Entire property

2021 – Set up monitoring plots for HWA, Elongate Scale – Repeat annually for five years for comparative results. If a downward quantitative trend is noted, revisit monitoring on a bi-annual basis.

2025 – Paint boundary lines. Repeat every five years.

2041 – Perform forest inventory cruise.

Stand 1

2021-2024 – Remove all but 2 white pine trees per acre.

Stand 2

2041-2051 – Seed cut, leave 1 to 2 seed sources of white pine and red oak per acre.

2061-2071 – Overstory removal.

Stand 3

2026-2031 – Pre-commercial thinning of white pine regeneration.

2041-2051 – Seed cut, leave 1 to2 seed sources of white pine and red oak per acre.

2061-2071 – Overstory removal.

Stand 4

No activity, leave as a natural area.

Stand 5

2041-2051 – Seed cut, leave 1 to 2 seed sources of white pine and red oak per acre.

2061-2071 – Overstory removal.

NRCS Soil Map

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NHDES Wetlands Map

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Stand 1 Basal Area Information

As of July 2020

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|  | 80 | 20 | 10 | 10 | 0 |
| plot 2 | wp | eh | ro | rm | bb |
|  | 70 | 0 | 20 | 20 | 0 |
| plot 3 | wp | eh | ro | rm | bb |
|  | 70 | 0 | 0 | 0 | 40 |
| plot 4 | wp | eh | ro | rm | bb |
|  | 60 | 0 | 10 | 50 | 0 |
| plot 7 | wp | eh | ro | rm | bb |
|  | 80 | 0 | 0 | 50 | 0 |
| plot 8 | wp | eh | ro | rm | bb |
|  | 40 | 0 | 0 | 40 | 10 |
|  |  |  |  |  |  |
| average | 66.66667 | 3.333333 | 6.666667 | 28.33333 | 8.333333 |
|  | sq.ft | sq.ft | sq.ft | sq.ft. | sq.ft |

Forest Stand Map

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Forest Stand Inventory Points

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National Heritage Bureau Report

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Dirt-Trees-Wildlife Report

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