BOB TODD FOREST

Location, History, Character

The Bob Todd Forest is 58.5 acres of forestland located mainly on Old Coach Rd.; the property abuts Butterfield Mill Rd. and Greenfield Rd, a Class 6 road, in the Town of New Boston, NH, Tax Map # 7-74-1.

There are maintained trails in this forest open to recreational, non-motorized use.

The forest has a small pond area with Wood duck nesting boxes.

The Bob Todd Forest is primarily level land with a highwater table, creating small streams and marsh areas.

There are no historical items in this forest. The Bob Todd Forest was likely used as pasture land in the late 1800's until about World War I. The Town of New Boston purchased the property on September 12, 1988 from the O'Rourke family. The family logged this parcel in the 1970's. The Town of New Boston purchased the property to protect Town interests due to the nearby landfill and the possibility of contaminates leaching into the high-water table.

The Town of New Boston and Army Corps of Engineers constructed a baseball field on a small portion of the parcel in the 1990's. Also, in the 1990's, trails were constructed by the New Boston Forestry Committee. In 1996, the UNH Forestry students completed a timber stand map of the parcel. In 2012 boundary lines were marked with small placards. From 2017-2018, the New Boston Forestry Committee completed a tree inventory of the forest using 25 sample plots. This

management plan was derived from the tree inventory. The sample plots were 1/10th acre in size. All trees over 6" in diameter were counted.

New Boston Forestry Committee Goals

The New Boston Forestry Committee (NBFC) has developed a plan to manage the Bob Todd Forest as an area to support wildlife, protect water quality in the wetlands, marsh, small stream and a pond; create a sustainable forest, and allow recreational use by non-motorized means.

Overall Management Approach

The goal of silviculture practices will be to create and maintain an uneven-aged forest; a stand with three or more age classes, increasing species, and site class diversity.

NBFC recommends a blend of group selection and single tree selection, harvesting to create openings of ¼ acre, removing clumps of mature or defective trees, thus allowing the White Pines, Red Oak, Red Maple trees to increase in quality.

The management practice of creating an uneven stand will provide marked diversity, protection of surface water, and habitat for wildlife. Harvesting cycles may be changed due to insect infestation, diseases, ice damage, drought, or declining markets. Employing the silviculture practices identified above ought to protect the Bob Todd Forest against market changes by creating diversity within

the forest. Care must be exercised during any harvest to ensure that existing regeneration and retained growing stock are not damaged.

NBFC does not recommend Bio-mass whole tree harvesting in general, however, if the Hemlock in this forest is infested with Wooly Adelgid or Elongate Hemlock Scale this may be the best management tool. The USDA (Forest Service) research paper dated September 2015 "Managing Hemlock in Northern New England Forests Threatened by Wooly Adelgid and Elongate Hemlock Scale" makes the following recommendations:

1) Do nothing – wait and let nature rule. This recommendation may not work in the Bob Todd Forest because of the aesthetic value of the public land.
2) Cut trees – the brush may be chipped and covered or piled and burned. This action requires a work force of volunteers.
3) Bio-mass operation where the entire tree is chipped and blown into a closed trailer, then transported to an incinerator. This is the most likely solution.
4) Timing of the operation is August to March.

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 & Fill in Wetlands) and RSA 483-B (Comprehensive Shoreline Protection). NBFC will also employ best management practices for erosion control on timber harvesting operation as recommended by the New Hampshire DRED and the University of New Hampshire Cooperative Extension Service in 2000. Furthermore, planning and implementation of forestry operations shall be coordinated with other silviculture practices. Such practices will include maintaining an uneven-aged forest as a hedge against the ecological effects of weather and disease and to increase biodiversity. As guidance documents for this endeavor we will use such publications as "Good Forestry in the Granite State: Forestry Management for NH" (NHDRED 1997),

and “Uneven-Aged management of Northern Hardwoods in New England” by William B. Leak and Stanley M. Filip, USDA Forest Service Research Paper NH-332 (1975).

All work on the Bob Todd Forest will be planned by the NBFC, Hillsborough County Forester, and a licensed forester as needed.

Natural Communities

After review of the book “The Nature of New Hampshire” by Dean Sperduto and Ben Kimball, 2011, it has been determined that there are no special features in this forest.

Soils

The Bob Todd Forest contains the soil types listed below. Soil information was obtained from the USDA Soil Conservation Service Manual, Hillsborough County, NH, eastern part.

BpA – Borohemists/ponded. Very poorly drained soils, highwater table, decayed organic material 16” to 51” deep.

CmB – Canton. Windthrow, seedling mortality slight, site index for White Pine – 58, Red Oak – 52. Trees to plant White Pine Red Pine, White Spruce. Stoney fine sandy loam, well drained.

LvA – Leicester/ Walpole. Windthrow and seedling mortality severe, site index for White Pine-68, Red Oak – 56, Hemlock – 54, Red Maple – 69. Trees to plant – White Pine, White Spruce, Norway Spruce – poorly drained soils, highwater table, complex soil.

PiA – Pipestone. Windthrow slight. Seedling mortality moderate, trees to plant – White Pine, Norway Spruce. Poorly drained, loamy sand.

Boundary Lines

Boundary Lines shall be maintained by the NBFC. The boundary lines are to be painted every 5 years.

Endangered Species

See appendices enclosed for findings from NH Natural Heritage Bureau. Contacting NH Fish and Game may be required before harvesting forest products. (603-271-6544)

Wetlands

The Bob Todd Lot has a high-water table. There is a small stream passing through the forest with marsh and wetlands on either side. This stream terminates at a small pond that exists because of damming at the class 6 Greenfield Road. A 30” reinforced concrete pipe outlet crosses under Greenfield Road. The system of surface and subsurface water is very diverse. There are

many laws that cover Wetland Protection, including RSA 227-J, RSA 483-A, RSA 227-J9.

The NBFC recommends that no harvesting take place within 100' of any wetland. Because there is access to the forest on three sides and wetlands bisect the forest, there is no need to cross the wetlands. All logging skid trails shall be laid out in a manner to guard against rutting and erosion.

A buffer zone of 100' and uneven aged silviculture will serve to protect the aquatic habitats and water quality by keeping the water temperature low. There are different canopy layers which provide continuous vegetative cover and aid in erosion control.

Forest Health

Tree quality and stand health are at a high level for the dominant species. There is no evidence of pathogenic organisms.

Eastern Hemlock within the forest require yearly monitoring for Wooly Adelgid and Elongate Hemlock Scale. (See photos). If these pests are found on the Hemlock, the NBFC shall determine the extent of infestation and develop the appropriate action plan, utilizing the USDA (Forest Service) research paper dated September 2015 "Managing Hemlock in Northern New England Forests Threatened by Hemlock Wooly Adelgid and Elongated Scale".

At the present time, there are no invasive species in the forest. Future management activities will always include monitoring for invasive species. If any invasive species are identified, NBFC will take the appropriate action based on the invasive species and the most appropriate way to eradicate the species.

The use of chemical controls (herbicides and pesticides) is not permitted in this forest.

Wooly Adelgid

Wooly Adelgid

Elongate Hemlock Scale

Elongate Hemlock Scale

Wildlife

Bob Todd Forest has a very diverse wildlife population. There are Wood duck nesting boxes in the small pond area. Bear and Moose signs have been noted in this forest.

The wetlands provide habitat for many native species. The mix of hardwood, mostly Red Maple and softwood (Eastern Hemlock and White Pine) are habitat for many types of woodpeckers, hawks, squirrels, and owls. The marsh, stream, and pond are habitats for ducks, turtles, salamanders, spring peepers and an array of mammals. Harvesting of trees will be completed using uneven stand management. This is the best practice for maintaining existing wildlife species. Trees with cavities shall be left for use by wildlife.

Access

Road access for this forest is very good by way of Old Coach Rd., Butterfield Mill Rd, and Class VI Greenfield Rd. The forest interior skid trails must be laid out with wetland protection in mind. Harvesting must be completed when the ground is frozen or during the driest time of year.

Recreation

Bob Todd Forest has a network of trails that are well used by the public. The trails maintenance is completed by several organized groups of volunteers in the Town of New Boston. The forest is also used by hunters and individuals viewing wildlife. The management plan of this forest shall reflect consideration of all the uses of this forest.

No harvesting shall take place within 75' of any trail. This practice will preserve the woodland experience.

Management of Forest Stands

Bob Todd Forest consists of six (6) stands, each requiring a distinct management practice. Following is a description of each stand and the corresponding NBFC recommendations.

Stand #1

Stand #1 is approximately 10.2 acres in size. The soil in this stand is PiA – Pipestone, a soil with a high-water table.

Stand #1 contains three (3) sample plots, primarily consisting of Eastern Hemlock, Red Maple, and a few White Pine. The soil site index favors Red Maple (USDA/Soil Conservation Service).

Findings from the 3 sample plots reveal the following:

Red Maple – Average diameter – 9”

Average BA/Acre – 47

Average BF/Acre – 1793 BF

Hemlock – Average diameter – 9.5”

Average BA/Acre – 76

Average BF/Acre- 3480 BF

White Pine – Average diameter – 12.7”

Average BA/Acre – 29

Average BF/Acre – 2853 BF

Stand #1 does not contain enough marketable timber to support a commercial harvest operation. This area has been high graded over the years. This forest has a very high water table and a low volume of timber. The NBFC recommendation as of 2018 is to monitor for Hemlock Wooly Adelgid and Elongate Hemlock Scale. If these pests are identified, a salvage cut shall be initiated in the dry time of the year. This cut may require a biomass cut of the Eastern Hemlock only. The biomass cut will result in large openings for the reseeding of White Pine.

The prime value of this stand is for recreational use and wildlife habitats.

Stand #2

This stand comprises approximately 19.5 acres in size. The soil in the stand is LvA – Leicester/Walpole. This is a soil with a high water table.

Stand #2 has eleven (11) sample plots. There are primarily White Pine, with Eastern Hemlock and Red Maple.

The findings from the sample plots reveal the following:

White Pine – Average diameter – 16.5”

Average BA/acre – 81

Average BF/acre – 13,289 BF

Eastern Hemlock – Average diameter – 10.0”

Average BA/acre – 32

Average BF/acre – 2571 BF

Red Maple – Average diameter – 11.8”

Red Maple – Average BA/acre- 17.851

Average BF/acre- 1638 BF

The soil site favors White Pine (USDA/ Soil Conservation Service). The White Pine in stand #2 is primarily an even aged stand. There is an understory of small White Pine. This stand would benefit from small patch cuts ranging from ¼ to ½ acre

size to release the small White Pines and allow light to the forest floor. Patience and conducting small cuts every 15 to 20 years will yield an uneven aged stand. The timing of the cut ought to be when the Basal Area reaches 110 square feet per acre. The Red Maple should be thinned to yield valuable saw logs.

Due to the high-water table, harvests should be conducted during a dry time of year (July, August) or frozen winter conditions to limit damage from rutting and soil erosion.

Stand #2 has a trail system through the forest and this must be protected. NBFC recommends that no trees are cut within 75' of any trail. This practice in addition to an uneven aged stand management will help to preserve a dense woodland experience.

Before any TSI work is conducted on Red Maple, sample cores should be taken on a few trees. These cores will help determine the quality of the Red Maple. Trees that show heart rot or small amounts of white sap wood are not commercially valuable. Red Maple with 100 feet of any wetland or small stream is to be left to protect the water quality and wildlife needs. Red Maple outside the wetland area should be removed during logging operations and used for firewood, opening areas for White Pine regeneration. If the samples reveal that the trees have commercial value, TSI is warranted.

When the Eastern Hemlock is of a small diameter, the trees should be monitored for Wooly Adelgid and Elongate Hemlock Scale. See stand #1 for recommendations if Scale or Adelgid is identified.

Stand #3

This stand is 1.2 acres with a soil type of LvA – Leicester.

The stand is predominantly Red Pine with a small quantity of Red Maple and Red Oak. There is one sample plot in this stand and the results are as follows:

Red Pine – Average Diameter – 9”

Average BA/Acre – 22

Average BF/Acre – 1180 BF

Red Maple – Average Diameter – 13”

Average BA/Acre – 26

Average BF/Acre – 1910 BF

Red Oak – Average Diameter – 9”

Average BA/Acre – 8

Average BF/Acre – tree size too small for BF calculation

There is a trail which passes through stand #3. The stand should be left to grow until the volumes are commercially valuable. A 75’ buffer is to remain on either side of the trail and no harvesting is to take place within the buffer.

The management goal of this stand, as all stands in the forest, is to develop uneven aged stands with diversity of species.

Red Oak trees should be left for regeneration of the Red Oak and mast production for wildlife.

Stand #4

This stand is approximately 4.0 acres in size. There are two (2) sample lots in the stand. The soil type is LvA-Leicester.

The stand is mostly White Pine with some Red Maple and Eastern Hemlock. If the Red Maple trees are found to be sound and of good quality, they should be thinned to maximize growth.

Access for harvesting and TSI work is by way of Greenfield Rd, Class VI road.

Stand #5

Stand #5 consists of approximately 12.6 acres. There are six (6) sample plots. The soil type is LvA. This stand is composed of primarily small Eastern Hemlock and a small quantity of large White Pine.

White Pine – Average diameter – 14”

Average BA/Acre – 18

Average BF – 239.25 BF

Eastern Hemlock – Average diameter – 10”

Average BA/Acre – 44

Average BF/Acre – 239.25 BF

Red Maple – Average diameter – 11”

Average BA/Acre – 31

Average BF/Acre – 218 BF

There are trails in this stand. A 75’ buffer shall be maintained on either side of the trail. The stand borders the small pond area. Any harvesting or TSI work should not be done within 100’ of this pond and wetland. This will protect the water feature and the wildlife habitat.

The Eastern Hemlock should be monitored for Wooly Adelgid and Elongate Hemlock Scale. If identified, see stand #1 for management.

If this stand does not become infected with Wooly Adelgid or Elongate Hemlock Scale, it will require TSI. This TSI work shall consist of clearing small areas so that sunlight can reach the forest floor and therefore Red Oak and White Pine may regenerate. A small number of these patches should be completed every 15 – 20 years until an uneven aged stand is created.

Stand #6

Stand #6 is 3.1 acres in size. The stand abuts the small pond area. There is one sample plot in the stand. The soil type is CmB. The stand is primarily White Pine with lesser quantities of Hemlock and Red Oak.

White Pine – Average diameter – 13”

Average BA/Acre – 104

Average BF/Acre – 10,777 BF

Eastern Hemlock – Average diameter – 9”

Average BA/Acre – 5

Average BF/Acre – 2160 BF

Red Oak – Average diameter – 18”

Average BA/Acre – 33

Average BF/Acre – 3480 BF

The 100’ buffer zone should be maintained. If the Hemlock is infected with Wooly Adelgid or Elongate Hemlock Scale, see stand #1 for recommendations.

The White Pine is reaching a basal area where harvesting will be required. This target basal area is 110 square feet per acre. When the basal area is reached harvesting should be completed in small patches or inferior quality trees should be removed. The goal is to achieve an uneven-aged stand with genetically

superior trees. The Red Oak should be harvested only when the basal area reaches 75 square feet per acre.

Leaving Red Oak trees as mast trees is important for wildlife habitat. When Red Oak is in the 20" DBH size class the tree mast production is at the maximum.

The remaining 8 acres are shallow standing water. This body of water is used by a variety of wildlife. Protection of water quality is an important aspect of this management plan.

Goal Implementation Criteria

All forestry operations shall be planned by the NBFC, assisted by the NH Hillsborough County Forester and a licensed forester, as needed. Actual harvesting operations are limited by the following parameters:

1) Small mechanical logging equipment only is to be utilized to limit soil damage.
2) Bio-mass tree harvesting is not recommended for this forest except if there is an infestation of Wooly Adelgid or Elongate Hemlock Scale.
3) Slash is to be left on the forest floor and cut down to a height of less than three (3) feet. The practice of leaving slash on the forest floor will serve to decrease soil erosion and protect seedlings from temperature extremes. The nutrients from the slash will be added back in to the soil and micro-habitats are created for small mammals, birds, and reptiles.
4) Use of herbicides and pesticides is not permitted.

5) Timber Stand Improvement (TSI) shall be accomplished to promote the most vigorous trees and those that appear to be the most genetically superior. During the harvest, caution shall be exercised to avoid damage to existing seedlings and other trees.
6) No harvesting of trees within 100' of a water body or wetland.

7) To protect the aesthetic value of the trail system, there shall be no harvesting or TSI within 75' of a trail.
8) The market price of various species of timber shall be considered carefully before any harvesting takes place.
9) Harvesting is to be conducted in the winter or at a dry time of year (July, August, September).

10) Care shall be taken to protect streams, wetlands, and the pond during harvest. Best Management Practices (BMP) shall be used to stop erosion and lay out skid trails.

11) Public – The forest is owned by the Town of New Boston. The forest shall be open to the public during harvesting operations. Opportunities for education of the public and school children may exist during the harvest.

Forest Management Activity Schedule

2019 – Monitor Eastern Hemlock for pests.

2020 - Monitor Eastern Hemlocks for pests.

Take core samples of a few Red Maples to determine quality. If found to be of good quality, conduct TSI to improve Red Maple growth rate.

Check boundary lines and repaint.

2021 – Monitor Eastern Hemlocks for pests.

Check Basal Area on stand #6.

Open patches in a few areas in stands #2, #4, #5 to help regeneration of Red Oak and White Pine.

2022 – Monitor Eastern Hemlock for pests.

Possible harvest in stand #6 if Basal Area is 110 square feet on the White Pine.

2023-2028 Monitor Eastern Hemlocks for pests.

Check boundary lines and repaint boundary lines every 5 years.

In year 2028 – Do another series of patch cuts to build an understory.

Soils

CmB – Canton

Site Index White Pine – 58

Red Oak – 52

Windthrow and seedling mortality – slight

LvA- Leicester/Walpole

Site Index White Pine – 68/69

Red Oak – 56

Hemlock – 54

Red Maple – 69/75

Windthrow and seedling mortality – severe

PiA – Pipestone

Site Index Red Maple – 56

Windthrow – slight

Seedling mortality – moderate

Trees to plant:

CmB – White Pine, Red Pine, White Spruce

LvA – White Pine, White Spruce, Norway Spruce

PiA – White Pine, Norway Spruce

BpA – Borohemists – standing water pond. No trees to be planted.